



Practices and challenges of safety management in outsourced facilities management

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ABSTRACT

Introduction: Outsourcing is a commonly occurring organizational activity, but one associated with negative occupational safety outcomes. Improving the management of safety in workplaces where contractors are employed is vital, but under-researched in the service sectors. The aims of this paper were to investigate both the practices and challenges of safety management in outsourced facility management (FM), an important global service sector. **Method:** Twenty-three semi-structured interviews were conducted with clients and contractors in three different FM outsourcing arrangements between large corporations in the UK. Data were thematically coded against frameworks derived from existing literature to identify deployed safety management practices and reveal challenges associated with safety management in these outsourced relationships. **Results:** Safety management practices in outsourced FM conformed to known practices clustering into four previously identified categories (planning, selecting, on-site working, and checking). A fifth category (reviewing) was not observed. Operating across national boundaries, applying national contracts locally, working with mandated KPIs, and contract specifications all created new challenges for safety management not previously reported. Other known challenges associated with economic pressure and disorganization were observed. **Conclusion:** Safety management practices observed in safety critical industries also apply in FM. However, the challenges of safety management in these three cases included regulatory failures that have not been routinely identified in other empirical studies of safety in outsourcing arrangements. **Practical application:** Adopting widely accepted safety management practices support safer working in outsourced FM and encourage cross-sector learning. New challenges for safety management noted here encourage consideration of unintended consequences of contract terms and conditions, require corporate agreement on how to ensure safety compliance when working trans-nationally, and a review of decision-making and processes and procedures to enable effective and safe working locally.

1. Introduction

More than two decades ago the International Labour Organization (ILO) recognized that contract labor was a universal and irreversible phenomenon (ILO, 1997). Since then, the use of contractors has been associated with negative occupational safety outcomes, as indicated in reports of accident investigations (e.g., the explosion and fire at Buncfield, UK (HSE, 2011a), the train derailment at Hatfield, UK (Office of Rail Regulation, 2006), and the AZF Chemical Factory explosion, Toulouse, France (Dechy et al., 2004)). Improving the management of safety in workplaces where contractors are employed is, therefore, vital. While safety management practices have been investigated extensively in safety critical industries (e.g., construction, chemical processing, petrochemicals and mining), there has been much less work in service

sector organizations that are typically low hazard environments. The aim of this paper is to redress this balance by investigating the management of safety in facility management, an important global service sector, and also to highlight some of the challenges associated with safety management in this context.

Outsourcing is one of the most significant and enduring strategic organizational activities of the modern era (Belcourt, 2006; Hätonen & Eriksson, 2009). Davis-Blake and Broschak (2009) define it as “the act of obtaining goods or services from individuals or organizations outside of a firm’s boundaries when these goods or services could be created internally by a firm’s own employees and managers, pg. 322.” This more comprehensive definition captures the variation identified in the numerous definitions collated by Harland et al. (2005) and also by Espino-Rodriguez and Padron-Robaina (2006). Many different activities

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may be outsourced, including, for example, routine cleaning, catering, security, specialist advice, bespoke product manufacturing, HR and IT functions, transportation, and construction. Facility management (FM) is another outsourced service.

The global FM services market was valued at c.\$1,260 billion in 2022, with the largest market in the Asia Pacific region and the most rapid growth in North America (Fortune Business Insights, 2023). FM in the UK is also a financially significant business sector that is often outsourced (Elmualim et al., 2010). Recently the Royal Institution of Chartered Surveyors (RICS) estimated its value at around 7.5% of UK GDP (RICS, 2020). ISO standard 41,011 defines FM as the “organizational function which integrates people, places and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business” (ISO, 2017). As an industry, FM is complex in its nature. Typically, it is differentiated into hard services, such as building maintenance, engineering and asset management, and soft services, such as cleaning and security. It is therefore not “just another construction-related service, p. 118” (Atkin & Bildsten, 2017). Safety is integral to all these activities. However, the practices in FM required to deliver safety are different to those in construction, because unlike construction these activities are delivered generally to occupied buildings. They are also often delivered by small groups of employees dispersed across many locations. Consequently, how safety is managed in facilities, when their management is outsourced, is an important but largely unanswered question.

The rest of the paper is organized as follows. The literature review uses existing work to structure a brief review of empirical studies that consider the practices used to manage safety in outsourced activities and also the challenges associated with it. Then the research design and methods used to collect data from three cases of outsourced FM are described. Findings from the three cases are reported in aggregate and subsequently discussed, noting in particular the occurrence of regulatory failures. Limitations, directions for future work, and managerial applications are also considered.

2. Literature review

2.1. Management of contractor safety

Organizations utilize a variety of practices for managing operational safety. Often these are examined separately and individually and in a single sector. Some examples include risk assessments (Yang et al., 2018), safety communication (Kines et al., 2010), competence and skills (Vignoli et al., 2021), and use of PPE (Kang, et al., 2017). These independent practices may then be integrated into a safety management system that defines the procedures and practices deployed in an organization to ensure safe working and its effective governance.

In a similar manner, practitioner guidelines set out a series of practices that client organizations can deploy in outsourced activities to ensure employees from both client and contractor organizations work safely. Table 1 provides a combination of the practices referenced in two of these guidelines in the UK (HSE 2011b; Indicator, 2011). The individual practices have been clustered under five main themes (planning, selecting, on-site working, checking/ monitoring and reviewing), each with a number of sub-themes, and academic studies that have investigated empirically their adoption and deployment for the management of safety in outsourcing relationships between firms are also mapped against this framework.

Planning by the client establishes an awareness of hazards and the identification of appropriate risk mitigation practices (Nenonen, 2011). The guidelines advocate that this information should be shared with potential contractors in advance, for example in tender documents. This view is supported by Hasle (2007) and Rebitzer (1995).

Selecting contractors who are demonstrably competent to perform the outsourced activities safely is vital for subsequent safe operations (Hasle, 2007; Rebitzer, 1995). Appropriate checks of competence and

Table 1

A comparison of practical guidance on the safety management of contractors with supporting empirical research evidence.

Theme (Sub-themes)	HSE (2011; pg 22–23)	Indicator (2011; pg 10)	References to empirical investigations
Planning (Hazard Identification, Review ways of working)	Step 1: Planning Identify hazards Assess risks Eliminate and reduce the risks Specify H&S conditions Discuss with contractor	1. When choosing the contractor make reasonable checks that they are competent to carry out the work safely 2. To enable them to plan the work, notify the contractor in advance of any constraints, site safety rules and other information of relevance	Glazner et al., 1998; Glazner et al., 1999; Hasle, 2007; Rebitzer, 1995; Kochan et al., 1994; Nenonen, 2011; Nenonen et al., 2015; Rousseau and Libuser, 1997
Selecting (Competence, Prepare Methods Statements, Relationships)	Step 2: Choosing a contractor What competence is needed? Get evidence Go thru' information about job and site Ask for Methods Statement	3. For significant jobs, request a risk assessment and method statement. Read this on receipt and identify any hazards which are likely to affect your staff, visitors etc.	Lowrey et al., 1998; Manu et al., 2013; Kochan et al., 1994; Vassie and Fuller, 2003; Nenonen, 2011; Nenonen and Vasara, 2013; Nenonen et al., 2015; Rousseau and Libuser, 1997
On-site working (Induction, Review RAMS, Permits to work, Communication – briefing)	Step 3: Contractors working on site All contractors sign in and out Name a site contact Reinforce H&S information and site rules Check job and allow work to begin	4. Arrange any special measures with the contractor which will help the job run smoothly and protect them or others from harm 5. When the contractor's workers arrive on site, brief them on the site safety rules, hazards and emergency procedures. Check what they are planning to do. Identify areas they'll work in. Get them to sign in and tell them they must sign out. 6. If they are conducting higher hazard activities, e. g., hot work using a blow torch, issue a permit to work	Glazner et al., 1998; Glazner et al., 1999; Manu et al., 2013; Nenonen, 2011; Vasara, 2013; Nenonen et al., 2015; Schubert and Dijkstra, 2009; Rousseau and Libuser, 1997
Checking / Monitoring (Use of KPIs, Auditing)	Step 4: Keeping a check Assess the degree of contact needed How is the job going? Are any special arrangements needed?	7. Monitor periodically to check that the contractor's staff are working safely and to identify unexpected issues which need to be resolved	Glazner et al., 1998; Hasle, 2007; Manu et al., 2013; Spangenberg et al., 2002; Gochfeld and Mohr, 2007; Kochan et al., 1994; Nenonen, 1994

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Table 1 (continued)

Theme (Sub-themes)	HSE (2011; pg 22–23)	Indicator (2011; pg 10)	References to empirical investigations
			2011; Nenonen and Vasara, 2013; Schubert and Dijkstra, 2009; Kongsvik et al., 2012; Rousseau and Libuser, 1997
Reviewing (Performance evaluation, Learning lessons)	Step 5: Reviewing the work Review the job and the contractor Record the lessons	8. After the work is complete make sure that it's of adequate quality and you receive any certification required, e.g., commissioning certificate	Vassie and Fuller, 2003; Nenonen et al., 2015;

review of statements of proposed methods of working are crucial (Lingard et al., 2020). Although not part of the practical guidance, preference is often given to those contractors with whom there is an established relationship (Schubert & Dijkstra, 2009). Familiar with local ways of working, these contractors may require less supervision and monitoring (Nenonen & Vasara, 2013). An established relationship also suggests a greater level of trust, which is a necessary condition for relational governance (Vandaele et al., 2007).

The guidance for managing the safety of contract work devotes considerable attention to on-site working. This includes the induction of contractors on to the client site, so that they are familiar with local safety arrangements and ways of working (Kochan et al., 1994) and the preparation of appropriate risk assessments for identified hazards and methods statements (RAMS) for mitigating these potential hazards (Glazner et al., 1998; Manu et al., 2013). Ensuring that these are of sufficient quality to support safe working is vital, although Nenonen (2011) in her review of fatal accidents in outsourced manufacturing showed that this was often not the case. Specific work activities can be further controlled by a permit to work system, specifying who can perform what tasks and where and when these are to be performed. Communication is vital for safe working in outsourced relationships (Milch & Laumann, 2019; Lingard, et al., 2019). This may take the form of regular safety briefings, or toolbox talks, where information can be shared (Rousseau & Libuser, 1997).

Checking and monitoring of contractor’s work to ensure compliance with required safety practices is a fourth major theme in the practitioner guidance. This provides a means of control against agreed KPIs. Regular audits of performance and subsequent reporting are acknowledged practices for promoting safe working (Nenonen & Vasara, 2013; Gochfeld & Mohr, 2007; O’Brien, 1999).

A final theme, reviewing, encourages the certification of contractors work and provides the opportunity to review performance, learn lessons, and make improvements for the next engagement (Nenonen et al., 2015).

While there is considerable evidence to support the inclusion of these practices in guidelines for managing outsourced activity safely, there are other practices (not included in the guidelines) that may also improve safety in outsourced activity. For example, ensuring the PPE available and used by contractors is of the same standard as that used by employees of the client. Collinson’s (1999) study of contractors working on oilrigs indicated that the PPE for contractors was substandard and they were forced to borrow PPE from permanent employees.

