Abstract

The hospitality industry generates substantial amounts of food waste. Although the issue has been politically recognised, it remains under-researched. Studies are limited in number and restricted in sectoral and geographical coverage. They have attempted to quantify and characterise food waste in hospitality ventures while the managerial approaches to its reduction have not been scrutinised. The coffee shop sub-sector of the hospitality industry has been entirely excluded from analysis. This study examined food waste in UK coffee shops through the managerial lens. While food waste represents a significant challenge, the managerial approaches to its minimisation are conservative and focus on disposal, rather than prevention. Lack of governmental support, imperfect legislation, irresponsible consumer behaviour and restricted internal resources inhibit application of more advanced managerial approaches. To enhance effectiveness of food waste management within the sub-sector, targeted policy interventions designed to strengthen corporate commitments and facilitate pro-environmental changes in consumer behaviour are necessary.

1. Introduction

Food waste is a major issue which is related to a set of further global environmental and socio-economic challenges (Segrè *et al.* 2014). Although there are substantial geographical and sectoral variations in its distribution, food waste is equally pronounced in developed and emerging economies, which underlines the political importance and highlights the urgency of its mitigation (Hodges *et al.* 2010). Despite the efforts undertaken to-date to combat food waste, the issue persists and calls for better scientific understanding, enhanced public recognition and reinforced political attention (WRAP 2017).

Hospitality food waste represents an issue of particular concern (Pirani and Arafat 2014). With its share of 12%, the hospitality industry is the third largest food waste generator in Europe, after households and food manufacturing and processing enterprises (FUSIONS 2016). In the UK, hospitality businesses generate circa 0.9 million tonnes of food waste annually, which translates into 10% of the national food waste stream (WRAP 2017). The issue is likely to intensify as the frequency of dining out is rising in both developed and emerging economies, implying growing demand for food (Mintel 2016a). Importantly, up to 80% of UK hospitality food waste is avoidable (WRAP 2017), but the issue occurs due to the deficiencies in business operations, poor managerial practices and reckless consumer behaviour (Engström and Carlsson-Kanyama 2004). In the absence of effective prevention and mitigation measures, the future hospitality industry is likely to generate substantial amounts of food waste, thus hampering its quest towards sustainability (Betz *et al.* 2015).

Despite its global importance, the issue of hospitality food waste remains under-researched (Papargyropoulou *et al.* 2016; Pirani and Arafat 2016; Radwan *et al.* 2010). Although the number of studies that have set to address this issue has recently been growing (see, for instance, Charlebois *et al.* 2015; Heikkilä *et al.* 2016), both the scope and the scale of their analysis remain limited (Kim *et al.* 2017; Myung *et al.* 2012). Existing research has

predominantly attempted to quantify and characterise the food waste streams in hospitality enterprises (Christ and Burritt 2017), aiming to indicate the magnitude of food waste and establish the grounds for mitigation (see, for example, Eriksson *et al.* 2017; Juvan *et al.* 2017; Tatâno *et al.* 2017). Existing research has primarily been concerned with hotels, hospitals alongside public (work canteens) and private (restaurants and public houses) catering enterprises, while other integral hospitality sectors, such as street food, coffee shops and cruises, have been overlooked (see, for example, FUSIONS 2014 for a sectoral review). Most importantly, however, is that existing studies on hospitality food waste, with a handful of notable exceptions (see, for instance, Derqui *et al.* 2016; Kasim 2009; Radwan *et al.* 2012), have failed to investigate the managerial attitudes and approaches to food waste minimisation. This is a major shortcoming given that managerial commitment determines success of sustainability initiatives in hospitality enterprises (Chan 2011).

This study contributes to knowledge by exploring the food waste management approaches adopted in UK coffee shops. It is the first known attempt to evaluate the magnitude of the food waste issue in coffee shops and examine how the issue is addressed by coffee shop managers, first-hand and on the ground. Given the topic of food waste management has never been investigated in the context of coffee shops, the study adopts a qualitative research paradigm to shed light on the issue. Ultimately, the study hopes to trigger future research on the topic of food waste management in coffee shops which would consider the issue from both qualitative and quantitative perspectives and in various political and socio-economic contexts. Importantly, while the study focuses on the UK, where the hospitality sub-sector of coffee shops is steadily growing, which accelerates the associated environmental footprint, its outcome can be used as a benchmark for a comparative analysis with other geographies, where the issue of hospitality food waste in general and food waste generated specifically in

the hospitality sub-sector of coffee shops has been recognised, but remained academically unexplored.

