Implementation of the Principal Designer role within CDM 2015

Technical Annex

(Containing detailed analyses of the information obtained from the survey and stakeholder interviews)

MPW *R&R* Ltd – Consulting, Forensic Engineering & Expert Witness Services
Construction and Structural Safety | CDM | Risk | Regulatory

TECHNICAL ANNEX

MPW R&R Ltd (in partnership with Catchfly Ltd and RJ Roels Ltd) undertook a two-month rapid review of the CDM 2015 Principal Designer (PD) role for the Health and Safety Executive (HSE) during February and March 2021.

HSE published a summary of the findings of that review as a standalone Research Report. Research Report RR1198 is available for free download on HSE's web site.

This Technical Annex contains detailed analyses of the data obtained from the large-scale survey and stakeholder interviews carried out for the review. These analyses were used by the authors to develop the summary findings reported in the Research Report.

However, the current HSE Research Report format was not conceived as a medium to present the level of raw information gathered during the rapid review and the extensive analysis this required. MPW R&R Ltd has, therefore, provided this to HSE through this Technical Annex so that the evidence base is preserved and available for future use.

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1. Large-scale survey response

1.1 Structure of the survey

The survey was structured in four parts as follows:

- Part 1 – General information about you and your organisation
- Part 2 – Application of the PD role on a recent project
- Part 3 – Use of scenarios to understand key behaviours that support or detract from the PD role
- Part 4 – Your overall conclusions in relation to the PD role

Part 2 focused on what CDM 2015 requires of PDs and covers the relevant aspects of Regulations 5, 8, 11 and 12. If the respondent undertook the PD role, they could answer this part by referring to the actions that they took on a recent project. If they were not the PD, then they could answer this section by referring to the actions that the PD took on a recent project.

To complete this survey in relation to the questions in Part 2, respondents were asked to focus on a recent project that their organisation has completed where a PD was appointed and where they have knowledge of the implementation of the PD role on that project.

Part 3 focussed on gaining an understanding of why particular behaviours happen. Each scenario has a series of 'situations' or 'behaviours' that may arise over the course of a CDM project (e.g. low fees for some PD roles or some organisations not being willing to undertake the PD role). Each 'situation' or 'behaviour' has a set of accompanying explanations as to why it may happen – respondents views were sought on how much those explanations influence behaviour or whether there are other explanations.

Part 4 draws things together and looks to the future. In particular, respondents' views were sought on:

- The three key successes of the PD role
- The three key barriers in implementing the PD role
- What value the PD role could bring to future projects
- What solutions you would propose to overcome the challenges that you have identified
- Any other comments that haven't already been covered

To complete this survey in relation to specific behaviours in Part 3 and the overall conclusions in Part 4, respondents were asked to consider all their experiences with PDs on all of the projects that they have worked on.

The question set is provided in Appendix A.

1.2 Overall response

The survey was launched at 2pm on Monday 15th February and closed at midnight on Sunday 7th March 2021.

In total, 849 people responded to the survey. The number of questions answered by each respondent varied and, as such, the number of responses is quoted where a question is referred to in this report.

1.3 Organisation characteristics

Respondents were asked to indicate the primary duty holder role of their organisation, and these results are shown in Figure 1-1. The Client groups represented 16% of the responses and, for subsequent analyses, the Client groups were combined.

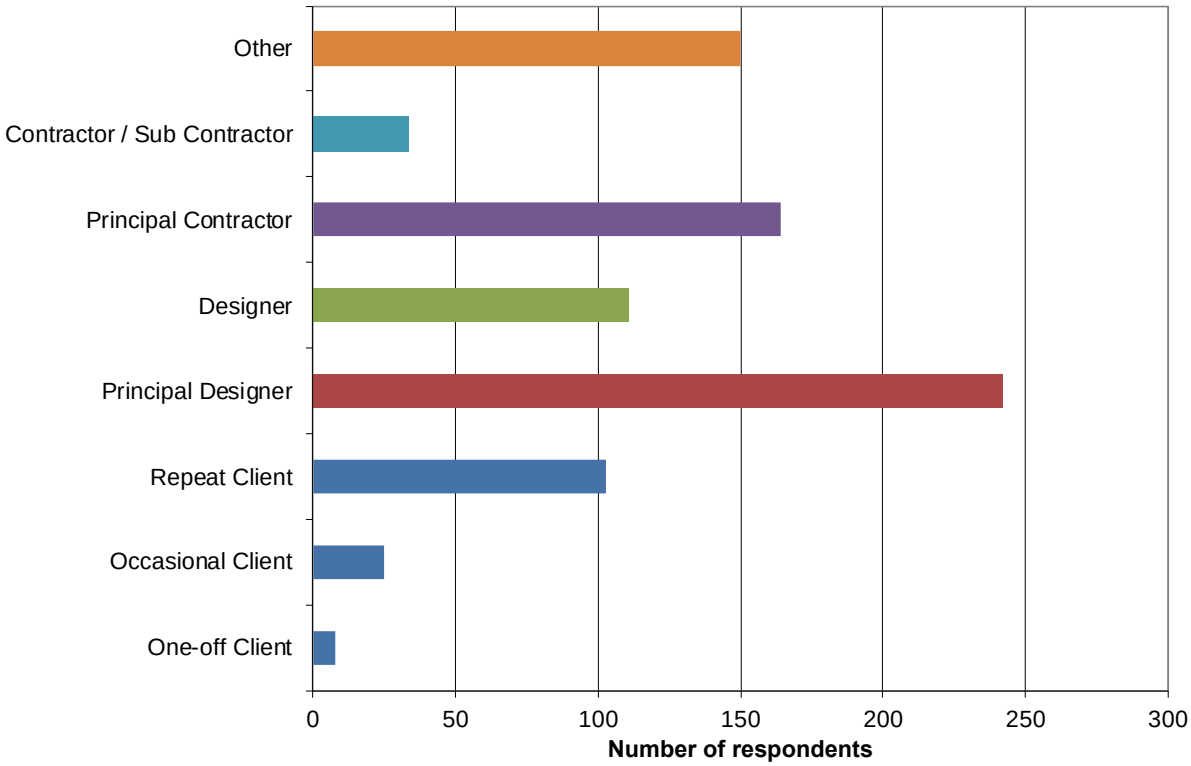

Figure 1-1 Primary role of each respondent's organisation (n=837)

Figure 1-2 shows the main areas of work that the respondents' organisations undertook. Where the primary role undertaken was as a Principal Designer (PD), respondents' organisations also frequently undertook work as Project Managers, Client advisors, Principal Contractors and Designers.

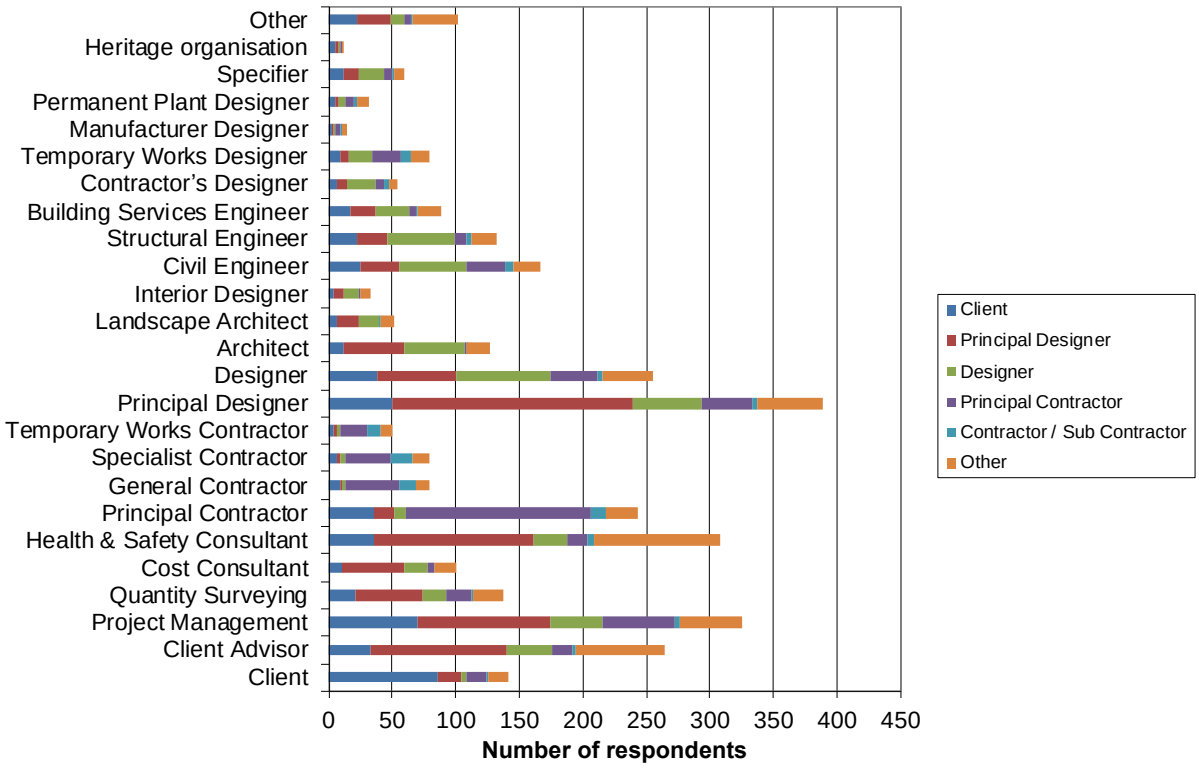

Figure 1-2 Organisation's main areas of work (n=840)

The number of people employed by each of the respondents' organisations is shown in Figure 1-3. This shows that 48% of those respondents who provided information are either employed by small firms (the sum of three categories with less than 50 employees) or are self-employed. It also shows that 34% are micro organisations (less than 10 employees) or are self-employed. Around 61% of the respondents are employed by small and medium enterprises (less than 250 employees).

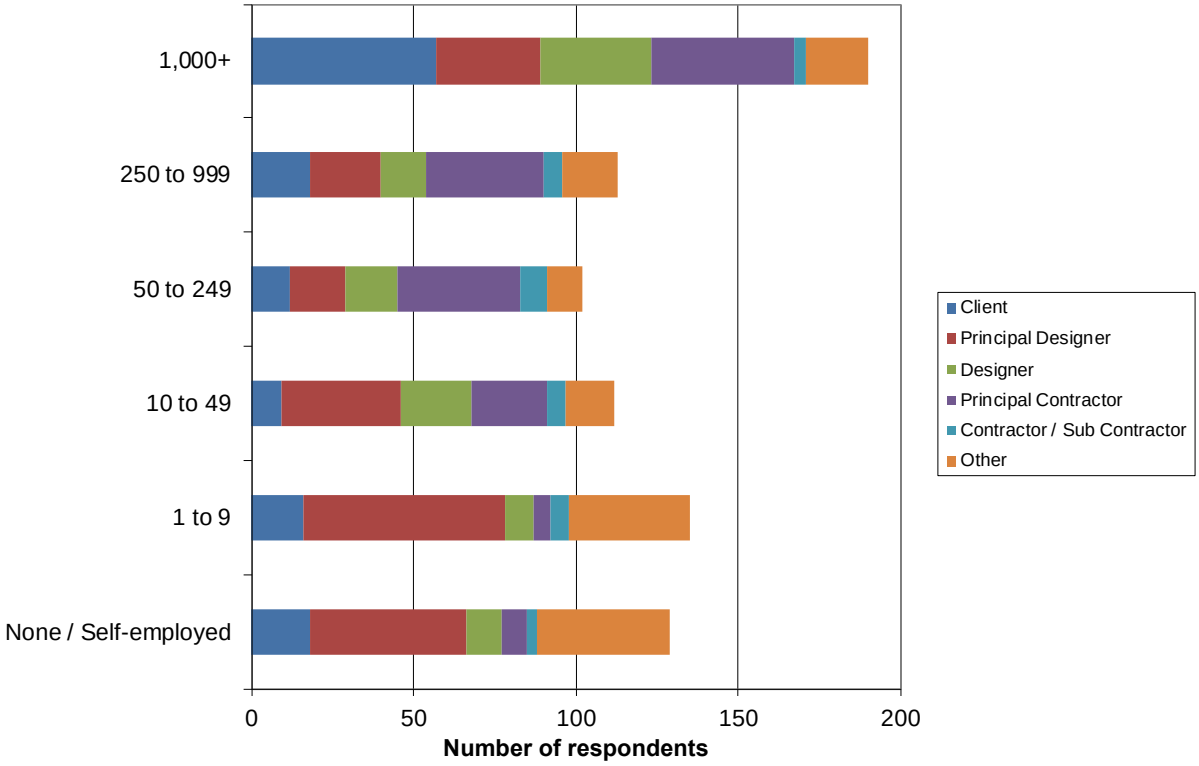

Figure 1-3 Number or people employed by respondents' organisations (n=784)

1.4 Project characteristics

Figure 1-4 shows that the majority of the respondents worked on commercial (29%) and infrastructure (25%) projects. The 'other' areas were varied and included work within utilities and renewable energy.

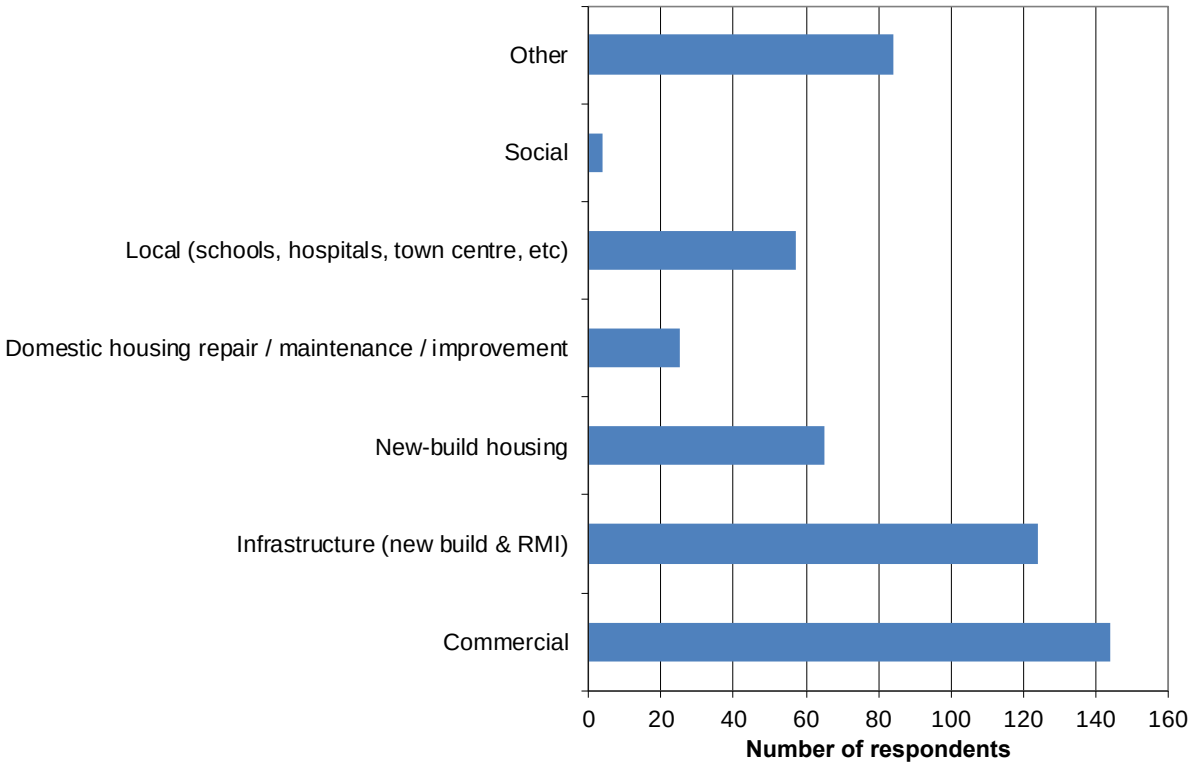

Figure 1-4 Project sector (n=503)

Figure 1-5 shows that the majority of the projects referenced were in the £1m to £4.9m (25%) and £5m to £24.9m (20%) range. Infrastructure and commercial projects were reported in all cost ranges. However, infrastructure projects were more prominent in the higher cost ranges. The domestic repair, maintenance and improvement (RMI) projects were typically less than £500k in value.

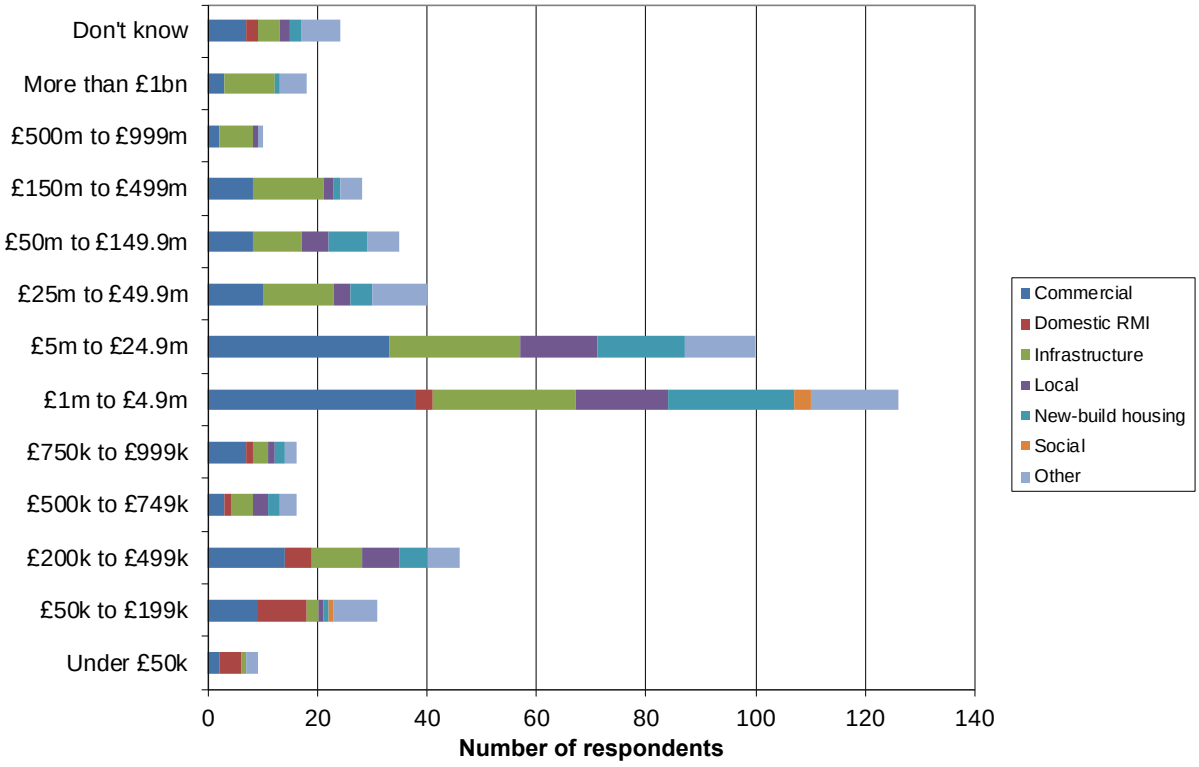

Figure 1-5 Estimated project cost (n=500)

Figure 1-6 shows that there were similar proportions of traditional (41%) and design and build (47%) procurements. Whilst all industry sectors were represented in both procurement mechanisms, domestic RMI projects typically used traditional procurement methods.

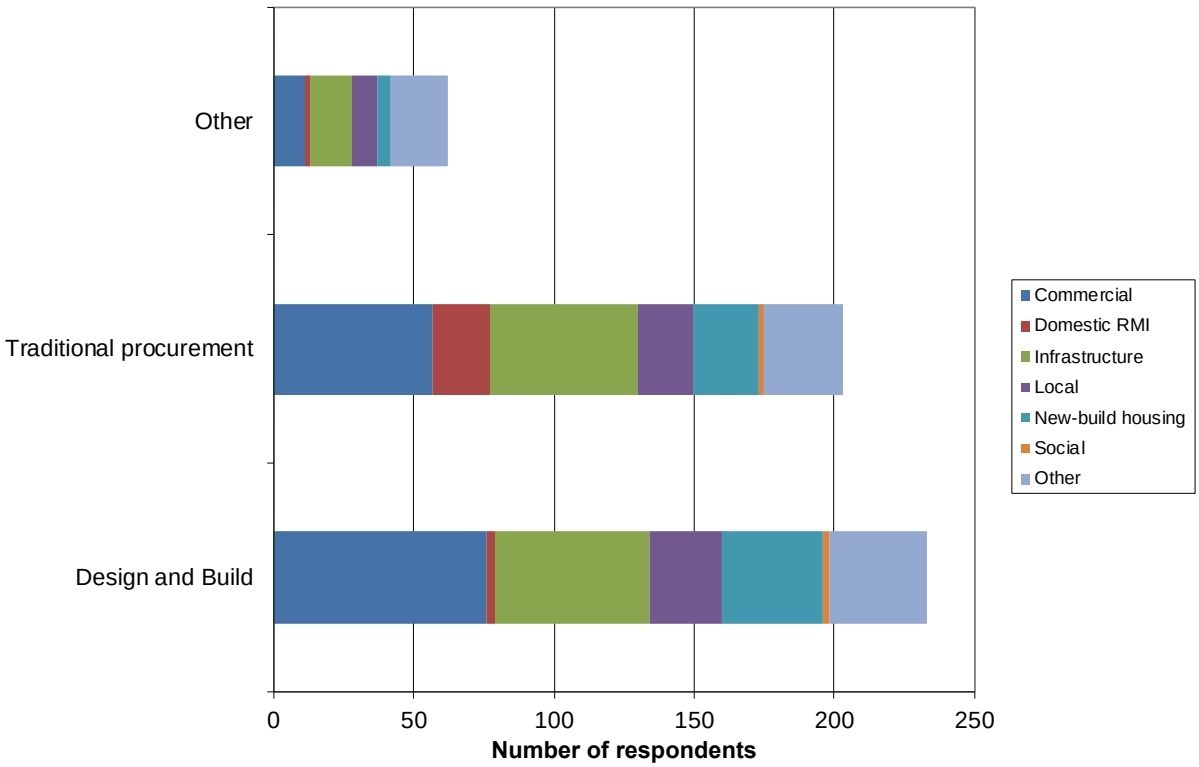

Figure 1-6 Construction procurement route (n=499)

Figure 1-7 shows that the form of contract used was typically Joint Contracts Tribunal (JCT) or New Engineering Contract (NEC). JCT Design and Build (18%) and NEC3 Engineering and Construction (13%) were the most common then followed by bespoke contracts (10%). JCT contracts were more frequently used in commercial projects, whilst the NEC contracts were more frequent in infrastructure projects.

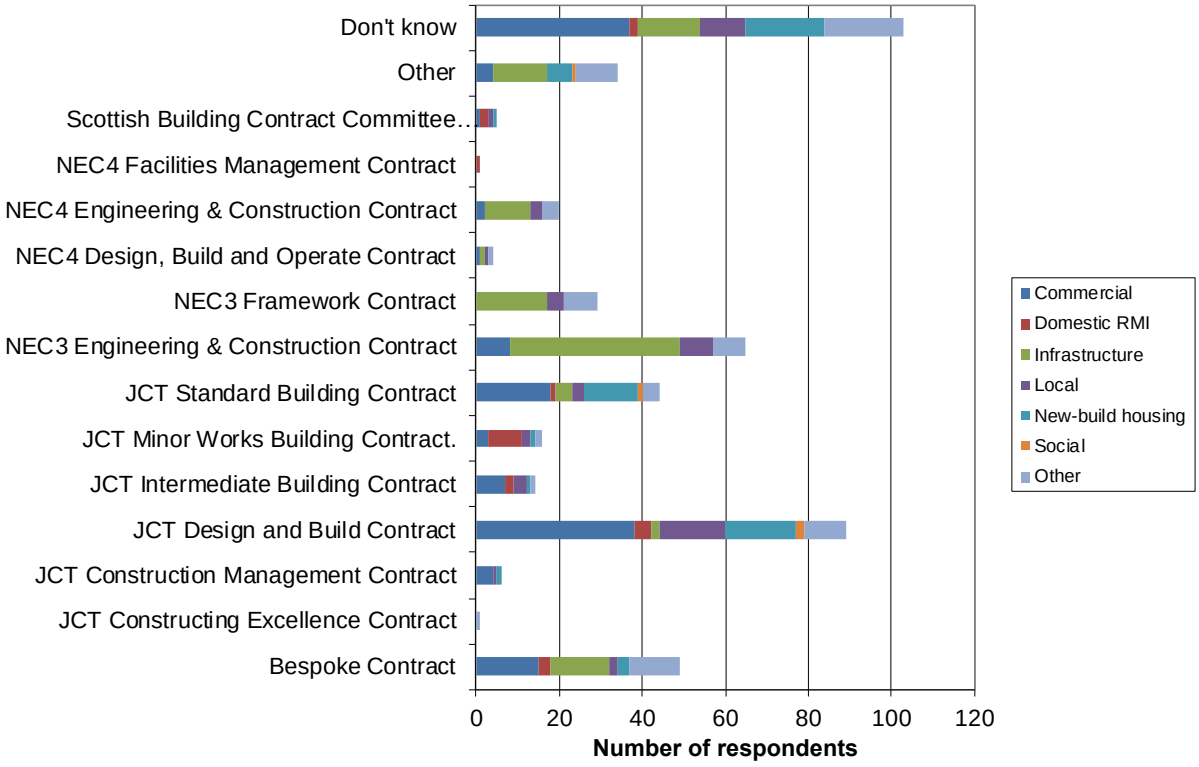

Figure 1-7 Contract used to appoint the Principal Contractor (n=497)

Figure 1-8 shows that around 27% of the projects did not involve much in the way of traditional design but had a significant requirement for planning. There appeared to be little discernible differences between the industry sectors.