Just as with the individual practices and procedures that comprise the safety management system for a single organization, which are

rarely studied in combination, it is also uncommon for several of these practices to be examined together in a single study of safe working with contractors. Common exceptions to this are where studies review accident investigation reports (e.g., Valluru, et al., 2020; Milch & Laumann, 2019). More often practices are investigated independently and separately. The sector focus of studies investigating safety management in outsourced activities also tends towards high risk or safety critical industries such as construction (Glazner et al., 1998; Manu et al., 2013), oil and gas (Milch & Laumann, 2018), mining (Valluru et al., 2020) and aircraft maintenance (Bağcı & Gereke, 2019), although Nenonen focusses on manufacturing (Nenonen, 2011; Nenonen & Vasara, 2013; Nenonen et al., 2015; 2020). Studies that focus on the range of practices that are deployed to manage safety throughout the duration of an outsourced relationship in low hazard environments or service organizations are also uncommon.

2.2. Safety challenges of outsourcing

Outsourcing increases the complexity of interorganizational working. In a recent literature review of empirical studies of organizational practices for managing safety in outsourced and complex interorganizational settings where failure can result in catastrophic organizational accidents, Milch and Laumann (2016) identified four key themes (economic pressure, disorganization, dilution of competence and organizational differences) that make accidents more likely. More recent studies investigating safety in outsourced situations augment the findings of this review (see Table 2). Like those in Milch and Laumann (2016), many of these additional studies were conducted in high risk and safety critical industries (e.g., McDermott & Hayes, 2018; Bağcı & Gereke, 2019), and not low hazard environments or service organizations.

Economic pressures contribute to unsafe working leading to accidents in two ways. Often a lack of resources results in different levels of training for different groups of workers (Nygren et al., 2017). Different levels of competence inevitably means that those with superior skills are not only exposed to risks by those who are less competent, but also implicitly expected to take on more responsibility for the safety of everyone (Grusenmeyer, 2022). Failure to share responsibility for safety equitably can also result in a lack of reporting and the development of blame cultures (Jeffcott et al., 2006). Efforts to supervise work is also applied unequally and therefore fragmented. In addition to the lack of shared responsibility for safety, economic pressures also fuel the trade-offs between safety and production (McDermott & Hayes, 2018). Where the attention of the organization is primarily on cost-savings and efficiency, then attention to safety diminishes. KPIs stipulated in the contract that are oriented towards production rather than safety encourage contractors to neglect safety and cut corners (Nygren et al., 2017; Valluru et al., 2017).

Disorganization was comprised of three sub-themes (Milch & Laumann, 2016). Confusion of responsibility results in ambiguous or fragmented work processes. This makes coordination of work difficult and risks the overall loss of control of the work task (Milch & Laumann, 2019). Misperception of roles, or conflicting roles (Grusenmeyer, 2022), contribute to a confusion of responsibility. This is obviously demonstrated in the legal responsibility for safety training, which is often contested, or training is duplicated (Nenonen & Vasara, 2013). A second sub-theme was the breakdown in communication and information flow. This results in misunderstandings over tasks and their requirements and inadequate checks (Priemus & Ale, 2010). Different communication practices in the different organizations may also discourage information sharing and lead to communication failure (Grusenmeyer, 2022). Later studies have also evidenced a failure to share the knowledge gained from past experience in order to improve current work practices (Milch & Laumann, 2019). Thirdly, outsourcing arrangements may be characterized by complex safety management systems. Paperwork is reported to increase and procedures proliferate and become burdensome to follow (Kongsvik et al., 2012; Antonsen et al., 2008).

Table 2
Themes and sub-themes for safety challenges of outsourcing identified in a review by [Milch and Laumann \(2016\)](#) and updated with more recently published evidence for the sub-themes.

Theme	Sub-theme	Supporting empirical studies
Economic pressures	Lack of shared responsibility for safety-related issues	Nygren et al., 2017 ; Bağan and Gerede, 2019 ; Edwards and Love, 2016 ; Grusenmeyer, 2022 ; McDermott and Hayes, 2018
	Safety/Production trade-offs	Nygren et al., 2017 ; Nenonen and Vasara, 2013 ; Bağan and Gerede, 2019 ; Edwards and Love, 2016 ; Grusenmeyer, 2022 ; McDermott and Hayes, 2018 ;
Disorganization	Confusion in roles and responsibility	Milch and Laumann, 2019 ; Nenonen and Vasara, 2013 ; Grusenmeyer, 2022 ; Milch and Laumann, 2018 ; Nygren et al., 2017 ; Nenonen and Vasara, 2013 ; Bağan and Gerede, 2019 ; Grusenmeyer, 2022
	Breakdown in communication and information flow	Grusenmeyer, 2022
	Complex safety management systems	Bağan and Gerede, 2019 ; Edwards and Love, 2016 ; Grusenmeyer, 2022
Dilution of competence	Employees unfamiliar with local work environment.	Milch and Laumann, 2018 ; Nygren et al., 2017 ; Nenonen and Vasara, 2013 ; Bağan and Gerede, 2019 ; McDermott and Hayes, 2018 ;
	Lack of industry-specific knowledge and experience.	Milch and Laumann, 2018 ; Edwards and Love, 2016 .
Organizational differences	Fragmented decision-making processes	Milch and Laumann, 2019 ; Nygren et al., 2017 ; Bağan and Gerede, 2019 .
	Distrust and conflicts between organizations	Nygren et al., 2017 ; Nenonen and Vasara, 2013 ; Grusenmeyer, 2022
		Nygren et al., 2017 ; Edwards and Love, 2016 ; Grusenmeyer, 2022 ; McDermott and Hayes, 2018

Dilution of competence can occur either because employees are unfamiliar with the work, the local environment, or their combination, or because they lack industry-specific knowledge ([Bağan & Gerede, 2019](#)). Often the former can arise because there are different requirements for the same tasks on different sites. Each site has its own way of operating, and contractors operating across sites may not be familiar initially with the local differences ([Nenonen & Vasara, 2013](#)). At a more basic level they may have had inadequate or inappropriate training ([Bağan & Gerede, 2019](#)).

A final theme identified in the review by [Milch and Laumann \(2016\)](#) was organizational differences. Working across organizational boundaries ensures that decision making is often disjointed and fragmented ([Tillement & Hayes, 2022](#)). Different points of view held by the respective organizations need to be reconciled, frequently resulting in sub-optimal compromise solutions ([Milch & Laumann, 2016](#)). Differences between organizations can result in distrust and conflict ([Edwards & Love, 2016](#)). Contractors are frequently considered inferior to the client with ‘us and them’ relationships resulting ([Valluru et al., 2017](#)). Furthermore, as noted by [Bağan and Gerede \(2019\)](#) difference in national culture between organizations also create differences that influence safety.

These four themes resemble two of the three groups in [Quinlan and Mayhew’s \(2001\)](#) typology. Their typology and the resulting PDR model identify three groups of risk factors associated with precarious employment, which includes temporary workers on short-term contracts, agency working, home-based working, and part-time working often in micro or SMEs. The three groups are economic pressures, disorganization, and likelihood of regulatory failures. [Quinlan and his colleagues \(Quinlan & Bohle, 2008; Underhill & Quinlan, 2011, Quinlan et al., 2013\)](#) have applied this model to outsourcing arrangements in multiple sectors including construction, healthcare, aviation, and manufacturing. However, it has more often been applied to sub-contracting and those contractors working in small organizations at the base of the supply chain (e.g., [Mayhew & Quinlan, 2006](#)) rather than to client firms and principal contractors.

Nonetheless, it is noteworthy that many of these challenges for safety management associated with outsourcing, noted by [Quinlan and others](#), are also reported by [Milch and Laumann \(2016\)](#) in high hazard and safety critical industries. However, there is scant empirical evidence to indicate whether these same safety challenges pertain to outsourcing in lower hazard environments, which characterize most employment situations, and at the apex of the supply chain. Furthermore, it is also important to note that the contribution of regulatory failures to accidents were not commented upon in [Milch and Laumann’s \(2016\)](#) review but are integral to the PDR model ([Quinlan & Mayhew, 2001](#)). This discrepancy was noted also by [Pilbeam et al. \(2020\)](#) in a review of empirical studies of safety risk factors in both firm-to-firm and firm-to-individual contracting. They noted that disorganization was a more common risk factor than economic and reward pressures, and regulatory failures were entirely absent. The organizations in the empirical studies reported by [Milch and Laumann \(2016\)](#) were often large national companies (e.g., British Rail) rather than micro-businesses and SMEs that are commonly represented in [Quinlan’s](#) work. This suggests perhaps that large national organizations are more adept at managing the impact of regulation on safety in outsourced activities, although this remains unexplored.

From this brief review it is apparent that the management of safety in outsourced relationships has often focused on particular practices and then mainly in high hazard or safety critical environments. Furthermore, the safety challenges with outsourcing have more often been investigated in these same environments or in SMEs and micro businesses. An examination of the management of safety and also the safety challenges associated with outsourcing between large organizations at the apex of the supply chain in other less safety critical contexts therefore merits attention. One of these is facility management (FM). This is often outsourced but would be considered to be a lower hazard occupation, whilst acknowledging that some aspects of the work may involve high hazard activities. Moreover, it is not a safety critical industry likely to generate major accidents. Noting these points of difference, this study has two research questions:

- How is safety managed in outsourced facility management?
- What challenges does outsourced facility management create for safety management?

3. Methods

3.1. Research strategy

This study follows a theory elaboration strategy ([Fisher & Aguinis, 2017](#)) seeking to use existing empirically grounded frameworks to organize data from a previously under researched context to reveal new constructs and contextual influences and confirm the presence of others found in different settings, to refine the boundary conditions of existing theory ([Whetten, 1989](#)). Such an approach has been articulated for case study research ([Ketokivi & Choi, 2014](#)) and is deployed here. Specifically, this study extends two separate frameworks from existing studies. The first prescribes practices for managing safety in outsourcing

relationships. The second augments a typology of the OSH challenges found in outsourced activities in complex high-risk environments drawing on an existing review paper (Milch & Laumann, 2016). Data from interviews with participants working in three different outsourced FM arrangements are compared to these frameworks, allowing the identification of practices and challenges in the FM context that are both similar to and different from those identified in other contexts. Ethical approval for the study was obtained from the author's university (CURES/1629/2016).

Three different arrangements for outsourced FM were available to the researcher following a launch event for the research project attended by 17 different organizations. The first involved an arrangement between a global pharmaceutical company (PharmaCo) headquartered in the UK and two global FM companies with headquarters outside of the UK (FMCo₁ and FMCo₂). The second involved a single UK division of a multinational technology and engineering company headquartered outside of the UK (EngCo) and a UK national FM company (FMCo₃). The third involved a global logistics company (LogCo) taking on the role of FM for two warehouses for a large UK retailer. The FM companies were different in each case. These cases differ from other studies of safety in outsourced relationships in several important respects in addition to the novel FM sector context. First, the organizations operate across national boundaries and therefore in different legal jurisdictions where different OSH regulations apply. Second, the organizations agree contracts at a national level but anticipate local application. This may be present in other studies implicitly, but is explicit in this study. And third, the organizations involved were large national or multinational organizations. Many of the studies in the earlier reviews of safety in outsourcing (e.g., Quinlan & Bohle, 2008) considered agency working or lower tier outsourcing relationships involving SMEs or micro-firms. Fourth, the prior experience of FM varies across the cases. These differences afford potentially novel insights into the management of safety, and their associated challenges, in outsourcing relationships that occur in other lower-risk settings.

