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Mapping the Organisational Landscape of the UK FMCG Industry: A Review of Packaging Design & Development Professionals

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Abstract: Packaging design can be acknowledged as a significant strategic avenue within New Product Development (NPD) for Fast-Moving Consumer Goods (FMCG). Packaging can have direct impact on sales conversions, consumer visual and brand perception. However, packaging design and development (PD&D) remains underutilised in organizations, viewed as a risky activity and unnecessary additional cost. Limited research has been conducted to address how PD&D activities are managed. This study expands our current understanding of the PD&D landscape through content analysis and frequency of occurrence measures, of a sample of LinkedIn profiles (n=200) to begin to identify and categorise professionals involved in PD&D for the FMCG sector through their own perception of self. The contribution of the study is to assist in understanding the synergy of key decision-makers and influencers in the industry landscape, expanding on existing design management literature to provide an expanded comprehension and more strategic outlook of characteristics and capabilities of those involved.

Keywords: design management; new product development; packaging; fmcg; linkedin

1. Introduction

Fast-Moving Consumer Goods (FMCG) are low involvement, inexpensive everyday use teams such as food, beverage or personal care products (Clement et al., 2015). The FMCG sector accounts for the UK's largest manufacturing sector (approx. 14%), worth over £125 billion in consumer spending, 8% of the country's GDP (Francis et al., 2008; The Stearling Choice, 2019). Research and Development (R&D) is of fundamental strategic value to FMCGs, for the development of new products to remain competitive in global markets and sustain organisational financial growth (Costa & Jongen, 2006). UK retailer portfolios stock over

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40,000 different product lines, requiring large quantities of New Product Development (NPD) projects. This demands extensive design function resource and support (Nancarrow et al., 1998; Vazquez et al., 2003). When implemented correctly, design can add significant value and be utilised as a strategic tool for product distinction in their competitive landscapes (Rundh, 2009; Vazquez et al., 2003). FMCGs are generally low-cost, low involvement products, with a high propensity to be commoditised, i.e. faceless, brandless products; thus, packaging holds significant value in product differentiation, through the manipulation of product appearance and asset communication (Clement et al., 2015). However, from a traditional organisational perspective these design activities are often considered as 'nice-to-have'; peripheral and non-core contributors to mainstream business performance (Bruce & Daly, 2007). The development of new customer-facing packaging formats and design are often viewed as risky; with apprehensions associated with potential sales losses, reduced brand recognition, and high switch-over production costs resulting in minor, incremental or no changes to package design (Simms & Trott, 2014b, 2014a). Yet, 73% to 85% of purchase decisions are made at the point-of-purchase (Clement et al., 2015; Connolly & Davison, 1996); thus can be seen as a missed opportunity given packaging designs role at the point-of-sale.

Existing research presents models promoting the value and impact of various visual and tactile manipulation techniques of packaging design, such as the strategic use of visual elements, structural design and informational cues (Ampuero & Vila, 2006; Piqueras-Fiszman & Spence, 2012; Silayoi & Speece, 2007; Spence, 2016a). Application of these lessons, could in turn, influence consumer in-store behaviour and increase product saliency, perceived value and desirability during buying decisions (Clement et al., 2015; Clement et al., 2013; Rundh, 2013). Although the rules surrounding good packaging design are well known there is very little room to apply these practices due to risk-averse mindsets and practical concerns of packaging professionals. Managers within packaging design and development (PD&D) have been criticised for having a "...myopic and skewed views of packaging" emphasizing cost-driven solutions (Simms & Trott, 2014a p.2017) and reduced investment and R&D resource allocation (Costa & Jongen, 2006; Rynnänen & Hakatie, 2014). Due to the low-level regard of its value contribution, companies do not appear to consider design or the innovation of packaging until later NPD stages (Francis et al., 2008; Simms & Trott, 2014b); diminishing its potential strategic value.

At current, both industry and academia does not appear to consider PD&D as a holistic professional activity causing more isolated research and practice (Timney & Chamberlain, 2017). Azzi et al. (2012), Mumani & Stone (2018) and Johnson et al. (2019a) provide more rigorous and contextual understandings of the factors influencing PD&D; for example wider design considerations, organisational influences, logistics and supply chain impact and sustainability credentials through cohesive efforts of existing literature analysis. Specifically, design management within the FMCG industry remains under researched and PD&D has been described within a UK context as dysfunctional (Simms & Trott, 2014b).

The research presented here aims to extend exploration in this space by providing FMCG

and NPD professionals with: 1) awareness of the different disciplines involved in PD&D within the FMCG industry; 2) the distribution of different professionals within a conventional organisational structure; 3) the role of these professionals within a conventional FMCG NPD process; and, 4) profiling the knowledge, skills and capabilities of the range of professionals involved.

2. Literature Review

2.1 The Role of Design in Cross-Functional New Product Development

Design functions often sit within R&D remits in the distribution of NPD teams (Ateş et al., 2015; Urban & Hauser, 1993). Over time, design has moved from being a sub-process within NPD, becoming more integrated into business strategy (Braga, 2016; Brown & Katz, 2011; D'Ippolito, 2014; Dell'era & Verganti, 2009; Heskett, 2008; Johansson-Sköldberg et al., 2013; Verganti, 2008; Walsh, 1992; Walsh et al., 1988); as designers move into leadership roles; supporting the whole NPD process as facilitators requiring skills beyond the traditional design skill-set (Perks et al., 2005). Although design functions can exist internally in R&D territories, there is increased outsourcing of external services and design resource to gain specialized knowledge (Ateş et al., 2015; Le Dain et al., 2010; Perks et al., 2005). This has potential benefits such as improved output quality, reduced overheads and project time. However, there is a fear of lost control when outsourcing these services due to design's intangibility, uncertainty and concerns over intellectual property (Ateş et al., 2015; Twigg, 1998). Thus, a key issue within NPD is understanding who and when should be involved in decision-making for design and what is internalised or outsourced (Le Dain et al., 2010).