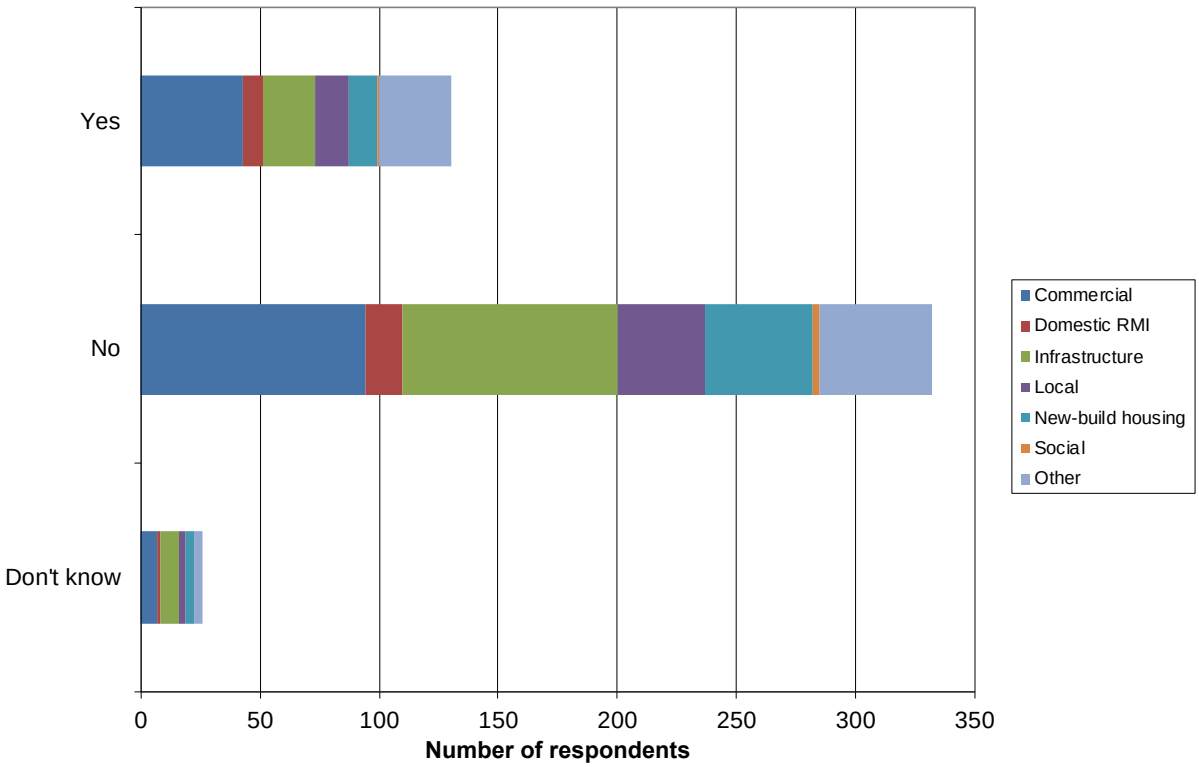

Figure 1-8 Whether there was little traditional design but a significant requirement for pre-construction planning on a project (n=489)

Figure 1-9 shows the extent to which BIM was referenced and used on projects. Whilst BIM was fully integrated in only 14% of project contracts, it was being used on 39% of the projects. BIM appeared to be used more frequently in infrastructure projects.

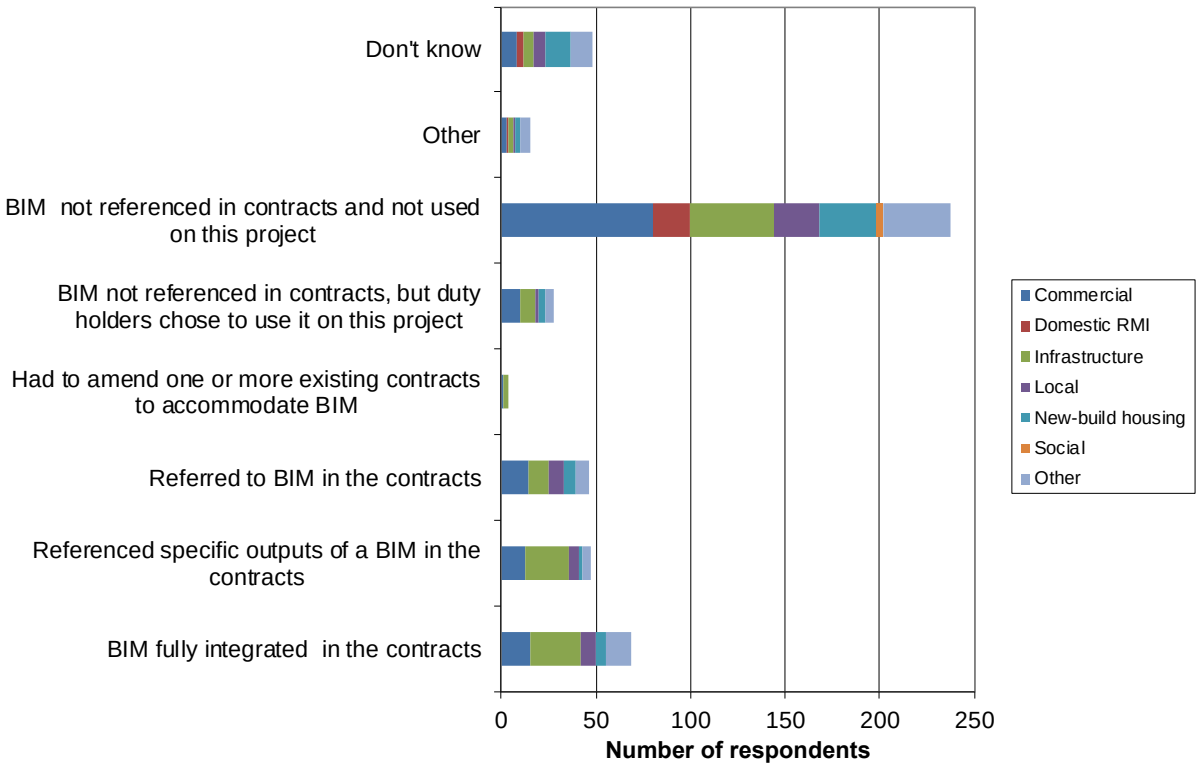

Figure 1-9 The extent to which BIM was used (n=495)

2. Characteristics of those undertaking the Principal Designer role

2.1 Findings from the survey

The findings in this section are based on the questions asked in Part 1 of the survey which was aimed at providing information about the respondent and their organisation.

2.1.1 Respondent's experience as a PD

Figure 2-1 shows that 31% of the respondents had undertaken the PD role as an individual. Of those, 10% had undertaken the role on more than 50 occasions.

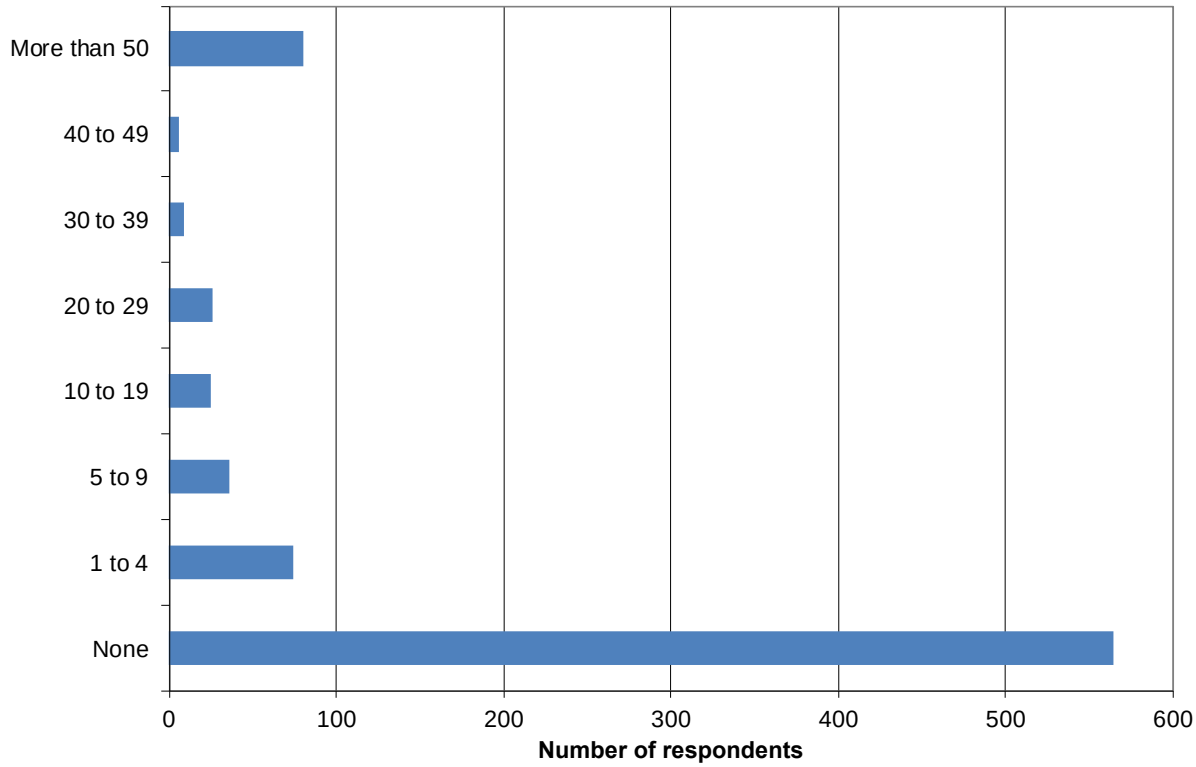

Figure 2-1 The number times the respondent has undertaken the PD role as an individual (n=821)

Figure 2-2 shows that 71% of the respondents had undertaken the PD role as part of an organisation. Of those, 31% had undertaken the role on more than 50 occasions.

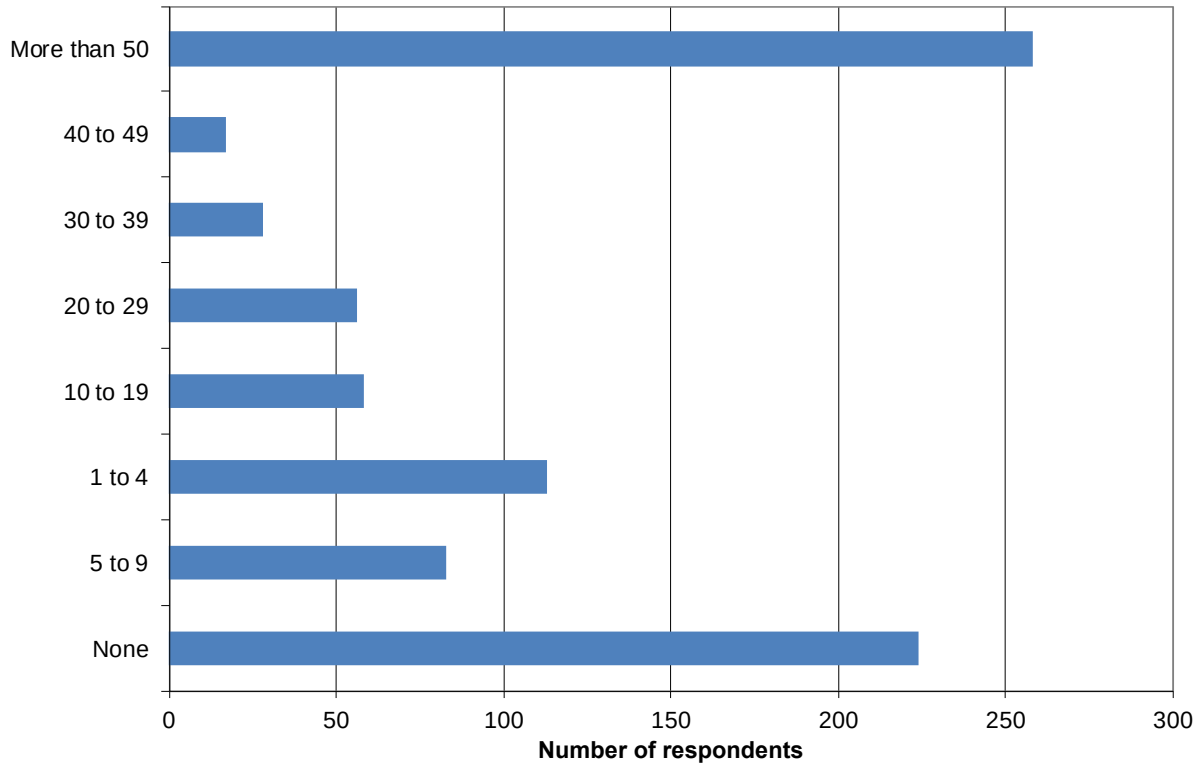

Figure 2-2 The number times the respondent has undertaken the PD role as part of an organisation (n=837)

2.1.2 Characteristics of the organisations undertaking the PD role

Figure 2-3 shows the other roles being undertaken by those organisations whose main role is Principal Designer. This indicates that Health & Safety Consultant, Client advisor and Project Manager are the most common roles.

Only half the number of PDs were undertaking a Designer role as those undertaking a Health & Safety Consultant role. PDs were undertaking Quantity Surveying and Cost Consultant roles more frequently than they were undertaking Architect roles.

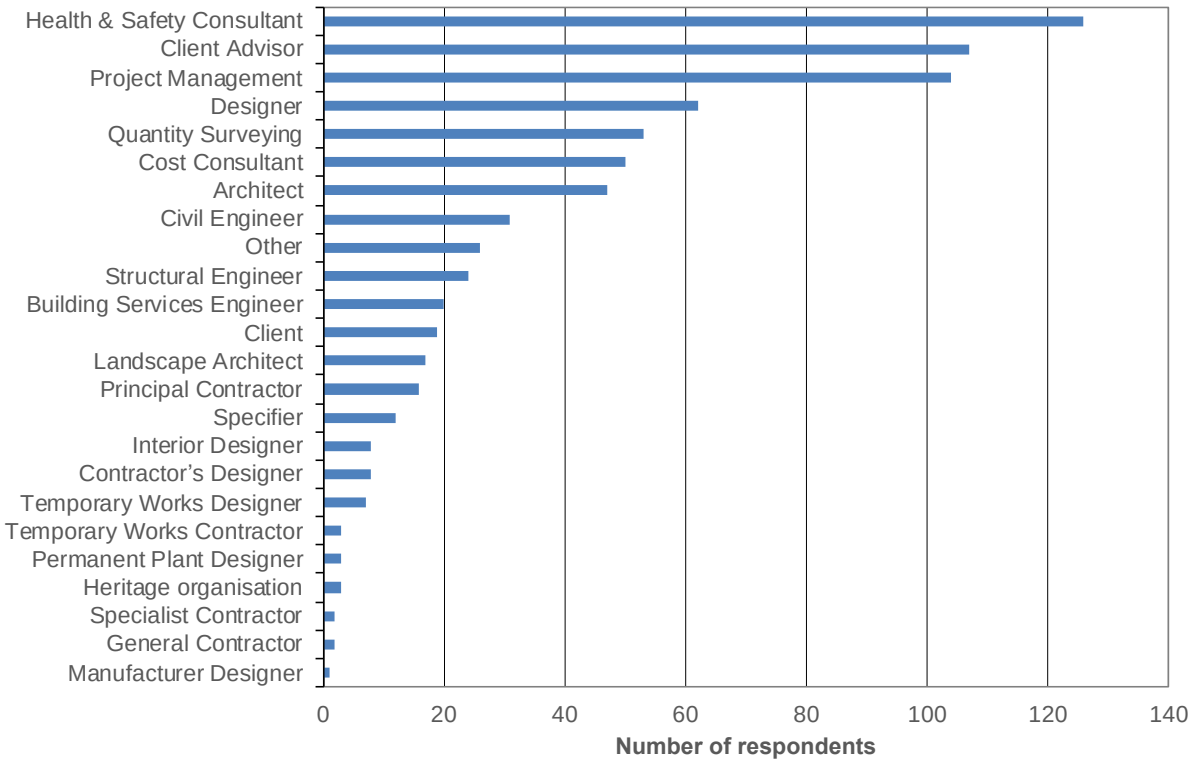

Figure 2-3 Other roles undertaken by the organisation whose main duty role was PD (n=840)

Figure 2-4 shows that PDs are typically small or medium sized enterprises (SME). The most common sizes were either the self-employed or those employing less than 10 staff (micro businesses).

The Domestic RMI sector tended to appoint micro businesses as PDs. However, the Infrastructure sector tended to be the largest appointer of larger (1,000+) PD organisations. The Commercial sector tended to be the largest appointer of the smaller PD organisations.

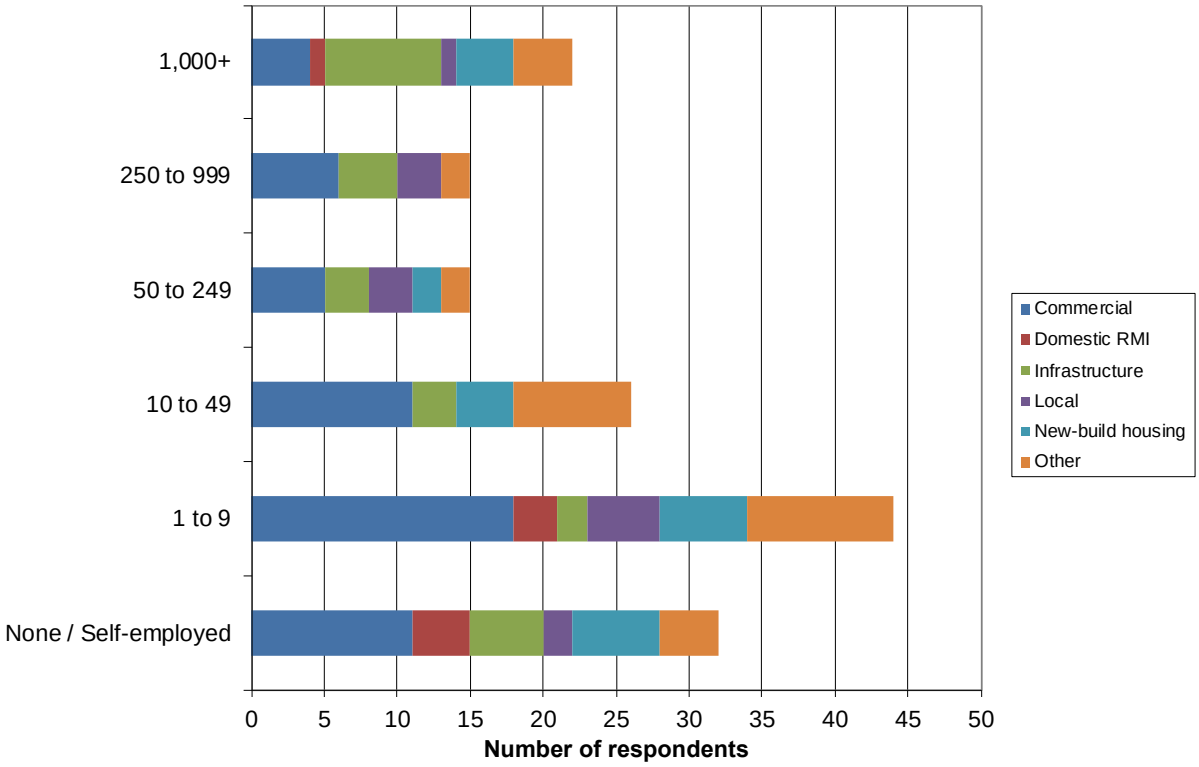

Figure 2-4 Organisational size for those undertaking the PD role (n=840)

2.2 Findings from F10 notifications to HSE

This section contains a summary of the characteristics of those appointed as PD. The names of the organisation or individual appointed as PD have not been used, just a broad description of their business.

F10 notification records from 2018, 2019 and 2020 were provided by HSE. Across the three years, 167,379 notification records were provided where a PD appointment had been notified to HSE.

Over 65,000 different organisations have been notified as undertaking the PD role in the three-year period. However, many of these entries are a result of multiple different spellings of organisations' names and the policy of some organisations of providing a contact name with the organisation's name. As such, the number of separate organisations undertaking the PD role is likely to be less than 65,000 but still in the tens of thousands.

The 25 organisations undertaking the PD role most frequently all undertook it on more than 200 occasions in the three-year period. Between them, they undertook the PD role on more than 15,000 occasions. The characteristics of those 25 organisations are summarised in Table 2-1.

Table 2-1 indicates a split between in-house and external PD appointments. Whilst some infrastructure owners, utility companies and housebuilders would have been undertaking the PD role in-house, the majority of the organisations would be providing external PD services.

The organisations providing external PD services can be categorised into the following types:

- Large multinational companies providing a range of design, engineering and architecture services
- Health and safety consultancies
- Multi-disciplinary consultancies providing cost management and quantity surveying, project management and advisory services

Table 2-1 Type of organisations most notified as PD in the F10 in 2018-20

Number of times the PD role has been undertaken	Type of organisation
>2,500	• National infrastructure asset owner
2,000 to 2,500	• None
1,500 to 2,000	• None
1,000 to 1,500	• Regional utility company • Infrastructure support service provider • Integrated project and programme management consultancy
750 to 1,000	• Chartered Surveyor
500 to 750	• Multinational engineering firm • Asset management and construction consultancy • Housebuilder
200 to 500	• Global design, engineering and management consulting company • Multidisciplinary property and construction consultancy • International company providing management and consultancy services to the built and natural environment • Health and safety consultancy • Engineering, environmental and building control consultancy • Multi-disciplinary construction consultancy • Health and safety consultancy • Compliance, health & safety and environment consultancy • Cost management and quantity surveying, project management and advisory services • Housebuilder • Construction health and safety consultancy • Principal Designer and Client Advisor Services • Integrated design, property and construction consultancy • Internet service provider • Property and construction consultants • Multi-professional consultancy practice working within the property, infrastructure and construction industry • Multinational engineering, design, planning, architectural design, project management and consulting services company • Multi-disciplinary construction consultancy

3. Principal Designer Regulatory Issues

The findings in this section are based on the questions asked in Part 2 of the survey which was aimed at providing information about how the PD role was undertaken on a specific recent project that the respondent was familiar with.

3.1 PD Appointment – Regulations 5(1) and 5(2)

Table 3-1 shows that the majority (62%) of PDs were appointed by the *concept design* stage. However, 27% were appointed after this point when many of the key design decisions will have been taken. It is possible that the 4% appointed at the construction stage may represent handovers of the PD role to the Principal Contractor from a previous PD.

The majority of the PD appointments were terminated at the *handover and close out* (59%) or *in use* stages (14%).

Table 3-1 Stages at which the PD appointments were made and terminated (n=496 to 500)

RIBA 2013 Stage	PD Appointed	PD Appointment terminated
0 - Strategic definition	8.0%	0.2%
1 - Preparation and Brief	28.4%	0.4%
2 - Concept Design	25.2%	1.2%
3 - Developed Design	14.2%	1.8%
4 - Technical Design	9.0%	2.6%
5 - Construction	4.0%	4.2%
6 - Handover & Close Out	0.0%	59.3%
7 - In Use	0.0%	13.7%
Don't know	7.5%	8.7%
Other	3.8%	7.9%

Table 3-2 shows that the main source of a handover was to hand the PD role to the Principal Contractor (25%).