2. Literature review

2.1. Coffee shops

Coffee shops (also known as coffeehouses in some countries) represent a global hospitality sub-sector which plays an increasingly important role in national economies and societal well-being. In the UK alone, coffee shops contributed with £3.4 billion in sales (or 8%) to the gross £41 billion value of the national hospitality industry in 2014 (British Hospitality Association 2015; Mintel 2016b). Further growth of the sub-sector is forecast with £4.4 billion sales predicted for 2021 (Mintel 2016b). It is important to note that this figure is a rather conservative estimate as it applies to the branded coffee shops only. The sector is made up by three major categories of coffeehouses: branded or chain-affiliated (for example, Starbucks or Costa Coffee), independent (any coffee shop which is not chain-affiliated) and non-specialist (any business selling hot beverages, but not specialising in them, such as fast food restaurants, public houses, petrol stations and supermarket cafeterias) (Mintel 2016b). Sales of hot beverages and related foodstuffs in all these coffee shop categories account for a total of £7.9 billion (Davidson 2015), which suggests that the annual contribution of the sub-sector to the value of the UK hospitality industry can be as high as 19%. This makes coffee shops a key integral element of the hospitality industry, globally and in the UK. This is not surprising given that coffee is considered the world's second most exported commodity, which is a logical consequence of a steady growth in public demand (Reinecke *et al.* 2012).

The number of coffee shops is rapidly growing, globally and nationally (Allegra World Coffee Portal 2015). In the UK, coffeehouses have become an essential part of the social life (Cowan 2005) with estimated 65% of Britons regularly consuming hot beverages out-of-

home (Mintel 2016b). One in five people in the UK visit coffee shops on a daily basis (Allegra World Coffee Portal 2015) with resultant 8 million drinks being sold every day (Cocozza 2016). In Europe, the number of branded coffeehouses had increased by 10% in 2014 with the UK, Turkey and Germany holding over 60% of the market (Allegra World Coffee Portal 2015). Substantial growth in coffee shops is attributed to the Asia Pacific region where all major brands strive to establish and solidify their presence (Chen and Hu 2009; Lee and Yeu 2010; Lin and Wang 2010).

In terms of the sectoral market share, growth is recorded in all coffee shop categories (Mintel 2016b). However, in the UK context, due to the aggressive marketing and pricing strategies, non-specialist coffeehouses are slightly outperforming branded and independent outlets. In 2014, the share of non-specialist coffee shops increased to 39% of the national market with 31% and 30% attributed to the branded and independent businesses, respectively (Davidson 2015). Within branded and non-specialist coffeehouses, Starbucks is a major global player followed by McDonald's café (known as McCafé) and Costa Coffee (Statista 2015). In the UK, Costa Coffee holds the largest market share followed by Starbucks and Caffè Nero (Mintel 2016b). In total, these three brands account for circa 90% of the UK branded coffeehouse market (Allegra World Coffee Portal 2015).

The on-going global success of coffee shops is attributed to a number of factors. First, consuming hot beverages out-of-home has become part of public's daily routine (Kanjanakom and Lee 2017). Second, coffeehouses offer an opportunity to try hot beverages that are unique, of higher quality, and cannot be prepared at home, such as seasonal and flavoured drinks (Glazer 2015). Third, coffee shops provide good quality customer service and experience (Aries and Eirene 2015), which turns people into repeat customers and enhances consumer loyalty (Yu and Fang 2009). Fourth, coffeehouses offer comfortable space for socialisation and business meetings (Maguire and Hu 2013), which is facilitated by

active uptake of technology, such as free Wi-Fi (Wu 2017). Lastly, brand recognition and social status play an important role in the success of branded coffee shops, especially in the Asia Pacific, where consumers perceive visits to coffeehouses as a means of societal self-expression and brand loyalty (Kang *et al.* 2011).

Given the coffee shop sub-sector creates significant economic value, it is surprising that it has been under-researched, particularly in terms of its environmental performance. Aside from generic historical outlooks on the sector's origin and evolution (Cowan 2005), existing studies on coffeehouses have focussed on consumer preferences, customer loyalty, brand perception and recognition (Tumanan and Lansangan 2012). Research has also looked into how coffee shops address contemporary market trends in terms of market segmentation, changing patterns of coffeehouse use and technology adoption (Tan and Lo 2008). As public demand for coffee shops intensifies, so are the environmental impacts of their operations. Although this indicates the importance of studying the sustainability initiatives applied within the sub-sector, limited research has attempted to investigate the environmental repercussions of coffee shop operations. This signifies a critical knowledge gap.

2.2. Sustainability management in coffee shops

Sustainability represents an issue of critical importance for the hospitality industry, which is due to manifold negative impacts attributed to hospitality operations that require urgent mitigation (Legrand *et al.* 2016). In environmental terms, these impacts take the form of energy use with subsequent greenhouse gas (GHG) emissions (Filimonau *et al.* 2011), water consumption (Deng and Burnett 2002) and solid waste generation (Radwan *et al.* 2010), to mention a few. The importance of integrating sustainability into corporate business strategies has been recognised by hospitality professionals (Jones *et al.* 2016) given its proven potential to reduce operational costs (Erdogan and Baris 2007), gain competitive advantage (Graci and Dodds 2008), aid in regulatory compliance (Kasim 2009), address shareholders' expectations

(Holcomb *et al.* 2007), improve employee productivity (Sourvinou and Filimonau 2017) and build consumer loyalty (Mihalic *et al.* 2012). To support the industry commitment to sustainability, the research agenda on sustainability management in hospitality operations has been rapidly evolving (Myung *et al.* 2012).