3.2. Case descriptions

3.2.1. Case 1

The corporate worldwide real estate and facilities (WREF) function of a global pharmaceutical company (PharmaCo) outsourced the FM on all of its sites to two international FM companies. One company (FMCo₁) provided 'hard' services including maintenance and small construction / refurbishment projects. And the other company (FMCo₂) provided 'soft' services including housekeeping and catering. Oversight of these contracts and the attendant chain of sub-contractor activities across the PharmaCo laboratory sites in the UK was provided by a small team within WREF who drew on support from a small EHS team also within PharmaCo but independent from WREF. According to a program director for WREF, "we've got a very small PharmaCo organization that sits over hundreds of people, so the WREF model is a very thin slice of PharmaCo and a hugely outsourced delivery model." This case investigated relationships between the organizations at two locations in the UK that have multiple laboratories, offices, and other facilities of different ages spread over an extended area. Operational procedures differed between sites. An important feature of this case is that contracts and the master service level agreements between PharmaCo and the FM companies were negotiated outside of the UK, but then implemented in the UK, creating confusion over compliance requirements.

3.2.2. Case 2

The real estate division of an international engineering company (EngCo) outsourced the FM of the 120 sites in the UK to an FM company (FMCo₃). They acted in a managing agent role to oversee and deliver the management of the facilities at the different sites throughout the UK, which ranged in scale from small depots to complex hubs with a variety of buildings, some of which contained asbestos. A team of four people

(location managers) from EngCo were set to oversee this FM activity nationally. These activities were tightly specified by the contract with a range of agreed KPIs. According to one EngCo location manager, "FMCo₃ are our supplier of choice, so they manage the contracts for us for cleaning, catering, security, and delivery of those contracts, including engineering." FMCo₃ had won the 3-year contract from a different FM company in 2016. Many of the staff were transferred across from this previous FM company (under Transfer of Undertaking Protection of Employment; a process abbreviated to TUPE) and therefore were familiar with some of the sites. At the larger locations there was more than one EngCo division operating from that site, creating confusing relationships and accountabilities between the companies.

3.2.3. Case 3

An international logistics company (LogCo) was asked by one of its clients, a large UK retail store, to take on the FM of two warehouses / distribution centers in the UK; one was a relatively new site (<3 years old), the other was a much older rented property (>30 years old). To service the client's demand, LogCo created a team to manage the facilities across the two sites, effectively becoming the FM contractor. At their other distribution centers / warehouses in the UK, LogCo would appoint a different FM company to take care of the facilities, rather than conducting the work themselves. Within LogCo there are different cultures between the warehousing operations and the team tasked with FM, not least because of the many languages spoken by the warehouse operatives.

3.3. Data collection

Twenty-three semi-structured interviews were conducted either face-to-face or via telephone and lasted between 21–60 min, providing a total of more than 16 h of recorded data. The interview was based on a protocol developed from the literature (Appendix A). Potential interviewees were identified by a contact person (from the Health and Safety team) in PharmaCo, EngCo and LogCo and their different roles are indicated in Table 3. Interviewees were knowledgeable about the practices for managing safety in the contract operations with the FM contractors. Using experienced informants makes it more likely that consensus on important themes will be achieved with fewer interviews (Guest et al., 2006). In a recent review, Hennink and Kaiser (2022) indicate that between 9–17 interviews are required for code saturation. Inevitably the contact person was able to secure more interviews with colleagues from their own organization than with the contractors or the client in the LogCo case, where no one agreed to be interviewed. Similar imbalances in numbers of interviews have been observed in other dyadic studies of supplier relations (e.g., Wilhelm, 2011). Interviews were audio recorded and verbatim transcriptions of the recording were provided by a third party. These were cross-checked with the audio-recording and proofread to correct punctuation and misspelled or missing words as recommended by McMullin (2021).

3.4. Data analysis

All the transcripts were read several times before coding commenced to get an overall sense of the available data within each case and between cases. These qualitative data were analyzed thematically (Braun & Clarke, 2006). Initially each transcript from within a case was coded semantically using the language of the interviewees to generate first order codes. These free codes from each case were then collated using the two alternative templates developed *a priori* from the literature reviews to identify safety practices used in the management of safety in outsourced FM (Table 1) and to reveal the challenges that outsourcing FM to contractors creates for safety management (Table 2). This was an iterative process where the veracity of codes and the accuracy of placement to the coding structure were repeatedly checked with reference to the context being described in the interview and re-reading of

Table 3
Job roles of 23 interviewees knowledgeable about safety management in the organizations in three different cases of outsourced FM.

Client	Client	Contractor (FMCo)
Case 1 (PharmaCo)	Programme Director for EMEA in WREF*	Lead project manager (FMCo ₁)
	WREF Site Operations Director	EHS trainer (FMCo ₁)
	Capital Projects programme manager	Global EHS lead (FMCo ₂)
	Operations Director for sites	
	Technical Operations Director	
	Pilot plant operations manager	
	UK H&S process safety manager	
	Safety manager	
	EHS manager for 3 sites	
Case 2 (EngCo)	Location managers (x4)	Technical services manager (FMCo ₃) Asbestos and L8 coordinator (FMCo ₃) Regional manager (FMCo ₃)
Case 3 (LogCo)	—	Senior Facilities and Engineering Operations Manager Facilities and Engineering Operations Manager Facilities and Engineering shift manager (x2)

N.B. There were two FMCo organizations in Case 1. In case 3 LogCo became the contractor for a retail client.*WREF – Worldwide Real Estate and Facilities, a division within PharmaCo.

the category descriptions in the literature from which either template was derived. In some case there were codes that could not be aligned to the *a priori* coding template. These were identified as new themes indicated by an asterisk in the relevant tables. The resulting populated templates from each case were then compared and tabulated.

To provide transparency to the analysis, an appendix containing interview quotes that illustrate the safety challenges arising from outsourcing across the three cases in this study, is included (Appendix B, Tables A1–A5). These quotes are referenced in the text by number.

4. Findings

4.1. Practices for managing safety

Table 4 suggests that four of the five main themes of managing contractors were adopted and applied similarly across all three case organizations when managing safety in outsourced facility management. Reviewing may be missing, simply because none of the outsourcing arrangements had been completed at the time of the study.

Safety management was risk driven in PharmaCo and risk assessment and management were an integral part of working documents within EngCo and LogCo. Often these and other H&S requirements were specified in tender documents together with clear descriptions of work processes in order to permit effective planning.

Considerable emphasis was placed on the selection of appropriately competent contractors. Accreditation of skills and competence checks were routinely conducted by all three client organizations for directly employed contractors and in the case of PharmaCo checks were also made of sub-contractors contracted by the principal contractors and working on site.

All three organizations preferred working with contractors with whom there was an established long-term relationship that had allowed the building of trust. This was important to ensure consistency of

approach to safety and to share concerns freely. Replicated in relationships between principal contractors and their sub-contractors, it allowed them to fix problems quickly, as indicated by the Asbestos and L8 coordinator in FMCo₃, “Because of the relationship we have, I managed to get someone there on the evening. ... If you didn’t have the relationship with [company x] because you have been arguing all the time and nit-picking their work, which some people tend to do. ... So, to me that is what comes of having a good relationship with a subby.”

The process of TUPE (defined above) was a common practice to ensure continuity, which also influenced allegiance. In case 1 a program manager in PharmaCo commented that “I’ve got project managers here who’ve been working for PharmaCo for a lot longer than I have been, but they’ve done it through various different organizations. I’d imagine 60% of them would say their loyalty and allegiance was with PharmaCo rather than whoever’s paying their wages at the moment.”

All of the customary practices for contractors working on-site were reported in the three cases. Induction training was routinely required and renewed annually. Sometimes other training was also provided. In case 1, allowance was also made for those without access to PCs as part of their normal work, “When we issue online training, which we often do, ... there’s dispensation for FMCo₂ for a number of their staff and they train that out in classroom style to the staff.” Preparation, submission, and review of risk assessments and methods statements was a requirement, although they were not always prepared to the required standard (see challenges below). Issuing permits to work was seen as part of the normal contractor management process. Briefings, through regular toolbox talks or other meetings were often mandated. At EngCo rapid and effective communications were possible through a portal. Social media were also used to encourage information dissemination, “EngCo is a big fan of social media. For instance, I’m in different groups. There’s an EngCo real estate group so we can just talk between ourselves. We have an EHS one. There’s a big push from EngCo at the moment to use social media.” Safety committees were commonplace. These formal channels enabled information sharing, which were complemented by informal routes too. Both formal and informal information sharing were dependent on effective record keeping and up to date data recording. There was little mention of working conditions, including provision of PPE; employees from both organizations worked alongside each other and were dispersed across the different sites.

Performance was monitored against a pre-specified set of KPIs. Inevitably these drive activities, which can be positive, but may also be negative for safety performance (see challenges below). Auditing of the contractor by the client was routine, requiring effective record keeping and a clear audit trail. In some cases, performance of particular activities was also audited by third parties. In all three cases it was assumed that incidents including near misses would be reported in an effort to improve safety performance. The practical benefit of this activity was questionable where performance targets were set (see challenges below). Respondents did also note that effective monitoring required knowledge and understanding of those tasks the contractor was supposed to perform. In PharmaCo, respondents felt that this expertise had been lost in the process of outsourcing and the refocusing on core competencies. The EHS manager observed, “When they were first outsourced a lot of PharmaCo people were TUPE’d over and then they left very quickly. And when cost cutting initiatives came in, I think quite a lot of the technical leads were taken out of the FMCo contract because they cost the most. So, you were left with a workforce of fitters, etc, but then not the technical competence. PharmaCo had already stripped out theirs, so PharmaCo operations were effectively acting as governance with an expectation they were paying not just for heads, but they were paying for capability and competence as well.”

One of the most effective ways to monitor and check was by regular walk arounds and inspections during work, “periodically we would go round, and we would do spot-checks, and we would confirm they’re okay” (pilot plant operations manager, PharmaCo). An alternative deployed by LogCo was the introduction of closed-circuit television (CCTV) or video

surveillance. This was an attempt to combat the emergence of a claims culture on the site where employees and sometimes contractors would claim for minor injuries after a lengthy period based on dubious evidence.

4.2. Safety challenges

4.2.1. Economic pressures

Challenges of a lack of shared responsibility for safety-related issues and safety-production trade-offs arising from economic pressures observed in other studies were also apparent in these cases (Appendix B, Table A1). Poor attitudes suggesting contractors worked to a minimal level, “*what they could get away with*,” indicate a reluctance to look after the welfare of others and so a lack of shared responsibility for safety. Such attitudes may have been induced by production pressures where there was insufficient time to check everything [1–4]. The seasonality of production in the LogCo case emphasized this production-safety tension. This case also highlighted the importance of bonus payments on safety. Securing profit margins for the organization to ensure a bonus was achieved was prioritized ahead of spending on safety. Time pressures also affected the induction training for contractors, which was often conducted in a perfunctory manner. Financial penalties as a result of missed KPIs stated in the contract also diverted contractor activity away from important safety issues [41].

Procurement processes, including regular re-tendering as part of routine procurement practices “to test the market,” and contract specifications also contributed to economic pressures that affected safety across all three cases [5–7]. Where contracts were specified nationally the ability to select appropriate contractors at a local level was precluded. In some cases, the EHS team were not involved in the selection process, even though safety credentials were part of the selection criteria. Contract negotiations invariably questioned ‘who pays for what?’ with implications for safety management, where safety was seen as a cost. The specification of contracts limited resource availability for safety management. In PharmaCo cost savings were written into the contract with adverse effects on morale, “*These guys have been hit with so many things over the last two years. They’ve been hit with losing overtime, they’ve been hit with losing money, they’ve changed jobs, their morale is at a low*” (FMCo₁ – Trainer). In this case, despite robust selection procedures occasionally the selected contractors failed to achieve the desired standards [7].

4.2.2. Disorganization

The three challenges associated with disorganization noted in the review of literature were observed in this study (Appendix B, Table A2). The findings also suggested a fourth challenge, namely the control of contractor work.