Table 3-2 Was there a handover of the PD role (n=493 to 496)

Handover stage	Yes	No	Don't know
From a previous PD	13%	80%	8%
To another PD	17%	76%	7%
To the Principal Contractor	25%	71%	4%

Table 3-3 shows the extent to which a CDM advisor was appointed. Many of the respondents (43%) indicated that the Client had appointed a CDM advisor to help them undertake their role. Around a quarter of the respondents (24%) indicated that both the PD and Principal Contractor appointed a CDM advisor.

It is interesting to note that six years after the introduction of the PD role so many PDs are still appointing CDM advisors to help.

Table 3-3 Whether a CDM advisor was appointed (n=496 to 498)

CDM advisor appointed by	Yes	No	Don't know
Client	43%	52%	5%
PD	24%	70%	6%
Principal Contractor	24%	65%	11%

Figure 3-1 shows all the other roles that the PD held (including multiple roles) on the project. This question was asked in a such a way that the respondent could select all of the other roles that were undertaken. The percentages do not sum to 100% as the responses reflect answers to 11 separate role options. The percentages quoted relate to each role.

Whilst 22% of respondents indicated that the PD undertook no other role, 37% indicated that the PD also undertook the Lead Designer role. Other roles undertaken frequently by PDs included health and safety consultant (22%) and Project Manager (16%).

In general, these other roles appeared to be split between design roles such as Lead Designer, Principal Contractor's Design Manager and other Designers and non-design roles such as project manager, cost consultant, quantity surveyor and health and safety consultants.

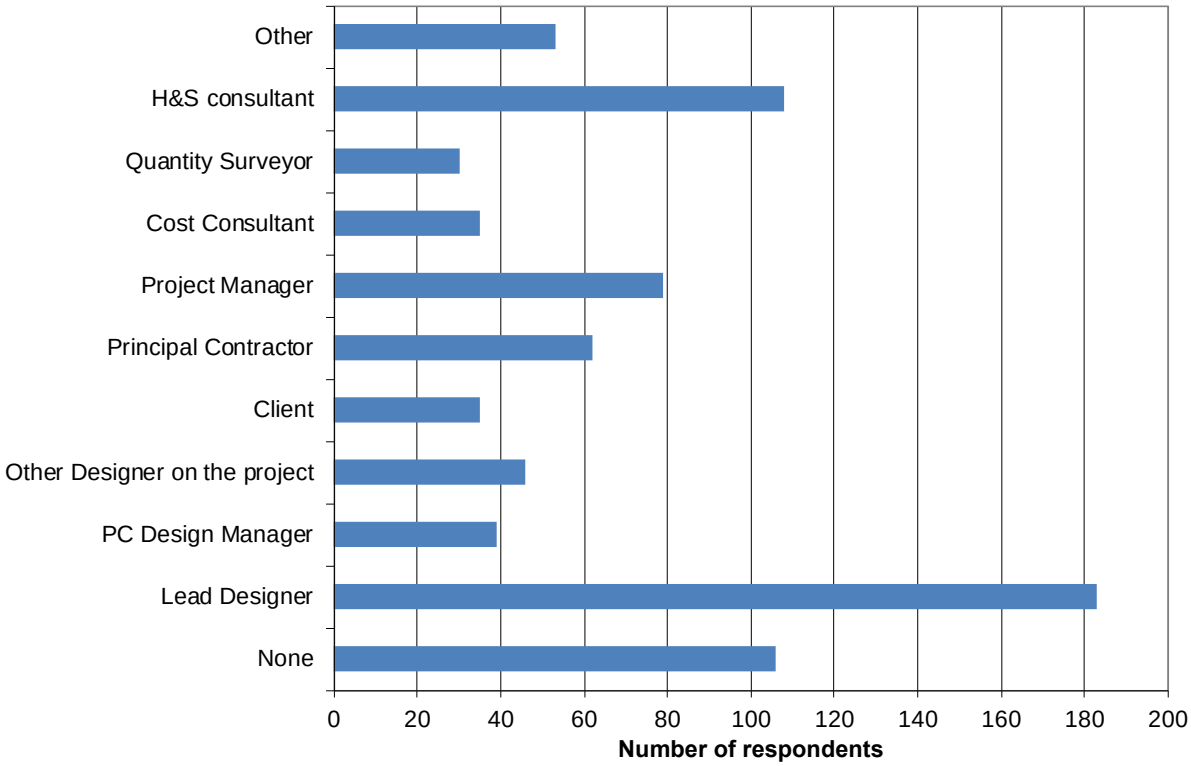

Figure 3-1 Other roles held by the PD on a project (n=491)

Regulation 5(1)(a) requires the Client to appoint '*a designer with control over the pre-construction phase as principal designer*'.

Figure 3-2 shows that 19% of the respondents did not consider the PD to be in control of that phase. Interestingly, those respondents included both Clients (who would have made those appointments) and PDs.

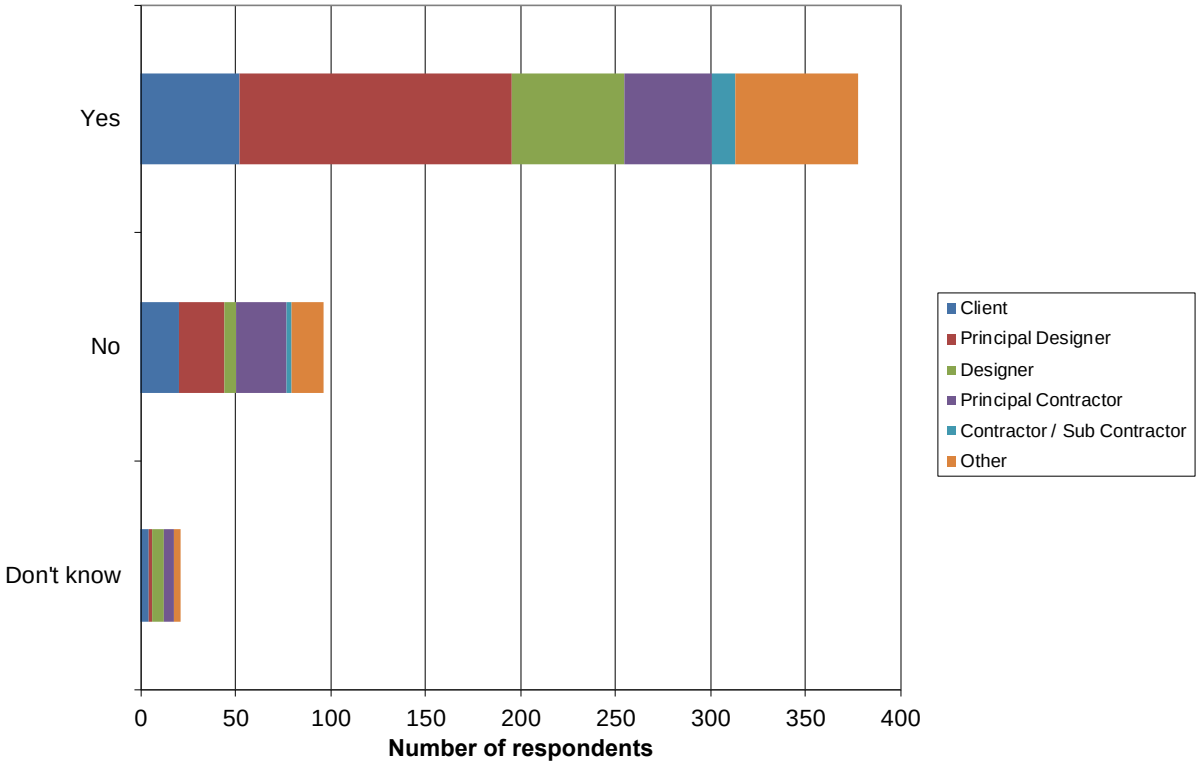

Figure 3-2 Whether the appointed PD has control over the health and safety aspects of the pre-construction phase (n=496)

The Client Brief provides a good opportunity for the Client to state what they want from a PD. Figure 3-3 shows that 63% of the respondents indicated that a Client Brief had been provided.

In the infrastructure sector, around 77% of the projects had a Client Brief. In the commercial sector, it was 66%, whilst in new-build housing it was 56%.

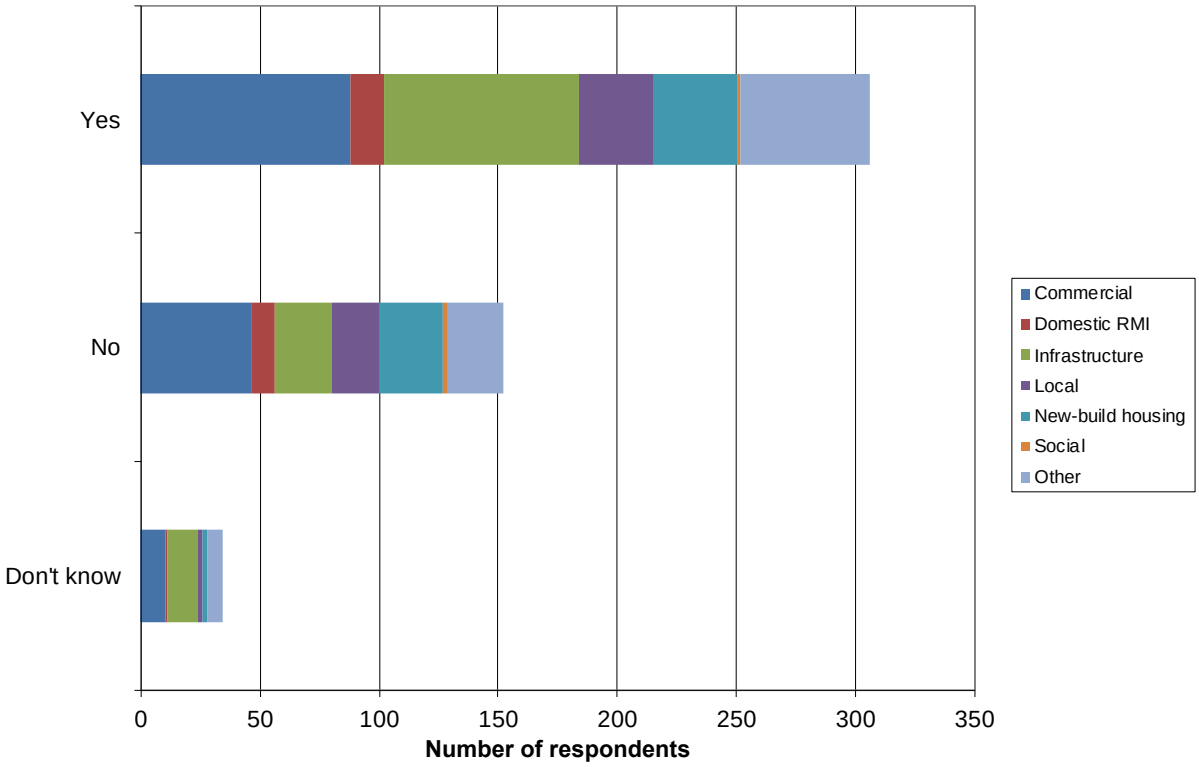

Figure 3-3 Whether the PD role was described in the Client Brief (n=493)

3.2 PD Capability – Regulations 8(1), 8(2) & 8(3)

Regulation 8(1) requires that the PD '*appointed to work on a project must have the skills, knowledge and experience and, if they are an organisation, the organisational capability, necessary to fulfil the role that they are appointed to undertake*'.

In relation to Designer duties, PAS 91 (*Construction prequalification questionnaires*, PAS 91:2013+A1:2017) requires Principal Designers to '*Provide relevant evidence of: your relevant qualifications, e.g. membership of a professional institution such as CIAT; CIBSE; ICE or RIBA.*' This requirement has been used as the basis of establishing how PDs demonstrated their design capability for the purposes of this survey.

Figure 3-4 shows that the key staff undertaking the PD role were most frequently members of the Institution of Civil Engineers (ICE) (19% of the respondents indicated this), the Royal Institute of British Architects (RIBA) (18%) and Chartered Institute of Building (CIOB) (17%). Whilst CIOB and RIBA were represented across all sectors, ICE was predominant in infrastructure. However, the indicator of design capability observed by the largest number of respondents (31%) was '*Track record of Construction design skills, knowledge and experience compatible with that required with the institutions listed*'. This category would cover those who do not have the professional qualifications listed but would be eligible to obtain those qualifications.

The 'other' category included health and safety-related qualifications such as the Institute of Occupational Health and Safety (IOSH) and the International Institute of Risk and Safety Management (IIRSM). They also included membership of the Association of Project Safety (APS), Royal Institute of Chartered Surveyors (RICS), Architects Registration Bureau, Chartered Institute of Highways and transportation and Chartered Institute of Water and Environmental Management.

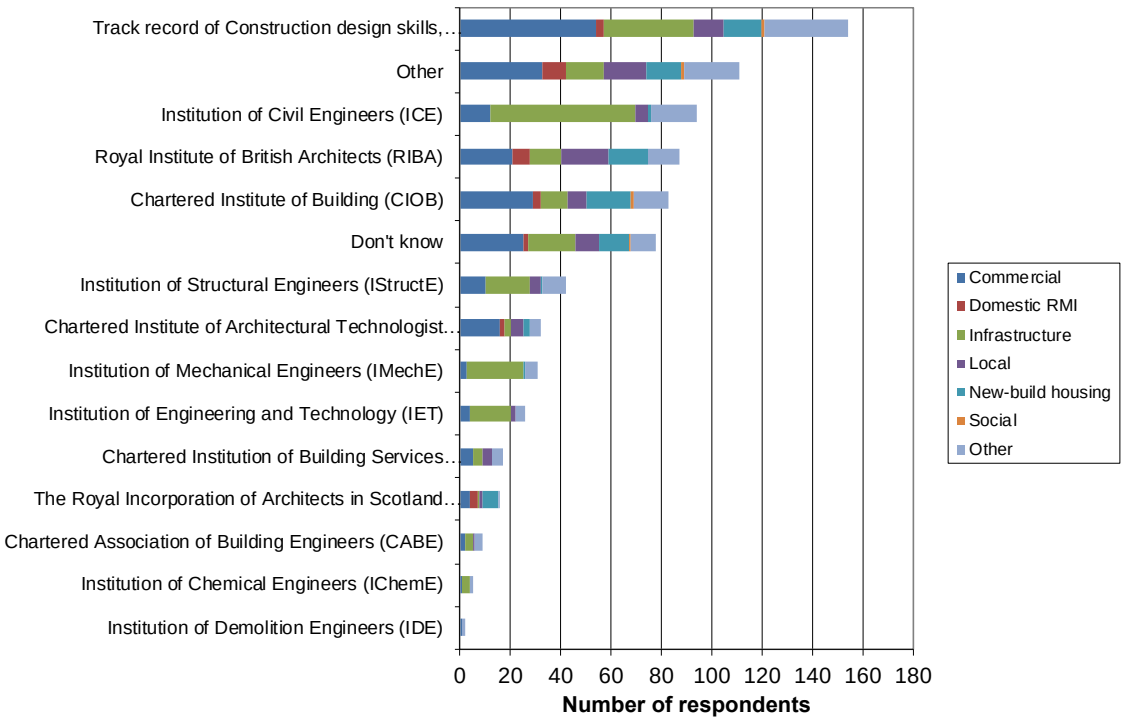

Figure 3-4 Design capability – were the key staff who undertook the PD role Chartered, Incorporated or Technician members of a range of institutions (n=489)

PAS 91 also requires Principal Designers to provide suitable information in relation to skills, knowledge and experience of health and safety in construction – '*for example, a member of the registers administered by the Association for Project Safety or the Institution of Construction Safety (formerly known as the CDM co-ordinator's register), or the ICE construction health and safety register.*' This requirement has been used as the basis of establishing how PDs demonstrated their health and safety capability for the purposes of this survey.

Figure 3-5 shows that the key staff undertaking the PD role were most frequently members of the Association for Project Safety (48% of the respondents indicated this) and Chartered Member of the Institute of Occupational Safety and Health (29%). However, the indicator of health & safety capability observed by the largest number of respondents (49%) was '*Track record of Construction design and health & safety risk management skills, knowledge and experience*'. This category would cover those who do not have the professional qualifications listed but would be eligible to obtain those qualifications.

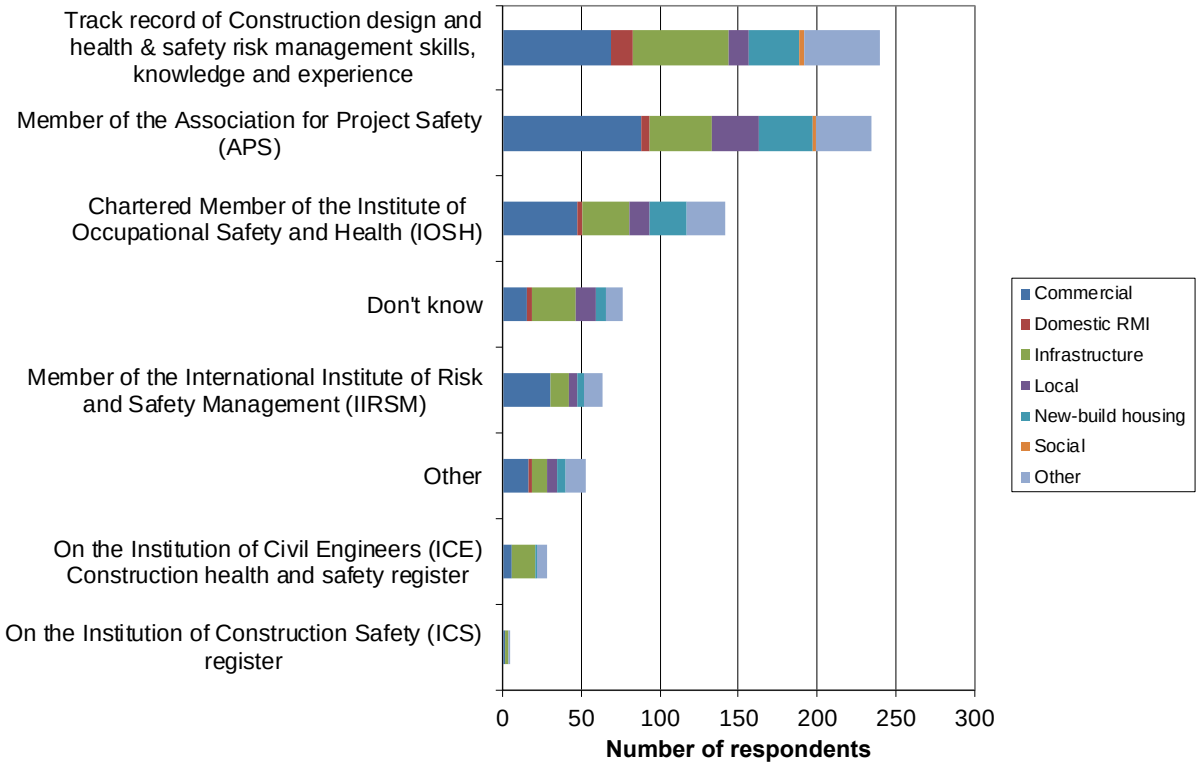

Figure 3-5 Health & Safety capability – which applied to the key staff who undertook the PD role (n=490)

Respondents were asked to indicate which information PDs had used to demonstrate their organisational capability on the project, and to select as many as were applicable.

Figure 3-6 shows that around 50-55% of the respondents indicated that PDs had a range of systems in place. However, a documented design risk management system was only indicated by 47% of respondents.

Around 26% of the respondents indicated that third party assessment prequalification assessments had been used by PDs. Around 37% indicated that the PD had provided details of the companies past performance as a PD on similar projects and checks showed no negative feedback.

Where the Client used PAS 91 or any of the listed 3rd Party Accreditation systems on a project the Association for Project Safety (14%), Achilles (6%), CHAS (12%), SafeContractor (8%) and PAS 91 (13%) were indicated most frequently.

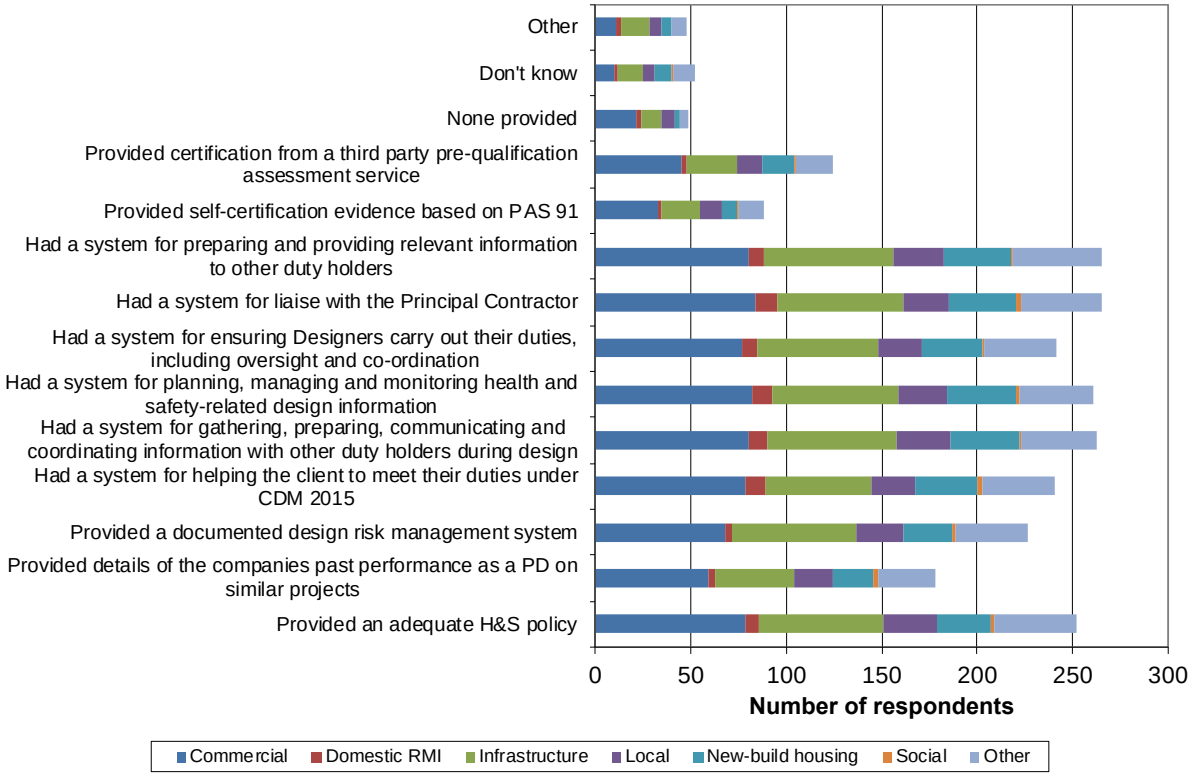

Figure 3-6 Where the PD was an organisation, what information did the PD provide to demonstrate that they had policies and systems in place (n=480)

3.3 Planning, Managing, Monitoring and Coordination – Regulation 11(1)

Figure 3-7 shows the activities that respondents were aware of the PD undertaking to discharge their planning, managing, monitoring and coordinating duties.

A large proportion of the respondents indicated that the PD undertook activities such as collating the pre-construction information (PCI) (88%) and liaising with the Principal Contractor (89%). However, less than half indicated that the PD either obtained the details of Temporary Works Designers (50%) or obtained further PCI required by Temporary Works Designers (39%) despite CDM 2015 requiring PDs to interact with all Designers (including Temporary Works Designers).

Of the 20 activities listed, respondents indicated that the PD had undertaken between anything between 1 and 20 on the project. The most frequent answers were 19 (11% of the respondents) and 20 (14%) activities, with the mean being 13 activities.