The impact product appearance has on consumer decision-making is clear and well documented (Bloch, 1995; Crilly et al., 2004). UK retailers employ and dedicate substantial design function resource to PD&D and in-store promotional material (Clement, 2007). The exploitation of design and visual elements of packaging to improve differentiation and communication remains a valuable product marketing strategy for FMCGs (Underwood & Klein, 2002; Young, 2004); yet, underutilised and not considered until later NPD stages (Francis et al., 2008). Visual design and subsequently design resource investment for PD&D can be considered crucial for product market success (Spence, 2016b). In organisational resource distribution, packaging is often considered an unnecessary cost (Chan, Chan, & Choy, 2006; Ryyänen & Hakatie, 2013). As a method to keep R&D costs low and reduce technological risks, incremental innovation strategies allow for increased product launches. However, it is estimated 70% to 95% of product launches fail at market each year (Costa & Jongen, 2006; Spence, 2016b); with some failures being accredited to poor packaging decision-making during NPD (Rudder et al., 2001). Thus, design can be considered one of the most crucial factors contributing to product success rates (Spence, 2016b). Therefore, studying how the industry landscape is composed becomes increasingly important to understand where these value tensions arise from and how they can be addressed.

2.2 Managing Design in FMCG Packaging Development

Packaging research has received extensive attention both theoretically and practically (Azzi et al., 2012). Various frameworks attempt to comprehend the functions packaging serves. At its most basic level of understanding, packaging is a logistical and marketing tool, protecting and preserving products through the supply chain and promote the product to the end consumer (Prendergast & Pitt, 1996). Various frameworks constructed help to understand the principles applicable to packaging design practice. However, these models do not appear to take into consideration broader contextual influences. Much of the existing literature also fails to provide insight into management of PD&D beyond artwork and graphic design (Simms & Trott, 2014a). However, efforts have been made to develop more industry specific models to help recognise stages and factors for FMCG design management in NPD (Bruce & Daly, 2007; Simms & Trott, 2010, 2014a; Vazquez et al., 2003). Vazquez and Bruce (2002) and Vazquez et al. (2003) provide insight into various stages of design management processes initially highlighting key procedural protocol to begin to identify some of the individuals and NPD stage-gates. Simms and Trott (2014) present a 'Grounded Framework for Packaging Management in New Product Development'. Their research highlights internal roles such as "packaging champions" and "packaging buyers" influencing internal organisational activities and external perspectives including retailer involvement, influence and collaboration of suppliers, agencies and technical experts. They emphasise many organisations primarily addressing 'skin deep' or 'body modification' adjustments and, overlooking technological and format changes. This could be associated with the "risk-averse and ad-hoc" attitudes with PD&D and has been accredited to packaging decision-making being implemented by non-packaging specialists (Simms & Trott, 2014 p.2020).

Johnson et al. (2019b) observed packaging design practice, highlighting that multiple stakeholders, from both internal and external organisations influenced conceptual design activities in PD&D. This affected practitioner design activities through factors such as: ineffective design brief management and communication, time compression of design practice activities and, the generation of frustration and tensions in communication between clients and functional disciplines. However, research exploring packaging management and the role of the design function as a core part of the FMCG NPD process still remains under-studied (Simms & Trott, 2010, 2014b). Thus, the understanding of a wider context of professionals involved in PD&D could be useful in considering the challenges associated with cross-functional NPD work for FMCGs and look towards improving design practice. Current research has explored organisational structure and management, but does not engage in depth with the roles, functions, capabilities and synergy of professionals. This research aims to more effectively profile the roles of the 'packaging designer' and other FMCG packaging professionals involved in PD&D, extending existing research frameworks developed within a UK context. This paper provides researchers, designers, design managers and other FMCG NPD professionals with an expanded understanding and clear mapping of the wider context of individuals, developing a typology of role archetypes involved in PD&D.

3. Method

This study looks to categorise professionals within a UK FMCG packaging context; and, to begin to define their capabilities, knowledge and skills. The following study was constructed within the procedures of Loughborough University Ethics Committee following its data protection guidelines and necessary approval processes (Loughborough University, 2019). The study presents a review and detailed analysis of PD&D professionals from the professional networking site LinkedIn. This research method proposed allows for the collection of a large set of self-report data about the professional remit, develop knowledge and understandings about different characteristics of these professionals.

3.1 Profiling Professionals in FMCG Packaging Design & Development

LinkedIn is the world's biggest network site of professionals with approximately 610 million users across 200 countries (27 million UK users) allowing professionals to collaborate and share information through user-generated content (Avocado Social, 2019; LinkedIn, 2019). This tool allows for profile creation including: a professional photo, self-reported profile summary, education and qualifications lists; career history; professional connections; and, key skills, knowledge and expertise lists (Case et al., 2013; Ecleo & Galido, 2017). LinkedIn has been used in various academic and industry contexts, by researchers, recruiters and hiring managers as a tool, for data collection of profile information, analysis of profile contents and employment drives (Case et al., 2013; Ecleo & Galido, 2017; Roulin & Levashina, 2019). More recently, academic research has begun to utilise LinkedIn as a valuable information repository for data collection in aid of understanding and profiling a population of professionals (Bastin, 2012; Case et al., 2013; Ecleo & Galido, 2017; Li et al., 2016; Pisano et al., 2017; Roulin & Levashina, 2019; Zide et al., 2014). For this study, an adapted method (Figure 1) from Ecleo and Galido (2017) to profile and analyse a set of industry professionals was chosen.