Sustainability-related research agenda in the sector of coffee shops is however under-developed. It has been limited to the issues of ethical sourcing of coffee beans and responsible farming, where the bulk of studies has been concerned with consumer preferences, public perceptions and customer willingness-to-pay for the Fair Trade labelled coffee products (De Pelsmacker *et al.* 2006). Jang *et al.* (2015) have looked into the issue of emotional attachment and customer loyalty to the environmental management initiatives adopted in coffeehouses. Technical feasibility studies on the use of spent coffee grounds with composting and energy generation purposes represent another established research stream (Liu and Price 2011). No further sustainability related themes were identified in peer-reviewed research on coffee shops.

Paucity of studies on the environmental performance of coffeehouses can be attributed to the common vision of the sector as being sustainable. This is due to all major coffee shop brands sourcing Fair Trade coffee beans, thus providing fair wages to farmers (Van Loo *et al.* 2015). This suggests that the sector operates ethically although this can be questioned at closer analysis given the on-going critique of the Fair Trade standards (Taylor 2005). Furthermore, the Fair Trade label does not always imply environmental sustainability (Raynolds 2012). As a result, consumers remain unclear about the environmental credentials of coffeehouses due to the implicit messages they disseminate to the public (Turner 2016).

To understand how sustainability is communicated to the public within the sector of coffee shops, content analysis of corporate websites and annual reports of major branded coffeehouses in the UK was conducted in this study. Content analysis confirmed that the

environmental dimension of the UK coffee shop operations is not prioritised in corporate reporting (Table 1). For instance, Starbucks, Costa Coffee and Café Nero all fail to recognise the issue of food waste generation, which is alarming given the substantial magnitude of its occurrence in the UK hospitality context (Pirani and Arafat 2016). Ethical sourcing of coffee beans, recycling and disposal of generic solid waste and composting of coffee grounds represent the only elements of environmental performance that are explicitly addressed in corporate communication materials of UK coffee shops. This is likely to be attributed to the recent public attention drawn to these issues by media (see, for example, Smedley 2014). However, the recycling claims made by UK coffeehouses have been criticised (Turner 2016). This is due to the problem of safe disposal of coffee cups that, until recently, have been portrayed by many coffee shops as being 100% recyclable which is untrue in reality (Häkkinen and Vares 2010). This is also because food waste represents a critical issue for coffeehouses which suggests that 'a zero waste' policy is difficult to implement within the sector (Katajajuuri *et al.* 2014), and yet Costa Coffee and Café Nero claim they have successfully put it in place (Table 1).

[Insert Table 1 here]

Content analysis of corporate communication materials further revealed that very limited attention is paid by UK coffee shops to the problem of food waste (Table 1). The corporate strategies devised to minimise its occurrence remain undisclosed. Donation of unsold/excess food or food approaching its 'use by' date to charities with subsequent distribution to the people in need is increasingly recognised as a means of reducing food waste generation and fighting societal inequality in the UK hospitality and grocery retail industries (see, for instance, FareShare Project 2017; Felix Project 2017; Filimonau and Gherbin 2017). This is partially driven by recent laws in France and Italy that encourage the above sectors to donate food (Kirschgaessner 2016), which implies that similar legislative changes may soon be

introduced in the UK (Bolton 2016). However, leading UK coffeehouses offer limited evidence on the food donation practices they currently operate. In fact, all major market players appear to have not integrated food donation in their corporate sustainability policies. In contrast, the two non-specialists (Greggs and Pret-a-Manger) that were included in content analysis (Table 1) with comparison purposes have put food donation in place. The limited uptake of food donation by major UK branded coffeehouses can make them unprepared if, following France and Italy, it becomes legally reinforced in the UK. Overall, given the substantial environmental and socio-economic implications of food waste for UK coffeehouses, it is argued that this issue should be better communicated in corporate reports. It also calls for more in-depth investigation to establish the sector benchmarks and identify 'good business' practice examples.

3. Research design

Given that no research has attempted to investigate the environmental sustainability initiatives adopted by UK coffeehouses, let alone the managerial approaches to food waste mitigation within the sector, this study adopted the qualitative research paradigm for primary data collection and analysis. The exploratory value of qualitative research in studying the social phenomena whose knowledge is insufficient and/or fragmented is recognised, and so its applicability to examine the populations that are characterised by restricted access (Silverman 2000), such as managers of hospitality ventures (Filimonau and Krivcova 2017). By providing first outlook on a previously under-studied topic (such as food waste management in coffee shops), qualitative research enables identification of the core issues (themes) within that topic that can become an object of subsequent investigation through the application of quantitative research tools, thus allowing for better generalisability and representativeness of results (Silverman 2000).

Within the portfolio of qualitative research methods, conventional content analysis (Hsieh and Shannon 2005) of corporate websites and annual reports published by major UK branded coffee shops and selected non-specialists was first conducted and its outcome is presented in Table 1 and discussed in section 2.2. Content analysis aimed to establish the baseline for subsequent investigation, inform an interview schedule and derive initial coding categories for thematic analysis after interviews have been conducted. In-depth, semi-structured interviews were consequently employed. These enable flexibility in exploratory analysis, thus aiding in in-depth investigation of specific topical trajectories (Veal 2006). Focus groups were considered but rejected due to organisational difficulties.