Confusion over responsibilities was noted in all three cases [8–11]. In some cases, the client company accepted responsibility for supervising the employees of the FMCo rather than leaving it to the managers and supervisors of the FMCo. Sometimes this was felt to be interference and over control [8,9]. In other cases, the client assuming the contractor was competent wanted to leave the contractor to perform the task, but the turnover of contractor staff meant that this was not always possible. In case 2, where there were multiple occupancy sites, accountability was not always clearly defined. In this instance was FMCo₃ accountable to the EngCo division responsible for managing the site or to the EngCo division operating from the site? The two were different, which created confusion. This lack of clarity over roles and responsibilities invariably led to misunderstandings and omissions [11].

Communications in all three cases were often found to be disjointed [12–14]. Safety messages were confused and confusing with different groups attempting to use them for different purposes. Language differences also created communication problems, notably in LogCo where more than 10 different languages were spoken by employees on site.

Safety management systems in outsourcing relationships are often

more complex than in single organizations [15–18]. This was noted in these cases. IT systems were incompatible, requiring double entry of information particularly near miss data. Incompatibilities were also created by operating across national or regulatory boundaries. Practices acceptable in one regime were unacceptable in another, requiring changes in standard operating procedures that were not always produced. The most frequent complaint about the safety management systems was the high level of paperwork associated with the auditing process, in some instances (especially case 1) this was duplicated across organizations. More commonly the volume of paperwork meant that points raised in one audit were often not closed before the next one, so there was a sense of ‘continuous audit. Consequently, auditing became a hindrance to safety management in outsourced FM.

Interviewees in each of the three cases commented upon inadequacy of controls to monitor the work of contractors. In some cases, this was because of the size of the site. Workers may be dispersed across a large area, so supervision and observation is difficult. This was compounded by the diversity of tasks that need to be conducted at different locations. In other cases (especially case 1), this was because there were too few resources remaining in the client to oversee the work of the contractor [19–22]. Simply, the volume of work that needed to be supervised was too great for the resources available [26]. Inevitably this affected the quality and level of control exercised by the client and there was a greater dependence on the contractor being competent and effective.

4.2.3. Dilution of competence

Both a lack of familiarity with working environments and a lack of industry knowledge were challenges recognized in these cases (Appendix B, Table A3).

High task complexity contributed to safety management challenges [24]. In the case of EngCo, the large number of sites that differed in terms of scale and scope made facility management difficult. A Location Manager in EngCo observed that “*If I’m honest with you, I think FMCo₃ underestimated the size and complexity of our entire UK portfolio*.” The other cases had fewer sites and so less variation, although even here contractors commented on the differences in the way SOPs were actioned at different locations. This made working across sites more challenging [23].

Continuity of employment at a site allows the employees to become familiar with the local working environment, which is disrupted by change [25,38]. Shift work, including the rotation of teams and their composition, disrupted this in LogCo. “*The problem we have is I can start a job here this week and then go over there and do a job next week, whereas now we want to be able to be focused and take a bit more sort of lead, so you know your contractors better for each site and things like that, and just make it simpler*” (LogCo – shift manager 2).

Similarly, in case 2 the turnover of contract staff, which was high in some regions of the UK, ensured contractors were always at the bottom of the ‘learning curve’ in terms of site knowledge [38]. Turnover of staff also disrupted the development of trusted relationships, which was used as an informal means of control necessitating higher levels of supervision.

Lack of local knowledge was in some cases exacerbated by a lack of industry specific knowledge too. According to the clients, contractors were unfamiliar with the task and unaware of the associated hazards [26–29].

Competence levels were adversely affected by a lack of training, or by a failure to engage meaningfully with the training that was provided. In case 1 this was because of the volume of material that needed to be read and absorbed to satisfy compliance requirement. “*It’s a get out clause because if something goes wrong and there’s an accident, it’s like he read and understood that procedure. You’re like no he didn’t. He just opened it up and closed it down, because if you look at the time, it took him two minutes for a 40-page document*” (FMCo₁ – Trainer). The duplication of training [30] required before attending different sites also contributed to this disengagement.

4.2.4. Organizational differences

Organizational differences were more apparent as distrust and conflict between the organizations (Appendix B; Table A4), although fragmented decision-making processes could be inferred.

While there were multiple points of contact between client and contractor in the PharmaCo case, decision making processes became messy either with duplication or no decision making [31,32,33]. Difficulties with decision making were also experienced where there were siloed activities. Different decisions made in different business units were not always easy to align or integrate, which resulted in a drift in the processes.

Different processes and an incompatibility of systems between organizations (noted in different sub-themes under disorganization) emphasized organizational differences. Such differences were observed locally but were also evident at the headquarter level. In case 1, differences between the organizations at headquarters regularly impacted relationships locally where contractors were afraid to speak up, *“I understand PharmaCo have the right to have whoever they want on their sites, that’s not negotiable. But there is a fear element now. There absolutely is. I know within my team it’s massive, they say, do not put a foot wrong, ‘cause they just fire the gun”* (FMC₀₁ – Lead Project Manager). Failure to comply with client processes also resulted in financial penalties [41], but also diverted attention from essential safety activities.

4.2.5. Regulatory failure

Four sub-themes (different H&S regulations, national contracts applied locally, mandated KPIs and contract specifications) were evident in the data under regulatory failures (Appendix B, Table A5).

Adversarial relationships between companies at the level of headquarters created local difficulties over which processes to follow, even when working relationships locally were amicable. This was evident in case 1. The effects of these poor relationships were compounded by differences in the Health and Safety regulations applicable in different legal jurisdictions [34,36,37]. Employees of FMC₀₁ were expected to adhere to Health and Safety regulations specified in the United States, while operating at PharmaCo sites in the UK. PharmaCo expected the same employees to operate according to the UK Health and Safety regulations [35]. These conflicting regulations created difficulties for safety management of contractors locally, and because of the adversarial relationships further up in the hierarchy there was little chance of an agreed resolution to the problem, which increased the stress of managers and workers caught in this situation.

Differences between headquarters and local operations were also evident within the same legal jurisdiction. Contracts negotiated at a national level were not always effective at every location [38–40]. In case 2 differences between individual sites made operating to a national contract difficult for FMC₀₃. Decisions that would have been effective locally were inadmissible because of the contract. Any deviation or failure to meet agreed targets resulted in financial penalties. This was so significant in case 2 that a KPI-holiday was agreed between EngCo and FMC₀₃ to help resolve these challenges [42].

Reporting incidents, near misses, and accidents is a commonly used practice for managing safety. However, when this was mandated by contract and targets applied, the practice was misused. Unnecessary, and perhaps irrelevant, items were recorded simply to meet the target and avoid financial penalties [43]. Inevitably this overwhelmed the system and weakened the effectiveness of the monitoring processes. More generally KPIs were felt to drive behaviors, so that some activities that were difficult to describe in a KPI, although important, were given a lower priority, *“So they go for a zero tolerance approach, you must do them all otherwise you get fined and they all get done but stuff around the edges doesn’t get done, stuff that you find it very difficult to put wording in a KPI around”* (PharmaCo – Tech Ops Mgr).

Contract specifications also contributed to regulatory failures often by specifying resourcing levels [44–46]. These were felt to be insufficient to permit effective monitoring of the safety of the outsourced task.

Outsourcing also encouraged the client organization to reduce its own staffing levels. This resulted in a loss of competence to effectively oversee the contractors’ work because knowledge of the outsourced task was lost (as noted under disorganization [19–22]). In case 1 PharmaCo employees were concerned about their inability to effectively monitor the work of FMC₀₁ employees because there were too few of them. They felt monitoring was inadequate and that they were vulnerable to meeting the levels of compliance required by the regulatory standards.

5. Discussion

Studies of the influence of outsourcing on safety management practices have often focused on sectors like oil and gas (Milch & Laumann, 2018; 2019), nuclear (Oedewald & Gotcheva, 2015), or construction (Lingard et al., 2020) where risks are high and accidents potentially catastrophic. In contrast there have been far fewer reports of the influence of outsourcing in low hazard environments, where risks are lower and accidents rarely fatal. Exceptions to this include the work of Quinlan and colleagues (Underhill & Quinlan, 2011; Quinlan & Bohle, 2008), but these often focused on agency workers or small organizations, such as home garment manufacturing or delivery drivers (Mayhew & Quinlan, 2006). With its focus on FM between larger companies operating nationally or internationally, this study confirms the occurrence of practices for managing safety in outsourced relationships recognized in existing frameworks extending their application to this new context. Furthermore, it both confirms and extends aspects of Quinlan’s PDR model of risks associated with outsourcing that had been applied to outsourced activities in complex high-risk environments. In particular, the study identified the characteristics of dilution of competence, duplication, disjointed communication and decision-making, and distrust associated with the disorganization category of the model seen in other studies from other sectors. Moreover, the findings revealed safety management challenges associated with the category of regulatory failure that have not been previously reported in empirical studies of outsourcing between firms. These new findings are discussed below.

5.1. How is safety managed in outsourced FM?

From these three cases, it is possible to identify a range of management practices that are adopted by companies to manage safety in outsourced FM. These can be mapped effectively onto the generic guidelines provided by practitioners to support contractor safety management (HSE, 2011b; Indicator, 2011), specifically planning, selecting, on-site working, checking, and reviewing. Conformance with these practices by large organizations in outsourced FM relationships extends our understanding of their scope of application and reinforces their generic characteristics.

Contractors capable of performing the outsourced tasks are evidently a requirement recognized in other studies (Hasle, 2007; Rebitzer, 1995). Competence checks were therefore a vital part of the selection process (Horbury & Hope, 1999). Once competent contractors had been recruited there was a strong tendency to retain them (Nenonen & Vasara, 2013). When contracts ended, employees of the contracted organization were often transferred under TUPE into the new organization that had won the contract in order to retain skills and local awareness. Such long-term relationships permitted the development of trust but had disadvantages discussed below.

Many of the practices used to coordinate and control on-site work practices (such as RAMS and PTWs) were routinely adopted in these cases and have been reported in other studies (Manu et al., 2013; Glazner et al., 1998). Procedures for frequent checking and regular monitoring were identified in all three cases. However, this does presume that the client is competent to do so. The logic of outsourcing is to remove cost from the organization (Hayes & Tillement, 2022), and this may mean that the competence to monitor effectively is also lost as indicated in the PharmaCo case. In two of the cases client firms turned to

a third party to provide an external audit of the management of safety in outsourced relationships. This additional review helps to strengthen the formal governance of interorganizational working characteristic of outsourcing relationships (Howard et al., 2019).

An unreported practice in these cases was review of the contract towards its conclusion, perhaps because the contracts were still current. The dissolution of contracts is often messy (Gulati et al., 2008), ending in legal battles (Harrison, 2004). Organizations also lack the resources and interest in continuing to interact with an organization to which they are not contractually bound. These common characteristics contribute to the absence of practices to support review and are an obvious hindrance to learning, and further improvement in the management of safety in outsourced relationships.

5.2. What challenges does outsourcing FM create for safety management?

Outsourcing creates challenges for managing safety (Hayes & Tillement, 2022) and given its increasing significance as a business practice it is an important context for research that is currently under investigated (Hopkins, 2022). Much of the existing literature focuses on high risk or safety critical settings to the exclusion of other organizational contexts, like FM, where outsourcing may create new challenges for safety management. In this study of outsourced FM some of the observed challenges are well recognized, for example the safety / production trade-off (Milch & Laumann, 2016; McDermott & Hayes, 2018), while others are new, for example the adverse effects on safety management of routine procurement processes, and the safety challenges associated with regulatory failure.