Figure 1 Adapted Flow Diagram for LinkedIn Profile Data Collection and Analysis.

3.2 Procurement & Selection of LinkedIn Profiles

Data was collected from LinkedIn profiles in two Boolean searches labelled S1 and S2 over a 3-week period in June 2019. For each search a reference code was given to each participant

profile (e.g. S1:07), to assist with tracking and referencing when undertaking profile comparison and narrative reflection. Reference codes will be used to indicate profile data sets, referencing to the search (e.g. S1 or S2) and the participant number (e.g. 23). Data was collected and archived in a meta-data repository (Figure 2) in MS Excel only accessible to the researchers to maintain protection of data and anonymity of profiles.

Code	Assumed Gender	Current Job Role	Industry	Location	Previous Role(s)	Education & Qualifications	Summary Biography	Skills & Expertise	Additional Notes

Figure 2 Spreadsheet Matrix Design for Profile Data Collection

Boolean searches were conducted using the LinkedIn Recruiter Lite function to avoid just searching members displayed around the researcher's personal network. This allowed to control key search terms and locations. The overall quality of the data input on the profiles was crucial for effective and valuable data to be successfully gathered and interpreted. To ensure this a purposive sampling criterion was established for the selection of profiles during data collection. Purposive sampling was chosen over other non-probability or non-random sampling techniques such as convenience sampling to ensure that a logically assumed representation of a population can be chosen and allow for the deliberate choice of participants due to certain qualities they may possess, in this case professionals within FMCG PD&D and assessment of profile quality. Although both can be applicable to qualitative data collection, purposive sampling is generally more suited. For the case of this study the participants profiles need to be information-rich to ensure valuable data can be extracted (Etikan, 2016; Lavrakas, 2008). Expert sampling, a form of purposive sampling, was employed using the criteria established and displayed in Table 1 to focus on the collection of specialised and/or difficult to reach participants which demonstrate experience and expertise within a specific domain (Etikan, 2016 p.3). This sampling method is utilised in other qualitative studies examining UK FMCG PD&D populations (Simms & Trott, 2014b).

Table 1 Purposive Sampling Criteria

Sampling Criteria Point (CP)		Description
CP1	FMCG Professional	The profiles must demonstrate their current involvement in a role involving the design and development of packaging within the FMCG industry.
CP2	Experience Identified	Where applicable, previous experience should be identified on the profiles.
CP3	Education Identified	Where applicable, the profiles should identify their level of qualification.
CP4	Key Skills Identified	The participant profiles must include a key skills section in the profile layout.
CP5	Overall Profile Quality	The profiles must be completed with detail to provide clarity on their current role, previous role(s), education level(s) and an indication of their key skills.

Although gender and location were collected, these were omitted for analysis as focus was primarily on professional features and to protect the anonymity of profiles. Each profile had to satisfy all criteria points to be included in the final data repository. An example of a high-quality LinkedIn profile meeting the criteria is displayed in Figure 3.

Experience Identified (CP2)
The profile, where applicable, should indicate previous job roles. This should ideally include a level of overview/description of the job role and responsibilities.

Overall Profile Quality (CP5)
Where possible, additional self-report descriptions in either the profile summary or under relevant roles should provide clarity, key aspects and responsibilities of the role(s).

Key Skills Identified (CP4)
Key skills, expertise and knowledge areas are listed in the relevant section of the profile.

FMCG Professional (CP1)
The profile must indicate that the participant currently works within the FMCG sector in a role that is directly relevant to FMCG packaging design and development.

Education Identified (CP3)
Where applicable, education should be listed in the appropriate section or extracted from other areas of the profile e.g. diplomas, degrees, specialist courses.

Profile Content:

- Lead Packaging Development Manager**
United Kingdom | Food Production
Previous positions: Head of Packaging at Laysan of Harrogate, Packaging Buyer and NPD Technologist at Mars Petcare
Education: BSc(Hons), Food Science
Send InMail
- Background**
- Experience**
Lead Packaging Development Manager Cake and Plastic
July 2017 – Present (2 years 1 month) | United Kingdom
I lead packaging technical development and implementation of strategic initiatives to transform the future feasibility, sustainability, efficiency and utilisation of the future Global manufacturing network. Working closely with teams across R&D and the Supply Chain Capability & Transformation teams in Global Supply Chain.
- Head of Packaging**
November 2002 – July 2017 (14 years 8 months)
Responsible for the packaging buying, packaging logistics, packaging technical and warehousing at the main site in [redacted] and with international partners.
I delivered the best packaging, ethically sourced and to a consistent quality and within budget. Great brands require amazing taste and pack presentation and with my team I delivered this.
Working in close collaboration with selected packaging partners to keep [redacted] products competitive and ahead of the competition.
This requires a great team effort and I am proud to have managed a motivated, skilled and mutually supportive team of 20 colleagues.
Recommendations (3)
- Packaging Buyer and NPD Technologist**
October 1997 – November 2002 (5 years 1 month)
Packaging Logistics: Managed supply chain availability of 60m of packaging spend.
Packaging Buying: Held account responsibility for confectionery, consumables and cross category packaging development support on projects involving flexible, ML, plastics, thermofom PET, composite tubes, cartons and other diverse areas for [redacted].
NPD Technologist for [redacted]: Product and process development for [redacted]. Managed process and procedures at UK and EU third party manufacturers.
- Graduate Fast Track**
October 1995 – September 1997 (1 year 11 months)
RHM produced breadcrumbs at their sites. They also produced flavor blend granules for food manufacturers across the UK. Sites currently trading as [redacted].
Accepted onto graduate scheme intake of 1995.
Lead technical contact for 700 raw material specs to compile allergen, BSE and other relevant information for the new state of the art computer system.
Process development for coatings systems designed to improve product and process for crumb and other coatings.
End user development leader for the installation and bug fix a new scheduling system. Key super user for new ERP and planning system.
- Education**
University of [redacted]
BSc(Hons), Food Science
1993 – 1996
- Skills & Expertise**
 - Flexible Films
 - Folding Cartons
 - Comparted
 - Account Management
 - Food Science
 - Manufacturing
 - Logistics Management
 - Registration
 - Automotive Repair
 - FMCG
 - Arbitration
 - Team Leadership
 - Environmental Compliance
 - Governance
 - Sensory Evaluation
 - Food
 - Supply Chain Management
 - Budgets
 - Ingredients
 - Management
 - Packaging
 - Food Industry
 - Purchasing
 - Materials Science
 - Hazard Analysis and Critical Control Points (HACCP)
 - Packaging Design
 - Sheet Metal
 - Ethical Decision Making
 - Food Processing
 - Food Safety
 - Food Packaging
 - Product Development
 - Information Technology
 - Food Technology
 - Continuous Improvement
 - Production
 - Logistics
 - Fast Moving Consumer Goods (FMCG)
 - Supplier Negotiation
 - Bicycle Repair
 - CPS
 - Budgeting
 - Food & Beverage
 - Contingency Planning
 - HACCP