The project was undertaken in Bournemouth (Dorset), a popular seaside resort in the UK with a large number of hospitality enterprises, including coffee shops. Participants were recruited via convenience sampling which is, despite being biased, appropriate when reaching for the population limited in number and access (Adams *et al.* 2007), such as managers of busy coffeehouses. For better representativeness, it was ensured that the sample reflected the current structure of the sector (see section 2.1) and embraced the breadth of managerial experiences (Table 2). The size of the sample (n=21) was determined by the saturation effect. The saturation effect suggests that interviewing should draw to a close when no new themes are identified in the process of iterative data analysis (Morse 1995 cited by Guest *et al.* 2006). Thomson (2010 cited by Marshall *et al.* 2013) argues that saturation is achieved with 10-30 interviews which this study's sample fits into. Recruitment of the willing participants was therefore stopped after no new themes were emerging from the data collected.

Interviews were conducted in different locations across Bournemouth in October-December 2016 and then in January 2018. They lasted between 30 and 60 minutes. Interviews were digitally recorded and not incentivised.

[Insert Table 2 here]

Interview schedule was developed based on the major themes emerged from content analysis and the literature review (Table 3). Interviews were transcribed and the material was coded in the process of thematic analysis (Braun and Clark 2006). Thematic analysis was employed as it is recognised as the most established and broadly used method in qualitative research (Jankowicz 2005). NVivo software was used to facilitate thematic analysis given its proven potential to aid in the process of deriving and visualising codes (Sotiriadou *et al.* 2014). Figure 1 presents the sample coding structure derived. When writing up, verbatim quotations were utilised to support the analysis.

[Insert Table 3 here]

[Insert Figure 1 here]

4. Findings and discussion

4.1. Food waste in UK coffee shops

There was an almost equal split in managerial opinions on the magnitude of food waste in coffee shops (Figure 1). While half admitted that the problem was substantial, another half described it as 'manageable'. Yet, within this latter group of managers, all agreed that the issue of food waste would intensify and could become significant in the summer, when public demand for food and beverages grows while temperatures escalate. In these circumstances stock estimates become difficult to make while the spoilage probability rises (Wang *et al.* 2013).

The main contributors to food waste in coffeehouses are fresh fruits and vegetables, alongside bakery items; these were mentioned by over 60% of managers (Figure 1). This is in line with major food waste categories as identified for the grocery retail sector, globally (FAO 2011 cited in Eriksson 2015) and in the UK (Filimonau and Gherbin 2017; Mena *et al.* 2010), thus demonstrating the uniqueness of the hospitality sub-sector of coffee shops that

combine features of hospitality businesses and grocery retail enterprises. Sandwiches hold another important share in food waste in coffee shops (Figure 1), but they are not as critical as fresh fruits and vegetables and bakery items in terms of the amounts wasted given their small production volumes.

The outlet size determines the amount of food waste generated (Christ and Burritt 2017; Radwan *et al.* 2012; Wang *et al.* 2017) with smaller, usually independent, coffee shops wasting less food. This is attributed to the limited food stock and more predictable demand given that independent coffeehouses cater for the established customer base. The business size was found to affect the magnitude of food waste generation in UK grocery retail (Mena *et al.* 2010) and hotels (Radwan *et al.* 2010), thus highlighting a major factor to consider when designing managerial mitigation interventions. Overall, it was found that the food waste problem in individual UK coffeehouses is not as pronounced as in major UK grocery retailers (Filimonau and Gherbin 2017), which is due to lower stock levels and the prevalence of food items on sale that have extended shelf life. However, as there are more than 5000[1] coffeehouses in the UK (Mintel 2016b), they may cumulatively generate higher volumes of food waste compared to British supermarkets, which calls for its minimisation.

4.2. Managerial attitudes and approaches to food waste mitigation

Interviews revealed a number of managerial approaches to food waste mitigation (Figure 1). These were however dominated by conventional waste separation on-site with subsequent collection and disposal by specialist or communal refuse companies, which is in line with findings reported for UK grocery retail (Filimonau and Gherbin 2017) and tourist accommodation sector (Radwan *et al.* 2012). Disposal is the last step in the waste management hierarchy and should only be employed when other, prevention-orientated,

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[1] This figure represents branded UK coffeehouses only and does not include independent or non-specialist outlets.

measures are unavailable (Papargyropoulou *et al.* 2014). This indicates that UK coffeehouses should utilise more pro-active approaches to food waste minimisation. These should target the upstream of the food system by adjusting the corporate vision and architecting the public attitudes and behaviours that lead to food waste occurrence (Thyberg and Tonjes 2016). Accurate stock forecasting represents an example of such a preventive approach (Wang *et al.* 2013) and yet it was pinpointed by only a third of managers, where all were represented by chain-affiliated coffee shops and non-specialists (Figure 1). These businesses possess better financial resources and are therefore more likely to invest in advanced revenue management and forecasting models (Chan 2008), thus having an advantage over independent coffee shops whose resources are severely restricted. Overall, however, food stock in the hospitality industry is hard to predict (Darlington and Rahimifard 2007) and managers tend to 'play it safe' by ordering larger than required quantities of food given that under-prediction can lead to consumer dissatisfaction (Gruber *et al.* 2016). This underlines the importance of food waste disposal in the UK coffee shop sector, and yet it should aim at diverting food which is suitable for human consumption from landfill. Next to food being given to staff, price reductions and stock rotation (Figure 1), food donations can aid in this (Eriksson *et al.* 2015). Surprisingly, only a small number of managers claimed they were donating food and hence the main barriers to donation were explored next.