The PDR model developed by Quinlan and colleagues as a ‘crude typology’ (Quinlan et al., 2001, p. 352) has been used to categorize the risks associated with outsourcing into three clusters: economic pressures, disorganization, and regulatory failure. A recent literature review of empirical studies of firm-to-firm outsourcing (Pilbeam et al., 2020) indicated that disorganization was commonly observed and that economic pressures were apparent only where core activities were outsourced. In that review no studies reported regulatory failures, unlike this study where four different challenges may be categorized as regulatory failures. First, in case 1 employees of the U.S. based FM company (FMCo₁) were unsure which regulatory framework for assuring safety applied at the client sites in the UK. Although accepting of the need to conform to UK regulations and follow the PharmaCo’s processes for managing safety on site, employees of the contractor firm were also expected by managers further up the hierarchy in their own firm to adopt practices that conform to U.S. regulations. Attempting to reconcile these two incompatible systems created substantial difficulties for contract workers locally, who received little assistance from their own managers in FMCo₁. Ensuring compliance with national H&S legislation when working transnationally is evidently an important challenge, but with little guidance on how the resulting conflicts are to be resolved at a local level. Hayes and Tillement (2022) noted that the safety management challenges of transnational outsourcing remain under investigated.

Secondly, in case 2, the nationally agreed contract for FM between EngCo and FMCo₃ was unable to cater for the specific requirements at any particular location. The number of site locations owned by EngCo that FMCo₃ had to service exceeded 100. They also differed significantly in scale and scope. This complexity made it difficult to effectively manage the locally appropriate outsourced activities through a single high-level contract (Roerich & Lewis, 2014).

Two other examples of regulatory failure were also reinforced by economic pressures. The first relates to cost savings specified in contracts, as in case 1. These resulted in the loss or degradation of resources to deliver the contract effectively and safely. The potential for cost savings is an important driver of outsourcing (Hayes & Tillement, 2022). Such decisions are often made by those at senior levels in organizations who may not be familiar with local operational practices. One of the

consequences of these cost savings is that client resources that are knowledgeable and available to monitor the outsource tasks are lost (Edwards & Love, 2016; Handley, 2017). This loss of skills and knowledge was observed in case 1, where PharmaCo staff acknowledged that they felt unable to satisfactorily monitor the activities of the contractor, *“I think the problem is that they’ve reduced the head count without really a system of control that is suitably advanced and suitably embedded and without those people there to make it work. I think it’s gone beyond lean to skeletal to the point of actually parts are fragmenting off, I think it’s not at the minimum you can run, I think it’s beyond it”* (Safety Manager – PharmaCo). Essential skills and expertise had been lost because of a failure to understand local requirements (Hayes & Tillement, 2022). Inevitably this has important negative implications for assuring compliance with H&S regulations. The second relates to the use of mandated KPIs. In both case 1 and 2 these diverted attention and behaviors away from safety towards achieving the performance target in order to avoid a financial penalty. The adverse effect of KPIs on desired behaviors has been recognized previously (Kaiser & Young, 2013).

Disorganization is the most commonly observed category of risk associated with outsourcing (Pilbeam et al., 2020; Milch & Laumann, 2016). Many of the challenges surrounding safety management in these three cases were of this type. While long-term relationships between client and contractor were preferred to ensure continuity of skills and knowledge (Manu et al., 2013) so that the contract can be fulfilled, and to develop trust as an informal mechanism of coordination and control (Poppo & Zenger, 2002), they also risked the development of complacency (Milch & Laumann, 2018) and a failure to monitor. Established relationship can also become cozy and lose the challenge necessary for maintaining safe work. This preference influenced the selection of partners at the contracting stage. However, turnover of staff in the contractor (FMCo₃), especially in case 2, meant that acquiring site knowledge that was necessary to deliver the contract was delayed in some regions. This was compounded by the variety and number of EngCo sites that needed to be managed. Knowledge and awareness of the site requirements are critical to safe working (Milch & Laumann, 2019). Where this is substantial the familiarization process may be slower. This complexity was compounded further by multi-occupancy of the sites (Milch & Laumann, 2018). Different business units with different processes and expectations operated from the same EngCo sites. The safety challenges caused by the turnover of contractors has been observed elsewhere, for example in aircraft maintenance (Bağcı & Gereke, 2019).

Disorganization is also apparent in the duplication of effort needed to support complex safety management systems. Confusion over roles and responsibilities and incompatible processes and practices recognized in other studies (Bağcı and Gereke, 2019; Nenonen & Vasara, 2013; Quinlan et al., 2001) were present here. Disorganization resulted in the duplication of paperwork, especially in case 1. Similarly, the requirement for site inductions on every site drive disinterest and disengagement (Nygren et al., 2017). This can contribute to incidents as noted by Valluru et al. (2020) in an analysis of mining accidents.

Combining an examination of the practice for managing safety in outsourced relationships with an analysis of the safety challenges that arise from outsourcing suggests that some of the practices deemed to be functional are, or become, dysfunctional in use. This transition has been identified in other studies of the practices used for governing long-term relationships between organizations (Howard et al., 2019). Formal practices (e.g., review meetings and audits) became unworkable as action points cannot be resolved before the next review or audit due to lack of resources. Established social norms in long-term relationships that act as informal means of control can also lead to complacency and lack of challenge. Furthermore, formal processes and procedures adopted for managing safety in a single organization fail to operate across an organizational boundary where they are not shared, resulting in duplication. Similarly, monitoring may fail in practice, where sites are large or there are many, and where contract workers are dispersed widely. In these cases, there is a reliance on the contractor competence. They must be

Table 4
Safety practices across cases.

Theme	Sub-theme	Case 1	Case 2	Case 3	Illustrative quotes from different cases
Planning	Hazard Identification	x	x	x	“We have a few catering-type issues. We went through a spate of people cutting themselves with knives, and people burning themselves with coffee machines. There are obviously chemicals used in cleaning, and at the R&D sites there are all sorts of biological and chemical hazards, and potentially things like radiation hazards that people are coming into contact with” Global EHS Lead, FMCo ₂
	Review ways of working	x	x	x	“Regarding the temporary guys coming in one day, two days or a weeks’ work, there’s a process for that with strict hosting process. So, somebody must be hosting those people at all times, unless they are deemed to be competent and trained. Then, depends on what they’re doing, we may raise a paperwork, a permit to work, which would control what they can do, how they can do it, and what method they’re following and what the restrictions are. If that goes into doing some more particular work in confined spaces that triggers other controls. Hot works, with welding and things, other controls kick in. So, it’s a pretty rigorous control process behind that, and only certain people who are trained can issue and manage that process” Pilot plant operations manager, PharmaCo. “I had another examples of a roofing company that’s on site today that was through a contractor that we use, so it’s like a subcontractor, and he’s done works for years and years and had no issues, sent the RAMS over for working on the roof and they were atrocious....In the end it took another month before they went out to some other company to help them to draw up a reasonable risk assessment” Senior Facility and Engineering Operations Manager, LogCo
Selecting	Competence check	x	x	x	“So, we do have some specialist contractors where we have gone to a lot of care and attention in actually reviewing, assessing competency, appointing and controlling contractors. We have a company that comes in, they are a specialist in certain activities, they are very good at it, and they bring good practices. That is definitely a benefit of contracting out because we don’t have the in-house expertise in all our positions” Safety Manager, PharmaCo “We’re very careful that any accreditation or any mission or anything objective that we might have are back-to-back with any contract with a third party supplier, so hopefully – the vision is that if we need an ISO accreditation we’ve got to make sure our third party suppliers have got the same accreditation, so they’re working to the same level of legislation” Location Manager 2, EngCo “I mean they’re preferred suppliers. They’re specialists in their field for certain aspects that we’re using, so it’s not like we’re just getting Joe Bloggs up the road to come and do a job, it’s people that we have used before, preferred suppliers.” Shift Manager 1, LogCo.
	Prepare Methods statements	x	x	x	“Obviously we take the job on behalf of EngCo and then charge EngCo for doing the work for them, so they become our contractor. Then they supply site and myself with necessary risk assessments, methods statements, plans of working, drawing, anything that may be relevant for them to complete that task” Asbestos and L8 Coordinator, FMCo ₃
	Relationships	x	x	x	“It’s having an awareness of who the key people are who have the right safety behaviours and knowledge and whatever, that’s the real nugget for me, not just saying, we’ll appoint that company again because they did a good job, and then you get a different team and wonder why things haven’t gone well” WREF Programme Director, PharmaCo “I had to deal with their contract manager but because he’s been here a long time, and that’s how [retail company] work, they tend to keep people in the same place, and you get to know a lot of the people. I think we’ve got excellent working relationship with [retail company]. I know a lot of the auditors that come in, I know a lot of the IT guys that come in, I know a lot of the senior managers that work on this contract. So, I think we’ve got a good working relationship and we tend to give them what they want. They’re our client, we’ve got to.” Shift Manager 2, LogCo.
					“From our viewpoint, what is quite good is the health and safety practices because it’s the same people that basically TUPE. What I’ve found over the period of the eight years that I’ve worked for EngCo and the last two as a Location Manager, is that there’s actually, if you like, a hidden strength there because they’re people that are transferring over that know the processes, EngCo’s processes. The majority of them understand what’s the correct way and the incorrect way to do things, so we actually, I think, get a benefit from that. It’s not as if every two/three years we need to suddenly get into a whole training mode of health and safety and about compliance.” Location Manager 4, EngCo.
On-site working	Induction	x	x	x	“It’s just making sure that when the guys come on site, they’re aware of their responsibilities, you go through the induction, you tell them why you’re doing it, give them the test. Anything that they’re not sure about, you go through. It’s just about raising their awareness of what we expect as a site, what we expect as a company, and what their responsibilities are legally. I think that that’s much better than it was”. Shift Manager 1, LogCo. “From a business point of view, when you arrive on the site, you will have a health and safety induction which then gets refreshed every couple of years, you know, you’re logged on the system. If you’re actually a contractor on site, following that induction you then have to go down to the FMCo ₃ office and have an FMCo ₃ induction which gives you the more particulars of the site, where the asbestos is, etc, so you would have that.” Location Manager 1, EngCo

(continued on next page)

Table 4 (continued)