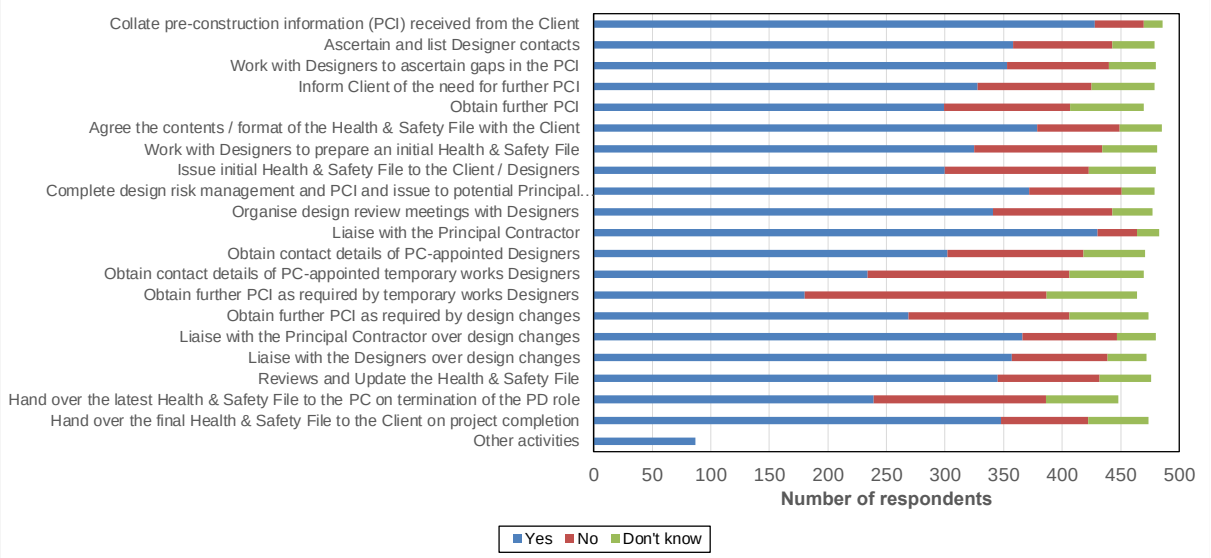

Figure 3-7 What activities did the PD undertake when planning, managing, monitoring and coordinating (n=490)

Figure 3-8 and Table 3-4 show that the number and proportion of respondents who were aware of a particular Planning, Managing, Monitoring or Coordination activity having been undertaken by the PD varied considerably by sector.

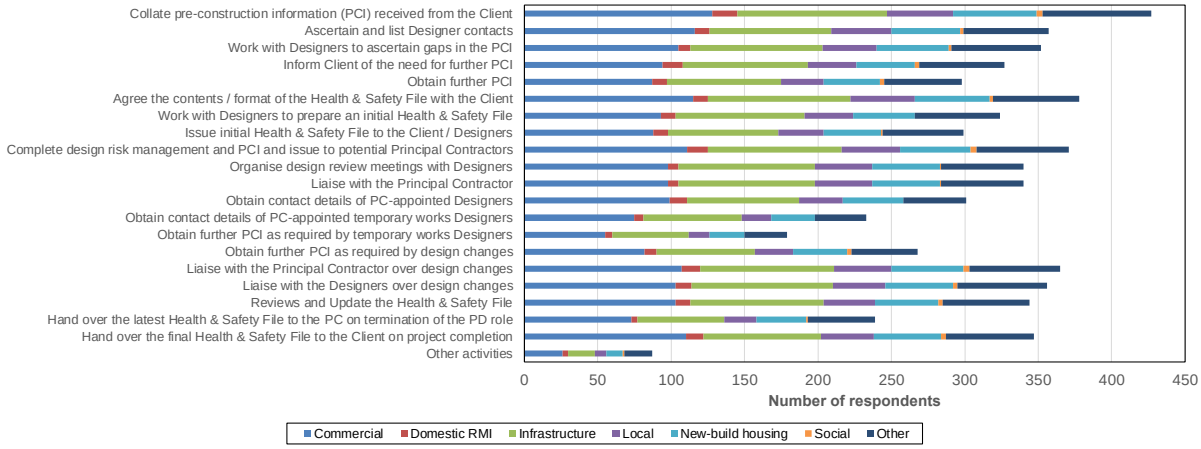

Figure 3-8 Number of respondents in each sector who were aware of a particular activity having been undertaken by the PD

Social has been provided for completeness but the number of responses (n=3-4) are too small for any meaningful conclusions. Responses for the Domestic RMI sector should also be treated with caution due to their small sample size (n=19-25) and the application of CDM 2015 to domestic clients.

Infrastructure (71%), New-build housing (70%), Commercial (69%) and Local (65%) had similar mean levels of the Planning, Managing, Monitoring or Coordination activities being observed by respondents. However, in the Domestic RMI sector, the mean was only 44% but this could be affected by the issues noted above.

In Infrastructure, the Planning, Managing, Monitoring or Coordination activities were being observed by between 45% to 86% of the respondents in that sector.

In the Commercial Sector, the corresponding range was 41% to 89%. In New-build housing it was 40% to 93%. In Domestic RMI it was 18% to 68%.

This indicates differences between the sectors in terms of what PDs do to discharge their Planning, Managing, Monitoring or Coordination duties. Whilst it is not possible to explore the exact requirements of a particular project and why certain activities were or were not undertaken from the data collected, it does indicate that some Planning, Managing, Monitoring or Coordination activities are not being undertaken. This is particularly the case in the Domestic RMI sector.

This data also indicates a drop-off in the Planning, Managing, Monitoring or Coordination activities undertaken after construction has started. This is particularly the case in the activities relating to temporary works.

Table 3-4 Proportion of the respondents in each sector who were aware of a particular activity having been undertaken by the PD

Planning, Managing, Monitoring or Coordinating Activity	Commercial (n=133-144)	Domestic RMI(n=19-25)	Infrastructure (n=110-118)	Local (n=45-53)	New-build housing (n=58-63)	Social (n=3-4)	Other (n=76-81)	Total
Collate pre-construction information (PCI) received from the Client	89%	68%	86%	87%	93%	100%	91%	88%
Ascertain and list Designer contacts	81%	48%	70%	79%	77%	50%	73%	75%
Work with Designers to ascertain gaps in the PCI	74%	38%	77%	70%	78%	67%	76%	73%
Inform Client of the need for further PCI	67%	56%	72%	62%	68%	75%	73%	68%
Obtain further PCI	62%	43%	68%	57%	66%	75%	67%	64%
Agree the contents / format of the Health & Safety File with the Client	80%	40%	82%	83%	84%	50%	74%	78%
Work with Designers to prepare an initial Health & Safety File	65%	43%	75%	62%	68%	0%	73%	67%
Issue initial Health & Safety File to the Client / Designers	62%	43%	64%	60%	64%	33%	70%	62%
Complete design risk management and PCI and issue to potential Principal Contractors	79%	58%	78%	77%	79%	100%	79%	78%
Organise design review meetings with Designers	71%	32%	79%	74%	75%	25%	71%	71%
Liaise with the Principal Contractor	70%	28%	79%	74%	75%	25%	70%	71%
Obtain contact details of PC-appointed Designers	72%	55%	65%	59%	66%	0%	55%	64%
Obtain contact details of PC-appointed temporary works Designers	55%	30%	57%	40%	49%	0%	44%	50%
Obtain further PCI as required by temporary works Designers	41%	25%	45%	29%	40%	0%	36%	39%

Planning, Managing, Monitoring or Coordinating Activity	Commercial (n=133-144)	Domestic RMI(n=19-25)	Infrastructure (n=110-118)	Local (n=45-53)	New-build housing (n=58-63)	Social (n=3-4)	Other (n=76-81)	Total
Obtain further PCI as required by design changes	59%	35%	58%	52%	60%	75%	57%	57%
Liaise with the Principal Contractor over design changes	76%	59%	77%	75%	78%	100%	78%	76%
Liaise with the Designers over design changes	74%	58%	81%	73%	74%	75%	77%	76%
Reviews and Update the Health & Safety File	74%	43%	77%	70%	72%	75%	74%	72%
Hand over the latest Health & Safety File to the PC on termination of the PD role	55%	18%	54%	49%	59%	33%	61%	53%
Hand over the final Health & Safety File to the Client on project completion	77%	55%	70%	71%	73%	100%	77%	73%
Other activities	18%	16%	15%	14%	17%	25%	23%	17%
Excluding 'Other' Minimum	41%	18%	45%	29%	40%	0%	36%	39%
Maximum	89%	68%	86%	87%	93%	100%	91%	88%
Mean	69%	44%	71%	65%	70%	53%	69%	68%

Figure 3-9 shows that nearly three-quarters of the respondents were in agreement that the PD understood the oversight role (72%) and ensured that health and safety was an integral consideration in design (73%).

The respondents were less certain that the PD understood their role to be analogous to that of a Principal Contractor (65%).

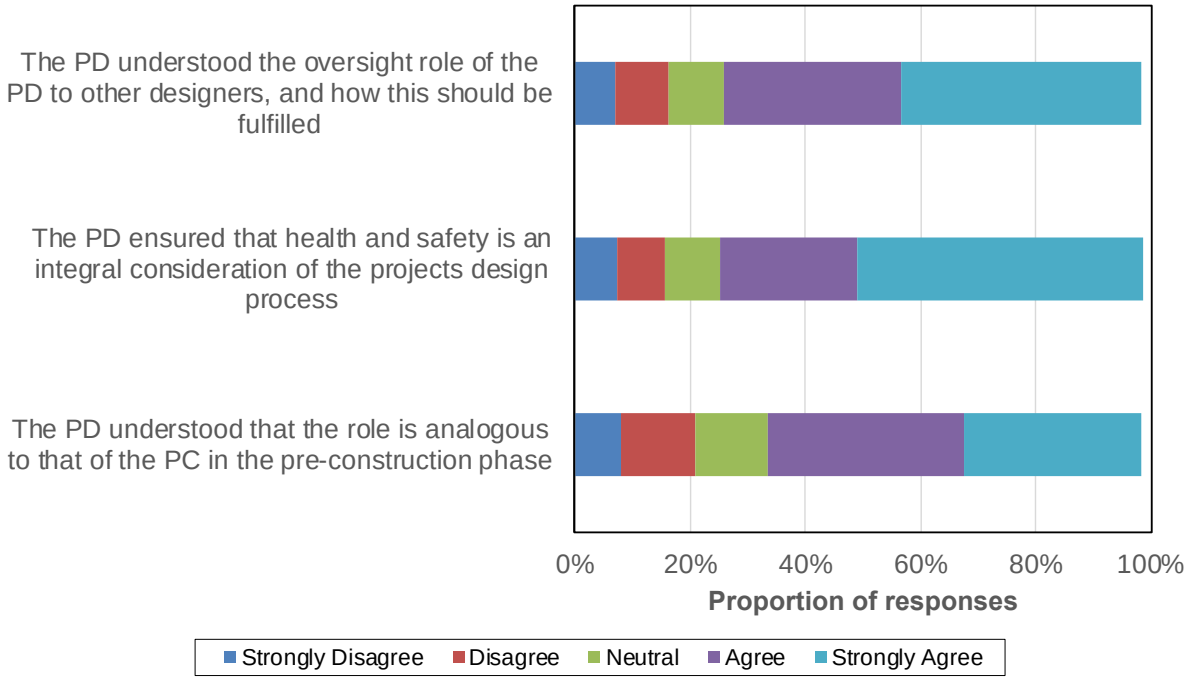

Figure 3-9 The extent to which respondents agreed to statements in relation to planning, managing and monitoring (n=487)

3.4 Planning and Time Requirements – Regulation 11(2)

Figure 3-10 shows that around three-quarters of the respondents (74%) were in agreement that the PD had a detailed knowledge of the General Principles of Prevention.

Similarly, 71% were in agreement that the PD had considered the General Principles of Prevention and the pre-construction information when design and technical aspects of planning were being considered.

However, only half of the respondents (56%) were in agreement that the PD had considered the General Principles of Prevention and the pre-construction information when estimating the amount of time required to complete the work.

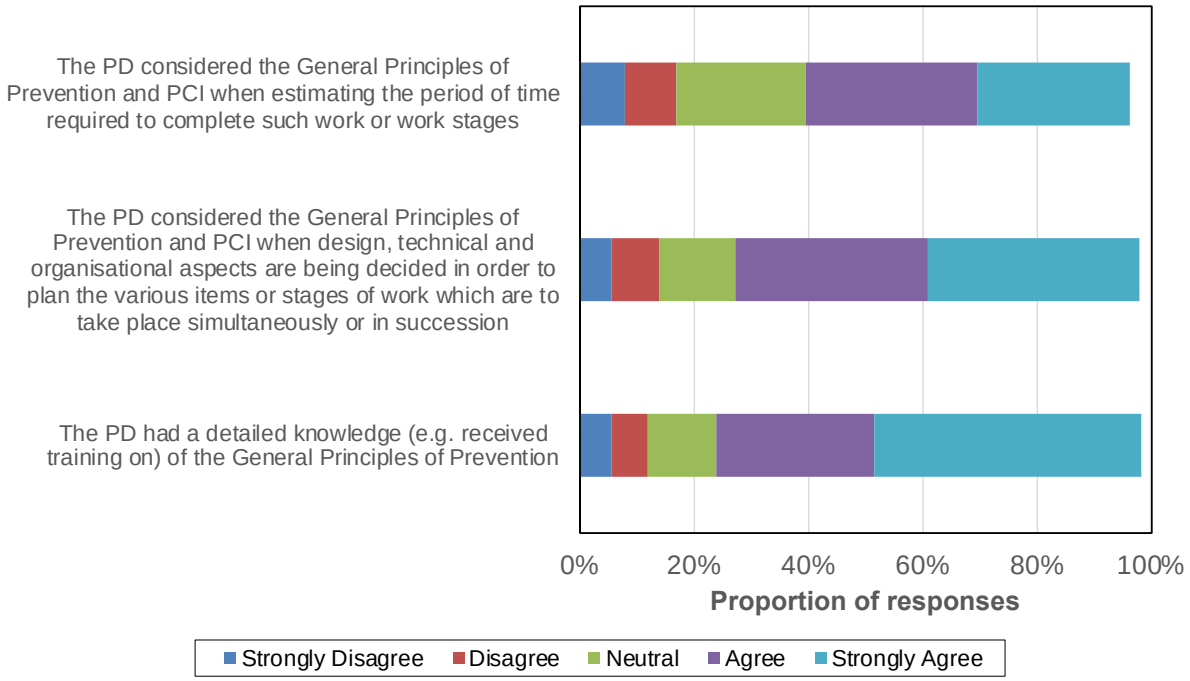

Figure 3-10 The extent to which respondents agreed to statements in relation to planning and time requirements (n=487)

3.5 Managing risks during construction, maintenance and use – Regulation 11(3)

Figure 3-11 indicates that respondents considered design risk management to be improving as the project progressed from feasibility through concept design to detailed design.

At the feasibility stages, 40% of respondents agreed that risks had been managed through design, with 25% being neutral. For the conceptual design stages, this increased to 58% of the respondents agreeing, although almost twice as many (38%) agreed as strongly agreed (20%).

At the detailed design stages, 69% of the respondents agreed. Similar proportions agreed (33%) as strongly agreed (36%) suggesting, perhaps, a greater degree of confidence among the respondents about design risk management at the detailed design stages.

At the construction stage, the level of agreement remained at a similar level (67%).

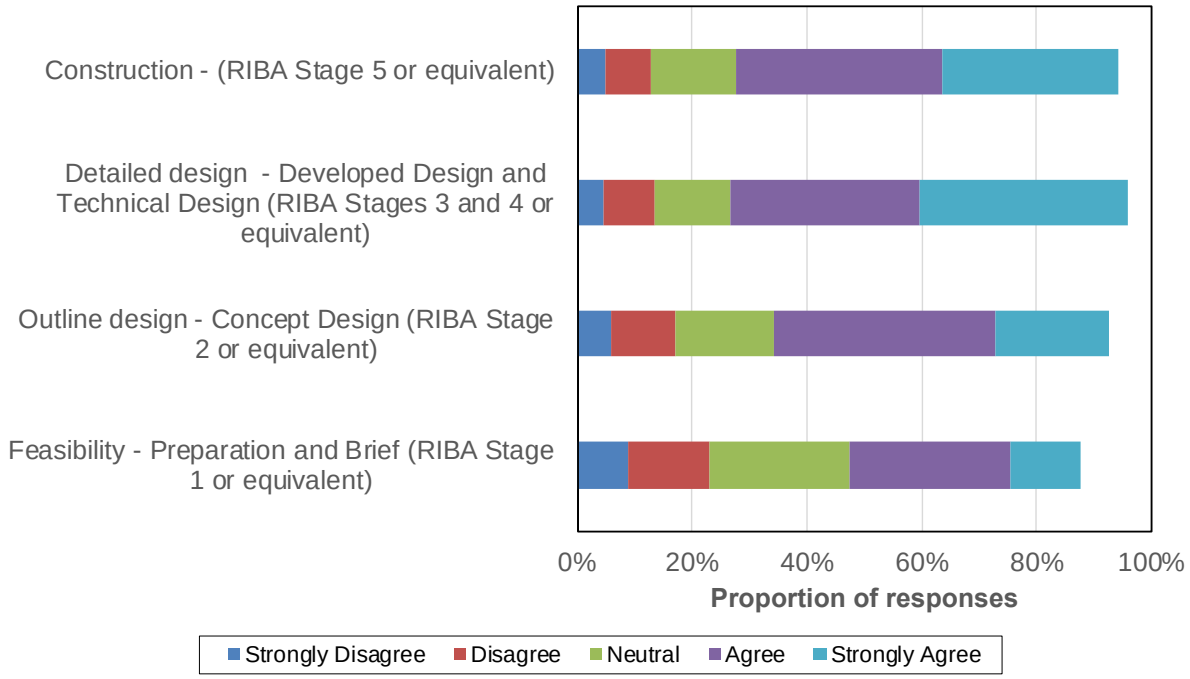

Figure 3-11 The extent to which respondents agreed to statements in relation to risks being properly foreseen, eliminated, reduced, controlled through design (n=486)

Figure 3-12 shows that respondents considered that PDs management through design of construction risks was better than for those that arise during use or maintenance/cleaning.

In relation to the risks that arise during construction, 69% of the respondents were in agreement. The corresponding figure for use and cleaning / maintenance were 59%.

More respondents were able to provide answers in relation to the risks that arise during construction.

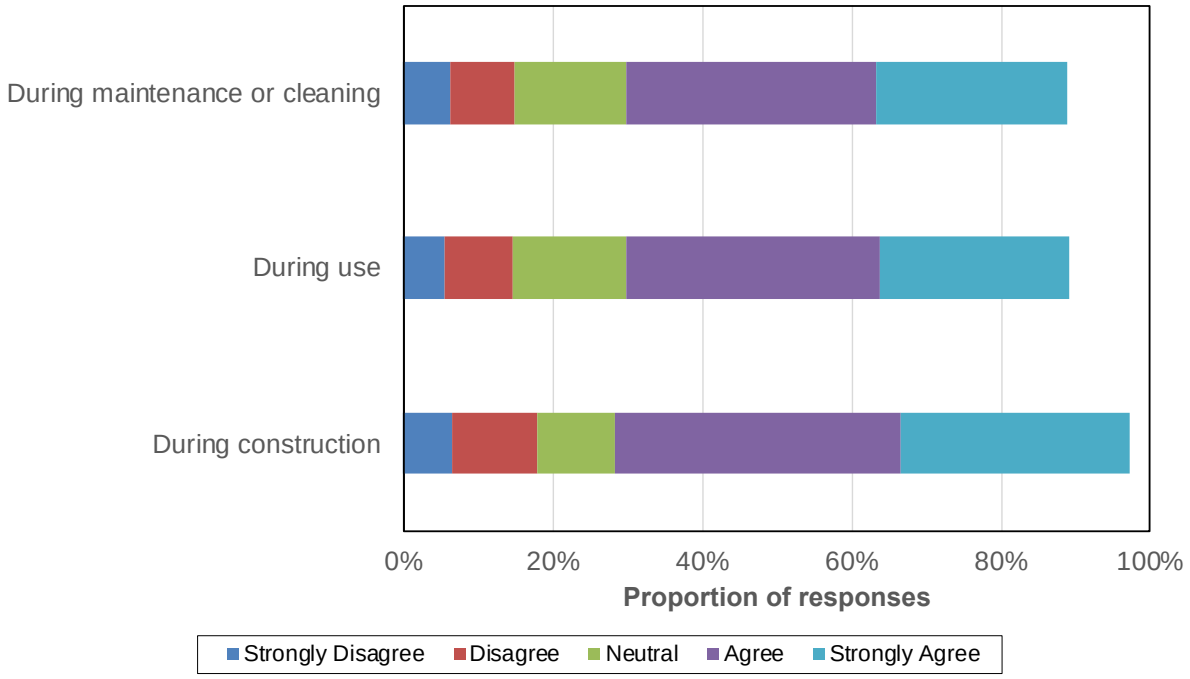

Figure 3-12 The extent to which respondents agreed to statements in relation to risks arising during construction, use and maintenance / cleaning being properly manged by the PD (n=486)

3.6 Ensuring Designers comply with their duties – Regulation 11(4)

Figure 3-13 indicates that whilst the PD worked with Designers to mitigate risks through design in general and interacted with Client-appointed Designers, their interaction with Principal Contractor-appointed Designers was less. This was particularly the case with temporary works Designers.

In relation to the PD working with Designers to mitigate risks through design, 69% of the respondents were in agreement. The same proportion (69%) agreed that the PD interacted with Client-appointed Designers.

In relation to the PD interacting with Designers in the Principal Contractor's supply chain, 49% of the respondents were in agreement.

However, the level of agreement drops to 38% in relation to the PD interacting with Temporary Works Designers. Of the 161 PDs that answered this question, 72 (45%) were in agreement whilst 29 (18%) were in disagreement. Of the 78 Principal Contractors, 22 (28%) were in agreement whilst 33 (42%) were in disagreement.

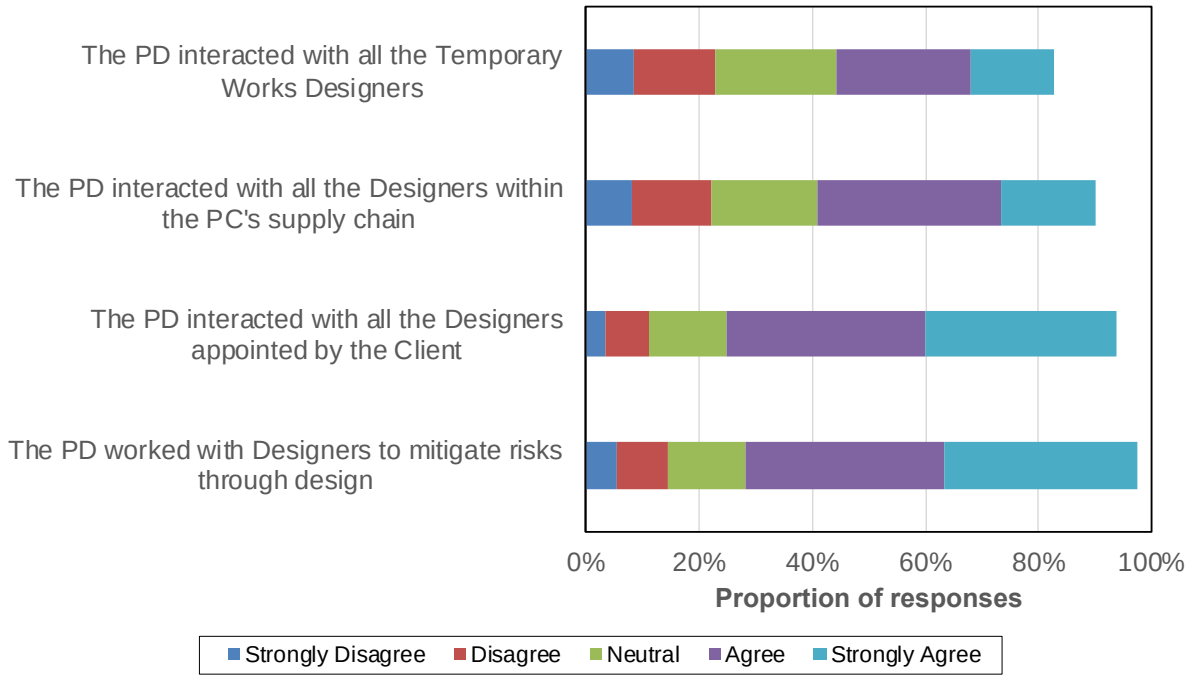

Figure 3-13 The extent to which respondents agreed to statements in relation to the PD interacting with other Designers on the project (n=486)

Figure 3-14 indicates that 74% of the respondents agreed that the PD understood the oversight role. However, only 66% of the respondents agreed that the PD fulfilled that oversight role.

In terms of the PD having processes in place, between 67% and 73% of respondents were in agreement that PDs had processes to ensure that: *Risk elimination, reduction, and control through design were being carried out* (71%); *Risks were identified, controlled and information on key risks widely disseminated* (73%); and *Designers considered the General Principles of Prevention when preparing their designs* (67%).