Food donation has long been considered a tool to reduce food waste and fight societal inequality (Schneider 2013). However, it was not until recently that food donation started to grow in popularity as a result of latest legal interventions in France and Italy (Mourad 2016). The UK grocery retail sector has reacted promptly by engaging in various food donation schemes, such as the Fareshare and the Neighbourly (Butler 2015a;b). The national hospitality sector is lagging behind with limited participation recorded in a handful of, what can be described as largely localised and ad-hoc, food donation initiatives, such as the Solidarity

Fridge project in Somerset (Hall 2016). This calls for a change given that all coffee shop managers expressed positive attitudes towards food donation and confirmed its business feasibility as a means of minimising the environmental footprint of operations, obtaining reputational gains and enhancing the well-being of local communities.

This was further confirmed when managerial attitudes to the recent legal reinforcements on food donation in France and Italy alongside the Solidarity Fridge project in Somerset, as highlighted above, were sought. While managerial awareness of these initiatives varied, all agreed that it would be something their businesses could engage in, subject to governmental support and corporate approval. As shown by the example of the hospitality sector in Poland and Sweden, governmental support is paramount in facilitating food donations in hospitality ventures (Bohdanowicz 2006) and every effort should be made to achieve it in the UK. The critical role of reliable local charities and food banks was also highlighted as these were seen instrumental in collecting unsold food from coffee shops and distributing it to the people in need, thus taking care of administrative burdens and reducing pressure on coffeehouse staff. However, charities and food banks do not always possess the necessary resources to handle food donations in the UK (Caplan 2016). They may further refrain from engaging in food donations because of health and safety considerations (Swinburne 2014). The engagement of charities and food banks in donating unsold food from coffee shops should therefore be facilitated by targeted policy interventions alongside corporate and consumer support measures which is in line with the outcome of studies on food waste management in UK grocery retail (Filimonau and Gherbin 2017) and the hospitality industry in Switzerland (Betz *et al.* 2015):

'I think it's a lot down to liability and legislation that should be relaxed. If we do

something like that [food donation], then we'll have to be responsible for what we

do and there's a large risk for the business. If, in turn, there'd be a reliable

charity in the town where we operate, who'd be responsible for coming to our

place, collecting the food that is just about to be wasted, and giving it to people,

then we'd really be likely to join such a scheme on the first day of it. I think that in

the UK it'll come into being very soon, but businesses will need to do a lot of work

to make it work, but it definitely is not impossible' (Interviewee 3)

4.3. Facilitators and inhibitors of food waste mitigation

Health and safety considerations represent a major off-putting factor for coffee shops to engage in food donation (Figure 1). Indeed, managers are unwilling to deal with alleged food poisoning if the consumer of donated food falls sick as these accusations are costly to rectify and entail substantial reputational damage (Smithers 2012). This is often reflected in corporate policies that prescribe coffeehouse managers against donating unsold food (Figure 1). This is further attributed to imperfect legislation in the UK which prevents businesses from donating food approaching its 'use-by' date (Filimonau and Gherbin 2017) (Figure 1). As demonstrated by Hermsdorf *et al.* (2017) and Sakaguchi *et al.* (2018), fear of the legal liability for food donations by hospitality and grocery retail enterprises persists outside the UK, thus demonstrating its 'universal' character and calling for the harmonization of associated policies across borders.

Aside from health and safety liability, the food donation value cannot be deducted from corporate tax in the UK (Deloitte 2014), which disincentives managers from donating as re-distribution of unsold food becomes more expensive than its disposal (House of Lords 2014). This suggests that regulatory interventions, similar to those recently implemented in continental Europe, are necessary to facilitate food donation practices in UK coffeehouses

(Smithers 2012). These should foremost aim at minimizing the risk of liability for food donors and charities involved in re-distributing food donations to those in need. Meanwhile, coffee shops can only rely on informal tools of shifting liability for food poisoning, such as written notice disclaimers. For example, businesses donate excess food to the Solidarity Fridge in Somerset assuming it can be consumed by recipients at their own risk (Hall 2016). The challenge of food donations is effectively summarised by Interviewee 10:

'We're reluctant to give food to staff or donate. There was a story a while ago when someone got a sandwich from someone and that sandwich was packed by Tesco and that person got food poisoning because of that sandwich. In the end, the person who fell sick actually sued the Tesco. Anyone can potentially be in the same situation and we'll always need to take care about such situations if we do decide to donate' (Interviewee 10)