Theme	Sub-theme	Case 1	Case 2	Case 3	Illustrative quotes from different cases
	Risk Assessments –Methods Statements (RAMS)	x	x	x	<p>“We check the RAMS. So, we have to go through the RAMS, look at them, make sure while they’re working as well, we give them regular inspections. So, we make sure they’re working with their RAMS” Shift manager 2, LogCo</p> <p>“Yeah, and I think that works, management monitoring, reviewing permit to work. Let’s go and get two off the board and actually go and visit these guys and we’ll sit 100 yards back saying, what’s the method statement say? Stop the guys working, come down, have you read your method, have you signed your method? We do a lot of that” Operations Director, PharmaCo</p>
	Permits to Work	x	x	x	<p>“We also spend a lot of time working on an almost prevention mode because we are very clear and very serious on permits to work, for example. FMCO₃ have a duty – we’ve got responsibility, obviously, we can’t run away from responsibility – but we work very closely with FMCO₃ on the permits to make sure that at least the risk has been identified and covered with their RAMS etc. It’s not just a paper exercise that things are done correctly.” Location Manager 4, EngCo.</p> <p>“There will be SOP’s that each of those organizations need to follow in terms of inducting their third-party vendors, taking them through the permit to work process and how we control their activities when they’re on site, with RAMS to ensure that the work they are carrying out is fit for purpose. So, nothing different to any other organizations, but we rely on the oversight of any of those organizations to host those third-party vendors” Site Operations Director, PharmaCo.</p>
	Communication –Briefings	x	x	x	<p>“One is that the form’s different and they have forms for different things. So, for instance, if you do a hot works on site, you have a hot work permit. If you have working at height, you have a working at height permit. If you have a roof work permit, that’s all in the working at height but only certain people can do roof permits” Shift Manager 1, LogCo</p> <p>“We do regular toolbox talks here, which I think is good. So, I think it’s every month one of the engineering managers will take over the toolbox talks for that month” Shift manager 2, LogCo</p> <p>“Toolbox talks we do are not really governed by me, but we have two toolbox talks every week to go through on a big contract, and they’re sent out by our Health and Safety Division” Technical Services Manager, FMCO₃</p> <p>“EngCo is a big fan of social media. For instance, I’m in different groups. We have an EHS one, we have a [site name] development one, because it’s going under a huge amount of development for two years so we set one up where we can post things and tell them what’s happening and people can post questions and we can answer straight away, so rather than getting tied up into a lot of emails” Location Manager 2, EngCo.</p>
	*Communication-Information sharing	x	x	x	<p>“These things are checked by our own health and safety team and then when the project starts, it’s monitored. I have an input, as the coordinator, to make sure it’s all running smoothly and report that back to EngCo. Then when the project’s finished, all the data gets collated to me, which I then pass on to EngCo’s consultant to store on their database. Health and Safety is well-managed when the projects are going on.” Asbestos and L8 Coordinator, FMCO₃</p> <p>“We do have a system for raising awareness following incidents, etc. So, if somebody had a high severity accident, somebody blows up a boiler or something, there would be an investigation and there would be a global alert that’s sent out to all the safety advisors and the managers of the sites saying, this has happened, these are what the findings were, these were the actions that were taken, this is what you should review. So, we do get that for an incident, but we don’t get that for something like management failings of a contract or those sorts of things” Safety Manager, PharmaCo.</p> <p>“We do have quarterly safety review meetings with each of the service partner organisations, where they’ll share best practice, hot topics, particular issues, how we’re looking to resolve them, procedural issues that need resolution ... So, we do come together at quite senior level across our own organization and our service partners and look at those”. Site Operations Director, PharmaCo.</p>
Checking / Monitoring	Use of KPIs	x	x		<p>“We had a rough start on KPIs. We have key performance indicators, it’s our objectives at the end of the day, and it’s all system-oriented, it’s all digitalised at the moment, so you can have anomalies coming through when you’re using digitalisation, and we’ve had a bit of a rocky road with KPIs. We’ve all been aware of that and we give them what’s called a KPI holiday, which is a breach without a fine, get to the bottom of what the problem is. Is it a system problem or is it a realistic operational problem?” Location Manager 2, EngCo.</p>
	Audit performance	x	x	x	<p>“We have KPIs which are reported on a two-weekly basis, we get a few of those, and one of the KPIs – I won’t bore you with all the ones about cost and schedules and projects – but one of the KPIs is measuring accident and incident rates, that’s on their KPIs, so we can see trends there”. Capital Projects Programme Manager, PharmaCo.</p> <p>“So, from a safety perspective it would be [external company] that would come along and that would be deemed as an external audit body. They will come along periodically, every few years, and they’ll pick a number of topic areas, and they will audit [PharmaCo section] independently and each of our service partners, to understand how effective the management monitoring programme is and if there’s any gaps in our tiered accountability and in any of the areas that they’re auditing. So basically, once we’ve had an audit depending on the topic areas. Those findings will be issued to the relevant service partners, they will be given a period of time, no</p>

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Table 4 (continued)

Theme	Sub-theme	Case 1	Case 2	Case 3	Illustrative quotes from different cases
	*Reporting	x	x	x	more than 20 to 30 days, to come back with any challenge that they have around that finding and evidence that they couldn't provide during the audit. Or, to provide their recommendation on how they're going to resolve that. They need to outline what steps they're going to take to meet that gap in their processes, who is going to manage it and by when" Site Operations Director, PharmaCo "They report to us on a regular basis. There's a big property, it's a big site, so every four week they need to report back to me on compliance and a whole range of things. For smaller sites, we'll do that on a quarterly basis and that's all agreed up front. So, then we're supposed to do a series of audits as well, to delve into the information that's coming back to us. So, spot checks" Location Manager 2, EngCo "We will continually do reviews and management monitoring of what FMCo ₁ and the other outsourced companies are doing, and then if we find a problem we'll have to get involved in putting together the root cause analysis and the solution" Tech Ops Manager, PharmaCo."
Reviewing	Performance evaluation				nil
	Learning Lessons				nil

knowledgeable of both site and task. The dysfunctionality of functional safety management practices and the circumstances under which this occurs warrants further examination.

5.3. Limitations and future work

A number of limitations are evident in the study. Numbers of interviewees in some organizations were small or missing (for the client organization in case 3). This imbalance reflected the ability of the contact person in each case to gain support, and so interviews, from both organizations. Such an imbalance is similarly evident in other research on relationships between companies in a supply chain (Wilhelm, 2011; Touboul et al., 2014). Consequently, it is possible that particular ‘voices’ were missed, and therefore the qualitative data may incompletely represent the range of opinions or representations of the issue under consideration. This does not invalidate the study as O’Reilly and Parker (2012) argue in their critical examination of the concept of saturation. They contend that the aim of qualitative inquiry is to gather sufficient depth of information to reveal the richness of the phenomenon under investigation so as to extend and advance knowledge. And moreover, that saturation is not the sole quality criterion for assessing the adequacy of approaches to qualitative research. In particular, they note that “if saturation is not reached this simply means that the phenomenon has not yet been fully explored rather than that the findings are invalid, p 194.” Further work is needed.

In a similar vein, the cognitive biases of the interviewees were not captured, and these may influence the content and reporting of the findings. The interviews do however capture the immediate experiences of the interviewees, and these were not always positive, suggesting that interviewees were not managing the interview to give a wholly favorable impression.

The three cases were not chosen theoretically. Nevertheless, the cases do illustrate a diversity of client-contractor arrangements that differ on three important dimensions, namely operation across national (and regulatory) boundaries, operation across multiple sites (exceeding 100 in one case) which adds considerable complexity, and the development of new expertise in FM at the behest of the client. Although not tied to particular theoretical positions, they reveal safety management challenges associated with regulatory failures not previously reported in empirical studies illuminating operating situations between national and multi-national companies that regularly occur at the apex of supply chains and provide evidence of boundary conditions for the development of theory (Whetten, 1989).

The three cases were also all cross-sectional, with attendant limitations. The investigation of safety management in outsourced relationships and the associated challenges in non-safety critical settings merits a longitudinal investigation of an outsourced relations, especially

focused on the planning and selection processes at the commencement of the relationship (e.g., Tillement & Leuridan, 2022; Nenonen et al., 2020), and how the relationship unfolds to include the review process at the termination of the contract.

5.4. Implications for practice

Managing safety in outsourced relationships in service sectors, like FM, appear to follow established practices derived from safety critical industries. Specifically, they fall into five clusters (planning, selecting, on-site working, checking or monitoring, and reviewing). Continued development of good safety management practices through cross-sector learning is important therefore for the further mitigation of the negative safety consequences of employing contract labor.

Several challenges for safety management were identified that appear not to have been reported in other empirical studies of safety in outsourcing. While these challenges can be identified in the wider literature beyond studies of safety, their implications particularly for safety management practices have not been highlighted previously.

One rationale for outsourcing is to achieve cost savings. A consequence of this may be the loss of expertise in the client organization to monitor satisfactorily the activities of the contractor (Handley, 2017). Respondents in case 1 indicated such a loss in their organization and were concerned about the impact on effective safety management locally. Ensuring relevant and necessary safety expertise is retained is vital.

Geppert and Williams (2006) recognized the challenge faced by local managers operating within a multinational corporation (MNC), who needed to satisfy expectations of both the MNC and the local context. This was observed in case 1 where national differences in safety legislation created conflicts and uncertainty for managers about how to comply with local safety regulations, while working for a company headquartered elsewhere. Early resolution of this contradiction is essential for effective safety management in outsourced relationships.

Senior managers may not always be aware of the impact of their high-level decisions on working arrangements at a local level. Hayes and Tillement (2022) indicate that to ensure effective and safe working some allowance for local adaptation of working practices is necessary.

Outsourcing increases complexity, and so unintended consequences are more likely in the operational system. The contracts for outsourced activities assume, and may even specify, a particular way of working. Where the basis for this assumption (or specification) deviates from actual practice then the resulting performance management system is likely to generate perverse unintended consequences and poor outcomes (Franco-Santos & Otley, 2018). In the cases here, the terms of the contracts and associated performance measurement process resulted in adverse safety outcomes.

Operating in complex work environments requires the acquisition of appropriate knowledge and skills, and the development of trust of others performing different roles in the same workspace. [Milch and Laumann \(2018\)](#) indicated these in their investigation of safety management across organizational boundaries. The common practice of frequent retendering of contracts, which may encourage innovation and prevent complacency, disrupts these critical aspects of safety working in inter-organizational settings. The benefits of the practice of regular retendering on safety management needs to be carefully assessed.

Integrating information systems across organizations partnering in an outsourced relationship is necessary not only to minimize risk and costs, but also to enable flexibility and responsiveness ([Rajaguru & Matanda, 2013](#)). Safety management systems that are integrated across organizational boundaries reduce the duplication of effort arising from working with incompatible systems noted in these cases.

6. Conclusion

Practices to manage safety in outsourced FM, a low hazard environment, conform to established practices indicated in guidance notices and resemble reported practices used in high hazard, or safety critical, environments. Although the practices are similar, the cases of outsourced FM in this study provide the first empirical evidence of new challenges in the management of safety in outsourced relationships. These challenges relate to the category of regulatory failures in Quinlan’s PDR model, which have not been routinely identified in other empirical studies. Specifically, they refer to the on-site challenges of

managing safety that are created when operating either in accordance with a national contract that inevitably fails to account for local variation, or when the contract is negotiated in accordance with Health and Safety regulations from a different jurisdiction that do not apply locally. Other previously reported challenges associated with the categories of economic pressure and disorganization were also observed in these examples of outsourced FM between national and multinational companies. Responding positively to these challenges can only ameliorate the negative consequences of employing contract labor.

CRediT authorship contribution statement

Colin Pilbeam: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing – original draft.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A

- Questions for key individuals in both organizations – regarding OSH**
- How is safety and health managed on this site? What are the practices that are adopted?
- Are these practices industry / sector standards? Or have they been developed on-site?
- How is compliance to these standards assured? / How is safety and health monitored on-site? Who is involved?
- How do things work around here (culture)? What is the relationship between [company 1] and [company 2]?
- For the particular tasks that involve the contractor: What are the tasks? What are OSH implications? What OSH practices are adopted? [How were these agreed? When? And who by?].
- Who is responsible for ensuring that safety and health requirements are communicated? How is this done?
- Who are the “safety leaders” on site? What do they do? How do they do it?
- From your point of view are there other ways of working safely? Are there other things that could be done to make work safer?
- Is this a safe site? Have you had any safety incidents recently? Accidents? Near-misses? How were these recorded? Who by? What are the consequences of reporting an incident?
- What conflicts occur over safety and health? How are these resolved? By whom?
- Do you think the client/contractor is open to other ways of managing safely? Why(not)? How do you know?
- How often do you share ideas about safe working with your colleagues and with the client organization / contractor?
- What have you seen/used elsewhere? Why did that work / not work so well?
- What do you think gets in the way of working together in a way that ensures safer working for everyone?

Appendix B

Table A1
Safety management challenges associated with economic pressures (themes supported by illustrative quotes).

