The Sheffield Hallam University Built Environment Research Transactions

2014 Volume 6 Number 1 ISSN 1759-3190

Purpose of the Series

The aim of this publication is to provide an opportunity for students to publish the findings of their undergraduate or postgraduate work. Guidance on publication will be given by staff who will act as second authors. It is hoped that by providing a guided transition into the production of papers that students will be encouraged throughout their future careers to publish further papers. Guest papers are welcomed in any field relating to the Built Environment. Please contact E.A.Laycock@shu.ac.uk. A template will be provided on request.

Acknowledgements

The editorial team would like to acknowledge and thank Will Hughes, Professor in Construction Management and Economics, University of Reading for permission to use the ARCOM template and the associated resources.

EDITORIAL

Welcome to this edition of the Transactions. For the first time since BERT came into existence I have been placed in the happy position of having to decide whether to go with a single edition or to split into two documents. The volume of papers being submitted shows in my mind the increased confidence of our student authors. The commitment of our alumni to circulating their academic findings outside the narrow community of students should not be underestimated. It takes a lot of courage to produce a paper from dissertation work. I hope that the support we offer encourages at least some of our alumni to publish later in their careers.

As always I am very pleasantly surprised by the quality of student submissions to the journal and interested to read the summary of their findings. Staff and students work hard, and I would like to take this opportunity to thank them for their additional efforts for the journal. I would also like to thank the editorial board and the reviewers for their diligent work and feedback to support this publication.

Prof. Elizabeth Laycock

Editor, Built Environment Research Transactions

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AN EVALUATION OF THE GOVERNMENT'S CONSTRIBUTION TOWARDS THE RECOVERY OF THE HOUSEBUILDING INDUSTRY

Joseph Jackson[1]

[1] *Built Environment, Faculty of Development and Society, Sheffield Hallam University.*

This paper centres on the varying schemes and initiatives launched by the government between 2008-2013 to instigate a recovery in the housebuilding industry. Within this period the UK economy and, in particular, the housebuilding industry, experienced its worst economic crisis in a generation. Initially, on the basis of preliminary research, the hypothesis was drawn that overall government contribution to the housebuilding industry had been insufficient over the course of the period in question. Following extensive literature review the use of structured interviews and a detailed case study were selected as being the most beneficial way of generating the necessary data in order to satisfy the aims of the study. The results were then discussed, drawing the conclusion that overall government contribution had not been sufficient towards the recovery of the housebuilding industry between 2008-2013.

Keywords: government initiatives, housebuilding industry, help to buy

INTRODUCTION

This investigation sets out to evaluate the Government's contribution towards the recovery of the housebuilding industry. This topic has been chosen following reports of recent growth in the sector, with the Office for Budget Responsibility's Autumn Statement (Dec 2013, p13); highlighting both an increase in house prices as well as the volume of property transactions rising by 22.6% throughout the UK, since their March 2013 forecasts

Following on from the launch of Help to Buy; the housebuilding industry has become a topic of debate amongst many stakeholders. Each has differing views on the level of government contribution or the extent to which the industry must rely on these contributions, allowing much scope for investigation.

An extensive literature review was initially carried out, with the information gathered allowing further development of the research rationale. The collation and analysis of primary data through both the conducting of interviews and the use of a case study

[1] joseph.jackson@jacksonph.co.uk

assisted in satisfying the aims and objectives of this piece. The aims of the primary data collected were to both highlight the proportion of new build properties that were purchased under government incentives compared to those that were not; plus to identify the perspectives of the housebuilder and those purchasing these new build properties. The findings from the primary data was then cross referenced in order to draw reasoned conclusions to answer the hypothesis in question that the government contribution had been insufficient in aiding the economic recovery of the housebuilding industry.

RATIONALE

The aims, objectives and preliminary findings from the literature review each contributed to the research strategy chosen to perform the study. Prior to gathering any data, it was important to identify the range of methods available and assess which would be better suited to satisfy the aims and objectives and evaluate the hypothesis.

The literature review is the primary means of displaying secondary data, however, due to the broad nature of the topic it was important to use data from secondary sources to supplement findings from primary research. Annual reports from a number of national housebuilders were researched and key figures displayed through bars, charts and graphs. The use of secondary data was to assess trends between 2007-13 and identify the impact of the recession on the housebuilding industry.

Using a case study allowed the analysis of data from a central source. A "live" housing development was selected. Works commenced in 2005, which eliminated factors such as site set-up contributing to a low number of sales. The case study allowed the assessment of wider implications that may not have been available through interviews or questionnaires. Assessing the data in its natural setting also eliminated risks of demand characteristics. According to Denscombe (2010, p57), it is good practise for a case study "to be chosen deliberately on the basis of specific attributes to be found in the case." These attributes ranged from legal completions and average selling prices to how the plot was financed, for example government incentives.

Interviews can be an important tool for collecting facts as well as opinions. According to Naoum (2013, p54) "the interviewer asks respondents questions designed to elicit answers pertinent to the research hypothesis." Three interviews were carried out with participants who worked as sales consultants for national housebuilders. Structured interviews were adopted, involving all participants answering the same questions, allowing more accurate findings. This method also allowed the answers to be explored more effectively as to the reasoning behind them. Sampling was selective, allowing only those with detailed knowledge and experience to participate, which further enhances the credibility of the findings. Prior to these interviews a pilot interview took place, checking that particular questions were appropriate to test the hypothesis and avoid missing important topics.

A very large amount of primary data was gathered in this study. Analysis of the case study involved creating a unique code for each plot based solely on the financial year of the developer that the plot legally completed which allowed these plots to be compared to data gathered from the annual reports of national housebuilders.

LITERATURE REVIEW

Impact of the recession

The most recent recession that took effect from 2008 was deemed as one of the worst in history, infiltrating many sectors and particularly taking a "firm hold on the UK housing and construction sectors" (Monaghan, 2009). Parkinson et. al, quoted by Maddedu (2012, p568) offers a summary of this impact, whereby "lenders won't lend, borrowers can't borrow, builders can't build and buyers can't buy." This indicated an early need for government investment in the housebuilding industry. This need can be supported by findings that private housebuilders were predicted to complete little over 120,000 homes in 2010, the lowest since 1923 (Milligan, 2010).

The recession also had a drastic effect on consumer confidence throughout the industry. The decline in asking and selling prices meant potential purchases were reluctant to buy a property due to the risk of falling into negative equity. Bellway Homes (2008) believed private sales suffered because of a "swift change in consumer confidence." This view was supported by Taylor Wimpey (2008), claiming the global economic crisis had a "detrimental impact on customer confidence, meaning that many potential customers who could obtain finance chose to delay their house purchase." This is however based on the assumption finance was available to these purchasers, which was largely not the case; with varying sources suggesting a decline in the amount of mortgage products available and a significant decline in mortgage approvals. For example Redrow's 2008 and 2009 annual reports found mortgage approvals declined from 33,000 in July 2008 (already 67% lower than their previous trading year) to 28,000 in 2009. According to their chairman's statement (Redrow 2008, p7), "as a result of mortgage lenders tightening their criteria, the availability of funding has become scarce."

Many companies throughout the wider economy were forced to cut jobs as a result of reducing costs during the recession. July 2008 saw approximately 3,000 job cuts by three housebuilders, showing the early impact the economic downturn had on employment in the sector (Reisner, 2008a). Figures released by the Office for National Statistics (2012) showed a decline in UK employment numbers within construction and a sharp reduction in housebuilding of 20% between 2008-9. Barratts (2008) were amongst those reporting "additional cost saving measures to take account of further deterioration in the market," with job losses forming part of these measures.

House prices were also significantly impacted by the recession. According to Donnell (2008), by mid-2008 the housing market saw "the largest single monthly fall in house prices since 1992." Although attributable to the housing market as a whole, it would have significantly impacted upon housebuilder's turnovers and subsequently their ability to reinvest in new land and commencing new developments, coinciding with reports of sites being stalled. Supporting figures released by Nationwide (2009), cited by Hall (2011), found a 22% drop in house prices between September 2007 and March 2009, showing the situation continuing to worsen after Donnell's report. Such a decline would have been damaging to many developers, as site budgets generally derive from the land purchase price, construction costs and profit margins to establish the required selling price.

Government Initiatives 2008-2013.

At the beginning of the financial crisis, Slaughter (2008) explained the housebuilding industry had "been demanding Government action," with such measures as stamp duty exemption in an attempt to boost the industry. By September 2008, the government responded by abolishing stamp duty on properties worth up to £175,000. With the average property at £165,000 this was the equivalent of a £600m investment (Mulholland, 2008). However, the delay in reacting to the impact of the recession on the industry meant up to 215,000 people missed out on this benefit. Further, some sources believed that the threshold should have been much higher. Melanie Bien, cited by Goff (2009), an independent financial advisor at the time, suggested "in not extending the exemption to all properties, the chancellor has missed an opportunity to boost the housing market." This view was echoed by the HBF (2009), calling for a number of reforms, including extending the stamp duty holiday and increasing the 0% threshold to properties worth up to £250,000. These views suggest that the government had failed in their initial attempts to boost the housebuilding industry. However, the government did react to these criticisms by lifting this threshold between 2010 and 2012 in an attempt to recover the industry.

There is a large body of literature that delves into the successes, failures and rationale behind equity schemes launched by government throughout this period. The aim of these, whilst a lack of affordability and availability of loan to value mortgages were damaging the performance of the housebuilding industry; was to provide equity loans to purchasers who could only afford a deposit as low as 5%. Unsurprisingly, these equity schemes were seen favourably by housebuilders. With regards to NewBuy, launched in 2012, it was seen to "provide the sector with an important advantage against the larger, second hand market" (Barratts, 2012). In Taylor Wimpey's 2012 Annual Report a strong interest in the scheme was expressed by their customers, again highlighting a positive contribution from government to stimulate the market. However, it was also seen by many that this particular scheme did not have as significant impact as the housebuilders seem to suggest, with Norwood (2012) explaining how Newbuy "may support a limited number of first-time buyers, its impact will undoubtedly be offset by the stamp duty holiday. This suggests perhaps that government replacing one policy with another was counter-productive in achieving the best possible outputs in the sector.

It would also appear that the initial government equity scheme, HomeBuy, was largely unsuccessful in stimulating the housebuilding industry. According to Jones (2009), CML director Michael Coogan had deemed the scheme "unlikely to significantly improve prospects for higher market activities." This was supported by figures showing that between March-April 2009, a staggering 1,150% decline in purchases under HomeBuy (York, 2009).

The latest equity scheme, Help to Buy, again has mixed opinion throughout the industry. The RICS (2013) in their housing commission report stated "successive governments have not produced a coherent long-term strategy." Murray (2013) highlights this further, stating "first-time buyers need cheaper homes, not greater availability of debt." This supports popular views that Help to Buy is creating a housing bubble and further fuelling the risk of purchasers over-borrowing, which arguably contributed to the credit crisis in the first place. However, there can be absolutely no doubt this scheme has provided a huge stimulant to the market. The BBC (2013) found Barratts had experienced a 34.7% increase in sales in the first

three months since the launch of Help to Buy in April 2013, also described as "the latest in the industry to report a boost." This shows, initially, a very strong contribution from the government, earmarking growth in the sector.

Reliance from housebuilders and their own marketing strategies.

The current outlook on government initiatives focuses primarily on Help to Buy, a popular opinion being that a soar in sales during 2013 were heavily reliant on this scheme to recover the industry. In Taylor Wimpey's 2013 trading update, they reported "increased consumer confidence, underpinned by both generally improved access to and affordability of mortgage finance and by the recent Government measures." This also shows the contribution by banks to lend however the increase in lending could have been a result of the Funding for Lending Scheme, another initiative launched by government, further highlighting a positive contribution towards the recovery of the sector.

However, praise of these equity schemes from housebuilders could simply be in order to avoid incentivising their stock themselves. In a report by Wilson (2014), Persimmon appeared confident that they had the funds to incentivise sales through "part-exchange schemes, and its own equity offering," supporting this view and showing whilst Help to Buy made significant contributions, the overall reliance on it was perhaps not as much as commented elsewhere. This is perhaps supported by Anon (Construction News, 2013), whereby Telford Homes had not made a single sale under Help to Buy, yet had seen an 18.5% increase in profits. This was due to lower demand for the scheme within London, which had not shared the experiences of other regions across the UK during the recession.

Despite the success of Help to Buy, the initiatives prior appeared to have mixed results. It would be reasonable to accept that, despite during a period housebuilders may have relied on government intervention the most, HomeBuy had little effect on improving the sector. For example, Redrow (2009) appeared to have introduced the scheme "on a targeted basis as an aid to sell stock properties." This shows, at least for this housebuilder, it was not used to stimulate a recovery but merely to dispose of existing stock to mitigate losses. The later scheme FirstBuy, on the other hand, appeared to have been seen favourably by housebuilders in stimulating the market. Announced in March 2011, Barratt Homes proceeded to advertise the scheme on their website almost instantaneously; showing a reliance on FirstBuy to market their product during the recession (Jones and King, 2011).

Throughout certain periods of the recession, particular housebuilders have also launched their own initiatives to incentivise the purchase of their units over competitors and existing stock. At the time HomeBuy was available, Bellway (2011) had launched their own shared equity scheme "Sharp Start." This showed housebuilders had the capability even during the recession to provide their own stimulus to the sector, showing perhaps a lesser reliance on government contribution. However, both schemes simultaneously produced only 10% of their 4,922 sales, showing that the market preferred different means of purchasing new build homes and government contribution was somewhat inadequate.

As well as trying to match government initiatives, housebuilders also offered other schemes to potential buyers. A popular scheme was the part-exchange of their existing property to contribute towards their purchase of a new home. This alleviated

problems associated with government schemes which appeared to isolate current home owners looking to purchase a new build home.

PRIMARY AND SECONDARY RESEARCH FINDINGS

Impact of the recession

A drop in legal completions is likely to have a significant impact on the performance of any housebuilder and ultimately the wider industry. Legal completions are vital in order for the housebuilder to generate revenue and subsequently contribute towards profit margins. Between 2007-2009, the number of legal completions from national housebuilders fell drastically, in some instance, as much as by 56%. These findings support Monaghan's claim that the recession had taken a "firm hold on the UK housing and construction sector" and can be seen in greater detail in Figure 1.

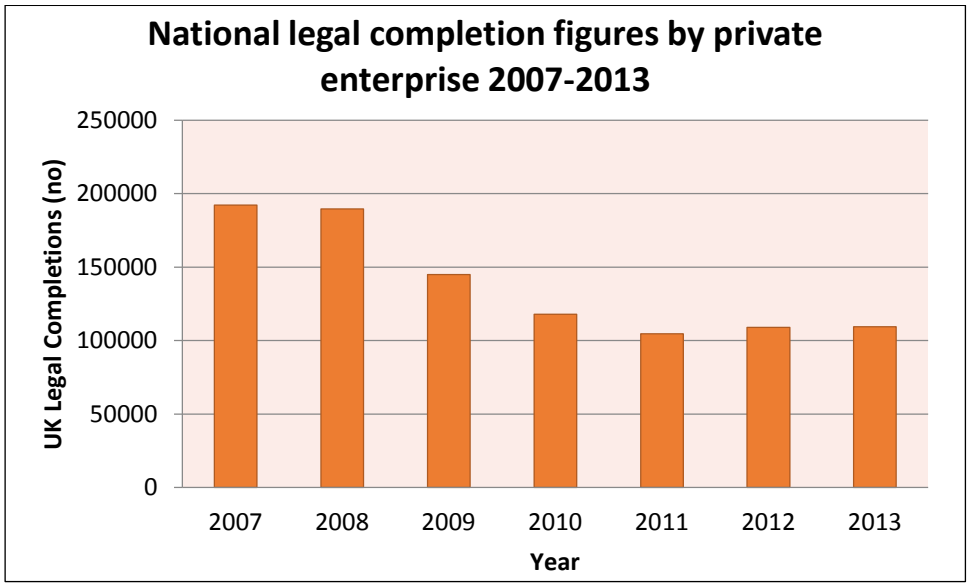

Figure 1- Legal completion figures from private enterprise 2007-13 (Department for Communities and Local Government, 2013).

These findings support those by Milligan (2010) predicting legal completions not surpassing 120,000 in 2010, contributing to the worst performance from the housing sector in almost a century. The figures displayed also show how, at the end of 2013, the number of legal completions had only marginally increased, whilst still lower nationally than they were at the height of the recession in 2009. This seems to support the hypothesis that the government's contribution to the recovery of the housebuilding industry had been insufficient. The findings from the case study echoed these findings, as shown below. Here, it was 2010 that equity schemes came into effect, showing little impact on legal completions in the form of improving the current state of the market. This again supports the hypothesis that government contribution had been insufficient.

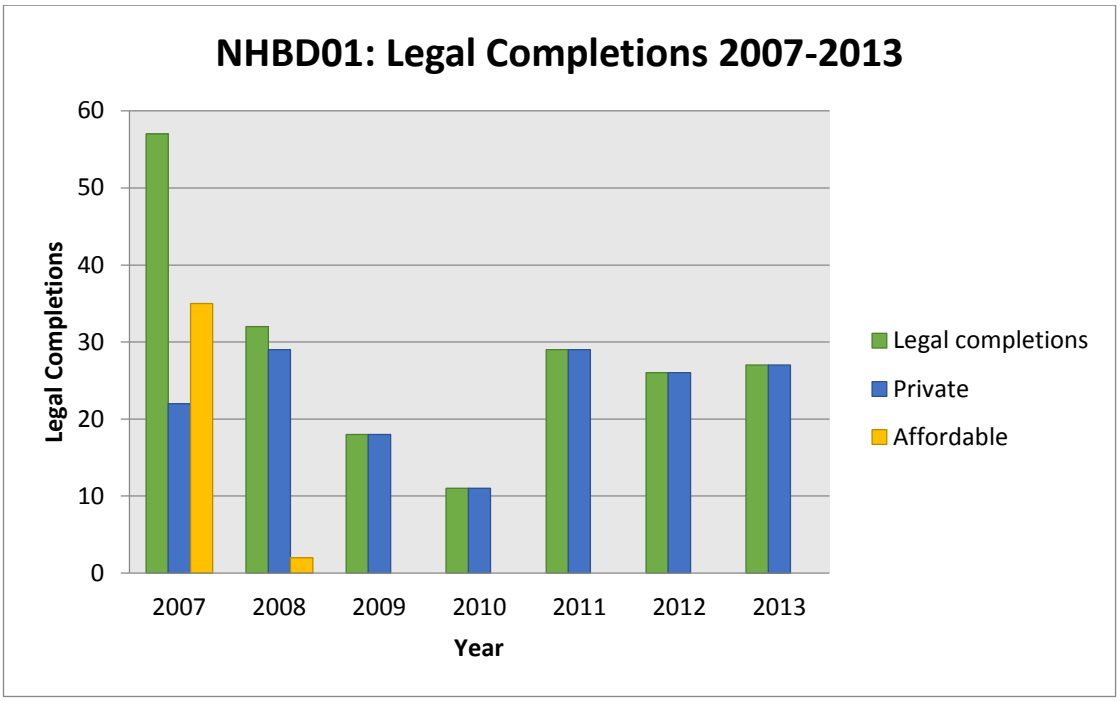

Figure 2- Case Study- Legal Completions 2007-2013

It is clear from industry publications and further statistics that there was a significant drop in those purchasing new build properties during the recession. As discussed earlier, Bellway (2008) had reported a "swift change in consumer confidence" as a reason for their reduction in legal completions that year from 6,556 to 7,683. This view was supported unanimously by each of the interviewees, as shown in table 1.

Table 1- Interview responses- Consumer Confidence

Q2. How did potential buyer's attitudes change at the start of the recession?	
Respondent	Response
NBSC01	"Everybody was far more cautious about prices going down further." "They were just taking a lot more time to make a decision."
NBSC02	"People were a lot more cautious." "They were very despondent and many did not entertain the thought of purchasing a home off plan, which had been done commonly when the market was strong." "The power was much more in the hands of the customer"
NBSC03	"Very cautious" "People looking to move backed out due to expense of both the purchase and moving home." "They were worried about job loss under the climate at the time."

A common theme from each of the interviews was the perception that the customers were "cautious." They were fearful of losing their jobs as the recession impacted not only those in the housebuilding industry but the wider economy. The drop in asking prices meant many were not only losing value on their current properties but also were slipping into negative equity. This could have contributed to potential customers backing out "due to the expense of both the purchase and moving home."

However, given the current recovery each respondent explained how customers had a lot more confidence and were more responsive to the market improving. One of the interviewees attributed this to government initiatives, whereby they had "helped ease people's minds and also helped them get out of negative equity, showing a positive contribution from government.

Results from the case study were used to determine whether there was a shift in asking prices between 2007-13. Although the case study is an accurate portrayal of asking prices specifically for new build properties, it does not give an indication as to national prices; although the wider national implications can be assumed given the findings from the literature review.

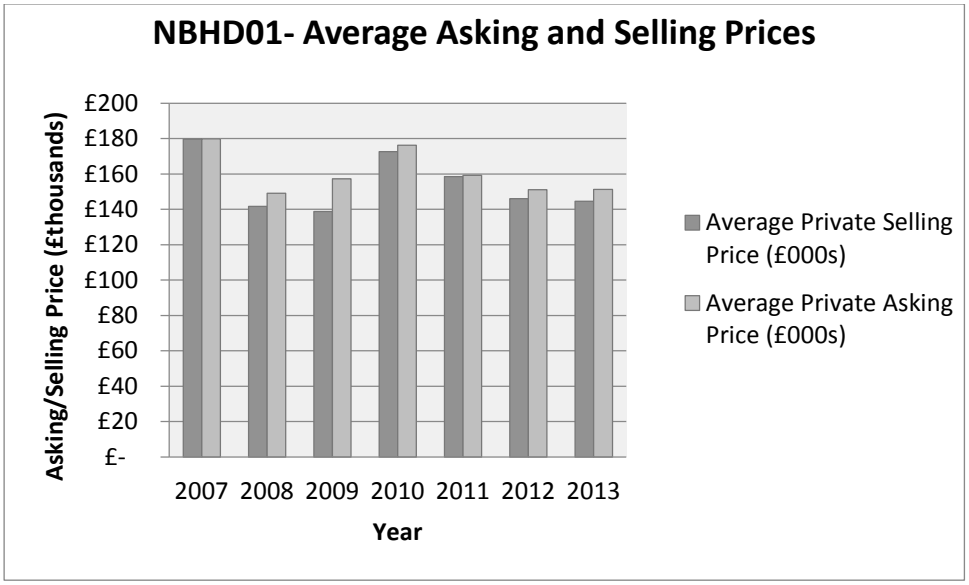

Figure 3- Case Study: Average Asking and Selling Prices

As Figure 3 suggests, the financial crisis saw a significant decline in both the asking price and selling price in the housebuilding industry. A greater concern to the housebuilder, in spite of the drop in house prices, was that plots were still sold at a lesser price than their asking price, which already would have been altered to reflect market conditions. One particular plot had a negative variance between asking and selling price of £30,000. The interviewees were asked how their companies reacted to the recession through asking prices. It was important not just to factor quantitative data into these particular findings, as specific figures that form part of Figure 3 could easily be explained or given further emphasis through participant's responses.

The responses of each of the participants all appeared to support the findings shown in the case study. It again shows that asking prices had declined as a result of the recession. The response of one of the respondents appeared to indicate the housebuilder had to react with the initial impact of the recession themselves, through

"offer[ing] a lot of discounts and incentives." This shows that in terms of the recession, the government were perhaps not proactive in attempting to contribute to the industry and aid in a recovery.

Government Initiatives

Although details on whether properties were sold within the stamp duty threshold are accessible, it is difficult to assess whether it had a direct impact on a particular sale, at least within the scope of this investigation. It was therefore important to assess this through interviews conducted, as seen in Table 2.

Q4: What impact did the stamp duty holiday have on sales?	
NBSC01	"It had a good impact on sales." "I was hoping it would raise further though." "I always had resistance over the £250k mark going to 3%; it's a lot of money and people see it as an absolute waste. But again, it's there, we can't avoid it, but it is 1% on properties under £250k."
NBSC02	"It had a big impact on first-time buyers, as it cut out one of the larger additional costs associated with moving home. It also meant they could potentially afford a bigger house up to the limit at the time." "Although it needed to be done in line with a scheme such as those available now to increase affordability, which wasn't done, especially as borrowing was still an issue."
NBSC03	"It didn't have a massive impact on sales" "The cap wasn't enough to cover the purchase of some properties and there was difficulty finding finance to purchase a house in general."
Q5: Interviewer: Do you feel this needs to be reintroduced?	
NBSC01	"Yes, it has a massive negative impact on trying to sell the more expensive, bigger properties."
NBSC02	"Yes"
NBSC03	"Not re-introduced as such. It definitely needs to be re-looked at with regards to caps and thresholds. So not particularly re-introduced but restructured."

Table 2- Interview Response- Stamp Duty

It is clear from the results in the interviews that the stamp duty holiday had a positive impact on the housebuilding industry. This is clear from the responses shown by each of the participants and would have been an important tool in increasing affordability and therefore boosting confidence in the sector; showing positive steps by the government to revive the industry. However, as respondent NBSC03 described, the threshold should have perhaps been higher, supporting Bien's view the government missed an opportunity to help the industry further.

The key equity schemes between 2008-13 were HomeBuy, NewBuy, FirstBuy and Help to Buy. Results from the case study found that each of these were used as a means of financing a new home on the particular development. When asked about the schemes interviewee NBSC01 stated "…they (government equity schemes)…

were brilliant," which could be used to justify a positive and successful contribution from the government.

It would appear that equity schemes were the most popular of the government incentives and looked at in further detail throughout the research process. In evaluating the government's contribution and whether it was sufficient, it is important to assess the extent the to which these schemes were used in delivering legal completions to the housebuilder.

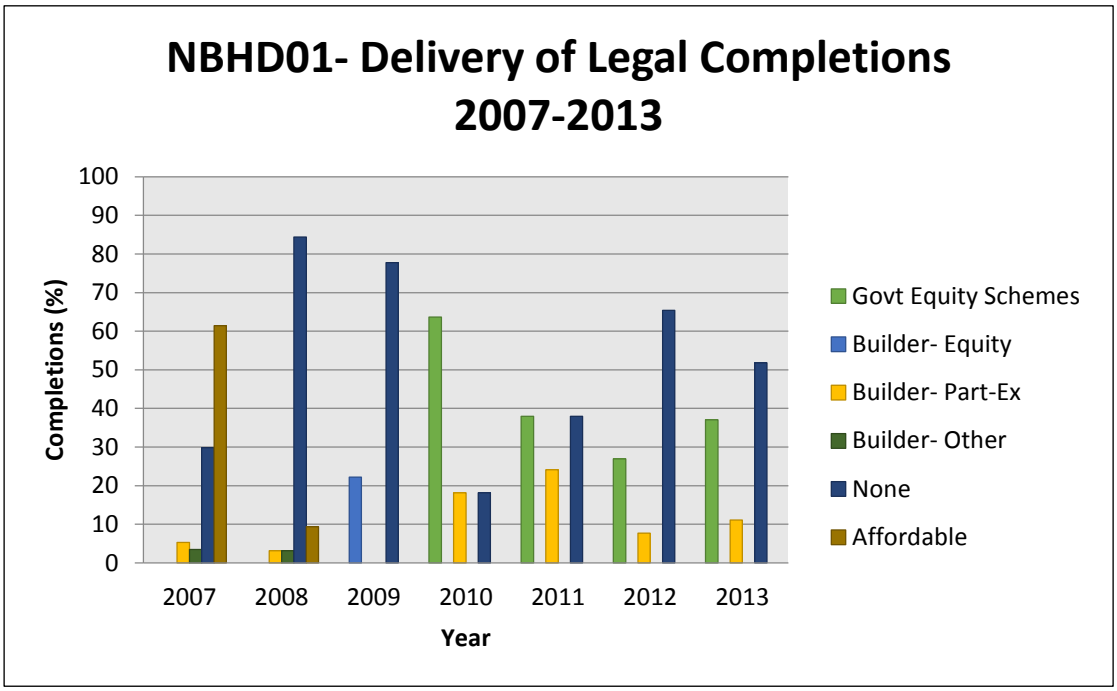

Figure 4- Proportion of Legal Completions through Government Scheme, House Builder Scheme, or Other

Figure 4 details the proportion of legal completions that were delivered through either a government scheme; a scheme offered by the housebuilder, whether an equity scheme, part exchange, or other; or the customer finding their own means of finance. With the exception of affordable properties being completed during 2007, legal completions were largely achieved through the customer using no schemes or initiatives and finding their own means of financing the purchase of a new build property on this development. This can be largely attributed to the wide range of mortgage products available at the time, prior to their sharp decrease in the years that followed.