Aside from the need for regulatory interventions to facilitate food donation, lack of internal resources (money, time and staff) and irresponsible consumer behaviour were seen as barriers to adopting more effective food waste management practices in UK coffeehouses (Figure 1), which is in line with research findings representative of other hospitality sub-sectors, such as public houses (Collison and Colwill 1987), restaurants (Ge *et al.* 2018) and hotels (Radwan *et al.* 2010). Although clear long-term financial savings (WRAP 2013), reputational gains (Thyberg and Tonjes 2016) and customer loyalty benefits (Kasim and Ismail 2012) are commonly assigned to food waste minimisation in the hospitality industry, short-term budgetary constraints and staff disengagement often prevent managers from engaging in food waste mitigation more actively (Charlebois *et al.* 2015). The hospitality sector is made up by small and medium-sized businesses whose busy work schedules and limited staffing resources have been recognised as a significant barrier towards the adoption

of sustainability initiatives (Chan 2008; Chou *et al.* 2012; Hillary 2004). This is further supported by Interviewee 11 below:

'In our case it's definitely lack of resources as well as lack of knowledge. Sometimes when you have a busy service, you simple don't have time to recycle the food waste and simply need to concentrate on making money for the business as well as making customers happy, and it order to do that, all your staff is usually fully engaged in a busy service. There is simply no time for the staff to do it... Lack of knowledge is another problem–believe me or not, but I think that there're not a lot of people who know about correct food waste management and, as a result of it, people simply don't know what to do. I think it's really a global problem' (Interviewee 11)

The majority of participants stated that irresponsible consumer behaviour was a significant contributor to the occurrence of food waste in their enterprises (Figure 1). Although consumer awareness of the negative socio-economic and environmental implications of hospitality food waste is growing (WRAP 2013), customers fail to engage in food waste minimization in the out-of-home settings while the UK government does little to change this negative behavioural pattern, see the quote from Interviewee 15 below. Indeed, the public often perceives visits to coffee shops as an opportunity to socialise, relax and unwind (Kanjanakom and Lee 2017), rather than to think about the impact of their consumption choice on the environment. It is therefore important to change this public viewpoint in pursuit of long-term sustainability goals in the coffeehouse sector. For example, recent evidence from the restaurant sub-sector demonstrates that pro-active food waste management techniques, when applied with care and actively promoted to consumers, can actually improve customer's value perception (Ge *et al.*

2018) building loyalty (Jang *et al.* 2015) and triggering 'greener' behaviour (Wang 2016), thus indicating a critical area for managerial interventions.

Importantly, while for some coffeehouses reckless customer attitudes may indeed represent a major barrier towards the adoption of more effective food waste management practices, some may just utilise it as an excuse to avoid mitigation actions and shift responsibility (Gössling and Peeters 2007). In either case, the industry should more actively engage in consumer choice architecture. Indeed, pro-environmental customer 'nudging' in hospitality enterprises can be feasible from the perspective of both the business and the consumer (Filimonau *et al.* 2017; Kallbekken and Sælen 2013; Lehner *et al.* 2016). This underlines its importance, especially given that voluntary behavioural changes towards more responsible consumption patterns in the tourism and hospitality context can be difficult to achieve if applied on their own and without adequate support from policy-makers and industry professionals (Cohen and Higham 2011).

'Customer awareness is a big problem. Before I started to work in catering business I had no idea how much food waste is produced every day! For example, even discounts on food do not work. We had discounted prices for cakes during the Christmas period last year. What we found is that people bought a lot of them, tried each of them and simply put them in the bin–which is a shame! People definitely need to be educated on it [food waste], whether it'd be documentaries, tutorials, TV adverts or anything else–everything will be a good start and the government should take an active role in it!' (Interviewee 15)

The desire to see the national institutions of power being more closely and pro-actively engaged in food waste management in the sub-sector of coffee shops was a resonant theme across all interviews. The national government was attributed the two key roles to play. The first was seen in optimising the food waste regulatory framework in the UK, especially in terms of health and safety standards applied to food donations. The second was in the design of educational and public awareness raising campaigns. Such integrated governmental support was viewed paramount for businesses to more effectively tackle the issue of food waste generation within UK coffeehouses as summarized by Interviewee 9 below. This is in line with studies from the UK grocery retail sector where deeper governmental involvement has been identified as a major success factor for better public recognition of environmental claims made on food packaging (Gadema and Oglethorpe 2011) and campaigns to minimise food waste (Filimonau and Gherbin 2017; Mena *et al.* 2010). This is also in agreement with a bulk of research on the issues of sustainability management in the tourism and hospitality context where policy-making interventions have been recognised as being critical to raising public awareness of the detrimental environmental effect of consumption choices and facilitating positive, pro-environmental changes in consumer behaviour (Gössling *et al.* 2016). Although this may again indicate an attempt of the industry to shift responsibility towards the government instead tackling the issue of food waste mitigation pro-actively, better involvement of the national institutions of power in hospitality and grocery retail food waste mitigation in the UK was also called for in Deloitte (2014).

'Lack of government support in general is a big thing–if the government was stricter about food waste and provided support for it, for example, some sort of financial or business benefits, then businesses would definitely think about managing food waste better. There's no clear legislation on how you'd do it and

it's a problem for many businesses. Also, I'd say that the largest proportion of the problems in this country is really consumer behaviour. Public needs education on food control, food waste management and it'd not hurt if government could be more actively involved, such as through campaigns, to motivate them [customers]' (Interviewee 9).