In relation to the PD providing scrutiny, the levels of agreement were lower – 64% were in agreement that the PD provided scrutiny and challenge. Fifty-eight percent were in agreement that the PD ensured that scrutiny and challenge were provided by others where the PD did not have the specific expertise themselves.

In relation to PDs ensuring that all Designers were kept informed of design changes, 62% of the respondents were in agreement. In terms of the PD ensuring that Designers addressed health risks through design as well as safety risks, 64% of the respondents were in agreement.

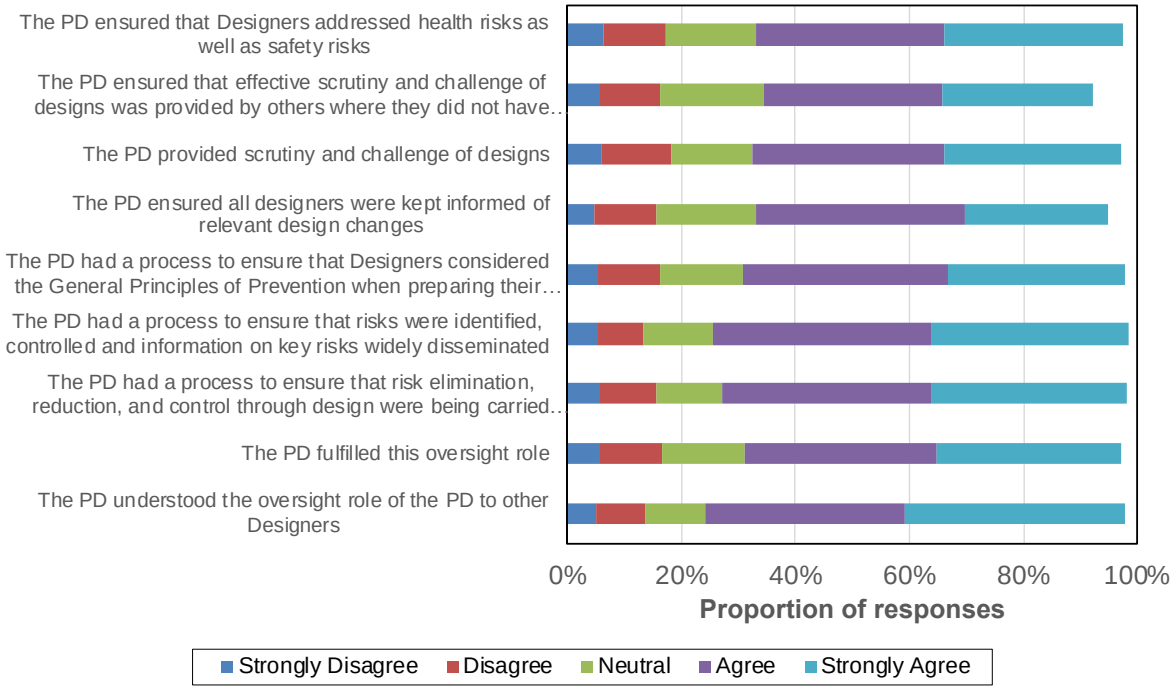

Figure 3-14 The extent to which respondents agreed to statements in relation to the PD providing oversight and scrutiny (n=482)

Figure 3-15 indicates that 27% of the respondents were aware of the PD promoting the use of 3D models / BIM to communicate and visualise risk information. In infrastructure this rose to around 40% of the projects.

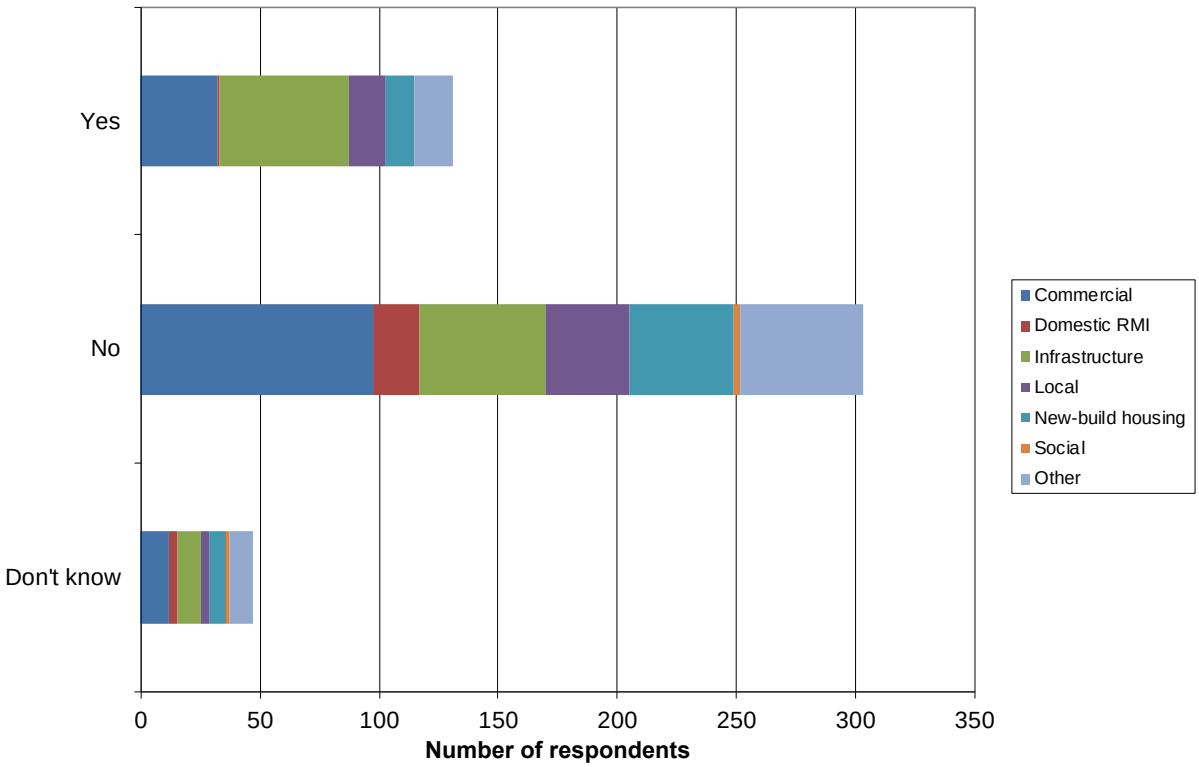

Figure 3-15 Whether the PD promoted the use of 3D models / BIM to communicate and visualise risk information (n=482)

3.7 Coordination and Cooperation – Regulation 11(5)

Figure 3-16 indicates that 66% of the respondents were in agreement that the PD held Design Review Meetings. Similarly, 68% were in agreement that the PD had a process for issues raised at those meetings to be considered and resolved.

Only 63% of the respondents were in agreement that the PD had an effective process for working with the Client in relation to the impacts of variations and changes to scope. However, 73% were in agreement that the PD had an effective process for raising risks / concerns with the Client.

In relation to the PD understanding the joint roles of Principal Contractor and the PD and how coordination should be carried out, 72% of the respondents were in agreement.

Only 61% of the respondents were in agreement that there was early contractor involvement on the project.

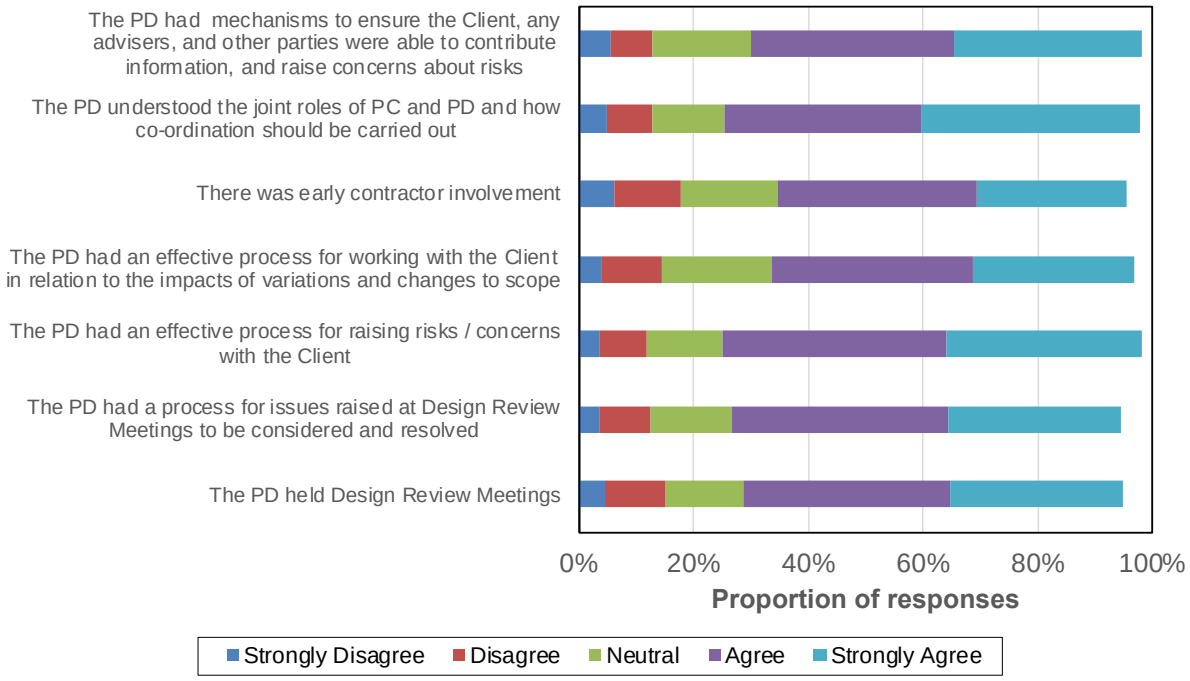

Figure 3-16 The extent to which respondents agreed to statements in relation to the PD facilitating coordination (n=483)

Figure 3-17 indicates that 70% of the respondents were in agreement that the PD ensured Designers cooperated with them.

However, only 62% of the respondents were in agreement that the PD ensured Designers cooperated with each other. Similarly, 65% were in agreement that the PD ensured the Designers cooperated with the Client.

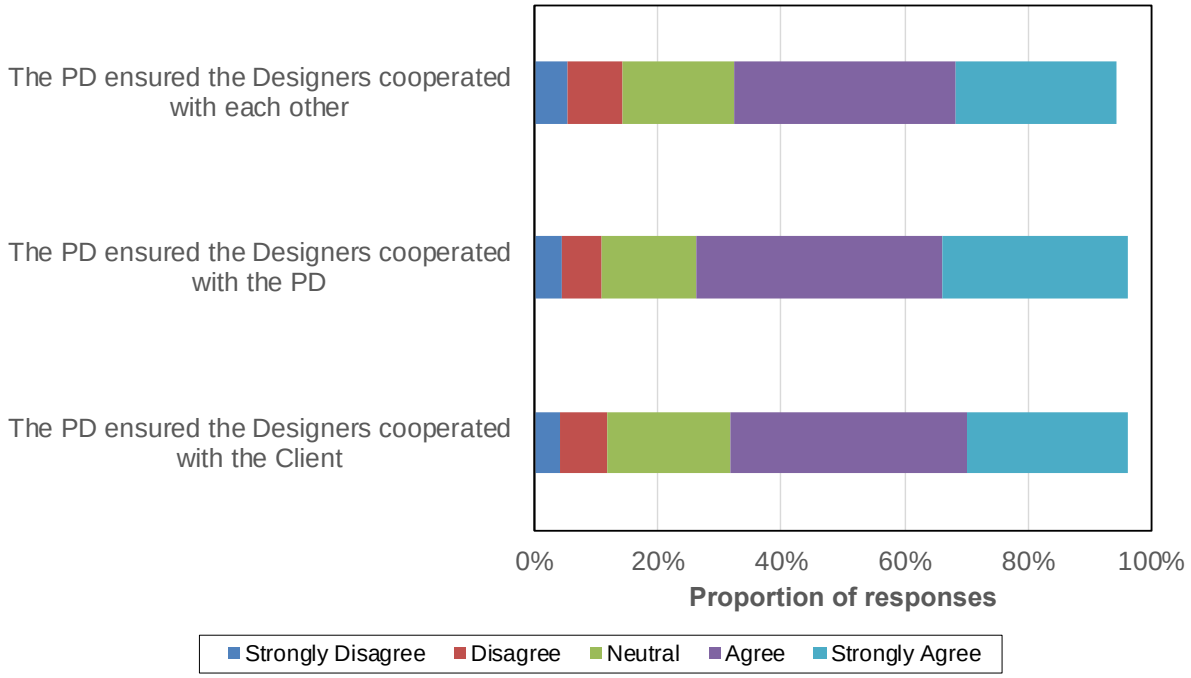

Figure 3-17 The extent to which respondents agreed to statements in relation to the PD facilitating cooperation (n=482)

Figure 3-18 indicates that 12% of the respondents were aware of the PD carrying out a digital visual rehearsal before construction. This was particularly the case in infrastructure which accounted for around half (47%) of the projects where the PD carried out a digital visual rehearsal.

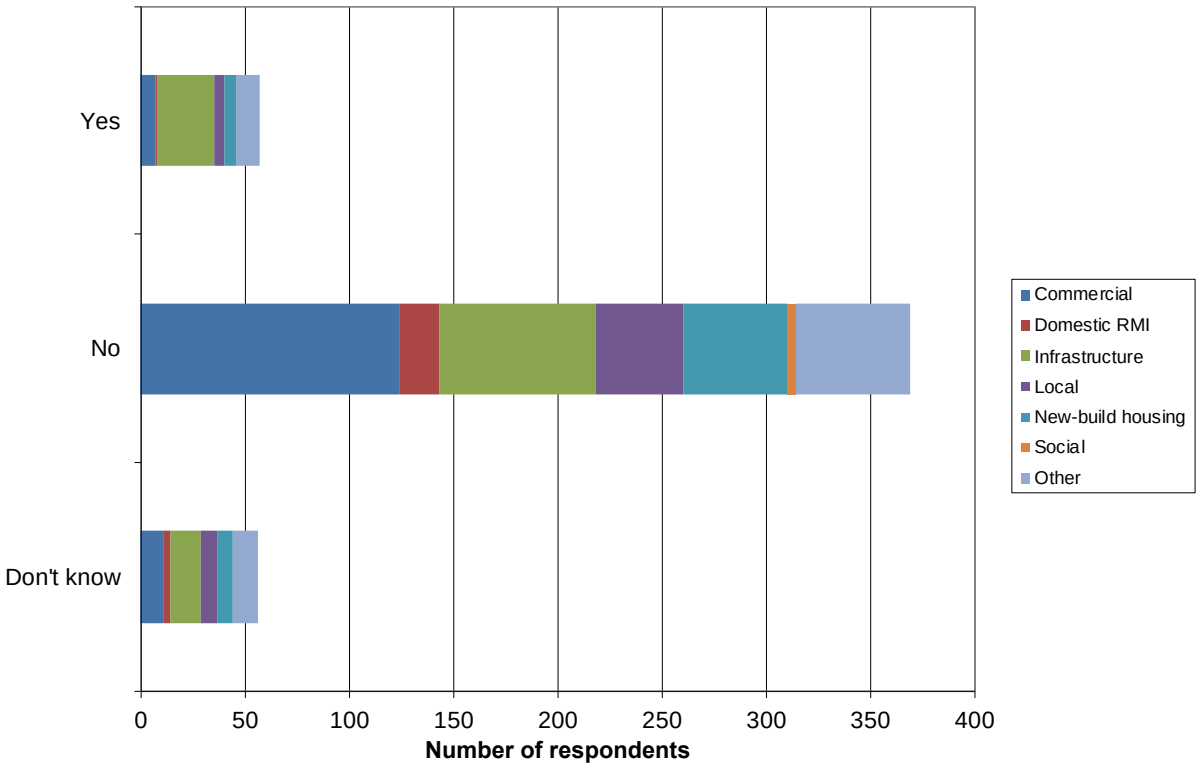

Figure 3-18 The extent to which the PD carried out a digital visual rehearsal before construction (n=482)

3.8 Pre-construction Information – Regulation 11(6)

Figure 3-19 indicates that 71% of the respondents were in agreement that the PD made sure that the Client was aware of the importance of pre-construction information (PCI).

In relation to the PD working with the Designers to identify gaps in the PCI, 68% were in agreement. Sixty-four per cent were in agreement that the PD used a checklist to confirm that all the necessary information was included in the PCI. The level of agreement increased to 74% in relation to the PD advising the Client to commission site surveys, site investigations, etc. to fill the gaps in the PCI.

This was not always a one-off exercise, with 68% of the respondents being in agreement that the PD obtained further PCI as the design progressed.

However, only 56% of the respondents were in agreement that the PD provided the relevant parts of the PCI to all Permanent Works Designers (PWD), all Subcontractors with PWD roles, all Temporary Works Designers, and all Contractors.

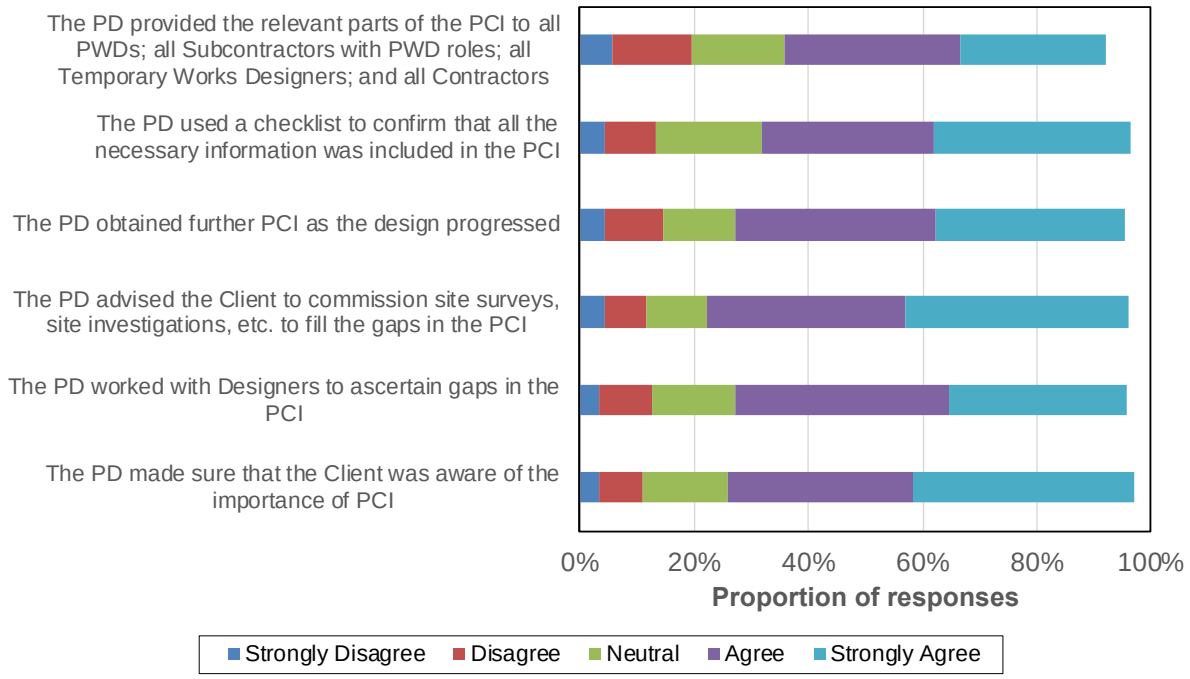

Figure 3-19 The extent to which respondents agreed to statements in relation to the pre-construction information (n=481)

3.9 Liaison with the Principal Contractor – Regulation 11(7)

Figure 3-20 indicates that there was less liaison between the PD and the Principal Contractor on temporary works compared to other areas.

Sixty-eight per cent of the respondents were in agreement that the PD had identified the need for the Principal Contractor to have the right information at the right time. Following on from this, 66% were in agreement that there was a PD to Principal Contractor information handover process.

Sixty-eight per cent of the respondents were in agreement that the PD was involved in site meetings during the construction phase. Only 56% were in agreement that the PD arranged for the Principal Contractor to be involved in design review meetings.

However, only 40% of the respondents were in agreement that the PD interacted with the Temporary Works Designers. Only marginally more (44%) were in agreement that there were effective liaison and information exchange arrangements in relation to temporary works.

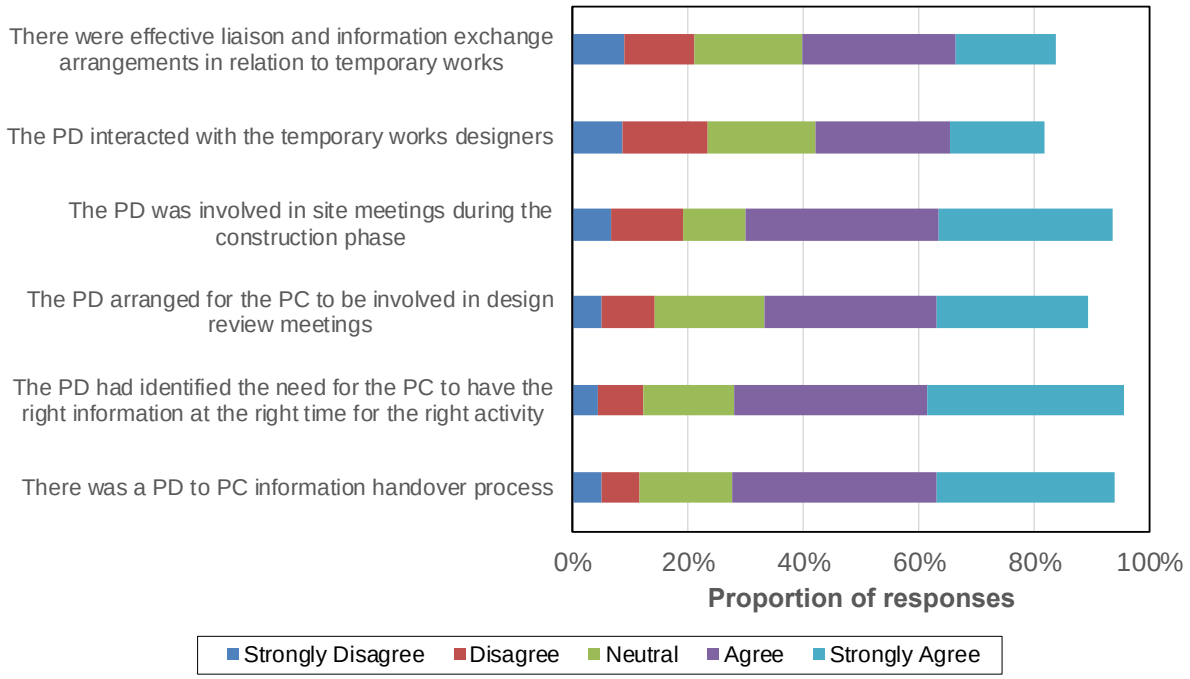

Figure 3-20 The extent to which respondents agreed to statements in relation to liaison and information exchange between the PD and PC (n=479)

Figure 3-21 indicates that 65% of respondents were in agreement that there was effective communications between all parties. This reduced to 56% in relation to agreement that the PD managed comments, queries and complaints from the Principal Contractor effectively.

As part of the liaison, 55% of the respondents were in agreement that the PD helped the Principal Contractor develop and review the Construction Phase Plan.

Only 45% of the respondents were in agreement that late design changes were minimised. This increased to 51% in relation to the PD managing the Principal Contractor's requests for design changes effectively.

Fifty-one percent of the respondents were in agreement that value engineering did not have an adverse effect on the safety of design changes.