Figure 3 An example of a High-Quality LinkedIn Profile (S1:23)

To avoid bias on inclusion, profiles were extracted on quality of completion based on the purposive criteria with no content analysis performed at this stage to remain objective in the approach to profile selection. A summary of the profile search terms and results can be found in Table 2.

Table 2 Boolean LinkedIn Search Terms and Results from June, 2019

Boolean LinkedIn Search	Search Terms & Phrases	Search Results
S1 (n=100)	'Packaging', 'Design', 'FMCG', 'United Kingdom'	10, 671 profiles
S2 (n=100)	'Packaging', 'Designer', 'FMCG', 'United Kingdom'	2, 079 profiles

In the previous research used as a frame for the study, one-hundred profile samples have been used per occupation. Ecleo & Galido (2017 p.56) use one-hundred profiles over one occupation; and, Zide et al. (2014 p.592) use three-hundred over three occupations. As two searches were being conducted, two-hundred profiles (n=200) were collected, one-hundred from each search. To reduce the risk of documenting a profile more than once and allow for profile data to be re-checked, profile hyperlinks were generated to be able to track and reference each profile collected.

4. Data Analysis

A twofold approach to analysis including inductive content analysis and frequency of occurrence measures as primary interpretation techniques were used. Data extracted from the profiles (n=200) included the profile qualitative descriptive summaries and self-reported job role descriptions, previous experience, education/qualifications and skills/knowledge lists. The analysis of the profiles was then sectioned into three stages: 1) Categorisation of profile architypes; 2) Qualitative content analysis of self-report profiles; 3) Clustering and categorisation of professional skills based on semantic relatedness and similarity.

4.1 Stage 1: Initial Interpretation & Categorisation of Profiles

To begin to explore and understand the types and synergy of the profiles gathered, a conventional content analysis process was performed to begin to interpret and cluster the profiles (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005). Initially, the lead researcher performed the inductive content analysis to formulate initial general categories of the PD&D professionals based on the purposive criterium points CP1, CP2 and CP3. Two additional doctoral researchers knowledgeable in FMCG PD&D were then recruited and provided the data to perform additional content analysis to aid in consensus seeking. The categories: (1) Design-Orientated Practitioners, (2) Design-Affinity Directors, Managers, Technologists & Developers, and (3) Product & Technical Orientated Technologists, Developers & Managers were established, taking into consideration the analysis performed by all researchers. Once the final categories (Table 3) were developed, these were then redistributed to the research team to gain full consensus. Descriptive summaries of the categories were then established to assist in further clustering and interpretation during continued analysis of the professional profiles.

Table 3 *Categorisation of Packaging Design & Development Professionals*

Category Established	Category Descriptive Summary	Profile Quantity
Design-Orientated Practitioners (D)	The professional is an active design practitioner or participates in design-based functions and activities as part of their day-to-day job role.	n=77
Design-Affinity Directors, Managers, Technologists & Developers (M)	The professional is not in an exclusive design practitioner role but assumes managerial responsibilities, has experience in past design roles or has a background in design related education.	n=64
Product & Technical Orientated Technologists, Developers & Managers (T)	The professional is not a design practitioner, has not held previous design roles or a design-based education but supports the packaging design & development process from a product and/or technical perspective.	n=59

4.2 Stage 2: Qualitative Content Analysis of Self-Report Summaries

To provide additional context, inductive content analysis was further employed on self-reported descriptive individual profile summaries at the start of the profiles and distributed throughout sections (CP2 & CP5). These summaries were text based, that often outlined the professional activities, job role(s), key skills/knowledge and further insights into the tasks and summative day-to-day activities. This was utilised as supplementary data to aid in profile categorisation and further interpreting the organisational landscape and synergy of professionals involved in FMCG PD&D. If there was any uncertainty, further understandings of professional domains were also undertaken through the examination of organisational websites to provide greater context to job roles and activities through understanding organisational capabilities, products produced, and FMCG sectors engaged with.