Figure 4 also shows, despite HomeBuy being introduced in 2009, there were still no equity schemes that contributed towards legal completions in that year on the development investigated in this piece. It was again customers finding their own finance that contributed to the vast majority of legal completions; however, housebuilder's own schemes began to contribute due to the lack of mortgage products available during the recession. These findings indicate that the government's contribution at the start of the recession, despite being proactive, was inadequate in boosting legal completions. Had these schemes been implemented sooner, legal completions could have been much higher, supporting the hypothesis that

government contribution overall had been insufficient in aiding the recovery of the sector.

However, results from the interviews show that once these schemes began to take effect; the housebuilder relied on them both in the short term to generate immediate sales and in the long term to continue building. Participant NBSC01 indicated this reliance on government schemes, stating that "we (the housebuilder) heavily relied on them (government equity schemes)." When asked about the long term benefits of Help to Buy in particular, participant NBSC02 responded that "while the scheme is running it is allowing us (the housebuilder) to continue building so in effect that does give some sort of long-term boost to the builder." As Help to Buy is running in conjunction with reports of a recovery in the industry, these findings prove how this scheme represents a significant contribution from the government.

During the period when no equity schemes were available from the government; or at least during a period where the allocation of funds attributed to these schemes was not sufficient to assist in any kind of recovery in the industry, the housebuilder had to attempt to rejuvenate their performances through their own equity schemes. Each participant was asked during the interviews whether their company had launched similar equity schemes to the governments. All interviewees confirmed between 2008 and 2013 they had done. Respondent NBSC03 described how theirs "was quite popular at the time. It was on the same premise as some of the government schemes that have been introduced." This shows that the housebuilders were more than capable of offering equity schemes themselves, showing there was perhaps not an over-reliance on government. However, when asked about Help to Buy, the responses seem to contradict this view whereby they each stated how it was heavily relied upon. Respondent NBSC02 clearly indicated this describing how their own schemes were "popular with the customers, not to any extent as good or popular as Help to Buy, but there was nothing else out there at the time." This however, only shows the reliance on Help to Buy in contrast to their own equity schemes. The response indicated there was "nothing else out there at the time," arguably indicating the housebuilder had to rely on their own schemes in order to generate sales prior to Help to Buy and that government support had been inadequate.

A very common alternative method to push sales on plots was the housebuilder offering extras to the customer through "incentives." These can be either cash incentives such as contributing towards stamp duty fees or discount on the price of the property; or physical incentives, for example additional fixtures and fittings. As described by participant NBSC03, in order to generate sales "we have offered discounts. We have offered a percentage of the deposit. Within the property itself we have offered extra items such as carpets and wardrobes." Similar was offered by the other interviewees, giving further credibility to this being the norm within the industry.

It is also important within this study to evaluate the extent at which these incentives were relied upon to achieve sales. Table 3 shows the responses of the interview participants on their perception of whether these incentives were heavily relied on.

Q16. To what extent are (incentives) relied on to achieve sales?	
Respondent	Response

NBSC01	"At first [start of recession] we had to do it"
NBSC02	"We had to rely on incentives heavily. "We had to give a lot more away at the harder times."
NBSC03	"Physical incentives (carpets and wardrobes etc.) were heavily relied on when times were tougher."

Table 3- Interview Responses- Housebuilder's Incentives

It is clear from these responses that incentives were heavily relied on during the recession in order to boost sales. This is a further example of a lack of significant contributions from the government, again delaying any investment at the start of the recession until the sector was in its worst state.

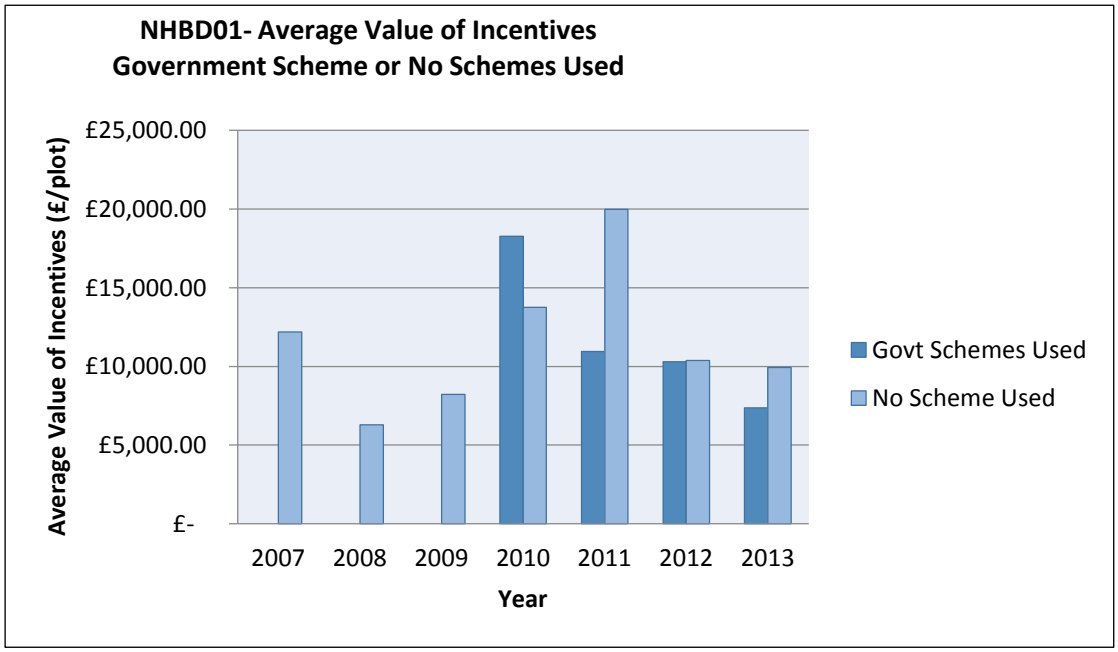

Figure 5- Case Study- Average Value of Incentives

Each of the interview participants also described once the recession was starting to ease and the industry starting to pick up again, incentives were relied on less. This is supported in Figure 5, showing that in 2008 (prior to the recession) and between 2012-13 (during the recovery) the average value of incentives were at their lowest. Although these findings do not indicate that the sale of a property within this, or any, development has been dictated by the value of incentives; it does show how government schemes had the same value of incentives as no scheme. Therefore it can be argued that housebuilder's own contribution to the industry were equally relied upon.

A further scheme offered by housebuilders between 2008-13 were part exchange schemes. Equity schemes were largely aimed at first time buyers, neglecting those who already owned a property. To some extent no such scheme being made available shows an insufficient contribution from the government to a large section of the wider market. According to interviewee NBSC03, "we have heavily relied on part

exchange during the recession." Table 4 shows the extent of this in comparison with the findings from the case study.

NBHD01- Part-Exchange Schemes			
	Part Exchange Scheme – No of Completions	Part-Exchange Deals on Stock Plots	Contribution to Private Completions
2007	3	3	14%
2008	1	1	3%
2009	0	0	0%
2010	2	2	18%
2011	7	7	24%
2012	2	2	8%
2013	3	3	11%

Table 4- NBHD01 Part-Exchanges (Case Study)

The findings from the case study support the views expressed in the interviews, 2010-11 showing a large contribution from this scheme to legal completions for this development. This is echoed in the findings shown in Figure 4 whereby part exchange deals were still being commonly used up until 2013 to achieve sales and legal completions. This shows further that the housebuilder may have equally relied on their own schemes throughout the recession and during this period of economic recovery.

DISCUSSION

From the findings both through the primary data and prior literature review; it is clear that the recession had a devastating impact on the housebuilding industry. This ultimately required a shift in procedures within the industry which ranged from decreasing build costs to reduce overheads, to providing additional facilities to enable the customer to obtain the capability to purchase a home and increasing revenues. The findings show that during that process legal completions, consumer confidence, employment, asking prices and the housebuilder's land bank all suffered and was fundamentally important to attempt to mitigate the impact the recession had on these in order to spark a recovery.

What is clear from the findings is initially government contribution was delayed and purely reactive. There were constant calls for government intervention at the start of the recession as the housebuilder was initially left to cope with the impact of the recession themselves. It was evidently not until legal completions had reached concerning levels that the government launched schemes such as HomeBuy, NewBuy, FirstBuy and Help to Buy. In looking at the wider aim of this study and evaluating government contribution throughout the entire period in question, this would therefore indicate that the government's contribution to the housebuilding industry was inadequate.

However, the findings from both the case study and interviews show that government equity schemes made an important contribution to sales and ultimately legal

completions once they had been implemented. Those that partook in the interviews were unanimous in their view that government equity schemes were heavily relied on. Figures from most national housebuilders' annual trading reports in 2013, towards the end of the period under investigation, showed the tremendous impact that Help to Buy has had on sales. On the other hand, this piece is not primarily focused on Help to Buy. The scheme being launched in 2013 further indicates that perhaps government contribution in the build up to its implementation had been insufficient in the recovery of the housebuilding industry, thus supporting the hypothesis in question.

In order to have made a more significant contribution to the recovery, there have been many other suggestions which the government could have also implemented. The stamp duty holiday, for example, could have been implemented longer with higher thresholds. Respondent NBSC02 suggested "it (initial stamp duty relaxation) needed to be done in line with a (government equity) scheme." A further method could also have been not just to have restricted the earlier equity schemes to first time buyers. This would have opened up the potential to sell many more new build properties which also shows a missed opportunity from the government. However, this would have required much more funding from the government, which may not have been available at the time. There can be numerous implications to the findings of this study on the industry as a whole. When assessing the contribution from the government, it can allow the housebuilder to identify areas whereby more needs to be done. It can allow the housebuilder and government bodies to work together to provide more economically beneficial solutions to problems that have occurred due to the recession or issues that have come to light since. For example, a common theme in the interviews with regards to affordable housing was the perception that the current legislations are not mutually beneficial and perhaps needs to be restructured in order to work more efficiently.

Further, the findings showing the extent at which certain schemes have been used could be investigated by the housebuilder in order to assess which is more popular with both the customers and sales consultants on particular developments. These findings can allow them to better market their product accordingly. Once the government schemes have expired, it will also be important for the housebuilder to identify which of their own schemes to replace them with in order to prevent a possible decline in completions. Some of the conclusions drawn and findings shown have allowed for a wide range of further study that could be carried out to either enhance these findings or focus on one particular aspect in further detail. As the primary data was primarily focused on the Yorkshire region, it is difficult to justify these findings to areas such as London or the South East. Literature suggested that in London for example there was little use of the Help to Buy scheme and it would be useful to identify which locations across the UK have relied on government initiatives more than others.

CONCLUSIONS

The aim of this investigation was to evaluate the contributions made by the government from the early stages of the recession to the recovery of the house building industry. Having analysed the findings from the primary data and implications from the review of literature currently attainable, it appears that the government contribution has been insufficient when assessing the wider period in

question. The government's reaction to the recession appears to have been reactive and replying to calls from the industry as identified in the literature review rather than a pro-active attempt to prevent such significant declines in all the key performance indicators investigated in this study.

It is clear however that there has been a heavy reliance on government equity schemes in order to allow the customer to purchase a new build property and thus increasing the supply of housing and assisting in recovering the sector. Should the study have merely been on the contribution of Help to Buy since its launch then it could be argued that the government had contributed significantly, having been seen through the increase in sales experienced by many house builders. However, reports showing that house builders are equally as capable of selling properties through their own shared equity schemes or other marketing tools help further substantiate the conclusions that between 2008-13 the government had not contributed enough.

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A STUDY INTO THE EFFICIENCY OF 'WHOLE HOUSE' VERSUS 'ELEMENTAL' PROJECT DELIVERY OF 'DECENT HOMES IMPROVEMENT WORKS', TO DETERMINE THE MOST SUITABLE METHOD FOR FUTURE IMPROVEMENT PROJECTS

Adam Storer[2]

The Decent Homes programme has been delivered for the past decade without a substantial review of the efficiency of the programme. This paper sets out to review the procurement routes and identify whether delivering the Decent Homes programme elementally or whole house was more efficient. This is through the collection of cost data and industry opinions. The industry professionals expressed an opinion that the whole house delivery route was a more efficient method as there was only one preliminary on cost per property, instead of one preliminary on cost per element, per property. Further research and triangulation of data was through the use of published literature and cost data. The research found that actually either method could be delivered efficiently and offer value for money to the client. It was also discovered that the historical data held by the clients on each individual property was out of date and inaccurate. This led to duplication of surveys, replacement of elements only a few years old and even missing properties out that required work. The future integration of increased data sharing through the Building Information Management (BIM) portal should reduce this problem and future Decent Homes programmes will be delivered with greater efficiency and the cost per element should continue to reduce.

Keywords: decent homes, efficiency, procurement, cost

[2] abstorer@googlemail.com

INTRODUCTION

The research within this paper will investigate, analyse and identify the more efficient procurement strategy of Decent Homes schemes, between whole house and elemental delivery. The housing green paper at the start of the 21st century: 'Quality and Choice: A Decent Home for All – The Housing Green Paper' (DETR, 2000) set out the government's aim to improve 100% of the UK's social housing stock to a minimum of achieving the Decent Homes Standard (DHS) within 10 years. This target was not achieved, with only approximately 92% of homes being of a 'decent standard' by 2010. In order to achieve the improvement of approximately 1.6 million homes, a budget of £19billion had been set. In failing to not only improve the numbers of properties required the spend to 2010 was £37 billion, it has since been announced by the Housing and Communities Agency (HCA, 2013) and the HM Treasury (2013) that further investment from the government is required. This additional funding is expected to total £1.7 billion, the additional investment is aimed at improving a further 127,000 homes between 2011 and 2015 and to eradicate the backlog of non-Decent Homes by the end of the financial year 2015-16. Further funding will be required to improve the homes that fall in to the 'non-decent' standard during this time, the additional non-decent properties are expected to be brought up to standard by the end of 2018 (NAO, 2010).

This research paper considers the announcement of further funding/work by investigating the route and the associated costs for the previous delivery of the Decent Homes programme. The investigation of the historical delivery will help to identify the most efficient delivery route in terms of cost and time, through the collection of cost data, interviews with professionals across a range of disciplines and finally utilising the literature already available. John Prescott highlighted that the value for money of Decent Homes as an important factor in the Department for Environment, Transport and the Regions' (DETR) 2000 housing green paper and there are very few reports investigating this. This research, through identifying the most efficient delivery model, will identify the value for money and will act as an early indicator for the future Decent Homes programme to 2018 and beyond.

RESEARCH METHODOLOGY

The research methods used focused primarily on the collection of qualitative data. The key research method was the use of interviews to further analyse the secondary data, by gathering the opinions and views of industry professionals with specific experience in the delivery models of Decent Homes, social housing refurbishment work. In order to achieve a detailed review of the industry six interviews were conducted using two professionals from the on-site contracting teams, two professionals from the consultants acting on behalf of the clients and finally two professionals within the local authorities (LA) carrying out Decent Homes work.

Quantified data has been used to investigate the element costs and the average cost per unit (property where Decent Homes work has been carried out). Further opportunities to analyse the time in properties and the number of revisits will extend the analysis of the efficiency of delivery by providing quantitative details of the qualitative responses.

LITERATURE REVIEW

Definition of Decent Homes

The proposals outlined in the government's paper 'Quality and choice: A decent home for all – The housing green paper' (DETR, 2000), states that there is a need to improve the poor living conditions of people within both the public and private housing sectors. The strategy to deliver this was to create *"a step change in the quality of stock ... ensuring that all social housing is of a decent standard within 10 years"* (p11). Decent Homes Guidance, in July 2001, 'A Decent Home - the definition and guidance for measurement', outlined the limitations set for the classification of a 'decent' home. This described the minimum standard each property must meet in order to receive funding. Over the course of the last decade, since this publication, there have been a number of revisions to the definition of a Decent Home. The most recent revision was by the Department for Communities and Local Government (DCLG) in June 2006, in response to the Housing Act 2004 and specifically the Housing Health and Safety Rating System (HHSRS). This revision defines a 'non-Decent Home' as failing to meet four criteria:

a) It meets the current statutory minimum standard for housing

b) It is in a reasonable state of repair

c) It has reasonably modern facilities and services

d) It provides a reasonable degree of thermal comfort

(DCLG, 2006)

Identify current industry practice / opinion of whole house & elemental project delivery

The 2010 National Audit Office (NAO) review of the Decent Homes programme identified the previous delivery models with Figure 1 showing the distribution:

	Whole house (%)	Mixed (%)	Elemental (%)
ALMOs	21	39	34
Traditional Registered Social Landlords	7	41	48
Transfer Registered Social Landlords	13	39	46
Retaining local authorities	4	49	47

Figure 6 - Decent Homes delivery methods (NAO, 2010 [a])

The largest mean percentage is the improvement of properties via the elemental approach where the mean is calculated to 45%, only 12% of Decent Homes programmes are seen to be delivered using the whole house approach and an average of 43% of Decent Homes programmes delivered with a mix of both elemental and whole house.

The National Audit Office (2010) report further analyses the average cost per property by assessing who is delivering the work: either a local authority or an Arm's Length Management Organisation (ALMO). The cost data within the report shows the first seven years of the Decent Homes programme. Caution should be taken when reviewing the published data as the ALMO stock may have been in greater disrepair and therefore required a higher level of investment than the Local Authority stock and there was an *"[in] completeness and [poor] quality of data on the number of homes made decent"* (NAO, 2010 [b], p32).

PRIMARY DATA COLLECTION

The data collected has been analysed against the research goals, triangulating the data through the literature, secondary data and primary data, to determine the hypothesis. The main form of data collection was through interviews with industry professionals triangulating these results by reviewing and analysing the Decent Homes cost archives.

Primary data analysis

Within the interview data collection, the industry professionals raised a number of points where common themes across the different working perspectives were found. The low level of Local Authority experience in delivering large capital construction projects and the minimal pressure to deliver efficient schemes of work led to a chronic failure by councils across the UK missing the Government deadline of 2010 and overspending the budget of £19 billion. The initial pressure from the Government to show willing and investment commitment caused tenders to be issued with incomplete housing stock data that created grossly under or over estimated workloads leading to disputes between the contractor and the client. The contractor partnerships provided an increase in 'soft benefits' of main contractor input, such as the skills training of local workforce although this began to disappear toward the end of the decade when Local Authorities were unable to commit long term investment and only issued contracts of two or three years.

The experiences of the industry professionals in delivering the elemental route of the capital investment were almost unanimous in respect of the difficulties. As the housing stock was not distributed evenly across the jurisdiction of each Local Authority, it amounted to contractors working 'on top of each other' (interviewee 004) and even having two or three contractors carrying out work in a property in the space of a few weeks, each contractor with different processes and procedures, causing confusion for the tenants and unnecessary preliminary costs to be expended. The early investment schemes allowed too much freedom within the main contractor's partnering agreement, where some main contractors delivered elemental programmes of work on a contract designed and agreed to be delivered via the whole house approach, therefore a review of the final accounts show extremely high on costs. Many of these issues occurred because the control over the contractors was not achieved in the same way a 'Standard Decent Homes" form of contract could have.

Figure 2 shows a summary of the points raised by the six industry professional, the grouping is by the Professional's working perspectives within the Decent Homes programme delivery.

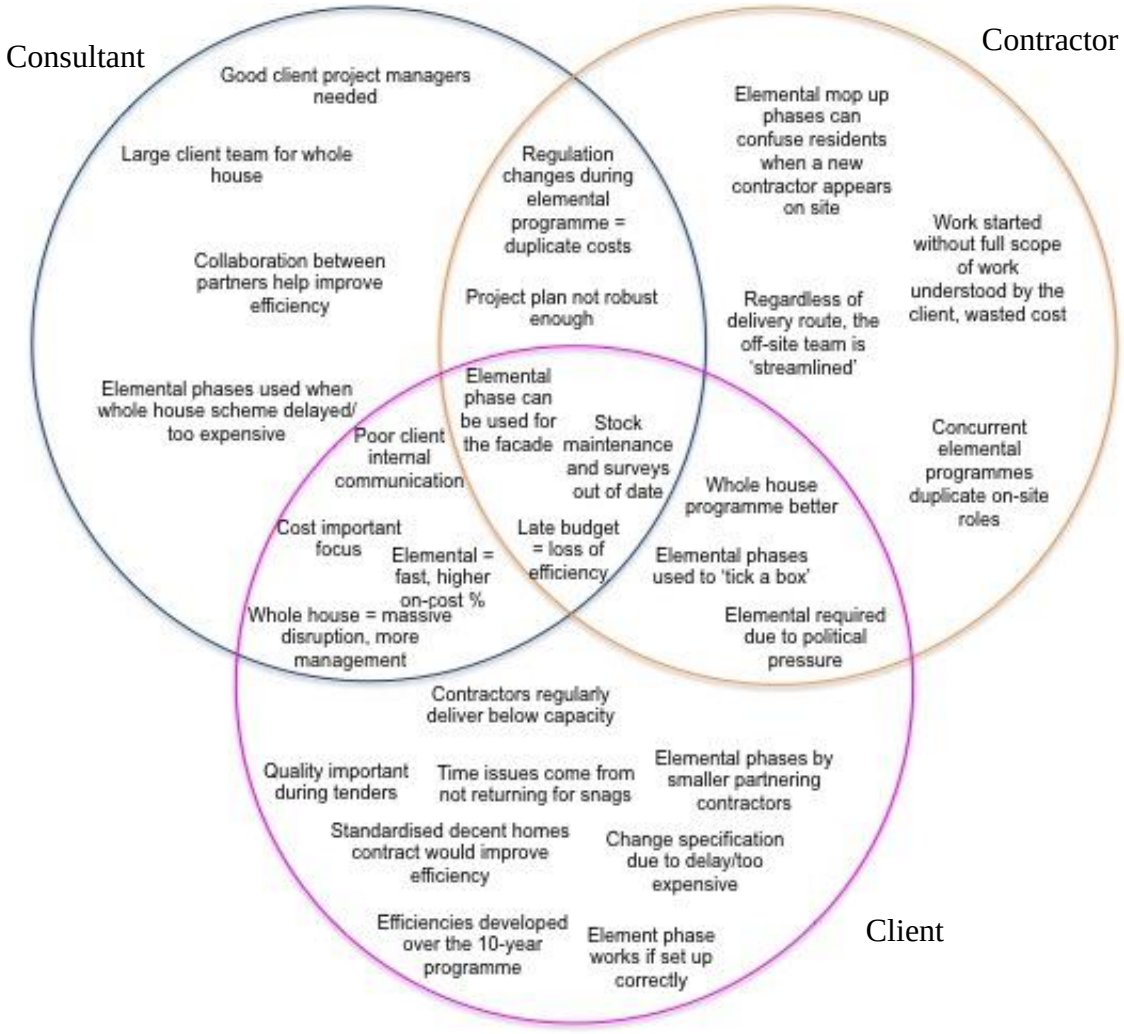

Figure 7 - Venn diagram showing the distribution of interview phrases

Secondary data collection

The cost data has been analysed from the published Local Authority Housing Statistics (LAHS) and Business Plan Statistics Appendix (BPSA) where the annual data for year on year changes has been compared to the cost data collected through the identification of industry practice for published data between 2011 and 2013 inclusive. Figure 3 shows the spread of per property costs across all of the English local authorities for this three-year period, showing that the mean was £4,300 and the median was around £3,266. The author notes that the figures calculated for the median are significantly lower than the mean, suggesting that there are some outliers of extremely high cost in comparison to the main cluster of data.

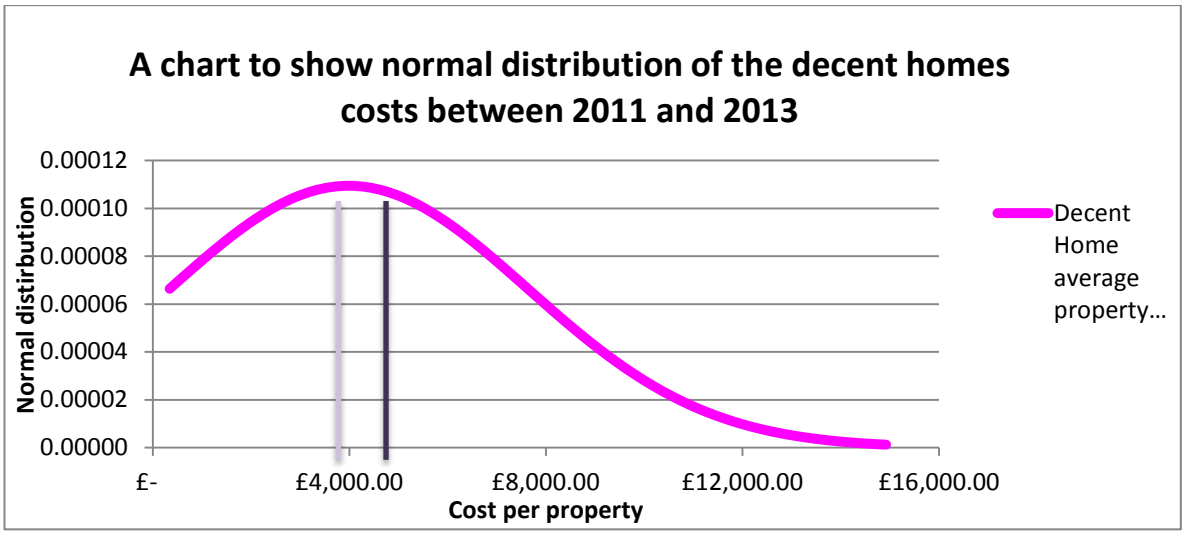

Figure 8 - Normal distribution curve for the Decent Homes cost 2011 – 2013 LAHS (2013), LAHS (2012) and BPSA 2011)

The average standard deviation is only £650 from the average cost; this shows that the costs per Decent Homes programme vary. A Kruskal-Wallis test was used to determine if this was significant across all data which showed that there is 0.221 probability that the datasets will fall outside the expectations and that the data sampled showed significant variance. This shows that there is not a standard delivery route or a set budget for each property to bring it to a decent standard. t per property.

The secondary cost data collected shows that there was a large variance in the cost per property to achieve the Decent Homes standard. Further analysis of the data has shown that the extremely high cost per property was around the level of the cumulative total in each year. This would suggest that few local authorities, an average of two each year, improve their housing stock across every element available. This could be an indication that whilst some local authorities may have delivered a whole house Decent Homes programme, the majority didn't target every element available.

DISCUSSION

To define efficiency in terms of its effect on Decent Homes

Defining efficiency in relation to Decent Homes has been identified as: being able to achieve improvement works to greatest number of properties, within the timescale required and for the cheapest price. The interviewees within the research all agreed that the cost is the focal point when it comes to the contract procurement for the programmes. With one of the interviewees stating that the cost is 80% of the programme focus, which can be the pure cost but also include the efficiency of the programme, which itself can have a significant effect to the 'on-cost' of the scheme. This is perceived to show that the project cost efficiency is seen as very important by the client and the cost focus dictates the delivery of the programme. The efficiency of Decent Homes depends on a few factors, what elements of Decent Homes are being improved, what is the scale of the programme (number of properties / elements), how is the programme being delivered (whole house or elemental), what is the time frame on the programme, how is the programme being managed (number of resources, use of consultant etc.) and how many contractors are delivering the work? All of these

questions define the efficiency of Decent Homes. This author believes that the data presented shows that any given programme has its maximum efficiency defined before the delivering contractor is procured, this is because at this stage every key factor has already been decided and very little can change after the work commences.