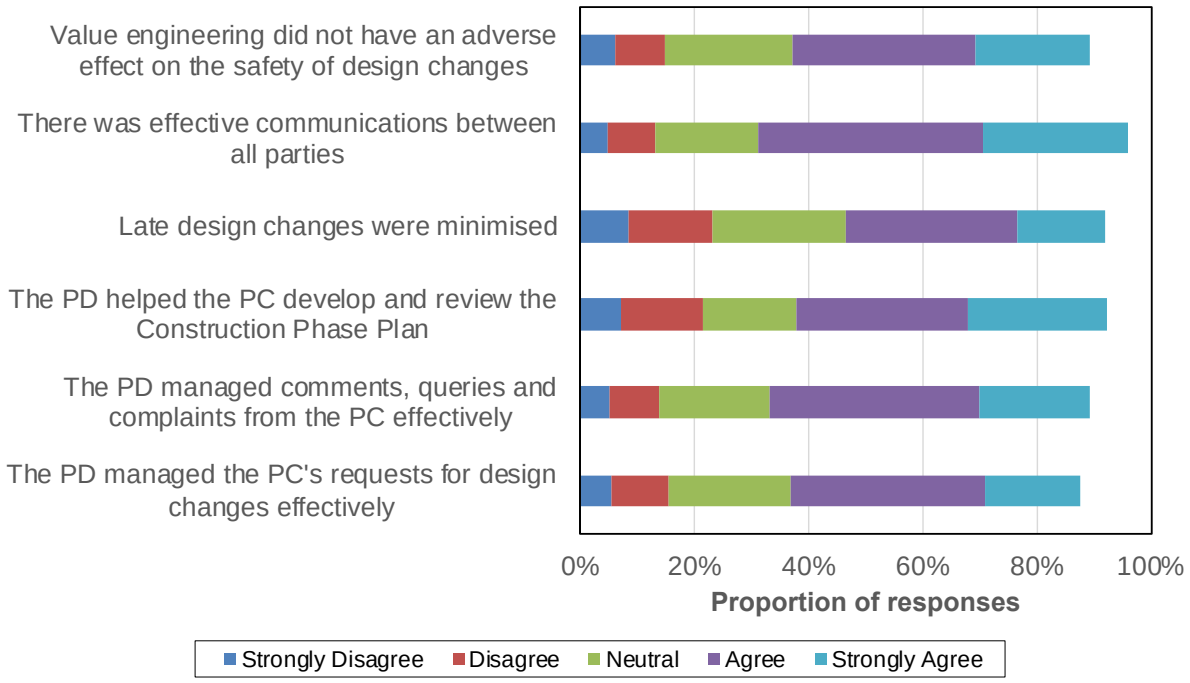

Figure 3-21 The extent to which respondents agreed to statements in relation to how the health and safety implications of late design changes were managed through the liaison between the PD and PC (n=479)

3.10 Health & Safety File – Regulation 12

Figure 3-22 indicates that 78% of the respondents were in agreement that the PD had a process to identify information necessary for the Health and Safety File. Similarly, 76% agreed that the PD had arrangements for coordination with the Principal Contractor in relation to the Health and Safety File.

In terms of the completed Health and Safety File, 67% of respondents were in agreement that the Health and Safety File was of a good standard that was useful to the Client / End user. However, the level of agreement reduced to 61% in relation to whether the Health and Safety File was delivered in an indexable and searchable digital format.

The main concern was in relation to the PD appointment being terminated before the Health and Safety File was completed, with only 34% of respondents being in agreement that where the PD completed their role before the project was completed, they had a process to hand over the partially completed Health and Safety File to the Principal Contractor for completion.

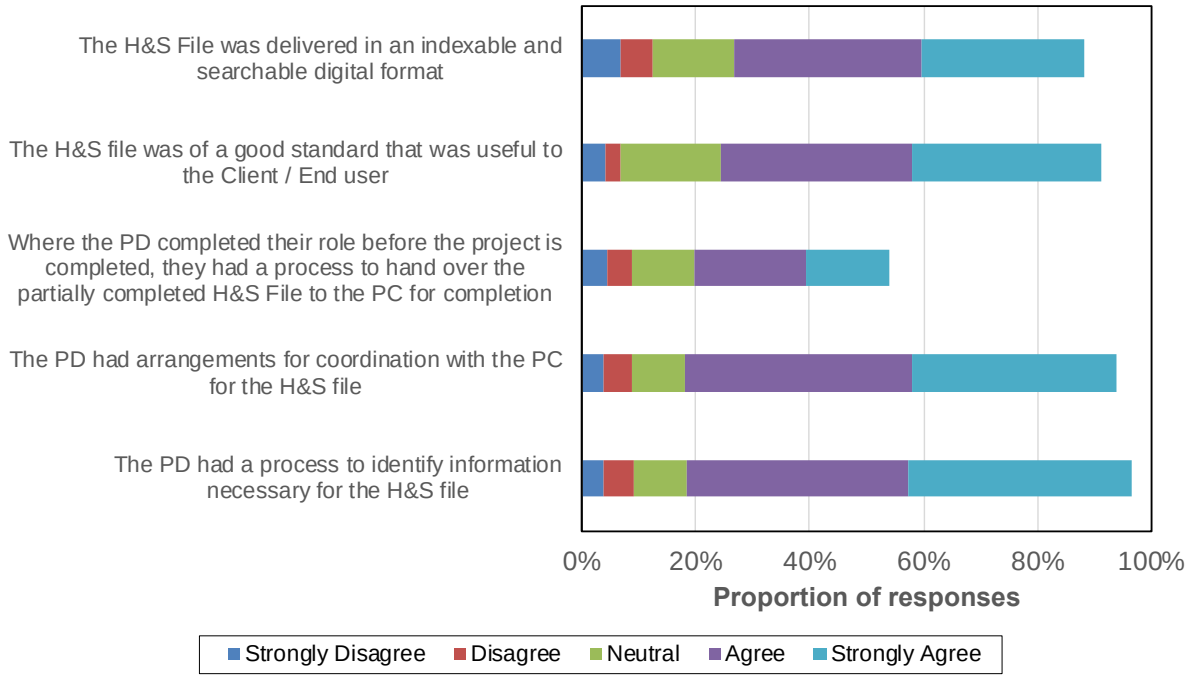

Figure 3-22 The extent to which respondents agreed to statements in relation to the Health and Safety File (n=482)

4. Analysis of behaviours around the PD role

4.1 Introduction

The CDM 2015 regulations serve to encourage behaviours that reduce risk on construction sites, and a key consideration are the decisions and actions taken during the design process. The research sought to understand what behaviours relating to the PD role limit its effectiveness and which positive factors help its impact. To address this, Part 3 of the survey sought to understand behaviours across 4 scenarios that were developed to understand the following parts of the PD's role:

- Scenario 1 – Appointment of the PD
- Scenario 2 – PD authority and empowerment
- Scenario 3 – PD on design and build projects
- Scenario 4 – PD handover

Behaviours relating to each scenario were identified and respondents were asked to rate and identify potential causes that explain the behaviour, as described below.

4.2 Behavioural items for the survey

Each scenario had a series of behaviours, referred to in the survey as 'situations', that may arise over the course of a CDM project – 12 situations were included across the four scenarios. In turn, each situation had a set of accompanying explanations that might account for it, these were derived from a review of: critical cases, previous studies, regulatory and industry experience. These all helped to identify behaviours worthy of investigation. Respondents were asked to use their experience gained across a range of projects to rate each explanation as to its influence on the situation. Respondents were also asked to provide any additional explanations that they had encountered as a narrative comment. The number of respondents to the behavioural questions ranged from 356 to 367.

To illustrate the approach, the following situation (behaviour) was included on PD handover (under Scenario 4):

Situation: On design-and-build projects, the need to handover information from one PD to another was not identified. Please indicate why this happens?

Respondents rated the following explanations (using the scale: No influence, Minor influence, Moderate influence, or Major influence):

- *The client did not realise handover was necessary*
- *The PD did not advise the client that handover was necessary*
- *The transfer of information was not adequately incorporated into the contracts*

It is important to note that the data seeks to explain behaviours, rather than measure the frequency of these behaviours; some frequency information can be identified from a review of the barriers, as described in Section 7.1. The following section sets out the theoretical basis adopted for the behavioural aspects.

4.3 ABC Behaviour model

The purpose of ABC analysis in this project is to learn from the experiences of those working with, or as, PDs to understand what is driving some of the key behaviours. This can help define intervention strategies around the causes.

The approach used in the study was based on the ABC model of behaviour analysis[1]. Potentially any behaviour can be analysed with an ABC model, so it is important to prioritise those activities closely linked to the effectiveness of the PD role. Consequently, it was necessary to review critical cases, previous studies, regulatory and industry experience to identify relevant behaviours and possible explanations.

An ABC behaviour model assumes that intentional and unintentional **B**ehaviours, are the result of both **A**ntecedents and **C**onsequences. Antecedents are those influences that happen prior to the action contributing, or directly causing the behaviour under consideration – these can be very wide-ranging.

To illustrate, excavating without checking for buried cables / pipework (the behaviour) could be due to not having the required ground scanning equipment, the need to scan going unrecognised in the system of work / work instruction, and plans indicating there are no buried assets so no checks are performed, etc.

Behaviours have consequences and these can encourage repetition through reward and/or reinforcement. For example: time and cost are avoided by not checking for buried assets, or a groundworks team may have excavated many sites without problems giving undue confidence in their digging practices – both of which increase the chances of not checking for buried assets on future digs.

4.4 Behavioural results structure

Each of the 4 scenarios commences with a description of the scenario as used in the survey, and then the following structure is used for each situation:

- Situation text – the target behaviour.
- Chart showing response options and participants' average ratings, presented from highest impact to lowest impact. (Note: the following weighting applies to the scale options: 0 = no influence, 1 = minor influence, 2 = moderate influence and 3 = major influence)

[1] Skinner, B. F. (1938). *The behaviour of organisms: An experimental analysis*. New York: Appleton-Century.

- Common additional explanations identified by respondents are included as bullet points, these were identified by reading the responses to identify patterns.

- Example responses are then quoted.

After each situation is covered, the findings for the scenario are summarised.

4.5 Scenario 1 – Appointment of the Principal Designer

4.5.1 Scenario description

"Regulation 5 of CDM requires the appointment of a designer with control over the pre-construction phase as PD. In response, the sector has evolved several different models for the provision of PD services. Making sure that a suitable PD is appointed is an important aspect in the discharge of PD duties. The following statements describe four situations for your rating"

The following four sub-sections cover the situations that respondents rated.

4.5.2 Situation 1.1: Someone that does not have appropriate health, safety and design capability has been appointed to the PD role – why?

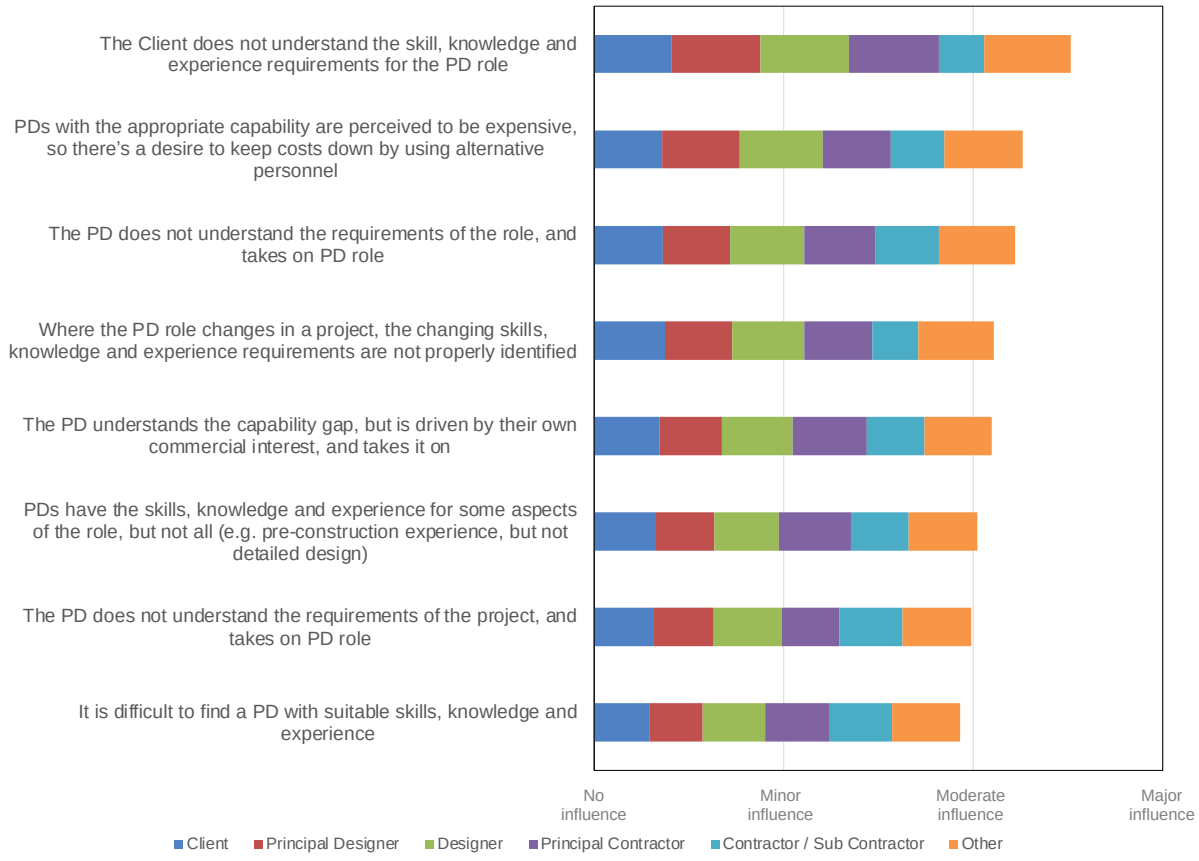

Figure 4-1 The extent to which a range of explanations may influence Situation 1.1

Respondents provided 294 additional written explanations / comments. Common themes included:

- PD lacks the expected knowledge, skill and experience
- Client's lack of CDM knowledge and general disinterest in the regulations
- Designer's / Architect's lack of CDM knowledge

- Cost of having to appoint a PD

Responses included:

- *“Designers do not want to be the PD, if they are appointed they require more money therefore the client often just retains the role even if they aren't a ‘designer’”*
- *“Designers are rarely resourced or competent to fulfil the role as defined by the Regulations”*
- *“Client is not advised to appoint PD early in the design stage*”

4.5.3 *Situation 1.2: A PD organisation knows how to provide a good level of service but also knows what level of cost (and service) is required to win the tender – why do they choose to offer the 'cheap' alternative?*

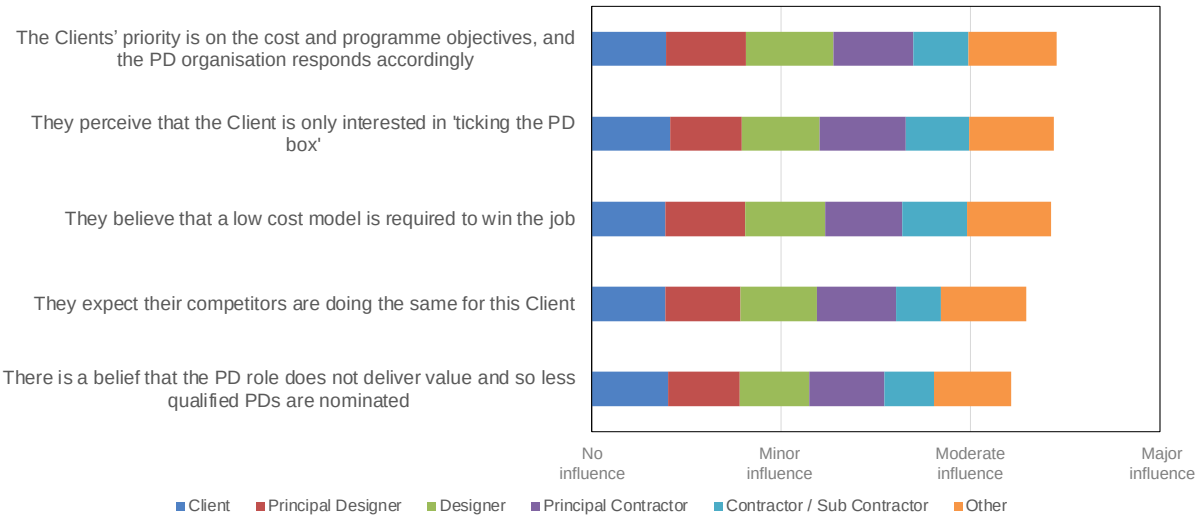

Figure 4-2 The extent to which a range of explanations may influence Situation 1.2

Respondents provided 147 additional written explanations / comments. Common themes included:

- Client's lack of CDM knowledge and general disinterest in the regulations
- There is no incentive to deliver quality PD services
- Sector is driven by low-cost approach to construction

Responses included:

- "*We are continually being knocked back for cost of PD role as the Client perceives them as providing nothing, just a review role*"
- *"Low costs win tenders - quality submissions are not on an equal footing"*
- *"There is a very competitive market which is driving prices down. This cost reduction will lead to cutting corners on service provision"*
- *"The Client does not understand that they can still be held accountable for appointing poorly qualified people and feel that they have discharged their duties by just making an appointment"*

4.5.4 Situation 1.3: Why do Clients appoint one of their advisors to the PD role, rather than passing the role on to the Contractor?

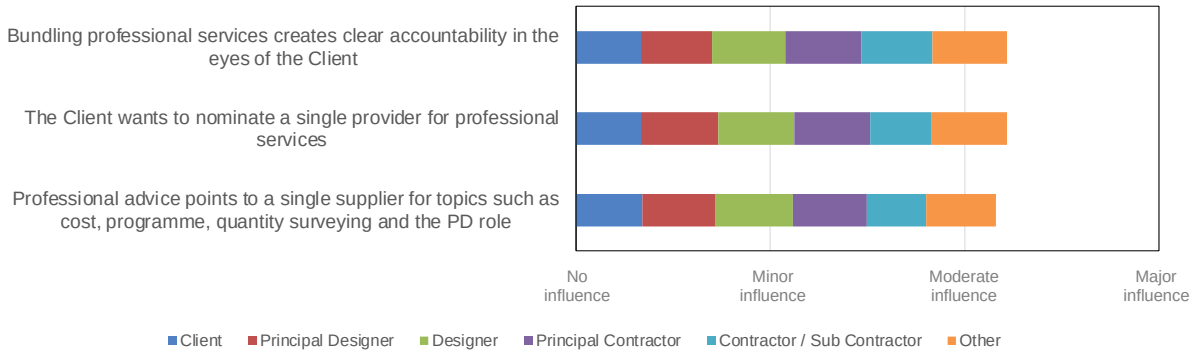

Figure 4-3 The extent to which a range of explanations may influence Situation 1.3

Respondents provided 144 additional written explanations / comments. Common themes included:

- Client does not trust the Principal Contractor
- Client wants the PD to be independent

Responses included:

- *"They are worried about a conflict or that the contractor might use a CDM issue to argue an advantage"*
- *"They do not trust the contractor to undertake the role effectively. The contractor is too worried about cost"*
- *"Cheapest Contractor does not want to take on the role (or only at a high price)"*
- *"Client wants an independent appointment with oversight of contractor"*

4.5.5 *Situation 1.4: An organisation with staff from traditional technical design professions (that cover H&S) does not take on the PD role, but other organisations do so even though their staff are not typically from traditional technical design professions – what makes an organisation take on the PD role even if they don't have people with a traditional technical design profession (including H&S) background?*

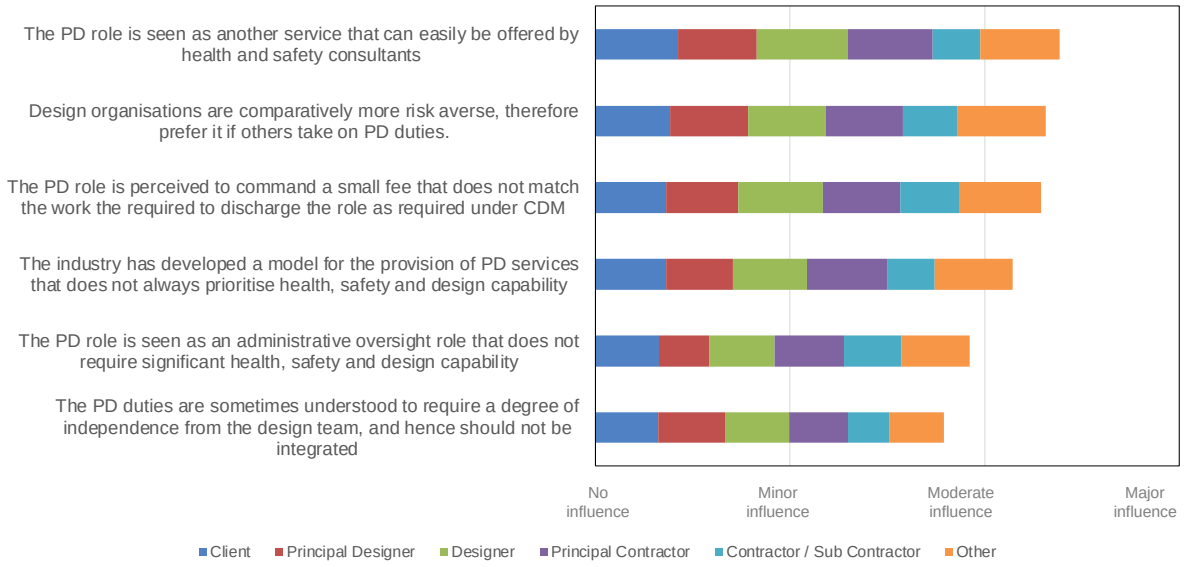

Figure 4-4 The extent to which a range of explanations may influence Situation 1.4

Follow-up analysis looked at whether responses varied by the type of project. However no patterns were identified – it had been anticipated that infrastructure projects might have had a different distribution of results.

Respondents provided 135 additional written explanations / comments. Common themes included:

- Design organisations do not have the required expertise to fulfil PD duties
- Designers like design, but see health and safety considerations as a burden / a responsibility that sits with contractors

Responses included:

- *"PD is seen as taking responsibility for design so competent design companies do not want other persons risk on their account"*
- *"PD role is a lot of hassle, dealing with designers is like herding cats"*
- *"Design organisations sometimes prefer to stick to what they are good at so they don't want the PD role as well"*

- *"Lack of understanding amongst some providers of PD service about the right balance of technical understanding and legislative knowledge required to perform effectively"*

4.5.6 Summary of findings for Scenario 1

Scenario 1 and the four situations were aimed at examining some of the issues around appointment of the PD. The responses across all situations confirm a range of interconnected factors are at play which shape the appointment of the PD.

Several reasons were identified for a PD being appointed to the role without having the required knowledge, skills and experience. These included the Client not understanding the requirements of the PD role, the PD themselves not realising that they do not have the appropriate skill set, and Clients believing that the role is costly and does not add sufficient value, so they do not invest in the PD role.

Generally, the respondents suggested that Designers / Architects do not want to take on the PD role (seeing health and safety as a Contractor's job), this contributes to the bundling of the PD role with other professional construction services and/or the role being filled by 'cheaper' alternatives. The respondents indicated that was likely that those around the Client (their architect and/or professional services companies) are not strong advocates for prioritising the PD role. Once the Client believes they have discharged their duties by having appointed a PD, it was suggested that there was little reason for them to prioritise the role further.

Questions around the value of the PD role are further reinforced by the appointment of persons/organisations to the role that lack the required knowledge, skill and experience (SKE). Respondents indicated that having inexperienced PDs on projects encouraged a box-ticking mentality and cost reduction on future jobs. Critically, they indicated that there was no perception of harmful consequences for using a PD on a project without the required SKE.

From a behavioural analysis perspective, it appears that Clients are rewarded for adopting a low-cost approach to the PD role (by not allocating enough time and/or appointing those with insufficient experience). Taking such action potentially reduces their liability under CDM (as they have discharged their duty to appointing a PD), whilst minimising cost, both of which serve as negative reinforcers. Unless Clients see value and benefit coming from the PD role (as a positive reinforcer), they will continue to adopt a low-cost model and the cycle will continue.

Effort should be directed at enabling Clients to experience the positive outcomes of an expertly resourced PD role. Central here is the professional advice clients get from their advisors.

Behavioural analysis indicates that effort should be directed at enabling Clients to experience the positive outcomes of an appropriately resourced PD role. Central here is the professional advice clients get from their advisors.

Tackling this requires evidence that the PD role contributes to better project outcomes, the Client achieving their goals, and reduced reputational risk, etc. This evidence needs to come to the Client from those they and their advisor's trust.

4.6 Scenario 2 – Principal Designer authority and empowerment

4.6.1 Scenario description

"For the PD to be effective in their role, they need to act with authority, in accordance with CDM provisions. The following situations describe activities the PD might request are completed, please indicate which factors have most influence on a successful outcome."

The following 4 sub-sections covers the situations that respondents rated.

4.6.2 Situation 2.1: The PD maintains that various issues on the risk register have not been satisfactorily resolved and requests that the design team addresses them – which of the following influences a successful outcome?