4.3 Stage 3: Preliminary Categorisation of Key Skills

All Data, including skills, was extracted and recorded verbatim directly into the meta-data repository from profiles. As self-reporting is prone to human error (e.g. spelling mistakes and term repetition) the raw data was '*cleaned up*' (Osborne, 2008; Salkind, 2010); to enhance quality and accuracy of the data for analysis. In some cases, Americanisms and acronyms were used which had to be interpreted. These were matched with their appropriate associated phrases and terms. No clustering of semantically similar terms to create larger term categories was conducted at this point to provide an as accurate as possible representation of the data directly self-reported in the profiles.

4.4 Stage 4: Semantic Similarity & Relatedness of Key Skills

For this stage of data analysis, a conventional approach to content analysis was undertaken again on the terms extracted from the LinkedIn profiles to logically combine and organise

larger sub-categories into a smaller, more easily manageable number (Hsieh and Shannon, 2005 p.1279). To improve validity; and, not to be the sole opinion of a single researcher, the categories were presented to the two additional doctoral researchers to moderate the activity. They were asked to analyse and critique the term clusters based on semantic similarity and their semantic relatedness personal to each of the researcher's professional interpretation, experience and industry-related knowledge.

5. Findings

This section introduces preliminary findings from qualitative content analysis of profiles and a narrative of key findings. This can act as a starting point to improve current insight and understanding into the synergy of roles and professionals involved in PD&D, not only just including design-based practitioners such as graphic and structural design; but, wider design and development professionals involved in the holistic artefact creation needed for product realisation and commercialisation. Due to the mass of data collected, analysis and assessment of the frequency of occurrence of skills/knowledge, design tools and expertise of these professional groups is not presented. This paper aims to be an overview to explore and understand the wider, cross-functional body of PD&D professionals. However, highlights of this preliminary analysis are discussed throughout the narrative. The study forms part of a wider PhD research project in which further investigation will be undertaken into PD&D professionals within the UK FMCG industry.

Throughout the narrative of findings, participant profiles references are presented to support the statements which are made using the coding system highlighted in Section 3.2. This meta-data repository can be requested and will be made available to view providing greater insight into the profiles documented. Figure 4 summarises the key categories of domains of industry in which PD&D occurs and, but not limited to, what these domains can offer. This was disseminated from the profiles to provide further context to the narrative of findings. Research presented here expands on existing research by Simms & Trott (2014a) investigating FMCG packaging design management on a more granular level paying attention to the characterisation and synergy of professional roles and archetypes that contribute to PD&D in more detail to expand the existing understandings and frameworks within academic literature (Francis et al., 2008; Simms & Trott, 2014a; Vazquez et al., 2003).

Figure 4 Summary of Industry Domains Contributing to Packaging Design & Development

5.1 Design-Orientated Practitioners

There are many roles and remits in which the general title ‘*packaging designer*’ resides within organisations and functions. We propose three major subcategories that they could be distilled into displayed in Table 3.

Table 3 Design-Orientated Practitioners Summary

Sub-Categories	Summary Description	Example Role(s)
Graphic & Brand Designers (D1)	Orientated towards the 2D aspects of packaging design. For example, an emphasis on graphic/artwork design, brand & Identity, logo design, photography and art direction.	Brand & Packaging Designer, Creative Designer, Graphic Designer, Graphic Packaging Designer, Packaging Artworker, Packaging Designer
Structural & 3D Designers (D2)	Orientated towards the development of 3D structural design. For example, with emphasis on 3D modelling, CAD, design for manufacture and industrial design.	3D Designer, CAD Designer, Design Engineer, Packaging Designer, Packaging Engineer, Structural Designer, Technical Designer
Holistic Packaging Designers (D3)	Orientated towards the consideration and inclusion of both graphic and structural design during packaging design & development.	Creative Designer, Creative Lead, Designer, Packaging Designer

GRAPHIC & BRAND DESIGNERS (D1)

Brand and Packaging designer (S2:21,52) roles orientated towards graphic design and 2D visual packaging elements appeared frequently with reported skills and knowledge such as branding and identity design, brand development, typography, logo design, photography and creative direction. Many of these professionals would often be in brand and design

agency-based positions; or, within freelance roles moving between agencies. However, this does not mean that graphic design capability is mutually exclusive to agency-based remits. Graphic design skill and knowledge was also representative internally within organisations such as product manufacturers and suppliers (S2:18,36,39). Some packaging manufacturers/converters also held these capabilities although tended to be orientated towards creative artworking. Other roles included *'Packaging Artworker'* which appeared to be more concerned with technical application of graphic elements, artwork management, retouching, legal compliance, print management and reprographics knowledge as examples. Artworkers often sat internally within a manufacturer or supplier of products (S1:28, S2:35); or, within packaging manufacturers/converters and artwork management houses (S2:37,70,84). Some artworkers also appeared to work within the remits of design agencies in both permanent and freelance roles (S1:04) suggesting design agencies utilise this resource as part of their services.

STRUCTURAL & 3D DESIGNERS (D2)

Practitioners focusing on structural and 3D aspects of PD&D featured commonly. *'Packaging Design Engineer'* (S1:91; S2:09), *'CAD Designer'* (S2:26) or *'Technical Designer'* (S2:75,76) were also terms used to describe similar roles. Structural Designers often sat in both agency (S1:22,37; S2:26,53) and packaging manufacturer/converter-based remits (S2:10,50). Structural designers within packaging converters were often material specific practitioners for example cartonboard, corrugate or plastic. This could infer a greater knowledge or ability to design for manufacture with that specific material as they have greater familiarity of material properties and, manufacturing processes and constraints. Some structural designers within packaging converters had experience with secondary packaging, shelf-ready packaging, and point-of-sale design, not exclusively primary package design (S1:37) as this was an extension of company expertise and services. In the case of agency-based structural designers (S1:22,31; S2:53) these individuals appeared to focus on 3D brand design development and their associated visual guidelines often with backgrounds and qualifications in industrial/product design. Although organisations such as external design agencies hold structural design abilities, some product manufacturers also had these competences. *'Packaging Design Engineers'* were evident within the remit of R&D functions for structural innovation projects within internal teams to develop visualisations, prototypes and tolerance considered CAD models that were translatable into tooling from pilot through to production ready tools (S1:91; S2:06,15,32,64). Often these encompassed technical knowledge and understandings of utilising multiple packaging materials relevant to their organisation's products and brands.