5. Conclusions

Food waste represents a major challenge for the hospitality industry, globally and in the UK. Surprisingly, the issue has been understudied which hampers its effective management. Although some efforts have been paid to the characterisation and quantification of food waste streams in hospitality enterprises, managerial approaches to their mitigation have not been researched. This applies to the hospitality industry in general, but also to its specific sectors and geographical markets.

This study contributed to knowledge by evaluating the managerial approaches to food waste mitigation in the UK coffee shop sector. It was established that food waste represented an issue of managerial concern, and yet it was not seen as a managerial priority. This was reflected in the adoption of food waste management approaches that could be described as extensive. More advanced and preventive approaches were rare. This is in line with previous studies conducted in the context of UK hospitality (Radwan *et al.* 2010; 2012) and grocery retail (Filimonau and Gherbin 2017) where similar conclusions were reached.

While UK coffeehouses would be prepared to adopt more effective approaches to food waste management, governmental support is necessary to facilitate this change. The role of government was seen as being critical in streamlining the national food waste legislation, particularly in terms of health and safety. Governmental support was also called for to raise

consumer awareness of hospitality food waste which is in line with previous studies (Mena *et al.* 2010).

Targeted governmental interventions could lead to the revision of corporate policies in the UK coffeehouse sector that would enable managers to engage with local charities and donate excess food to the people in need more actively. Broader engagement with charities would reduce the pressure on internal resources in coffee shops that were identified as another barrier towards the application of more effective food waste management practices which is similar to the obstacles identified for UK grocery retail (Filimonau and Gherbin 2017). It would also commit coffeehouses to more actively partake in consumer choice architecture projects, thus creating a 'win-win' situation.

The study has a number of limitations. Qualitative research offers limited generalisability, so the outcome of this project should be considered exploratory, not conclusive. The study was further restricted to a specific geography. Extending the geographical scope of the project would enable more diversified analysis. Lastly, social desirability bias represents a well-established limitation of managerial interviews which describes the tendency of participants to respond to interview questions in a 'socially acceptable' way (King and Bruner 2000). The risk of social desirability bias to impact this study's outcome is acknowledged.

The study disclosed a number of promising research avenues. First, a large-scale survey of UK coffee shop managers based on the outcome of this exploratory study would enable better representativeness and generalisability of this project's results. Second, given the substantial variations in resource availability between chain-affiliated and independent coffeehouses, future research should focus on the managerial approaches to food waste mitigation as adopted in these different outlet categories. Third, given that charities were named instrumental in facilitating food donations, future research should focus on charity shop

managers. Fourth, future research could look at coffeehouse suppliers and examine the opportunities for food waste minimisation that appear 'higher' in the food chain. Here, engagement of suppliers with food manufacturers and transportation providers with a view to reduce food waste represents an interesting research object. Fifth, existing bulk of research on food donation studied the phenomenon from the perspective of food donors. The perception of recipients, especially their willingness to accept donated food, remains under-examined, and yet there is anecdotal evidence that people have the tendency to assist rather than to accept social assistance. Sixth, management of hospitality food waste within various geographical contexts offers a research opportunity. There is evidence suggesting that consumer cultural background may play a role in food waste generation. Here, a comparative study of the coffeehouse sector in the UK and the Asia Pacific holds potential, given the growth of coffee shops in the latter region. Lastly, content analysis identified non-recyclability of coffee cups as an issue of critical importance for long-term sustainability of coffee shops in the UK. Future research should therefore attempt to investigate the measures that can be put in place to reduce the amount of coffee cups used, both from the perspective of coffee shop managers and consumers.

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-Magnitude of the food waste problem	Substantial	11 or 52%
	Manageable	10 or 48%

-Major contributors	Fruits & Vegetables	15 or 71%
	Bakery items	13 or 62%
	Sandwiches	7 or 33%
	Coffee grounds	4 or 19%
	Salads	4 or 19%

-Food waste management approaches	Off-site disposal	17 or 81%
	Giving to staff	10 or 48%
	Price reductions	10 or 48%
	Careful forecasting	7 or 33%
	Stock rotation	7 or 33%
	Donation	3 or 14%
	Portion control	2 or 10%

-Major *facilitators* and <u>inhibitors</u> of employing more effective food waste management practices

Cost reduction	*21 or 100%*	<u>Reckless consumers</u>	<u>14 or 67%</u>
'It is the right thing to do'	*16 or 76%*	<u>Internal resources</u>	<u>12 or 57%</u>
Reputational gains	*6 or 29%*	<u>Budgetary constraints</u>	<u>11 or 52%</u>
Societal impact	*6 or 29%*	<u>Poor in-house expertise</u>	<u>7 or 33%</u>
		<u>Corporate policies</u>	<u>5 or 24%</u>

-Barriers to food donation	Health & Safety	20 or 95%
	Imperfect laws	17 or 81%
	Corporate policies	5 or 24%

Figure 1. Thematic analysis of interviews. The figures inside the boxes represent the number of text passages identified in interview transcripts for each code, alongside the proportion of participants who contributed to this code.