Figure 4-5 The extent to which a range of explanations may influence Situation 2.1

Respondents provided 96 additional written explanations / comments. Common themes included:

- Risk registers are generic / not used
- The PD identifies who has power on the project, and influences them

Responses included:

- *"Risk registers are generic and seen as a box ticking/paperwork exercise. I have never seen one properly complied by a PD, let alone reviewed"*
- *"There is rarely any process for resolving risk items"*

- *“There needs to be contractual influence between the PD and Designer, otherwise it can come down to differences in design opinion. PD need contractual position to demand changes, …”*

- *“The Client has to be convinced of the cost benefit / legal requirement for change, but puts risk (predatively) on the designers”*

- *“The soft skills of the PD to influence the whole design team”*

4.6.3 Situation 2.2: Ideally, the PD would be integrated in the Lead Designer's team but sometimes this does not happen – why doesn't this always happen?

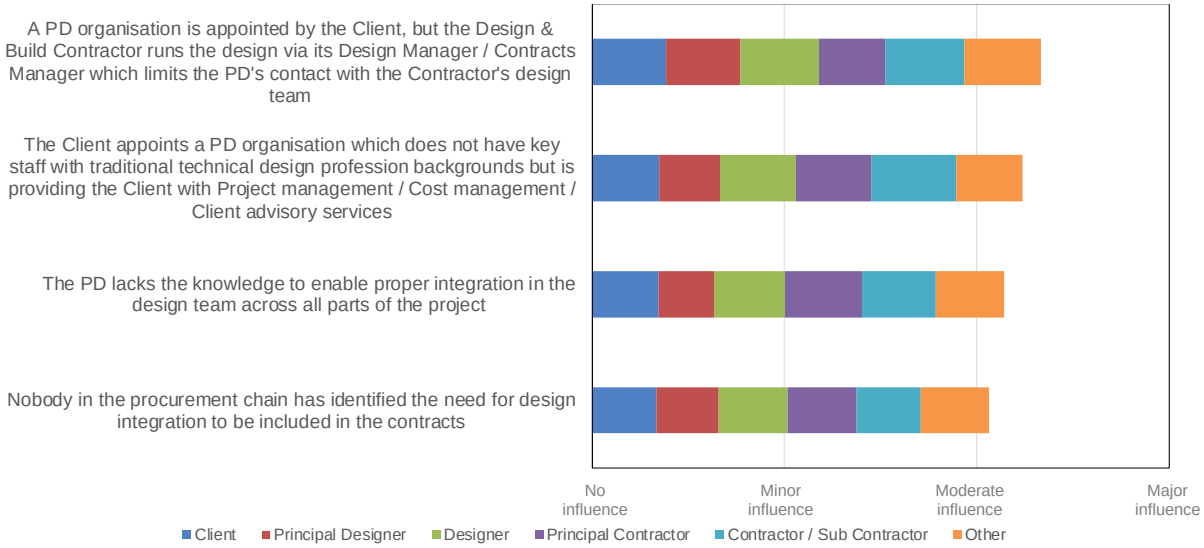

Figure 4-6 The extent to which a range of explanations may influence Situation 2.2

Respondents provided 102 additional written explanations / comments. Common themes included:

- The Client does not appoint a Lead Designer
- The Client wants the PD to be independent of the Lead Designer

Responses included:

- *"The PD is often not appointed until the F10 is submitted!"*
- *"The PD is simply overlooked by the lead designer"*
- *"The client does not want the lead designer marking their own homework"*
- *"The client doesn't appoint a lead designer!"*

4.6.4 *Situation 2.3: Ideally the PD would instigate a design review using suitable digital tools, such as 3D / 4D model reviews, digital rehearsal techniques etc. – what influences the likelihood of the PD being able to convene an effective review that uses such digital technologies?*

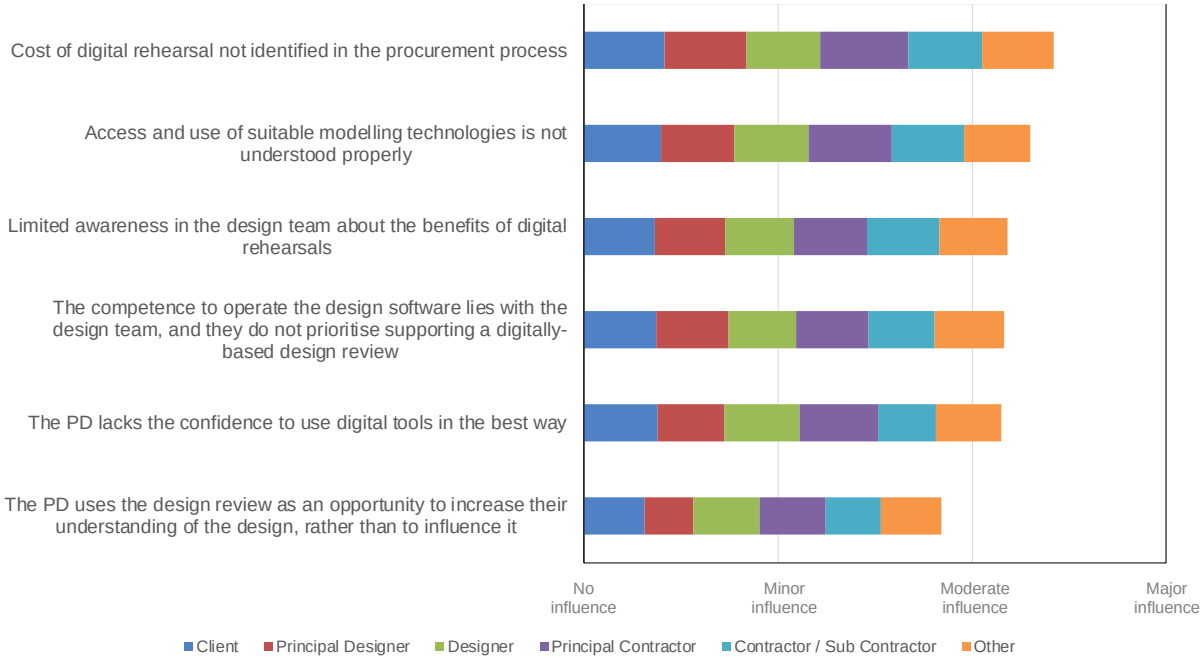

Figure 4-7 The extent to which a range of explanations may influence Situation 2.3

Respondents provided 106 additional written explanations / comments. Common themes included:

- Clients were not aware / informed about value of 3D / 4D modelling
- Clients were unwilling to pay for such modelling
- It was only applicable to large projects

Responses included:

- "*Use of 3D and 4D is not widespread in the design review process, the technology is still not widely supported or freely available. There is a huge disconnect between industry chiefs and those on the ground about use of tech. The file sizes are still too large to be generally useful and the nations digital infrastructure is not up to it especially in rural/ remote areas*"
- *"Clients lack the understanding of value that a digital twin approach could have in reducing the whole life costs of a project from design-construct-operate-maintain so there is a lack of investment"*

- *“The use of digital technologies other than certain 3D models and fly throughs is not a requirement of the contract as it is seen by the client as additional cost and therefore not specified”*

4.6.5 *Situation 2.4: The PD requests that a detailed design review is undertaken at the end of the pre-construction phase, but this does not receive enough support from other duty holders to allow a thorough review – why?*

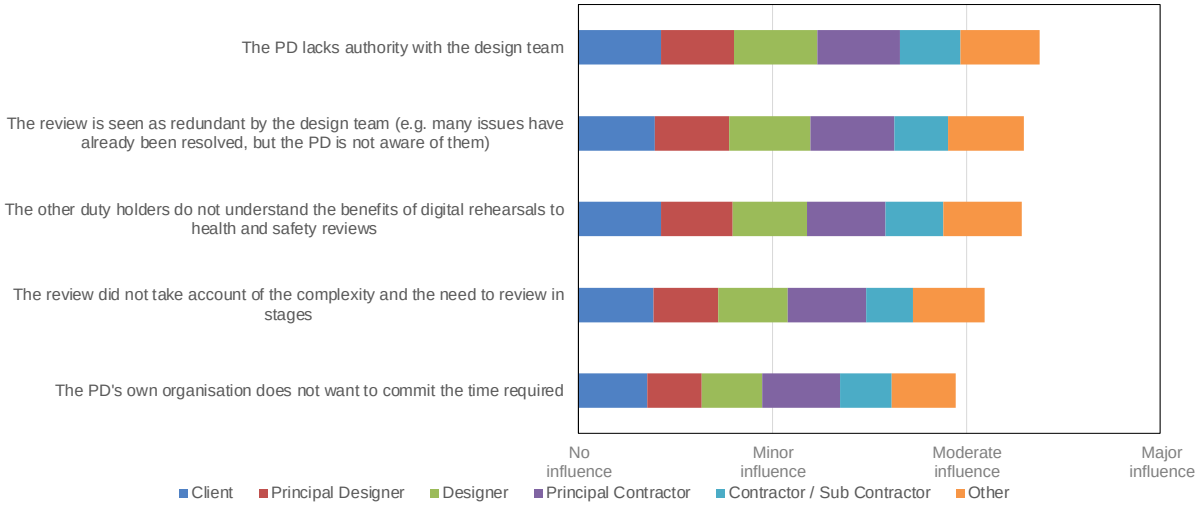

Figure 4-8 The extent to which a range of explanations may influence Situation 2.4

Separate analysis was undertaken to see whether the findings varied by size of project, and the same pattern of responses emerged – i.e. project size was not a factor in how participants responded to this item. This might reflect that many respondents have experience of working on a wide range of different sized projects.

Respondents provided 77 additional written explanations / comments. Common themes included:

- Lack of PD integration
- Difficulty in making design changes after the review

Responses included:

- *"The PD is appointed very late. The design is complete, planning permission has granted and begets (sic) agreed. There is a reluctance to make any significant changes."*
- *"PDs and Designers don't want to give people the opportunity to flag issues that need more time / redesign"*
- *"The role and coordination of design and design improvements is usually driven by a good project lead whose experience and knowledge is far greater than that of the PD. The PL usually fails on process or paperwork and gets challenged by the PD rather than design."*

4.6.6 Summary of findings for Scenario 2

Scenario 2 is about the PD's effectiveness and them acting with authority and overcoming any design issues.

Respondents indicated that, good collaboration between the PD and the design team, coupled with active support from the Client, helped resolve design issues such as those recorded on a risk register.

The respondents also suggested that individual PDs benefit from having soft skills such as leadership abilities that influence the Clients, Designers and Contractors. A PD with the required skills, knowledge and experience, properly integrated into the design team, possibly as the Lead Designer, was suggested to contribute to an effective and efficient design process.

However, some respondents maintained that the PD should be independent of the design team – something that Clients may also support. That separation needs to be balanced against the risk of the PD being isolated from the design process. Respondents suggested that, with design and build projects, there is a risk that unless the Principal Contractor takes on the PD role, the PD will not have the desired impact as they will most likely sit outside of the main design and build contractual arrangements.

The use of digital rehearsal techniques, such as BIM, are limited by obstacles such as the cost of modelling not being identified in the procurement process, the Client not valuing benefits of such techniques, and a lack of skills operating such technologies.

From a behavioural analysis perspective, the effective contribution of an individual PD hinges on having both the technical skills, knowledge and experience for a given project, and the non-technical skills such as leadership, persuasiveness and conscientiousness, this helps establish the PD as a credible individual that should be listened to. This is important, as a credible PD has the authority to confer approval of the performance of the design team and Contractor which is accepted as a sincere (positive reinforcement) and this is most likely to happen where the PD is properly integrated into the project.

4.7 Scenario 3 – Principal Designer and Design & Build projects

4.7.1 Scenario description

"Design and build contracts are convenient solutions for Clients, but sometimes the contractual arrangements might lead to behaviours that impact the effectiveness of the PD role."

4.7.2 Situation 3.1: A Contractor is awarded a Design and Build project, but is reluctant to take on PD responsibility – why?

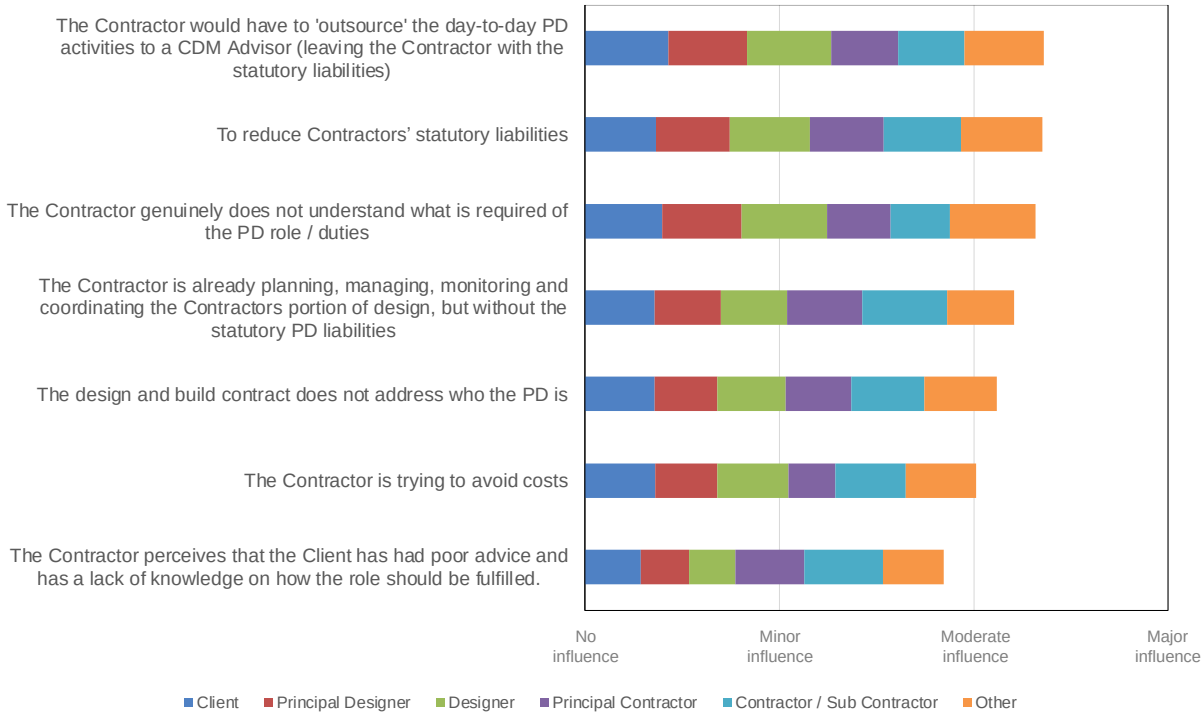

Figure 4-9 The extent to which a range of explanations may influence Situation 3.1

Respondents provided 106 additional written explanations / comments. Common themes included:

- The Client makes the PD appointment
- Contractors do not have the required expertise
- Contractors do not want to inherit the PD role

Responses included:

- *"D&B Contractors are mainly [capital] B and little d... they haven't got the time or resources to do the PD role effectively... there is also little margin in being the PD"*
- *"Contractors being informed very late in the tender process that they will be appointed as the PD"*

- *“Contractors believe PDs do not have the technical expertise and knowledge to offer something of value to the work they would do anyway”*

4.7.3 Situation 3.2: PDs in the Client team may not be 'in control' of the pre-construction phase to the same extent as a Principal Contractor undertaking the PD role – what causes this?

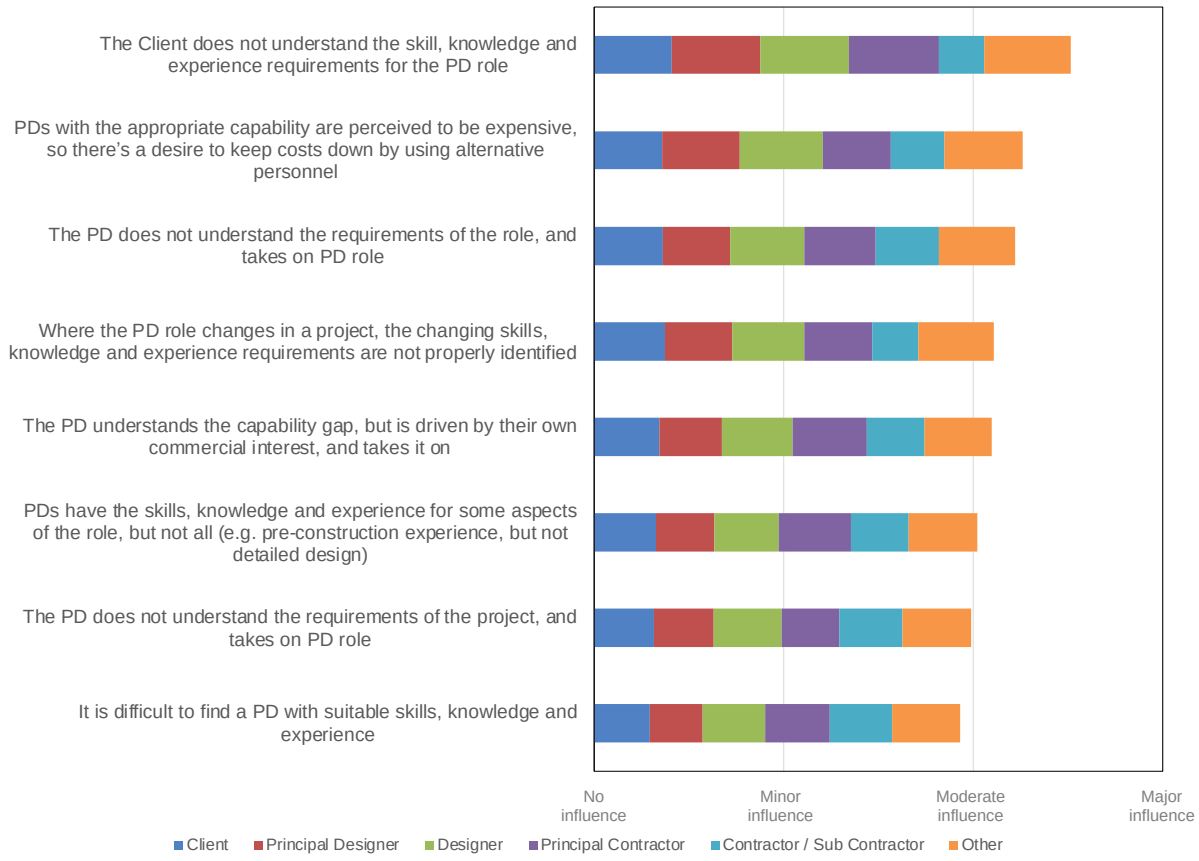

Figure 4-10 The extent to which a range of explanations may influence Situation 3.2

Respondents provided 78 additional written explanations / comments. Common themes included:

- General lack of knowledge of the requirements of the PD role
- The fragmented nature of the construction industry prevents the PD taking control
- PDs are appointed too late

Responses included:

- *"No PD has ever – in over 15 years construction experience – ever thought of themselves as in control, but as an advisor. Not in their eyes, those of the PC or Client. This is a fallacy in the real world."*
- *"Designers and in particular architects often believe they know best and PD have been employed too late in the process"*

4.7.4 Summary of findings for Scenario 3

Scenario 3 was concerned with the PD role on design and build contracts. Respondents indicated that the PD may find themselves at the periphery of the design process. For example, a Principal Contractor only becomes aware of the need for them to take on the PD duties very late in the tendering process – perhaps after a large amount of the design process has been completed. Moreover, Principal Contractors carrying out design work often do not want the statutory responsibility of being appointed as PD.

Respondents indicated that if a PD sits outside of the design and build contract, perhaps as an advisor to the Client, their impact on the project will be hampered as the design and build Contractor's focus is on an efficient approach to construction where an external PD may 'just get in the way'.

Respondents indicated that if a design and build Contractor takes on the PD duties without having the required skills, knowledge, and experience they are likely 'outsource' the PD activities. To keep risks down they may appoint a CDM advisor to help discharge the PD role – a cost that may be difficult to recover if it was not included in the tender.

From a behavioural analysis perspective, the design and build contracts have the potential to put the PD at the centre of the design process which would be a good place to discharge PD duties. However, design and build contractors may be motivated to de-risk their operation by not taking on the PD role, and if the Client supports the appointment of a PD that sits outside the main design process, this may inhibit the PD from making a meaningful contribution. Clients need a clear understanding of the pros and cons of the PD being an external independent third party as opposed to being integrated with the design team so that they can make the appropriate appointment.

4.8 Scenario 4 – Principal Designer handover

4.8.1 Scenario description

"Over the course of some projects it is necessary for the PD to change, resulting in a handover of information. This scenario is interested in understanding the factors that influence handover."

4.8.2 Situation 4.1: On some projects, the need to handover information from one PD to another is not identified – why?

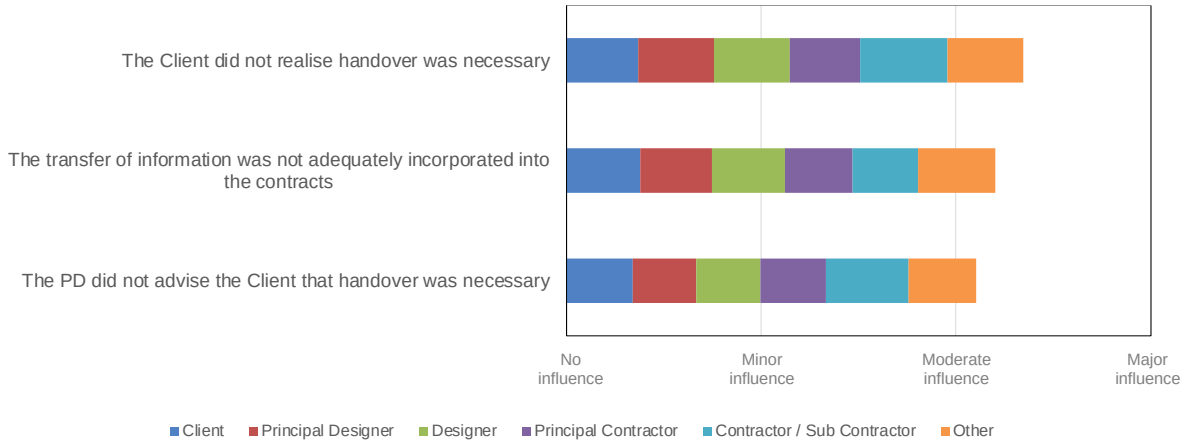

Figure 4-11 The extent to which a range of explanations may influence Situation 4.1

Respondents provided 68 additional written explanations / comments. Common themes included:

- Handovers do not often happen when required
- Handovers are not just an issue between PDs – clients do not handover well to PDs, and PDs do not handover properly to PCs
- Handing over to an individual is different to an organisation

Responses included:

- *"Continuity of PD role should be considered as a priority to maintain built up knowledge and understanding and change of PD should be considered as a last resort"*
- *"There is usually a handover to a company rather than an individual, as PC is usually very slow to appoint or identify an individual"*
- *"We undertake a handover where this is applicable, many times when we pick up a project the PD has not been undertaken so there is no handover or has been done poorly"*

4.8.3 Situation 4.2: Despite detailed information being provided to a new PD, the details are not all acted on by the new PD – why?