HOLISTIC PACKAGING DESIGNERS (D3)

Thirdly, an emerging category of design-orientated practitioners are what we will term *'Holistic Packaging Designers'* who presented themselves as professionals implementing skills, knowledge and practice of a hybrid between structural and graphic design into their day-to-day design practice (S1:90; S2:01,19,24,28,52,62). These practitioners appeared to sit

within internal design teams for product and/or packaging manufacturers (S2:19,46,52). A clear example is S2:47 who had a background in packaging structural design and packaging artworking to prepare print-ready artworks before moving into structural packaging design and commercial support. Other titles such as creative lead or innovation lead also appeared within packaging and product manufacturers as a dedicated internal creative resource orientated towards a certain product or service. These could maybe be comparable to creative brand managers looking after a particular brand or product from a creative design perspective (S2:73,91). Some designers had additional supplementary roles including illustrator (S2:78); project, commercial and account management (S2:60,91); supporting brands through consulting (S2:61); research responsibilities as part of co-creation activities (S2:73) and next generation product development (S2:72).

5.2 Design-Affinity Directors, Managers, Technologists & Developers

There were a variety of professional individuals who had affinity, knowledge, education or experience as design practitioners but whom instead undertook roles that facilitated and managed design activity and development processes summarised in Table 4.

Table 4 *Design-Affinity Packaging Professionals Summary*

Sub-Categories	Summary Description	Example Role(s)
Design Managers (M1)	Oversee and manage design-related tasks and employees. May require technical knowledge of processes and undertake supplementary design work activities.	Creative Design Manager, Design Manager, Packaging Design Manager, Technical Design Manager, R&D Packaging Manager
Design & Creative Directors (M2)	Supervise design projects and manage creative teams. Supplementary design work activities may be required to be undertaken as part of the role.	Art Director, Creative Director, Design Director
Design-Affinity Technologists & Development Managers (M3)	Ensuring specification and requirements are met, performance quality and trailing, supplier liaison, packaging procurement and development from a technical perspective.	Packaging Developer, Packaging Development Manager, Packaging Innovation Technologist, Packaging Technologist

DESIGN MANAGERS (M1)

Design managers within the remit of packaging design appeared to lead day-to-day operations of design teams, creative direction and delivery of PD&D within an organisation. Although they appeared to undertake project and people managerial responsibilities work as a primary function (S1:07,49), it appeared this role would require experience as a practitioner and a degree in a design domain such as industrial/product design. Packaging design managers were not exclusive to but were found more commonly within the realm of technical packaging manufacturers, product manufacturers and retailers. Design managers

within retailer's, product manufacturers and suppliers (S1:20,49,55,71,98; S2:03,27) were portrayed as both an internal and external facing role working with commercial teams, internal and external design resource and suppliers to ensure process quality and efficiency. Within packaging manufacturers, design managers were often orientated towards structural or technical design capability management (S1:76;S2:08,22,41,42,43,44,51,83,90,99). Often experienced structural/technical designers, these individuals reported that they were client-facing aiding in design brief formulation, design work to meet client and business goals as well as workload and workflow management.

DESIGN & CREATIVE DIRECTORS (M2)

Apposed to design managers, design and creative directors were often associated in external design agency-based companies such as product design, brand and packaging design agencies (S1:02,26,40,50,52,54,79,97; S2:04,69,98). These individuals appeared to be responsible as the head of creative teams in more supervisory, project and account/client management driven roles to facilitate the design process. These were also responsible for creating, realising and communicating creative 2D and 3D design briefs to a design team and aiding in design rationale, client presentations as well as day-to-day design work. They appeared to hold previous experience as design practitioners (*Section 5.1*) up to senior designers. These individuals also existed as freelancers moving between agency-based environments contributing to senior design activities and design/art director responsibilities (S1:61; S2:14,30).

DESIGN-AFFINITY TECHNOLOGISTS & DEVELOPMENT MANAGERS (M3)

Packaging technologists & development managers with design-affinity were another evident category (S1:01,03,06,41; S2:79). These individuals appeared to work within packaging development ensuring specifications and requirements are met, performance quality and trialling, supplier relationship development and liaison, packaging procurement and development from a more technical perspective but appeared to hold some form of empathy or understanding towards design through a design-based education or prior experience in design practitioner-based roles. Other roles such as packaging development managers held key responsibilities in packaging innovation opportunities, R&D and procurement strategies for companies to facilitate business customer relationships and project management between internal and external teams, brand/category management and business growth. These individuals held key skills typically used by design-orientated practitioners with an additional set of skills towards technical packaging development gained from either Diplomas in Packaging Technology (The Institute of Materials, Minerals and Mining, 2019) or from knowledge gained through career development. In some cases, additional management and problem-solving based qualifications were evident such as the Chartered Management Institute (CMI), PRINCE2 and TRIZ training (S1:03,39,52,92; S2:34,72).

5.3 Product & Technical Orientated Technologists, Developers & Managers

Finally, the last set of profiles categorised identified individuals with no apparent design-

affinity and appeared to focus on product and technical-driven outcomes in PD&D echoing some of the findings by Simms & Trott (2014a p.2020) regarding NPD and R&D members with focus on core product and technical related issues. These individuals reported to have no design-affinity in terms of education or previous job roles but worked in roles within or managing PD&D. These are summarised in Table 5.