To identify the current industry practice and opinion of the two methods

The literature indicates that most Decent Homes programmes are still being delivered on an elemental basis, conducting multiple visits to properties in order to bring the homes up to a 'decent standard'. The commonality of the elemental programmes has been met with negativity by the interviewees, saying that it is an inefficient method of carrying out the Decent Homes work: duplicating the on costs, extending the programme and potentially disrupting tenants for small periods of time over a few years. Interviewees 004 (2014) and 006 (2014) stated that the elemental programmes are just used to *"put a tick in a box"*, to show that improvements have been carried out. Although it was agreed across the interviewees that the delivery of some external elements such as windows and doors could be conducted early in the local authorities' programme in order to improve the façade / streetscape, thus giving an outward indication that work will be carried out. Possibly to allay the tenants' fears that the work will be disruptive, long or never be completed.

The primary data has suggested that a main reason for the failure of the elemental programme choice is because of the poor records of historical improvement works and even the pre-construction surveys being incorrect. One reason for the poor stock information is that the English Housing Survey (EHS) (formerly English House Condition Survey) was only recorded in five-year cycles commencing in 1991 (Poverty, 2013), this was until 2003 when it became an annual data survey (coinciding with the second year of the Decent Homes programme). From the data collected it is possible to surmise that the first year of Decent Homes relied heavily on the EHS and saw that the data held was inaccurate, causing errors in the programmes being delivered. To combat this, the English Housing Survey programme began to run annually from 2003, which it continues to do, in order to improve the accuracy of the housing stock information. The annual survey of the housing stock does help to keep a better record than previously, but the information is still being found to be out of date when the Decent Homes work is due to commence, which could be alleviated by the introduction of Building Information Modelling (BIM), also known as collaborative working. The specialised software will allow the seamless data share between interested parties of details and may include a 3D design model, the specification and the building maintenance schedule with the possibility to save millions of pounds of public funds.

With inaccurate survey / scope of works information the client may end up with an unsuitable budget. The client may have either too many elements or too much budget for the programme, which is equally a bad situation. Over budgeting is a poor situation for a couple of reasons. The local authorities have a pressure to spend the full budget allocation, or the following year they may see a reduction in budget to match the previous year's spend. This can lead to rushed contracts, issuing small packages of work between January and March, aiming to spend the money completing non-urgent work. This is an odd situation to be in, with interviewee 002 (2014) proposing that these packages are usually inefficient, as the clients seem to be

wanting to waste money in order to achieve the spend targets, agreeing contracts without the correct information at tender stage, causing issues throughout the whole programme. This could be a separate research topic, investigating the pressures and the culture that allows the local authorities to deliver to a maximum budget rather than trying to achieve full value for money.

The sampled cost data shows that only six councils delivered Decent Homes programmes where the average cost was around the cumulative cost for all elements, suggesting that these councils delivered every element available in the Decent Homes Standard and also included the energy efficiency work and work classified as 'other'. The further research shows only another 19 local authorities delivered programmes with an average property cost of over £10,000. When investigating the detailed build-up of element costs for these particular schemes, the trend shows that these programmes were delivered on a whole house basis and they delivered most of the elements. This detailed analysis allows for a better understanding of what work is being delivered. With approximately 90% of all the sampled data showing an average cost of less than £10,000 it is reasonable to suggest any costs above £10,000 are outlying anomalies and are the exception to the average Decent Homes scheme. It can also be suggested that the majority of Decent Homes schemes are delivered either elementally or with a small whole house schemes.

To analyse the two project delivery routes, through the cost per element of the two routes

The limitation of the cost data has meant that the third objective was difficult to meet. The cost information available has been analysed and has shown that there is a wide range in budgets being used by the different local authorities. This could be for many different reasons; the most common reasons expected are the variety and the range in specification. Although the Department for Communities and Local Government (2006 [b]) guidance states the minimum requirements for a property to be classed as decent, it does not restrict the local authorities on the maximum standard. This has allowed some local authorities to conduct additional refurbishment works including external cladding to blocks of flat, even as far as remodelling lots of properties to improve the kitchen or bathroom layout and functionality. This was something carried out by Interviewee 004 on their projects at the early stages of Decent Homes. However after the first two or three years, the actual cost data started to come in and be analysed, this extensive level of work was dropped in favour of achieving a higher number of properties being improved to a decent standard, rather than the lower numbers being delivered with improvement work over and above the Decent Homes standard. The literature highlighted that some authorities, such as South Tyneside Homes, had to change their delivery route all together because the programme was far behind the work schedule and heading over budget. This was because the work to improve the property standard was more than was expected, requiring additional time and cost. As this would have been an on-going issue, South Tyneside Homes forecast that they would miss their target number of properties. If they were to miss their property targets it may have led to a reduction in budget for future capital works, introducing a downward spiral of not achieving the targets and less funding in order to achieve those targets. To combat this issue, similar to the experiences of Interviewee 004, a change in specification and change in delivery route from elemental to whole house helped to improve the progress and ensure the targets were met.

The secondary cost data collected shows a skew in the spread of average cost per property across the three years sampled. This skew is towards a lower average property cost than the mean suggests. The reason for the mean being nearly £1,000 above the median is the extremely high average property costs shown by a number of local authorities. These extremely high costs are classified in this way, as the average property cost is within the outlying 1% of programmes. This suggests that most local authorities deliver planned maintenance (Decent Homes improvement work) at an average cost of £3,200, allowing for between one and two elements per property. The outlying 1% would require further interrogation than the data available allows and another research topic reviewing these outlying programmes would answer with certainty why these schemes were so expensive, but it can be assumed that these programmes delivered a whole house scheme including a high number of elements.

The primary data shows that the interviewees have experience of whole house schemes reducing in cost from the start of Decent Homes in the early 2000s through to present day. This is through the use of regular partners (up to seven for one client) over a long period of time. The reduction in cost has been seen through efficiency savings, by improving the working relationship, better understanding of risk items such as heating and electrical installations and improvement / reduction in the time in each property, from eight weeks at the start to four or five weeks now. For Interviewee 003 a range of efficiency savings have seen the elemental costs reduce from the start of their Decent Homes programme in 2004 to 2014. This is just one example of the improvement in efficiencies reducing the cost per property, but across England the full Decent Homes programme saw a reduction in average cost per property from £21,500 between 2001 and 2003 (ODPM, 2004, p30) to £4,380 in 2013 (LAHS, 2013). This isn't expected as the cost of materials and labour rates have risen dramatically over that same period, which is reflected by the Building, Innovation and Skill (BIS) 'All construction tender price index' (ALLCON TPI) (2013) rising from the 2000 level of 121 in Q1, up to 203 in Q1 of 2013.

The two-thirds increase in the price index suggests that the average cost per property should follow the trend. The data available from the National Audit Office starts in 2003, where BIS shows the Q1 ALLCON TPI to be 146. The increase in the tender price index of 39% is reflected in the average cost per property of the Decent Homes improvement work. Figure 4 shows the changes in the average cost per property, showing an increase of 36% across the same period between 2003 and 2013. The similarity in the percentage cost increases, across the whole decade, suggests that the Decent Homes programme as a whole saw no real efficiencies generated. This would have been expected as the experienced local authorities could have passed on their experiences to level out the learning curve into a much shallower gradient.

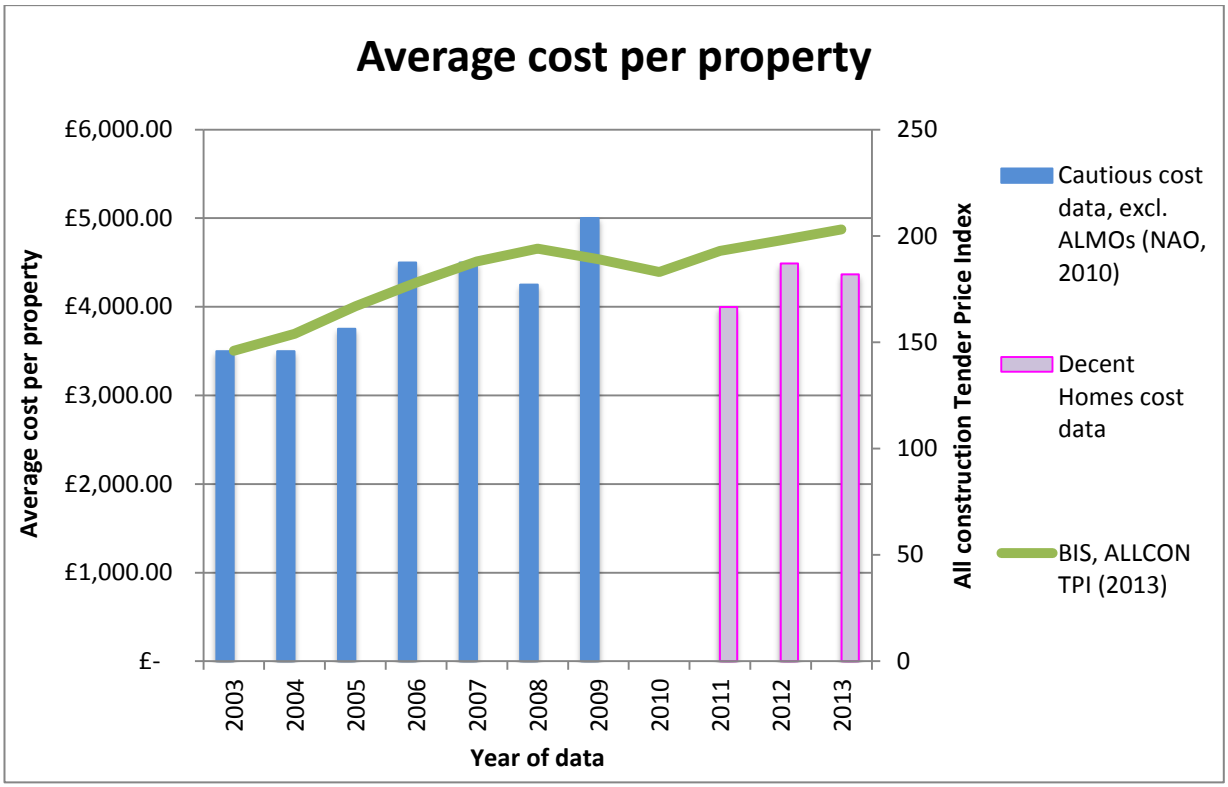

Figure 9 - Average cost per property (NAO, 2010, BPSA 2011, LAHS 2012, LAHS 2013 & BIS 2013)

Deeper analysis of the costs shows that the data collected by the National Audit Office and reported in the HC 212 – Decent Homes Programme report (2010) splits the costs into ALMO and Local Authority. If it is considered that the early data such as the figures reported by the Office of the Deputy Prime Minister may have included the average cost per property of the ALMO properties it is more understandable why the early mean costs were so high.

A possible explanation comes from the NAO report (2010), stating that ALMOs had to acquire the properties through stock transfers, this cost could be included within the average cost data. Interviewee 002, who said that ALMOs who were involved in *"stock transfers … had the most amazing specification … but they just couldn't manage it"*, hints that the costs could also be elevated because the specification for the work being conducted was much higher than the Decent Homes programmes being delivered by the local authorities. In order to reflect the possible skewing of the data by the ALMO properties their average costs have been removed from the cost timeline of Figure 4. The graphic depiction in Figure 4 is the timline of average costs taken from the National Audit Office report – HC 212 and available through the last three LAHS reports (all costs are for local authorities only). This shows the change in average cost is actually a steady rise, the rise is similar to the increases reported by BIS (2013). The early data available and analysed by various sources such as NAO and ODPM shows massively different average costs further to the range of costs, the early data has been reported by the National Audit Office as questionable and unreliable. Therefore the only published cost data provided to the National Audit Office may not reflect the true costs to the client, but unfortunately those costs have to be used in every review of the Decent Homes programme.

To evaluate both 'whole house' and 'elemental' project delivery routes

The literature review has provided detail of the chosen delivery routes for Decent Homes prior to 2010. This showed that 45% of all projects were delivered elementally and as this trend was experienced throughout the first decade of the Decent Homes programme it is assumed to be continuing. Based on this assumption, it is possible to triangulate with the cost data and the interviewees' opinions to evaluate the two routes. The data available suggests that there is still a high portion of local authorities delivering elemental programmes. The assumption that the trend from 2003 – 2010 has continued could explain why the median cost is so low, £3,266.60 per property which suggests that only a couple of elements have been carried out in that property over the year. The six interviews from professionals stated that they had delivered mostly whole house programmes prior to 2010 which continued to present day. These experiences contradict the literature available, but could just indicate that the sample of data collection is narrow and a wider investigation would more likely agree with the National Audit Office's findings that the majority of schemes are being delivered elementally. Another possible explanation for the conflict between the literature and the data collected may be that the literature is out of date. Assuming that the majority of Decent Homes schemes are being delivered elementally this would account for the average property costs of around £4,000, which can be compared to another 118 local authorities' average costs per property between £4,000 and £10,000 indicating these have been delivered as whole house schemes. However due to the lower costs and the elemental information it appears as though these schemes delivered mostly internal elements, occasionally re-covering the roof and installing energy efficient elements. The interview data evaluates both delivery routes, stating that there is no real difference in the structures used to deliver each route, only changing the resources to match the size of the programme. The interviewees agreed that the whole house schemes involve significantly more on site management, requiring additional tenants liaison officers and site managers (due to the increase in the number of elements being delivered across the year).

To determine the most efficient delivery route, answering the hypothesis

The data sampled for this research has found that theoretically the efficiency differences between the delivery routes should be negligible. If the contracts are set up in order to deliver the proposed delivery route, either elemental or whole house, then it is possible to achieve similar efficiencies. The difference between the two routes should purely be the economy of scales, in terms of achieving cheaper element costs from a whole house approach. The biggest problem restricting the efficiency of the Decent Homes programmes is found to be the poor planning and inadequate historical and survey data. Now the Decent Homes programme is nearing the end in the current format, expected to end circa 2018, with planned schemes to improve the fuel efficiency of social houses (NEA, 2013). The data held on each social property should now be accurate, showing which elements have been upgraded to the decent home standard. This data should allow for better planning of future improvement schemes, as Illingworth (1993) defines the planning of construction projects as *"understanding what has to be built [refurbished], then establishing the right*

method … in the most economical way to meet the … requirements". This feeling is still relevant some 20 years later as the contents of the the McGeorge and Zou (2013) on project planning, including strategic management, benchmarking, re-engineering and partnering eludes.

DISCUSSION

A regularly occurring theme from the interview data collection is that the poor planning / pre tender information causes problems and inefficiencies during the whole contract. It is an issue that can answer to all five objectives of the research. The poor pre tender details causes inefficiencies for the Decent Homes programme, it is a regular problem with most local authorities not keeping accurate maintenance / survey information. It affects the performance of both delivery routes, increasing costs and is one of the major issues to be corrected before the most efficient route can be fully identified, it is not possible to deliver an efficient elemental programme if the data is incorrect.

The author has experienced the effect that poor historical data can cause to the delivery of Decent Homes work. It was proposed that for this research a case study would be used in order to investigate deeper into a single local authority's Decent Homes programme, closing the avenues for further discussion raised via the other data collection. Unfortunately the programme the author is delivering had a budget issue, as the funding that had been granted to carry out the Decent Homes programme was not sufficient to carry out all items required under the scope of works. This is similar to problems faced by other councils across the UK, leaving a dilemma of how to proceed. The council could reduce the number of elements to be refurbished, carrying on with the same programme ensuring that the tenants expecting to have work done to their properties would not be disappointed if their property 'fell out of the programme'. Another option would be to reduce the specification of the elements being installed. This option has ramifications for maintenance work in the future. If part of the Decent Homes programme had, for example, one style of light fitted in the kitchen and the remaining properties had a lower specification (cheaper) light fitting, it would mean the repairs and maintenance operatives would need to carry two different light fittings with them. If changes such as the light fitting example were applied to lots of different work items then there could be a high number of duplicate materials being stored, carried and fitted by the local authority throughout the life cycle of a property.

It has been suggested that even with no issues, such as multiple specification items, the average whole life repairs / improvement budget per property is around £65,000 (Savills, 2013) which could be infinitely higher with the changes to the specifications across different years of the Decent Homes programme. The final option to be discussed is the reduction of the number of properties where work is carried out. This would reduce the amount of funding required whilst still delivering all of the required elements to the properties that need work. This has the potential to be a very inefficient option; the contractor may slow down the programme in order to stretch the work across the full year. As interviewee 004 stated, the slowing of programmes because of a lack of work has occurred in the past as the contractor wants to ensure their staff are employed at least for the 12 months between April and March, at which point other Decent Homes contracts may have been won and the staff could move on to them. This means that the project delivery team is not working at the

correct capacity. This increases the on cost percentage per property. If the client has the possibility of securing further funding then the contractor may want to continue delivering the work at the intended full capacity, completing the programme part way through the year. If the local authority can secure the funding in time then there would be no real changes in the efficiency of the programme, as it is delivered to capacity for the full year. If the client can't get the funding in time, possibly due to political restrictions as experienced by the primary data sample, then they may be forced to pay on-going preliminary costs for the contractor to remain on site. The contractor would therefore be on site not actually delivering any work or the client could allow the contractor to leave site and carry out productive work for other clients. The original client would therefore have to pay for the demobilisation and remobilisation costs associated with the contractor leaving site. This has the potential to drastically increase the prelim costs for the project, further compounding the funding issue.

CONCLUSION

The research has provided an extensive review of the Decent Homes programme up to 2013, sampling the opinions of industry professionals and the published Decent Homes cost data for England. Based upon this research the hypothesis has been rejected; the whole house approach has not been identified as the more efficient approach as either the whole house approach or the elemental approach can be efficiently applied. The key to achieving the efficiency commences at pre-tender stage, when the client agrees the plans and procedures. This relies on accurate housing stock data, to allow a full assessment of work requirements and therefore providing 'packages of work' to be issued to contractors for completion. Issuing these 'packages' as small elemental programmes or a whole house scheme needs to be identified early so that the tender submissions reflect the chosen approach; thus driving the competitive nature of the tendering, which in turn encourages the development of greater efficiency by allowing the contractors to be innovative in their approach to the contract.

This research has covered a wide range of professional working groups from a variety of different geographic regions, enabling the research to be viewed as generalisable for the entire Decent Homes programme. The literature collection can be trusted as the majority of documentation is from National or Local Government sources which used the data available at the time of printing. There may however be a local bias shown through the official publications of the local authority sources.

The research carried out investigates the delivery of Decent Homes by local authorities across Great Britain, however due to the restriction of time to carry out this research, the investigation it is only indicative. Should further research opportunities be available a prolonged investigation, including detailed analysis of multiple local authority programmes and a number of case studies of the delivery strategies, will provide a more conclusive answer to the hypothesis. The further development topics discussed during this research show that the planned introduction of BIM or 'collaborative working' could further drive efficiency of the planned maintenance cycles of social housing.

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TIME, COST, QUALITY AND HEALTH AND SAFETY- IS THIS THE NEW 'IRON TRIANGLE'

Matthew Fothergill[3] and Garry Workman[4]

[3] *Broadmead House, Bellingham Way, Aylesford, Kent UK ME20 6XS*

[4] *Department of Development and Society, Sheffield Hallam University, Howard Street, Sheffield UK S1 1WB*

The 'Iron Triangle' of time, cost and quality has been discussed for over two decades, more recent papers discuss whether it is correct and still applicable. There are some authors that believe the Iron Triangle is no longer sufficient. With the rise in health and safety amongst large construction companies like Kier, it raises the question of which benchmark is key to delivering a successful project. This paper focuses on one of Kiers regional businesses, Kier Construction Southern. This paper explores the topic of the Iron Triangle and the introduction of health and safety, to see which the key benchmark amongst the business is. Based on a questionnaire survey, it was found that there is a correlation between construction discipline and which benchmark is chosen as the most important. Other factors were also surveyed and it was found that there is no correlation for gender, age or experience. Three senior managers were also interviewed to explore the results of the questionnaire further, it was found that there is a potential difference between managerial level and which benchmark is chosen as key. Interestingly it was found that quality featured very low in the questionnaires, but the interviews thought this was considered higher and on a par with time. The most important benchmarks were cost and health and safety and these were seen as primary benchmarks within Kier Construction Southern, followed by time then lastly quality.

Keywords: Benchmarking, Cost, Health and safety, Iron triangle, Key performance indicators, Quality, Time.

INTRODUCTION

This project will focus on which benchmark construction professionals within Kier Construction Southern (KCS) view as the most important when delivering a construction project. KCS is a regional division of Kier Group and is split over 4 offices with almost 400 employees and a turnover of circa £180 million. Like all major companies Kier use Key Performance Indicators (KPI's) to measure their performance against a set of given parameters. Within the KPI's are Time, Cost, Quality and Health and Safety all of which are treated with equal importance. The

[3] Matthew.Fothergill@yahoo.co.uk

divisions are monitored and reported annually in a KPI report. The report shows how KCS is performing against the other divisions in the construction sector of Kier. Past papers on key performance indicators focus on the 'Iron Triangle' which consists of Time, Cost and Quality. This paper will synthesize the research by others and collected data to establish if and how the results will differ when health and safety is introduced into the iron triangle. The project will also examine the research and collected data to establish if the key benchmark is different for other reasons such as age or experience amongst Kier Construction Southern.

Health and safety has always been a priority for the construction industry, more so in recent years as more regulations and legislation have been introduced. In addition, with the emergence of the blame culture, it can be seen how health and safety can have an impact upon both time and cost.

RESEARCH METHOD

This project combines both qualitative and quantitative methods of research and objective and subjective data giving balanced research. It is believed that by using this method to give conclusions and recommendations the two counteract their weaknesses (Dawson 2009). The main primary data for this project was gathered through the use of a questionnaire. Questionnaires are regarded as providing a high validity of results and as the targeted area is over the four offices of KCS then, and with a good response rate of above 40% from 389 questionnaires sent, the results were valid. It is acknowledged that it did not reach all of the employees as some do not have access to company IT systems or had limited connectivity on site. This is noted as a limitation of this project. Initially a pilot questionnaire that was sent to selected personnel, to ensure the validity of the questions and that they were not misinterpreted.

Questionnaires generally will have a 40-60% response rate (Naoum 2007) this will give a suitable sample size. It is acknowledged that there is no real control over the respondents, but by making the questionnaire simple and the correct length, it did not deter KCS employees from participating. The questionnaire was intended to take no longer than 3-5minutes to complete and the pilot questionnaire facilitated to confirm this. With the primary data collection method been quantitative in order to give balance and triangulation to the research the researcher carried out interviews of a qualitative method. The interviews were semi-structured to allow the interviewer to probe the interviewee on matters they raised that were of interest during the course of the interview. They were approximately 30 minutes in duration with 7-10 specific questions raised. Three people were selected from different disciplines but of the same managerial level. The interviewees were each of a senior managerial level. There was high potential for there to be some ethical issues during the interview therefore all interviewees will remain anonymous.

Secondary data collection was a desk study of all the relevant existing data and research that has been carried out to date. The main purpose of the secondary data was to establish existing relationships between the KPI's and provide comparison to the primary data.

LITERATURE REVIEW

Performance Measurement is an integral part of business management, as it helps to promote the company's focus and objectives and ultimately its success. Once the

objectives have been agreed a set of indicators need to be identified that can be used to measure their success (BRE 2014). These are known as key performance indicators. Traditionally the main KPI's center on the 'Iron Triangle' which consists of time, cost and quality. Recent research now highlights that the 'Iron Triangle' is no longer sufficient and there are more than 3 simple factors to measure success. The BRE list out 15 sample KPI's and has a list of over 200 for their new benchmarking tool (BRE 2014) which reinforces that the Iron Triangle is now only a starting point and that the process is evolving. There are many other factors that are mentioned in other research such as; safety, meeting the employers requirements, functionality, aesthetics (Lam et al 2007) to name but a few. Albert P.C. Chan features heavily in many of the documents and is cited by many others. It was Chan and others that first used the term 'Iron Triangle' and related literature uses this term and then builds other KPI's around it or uses it as the basis for conceptual frameworks. When the literature is evaluated it can be seen that most of the indicators discussed are in fact more of a breakdown of time, cost and quality. Other papers discuss that the Iron Triangle is now out of date and in fact clients are looking at both quantitative and qualitative KPI's to measure the success of the projects (Chan, Chan 2004).

Despite all of the extensive research there has still been no general agreement on what defines project success (Chan and Chan, 2004). It is hard to describe a projects success as just finishing on time, or making a profit. Toor and Ogunlana (2010) and Chan and Chan (2004) highlight that project success means different things to different stakeholders. As every project is unique with its own set of characteristics, generalising the taxonomy of KPIs for all kinds of projects is deemed impractical (Cox et al. 2003). Yet according to Munns and Bjeirmi (1996), a project can be considered successful when it is able to achieve a set of given objectives; has definite start and end dates; is completed within a specified time period and according to a set specification. Nguyen et al. (2004) also support this traditional perspective which relates directly to the 'Iron Triangle' again highlighting that this remains the foundation for all KPIs.

Cox et al. (2003) explores the differentiation between qualitative and quantitative measures of success, all of the original iron triangle can be measure quantitatively. Qualitative performance measures include safety, turnover, and motivation. Cox et al. (2003) further explains that qualitative indicators are not considered as highly reliable evaluation tools due to their perceived difficulty in being measured. Thomas et al. (2005) argues that safety performance can be measured through a Safety Performance Evaluation (SPE) framework. Through this framework, SPE scores would facilitate a benchmarking process therefore enabling a reliable evaluation tool for safety. Although the SPE framework takes on both organisation and project level factors, a simpler framework could be used just for project based factors. Traditionally the accident rate is used to measure a contractor's performance and Tam and Fung (1998) concluded that this was superior to other indices. However, those contractors who diligently report accidents are disadvantaged against those who are less scrupulous, so it is unlikely that contractors would be suitably motivated to report the number of accidents accurately.

Safety is featured in much of the research which it is unsurprising as the construction industry remains a high risk industry. Although the UK construction industry only accounts for 5% of employees in Britain it accounts for 22% of the fatal injuries

(HSE 2013). With an estimated 1.7 million man hours lost due to work-related ill health with another 0.6 million lost due to workplace injuries (HSE 2013), it can be seen that safety is a key KPI to measure during a project. It not only has an impact on time with man-hours lost but also cost. The last figures produced by the HSE in 2010/11 show that in construction alone the cost was approximately £1,162 million for injury and illness. Kier Groups KPIs actually report on the Accident Incident Rate (AIR) to try and achieve a more reliable benchmark of health and safety.

Kier Group already record all four of the KPI's previously mentioned and others. The data is compiled and presented in annual reports, but these reports do not reflect what is most important to those directly involved with a project. Included within the report is a breakdown of the customer satisfaction report in which the client gives the KCS teams a score out of 10 against a set of KPIs. The report gives the scores in ranked order for example as below:

- Safety Management – 9.07
- Adherence to Agreed Cost – 8.71
- Quality of Materials/Workmanship – 8.41
- Handed over on Agreed Date – 8.24

At face value it would appear that safety is most important, followed by cost, quality and time respectively and there is no reason to think otherwise. However, the data is formed by the subjective opinion of the client and not necessarily a true reflection but rather the perception that KCS give.

Safety has often been blamed for driving up the cost of projects but the actual true cost was researched by Lancaster et al (2003) working for Entec UK Limited for the Health and Safety Executive (HSE). This report was centred around researching if and why the cost for health and safety in small and medium businesses is greater than in larger organisations. Although the report only covered five regulations the cost per employee for action in relation to the management of health and safety regulations was £15.99 per annum and over all 5 regulations is £19.54. However, when the companies were asked how much was spent on health and safety overall the average cost was £628,926. The main expenditure was training which would not be covered by the project cost normally. The second largest cost was the salary for health and safety personnel which are required for larger construction firms for CDM (Lancaster et al 2003). Depending upon the size of the project this may or may not be directly included within the preliminary costs for a project but it would certainly be included with the overheads for the office. The third largest was the provision of personal protective equipment (PPE). This cost most certainly would be carried by the project. However, if this is the third largest cost then companies must be aware of how much on average PPE costs for a project and would expect this to be included within the prelims.