Safety / Production trade-offs	*Procurement processes
1. Their (senior managers) view is let’s make some money for the company and get the stuff out the door. That’s how it seems to me, it’s not health and safety first and then the job, it seems to be the job, then the job, and then when something happens, let’s think about health and safety (LogCo – Shift Manager 1).	5. [the contract] tends to change every three years at the moment. [This has a] Huge impact. It’s really difficult because they have the mobilisation where they have this period of time where they have to get up to speed with all our processes and how the contract works etc. So, I think that has a huge impact on us. It’s all right if the people on the site remain the same and all they do is TUPE across, because then that makes it slightly easier, but where you get both at the same time then that makes it more difficult. ... On the whole, the people get TUPEd. I think, unfortunately in [site x], they just had the instance where FMCo3 came on board, and the where was a whole personnel change at the same time. It’s a coincident not a because of. (EngCo – Location Manager 1).

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Table A1 (continued)

Safety / Production trade-offs	*Procurement processes
<p>2. I find that the liaison between engineering and the warehouse breaks down sometimes because their view of health and safety is different to ours. When we take on a task, it seems to me that we take the health and safety aspects first, then the task. ... In the warehouse it doesn't seem to work quite like that. It's all about the pick rate, it's all about what you get out of the door, and they've all got quite big targets to achieve. So, whereas health and safety is a, I would like to have it, ... it tends to be a, look guys we've got to be health and safety conscious but we've got to get this out of the door. So, things get overlooked and it's when things get overlooked I find that, again through experience, that's when mistakes and accidents happen. (LogCo – Shift manager 1).</p> <p>3. There is a limited process for escalation, in reality with all these things unfortunately because it seems to be always – particularly that it's time that's driving these things, it's always that they've got to get the labs open or whatever else, usually we find it's a case of, with the construction work the person on the ground is so far removed from the person who is controlling the purse strings.. (PharmaCo- Safety Manager).</p> <p>4. [Employees of FMCo₁] haven't really got anybody to turn to EHS wise because when we were taken away it was like okay, it's all over to the [FMCo₁] managers responsibility now for EHS. But of course, they're all burdened with work and unfortunately you have got some managers who just say I just need the job done. How you do it is up to you. That's not what I want to hear but that's what they tell me at meetings, I can't go to my manager because he just says do it (FMCo₁ Trainer).</p>	<p>6. There's an issue around using someone else if you like. I've got a contract on the system, so for me to put a new contractor on our procurement system, I have to jump through a lot of hoops. It can take me, if you go through the T&Cs with legal as well, it can take me two to three months as well, sometime to get a new supplier on there because we insist on a raft of documentation from under health and safety, environmental, there's a lot of stuff. There's the T&Cs as well, I tend to find legal on both sides go, I'm going to blame them for everything, and in the end, they finally get in the middle where they both accept a bit of liability each. Also, the payment terms, we've got a 90 days end of month payment terms which is a real bone of contention. I've got some major issues of putting that so I'm able to work technically with the suppliers I've got, or that procurement have on the system (LogCo – Fac & Eng Ops Mgr)</p> <p>7. I have actually looked back on the prequalification, and the references and so on that we got were glowing, so I think there's a bit around...</p> <p><i>Interviewer: Not taking it at face value!</i></p> <p>Yeah exactly. I guess, for me, there's more we could do, and probably should do, so it's like if you're selecting a staff person, you can have an interview and they can tell you all this wonderful stuff, but if you actually give them something to do – I said to the safety guy, if we bring a new contractor in, rather than saying, can we see your risk assessment and method statement, bring them in and say, here's your scenario, this is the work I want you to do, talk me through how you would do that. If they do, great, if they can't then you're going to see it straight away (WREF Prog Dir, PharmaCo)</p>

Table A2

Safety management challenges associated with disorganization (themes supported by illustrative quotes).

Confusion in roles and responsibility	Breakdown in communication and information flow	Complex safety management systems	*Inadequate control processes
<p>8. From a contract point of view, i.e. the size of the contract and the amount of work that's on the contract, EngCo is a very good contract, they're a good company. How can I put this? From a management side in how they try to manage us and how they ensure that we're working to our contract, sometimes that can be a bit onerous because of the way they want to control. In personal terms, in my view, they've employed us to do a job, so they should let us get on with it. Rather than perhaps keep dipping in and dipping out and giving their view on how we could do things, let us do what you're paying us to do, and you concentrate on what you're supposed to be doing, but sometimes that can get a bit blurred. I think that's more than EngCo is a huge company and perhaps they like to have a bit more control over things (FMCo₃ – Tech Services Manager).</p> <p>9. And you look into the horizon and some of the things I've heard, it just seems like it's going to get worse, and you think, where does it stop, where does the madness stop? If PharmaCo want to manage the services, you know, manage the services, don't have a third party to manage them for you. Allow the third party to do what they're best at doing. I absolutely agree that they need to do check-ins and they need to management monitoring. They might need to do independent audits and stuff like that. I absolutely get that, but let's not just redo everything. It just seems daft (FMCo₂ –</p>	<p>12. I think probably everywhere there needs to be a greater degree of communication with the right people at the right time (FMCo₂ – Global EHS lead).</p> <p>13. I don't know, it seems there's a lot of people seem to get involved and sometimes you think, hang on a minute, there's too many people involved. I think it can complicate things; do you know what I mean? Just simplify it. You don't need half a dozen people telling you the same thing, it's there in black and white in front of you. I think a lot of people try to jump on the back of health and safety. (LogCo – Shift manager 2).</p>	<p>15. So, accident incident investigations, for FMCo₁ we have to do an initial form, investigation. Then we have to do a thorough detailed one. Then we have to do a root cause analysis. We have to put it on two electronic systems. Then you get the corporate team in who do another investigation and then they do a further investigation. So, you get six different things going on there. Then of course PharmaCo are we want it on our system as well, so we've got to put it on their electronic system. We've got to notify them of it. Then they want a root cause analysis done on their form, not our one. You're just like come on, this is getting really stupid all because it's a corporate form and it's got to be followed. That's the problem with the procedures is that PharmaCo says you follow our one, FMCo₁ say you follow our one (FMCo₁ Trainer).</p> <p>16. So, I feel for FMCo₁ people because they have an accident, they have to report it on the FMCo₁ system investigate on their template, and then PharmaCo also ask for something slightly different, but we want it on our reporting system and on our templates. So, it's driving a lot of what appears to be duplication into the activity (PharmaCo – EHS manager)</p>	<p>19. In terms of how that works, quite clearly between four of us across an outsourced team of 60, it's a light touch, there's only so much we can do. We are hugely reliant on [construction company] to manage the activities we're doing and also to protect our interests. When you think of the number of people, the contractors and the subcontractors beneath those projects that [construction company] are doing, we are the very small bit at the top of the pyramid, in terms of the PharmaCo piece. ... It's no different to the engineering services contract with FMCo₁, we've got a very small PharmaCo organisation that sits over hundreds of people, so the model is a very thin slice of PharmCo and a hugely outsourced delivery model. (Programme Director WREF, PharmaCo).</p> <p>20. ... it was an extremely thin layer of PharmaCo, so there was no technical PharmaCo people, there was one site director on these sites from PharmaCo and the rest of it was outsourced. We are now recognising that a lot of the expertise was taken out of sites and made central, so the idea was that you can have these sites, you can have a computer that tells you what to do, you can get your little bit of paper, you go and do it and thinking is off the site. I think you need that very close look at what's going on, on the ground and tighter control over what the contractors are doing. We have</p>

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Table A2 (continued)

Confusion in roles and responsibility	Breakdown in communication and information flow	Complex safety management systems	*Inadequate control processes
Global EHS lead).			ownership that accountability and I think at the moment if you don't really have sufficient oversight, you aren't really taking your responsibility, although you're still accountable (PharmaCo – Tech Ops Mgr)
10. It had been an issue that I think had been building ... The roles and responsibilities weren't defined and when we found out that they were doing works that we didn't know about, that's when we stepped in and went, stop. We need to take a step back here and redefine the roles and responsibilities, which we have now done. (EngCo – Location Manager 1)	14. So normally I think the corporate piece happens way above us, we sort of hear the rumours, we hear the conversations. Normally it lands at site and FMCo ₁ say, why are you telling us to do this? We would say, no, hang on, that's not agreed, that's not our way of working, where did this come from? So, we certainly haven't always got these great lines of communication, these fantastic processes where the contract meets the corporate piece (PharmaCo – Ops Director).	17. We've got our own management system to start with, and FMCo ₂ , obviously has its own programmes and processes for some things. Where it makes absolute sense and where there's an absolute requirement, we follow the PharmaCo process, and that tends to be more on the R&D sites, to be honest, than the corporate sites, and for specific things. For permit to work, for examples, in the UK we have to use the PharmaCo permit to work programme. In the APAC region we use the FMCo ₂ one because the PharmaCo one doesn't include the APAC region, and the FMCo ₂ programme is more robust than the PharmaCo one. (Global EHS lead for FMCo ₂).	21. I think you have to drive a level of control in terms of the contracts that are set up, so that the contracts are detailed enough and clear enough of what the various parties have to do. I think also with that there has to be technical expertise to both control the contractors on a day-to-day front. So technically competent PharmaCo based engineers or the equivalent who can actually take control of the contractors and understand in detail what it is that they're require to do, from a technical point of view. As part of that also those people have to have the required expertise to do proper competency assessments of the contractors (PharmaCo – safety manager).
11. What you'll end up with somebody's installed a nice piece of kit, but it doesn't talk to the various other ones, because they've all gone up to a certain point and assumed they make it to that and somebody else is going to do that final connection, or somebody else is going to do that final commissioning. Somebody comes in and looks to do maintenance later, assuming that the maintenance group were told that that kit has been installed and it is going to be required to be maintained. And they come in to do their maintenance a year later and find that everything's all connected, it's absolutely hunky-dory, all of it's actually fine but nobody's turned the gas on! (PharmaCo – Safety manager)		18. The things that are going to kill people that you can foresee, we give that obviously a lot of attention. Trips, slips and falls and things like that we use the NIE system we've got, we do monthly walk throughs round the site to look for those things, if we can catch early, it's just exhausting. But FMCo ₁ do that as well and FMCo ₂ do that as well, so they all do their own audits and that's baked into what – they do their own level one audits of their own practices. So, it's all baked into what they're supposed to be doing (PharmaCo – Tech Ops Mgr).	22. If you're an informed client and you have the knowledge and expertise, or a reasonable amount retained, then I think that works because one you are understanding what they should be doing and you can have the governance checks, equally you then have the discussion, why are you doing it that way, as opposed to something else, and you learn from the interaction. I'm not always convinced we've retained enough internal knowledge... [we] have outsourced so much that I think they went too far. Personal opinion, but from my perspective there appears to be gaps in knowledge in certain areas (PharmaCo – Safety Process manager).

Table A3
Safety management challenges associated with dilution of competence (themes supported by illustrative quotes).