Table 5 *Product & Technical Orientated Packaging Professionals Summary*

Sub-Categories	Summary Description	Example Role(s)
Product-Orientated Packaging Technologists, Developers & Managers (T1)	Ensuring specification and requirements are met, performance quality and trialling, supplier liaison, packaging procurement, development and implementations from a product and technical perspective.	Packaging Developer, Packaging Development Manager, Packaging Development Technologist, Packaging Technologist
Technical-Orientated Technologists, Developers & Consultants (T2)	Overseeing the technical-orientated development and management of packaging advising on supply chain, manufacturing, packaging machinery, procurement, material choice, value engineering and cost reductions in packaging development and implementation.	Packaging Consultant, Packaging Coordinator, Packaging Development Manager, Packaging Director, Packaging Engineer, Packaging Innovation Manager, Packaging Scientist, Packaging Technologist, Technical Packaging Specialist

PRODUCT-ORIENTATED PACKAGING TECHNOLOGISTS, DEVELOPERS & MANAGERS (T1)

These individuals appeared to have a rapport towards the product contained within the packaging and product-technical concerns based on their education and professional backgrounds. Holding similar roles to professionals identified in *Section 5.2.3 including 'Packaging Technologists' (S1:35;S2:09) and 'Packaging Development Managers' (S1:23,35)* working internally in product manufacturers; they did not appear to have design-affinity and in many cases had worked previously in product development roles such as formulation chemists or food and beverage product developers before moving into packaging development roles. In turn, this often meant that these individuals were trained within degree-based courses including food science and technology, agricultural science and chemistry (S1:45,62,96; S2:09). They would often have skills and knowledge including food processing, food safety, factory trials, quality assurance (QA), lean manufacturing, ingredients, distillation, formulation and fragrance knowledge as examples extracted. For their career transition into PD&D roles, additional diplomas in packaging technology were often attained appearing in cases to provide supplementary packaging specific knowledge. A clear empathy and understanding towards the product contained within a package was evident but as 'packaging champions' within a company have no evident experience or expertise in design-aspects of packaging. With this said, this cannot be a generalisation or something attainable interacting or relying on the engagement with design-orientated

professionals (*D1, D2, D3*) gaining knowledge through experience. This suggests product manufacturers internally hold such expertise and further echo discoveries made by Simms and Trott (2014), in where this could potentially affect an organisations level of packaging absorptive capacity via the knowledge and abilities these individuals acquire, potentially affecting or hindering design and technical development of packaging.

TECHNICAL-ORIENTATED TECHNOLOGISTS, DEVELOPERS & CONSULTANTS (T2)

Finally, professionals who could be classified as more ‘technically-orientated’ in their approach to PD&D included roles such as ‘*Packaging Technologists*’ (S1:05,12,13,15) ‘*Packaging Scientists*’ (S1:17,65,73) and ‘*Packaging Engineers*’ (S1:08,21,43,81,83,95) sharing similar roles and responsibilities to other design-affinity practitioners (M3) and product-orientated packaging technologists (T1). In this case, these individuals did not appear to hold an affinity towards design but a focus on technical packaging project management including the consideration of supply chain, packaging commercialisation and industrialisation. These included emphasis on specific areas such as product lifecycle analysis, optimisation, QA, packaging substrate choice, packaging machinery selection and approval and good manufacturing practices. Although in this case, they did not appear to have any design affinity and tended to be more concerned with technical packaging artefact development as part of internal product manufacturer R&D teams, this does not mean the role could not be adopted by someone with a design related degree or background and be representative of M3 professionals as identified in *Section 5.2.3*.

Other roles identified included technical leaders, directors and other senior leadership positions. These professionals would often sit internally as part of a product retailer (S1:36,69), product manufacturer or supplier (S1:46,63,78,80); or, be incorporated into a technical-specific packaging consultancy (S1:09,10,53), or interim consulting role (S1:30,33,57) focusing fundamentally on packaging supply chain optimisation, value engineering of packaging artefacts and material/cost reduction. These appeared to have no affinity, experience or background with or within a design-based perspective and appear across multiple domains of PD&D and to be highly engaged with retail and product manufacturing during the decision-making and implementation of new packaging formats.

6. Discussion

This paper unpacks the current state of FMCG PD&D professionals using: 1) a bottom-up approach; drawing upon self-curated and self-reported, naturalistic data (Silverman, 2015); and, 2) mapping the current actors and power structures, to extend the framework developed by Simms and Trott (2014a). This approach differs from current approaches of understanding industry dynamics in both industry and academic literature i.e. meta-level indicators (Design Council, 2007, 2018; Moultrie & Livesey, 2009; PricewaterhouseCoopers, 2017) and post-hoc accounts (Khan & Matthews, 2019). This study presents a more thorough treatment of different archetypes of practitioners, studies the synergy between their roles within the overall landscape, and relations between groups. This interpretation of LinkedIn

profiles, through our content analysis, gives us a better understanding of the various PD&D professionals that affect design practice, design process and decision-making during FMCG PD&D.