Table 1. Sustainability initiatives as communicated by major UK branded coffeehouse chains and selected non-specialists (in italics). Market share data are from Allegra World Coffee Portal (2015). NB Greggs and Pret-a-Manger are non-specialists but have been added for comparison purposes.

Chain	Ethical sourcing of coffee beans	Sustainable farming	Composting of coffee grounds	Zero waste policy?	Cup recycling initiatives	In store recycling	Food donation	Market share, %
Costa Coffee	All coffee beans are procured from Rainforest Alliance certified farms	Supports British farmers through protecting animal welfare and ensuring safety	Coffee grounds are available to customers for free collection	Yes	2000+ stores recover and recycle used paper coffee cups. Discount of £0.25 is given for any drink when using a reusable cup	Many stores recycle organic waste and coffee grounds	No	47
Starbucks	99% of coffee was ethically sourced in 2015	Work with 4500 small farmers worldwide to provide a fair wage and access to schools and healthcare	Coffee grounds are offered to customers for composting	No	Discount of £0.25 is given for any drink when using a reusable cup; £1 reusable cups are available to purchase	Invested into developing flexible recycling programmes to increase the amount of waste recycled in-store	Not currently in the UK. Pastries are donated to charities in USA	25
Café Nero	Sourced from clearly identifiable and traceable sources	Farmers and locals are rewarded for following brand standards	Recycled in London stores, diverted from landfills	In London stores only	Reusable cups are available to purchase	70% of waste is recycled and 30% of waste is recovered (in London only). 60% of waste is recycled nationwide	No	18
Coffee 1	Regionally sourced Fairtrade and organic	Use farming standards that allow produce to be traced back to the ethical practices of producers	Recycled and offered to customers for composting	No	Reusable cups that are biodegradable with compostable lids	Use of up-cycled materials in cup sleeves	No	~1
Greggs	*100% Fairtrade certified*	*Provide a secure income for the farmers*	*Diverted from landfills*	*No but 99.6% of waste is diverted from landfills*	*None*	*All waste streams are processed using sustainable routes*	*Yes, regular donations to community groups and local charities*	*-*
Pret-a-Manger	*Only use organic coffee*	*Organic farming methods, natural diet and grazing in fields*	*No*	*No*	*None*	*Offer unsold food to staff and charities*	*Yes, given to local charities*	*-*

Table 2. Interview participants (n=21).

Pseudonym	Gender	Age	Coffee shop category	Managerial role	Work experience in a managerial role +=Limited (1-3 years) ++=Intermediate (3-5 years) +++=Extensive (5+ years)
Interviewee 1	Male	30-40	Independent coffee shop	Manager/Barista	+
Interviewee 2	Male	40-50		Head Chef/Manager	++
Interviewee 3	Female	20-30		Assistant manager/Head Chef/Barista	+
Interviewee 4	Male	30-40		Owner/General manager	++
Interviewee 5	Female	30-40		General manager/Barista	+
Interviewee 6	Male	20-30		Manager/Barista	+
Interviewee 7	Male	20-30		Assistant manager	++
Interviewee 8	Female	30-40	Chain-affiliated branded coffee shop	Manager/Barista	++
Interviewee 9	Male	40-50		Owner/General manager	+++
Interviewee 10	Male	20-30		Manager	+
Interviewee 11	Female	20-30		Assistant manager	+
Interviewee 12	Male	30-40		Assistant manager	+
Interviewee 13	Female	20-30		Manager	++
Interviewee 14	Male	30-40		Manager	+++
Interviewee 15	Female	20-30	Non-specialist coffee shop	Assistant manager	+
Interviewee 16	Female	30-40		General manager	++
Interviewee 17	Male	50-60		General manager	++
Interviewee 18	Male	30-40		General manager/Barista	++
Interviewee 19	Female	20-30		Assistant manager/Head Chef	+
Interviewee 20	Female	20-30		General manager	++

Interviewee 21	Male	30-40		Manager	+++

Table 3. Themes (and their major underpinning sources) utilised when developing interview schedule.

Theme/*Sub-theme*	Rationale	Underpinning source
Magnitude of the food waste problem	To establish the magnitude of the issue given it has been under-studied	Papargyropoulou *et al.* (2016); Pirani and Arafat (2016); Radwan *et al.* (2012); WRAP (2017)
Managerial approaches to food waste mitigation, including	To identify key mitigation measures	Papargyropoulou *et al.* (2016)
Recycling and off-site disposal		Papargyropoulou *et al.* (2016); Content analysis
Stock prediction and rotation		Papargyropoulou *et al.* (2016); Pirani and Arafat (2016)
Donation		Kirschgaessner (2016); Content analysis
Facilitators and inhibitors of employing more effective food waste management approaches	To evaluate potential for more effective minimisation	Filimonau and Gherbin (2017); Papargyropoulou *et al.* (2016); Pirani and Arafat (2016); Radwan *et al.* (2012); WRAP (2017)
Money		
Legislation		
Corporate policies		
Consumers		