The question for a business is whether the benefits outweigh the cost, and providing that the answer is yes then the outcome is simple. Lancaster et al (2003) report suggests that the benefits do outweigh the costs with 47% of the contractors in favour. The main reasons for this other than compliance with the law were:

- Increase in production

- Improved staff morale
- Decrease in lost time through sickness and accidents
- Reduction in waste
- Reduction in the damage caused.

It would appear from the research that although compliance does increase expenditure for a business the benefit of increased production against lost time would offset this and the true cost may not be as large compared to non compliance.

Time

In terms of this project the time relates only to construction time and not the overall time taken to design and plan the construction. This measure can be used to compare historical data on projects of similar size and design. This can be utilised by contractors when attending tender interviews to show that they can deliver projects year on year. It is normally expressed as the annual change in normalised construction of a project from current year to previous year, expressed as a percentage of the time of the previous year's projects (Ling & Peh 2011). The time is generally considered to be the period on the agreed contract programme. Within the Kier KPI's there is one main category which is KPI-12 Contract Completions, and looks at the past 12 months data and reviews contracts that have been completed within the original terms, within any extended terms, any that are not yet resolved and those which finished outside of extended terms. The majority of contracts over the last 12 month reporting period were completed either within the original terms or within the extended terms with only approximately 10% either left unresolved or completed outside of any extended terms. The fact that Kier has a KPI that looks at time on this level shows that it monitors how the regional companies are performing and that time is significant to the company in its performance. This paper considered time to be defined as completing a project on time with any extended terms.

Cost

In the research by Butcher et al (2010) they re-emphasise work published by Youngs et al (2008) that the key deliverable of cost is performance against original budget; what Butcher et al (2009) suggest is that this should be capital cost, as the performance against a budget was not considered important by the client. However, results from the Kier KPI's and Customer Feedback forms suggests a difference in that clients are concerned with how the budget is being managed. Therefore, in terms of KCS it is important that the client at least feels that Kier have managed the budget effectively and that the client feels that they are receiving value for money. This is not always reflected against the original budget which could be increased due to variations or extensions of time. Kier has several KPI's for cost. In terms of this paper it will be the cost performance against the original budget including any variations which determines whether or not the project makes a profit.

Quality

This is the final element of the Iron Triangle and is rather more subjective than cost and time yet, Chan & Chan (2004) suggest that meeting the specification and technical specification and ensuring that products are more than just fit for purpose is the measure of quality. As stated above the annual report by Kier suggests this is not perceived as well managed as it could be coming 3rd out of the possible 4 given benchmarks. This KPI is, that all defects at project completion (PC) are closed out

within 2 weeks of PC. This project defines quality as achieving zero defects at handover.

Health and Safety

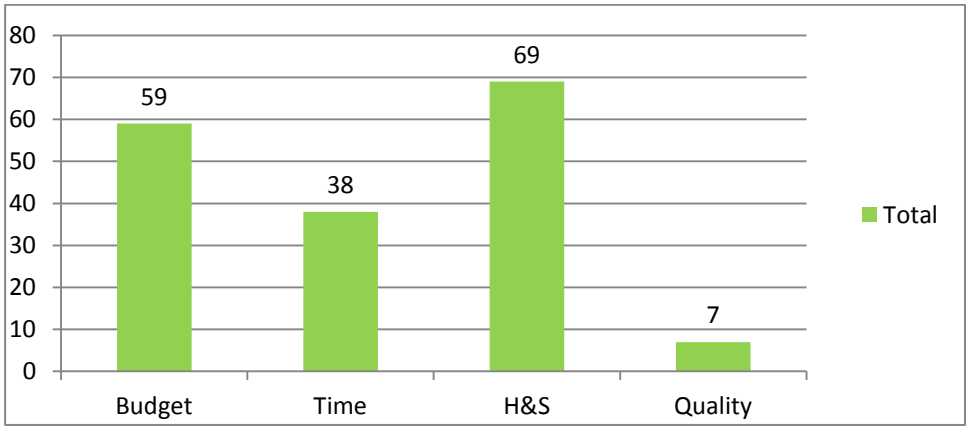
There have been whole papers dedicated to KPI's on safety performance Ng et al (2004) highlights 18 KPI's at project level but this is unrealistic for this project. It is more realistic to measure the amount of major accidents that occur during the construction phase (Chan, Chan 2004). This paper used KPI-40 Accident incidence rates as the quantitative data. All of the KPI's of time, cost, quality and health and safety are linked for example to fall short on a quality KPI will mean taking more time to rectify the work and an increase in cost of doing something twice. If the health and safety KPI falls short, especially in the extreme, it can mean that the HSE would shut the site whilst an investigation is carried out and this affects time and cost directly but also quality as the project will be rushed through to completion or products may be affected by an incomplete project for example due to weather damage. The topics within these KPI's can be far reaching for example Smallman and John (2001) explained how directors viewed the impact of health and safety on corporate reputation and concluded that a good health and safety reputation can be both profitable and good for business. The same can be seen in other papers where having a good reputation for delivering high quality projects or finishing on time can ensure repeat work for contractors from Clients (Butcher, Sheehan 2010).

RESULTS

Background of respondents

From the responses to the questionnaire the most common respondent was male, over 50 years old, working in the construction sector of the business for over 10 years. This will give a bias in the results towards this demographic view of the subject. The majority (72%) have over 10 years' experience in the construction industry. The main aim was to look at the initial response as to which benchmark was most important, the results of which are shown in Figure 1.

Figure 1 Column Chart of the benchmark results



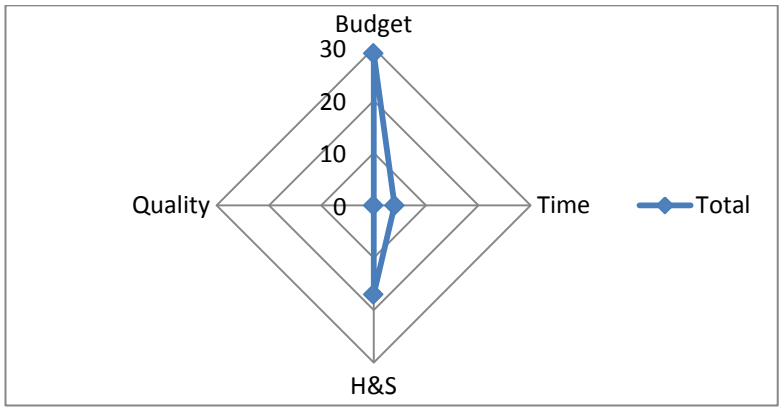
From this it could be concluded that staff within KCS see health and safety as the most important benchmark when delivering a successful project. The first thoughts of the interviewees were that cost was most important, closely followed by health and safety, then time and quality. When scrutinized, the interviewees actual opinions were that cost and H&S were a primary benchmark, with time and quality acting as secondary benchmarks. One interviewee did point out though that although cost is

paramount as Kier are a profit making company and not a charity, health and safety should never be sacrificed to increase profit. Figure 1 contradict this though placing with health and safety top, cost second, time third and finally quality.

Construction discipline results

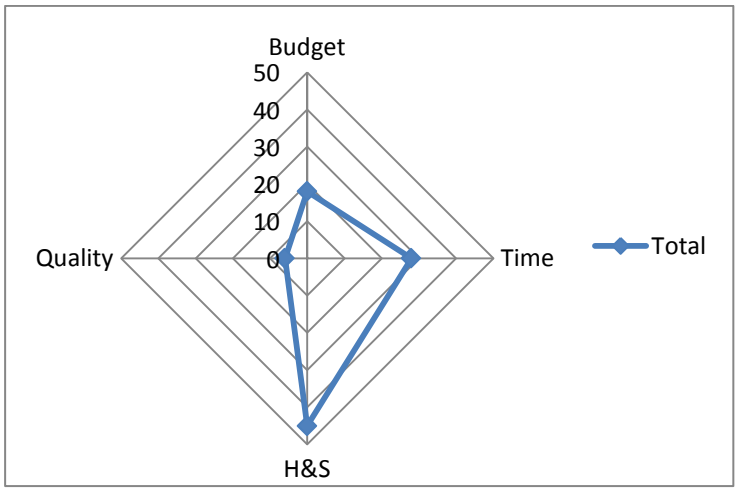
This section will compare and contrast the results of the data analysis from each of the construction disciplines. There were 50 respondents from the commercial sector of KCS which is 29% of the sample, the majority were male (88%). They were evenly spread in age with a standard deviation of only 2.2. The commercial employees confirmed cost as the most important benchmark. It can also be seen that the commercial discipline does not see quality as an important benchmark with a score of zero from the questionnaire. The commercial results are almost the same as those from the interviews with the exception that the interviewees all saw quality as a secondary benchmark. The highlight here is that the cost benchmark is beyond the standard deviation of 13.2 from the mean of 12.5 showing that this result is not of the normal degree of range. Therefore from the data provided, it can be seen that the commercial discipline of KCS sees cost as the most important benchmark above any other. Possibly more important though is the lack of focus on quality and what impacts this could have. The need to comply with the specification was highlighted in the literature review and this needs to be costed accordingly.

Figure 2 Radar Chart of the Commercial Results



There were 97 responses from the construction discipline 56% of the overall responses. Of the respondents 96% were male and 78% had over 10 years' experience in the construction industry, again giving a degree of validity to these results. Most of the respondents were at the upper end of the age scale with 67% over the age of 40. From the literature there has been a major focus on health and safety over the past 10 years helping to drive down the accident and death rates in construction. The results of the construction sector agree with this as can be seen in the radar chart below in Figure 3.

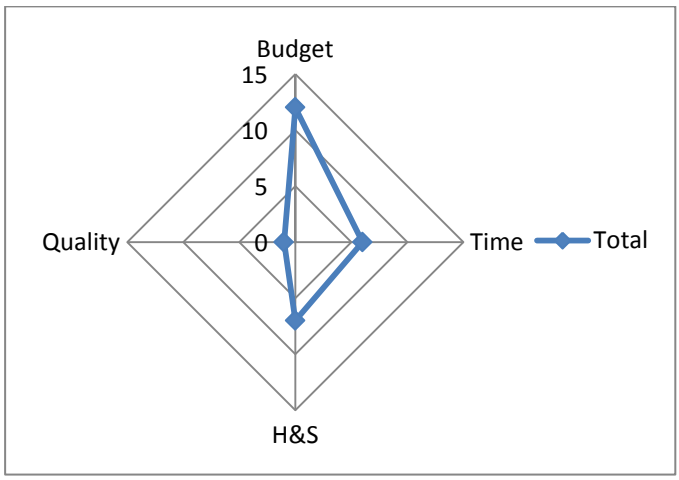
Figure 3 Radar Chart for Construction Results



There are significant differences between the data from construction and commercial disciplines. For construction health and safety is clearly paramount, then time and budget closely behind, again quality is not seen as a key benchmark. Health and safety is significant and 45 respondents (46%) saw it as the most important. With a mean result of 24.3 and a standard deviation of 16.5, the response of 4.5 is beyond the standard range. Therefore, from the data for the construction discipline, it can be seen that health and safety is the key benchmark.

The office sector could include such departments as marketing, procurement, accounts and reception. This made up the smallest number of respondents with only 15% of the overall respondents. Of the 62% were male, 38% aged 50 or more and 58% had over 10 years' experience. As can be seen from the radar chart below, the office staff believe the cost to be the most important benchmark with 46% recording this via the questionnaire.

Figure 4 Radar Chart for the Office Results

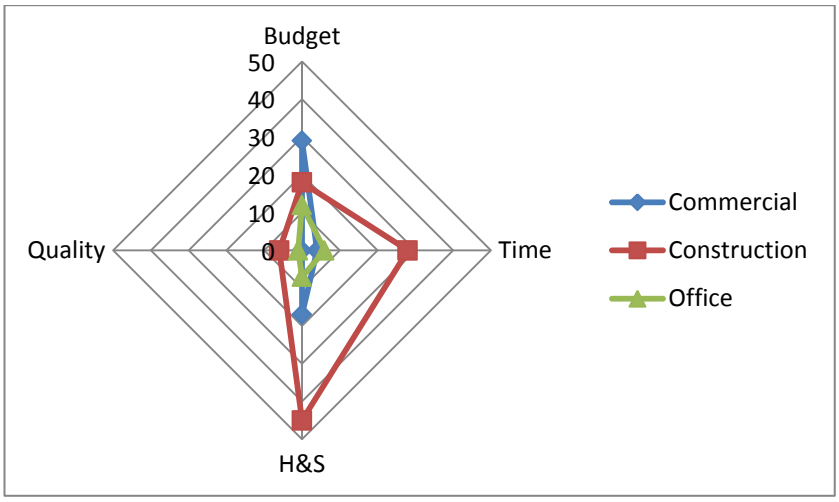


The radar chart in Figure 4 not only shows that cost is the most important but also that time and health and safety are seen as an equal second again with quality not seen as an important benchmark. Therefore it can be concluded that the office and the commercial disciplines concur that the cost as the most important benchmark.

Summary of the Construction Discipline Results

The radar chart in Figure 5 summarises answers from all three. A complex Chi-Squared test on the data at 5% level of significance comparing the construction disciplines against the four given benchmarks showed that the construction discipline did have an impact upon which was the perceived to be the key benchmark. In this case it can be seen that the office and commercial chose cost, where construction chose health and safety. Within the three disciplines the top 2 benchmarks identified are not consistent and as such currently no one key benchmark can be concluded from the sample taken.

Figure 5 Radar Chart of All Disciplines



Results of age, experience and gender

All of the factors were investigated and analysed and it can be seen that for all of the results for age, experience and gender from the Chi-squared tests proved that there was no impact from any of the 3 factors. The results are only valid for the given groups and further research could be carried out to see if other age or experience groups could have an impact. Although throughout each of the groups of age, experience and gender there were differences of opinion, this could relate to what has happened that day or the seniority of that person. For example, you would expect those with more experience to hold a more senior position to those with little experience although this is not always the case. Overall though there is no impact from age, experience or gender when choosing which benchmark is key from the given sample.

Health and safety impact results

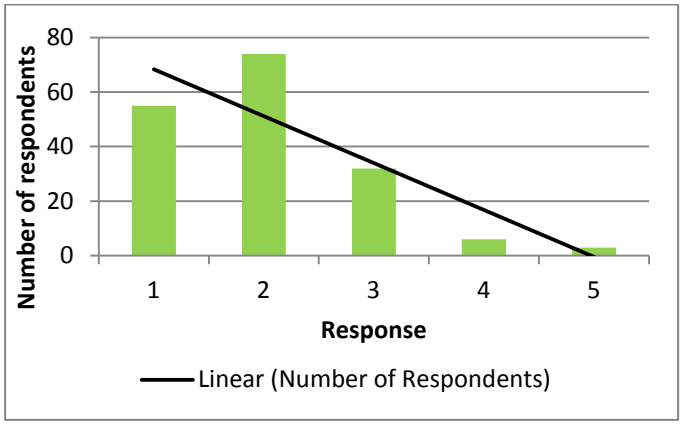
As part of the questionnaire the respondents were asked to give their opinion of the impact that health and safety had on the other three benchmarks, time, cost and quality. The respondents were asked to mark on a Likart scale the degree of impact.

Impact on Quality

For this section the question asked whether the respondents thought that good health and safety on a project had an impact on the quality. The Likart scale gave 1 for better quality or 5 for lower quality, so this question was asking if the standard of workmanship has improved by operatives on site working with a high level of health and safety. In Figure 6 below the column chart shows the responses and linear trend line shows that the trend is that the respondents did think that health and safety did

have a positive impact upon quality. The trend line is quite steep showing a significant trend. This is reflected in one of the interviews where a senior manager stated "if people (contractors) are working in a safe manner then they will have everything they need to do their job properly, there will be clear and correct access and they won't have to walk about to get their tools". This raises question as to whether the operative is competent which is a topic not covered by this research.

Figure 6 Column Chart for Impact of Health and Safety on Quality. (Likert scale 1=better quality, 5= lower quality)

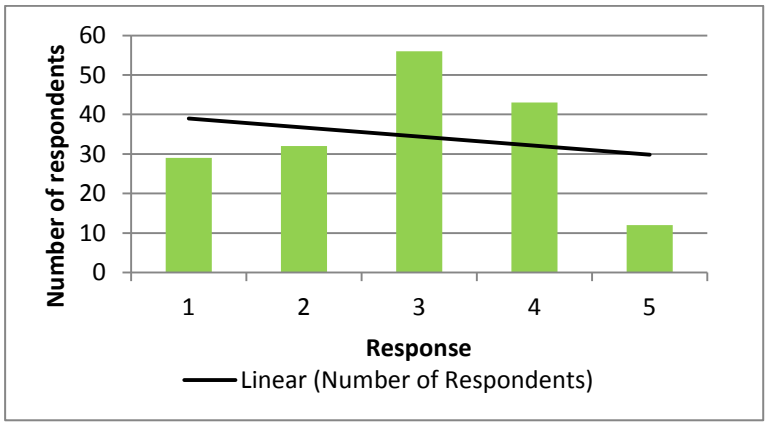


When exploring the responses given from the questionnaire it was found that the 4% of respondents that put quality as the most important benchmark also marked 1 or 2 on the Likart scale for this question and 75% of the respondents gave score 1 or 2 in the Likart scale and 82% of those that put health and safety as the key benchmark can also be found in this same 75%. Therefore it can be concluded from the questionnaire that regardless of which key benchmark was chosen a significant majority believe that good health and safety has a positive impact on the quality delivered on a project.

Impact on time

Respondents were asked if they thought that health and safety shortened or increased programme duration. On the Likart scale 1 was a shorter programme and 5 was a longer programme and results are illustrated in Figure 7.

Figure 7 Column Chart for Impact of Health and Safety on Time. (Likert scale 1= shorter programme, 5= longer programme)



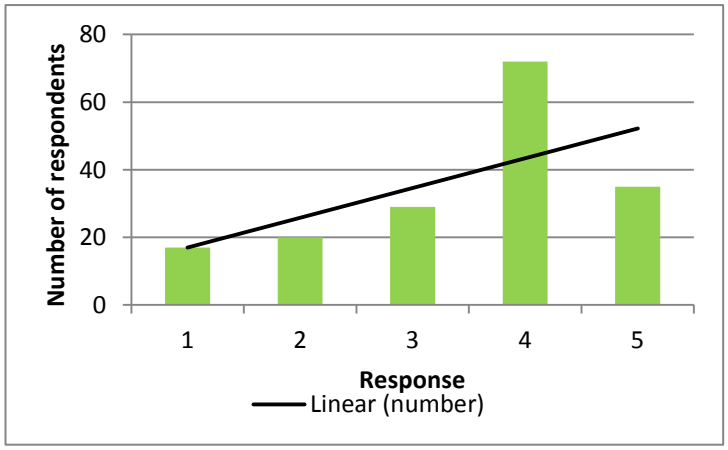
The trend line shows a positive impact but much less so than in the quality chart in Figure 6. This is because the majority of the respondents chose a neutral point in

which health and safety has no impact upon the programme. This links to the point raised from the interviews where if everything is in place then operatives can proceed with works. Interestingly there is no clause within contracts for the extension of time for health and safety so clients expect main contractors like Kier to include health and safety within their programmes. Those respondents who put health and safety as the key benchmark were more divided on this question with 22% saying it had a negative impact and 42% saying it had a positive impact. This was very much evident in those that put time as the key benchmark in which 37% were of the opinion it had a negative impact and 34% saying it had a positive impact. This is interesting as these are the two benchmarks for this question and respondents are clearly divided amongst themselves. Therefore the conclusion to the question as to whether health and safety has an impact upon the programme is that it does have a small positive impact, therefore reducing the time on the programme assuming that everything goes as planned and is within the control of the project team.

Impact on cost

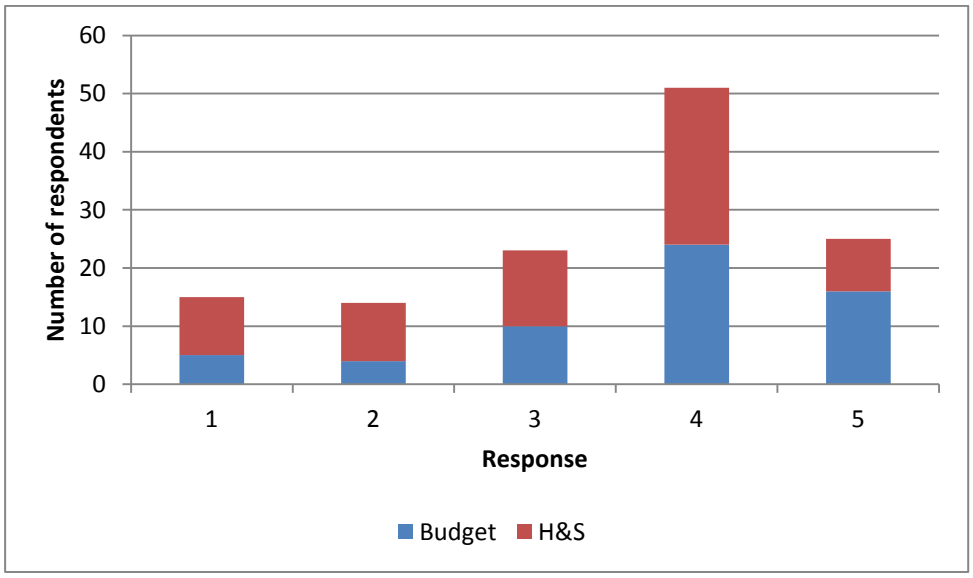
There has always been a perception that health and safety is expensive and this question asked respondents to rate the impact of good health and safety on the cost of a project. The Likart scale gave 1 as lower cost and 5 as increased cost and responses are shown in Figure 8.

Figure 8 Column Chart for Impact of Health and Safety on Cost. (Likert scale 1= lower cost, 5= increased cost)



This chart illustrated the belief that good health and safety does increase the cost of a project. There was a strong response to number 4 with 42% of the respondents indicating that there was an increase to the cost of the project. When the responses to those that had the two key benchmarks identified are reviewed it can be seen that they follow a very similar pattern, shown in Figure 9.

Figure 9 Stacked Column Chart for Health and Safety and Budget Benchmark Responses .



From the responses it can be concluded that from the sample of employees with KCS, good health and safety does have an impact on the cost of a project and increases the cost. This is not necessarily a negative answer it just means that the cost to comply with not only legislation and regulations but Kier's own health and safety procedures needs to be taken to in account when tendering. Also subcontractors need to be fully aware of this when returning quotations for work so that there can be no argument or need for adjudication or similar later in a contract.

Summary of the impacts of health and safety questions

In summary to the questions based on the impact of health and safety on time, cost and quality it can be concluded that good health and safety does have a definite impact on cost and quality and only a small impact on time. It has a positive impact on the quality of a project which is a good thing achieving what clients desire. The negative impact on cost must be considered in the tender process to ensure that contracts do not lose money through good health and safety but at the same time health and safety must not be compromised in order to make a profit. The time impact is negligible, as if the project is programmed and planned properly, there will be sufficient time to carry out works in a safe manner and in accordance with all legislation, regulations and procedures.

Interviews

The key difference between the answers from the interviews and the questionnaires was that in the interviews, quality and time were seen as equal, unlike in the questionnaires where quality was given very little significance. It was very clear that cost and health and safety were the interviewees top priority and that they should be given 90-95% of the focus. The belief was that if these two were right then the other two would follow at the right level.

CONCLUSION

In conclusion to this project it can be seen that there a lot of literature on the topic of benchmarking, the Iron Triangle and health and safety but none on combining all three. The aims and objectives for this project have been answered throughout but to summarise. The aims were:

1. To investigate and determine the main driver when delivering a successful project from the given list of time, cost, quality and health and safety.

2. To investigate and evaluate if there is a difference in driver amongst construction disciplines.

In achieving aim 1 it can be concluded that the main driver when delivering a successful project is that from the literature there is no one key benchmark. The questionnaires and interviewees confirmed that there is a joint key benchmark within Kier Construction Southern which is the budget and health and safety. These two featured throughout the whole of the data analysis and it is unsurprising as a company will not be able to survive if it does not make money. A construction company like Kier will not be able to compete with its rivals if it does not maintain a high safety record and it is unsurprising that good health and safety adds money to a project. Kier has always had a high regard for health and safety and aims to operate at a level above not only the law but also its competitors, as was highlighted in one of the interviews with a senior manager. Therefore in response to aim 1 there is not one key main driver but two and these are cost and health and safety. Out of the two key drivers it can be seen that cost does take a slight priority and this is reflected in the interviews with senior managers. It is then apparent that time comes a clear third in the priority list and then quality. What is of slight concern for the company is the little focus that seems to be given to quality and this is an area for future study. When looking at aim 2 it has become very clear that there are different key benchmarks for different construction disciplines as highlighted in Table 2.

Table 2 Construction Discipline Key Drivers in Order

Construction	Commercial	Office
Health and safety	Cost	Cost
Time	Health and safety	Health and safety
Cost	Time	Time
Quality	Quality	Quality

As can be seen both the commercial and the office areas have the exactly the same drivers and the construction discipline is completely different. The Chi-Squared test proved that construction discipline does have an impact as to which of the above was chosen as the key benchmark. Therefore it can be concluded that there are different key benchmarks for different construction disciplines. This leads to the question why they are different and is an area for further study.

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GREEN DEAL AND THE POTENTIAL GROWTH OPPORTUNITIES IT OFFERS TO SMALL BUSINESSES

Mark Thomas Ellis[4] and Christopher Holt

Mark Thomas Ellis graduated from Sheffield Hallam University in 2014 with a First Class Honours Degree in Quantity Surveying. He has worked in the Construction Industry for six years, specialising in Railway Civils and Maintenance works. He is currently Commercial Manager for Rotherham based Optimal Rail Ltd. Christopher Holt is Senior Lecturer in Quantity Surveying at Sheffield Hallam University.

The Green Deal was launched in 2013 as a financing mechanism for the retrofitting of energy efficiency measures to the UK's aging housing stock. Prior to launch the scheme was cited as a potential catalyst for significant growth in the UK Construction Industry. This study was undertaken with a view to researching the opportunities provided by the Green Deal to Small and Medium Enterprises in the South Yorkshire region and whether they will prove to be a stimulus for growth and improved financial performance. To achieve the aims and objectives, and to provide requisite triangulation, a research methodology comprising a review of the existing literature, a questionnaire and a series of semi-structured interviews was undertaken. It was found that the Green Deal makes improvement works available to a lot of people who would otherwise be unable to afford to undertake the works, but that at present the demand is not being realised due to a lack of public awareness and trust in the product. Concerns exist regarding the future of Green Deal and its' long term stability, however it was found that for those companies that have made the investment in the scheme, Green Deal does provide long term growth opportunities, although these will only be realised when the general public are made aware of the scheme and its' merits.

Keywords: Green Deal, Renewable Energy, Energy Efficiency, Retrofit, SME

INTRODUCTION

The Green Deal was launched in 2013 as a new financing mechanism aimed at improving the energy efficiency of the UK's aging housing stock. For some time since before the scheme's launch, there has been significant speculation in the industry as to the potential benefits for businesses. The research primarily concerns

[4] mtellis1985@gmail.com

small and medium enterprises (SMEs), defined as companies with an annual turnover of less than £41.6million and less than 250 employees (European Commission 2013), operating in the construction industry within the South Yorkshire area, although the views of professionals working for large businesses shall also be used in this research for gaining general industry insight and for comparison purposes. The research was concerned with attempting to prove or disprove the hypothesis that the Green Deal provides SMEs within the Construction Industry a platform for business growth and/or improved financial performance if they recognise its' potential and pro-actively pursue this market. To this end a research methodology was developed based on the aims and objectives outlined below.

AIMS

1. To evaluate the Green Deal opportunities for SMEs within the South Yorkshire Area.

2. To establish whether SMEs are in a position to be able to capitalise on any demand which exists.

Objectives

1. To investigate the characteristics of the Green Deal and the opportunities they provide for SMEs.

2. To determine the number of companies involved in Green Deal in the South Yorkshire area.

3. To establish whether the Green Deal forms part of the business development strategies of SMEs.

4. To compare and contrast potential Green Deal profit margins with other relevant areas of the construction industry.

5. To investigate whether the Green Deal offers business a stable platform on which to base long term business development strategies.