By adding to Simms and Trott's (2014a) very comprehensive framework with the practitioner's own perception of 'self' we aim to get a more holistic industry view. This allows us to carve off specific parts of the value-chain, where focused efforts and interventions can be made to apply the surfeit of unrealized lessons from packaging design research. More thoughtful, considered and targeted efforts can be made to address some of the challenges currently being faced by the industry today at a more granular level. Present provocations apparent in existing literature such as, 'why is the focus on innovation in packaging design still seen as a nice-to-have, not core to business?' (Bruce & Daly, 2007) or 'why are the business case arguments related to packaging design always geared towards cost-savings in materials and infrastructure (Simms & Trott, 2014b, 2014a)2005; Silayoi & Speece, 2004 and not potential lost in increased sales at point-of-sale conversion value?' (Clement et al., 2015; Connolly & Davison, 1996) can begin to be seen in a new light. When we map out the actual role archetypes that are the constituents of the industry itself, we can begin to fracture the over-generalised perception of faceless, ambiguous descriptions of PD&D professionals to begin to answer some of these questions in the future.

If we take on one of the aforementioned questions – the organisational aversion to include packaging design as a core business component, and try to apply lessons from our study – exploring the breadth of the practitioners who fall under the management decision-making positions within a specific organisation could help us distil decision-making to Design-Affinity Managers (M) and Product/Technical-Orientated professionals (T) categories. Within these categories we can further identify specific role distributions mapped to M1, M2, M3, T1, and T2 all of which have degrees of influence in management decisions beyond those tied to craft-based specialist roles such as D1, D2 and D3. In doing so from a skill-building, human capital development perspective, when applied to a specific organisation we can create specific strategies to tackle the organisational culture and mind-sets of the archetypes of the different sub-categories. Again, considering the other provocations raised of design side-lined with focus being on cost saving and value engineering initiatives on packaging artefacts within NPD projects; by using the knowledge generated in this study through understanding PD&D on this more granular level we could potentially begin to unpack reasoning and rationale behind these issues within organisations through studying who makes decisions on an organisational level? What is designs prevalence in product development processes? What are the roles, characteristics, knowledge and skills of the professionals chosen to be involved? For example, if the makeup of an organisation focuses primarily on the inclusion of T1 and T2 professionals in PD&D decision-making we can begin to understand why this provocation may be true in some cases. By equipping organisations with the knowledge provided here we can hope to educate and allow them to navigate the breadth of professional archetypes that can or should be involved in PD&D allowing self-reflection on current practices internally to look to balance or provide knowledge, understand the value

to invest in certain archetypes and dedicate organisational resource in design-based activity internally or to outsource externally.

Our research adopts a lot of the preliminary research conducted on packaging management, however we challenge points regarding the lack or absence of technical expertise of packaging NPD '*champions*', originally termed by Markham & Griffin (1998), often associated with the fundamental success of packaging activities within FMCG firms (Simms & Trott, 2014a p.2020). Our data evidences these individuals are widely implemented across the FMCG sector in the form of M3, T1 and T2 professionals that fall within the working remit of internal teams of retailers and product manufacturers whose role are to '*champion*' the implementation of PD&D within their respective organisations. We argue their prevalence could be influenced by the size of the organisation which could impact buy-in power to invest in these professional archetypes. Thus, we argue it is not only the absence, but the individuals design-affinity and technical packaging knowledge as part of their overall skillset as internal packaging '*champions*' chosen which could affect the lack of the active pursuit in new opportunities for packaging design and innovation.

We are cognizant that using the categories as a framing device we can fall under the peril of over-simplification, detaching the roles from the intricate complexities of the organisational hierarchy they are situated in and what these professionals bring to an organisation on an individual level. However, this hopes to allow for us to get more granular in identifying these almost '*persona*'-like roles within an organisation and explore avenues of how to best provide specific support for bringing packaging design to the core of business decision-making, through each role and its influence. We hope this work helps other researchers understand the complexity of this industry; and, to take into consideration industry-based design and development practice approached to packaging research beyond more siloed, top-down views that currently exists. Figure 5 presents an accessible expansion of the framework by Simms & Trott (2014a) to communicate the archetypes and the influences of various PD&D professionals on packaging activities in NPD. We have mapped onto the existing framework expansions of professional archetypes to provide greater context of their industry domains and increase the understandings when conceptualising design management of packaging within the FMCG sector. It must be noted that this mapping is non-exhaustive, and we urge other researchers to continue use, modify and expand this to continue to give us a better understanding of the entire scope of the industry.

Figure 5 Adapted Framework of Influences Impacting the Management of FMCG Packaging Design & Development in NPD

7. Limitations and Future Work

Current results are concluded via qualitative interpretation by three researchers. Although knowledgeable within the research domain, this is an interpretation of self-reported data to establish preliminary categories. Further analysis of the dataset should be undertaken and displayed alongside these findings through in-depth research into these professional's education, skills and the context of organisational structures is encouraged. The technique used, although can be drawn comparable to that of explicit self-report survey methods, only allows the collection of data presented in this online profile format. Although providing rich insight into day-to-day activities, key skills, expertise and experiences; there are possibilities that the data may include superficial depictions or fabricated explanations of one's self-representation, job role(s) and skills. Additionally, not all professionals will use the LinkedIn service or fail to update the profile throughout career development. Furthermore, the profiles may not contain a full report of the capabilities as this is fully dependant on individuals completing all relevant sections or be allowed to disclose certain information onto their profiles.

Future research should also look to further explore PD&D management and process within the FMCG sector. Additional methods such as interviews with UK packaging professionals in the domains identified should be undertaken to confirm results or provide greater insight

moving forward. This includes other cross-functional R&D professionals e.g brand managers, marketing managers and key account managers that may be involved in influencing the decision-making and supporting PD&D. The use of other explicit self-report platforms such as 'Instagram', 'Pinterest', 'Behance' or 'Dribbble' from a practitioner evaluation perspective may also be beneficial as mediums for driving exposure and viewing traffic for designers. LinkedIn was chosen as a platform for this study due to the large amount and variety of professionals using the platform, depth of information that could be attained and existing methods that have been used to collect and analyse data.

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