Employees unfamiliar with local work environment	Lack of industry-specific knowledge and experience
23. Interviewer: What are the main challenges then in terms of H&S management? I guess, it's the volume of work that's done and the complexity of it, and the number of people I've got to be able to support that ... And I think the other thing for me would be if PharmaCo had more consistent processes across their various sites. For example, the way that rooms are identified as to what is going on in the room. There are substances being used in rooms. There's a very good process [on this site] and it wouldn't be anything like as good in [a different site], and I just don't get why. I don't get why it's not the same process because then we could have one process that complements it, and all of our people could get trained the same. Swapping people across the different sites isn't as easy as it maybe should be, and it means someone like me who sits above lots of sites, I have no idea what's going on some days. (FMCo ₂ – Global EHS lead).	26. From this site we did a recent escalation where we basically tried to have that elephant in the room conversation around all the stuff I'm talking to you about, the lack of technical resources. We were talking about FMCo ₁ technical resources at site really, people outside of the get a piece of paper system who are technically trained, maybe degree qualified people who can step above it – just a couple, who can say I've got that problem, that problem is mine, I'll check it every day. At the moment I'm checking on everything every day, and I can't. It just wears me out (PharmaCo Tech Ops Mgr).
24. EngCo is quite a complicated business you know? Yeah, it is quite a complex organization to get to grips with, so before you're actually doing the job, you actually need to learn the customers and end users, and that in itself can be three to four months education, and that's just the basics on EngCo. I think that doesn't help us, because they've [FMCo ₃] got to do that before they can actually start to tackle their own job, which is the FM job. So, it is a huge learning curve when anybody new comes in. So, if you're constantly turning over the FMs and they're only staying for six months to a year, you're constantly in that circle of learning each time one comes on board, so you're not getting down to actually delivering the job properly (Eng Co – LM2)	27. Well, I think now they're all coming back to where they need to be. I think it's taken time; I think they know they've got past that curve of maybe not having the right people in the right places to do the right job. If I look at the statistics and the data that comes back to us now, I think it's a lot better than it ever has been and I think it's starting to level out (EngCo – LM3)

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Table A3 (continued)

Employees unfamiliar with local work environment	Lack of industry-specific knowledge and experience
25. So, whilst we have all those good measures in place, it is the sheer volume of change that we're dealing with, and the immense range of different organisations. They'll change their operatives regularly and that means we need training certificates of competency; we need to be regularly carrying out due diligence on those organisations. So that's where the risk exists, where you've got that constant change within third party organizations that your service partners are relying on (PharmaCo – Site Ops Dir).	28. So, you've got the business, FMCo ₁ for example, they bring contractors to do maintenance, so they outsource a lot of maintenance. I have particularly, recently found there are gaps in that process, not only in terms of governance in what they're doing on site, but also the report that they generate, how they're reviewed. Do they actually have the competence to review some of them, because they outsource them because they don't have the general internal knowledge to actually do the maintenance themselves? In some cases, I'm a bit concerned that they might not have the internal knowledge to understand what the reports mean. In other cases, I'm not sure they're being reviewed. An example of that would be gas detectors (PharmaCo – UK Process safety manager) 29. It would have been properly scrutinise the contracts at the time and keep some more PharmaCo appointed technically competent people to overview it. Not just people who manage people, yeah, they can do the management of the people but there has to be, on the PharmaCo side as well as the contractor's side, people with the technical understanding of what it is they're actually doing (PharmaCo – Safety manager).

Table A4
Safety management challenges associated with organizational differences (themes supported by illustrative quotes).

Distrust and status differences
30. So, before FMCo ₁ had their training package. PharmaCo had their training package, so we said, as responsible people we said, Okay do your corporate training, whatever you need to do. That's fine and then we will pay to retrain them all again in the PharmaCo way of working. That way you're covered, that way we're covered. Talking to the guys that actually had the training they said it wasn't too dissimilar. It came across pretty much in the same way but again I think there's a learning there where we could do that smarter, why train someone twice in something... (PharmaCo, Ops Director).
31. Yes, there's an absolute duplication. The investigation is the investigation, but it gets recorded in two places, yes, and there is a heck of a lot of duplication. Some days, you think, this is absolutely crazy, and it drives me nuts, but when I take a step back and a deep breath, I think, yes, I understand why. <i>Interviewer: Why being?</i> Because both companies have got their own processes and they record their own incident stats, and their incident rates, and their lost time rates in slightly different ways as well, which just adds to the confusion, so I get why it's done. It doesn't help when you keep on getting more and more things added on, which we have to duplicate. That is just a bit of a nightmare, and I sometimes don't think the understanding is from PharmaCo that actually FMCo ₂ is a separate company, and we have to record things ourselves as well. (FMCo ₂ – Global EHS lead).
32. These guys don't care. They're like you're FMCo ₁ employees, you will do what we tell you. We don't care what PharmaCo are saying. PharmaCo are saying the same. We don't care what your corporate team are saying, we want it done this way (FMCo ₁ trainer).

Table A5
Safety management challenges associated with regulatory failures (themes supported by illustrative quotes).

*Different H&S regulations	*National contract applied locally	*Mandated KPIs	*Contract specifications
33. There's normally some toing and froing because FMCo ₁ are trying to apply this across the globe and we're saying, hang on, we're outside of ... So, there's normally a lot of toing and froing and comms going backwards and forwards and normally we do align we do get there in the end it's not always easy a lot of time it's quite a struggle but we do get there in the end because we do have, I would like to think we have quite a robust safety processes and procedures (PharmaCo – Ops Director).	38. We've done a graphic we have at the moment there's a north and south, and for whatever reason, we seem to have a recruitment problem within the FM contracts in the south, we don't have it in the north. There's a large turnover of staff, which we're trying to get to the bottom of, so you don't have that consistency in the south as much as we have in the north. So, by default, you have more problems in one region than another because it's very static staff in the north, it's been a huge turnover of staff in the south, which has caused operational problems, because, like I say, you don't get consistency and therefore you'll start to see cracks (EngCo – LM 2).	41. Our hands are tied, and their hands are tied by a contract. The contract is all encompassing, however, the KPIs are specific so what we find – ... So, where the frustration comes in when we need things to be done that fall outside of the measured KPI metrics, and the KPI metrics are the things that drive service penalties, i.e. FMCo ₁ to give us money back. So, the focus in FMCo ₁ is on a dashboard that's red or green. So, the things that you can measure easily are the things that take 90% of the focus, and that is probably the most difficult thing. ... I get some level of pushback, we can't do that today because we have a number of critical PPMs and if they go overdue, they fail their metrics because they've got 100% metrics. So, they fail one PPM [planned preventive maintenance] out of two and a half thousand and they get fined quite a lot of money (PharmaCo – Tech Ops Mgr)	44. when you apply for a contract, what's the obvious thing you do? You come in with a low quote, you try to achieve it and you never do. Of course, then PharmaCo say within that contract, over the next 10 years we want to see a 10% decrease and go all the way down. You get to a point where we've done so many projects over the years to try to cut money on energy and things like that, we're now at a point where we've done all those projects, there's nothing else to do and yet you want 10% cuts. The only thing is people. They get rid of people. (FMCo ₁ – Trainer).

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Table A5 (continued)

*Different H&S regulations	*National contract applied locally	*Mandated KPIs	*Contract specifications
34. A great example is asbestos. Heavily regulated in the UK and in America they couldn't care less. They're the difficult bits, so what the PharmaCo US sites are saying that we will pick up the highest standard to work to. So, they will work to the UK standard, purely and simply to ease the path rather than trying to get the system to change (PharmaCo – Ops Director).	39. I sometime feel from above site level, we're almost beaten up because we've got a healthy reporting culture, and I don't want to stop reporting stuff. Because I think that's a wrong thing to do. I'd much rather report all sorts of random stuff and then have a fighting chance to say actually that's not as serious as that one over there. (FMC ₀₂ – Global EHS lead).	42. Yeah, we had a rough start on KPIs. We have key performance indicators, it's our objectives at the end of the day, and it's all system-oriented, it's all digitalised at the moment, so you can have anomalies coming through when you're using digitalisation, and we've had a bit of a rocky road with KPIs. We've all been aware of that, and we give them what's called a KPI holiday, which is a breach without a fine, get to the bottom of what the problem is. Is it a system problem or is it a realistic operational problem? Once we've ironed out those problems, then the KPIs go live and they get measured on that, and the financial penalties, for instance, are within the contract if they do breach. (EngCo – LM2)	45. I think the problem with it is that there's finance people who rule the roost in all these big companies, who always want something better and cheaper, whereas quite often cheaper means it's not better. I'll be honest and say I always feel as though, when you think we've got it right, someone else'll come along and say, yeah, but I think they must have it too easy because they must be making too much money out of us, so I want you to make it a bit harder for them and get the costs down. I realise costs are important, but I think what we've seen with some of the hard [FMC ₀₁] and soft [FMC ₀₂] services, is that they run at the level of they're only just making money on the account. So maybe we've probably gone too far, and that's again because PharmaCo have a goal of saving x million pounds a year on services, for example. (PharmaCo – Capital projects prog mgr).
35. So now they've [FMC ₀₁ America] introduced these play books, they call them play books. It's basically how we're going to do it on the account. So, onboarding, good one for starters. So, what we've got to do, they've got to check this they've got to follow, all the onboarding process and everything like that, brilliant. Training, what training are you going to follow, all this sort of thing, which is great. ... I know, that's the thing, this is what I keep saying to them. From day one we said, we don't follow your things, we've got the HSE and all that in the UK. They said no, this is what you're going to be following. (FMC ₀₁ trainer)	40. The guys on the shop floor, the guys on site they're very – I call them PharmaCo savvy, so they understand our processes, we like to think they're part of our team, if they've got a question, come and ask us. As you say the rub normally comes where the corporate team say, do this, do this, and they say, well, no, because we do this... we follow the PharmaCo procedure that's what we're trained in. No, you mustn't do that because you're PharmaCo you must follow the corporate standard. As you say it's normally batted backwards and forwards between the FMC ₀₁ site EH&S and the FMC ₀₁ corporate piece. (PharmaCo – Ops Director).	43. Near miss system, I mean I don't want to say that's a joke but ... I mean you must know all this stuff from other companies or maybe I'm making us sound really bad. But 368 near misses a month we have to report because that's what corporate tells us we've got to do. One per head on the account per month. PharmaCo don't. PharmaCo are really fair about it. FMC ₀₁ corporate say you've got to report 368 a month. Now, do you really seriously believe you're going to get ... let's say there's 180 of them who are office workers, do you think they're really interested in going out and finding a near miss just for the sake of reporting it on the system? They're not. So, you're 168 short already. Some engineers don't report them. So, we've now had my boss, the other day going round with near miss cards, standing there with the engineer going, can you go and raise two? How many have you done now? Of course, they're going oh look, there's a bit of paper on the floor. Near miss for that, lovely. Someone else has spilt their tea on there, lovely. Shoelace undone, lovely. That all goes on the system. Then PharmaCo see it, and they're going what the hell are you lot playing at? (FMC ₀₁ – trainer).	46. The maintenance team they're on a strict glide path with cost savings and it's the compromise between delivering on the cost savings versus maintaining health and safety standards, I think is one area of concern. I think also when they don't make certain deliverables, they get financial penalties so there's a potential for a culture of you avoid the financial penalty, maybe take a short cut, health and safety maybe isn't at the forefront of everyone's mind. (PharmaCo – EHS manager)
36. I don't know if you've had much dealing with the US but their culture and particularly their legal structures certainly see to be from what I see, very prescriptive. You get a long list of things that they have to do and that's it, and they just tick them off. They don't even understand really risk assessment in the same way that we would, in terms of actually this pragmatic approach of identifying risks and whatever else, they've got their checkboxes, that's what OSHA says they have to do, that's what they tick off. (PharamCo – Safety Manager)			

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Table A5 (continued)

*Different H&S regulations	*National contract applied locally	*Mandated KPIs	*Contract specifications
37. I'll go to my QSHE manager, and he'll go to the director and then go across to the States, and then they'll say, we don't have CDM in America. Or I'll speak to the lead in the States [Name]. [Name] came over, we've had a chat, he's had to come over and have a look at it, it's very hard to explain when they don't have the same procedure in the States, the same regulations. (FMCo ₁ – Lead Project Manager).			

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