The research was limited geographically in that it only considered the subject in respect of the South Yorkshire area. It was further limited to SMEs only due to the short time frame over which the research was conducted.

Rationale

Qualitative research was used to attempt to gauge the industry opinions and attitudes to the Green Deal and its' potential opportunities to SMEs. Quantitative research was used to reinforce or disprove the results of the qualitative research. For example, where an opinion was expressed in an interview with an industry professional, quantitative data extracted from the results of a similarly structured question within a questionnaire was compared to the qualitative data, thus allowing greater or lesser significance to be apportioned to that opinion. Data triangulation was the principal method of triangulation employed with data collected from a range of people across a number of organisations. The purpose being to mitigate against the data collected being distorted by either organisational policy or the personal bias of individuals. Additionally, methodological triangulation was employed with data being collected through questionnaires, interviews and a literature review. Questionnaires were used as a method of seeking to answer broad questions relating to the topic as a whole. A pilot study was carried out on five participants prior to the questionnaire being

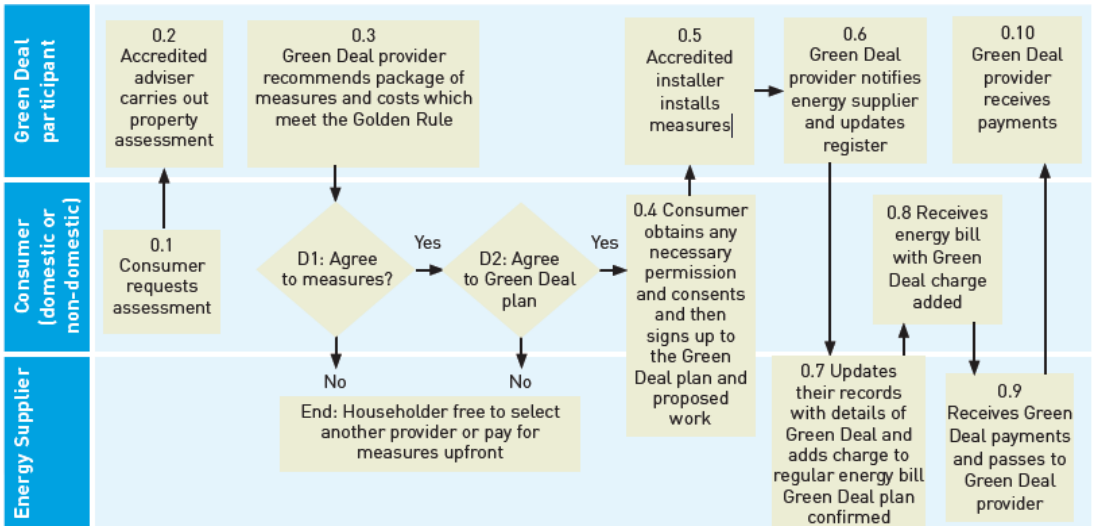
administered in order to ensure structure and wording of the questionnaire worked as envisaged. Upon successful completion of the pilot, the questionnaire was sent electronically to 304 construction professionals operating in the South Yorkshire area, greatly exceeding the initial target distribution of 100. The questionnaire was administered through 'Kwiksurvey' web-based questionnaire service and was live for a one month duration, during this time 66 responses were received which exceeded the minimum return requirement by 36. In order to make the responses amenable to statistical analysis it was structured to allow the quantitative data collected to be easily analysed. To provide validation of the questionnaire data returned, various parametric and non-parametric tests were used. Tests were applied assuming a 95% probability. Upon successful administration of the questionnaire, three semi-structured interviews were conducted with various professionals. Professionals interviewed were; the Managing Director of a small Rotherham based Green Deal Advice and Installation company, a Director of a small Rotherham based non-accredited plumbing company working on Green Deal projects on a sub-contractor basis and a Director of a small Rotherham based construction company which is having no involvement in Green Deal. These professionals were selected for their differing perspectives on the subject of Green Deal to allow for greater data triangulation.

LITERATURE REVIEW

Overview

The Green Deal is defined as an "innovative financing mechanism" (Energy Saving Trust, 2013) which will fund improvements to the energy efficiency of the UK's housing stock as part of the Government's targets for carbon savings, by allowing the home owner to take out a loan for the advised works and pay the loan off on energy bills (Energy Saving Trust, 2013). The theory behind this being that the savings made on the energy bills should be equal to or greater than the cost of the repayments (Department of Energy and Climate Change, 2013). Figure 1 demonstrates the Green Deal process.

Figure 1 Green Deal Process (Great Britain, Department of Energy and Climate Change 2013b)



The Green Deal is underpinned by the principle of the 'Golden Rule' which dictates that the cost of any improvement measure should not exceed the anticipated savings associated and that the payment period should not exceed the expected lifespan of the measure (Department of Energy and Climate Change, 2013b), up to a maximum of 25 years (Green Deal Initiative, 2013). In order to undertake Green Deal works, a company will need to be accredited as either an; assessor, provider or installer (GD ORB, 2013b). The costs associated with this accreditation process range from £2,500 to £6,000 (Carbon Trust, 2013).

Opportunities

Chris Huhne, then Secretary of State for Energy and Climate Change (2010), described in a speech to the London School of Economics how the Green Deal will provide economic opportunities for decades to come, he claimed that approximately 73,000 jobs will be created in the insulation sector by 2015, rising by a further 150,000 to a peak of 250,000 jobs in this sector alone. However, despite these ambitious projections, Government statistics show that as at the end of September 2013, 85,177 assessments have been undertaken whilst 954 were at 'quote accepted' stage or beyond, with a total of 57 properties having had measures installed (Department for Energy and Climate Change 2013a). This highlights that the Green Deal has so far not provided the stimulus to the construction industry that the Government had hoped for. Despite the cautious optimism from industry, Luciana Berger, the Shadow Climate Change Minister, expressed concerns that the Green Deal will actually harm small businesses as it will reduce cavity wall by 43% and loft insulation works by 83% and subsequently risk hundreds of jobs. She also claimed that there is a lack of trust in the Green Deal from the public (Berger 2012). This claim would appear justified when it is considered that from October 2012 to October 2013 installations of loft insulation fell by 93% and cavity wall insulation fel by 77% (Carrington 2013). It would appear that whilst there have been many ambitious targets set by Government with reference to what the Green Deal will achieve in terms of job creation, this has not yet come to fruition and there are concerns that instead of acting as a catalyst for growth in this area, the Green Deal is actually hampering the energy efficiency retrofit sector. However, it should be noted that the Government targets remain in place and it can be expected that the Government will act to alter the scheme in order to achieve these if they continue to be missed.

Green Deal in South Yorkshire

At the end of 2013 there were 328 businesses operating in South Yorkshire that were accredited Green Deal organisations (GD ORB 2013a). Of these organisations 67 were registered as Assessors, 238 as Installers and 23 as Providers (GD ORB 2013a). When one considers that in 2013 there were 4,420 construction companies operating in South Yorkshire (Office for National Statistics 2013) it can be seen that Green Deal accredited companies make up a small proportion of the South Yorkshire construction market, accounting for only 7.4% of the local market overall.

Green Deal Demand

Doubts are expressed by Dowson et al. (2012) about the level of demand from home owners to take up Green Deal works due to the lack of incentives available in comparison with previous schemes aimed at improving the energy efficiency of UK housing stock. They also suggest that there may be a lack of financial attractiveness

to funding providers. With funders seeking an internal rate of return in the region of 11-15%, it may be that only properties deemed to be the most inefficient prove financially viable. The potential consequence of this is that the market will be segmented in order to target only the attractive opportunities. Berger (2013) supports the view that the levels of interest rates being charged on loans are having a negative influence on demand, there is however a greater level of optimism regarding the Green Deal's ability to provide stimulus for the industry. The scepticism regarding the interest rates is reiterated by the UK Green Building Council (2013) who have identified high interest rates as adversely affecting demand for the Green Deal and have launched a task group to attempt to address these interest rates and stimulate demand. Conversely, Greg Barker, the Minister for Energy and Climate Change, claims that the Green Deal is in its' infancy and cites this as the reason for slow early uptake and predicted an increase in uptake throughout 2014 (BBC 2013a).

When one considers the demand for retrofit energy efficiency improvements, the literature appears to agree that there is potentially significant demand, however at this stage that demand appears to be latent and needs to be unlocked. The Green Deal has been introduced with the objective of doing this by providing a financing mechanism that removes the necessity for up front payment and should provide the consumer with lower energy bills. However, there appears to be a consensus that this is not the only barrier to unlocking the demand, with perceived value for money, lack of motivation and doubts about the finer details of the mechanics of the Green Deal seemingly just as important barriers to uptake. With reference to the financing of Green Deal there is also agreement in the literature that the interest rates being charged are too high and that this is further encumbering Green Deal demand.

Green Deal Supply

Reeve (2013) claims, that despite early problems with the mechanism and awareness of the Green Deal, there are opportunities for growth for SMEs. Although he does state that gaining the requisite 'Installer' accreditations will prove to be a barrier for some companies, he suggests there may be ways around this by working in collaboration with other SMEs, with the 'Green Deal Conduit' potentially offering SMEs with lucrative opportunities for growth. Robert Hughes, Sales and Marketing Director for Willmott Dixon Energy Services, suggests that the Green Deal will be successful in the medium to long term and that the slow start has been a result of a lack of understanding of a new scheme and predicts "huge" benefits (Hughes 2013). In terms of the supply chain, the literature offers little in this area with much of the economic discussion surrounding the demand side of the equation. There appears to be an underlying sense that the Green Deal's success or failure will be determined by the levels of demand which can be generated and that the supply chain will adapt to meet these levels. This is also supported by the relatively high number of Green Deal organisations operating in South Yorkshire when compared to the low number of Green Deal works having been carried out to date.

Future of Green Deal

The government has recently unveiled plans to reform the Green Deal in an attempt to increase uptake with the planned introduction of online advice tools and streamlining of the approval process (Mark 2013). The Labour Party has recently declared its' intention to abolish the Green Deal should they win the 2015 general election and replace it with a 'Energy Save' scheme (The Labour Party 2013). Details of the proposed 'Energy Save' scheme are not yet finalised with Labour said to be

consulting on the matter, with particular attention being paid to the German equivalent model; CBRP (Carrington 2013). With the Labour Party currently holding a healthy lead over the Conservatives in opinion polls (BBC 2014) a change in government in 2015 has to be considered a realistic possibility. The issue of the long term future of the Green Deal appears to be largely political, with both of the main UK political parties seemingly committed to programmes targeted at improving the energy efficiency of the UK's aging housing stock. There is, however, a lack of consensus of how it will work and the long term future of the Green Deal in its' current guise appears to be dependent on which political party wins the 2015 General Election. This presents a problem for small businesses wishing to become involved with this market as the accreditation costs present a significant outlay, which may prove to be money wasted should the Green Deal be abolished after 2015.

RESULTS

The characteristics of the Green Deal and the opportunities they provide for SMEs.

The primary characteristic of Green Deal is that it is a loan which is attached to a property to fund the retrofitting of energy efficiency measures to a property, based on the recommendations of a Green Deal assessment. The main rationale behind introducing the Green Deal appears to be that homeowners have thus far neglected to install these measures due to a lack of funding and that by introducing a scheme which will allow them to fund the measures without the burden of committing to a personal loan homeowners will be encouraged to have these works carried out. However, it was highlighted in the literature and the questionnaire, see Figure 2, that lack of funding is not the only factor which people will take into account when deciding to install measures on their property, such as the inconvenience of undertaking the works and having other greater spending priorities.

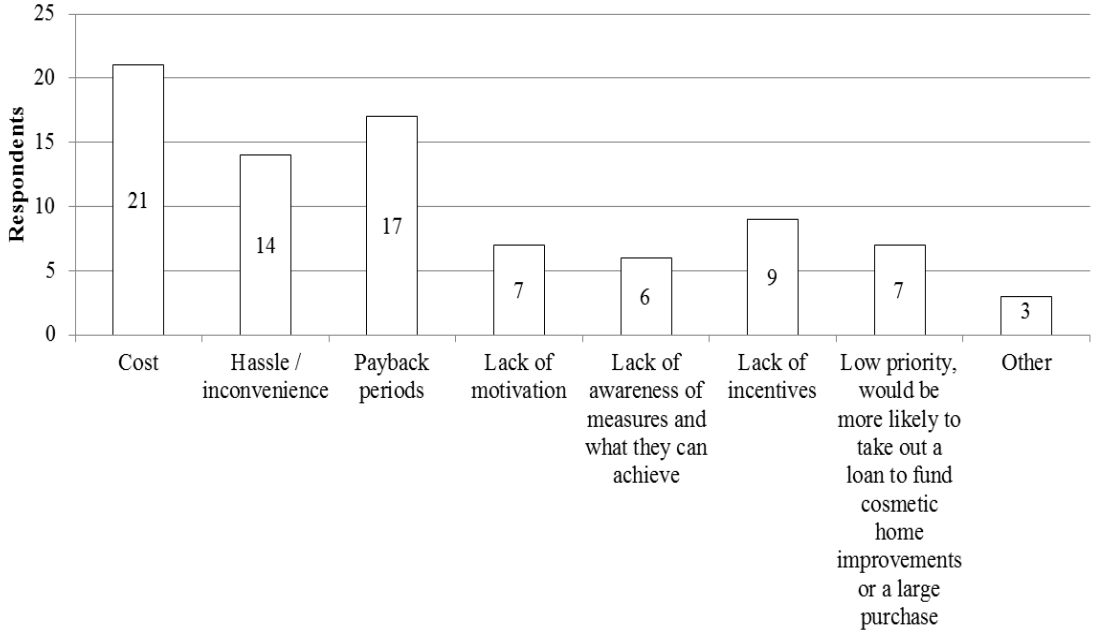


Figure 2 Factors preventing homeowners from installing energy efficiency measures

In order for a company to undertake work under Green Deal they must either be accredited in their relevant discipline or work as a subcontractor for an accredited organisation. This does have a cost attached to it and any company wishing to

become involved in Green Deal must assess whether the cost is a worthwhile investment. The prevailing view is that there is a high level of underlying demand for the retrofitting of energy efficiency measures to properties, but that this demand must be unlocked. It should be pointed out that the Green Deal was introduced with the express intention of doing exactly that and that so far it has failed to unlock that demand. However, with rising energy costs and carbon reduction targets, one would expect that at some stage the demand for energy efficiency measures will increase considerably. Current debate concerns whether the Green Deal in its' current guise can facilitate the acceleration of that process. The overriding message from the literature and the interviews is one of cautious optimism that the Green Deal can be successful and unlock the demand given time, although there is a general consensus that government need to do more to press the case for the Green Deal and raising public awareness.

The number of companies involved in Green Deal in the South Yorkshire area.

The literature highlighted that there are currently 328 accredited Green Deal companies active in South Yorkshire and that these account for approximately 7.4% of the local construction industry. There are several points about these figures to note however; firstly the figures are companies which declare themselves to be active in South Yorkshire, however many companies will declare themselves as operating in a wide area in order to avoid precluding them from working in those areas should an opportunity arise. Secondly, these figures account only for accredited organisations and no account is taken of unaccredited subcontractors. Whilst the data may not be a true reflection of the actual number of companies involved in Green Deal in South Yorkshire, it can be said to be indicative of a relatively low number of companies involved in the scheme. This low number is potentially indicative of a lucrative niche area for companies who get involved at an early stage. Conversely it may be that the slow uptake in Green Deal works from consumers has prevented companies from becoming involved. One would have thought companies may have gained the accreditations prior to the scheme's launch in order to be in a position to capitalise on any early demand.

Establishing if the Green Deal forms part of the business development strategies of SMEs.

It was seen from the questionnaire that there is a reasonable understanding of Green Deal amongst SMEs and that of those questioned, 69.8% were accredited companies, however of these companies 46.7% had yet to complete any works under Green Deal, see Table 5.

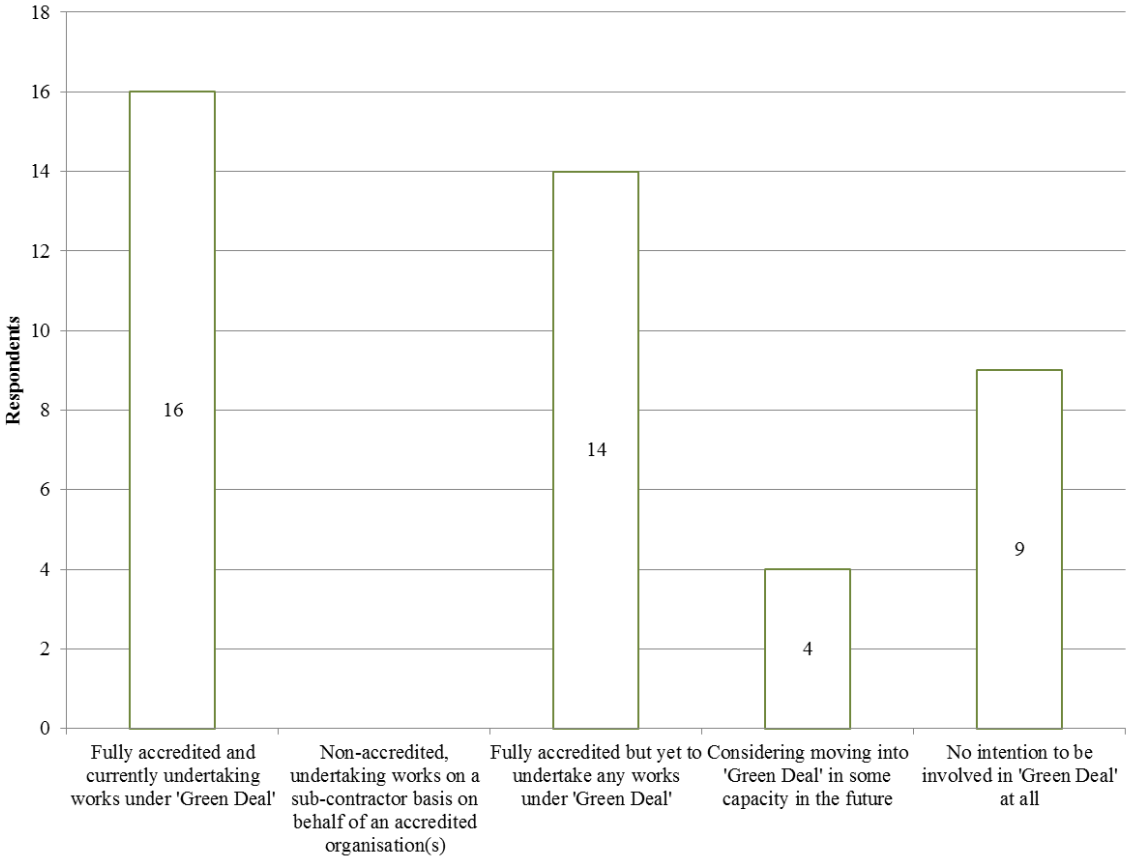


Figure 3 SME Involvement in Green Deal

Table 5 SME Involvement in Green Deal

	1 - Fully accredited & working under Green Deal	2 - Non-accredited sub-contractor	3 - Fully accredited, yet to undertake works	4 - Considering moving into 'Green Deal' in future	5 - No intention to be involved in 'Green Deal'
Number of respondents	16	0	14	4	9
Percentage	37.2%	0.0%	32.6%	9.3%	20.9%

This is indicative of the slow start the Green Deal has experienced. Of those companies involved in Green Deal it was found from the questionnaire that they are generally using the scheme as a subsidiary to their normal business operations while the scheme properly takes off. This was also the position of the subcontractor who was interviewed. This would seem to be a sensible position given the slow start the scheme has experienced and that, whilst companies may wish to focus primarily on Green Deal long term, they must in the meantime remain profitable to stay in business in order to exploit any potentially lucrative rewards the scheme may

provide. Overall, it would appear that where companies have a good knowledge level of Green Deal they are taking the view to invest in gaining the requisite accreditations and are using the scheme to subsidise their normal business operations in the hope that it expands into a lucrative business development prospect in the future.

Comparison of potential Green Deal profit margins with other relevant areas of the construction industry.

It was seen from the questionnaire that most respondents expect to achieve an average mark-up of 10% to 20% for overhead and profit on a general construction project and that the majority would expect to achieve similar levels of mark up for works undertaken under Green Deal, see Figure 4, with any premiums being expected being around the 5% mark. A similar view was found from the interviewees and therefore it can be accepted that this is the general consensus from industry.

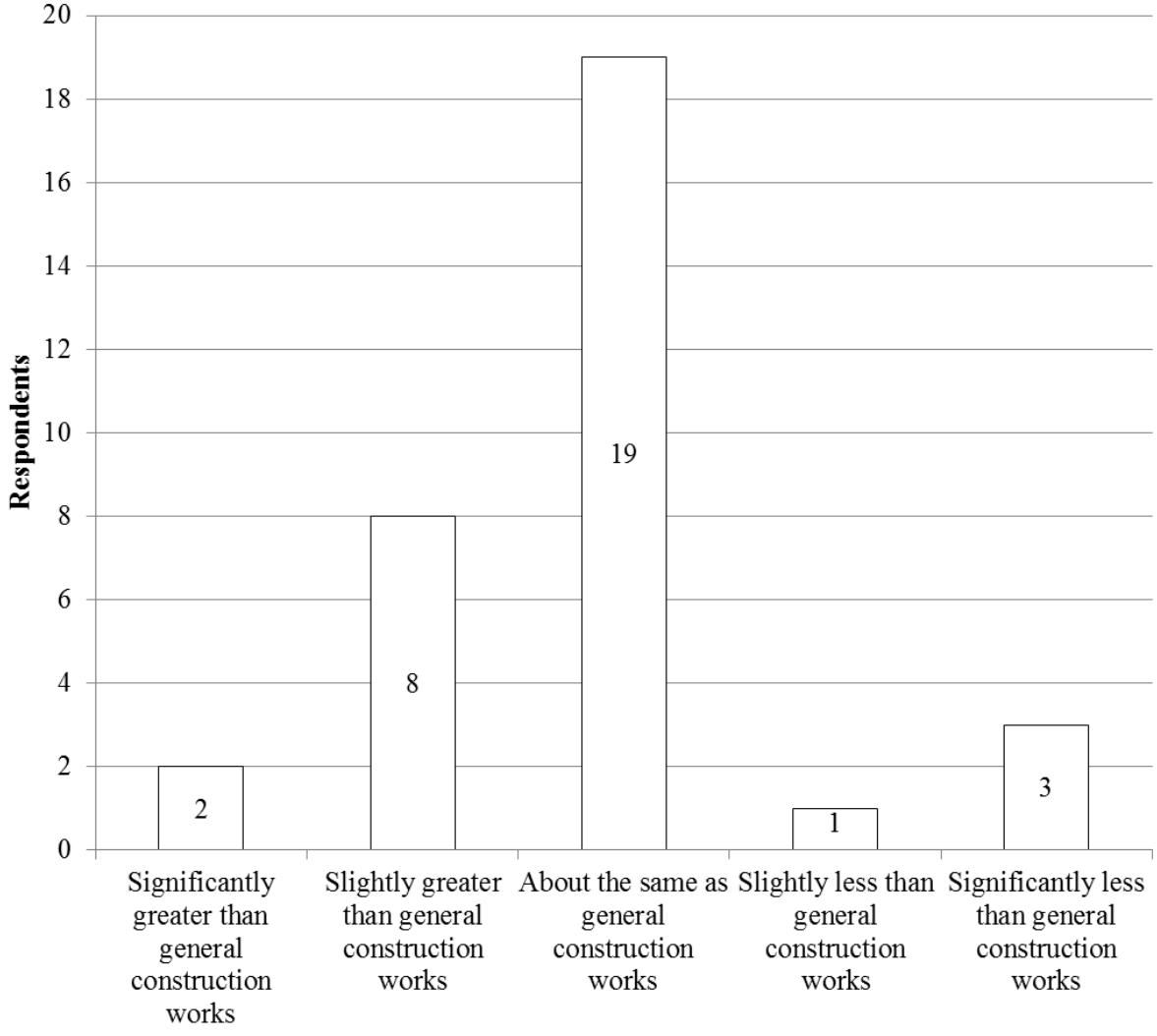


Figure 4 SME Expectation of Profit Margins on Green Deal

It was indicated in interview 1 that a premium could likely be applied for Green Deal and that to target comparable margins is a pragmatic view, aimed at maximising the number of properties which will meet the Golden Rule, in order to gain higher volumes of works and achieve associated economies of scale. However, as logical as this approach may be, it must be noted that at present the Green Deal has yet to take

off on any significant scale and therefore the volumes of work are not available, resulting in this logic being flawed. It must also be considered that if, by applying a premium for undertaking works under Green Deal, properties fail to qualify for funding then the structure of Green Deal may be inherently flawed. It would seem unreasonable for contractors to undertake works on individual, occupied properties, with all the risk and inconvenience associated, for the same rates as on a general commercial basis. This is what is being asked at the moment, as indicated by interviewee two who is attracting reduced margins under Green Deal than on a private works basis. It must also be considered that Green Deal Installers must incur costs associated with gaining and maintaining their accreditations, as well as the onerous administrative procedures that they must adhere to. If SMEs are then unable to apply a premium for Green Deal works, one would need to question the value of gaining the accreditations.

Evaluation of whether Green Deal offers business a stable platform on which to base long term business development strategies.

The literature highlights the fact that thus far the Green Deal has not taken off in the manner in which it was intended to do so. Consequently the future of Green Deal has become a point of political debate with the present Government committing to the Green Deal beyond the 2015 election should they win, albeit with amendments. Labour, however, have outlined their intention to abolish Green Deal and replace it with an entirely new scheme, possibly modelled on the German CO2 Buildings Rehabilitation Programme (CBRP), should they win the election. Whilst both approaches no doubt have their merits, which are outside the scope of this research, this uncertainty is creating instability with companies unable to adequately plan long term. The questionnaire highlighted that industry is generally uncertain as to whether the Green Deal will succeed, when a Chi-Squared test was applied to the results it was found that where participants had a sound knowledge of the scheme their view was that Green Deal will not be successful in its' current guise, as shown in *Table 6.*

	1 - Very successful	2 - Somewhat successful	3 - Unsure	4 - Not very successful	5 - A failure
Number of respondents	2	5	5	10	4
Percentage	7.7%	19.2%	19.2%	38.5%	15.4%
Mean	3.35				
Mode	4				
Standard Deviation	1.17				

Table 6 The views of professional on how successful Green Deal will be in its' *current guise*

The questionnaire indicated that, despite some uncertainty, industry does generally believe that the scheme does provide opportunities which are worthy of investment of company resources. With reference to both how successful the Green Deal will be

and the scheme being worthy of investment, the interviews supported the data collected in the questionnaire with the consensus being that the scheme will not be successful in its' current guise and that it needs changing to provide a stable, structured scheme which gives confidence to both consumers and businesses long term. What can be seen here is that the Green Deal in its' current guise is not working and is in need of some help in order for it to be a success moving forward. However, at present there is a lack of action to actually facilitate this. Consequently the Green Deal is further being hampered by uncertainty with both consumers and industry lacking confidence about the long term viability of Green Deal and the opportunities it provides. Therefore it can be said that, despite the optimism that the Green Deal does provide opportunities that are worth of investing company resources, the scheme does not currently offer SMEs with a stable platform on which to base their long term business development strategies.

Evaluation of the Green Deal opportunities for SMEs within the South Yorkshire Area.

It has been shown that the Green Deal potentially opens up a whole new stream of customers for the retrofitting of energy efficiency measures that would otherwise not have been able to afford the works. However, due to various issues which are hampering early uptake of the scheme, the demand is latent at this stage and must be unlocked for these customers to be accessible to SMEs. Additionally, it has been seen that there is currently a small number of companies involved in Green Deal in South Yorkshire and therefore this potentially offers SMEs with an opportunity to become involved in an area which is not saturated by competitors. It can therefore be said that South Yorkshire offers SMEs with a largely unexploited market place for the retrofitting of energy efficiency measures. However, these opportunities cannot be said to be current and that they are potential opportunities and it may require patience from SMEs before these opportunities come to fruition.

Establishing the position of SMEs to be able to capitalise on any demand which exists.

Despite the slow uptake, SMEs with a good knowledge of Green Deal have been seen to be gaining the requisite accreditations in order to undertake works on the scheme and using Green Deal works as a subsidiary to their usual works. Due to the slow uptake, this would appear to be a speculative move based on a presumption that the scheme will eventually prove to be lucrative for SMEs. Issues surrounding profitability were highlighted and it has been shown that whilst Green Deal does potentially open up good, previously unavailable revenue streams, these works will not be available at a premium rate. Therefore businesses must take a view on whether they are willing to invest the resources to undertake these works, with no premium for that investment. The fact that Green Deal does not provide SMEs with a stable platform on which to base their long term business development strategies is a cause for concern and this is an area over which SMEs have very little control and greater certainty would be welcome. This would be achieved by cross political party consensus regarding the optimum way in which to develop Green Deal moving forward. However, this may not be a realistic prospect in the current political climate. It can be said that by gaining the accreditations required and setting up in preparation for Green Deal, despite the lack of certainty or promise of lucrative premiums, SMEs have put themselves in the best possible position to capitalise on any future demand for Green Deal works.

CONCLUSIONS

It was found that the Green Deal is an innovative scheme targeted at providing a mechanism for homeowners to undertake the retrofitting of energy efficiency measures with no up-front expenditure, with the costs being paid for via savings on energy bills. Whilst the UK Government has set some ambitious targets and outlined forecasts of high levels of job creation, uptake has thus far been slow, largely down to a lack of consumer knowledge and understanding. Slow uptake may also be attributed to uncertainty surrounding the fact that the loan is attached to the property for the duration of the loan, as opposed to the individual. The attachment of the loan to the property presents potential issues with regards to the resale values of properties as there may be, real or perceived, adverse effects of the debt.

It was found that there do exist potential opportunities for growth in this sector in South Yorkshire and that SMEs have recognised these potential opportunities and have taken steps to put themselves in a position to be able to exploit them in future. However, it has also been found that Green Deal currently has a number of inherent flaws in its' mechanism surrounding the cost of finance and levels of bureaucracy and administration involved. It has also been highlighted that despite the ambitious plans Government has for Green Deal, there has been a lack of support for the scheme and this has contributed to a poor start for the scheme. When all things are considered, the Green Deal does provide SMEs in the Construction Industry with a platform for business growth and improved financial performance.

There is, however, a caveat to the previous statement; whilst the hypothesis is proven, the platform which Green Deal offers cannot be considered to be one which will provide immediate growth opportunities and SMEs will need to be prepared to exercise patience in waiting for the scheme to reach its' potential. This may prove to be a problem for those businesses that have made Green Deal their primary focus but provided that businesses can survive through these difficult early years of the scheme, the benefits should be realised in future. This may best be achieved by running Green Deal as a subsidiary operation to other activities, as many businesses are prudently doing.

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HAS CONSTRUCTION INDUSTRY TENDERING IN THE UNITED KINGDOM BECOME INCREASINGLY COMPETITIVE?

Linda Fleming[5] **and Christopher Holt**

Construction and Commercial Management, Sheffield Hallam University, Faculty of Development and Society, School of the Built Environment

The aim is to determine if the Infrastructure and Building sectors of the UK Construction Industry have become increasingly competitive over the last five years. A review of literature looking at methods, changes, construction companies' opinions, and actions being taken has been undertaken. Responses received from a questionnaire issued to 100 construction professionals operating in building and/or infrastructure regard 'competitiveness' to be subject to a significant or major increase between 2008 and 2012. The work further looks upon the 'competitiveness' to be as a result of the 'double-dip' recession suffered by the UK. Case study research on construction companies concluded that they are operating in a challenging economic climate and need to take actions to survive. Factors considered to have an effect on competitiveness include location, project type, project value / size and who the client is which , in addition to the recession, cause a difficult financial environment.

Keywords: tendering, competition, infrastructure, recession

INTRODUCTION

Overview

The UK construction industry is defined as 'a sector of national economy engaged in preparation of land and construction, alteration, and repair of buildings, structures and other real property' (BUSINESS DICTIONARY, 2013). The construction industry is further defined in accordance with the Standard Industrial Classification (SIC) and includes general construction and demolition work, civil engineering, new construction work, and repair and maintenance (UK NATIONAL STATISTICS, 2013). This research focuses on two sectors of the industry, building and infrastructure. In terms of the construction industry and for the purpose of this research, infrastructure and building are defined as follows. Infrastructure refers to projects such as construction of roads, car parks, railways, airport runways, bridges

[5] Linda_F17@hotmail.com

and tunnels (and includes civil engineering). Building is defined as construction, improvement and repair of both residential and non-residential buildings (UK NATIONAL STATISTICS, 2013). The NBS (National Building Specification), in March 2011 defines Tendering as the process by which bids are invited from interested contractors to carry out specific packages of construction work. The NBS believe that the tendering process should accept and monitor the key values of fairness, clarity, simplicity and accountability. Furthermore, any risk allowance should be distributed to the party best placed to measure and manage it to ensure the success of a project (NBS, 2011).

Aim

To compare and contrast infrastructure and building tendering in the last 5 years in the UK, to determine why tendering is said to have become increasingly competitive and the likelihood of this continuing.

Objectives

1. To determine the most commonly used form of tendering for infrastructure and building projects
2. To identify how the infrastructure and building tendering process has evolved over the last 5 years
3. Using Reports and Accounts from the last 5 years for 3 major Construction companies in the UK, to ascertain how the evolution of both the infrastructure and building tendering processes have affected how competitive these two sectors of the construction industry are.
4. To ascertain industry opinion as to why changes have occurred
5. To establish what actions may be taken by companies if the two sectors (Infrastructure and Building) in the UK construction industry continue to be increasingly competitive

Rationale

The author of this paper has been working in the construction industry for six years and currently works as a Trainee Estimator for a main contractor in the UK. The main contractor is a national contractor working in three key areas; building, infrastructure and services. The main focus of the author's current role is Infrastructure projects in the North of England. The results of this research were primarily derived from qualitative research as it was focusing on the views and opinions of individuals and companies in the construction industry. Primary data was obtained from questionnaires and secondary data from a comprehensive literature review and any case studies previously carried out on the subject area. The chosen methods are intended to be unbiased but give a detailed view of the situation. The questionnaires were qualitative research based on obtaining information on individual opinions, feelings and experiences. The questionnaire was distributed to a survey population of 100 people from civil engineering, infrastructure and building backgrounds. The survey population was a variety of construction personnel including estimators, planners, bid managers, proposal managers, design coordinators, and commercial personnel. A comprehensive literature review was carried out in the research area (NAOUM, 2007). Case studies in the form of Construction Companies Reports and Accounts were used as a source of information.

Three UK construction companies who have been in operation in both infrastructure and building tendering in the last 5 years were critically analysed using their published reports and accounts.

LITERATURE REVIEW

There are many construction companies in the UK, operating nationally and locally. The companies will tender works of varying value dependant on their size and location. The literature review on this research topic will include books, journals, construction company publications and construction related magazines from organisations such as CIOB and ICE. According to Brook in 2008, the success ratio for a construction firm is often quoted as 1 in 4 but can be as bad as 1 in 6 or as good as 1 in 2 when competition is limited (BROOK, 2008). Based on the author's own experience in tendering, whether looking at infrastructure or building, the over process is similar in that, the tender opportunity is identified and an interest shown by either the contractor or the client. The contractor (Construction Company) is issued with tender documents which are then priced. The pricing element varies; it could be in the form of an activity schedule, bill of quantities or a schedule of rates. Building and infrastructure projects are procured under different forms of contract, therefore the contractor will have different responsibilities under contract. Once the contractor has submitted their price it is down to the client to choose their preferred bidder according to their scoring matrix. The literature highlights that the major difference between building and infrastructure is the form of contract used on a project. On building works it is Joint Contracts Tribunal (JCT). JCT is a suite of contracts for building works which includes a Standard Building Contract (SBC) (JCT, 2014). Infrastructure projects use Engineering and Construction Contract (NEC3). NEC3 is also a suite of contracts focussing around good project management principles and practices whilst outline legal relationships (NEC, 2010).

According to Mace the UK construction market is currently competitive for the period of 2008 to 2012. Mace Cost Consultancy in 2013 was expecting tender pricing to remain competitive as construction output continued to get smaller. Over the years, there were a decreasing number of projects available to tender on. And according to Mace, tender prices have been falling consistently since 2008, at a time while the cost of building materials has risen sharply. These are difficult conditions for contractors, subcontractors and suppliers in the construction industry. Mace did not believe that tender prices will decrease in competitiveness until the economy shows signs of sustainable growth and actions are taken to kick-start the industry which is such a vital part of the economy (MACE, 2013). Kier, a national construction company and one of the top 10 in the UK, said in the year to 30 June 2012 that all their businesses had been tendering for work in an increasingly competitive environment. Kier considered themselves to be responding well to the challenges in the market and were encouraged by the Government’s commitment to improve the UK’s infrastructure and to be well placed to benefit from this investment. Kier's construction division, which includes infrastructure and building, saw an alteration in 2012 in the stability of its work with a greater proportion of more specialist major civil engineering and infrastructure opportunities while still maintaining a strong presence in the more traditional general building markets (KIER, 2012).

Carillion plc, another top 10 UK construction company rescaled their UK construction business by tightening the criteria by which they selected the contracts for which they bid. This tightening enabled them to ensure that the size of the business remained aligned with the shrinking UK construction market (CARILLION PLC, 2012). In general, UK construction companies believed the industry to be currently a challenging environment. The reason given in most cases was the problems experienced with the UK economy. This would appear to have been the main, but not the only reason for the increasing competitiveness. The Collins dictionary defines recession as a period of economic difficulty when little is being bought or sold (COLLINS, 2003). The UK between 2008 and 2012 was seen to have suffered a double dip recession, with associated reduction of spending in the construction industry. According to Mace Cost Consultancy the construction output should stabilise by 2015 (MACE, 2013). As the construction industry spend has decreased and a more competitive market established, the UK has lost some of the smaller construction companies and subcontractors as a result of financial instability in the years 2008 to 2012. Larger UK construction companies made acquisitions just before or in early 2008, for example, Carillion acquired Alfred McAlpine. These acquisitions helped the companies to remain strong players in the industry.

The actions which construction companies took included major restructuring, reallocation of staff to give full service to clients, increased joint venture working and focused tendering. The UK's major construction companies seemed to be taking at least one of these actions to "stay alive" in the market. Construction companies are ultimately looking to maintain their status in the UK industry during the increasingly challenging economic climate. The construction companies are able to choose the actions they take in the competitive industry but the decisions are difficult.

ANALYSIS

A summary of the survey population has been determined from the completed questionnaires. The respondents were asked to state their job title, however there were various titles given by the respondents, so the author has grouped the titles into departments based on the author's knowledge of construction. Grouping the job titles into departments clearly shows the range of individuals from various construction disciplines that were surveyed for this research (See Figure 1).

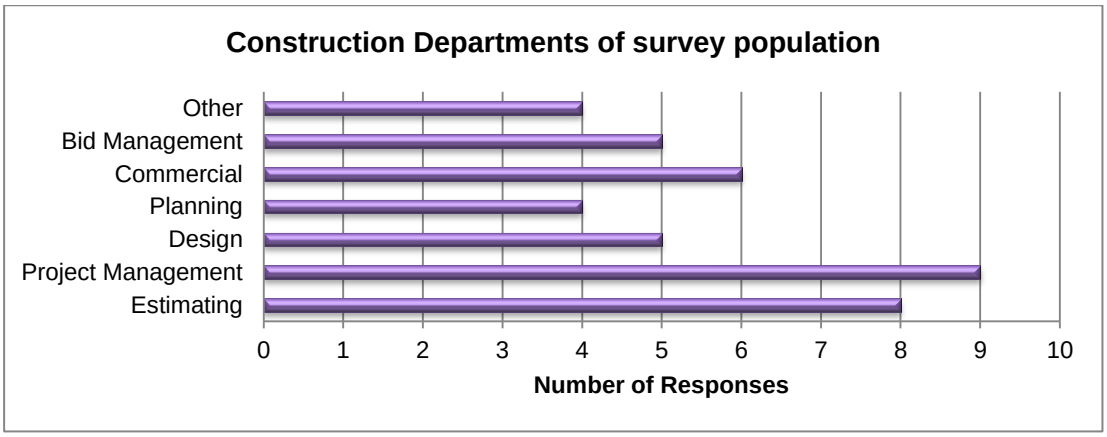

Figure 10 Departments in which the survey respondents were based

The respondents' experience of the construction industry is important when looking at competitiveness in the industry. The research intended to cover the period of 2008 to 2013 and therefore people new to the construction industry with less than one year's experience may have found it difficult to determine and answer later questions. Responses show that majority of respondents had over 10 years experience in the construction industry (See Figure 2).

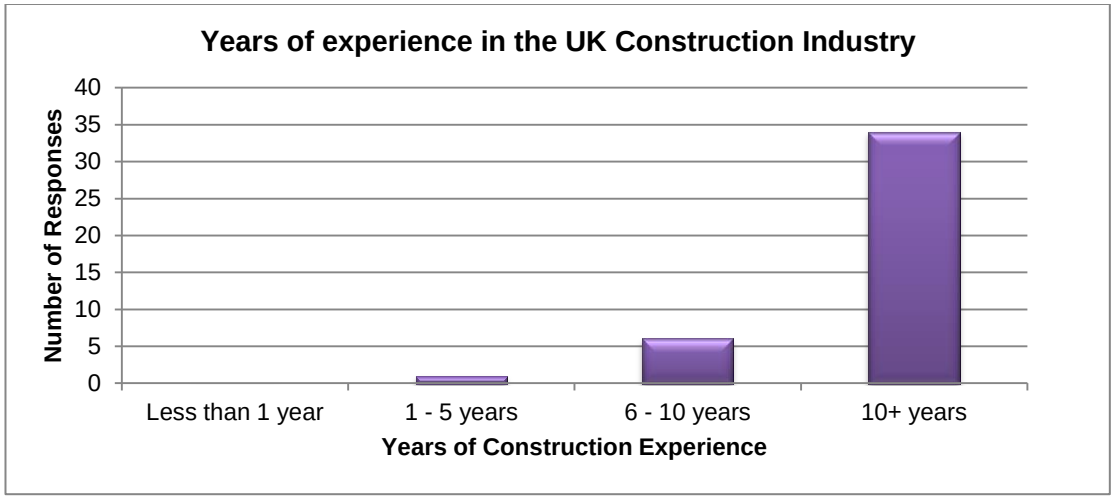

Figure 11 Years of Experience in Construction

As the research focussed on building and infrastructure the survey population were asked to indicate in which sector and markets they currently operate. As one respondent mentioned civil engineering as an additional tender type, this has been included in the Infrastructure figures. Figure 3 shows the results of the question where responses were received from individuals working in building and or infrastructure. Although results show that more responses were received from individuals currently operating in infrastructure than in building, it is noted that 12 respondents are currently undertaking both building and infrastructure tenders.

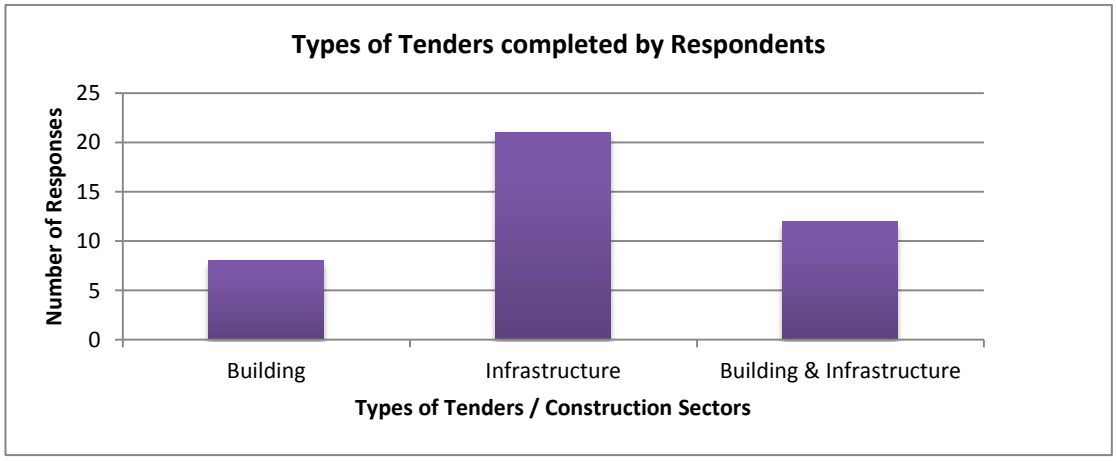

Figure 12 Types of Tenders undertaken by Survey Population

In summary to section 1 of the questionnaire, the survey population were from a variety of roles within a construction company. The roles included estimators, planners, project managers and many more. The majority of the survey population are from a main contractor background and have been working in the UK

construction industry for in excess of 5 years. The respondents have been operating throughout the UK and in both the infrastructure and building sectors. The respondents are operating in various construction markets including; transport, power, commercial, industrial and more. In most cases the respondents are operating in both public and private sectors with minimum bid values of less than £5million. Once the background of the survey population was identified, they were asked further questions to establish their opinions of the construction industry. The respondents were asked to consider the competitiveness of types of tenders in relation to the market sectors had previously stated. Figure 4 highlights the views on competitiveness in the respondents' current division. The results show that respondents believe they currently operate in an environment which ranges from slightly competitive to very competitive construction.

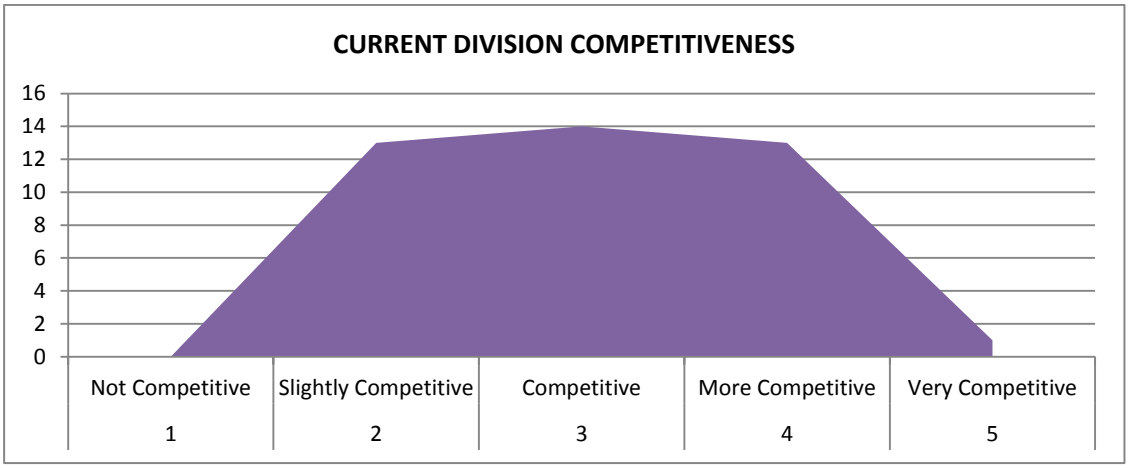

Figure 13 - Survey Population opinion on Current Division Competitiveness

Comparing sectors (Figure 5) shows that the majority of the respondents feel that the building sector is more competitive than Infrastructure.

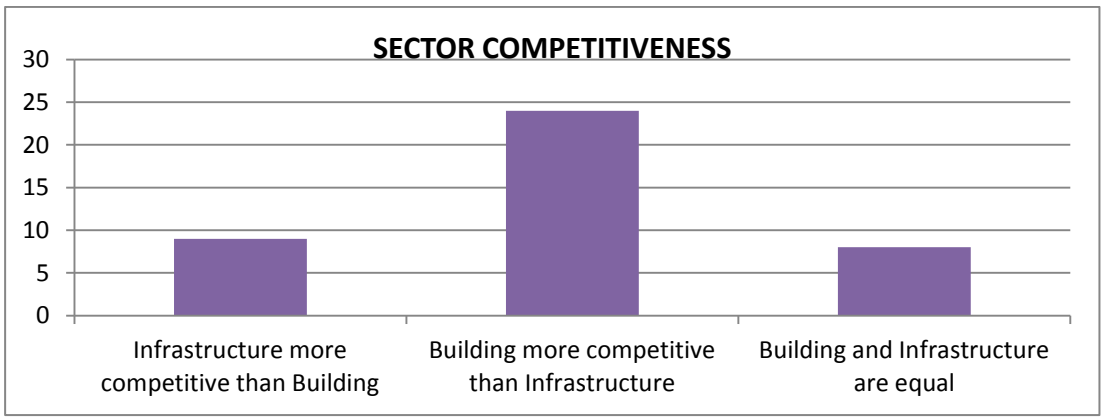

Figure 14 - Sector Competitiveness Building versus Infrastructure

Respondents were asked to identify the causes of competitiveness in construction tendering. The following choices were given, recession, location, project type, project value and client; with an option to indicate if in their own opinion the competitiveness was a result of something else. Figure 6 shows that the respondents feel that the recession is the main cause for competitiveness in UK tendering. Open responses included other reasons including "increased competition from Northern

Europe (especially Ireland)", "Client's putting risk onto contractors", "reduction in government spending" and "the North and South divide".

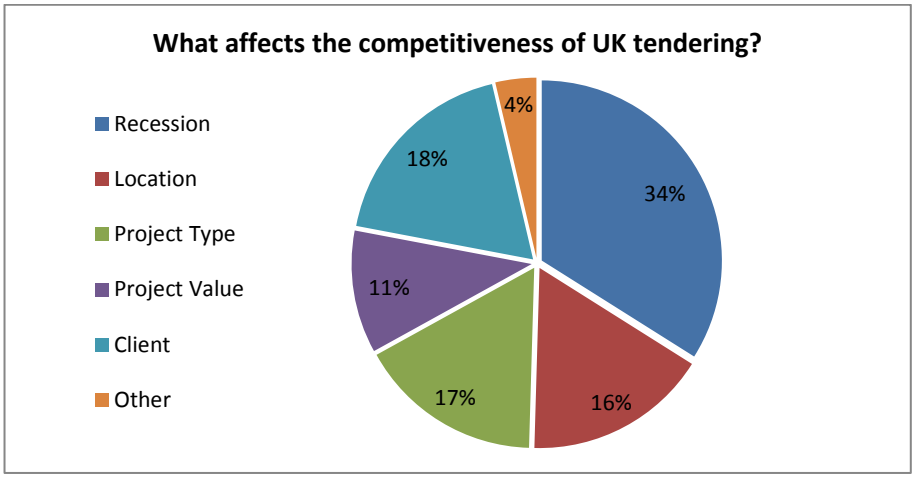

Figure 15 - Effects on Competitiveness on UK Tendering

An open question asked respondents for their opinion on any changes they felt have occurred in UK Construction tendering. There were many reasons given but all focus around 10 key areas. These are Recession, Collaborative Working, Client, Contractor, Contract Conditions, Cost / Money, Quality, Time, Methods and Projects / Workload. A summary of the reasons respondents say tendering has changed are given in Table 1. In the respondents opinions each of the key areas above have caused changes in UK tendering. An example being overall there are fewer projects for construction companies to tender in the market. This is as a result of more frameworks, with collaborative working and partnering. Contractors are trying to maintain levels so are bidding on works outside their comfort zones in terms of location, size or sector. This question was for respondents to indicate if they believe that UK tendering has become more competitive between 2008 and 2013. This question was focussed directly on the hypothesis of this research which states "The Infrastructure and Building sectors of the UK Construction Industry have become increasingly competitive over the last five years". The results shown in Figure 7 indicate that in the opinion of the majority of the survey population, competitiveness in UK tendering has significantly or majorly increased between 2008 and 2013. It is noted that one respondent indicated that in their opinion there has been no change in the competitiveness of UK tendering between 2008 to 2013.

Table 7 - Survey Population Opinion on Why tendering has changed

1) Recession • a loss of key subcontractors • a shortage of skilled workers • an increase in material costs	2) Collaborative Working • More Frameworks • Clients using framework rates to get value for money
3) Client • Assessing more on quality, Health and Safety, Capabilities and Methodology. • "Value for Money", "more for less" and Value Engineering • Passing Risk to contractor • Requesting Fixed Price • Use of Activity Schedules more often • Looking less at commercial and more at Quality	4) Contractor • Contractors working outside comfort zones e.g. location, size and sector • contractors bidding works previously deemed too small • E-Tendering allows contractors to be more aware of projects • Desire to maintain level / status • No solid relationships with Clients
5) Contract Conditions • Bespoke contract conditions for some Clients • Clients more contractually aware and demanding • Some contracts focus more on Price and Programme	6) Cost / Money • Limited money / financial support available • Reduced margins – some unrealistic margins which can be considered as "buying" work • Lower budgets on projects
7) Quality • Client more focussed • Client requesting more information in support of Tender	8) Time • Reduced Tender Period • Projects more time consuming for contractors during bid stage, with quantity of information required and tender meetings.
9) Methods • Bill of Quantities reduced so risk is on the contractor • Moving from use of Bill of Quantities to Target Cost • Less negotiated projects	10) Workload / Projects • Fewer projects available so contractors keen to win • Project sizes decreased • Reduced share of projects in open market due to frameworks

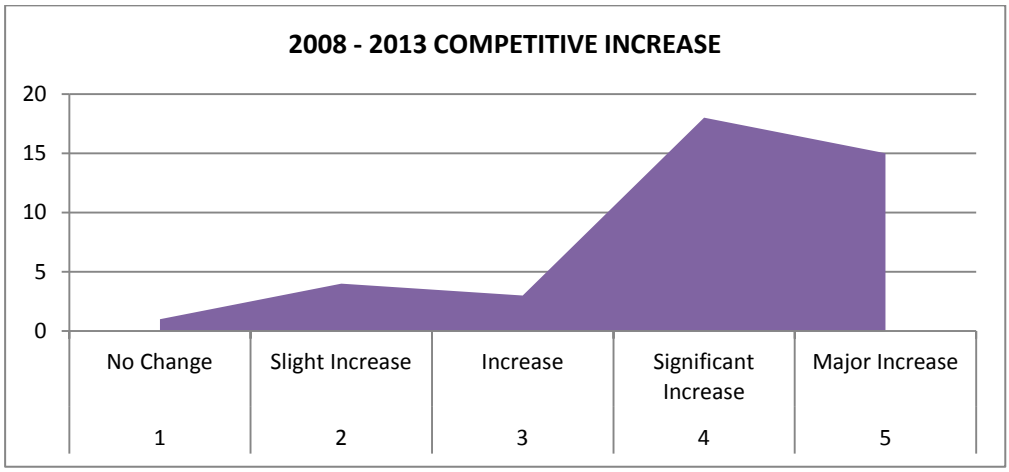

Figure 16 - Survey Population view on competitive increase in UK tendering between 2008 to 2013

In conclusion to the questionnaire analysis, current tendering in the UK is competitive whether operating in building and or infrastructure with a noticeable increase in the competitiveness seen by the construction industry between 2008 and 2013. People operating in the building sector only, with over 10 years experience in the construction industry feel that they currently operate in a competitive market.

They expressed the competitiveness of the industry between 2008 to 2013 was significantly increased. People working in infrastructure only also believe their current market to be competitive and expressed that they also saw a significant to major increase between 2008 to 2013. Individuals working for a main contractor or subcontractor operating in building and infrastructure in the UK construction industry, with over 10 years experience expressed that their current operational sectors were slightly to very competitive. Subcontractors acknowledged an increase in the competitiveness of UK tendering between 2008 to 2013 but not to the same levels as those operating for a main contractor. People with less than 10 years experience in the UK construction industry still expressed the industry as competitive currently and saw an increase in the level of competitiveness during their years in construction. It is concluded that in early 2014 when the questionnaires were completed that tendering in the UK construction industry is competitive and had become more so as a result of the recession between 2008 and 2013.

Case Study Research Data

Recession is a threat to any business, this can be seen in the reports from the 3 major players in the construction industry. During the years 2008 to 2013, these companies remained strong both operationally and financially in the UK construction industry. However, all three companies showed a decline in financial results. All three companies had different ways of maintaining the capability of their respective businesses. It is apparent that companies need to adapt in order to survive in some cases by being forced to embrace new ideas not only to survive but to retain the ability to move forward when the current period of very challenging conditions comes to an end. The three companies have all realigned or even restructured over the years to maintain a strong position in what they all have agreed is a challenging industry. Restructuring is an attempt by the companies to increase efficiency and avoid unnecessary duplication and can also provide new and improved services to clients. However, restructuring can result in job losses, pay freezes and loss of skilled workers. The actions taken over the years by the 3 companies meant that the companies continued to have successful project awards and show signs of growth through the recessions. The companies were forming joint ventures with other construction companies to work collaboratively on major projects in both building and infrastructure. The companies were also continuing successfully on their long-term projects to maintain their status and reputation. Due to the financial strengths of the 3 companies they acquired smaller sized construction businesses prior to 2008 or during the difficult financial years for the UK construction industry. The acquisitions assisted with increasing the financial and operational status of the businesses. All 3 companies have expressed that the UK construction industry is an increasingly challenging economic environment. The 3 major construction companies have all successfully survived the 'double-dip' recession that the UK suffered during 2008 to 2013.

DISCUSSION

The methods used in UK tendering has changed over the years under study. Clients were previously using bills of quantities as part of the tenders, producing a fixed cost, however, a bill of quantities puts this risk onto the client. Primary research has indicated that clients are trying to transfer the risk onto the contractors. Secondary research would support this in that construction companies are putting more time into

risk management. The various schedules, of activity, works and rates are becoming more common in tendering. The major changes which have been noted from the research are that clients are introducing more framework tenders to the UK construction market. More frameworks are going out to tender in which a schedule of rates is being used as the basis of the tender. As a response to this contractors are forming more joint ventures or undertaking more collaborative working on tenders and projects. Collaborative working is allowing contractors to form strong working relationships and offer clients value for money. Although the tendering process has remained unchanged for many years, small changes such as how the tender is submitted to the client have progressed in that more tenders are being submitted through a client's online portal and not in hard-copy. The primary research especially has identified that clients are requesting more information to be returned with their tenders. This information is quality based, clients are requesting this as they are starting to assess more on quality, health and safety, methodology and programme. There is still an element of the "lowest price wins" but some clients are focussing more on quality. The literature review and questionnaires have undoubtedly claimed that the main reason the UK construction market was competitive between 2008 to 2013 was due to the UK's 'double-dip' recession which affected the market in 2008 and 2012. The research shows that the recession caused a significant reduction in spending across the UK construction market. The reduction resulted in a reduced workload and therefore increased the competition between construction companies. Construction companies were operating outside their comfort areas to maintain their status within the industry. Furthermore, companies were having to tender works which were outside their current strengths. Research indicates that having an option to be selective in projects to tender for is ideal and prior to the recession this was an option. Construction companies had business plans which outlined targets. The targets were often with regards to project types, project values and ideal locations. In the challenging economic environment companies were unable to be so selective and often worked outside their comfort zones and business plan. Primary research showed that large construction companies were competing for projects of smaller values and in different locations.

During the period of 2008 to 2013 the UK construction market had become increasingly competitive as a result of the recession. Research has shown the workload was reduced in both the infrastructure and building sectors. Primary research also showed that on top of the recession causing competitiveness was project type, project value, location and the client. In addition the primary research suggested that areas outside of the UK capital were more competitive and especially the building sector. Contractors had to reduce their margins on tenders as workload was decreased during the economic downturn. The Literature review, questionnaires and case studies are all suggesting given time the market will improve, increasing the workload, meaning less competition and allow for margins to increase for contractors. All research points to companies working more collaboratively with others, forming joint ventures and making acquisitions to maintain a strong status. Collaborative working allows contractors to offer clients more all-round robust prices on tenders. On project award the collaborative working is maintaining the contractors financial and operational status in the UK. Primary research indicated that contractors needed to improve relationships with clients, working more in partnership and having a strategic approach to tendering works.

The sources in this paper have shown that over time the risks on a project are more and more being transferred by the client to the responsibility of the contractor. The primary research suggests an improvement on risk management is needed throughout the construction industry. Competitiveness in UK tendering increased significantly to majorly between 2008 and 2013, with the recession being the main reason, this is shown in the primary research collected from individuals currently working in the construction industry. The questionnaires were completed in early 2014 and the indication that their current divisions are competitive is not unusual. The research into UK tendering and competitiveness has indicated that an element of competition is needed in construction tendering in the UK. The competition can be healthy and sometimes crucial to give best value on tenders.

CONCLUSION

In conclusion, research is showing that the UK construction industry has become increasingly competitive over the five years. Whether operating in building, infrastructure or both sectors the current sectors are competitive, with a significant to major increase being seen between 2008 and 2013. The main reason for this is the double dip recession that the UK economy has suffered during this period. Construction companies are taking actions to prevent any decline in profits and turnovers in the current markets. Secondary data has highlighted that a common action between some of the major construction companies is that they have had a complete restructure since 2008.

Recession is a threat to all businesses but can also present opportunities. All three companies showed a decline in financial results but had divergent ways of maintaining the viability of their respective businesses. It is clear that companies need to adapt in order to survive. Many companies have completely collapsed during the current recession and others have been forced to embrace new ideas not only to survive but to retain the ability to move forward when the current period of very challenging conditions comes to an end. Restructuring has been a common theme in the construction industry in an attempt to increase efficiency and avoid unnecessary duplication and can also provide new and improved services to clients, however as a common short term approach restructuring has resulted in job losses, pay freezes and loss of skilled workers. Whilst diversification and innovation may aid survival in the long run, finance may not be available to achieve this aim. Ideally a combination of both of the abovementioned strategies may aid but not guarantee survival as there are many factors influencing overall performance including relationships with other stakeholders. The increasingly global nature of business has affected the way companies operate and this in turn has affected the ways in which companies need to adapt in order to maintain a competitive advantage. Companies that have evolved and adapted during this very economically challenging period and have survived should be in a favourable condition when an economic upturn is established.

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DO LISTED BUILDINGS HAVE A ROLE WITHIN THE MODERN CORPORATE ENVIRONMENT?

James Fletcher[6]

Reading Real Estate, Faculty of Development and Society, Sheffield Hallam University, Sheffield, S1 1WB, UK

As expectations of offices increase, modern premises must be able to afford the necessary functionality for businesses to thrive. As the economy moves from a period of recession, organisations can begin to evaluate the role of the office and implement changes to support and enhance the business function. This paper will establish whether listed buildings possess the necessary attributes to fulfil organisational demand for modern offices. It will discuss whether listed buildings have the capability to support the business, and evaluate whether they convey an image which is out of touch with the modern day corporate identity. Initially, forty organisations across eight sectors are assessed on corporate location strategy. The research then engages 100 respondents from the general public to establish how real estate branding affects consumers. The research also undertakes a Case Study of a company relocating from a listed building and evaluates its success. Finally, Industry Specialists offer valuable insights from authoritative sources. The study proposes a 3-Stage approach to corporate location decisions which can be implemented by Small and Medium Sized Enterprise (SMEs) in the UK. The approach is recognised as an overall directional aid for businesses, rather than a definitive 'box-ticking' exercise. This is accompanied by a decision-tool flowchart for listed office buildings, which aims to reduce overall outgoings and add long-term value to the organisation. The study concludes that the unique characteristics of listed buildings are ultimately their strength, and predicts demand for listed buildings will grow due to the emerging creative and cultural sector's demand for architectural character and original features. The research, however, acknowledges that each building must be assessed subjectively. Consequently, a recommendation is proposed which will assess of a broad cross-section of listed buildings to evaluate key characteristics and possible correlations.

Keywords: Branding, corporate real estate, corporate strategy, heritage, office design.

[6] james.fletcher@colliers.com

INTRODUCTION

This paper will explore the role of listed buildings in the modern corporate environment. It will seek to determine what corporate occupiers are seeking from a modern office, and begin to establish whether these requirements have evolved to a level in which listed buildings are becoming increasingly untenable. The research will investigate the strategic influence of a listed building on the corporate identity. Can a forward-thinking modern organisation effectively harmonise with a listed building? Or alternatively, does this project an antiquated influence on the corporate brand? For the purposes of the research, the definition of a listed building is narrowed to purport Grade II Victorian listed buildings in England, dating from circa 1837-1901 (English Heritage, 2014b). The Modern Corporate Environment (MCE) is defined as a cross-section of organisations sub-divided into eight sectors. The study hypothesises that listed buildings have become redundant for use as office premises for modern corporate companies. This will be challenged by the following interlinking aims and objectives;

Aims

1. Determine what modern office-based companies are seeking from their real estate.
2. Evidence how public perception of a business' culture can be strongly influenced by the building envelope.
3. Uncover key characteristics of listed buildings.

Objectives

1. Survey Directors of organisations across a diversity of sectors and investigate the following:
    a) Business philosophy;
    b) Spatial requirements; and
    c) Corporate image.
2. Evaluate the impact a listed building has on corporate identity.
3. Determine the advantages and disadvantages of location in a listed building.

Structure

A review of literature follows the Introduction. This critically evaluates current research. A methodology is subsequently employed to achieve the aims and objectives, building on gaps highlighted in the Literature Review. The study then aggregates, analyses and discusses the results obtained, binding all methods and addressing the aims and objectives. The final chapter formulates robust conclusions and deliberates the hypothesis.

LITERATURE REVIEW

By critically analysing a wide range of literature, a study is able to progress into unchartered areas of research, acting as an extension to work already in public circulation, rather than stagnating in areas already addressed (Farrell, 2011, p25).

Corporate Real Estate (CRE) and Corporate Strategy

Gibler and Lindholm (2011, p37) conducted research on 271 organisations and highlight the following CRE strategies ranked in order of importance:

1. Reducing real estate related costs
2. Increasing employee efficiency and productivity
3. Enabling flexibility
4. Encouraging and supporting employee innovation and creativity
5. Enhancing employee wellbeing and satisfaction
6. Supporting environmental sustainability
7. Promoting marketing, sales and organisational brand
8. Increasing the value of the organisation's real estate assets

The results illustrate that companies are generally selecting office space to suit their business function and identity based on an alignment with a network of inter-related CRE strategies (ibid., p46). The authors, however, suggest that firms act differently in times of recession, which may have contributed to 'costs, efficiency and flexibility' being at the forefront of corporate strategy (ibid,. p43).

Real Estate as a Brand

Corporate branding allows the ability to use the vision and culture of a business as part of a unique selling proposition (Berry, 2000, p134). Building upon a model by Balmer and Gray (1999), Khanna et al., (2013, p218) provide a framework highlighting how corporate branding transmitted through real estate strategy can lead to a competitive advantage by projecting an image of the company onto stakeholders, and suggest extending the research into different sectors. A building can therefore contribute to the visual identity of an organisation by communicating its beliefs and principles, whilst providing information about the way it works (Bitner, 1992, p62). Appel-Meulenbroek et al., (2010, p50) suggest that few studies have been undertaken on the physical surroundings of companies and their effects on customer perception. The authors (2010, p56), propose that one could *"zoom in on specific aspects such as architectural style"* to determine its influence. De Jonge et al., (2009, p66) however, consider the building as merely one of seven methods of adding value to a company through CRE management. Furthermore, Appel-Meulenbroek et al., (2010, p54) find that indirect influences, such as accessibility and location carry more importance in translation of the corporate identity to branding than the direct influence of the actual building.

The Modern Office

Gibler and Lindholm (2011, p43), find that within modern organisations, there is an interesting emphasis placed on the employee; how can a business improve the wellbeing of staff, encourage and support their innovation and creativity, thereby increasing their efficiency and productivity for the business. The office is increasingly

being viewed as an opportunity to gain a competitive advantage by accommodating this concept (Colliers, 2013, p3). Whilst Haynes and Nunnington (2010, p141) suggest that the 'modern office' is becoming increasingly collaborative, inclusive and dynamic, Bitner (1992, p57), claims that the physical setting a business operates in is often overlooked.

Heritage

English Heritage defines conservation as:

> *"The process of managing change to a significant place in its setting in ways that will best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations"* (2008, p72).

Research by the Heritage Lottery Fund (HLF) evidences that listed buildings are highly attractive to entrepreneurs and start-up businesses in the creative and cultural sector (2013, p7), and are far more likely to be occupied by an independent non-branded business that gives places *"a sense of distinctiveness, authenticity and diversity."* Listed building consent (LBC) is required *"for the demolition of a listed building, or for its alteration or extension in any manner which would affect its character as a building of special architectural or historic interest"* (Planning (Listed Buildings and Conservation Areas) Act 1990, s7). LBC is not normally required for repairs to a listed building if carried out on a like-for-like basis, or for matters of urgent health and safety (although LBC for the latter may have to be obtained retrospectively, and should be limited to the minimum necessary) (English Heritage, 2012, p67). Regardless of the Grade of listing, the entire building, both inside and out, is protected (s5).

This represents a disadvantage in respect of time and increased cost, highlighted by Stenning and Evans (2007, p174), who provide evidence that works will carry increased costs of up to 4.7 times that of non-listed properties. Furthermore, replacement of historic fabric and use of materials and techniques that match the original, require additional financial investment and time (English Heritage, 2012, p67). Operational costs are also often higher in listed buildings (English Heritage, 2012b, p27). To combat these costs, Cluver and Randall (2012, p13) offer a number of methods to preserve energy in historic buildings, such as energy modelling, and practical solutions such as installing insulation, or replacing single-glazing with double-glazing. Whilst offering solutions, the research fails to discuss the difficulties in obtaining the necessary consents to carry out these changes. Furthermore, it does not consider occupiers on a short-term lease who may not believe necessary changes are in their interests, nor does it detail any incentives for the landlord to carry out necessary efficiency improvements.

One incentive for a Landlord is that vacant listed buildings used for the purpose of a business qualify for empty rates relief, until the property is occupied (H.M Government, 2014). Grant aid has also been used effectively by for instance, the Heritage Grants Project, which has provided £228milion for historic regeneration projects (HLF, 2013, p1). Forsyth (2007, p177) however, suggests this may actually increase overall costs, as the conditions imposed by the granting bodies may go

beyond the client's original intention. Furthermore, obtaining these grants is becoming increasingly difficult, as money is in short supply (SPAB, 2014).

Summary

By analysing current literature, the review has identified a number of gaps in previous works, or theories backed by unsubstantial evidence. The suggestion by Khanna et al., (2013, p218) to extend research of brand value translation through real estate into different sectors and cultures can be drawn upon and applied. Furthermore, the recommendation from Appel-Meulenbroek et al. (2010, p56) to 'zoom' into physical surroundings of companies and their effects on customer perception can be integrated into the methodology. Whilst CRE and heritage have been explored, literature linking the two appears scarce or imbalanced. By determining whether important correlations between their applications into commercial practice exist, the study will move closer to achieving its objectives.

METHODOLOGY

"Different social science research methods fill different needs and situations for investigating social science topics." (Yin, 2003, p3)

The methodology synthesises a variety of mechanisms to achieve the research objectives. Whilst each method is independent, there is intentional overlap. This is important to ensure effective triangulation of findings and increase overall validity. When conducting questionnaires and interviews, Naoum (2013, p39) suggests a combination of quantitative and qualitative questioning will develop an increasingly comprehensive insight into the subject's *"attitudes, beliefs and values."* The quantitative method, advocated by Farrell, (2011, p65) and Bell (2005, p186) is the use of the Likert Scale, which measures the *"subjective magnitude"* of responses (Stevens, 1946, p677). A 7-point scale is used to add *"additional granularity"* to data (Bertram, nd., p1). Interviewing supports quantitative questioning to form a qualitative understanding of how respondents *"see and view the world"* (Farrell, 2011, p101). The technique assists in negating the weaknesses of questionnaires by uncovering the rationale behind decision-making and beliefs that will capture rich data and triangulate the methodology.

The methodology is divided into four parts;

Method One aims to determine the current state of the modern corporate environment. Questionnaires are issued to forty companies across the following eight office-based sectors;

1. Accountancy
2. Architecture
3. Design
4. I.T
5. Law
6. PR
7. Property
8. Technology, Media and Telecoms (TMT)

Data is gathered regarding corporate strategy, CRE location criteria and office facilities. The methodology employs a three-tiered strategic evaluation questionnaire, developing the model advocated by Gibler et al., (2011, p36), to establish corporate values influencing the location decision.

Method Two conducts a detailed Case Study (CS) of a corporate legal firm that has recently relocated from three historic buildings into modern premises. Yin (2003, p4) describes how a CS allows a researcher *"to retain the holistic and meaningful characteristics of real life events,"* thereby providing a practical translation of the theories developed. Three structured interviews, fifteen questionnaires and a desk-top building study are conducted to ascertain practical and financial gains to the business, in addition to intangible shifts in business performance, employee satisfaction, and corporate agenda.

Method Three engages Industry Specialists to accurately and impartially assess the characteristics of listed buildings to gain an insight into planning restrictions and commercial philosophy. Ten questionnaires and two interviews are conducted with professionals from diverse commercial backgrounds.

Method Four targets external stakeholders by questioning 100 respondents from the general public. Building on the model advocated by Appel-Meulenbroek et al., (2010, p56), the survey explores the influence that external architectural style may have on corporate identity. Developing research by psychologists such as Jung (1910, cited by Green, n.d,) and Hartley (1749, cited by Bowler, 2003, p53), the study implements a *"controlled association method"*, advocated by Nielsen and Ingwersen (1999, p18) to determine public associations with building exteriors.

Ultimately, the methodology is constructed to achieve the research objectives. The methods seek to measure cognitive function of important stakeholders, potentially affected by the strategic decisions of an organisation. By using a variety of techniques, the data-collection process will aim to triangulate responses to provide an accurate assessment for each objective outlined.

ANALYSIS, RESULTS AND FINDINGS

The Modern Corporate Environment (MCE)

Figure 1 provides information on the companies assessed for Method One. Of the companies involved, 82% were leaseholders and 18% were owner-occupiers. With the majority renting, companies will only benefit from alterations for the duration of the lease.

CRE Strategy

Table 2 illustrates the rank order of eight real estate strategies according to their perceived importance, with the lowest average score representing the highest importance. The findings highlight a strong focus towards recognition and promotion of the value of the employee, showing a divergence from the dominance of cost reduction strategy evidenced by Gibler and Lindholm (2011, p43). Clearly, the real estate choices a company makes must fully support this employee focus; communicating and enabling a drive in productivity, creativity and satisfaction.

Location Strategy

Table 1 shows nine office decisions in rank order across all organisations researched, with the lowest average score representing the highest importance.

Figure 1 Graph showing size of company

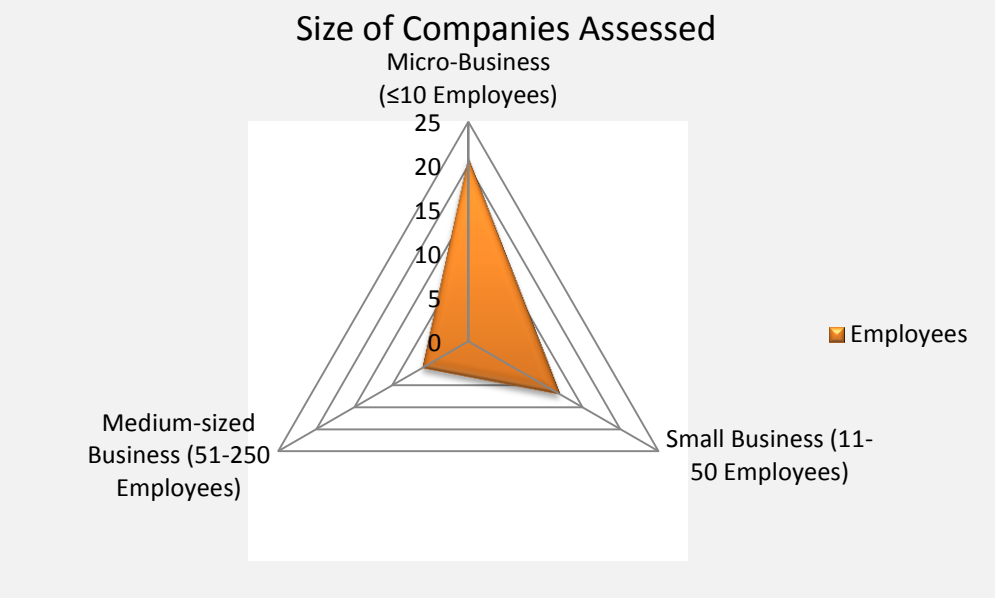


Table 1 CRE Strategies in Order of Importance

		Average Score
1.	Increasing employee efficiency and productivity	2.54
2.	Enhancing employee wellbeing and satisfaction	2.94
3.	Encouraging and supporting employee innovation and creativity	3.34
4.	Reducing related real estate costs	4.60
5.	Promoting marketing, sales and organisational brand	4.69
6.	Enabling flexibility	5.14
7.	Increasing the value of the organisations real estate assets	5.89
8.	Supporting environmental sustainability	6.86

Table 2 show the importance of location for businesses. Location was a key focus for the majority of businesses; 60% placed this as the most important, rising to 82.5% that considered location in the top three. Low operational cost and technology are of prevalent importance across all sectors, whereas architectural internal design is only of key importance (ranked 2nd) to Architectural organisations and the TMT Industry. Architectural external design is consistently considered of less importance than the internal architecture. Furthermore, although companies have clearly moved on from austerity measures employed throughout the recession, companies remain devoted to reducing costs. This will, perhaps, always hold significance for businesses.

Table 2 Office Decisions in Order of Importance

	Average Score
1. Location	2.20
2. Low Operational Cost	3.69
3. Technology	3.91
4. Low Capital Cost	4.31
5. Architectural Internal Design	5.03
6. Expansion Potential	5.20
7. Architectural External Design	5.77
8. Sustainability	6.91
9. Historic Values	7.97

Table 3 Office Features in Order of Importance

	Average Score
1. Accessibility by car, bicycle or public transport	3.03
2. Technology suitability	2.97
3. Excellent lighting	2.47
4. Quality of finishing	2.38
5. Modern facilities	2.24
6. Thermal comfort	2.24
7. Reputation of location	2.12
8. Double glazing	1.94
9. Flexible space	1.94
10. Character	1.91

Office Features

Companies were asked to evaluate the importance of a range of office features, the results are displayed in Table 3, with the highest average score representing the highest importance. The results reinforce the importance of location, further validating the results in Table 2. "Character" was only of prevalent importance to Architecture, Design Firms and PR.

Summary

"In the end, the location of an office is a complex balancing act. Each company will have different drivers, emotionally, politically and financially"
(Questionnaire Respondent 1)

Whilst each organisation is unique, with individual goals, ambitions and strategy, there are overriding relationships between CRE strategies employed. Enhancing employee satisfaction and increasing productivity are highly important in the modern corporate environment. Location is a crucial consideration for a large majority of businesses, and expenditure remains a strong influence on decision-making. The ability for an office to facilitate and integrate technology is also vital.

Furthermore, certain sectors appear to value certain characteristics of an office more highly than others. PR Organisations and the TMT industry may be more likely to locate in listed premises because of their desire for character. Additionally, architectural design is of high importance to architectural firms, which may increase demand for listed premises within this sector.

CASE STUDY

The Case Study focuses on the relocation of a corporate legal practice from a listed former head office into modern premises. Interview respondents are referenced as "Case Study Interviewee A" (CSIA) for example, and so forth. Questionnaire responses are referenced as, for example, "Case Study Questionnaire One" (CSQ1).

CSIA highlights three practical difficulties with the listed building faced by the organisation:

- Cellular nature of building and spatial restrictions;
- Strict restrictions on necessary changes to upgrade the windows;
- A protracted application for LBC to fabricate and construct a fire escape.

In 2010, the company lodged a planning application to extend the premises which was rejected by the Local Planning Authority (LPA). Ultimately, lack of space was the primary driver for relocation, which may have been avoided if consent was granted. This is epitomised by another respondent, who confirms the company *"outgrew the old buildings and the growth they have encountered the past few years would not have been possible at the old buildings."* (CSQ6)

Furthermore, respondent CSIC suggests that the listed building portrayed an image of a small *"high street firm"* rather than a corporate company, arguing that this adversely affected their reputation. CSIA supports this, stating that delivery of high-street legal services has evolved into a service available on a variety of platforms, and suggests that modern "clients" are unmoved by traditional values, but rather expect a modern delivery of all services. The building must therefore be able to adapt to new methods of delivery in a practical sense (i.e. integration of service ducts and cooling systems for IT support) but also adapt to the evolving image of the legal sector. If a listed building is not able to support these tangible and intangible evolutions, then there is arguably little place for them in the corporate legal landscape.

Effects on Employee Satisfaction

60% of employees are generally more motivated in the new setting. Additionally, satisfaction is influenced by the interior space to a much higher degree than the exterior (Figure 2). This is supported by CSIC, who states that *"for personal satisfaction, the outside of a building is just a building - it's the shell that hides the real office."* Figure 3 provides an interesting contrast to the above, illustrating that the exterior becomes much more important for client interactions. An increase in employee satisfaction is most likely linked to the overall improvement in internal facilities benefitting employees following relocation, as highlighted in Figure 4. Interestingly, only temperature and privacy were regarded by staff as being more effective in the listed building. Privacy can be attributed to the cellular nature of the

premises (CSIC). The preferable temperature results from the ability to self-regulate (CSQ9, CSQ11, and CSQ12). Indeed, *"in a large open space you cannot cater to everyone's needs as they may differ"* (CSQ3). However, the listed premises still emitted a *"high temperature working conditions during summer months"* (CSQ1) and remained *"too cold in winter months"* (CSQ5).

Figure 2 Factors of importance to employees

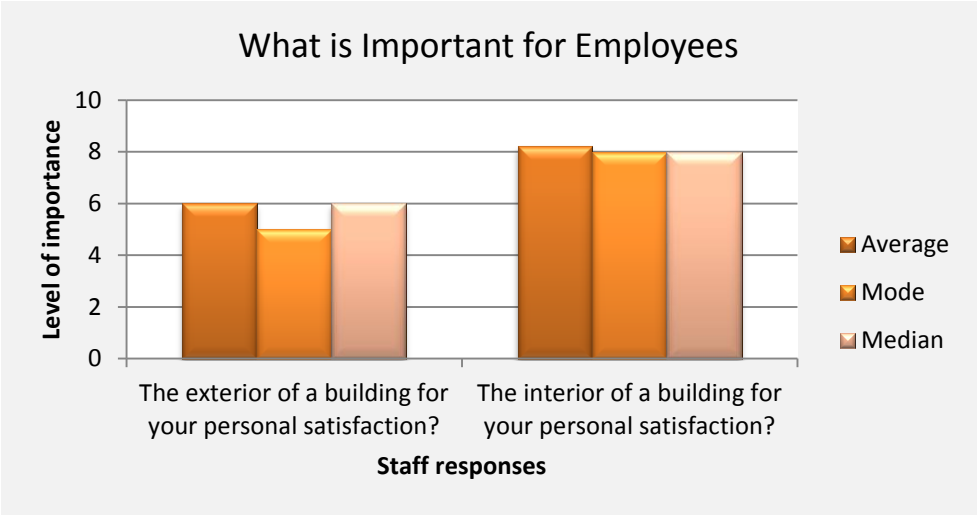
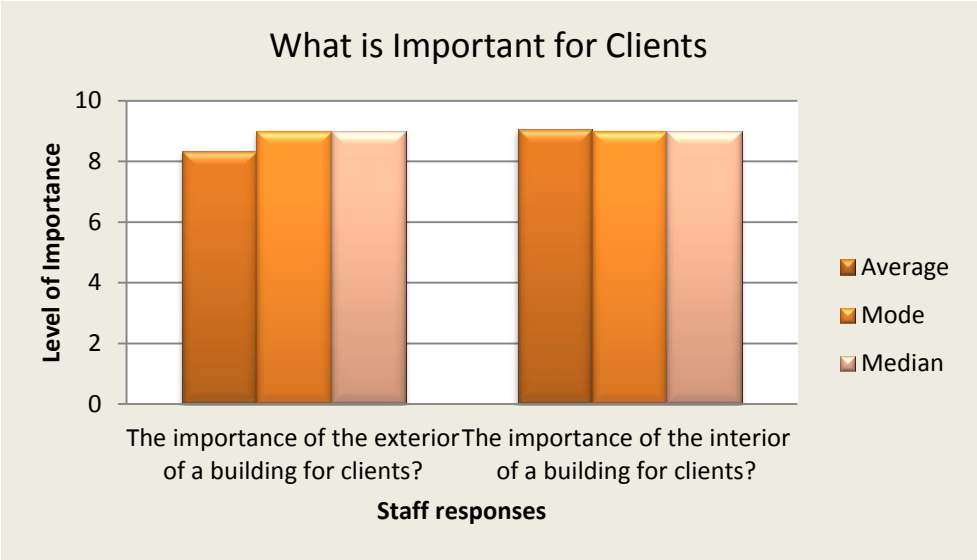
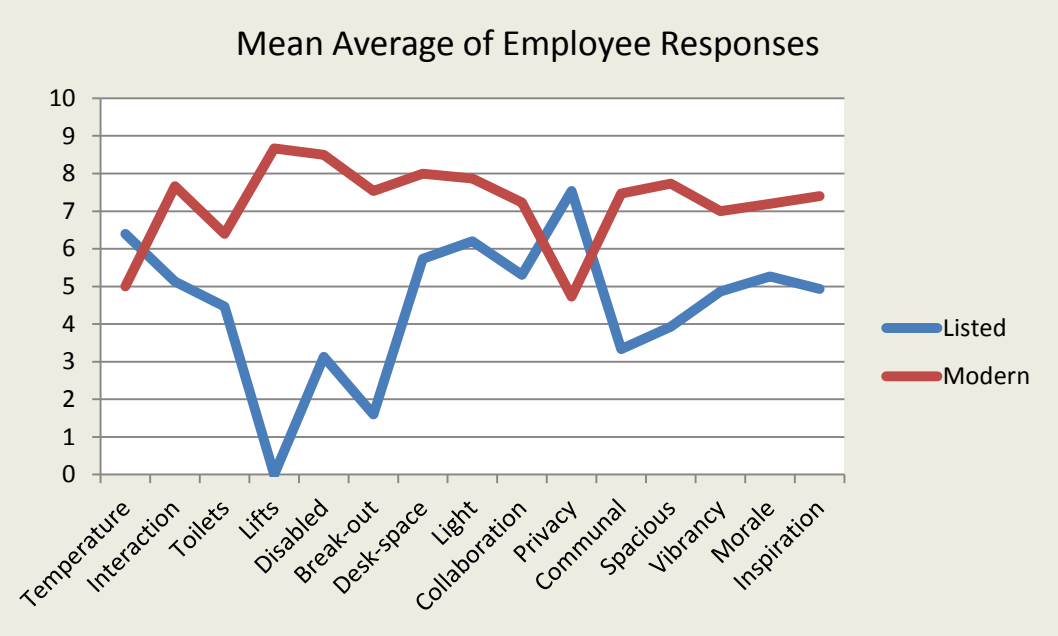


Figure 3 Factors important to Clients



. Figure 4 Employee responses to importance of facilities or features



INDUSTRY SPECIALISTS

In this section, interviewees are referred to as "Industry Specialist Interviewee A" (ISIA), for example, and questionnaire respondents are referred to as, for example, "Industry Specialist Questionnaire One" (ISQ1).

Practical difficulties faced within Victorian listed buildings vary dramatically (ISIB). For instance, ISQ10 cites that *"many listed mill buildings have good floor to ceiling heights and large floor plates making them fit numerous new uses."* The difficulty arises in *"carving up"* these mills for individual use (ISIA). Conversely, Victorian warehouses *"are often inflexible in their workspace, i.e. they have no raised floor plates or suspended ceilings, making it difficult to effectively utilise space"* (ISQ7). A further difficulty is accessibility, which can be *"very problematic"* (ISIA).

ISIB states that by striving to *"safeguard heritage, planners are very prescriptive in what is required in applications and often, applicants don't necessarily get the materials right to do this effectively."* Whilst LPA's encourage *"like-for-like"* replacements where possible, there is recognition that changes must happen (ISIB).

A requirement to use original materials for repairs or alterations often means that works *"are more expensive and time consuming"* (ISIA). This supports the statement by Stenning and Evans (2007, p174) in the Literature Review, and corresponds to the difficulty faced with fire escape installation in the Case Study. However, ISQ5 suggests that this is not necessarily a barrier, and merely a case of employing the right professionals that have an understanding of listed buildings. This is reiterated by ISQ10 who suggests, *"issues are more with a lack of understanding rather than an inherent inflexibility."* Furthermore, whilst the cost of works may be more expensive initially, ISQ9 argues that these costs are often offset by the longevity of these materials and the quality of repairs, alterations or improvements undertaken.

Therefore, whilst ISIA acknowledges a barrier of *"strict planning resistance"* and the CS appearing to reinforce this resistance, perhaps with a degree of understanding, *"the barrier is not quite as pronounced as one would expect"* (ISQ3).

A Commercial Decision

> *"Those who have a strong desire to occupy and are willing to work with the constraints and timescales involved are those likely to occupy a listed building"* (ISQ8).

ISIA suggests that *"Businesses expect premises to be refurbished to a good standard. Large corporate firms tend to go for better spec, modern high quality, grade-A, open-plan space but it varies from occupier to occupier."* However, the respondent confirms that these requirements will often be addressed once an appropriate location has been found. Indeed, *"location is most important. Image and quality come after this."* The importance of location therefore triangulates with the findings in the MCE section, further illustrating its strategic value.

ISIA proposes that a growing demand for these types of premises is driven by the TMT industry, but suggests that this is not necessarily derived from the listing, but rather by their affinity for original architectural features common in historic buildings.

It is crucial for companies seeking to occupy a listed building to acknowledge the specific characteristics and features of the building, and understand the possible restrictions imposed by English Heritage and the LPA, in addition to possible increased costs through maintenance and utilities prior to occupation. However, most importantly, the business must understand how a listed building can support the business.

PUBLIC SURVEY

This chapter analyses results from the survey of 100 respondents. Figure 5 highlights the age demographics of respondents.

Figure 5 Respondent age

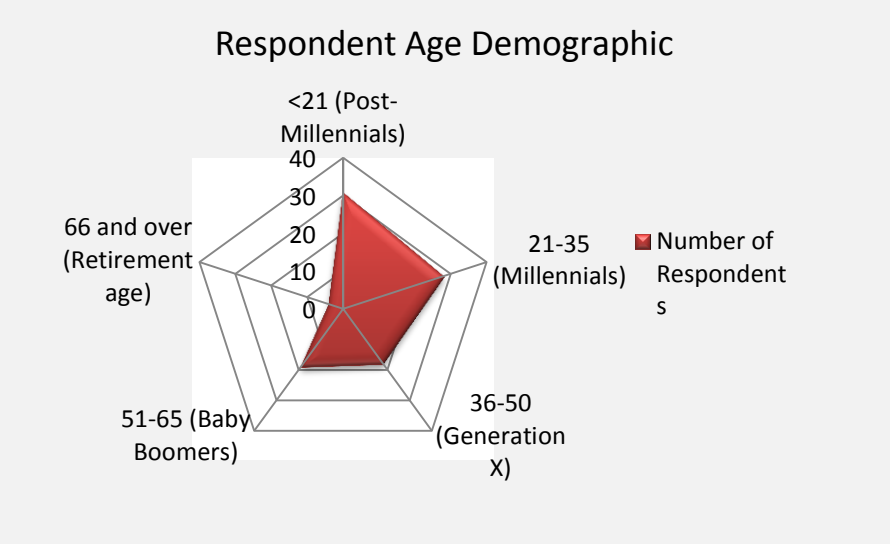
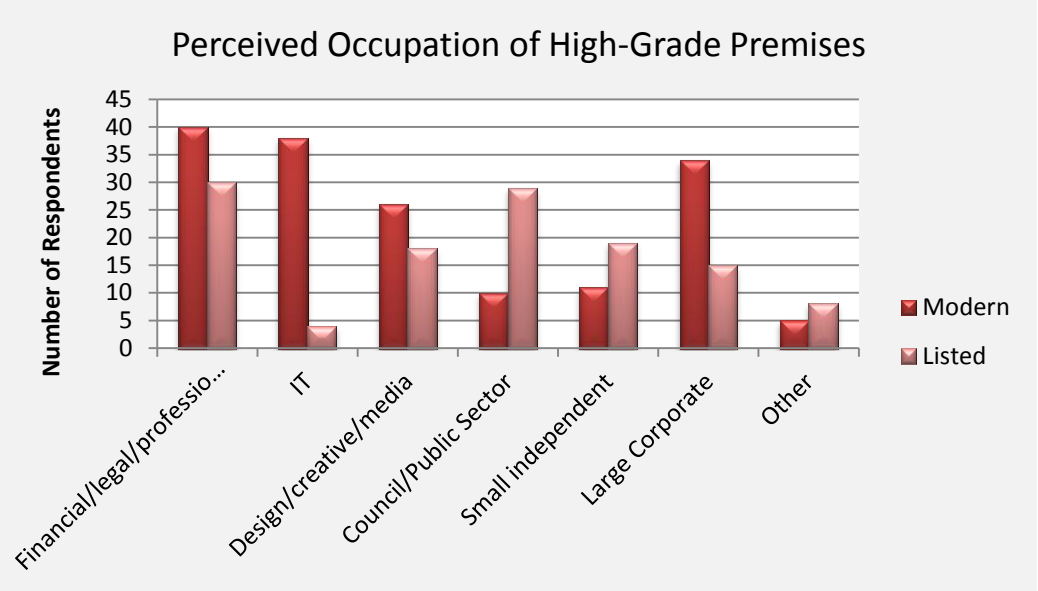


Figure 6 indicates that high-grade modern offices are often perceived to be occupied by large corporate companies in the financial, legal, professional services and the I.T sector. High-grade listed premises are perceived to be occupied by smaller financial, legal and professional services and the Public Sector.

Figure 6 Occupation of High-Grade Premises as perceived by respondents



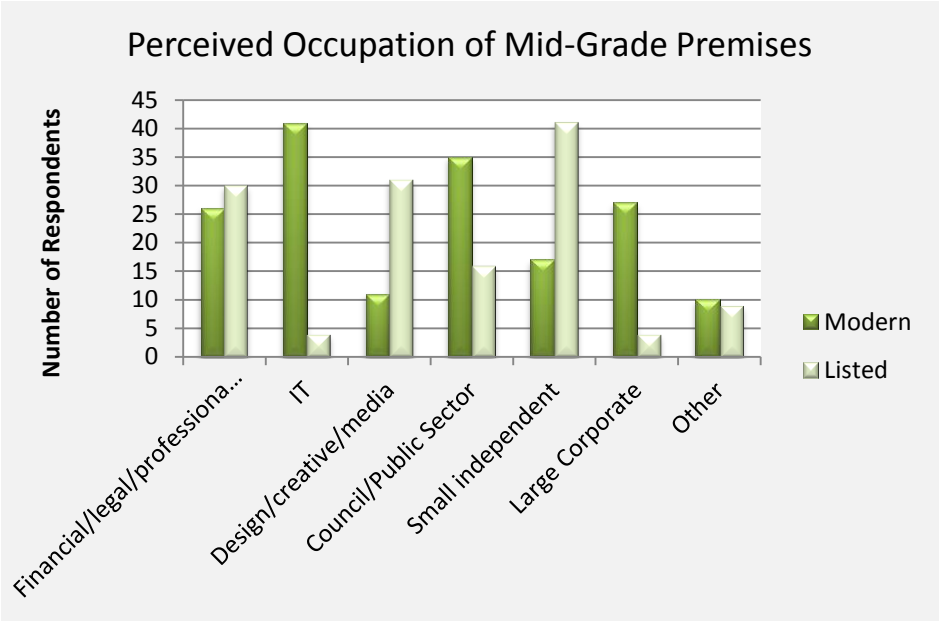
Arguably, if a small independent company has the opportunity to occupy a high-grade modern premises, their status as a commercial brand will improve. This certainly featured in the CS decision, which elevated the company from a *"small high street firm"* to a *"modern corporate company".*

The results in Figure 7 highlight that mid-grade listed premises have strong associations with small independent companies in the creative sector or within the financial, legal or professional sector.

Public Preference

Listed premises are preferred by the majority of respondents, with 63.46% preferring the high-grade listed example to the modern equivalent, and 78.85% preferring the mid-grade listed example compared to the modern equivalent. Interestingly, the high-grade listed example tended to be favoured by older generations (ages 36-65), who cited words regarding the stability of the building such as *"solid", "durable"* and *"weatherproof".* Younger generations (18-35) preferred the mid-grade listed building, citing words such as *"friendly", welcoming"* and *"warm".* This appears to suggest that differing age demographics are attracted to differing characteristics. There are clearly features enjoyed by all, but younger demographics believe an organisation occupying a listed building can nurture them to potential, whereas older demographics believe that an organisation occupying a listed building will provide them with security.

Figure 7 Occupation of Mid-Grade Premises as perceived by respondents



Word Association

Figure 8 illustrates public associations with high-grade modern premises, with the size of font denoting the volume of responses. Judgements are based purely on the exterior of the building.

The test was repeated with a high-grade listed example. Results are displayed in Figure 9.

Figure 8 Public word associations with high-grade modern premises

Figure 9 Public word associations with high-grade listed premises

The results highlight an interesting contrast. High-grade modern premises portray a brand which is professional, corporate, profit-driven and quality, whereas high-grade listed real estate portrays a warm, friendly, welcoming and quality brand.

Figure 10 illustrates the same test being carried out on mid-grade modern premises..

Whilst fostering the corporate professional image, modern premises can portray a rather boring, impersonal and unwelcoming brand. Furthermore, *"run-of-the-mill"*, *"cheap"*, *"cold"* and *"institutionalised"* identify strongly with a lack of individualism, personality and soul. This concept is epitomised by CSQ3, describing how one may *"feel more like a robot on a production line with no individuality."*

This contrasts to the mid-grade listed premises in Figure 11, which creates mostly positive reactions; instilling a creative, welcoming and quality brand. This suggests that mid-grade listed premises offer a good opportunity to transmit an effective brand message. This perhaps offers good branding opportunities for start-ups and creative organisations.

The mid-grade listed exterior, however, does appear to portray a rather informal image, and perhaps an organisation such as the CS (desiring a clinical and formal brand) may not necessarily suit this type of premises.

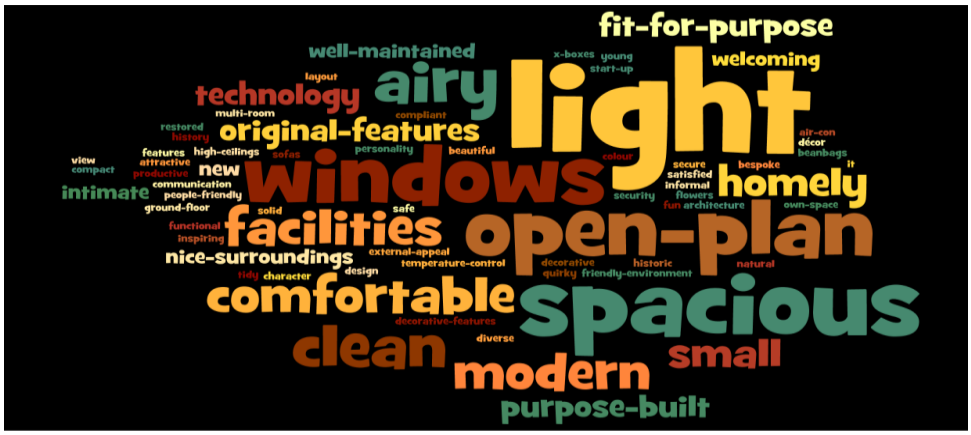
A Traditional Brand

The most common association with the listed premises is *"traditional"*, with 70% and 74% of respondents associating the word with the examples. Whilst *"traditional"* was largely used favourably, this is not necessarily so. Tradition, by its very nature, instils a sense of stability, knowledge and customs being passed on through the generations (Collins, 1995, p1429). However, when traditions are outgrown by modern practices, they become passé and antiquated, as articulated by CSIA, suggesting it may foster an image of a firm *"that hadn't changed for years."*

Figure 10 Public word associations with mid-grade modern premises

Figure 11 Public word associations with mid-grade listed premises

Figure 12Workplace satisfaction with office environmental features



Working Environment Preferences

Respondents were asked qualitatively which environmental features of their office contributed to their workplace satisfaction. The results are displayed in Figure 12.

By incorporating these facilities, an organisation will arguably increase overall employee satisfaction, retention, productivity and ultimately, profit. These characteristics would appear to denote a modern office building, and may be difficult to achieve in a listed building. However, if a general preference for listed buildings exists, perhaps a traditional exterior with modern facilities incorporated will satisfy the majority?

DISCUSSION

Evidence has demonstrated that corporate objectives are highly diverse. Attempting to rationalise the corporate agenda then, is perhaps, inherently flawed. The modern corporate environment is not easily definable. It extends from a sole practitioner to large multi-nationals. At a primal level however, businesses have the same fundamental requirements. Once these have been established, the location decision can be developed based on their strategic direction.

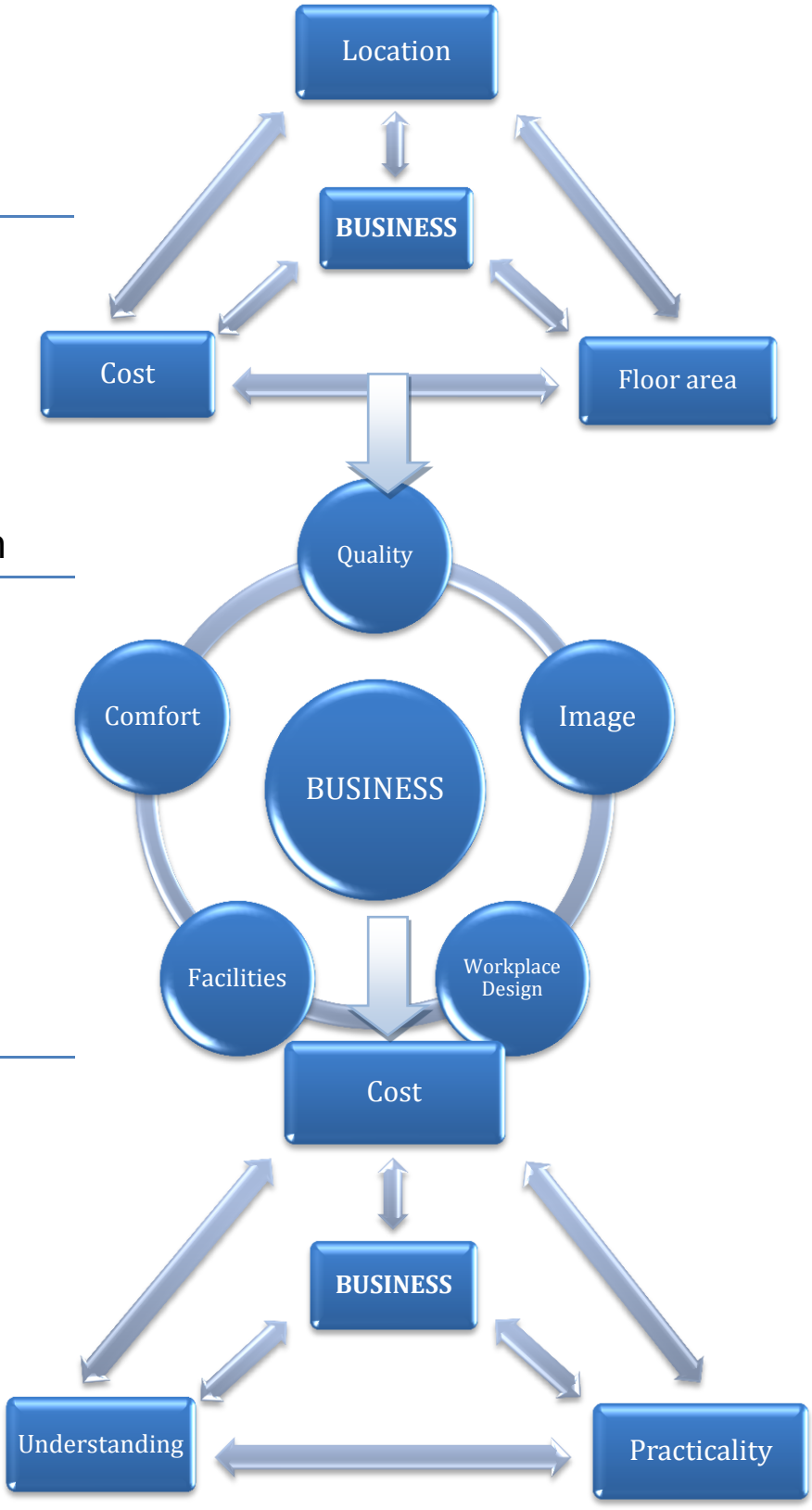
The model in Figure 13 uses this theory to assert the existence of a three-stage approach to office location decisions that can be applied to organisations on a similar scale to those within this research (between 1 and 250 employees).

Stage 1 advocates the principal criteria for CRE location strategy. They are fundamental and largely unchangeable. Whilst an argument might be made for suggesting that cost and floor area can be altered (through borrowing and expansion respectively), both solutions were considered an unnecessary burden on SMEs. Furthermore, research has highlighted that the majority of SMEs are leaseholders, decreasing the likelihood of major refurbishment works.

Stage 2 evaluates the office choice at an operational level. For example, what characteristics of an office does the business value? Are they willing to invest additional time and expense in specification, for instance, or design? It is crucial for the business to adapt stage 2 to fit with their strategic objectives. The data in the MCE section perhaps, may assist an organisation in developing a tailored solution (Table 3).

Stage 3 allows a business to determine the extent to which the building can be adapted to enhance the office solutions devised in stage 2. An organisation must grasp an understanding of the planning process, of the suitability of the premises and of the practicality of making necessary alterations, whilst discerning appropriate costing. If the building can support, or can be adapted to support, the requirements of the business, then a harmonisation of corporate objectives and listed real estate can create a workable solution.

Figure 13 Office location model three stage process for organisation of between 1 and 250 employees



Branding

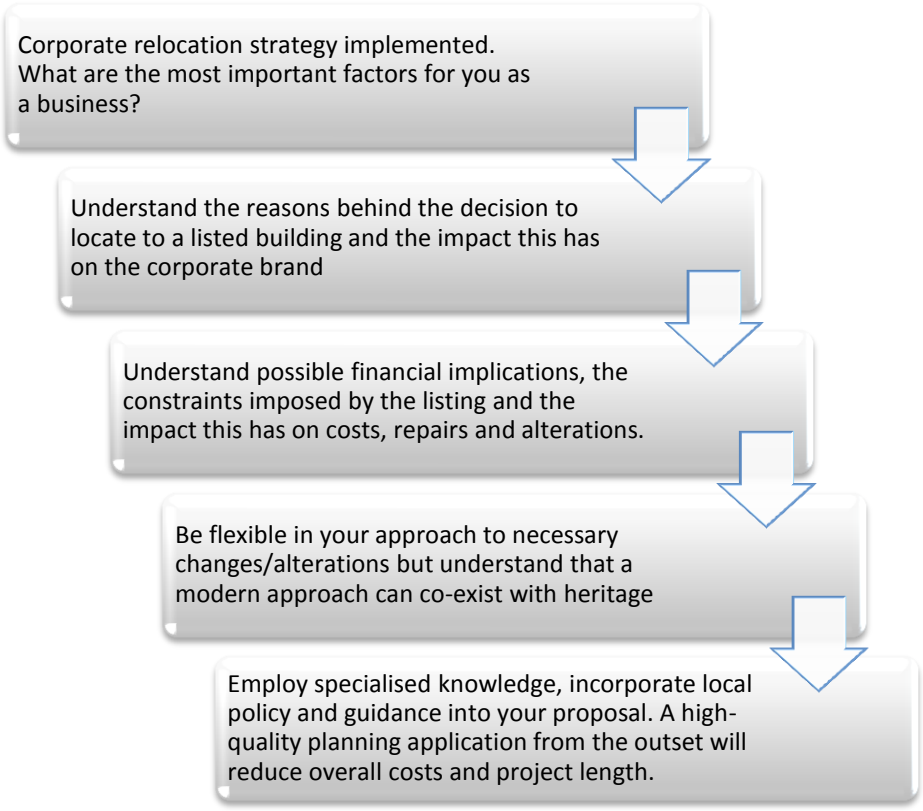
The evidence has demonstrated that the building envelope can have a significant impact on people's perceptions of a company; from the size of operations to the quality of service expectation. However, whilst branding has a role within the location decision, the extent to which it is decisive, is questionable. Brand is incorporated into strategy at Stage 2, suggesting that businesses will view its importance subjectively.

Listed buildings do however; appear to offer a real opportunity to reinforce the corporate identity, generally projecting a warm, welcoming, and caring brand. For companies wishing to exert these values then, listed buildings will perhaps, always remain popular.

Listed Building Characteristics

Rather than hinging the paradigm on a *"dangerous generalisation"* (ISQ1) of listed building traits, one must recognise that every building has unique characteristics and attributes, and that each business is unique. The flowchart in Figure 14 should therefore be reviewed in conjunction with the 3-stage approach when considering location in a listed building.

Figure 14



The flowchart provides a framework for the occupier to form subjective judgements and make informed decisions. Companies generally desire flexible, light, open space that can be effectively adapted to incorporate modern facilities. So the question for

listed buildings is whether they can be adapted to meet these operational requirements at Stage 3, and whether companies view these additional factors as an unnecessary burden, or a necessary feat.

By utilising the flowchart, Stage 2 and 3 can be systematically assessed to the benefit of the organisation as a whole.

CONCLUSIONS

"Listed buildings from the Victorian era are an important part of the fabric of the corporate identity of the UK. If all companies were in modern buildings it would be a rather soulless world." (ISQ6)

Within the modern corporate environment, there exists a plethora of differing objectives, requirements and strategies. Modern companies require real estate to be adaptable for individual methods of delivery and strategic objectives. Choosing suitable premises involves consideration of these requirements. Demand for listed buildings has evolved from traditional industries, to a thriving creative and media sector. These firms strive for unique character to drive organisational creativity and inspire their client-base. We can conclude then, that demand for listed buildings will accelerate as these sectors become increasingly established within the corporate environment.

Evidence has illustrated that the internal environment created for employees should drive real estate decisions. Cost and adaptability of modern facilities are crucial considerations for organisations, making it difficult for listed buildings to compete with modern premises with lesser obligations imposed upon them. That said, listed buildings offer value to an organisation that modern buildings cannot. The subjective appeal of listed buildings is ultimately their strength. By embracing the individuality of these buildings, urban landscapes can retain valuable historic characteristics and appeal, which are in danger of being eroded by the ferocity of large-scale development. Therefore we should celebrate the organisations that strive to retain this heritage and promote a universal understanding of listed buildings in order to create unique office premises that recognise the value of heritage and benefit from it. By doing so, perhaps listed buildings can evolve with the modern corporate environment, rather than being left behind.

Limitations

The original Methodology sought to initiate dialogue with listed building occupants across a number of sectors to reveal possible correlations. The study would have obtained insight into the role of listed buildings and their effectiveness for modern corporate practices. Research, however, is inherently defined by the willingness and extent of respondent participation and due to a lack of responses, the approach was abandoned. Consequently, a significant element is left unresolved within the analysis presented. The study therefore proposes the following research objective for further research:

Assess the impact of modernisation techniques on listed buildings and evaluate the extent to which they can cooperate effectively with corporate spatial requirements and modern business objectives.

The research should aim to develop an intrinsic insight into the difficulties encountered when adapting a building to align with the business function. Thorough building surveys and desk-top studies on a cross-section of occupied listed buildings should be undertaken. The research can be concluded by a qualitative assessment of the effectiveness of the works carried out. The Public Survey methodology can be implemented to gauge public reaction to both the internal and external appearance of the buildings, and the effects that the renovation works have had on the corporate brand. This will supplement the 3-stage approach developed in the discussion. The combination of both research projects will ultimately provide the necessary tools for modern corporate companies to approach occupation of listed buildings with knowledge, expectation and confidence.

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