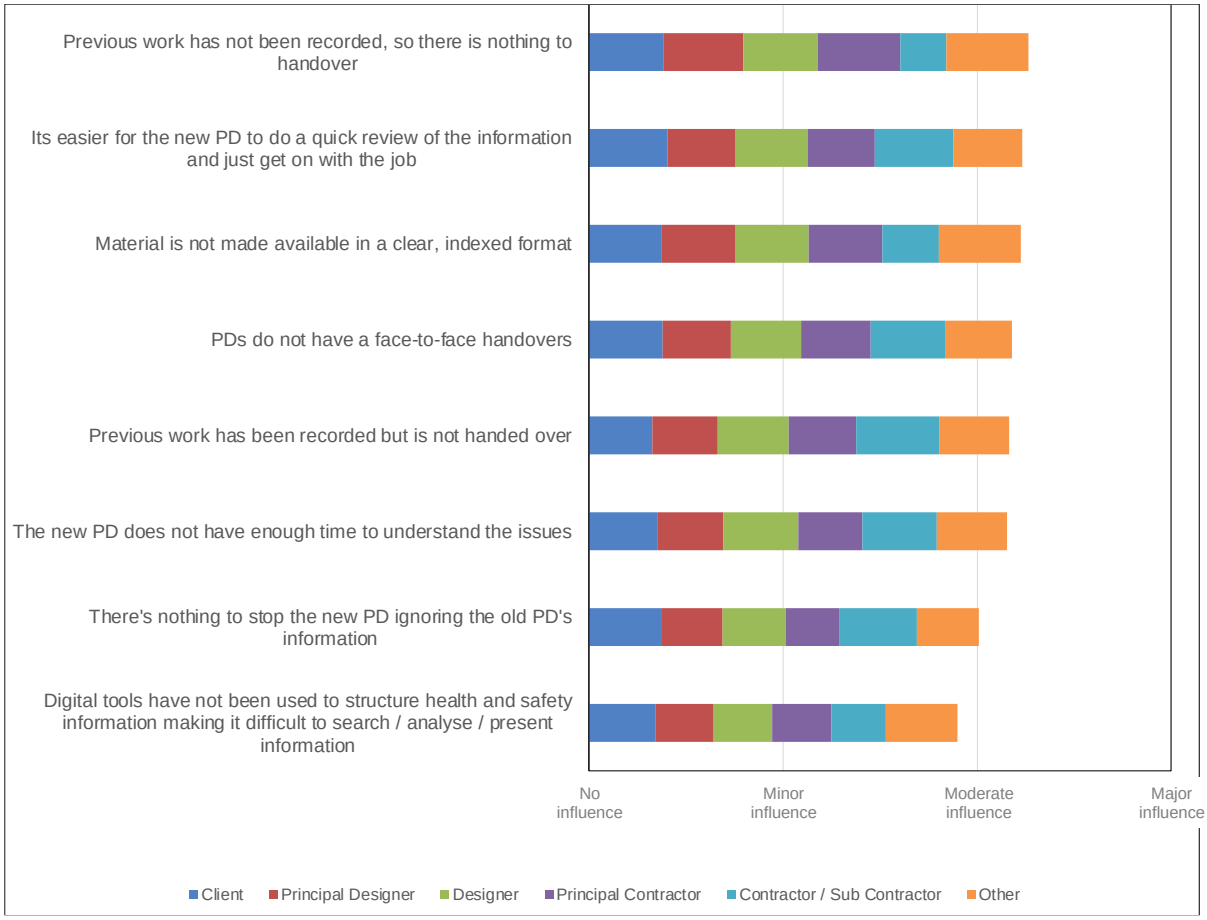

Figure 4-12 The extent to which a range of explanations may influence Situation 4.2

Respondents provided 45 additional written explanations / comments. Common themes included:

- The new PD is dissatisfied with the work of the previous PD
- New PDs are having to go back over previous decisions and find information themselves

Responses included:

- "*The new PD has been thrown in the deep end and has to get information from the PC who then says it is your job"*
- *"The new PD is unsatisfied by the quality of the old PD's work"*
- *"In our experience when taking over the PD role working under a D&B Contractor, the information provided is usually woeful and all risks are noted down as PC to develop, even with RIBA Stage 4 design complete, there is often no access & maintenance strategy etc so you basically have to start at the beginning"*

- *“Some PDs with dubious SKET consider they don’t need others help”*

4.8.4 Summary of findings for Scenario 4

Scenario 4 was focussed on handover between PDs over the course of a project. Feedback indicates that handovers should be avoided where possible as the process risks important information being lost. Where the need for handover is not identified, this is often down to the Client not realising a transition was necessary.

The new PD may not act on the details received from the outgoing role holder, and this can happen for a number of reasons, ranging from: there being limited information recorded so there is little to handover, it just being easier to get on the with the job, and material not being made available in a clear format. The incoming PD may also be dissatisfied with the work of the outgoing PD, meaning that any handover is of limited value.

From a behavioural analysis perspective, handing over PD duties should be avoided as it risks fragmenting work and undermining the effectiveness of the planning, managing and monitoring activities – this is especially so for unplanned handovers. Issues around information not being recorded properly, not being available in a clear format and the incoming PD not having enough time, all point to the PD role not being planned adequately, nor resourced properly. At present there are limited consequences for this, other than to reinforce negative views held about the PD role.

5. Specific issues with implementing the PD role

The findings in this section are based on the responses provided by stakeholders in relation to the questions in Appendix B. The views are those of the organisations consulted based on their experiences, and some of the views may not be compatible with the existing legislation.

5.1 The suitability of people and organisations being appointed to the PD role

Stakeholders were of the opinion that, while there are occasions when the right person (or organisation) is selected as PD, there are perhaps too many times where the role is misunderstood and the appointment inappropriate.

5.1.1 Demonstrating sufficient skills, knowledge and experience in design and health & safety

Some stakeholders indicated that Clients, Project Managers and Designers need to better understand the skills, knowledge and experience required to undertake the PD role.

There was a perception that Clients are effectively expected to appoint a PD on trust. However, Clients need to understand that the PD is competent and want to know who the key PD staff will be.

Some stakeholders expressed the opinion that PDs should also demonstrate that they have sufficient skills, knowledge and experience in design and health & safety by accreditation, CPD and professional development records with their professional and design-based institutions. This is similar to the requirements of PAS 91 and was thought to be preferable to a more ad hoc appointment process.

However, concerns were expressed that appointments have been driven by what certain parts of the industry consider to be appropriate, and the '*construction industry has just carried on with CDMC*'.

5.1.2 The required background of key PD personnel

Concern was expressed by some stakeholders that some health & safety practitioners who undertake the PD role had no design experience. By way of example, stakeholders referenced job adverts for PDs where '*95% will ask for NEBOSH and a few years of experience'*. As the National Examination Board in Occupational Safety and Health (NEBOSH) qualification was seen as main qualification, the jobs were more likely to appeal to people with health and safety backgrounds rather than Designers.

Referring to infrastructure projects, a stakeholder noted that '*the PD role first and foremost is largely an engineering design oversight role, requiring an individual or an organisation of that ilk to undertake it. It is not a role for the H&S generalist or even the H&S construction advisor, rather it is for an organisation (or an individual on some of the smaller scale, less complex projects) who can demonstrate they possess the appropriate engineering design*

competences, a thorough knowledge of the design and the construction process (relevant to the commission being undertaken) and experience of same.'

Referring to the background required, a stakeholder questioned '*how will the PD pick up design issues that have been accepted by building control but are 'wrong'?*'

5.1.3 Site and construction experience

Stakeholders were of the opinion that the PD needs to understand design and construction risk and that the lack of understanding of construction was a challenge.

Stakeholders raised the issue of the general lack of site experience among Designers. Insufficient emphasis was thought to be placed on this during professional development and reviews.

5.1.4 The impact of the individual

Several of the stakeholders suggested that effectively discharging the role hinges on the diligence and persuasiveness of the individual undertaking it as opposed to how good their organisation appears to be. It was suggested that, in the majority of cases, the individual was not authoritative enough.

It was also suggested that the role is more effectively discharged by those who have technical qualifications as opposed to those who have managerial qualifications.

5.1.5 Sufficiency of resources

The comments on resources took several forms including:

- PDs who only had a 'few hours' budgeted to undertake the role
- Programme Manager PDs that were responsible for many projects
- PDs that needed to maintain their utilisation by working on multiple PD roles simultaneously

Some companies were selling the PD service as a 'bolt on' to other services which meant the prices charged by the PD offering a 'bolt on' service were impossible for other PDs to compete with; however, the Client was not felt to be reviewing this issue objectively, just taking the cost saving, rather than considering whether the resource would have sufficient skills, knowledge and experience.

5.1.6 The need for control

Regulation 5(1)(a) requires the Client to appoint in writing a '*a Designer with control over the pre-construction phase as Principal Designer*'.

There is concern among some stakeholders that some have interpreted this as any third-party Designer with health and safety credentials who is appointed by the Client at pre-construction design stages and / or at construction stage. There were concerns that this leads to low-cost PDs who assume a CDM-C approach leaving all the design coordination to the Designers, who do not themselves attract any additional fee to reflect the additional activities.

Some stakeholders suggested that the Protect Manager was the right person to do the PD role as they were in a position of control and could make decisions.

5.1.7 Appointment of the Lead Designer as PD

Some stakeholders were of the opinion that the appointment of active Lead Designers at all design stages, including construction design, should be the default PD position on a project with additional support provided by CDM advisors if the Lead Designer was not initially confident in their PD abilities. It was suggested that the role needs to be discharged by the Lead Designer in meetings to drive actions though.

Equally, some organisations only take on the PD role when they are Lead Designer and have the necessary control.

Some stakeholders thought that the Architect skill set is compatible with that of the Lead Designer.

Some Clients want the PD to be the Lead Designer, Engineer or the Architect despite them not having the health & safety SKE. Although they appoint the Lead Designer to the role, they do not request the appointment of a CDM advisor to provide the necessary skills, knowledge and experience.

5.1.8 The use of CDM advisors to help the PD discharge the role

Stakeholders noted that there were still organisations who appointed CDM advisors to help with the day-to-day issues of the PD role rather than integrate it within their business.

Such an appointment was considered to have pros and cons, with some stakeholders highlighting the value added by external CDM advisors whilst others considered this to be 'outsourcing 'the PD role.

5.1.9 The pros and cons of internal and external appointments

Some housebuilder organisations were of the opinion that architects were unwilling to do the PD role and, as such, they set up the role internally.

The reasons for this approach were:

- Ability to exert control as the Directors are duty holders
- It provides a team of people with all the skills who can make decisions
- External consultants are not up to speed
- PDs are in control as they have control of the budget

Some stakeholders raised the issue that where the PD role is carried out by the Lead Designer or a Designer on the project, there is the risk that they will not have the authority to question their own colleagues' design. This might be due to them being less senior, their role not being valued within their organisation or company politics.

Some Clients value the PD role and are happier to appoint an independent PD as they can interrogate all Designers, and drive design reviews and coordinate with the Designers on acceptable solutions.

There is also the option of a composite solution where some Clients assign internal technical people to undertake the PD role but allow them to appoint a CDM advisor where they do not have sufficient skills, knowledge and experience.

5.1.10 Discharging the PD role as an organisation

Some stakeholders expressed concern that some PD organisations used the fact that they would be discharging the PD role as an organisation as an excuse for not having suitable individuals for a particular project.

5.1.11 The importance of the Client

Stakeholders indicated that where Clients really understood their duties and value the PD role, then the right appointments get made. However, there are also still poor appointments being made.

Some stakeholders noted that some Clients need help in discharging their duties but had lost the Client advisor when the CDM Coordinator in CDM 2007 was replaced by the PD in CDM 2015.

5.1.12 Checks by the Client as part of their management arrangements

Regulation 4(6)(a) requires the Client to take reasonable steps to ensure that '*the Principal Designer complies with any other principal designer duties in regulations 11 and 12*'.

Stakeholders indicated that some Clients employ an independent CDM advisor to check that the PD role is being done. However, others suggested that rather than the Client checking the PD, the PD should provide assurance to the Client that they are discharging the role.

5.1.13 The relation with the nature of the project

Stakeholders indicated that the appointment of suitable people and organisations appears to depend largely on the nature of the Client and, to some extent, the size of the project.

This was thought to be particularly problematic on the smaller project where there can be a large range of risks (and the corresponding range of skills is missing). However, even on large jobs this same situation can occur.

5.1.14 Sufficient knowledge of temporary works and the construction process

Stakeholders indicated that, in many cases, the PD had lacked sufficient knowledge of temporary works and the construction process.

Some stakeholders indicated that Architects might not have temporary works experience, and there may be a need for a CDM advisor to advise on temporary works.

5.1.15 The definition of Designer

Some stakeholders raised the issue that the definition of Designer in CDM 2015 is too broad, and it does not distinguish between professionally qualified designers (e.g. architects, civil and/or structural engineers, etc.) and those others who might make decisions that affect designs (e.g. quantity surveyors, project managers, clients, etc.).

This lack of distinction was felt to contribute to the latter category taking on the PD role, with a lot of PDs not having a professional design background.

5.1.16 Influence of insurance

The willingness of those who already have the authority and control within the design team to discharge the PD role effectively was suggested to be influenced by resources, cost and perceived liabilities.

Stakeholders referred to anecdotal accounts of problems with insurers being unwilling to provide adequate cover for the PD role.

5.1.17 Access and future maintenance

Regulation 11(3)(d) imposes a duty on the PD in relation to ‘maintaining or cleaning a structure’. Stakeholders raised concerns about access and future maintenance being not thought about much.

5.1.18 Project complexity

Stakeholders noted that on some major projects, the PD role seemed to be lacking in clear leadership and decision making. This is in part due to the size of the project and due to the PD not being the Lead Designer.

5.2 The extent to which Principal Designers are authorised and empowered to undertake the role effectively

Stakeholders were of the opinion that the PD role is not a natural one that emerges from the way the construction industry works – it has been created by the regulator and has not been readily accommodated across construction. The PD appointment does not sit easily alongside the contractual frameworks used within the construction industry. The key themes to emerge are discussed in this section.

5.2.1 The control of the budget

It was noted by stakeholders that if the PD is not given authority by the Client to control a budget, they are effectively superfluous. Any key decisions need otherwise to be routed via the Client (who sits at the apex of all the various contractual arrangements in place for a construction project).

Some stakeholders appointed their own senior staff as the PD representative and noted that whoever generates change has to go through the Technical Director in his role as PD to get that change approved.

Unless the PD has authority given via the Client as the result of another role (e.g. Project Manager or Designer), they would not be empowered to authorise surveys etc, although they have a duty to advise the Client if further surveys/reports are required.

Within some organisations, the Project Manager is generally the lead person in the team delivering the PD role (with support from a specialist) as the Project manager has control over the budget.

5.2.2 The ability to challenge

If their PD fees / appointment allow them, PDs can organise Design workshops at appropriate gateways, they can challenge other Designers and cost consultants and escalate decisions on design risks.

It was suggested that it was difficult for third-party PDs to hold Designers to account as they do not have contractual relationships with them.

Stakeholders noted that in conflicts of this type, the Client often resorts to asking the Designer "*What do you normally do?*" and the Designer saying, "*This is what we always do, and what we have priced to do.*" As such, the PDs suggestions are ignored.

5.2.3 The role of the Lead Designer

Stakeholders indicated that PDs who are Lead Designers have the authorisation and are empowered to discharge the PD role whereas an external third-party PD would not be in that position.

Some stakeholders suggested that external PDs were not close enough to the day-to-day design business to understand the complexity of issues requiring attention and their appropriate mitigation measures.

It was noted, however, that if the Lead Designer is not appointed as PD they still have to organise or challenge all these issues, without the additional empowerment of the PD appointment.

How a Lead Designer might be defined legally was thought to be unclear. Is it the lead discipline (and, if so, at what stage of the project)? Or does each discipline have a Lead Designer? Within a project, for example, there may be several Temporary Works Designers. They need to work together. One of them should be the Lead Designer and responsible for considering any interfaces and ensuring a holistic approach to the design.

It was also suggested that there appears to be a nervousness by those in the natural seats of control (such as Lead Designers) to take on PD roles as an integrated aspect of their appointments.

5.2.4 The influence of the key individuals

Several stakeholders suggested that authority comes predominantly from the individual. However, to achieve this, there is a need for the PD to convince other professionals that they know what they are doing. If the PD gets accepted as an 'insider' then that makes it easier.

It was suggested that skills, knowledge and experience count for little without authority and resources, the two additional attributes that underpin capability.

It was suggested that more enlightened Contactors and Clients may allow the PD to have more authority and empowerment, otherwise the PD has to rely on the force of personality to get things done.

Other stakeholders indicated that some PDs do have that empowerment, but they were not sure whether it comes from personal capabilities or improved appointment.

It was suggested that authority could be as a result of the person's specialist knowledge / understanding and the authority to take the appropriate decisions.

It was also suggested that a design background helps the PD to convince others of the necessity of new surveys.

Interestingly, it was suggested that even on major projects with good cultures, because of the size of the organisations and the contractual arrangements in place, the PD often has little power. They can succeed by personal respect and influence but that, on its own, was not viewed as sufficient for what is an important legal role.

5.2.5 The influence of the Client

Stakeholders suggested that the impact of the Client was extremely variable, and this is heavily dependent on their relationship with design team members. It was also suggested that there was a difference between developer and owner Clients as owner Clients were perceived to have greater interest in the whole life of the building and were willing to invest accordingly.

Intelligent clients appear to be generally well equipped, although it was questioned as to whether they gain the full benefits of PD appointments.

It was suggested that, to help, Clients should authorise PD in meetings and encourage other Designers to contribute.

5.2.6 The influence of the Principal Contractor

Stakeholders suggested that it was difficult for Principal Contractor-appointed PDs or CDM advisors to make direct contact with the Client given that the Principal Contractor was paying them.

Equally, it was suggested that when the Principal Contractor uses its own staff to undertake the PD role those staff have multiple additional roles to fill. This could be an explanation as to why Principal Contractors appoint a separate PD.

5.2.7 Contracts

It was suggested that the PD appointment does not sit easily alongside the contractual frameworks used within the construction industry, most of which have their roots pre-CDM 1994.

5.2.8 Clarity over who is making what decisions

When undertaking construction work in major hazard industries, there is an expectation that the provisions for authority and empowerment would be included in Licensee's processes and arrangements. In addition, it was suggested that there should be clarity and an audit trail over who makes decisions in relation to that construction work, whether they are professionally qualified engineers focused on engineering or Project / Programme Managers, cost consultants and Licensee's client function who are focused on delivery and financial priorities.

5.2.9 The design team

Some stakeholders indicated that the functions of the PD would sit more comfortably within existing design team(s). This is an area where the PD (one who is experienced in design and the design) can properly add value to safety.

5.2.10 Size of scheme

Stakeholders suggested that PDs had better empowerment and authority on larger projects where there may be more mature Clients. They also suggested that on small projects, the fees were much less, and the PD would be more concerned about keeping within the budget.

5.2.11 The PDs interaction with temporary works

Stakeholders noted that, for temporary works, the current arrangement of the PD's role in respect of design continuing into and during the construction phase should be discontinued. It was noted that, contractually, this is the responsibility of the Principal Contractor and risk thrives at interfaces – only one 'person' can plan, manage, monitor and coordinate.

Stakeholders noted that if the PD role is to continue then any guidance to the industry needs to state that they should establish effective dialogue with the Principal Contractor's Temporary Works Coordinator.

Concern was expressed about how the PD would be able to influence temporary works if they do not have the relevant experience.

Frustration was noted in relation to coordination with Principal Contractors regarding temporary works design, noting the response '*no other PD has ever asked us to do that or get involved*' when they try to set up periodic coordination meetings, request the temporary works register or wish to have some aspects of the temporary works designs checked with the permanent works designers.¶

5.3 The Principal Designer role on design and build projects

The findings in this section are derived from the views those of the organisations consulted based on their experiences, and some of the views may not be compatible with the existing legislation.

5.3.1 The Principal Contractor taking on the PD role

Stakeholders indicated that the PD role on Design and Build (D&B) projects has been a challenge for the regulations. Stakeholders assumed that the Principal Contractor can be the PD after contracts are signed, because they are theoretically in control of the design at the construction stage.

Views were mixed in terms of the pros and cons of the Principal Contractor undertaking the PD role.

Those in favour suggested that:

- On D&B projects, the functions of the PD are more suited to the Principal Contractor, who has overall responsibility for the temporary works (through their Temporary Works Coordinator)
- Contractually, it makes sense for the Principal Contractor to be the PD, otherwise the Client's PD can be easily left out of the loop, or potentially accused of causing delay and extra cost etc.
- The natural place for the PD rests with those who control the design process; on a D&B project this will be the overall delivery Contractor as they have the authority to resolve any differences between all parties, provide a single voice to the Client, and also have a vested interest in cooperation overall
- The overall delivery organisation has responsibility of planning, managing and monitoring both design and construction, in all aspects, not just health and safety and as such the arrangement provides value to the Client and strength to the project
- Temporary works are naturally included within such an arrangement
- It works well if Principal Contractor brings constructability knowledge to the project
- It gives the PD role some authority if the Principal Contractor is PD

Those against appointing the Principal Contractor as PD suggested that:

- When the Principal Contractor is undertaking the PD role, they do not pick up the design issues as well as construction issues in the Health and Safety File
- As consideration of access and maintenance issues may increase the construction cost, this may encourage the Principal Contractor to push the maintenance issues into the operations phase
- Some Principal Contractors, when pressed, indicate that the design process is going on simultaneously all over the country but then coordination only gets done a week before things go on site
- Some Contractors may not have the necessary experience in relation to temporary works
- The Principal Contractor is the paymaster and, as such, the PD cannot give advice to the Client
- It is far too easy for the PD to be excluded, and they can be limited in the meetings they are invited to attend
- Having to communicate with the Client via the Principal Contractor makes it difficult to get information on maintenance etc. from that Client
- D&B projects are typically conducted at speed with important coordination meetings going on that the PD is not aware of
- The PD may not have the courage to get Permanent Works Designers and Temporary Works Designers to engage
- The prime driver for difficulties for the PD is because the D&B contractor has already submitted their price, and are loathed to make any changes or engage with a PD who might want to challenge them

5.3.2 The use of external PDs

Stakeholders suggested that if the Principal Contractor was appointed as PD, they could then 'appoint' an external CDM advisor to help undertake the day-to-day PD role. Under these arrangements the independence of the 'PD' from the Principal Contractor would be lost. If the Lead Designer is either novated to the Principal Contractor or appointed externally, then a theoretical conflict of interest prevents the Lead Designer being PD.

A potential solution is for the Client to appoint as PD the Designer with control of the pre-construction design (including during the construction stage). This overcomes the conflict of interest with the Principal Contractor and retains the independent design authority achievable on other forms of contract. As the PD and Designer are the same organisation, the PD is less likely to be excluded.

Whilst some stakeholders suggested that external PDs were at a disadvantage, others suggested that if the PD is delivering something positive then there are no real issues with the Principal Contractor and cooperation.

5.3.3 The need for a CDM advisor when the Principal Contractor is undertaking the PD role

Stakeholders suggested that few large Principal Contractors undertake the PD role themselves and, when doing so, often bring in a CDM advisor to help. In such cases, the Principal Contractor may delegate responsibility for some functions to the CDM advisor although they retain accountability.

It was suggested, in such an arrangement, the CDM advisor may not understand the Client needs and is not in a position to influence design.

Some stakeholders suggested that the Principal Contractor's PD representatives often do not get that involved with the discharging the PD role. Consequently, the CDM advisor effectively ends up 'doing a cut-down version of the PD role' with the design consultants left to do their own coordination. Because of budget constraints the CDM advisor does not have the fees to undertake many of day-to-day PD activities that have not been priced for.

It was also suggested that additional insight from the initial design process could be brought by the Client appointed PD after the contract has been awarded if they subsequently act as the CDM advisor to the Principal Contractor undertaking the PD role.

5.3.4 The need for a Client CDM advisor

Some stakeholders suggested that it was essential for the Client to retain a post-contract CDM advisor to monitor CDM arrangements and design changes, and to ensure the Client has the opportunity to discuss and review design proposals.

If the Client is appointing the PD post contract, and the appointed PD organisation is also the Client H&S advisor, they will be regularly visiting the site and seeing progress and reviewing on site arrangements.

5.3.5 Implications for the Client

It was suggested that the Client requires advice on the implications of the PD appointment on D&B projects post contract award.

Some noted that the PD typically has even less influence with a D&B contractor, and thus recommend to Clients that the role is transferred to the D&B contractor on appointment. However, sometimes the D&B Contractors refuse the Client's request to appoint them as PD.

5.3.6 Clarity on appointments

There were suggestions that some kind of flowchart showing who is best placed to do the PD role in certain contract formats would be useful.

5.4 Handover of the Principal Designer role

It was noted that the handover from one PD to another should not cause problems, and it does happen primarily on D&B projects. However, it does rely on the competence of individuals.

Some disliked the idea of the PD role being handed over as information can be lost and design risk management (DRM) conversations are repeated. It was also suggested that it causes difficulties if the handover is late, and the design is underway as there may be a need to change previous decisions.

It was suggested that the handover of information between PDs was essential and that, for continuity, visually coordinated information is vital, due to timescales of projects or changes of personnel in the PD / Lead and Designer teams and the project complexity.

It was noted that risk thrives at interfaces and interfaces are one of the main causes of problems in any construction project. As such, a handover between PDs – who may have different and conflicting ideas – can be difficult to manage. Frequent 'passing of the baton' is likely to result in poor coordination.

It was suggested that a good handover would include coordination and recorded Design Risk Management processes to ensure that the design evolution is made available to the new PD to avoid revisiting design options already considered and designed out. Key identified design risks must also be handed over to the other PD as part of the contract documents.

It was also suggested that where temporary works are required the Principal Contractor's Temporary Works Coordinator should be the PD for that area of work as they are more suited and experienced (generally) in undertaking the required coordination between Contractors, Permanent Works Designers, Temporary Works Designers and the supply chain providing the equipment required.

However, it was acknowledged that getting Designers to record what they did in design strategy records was always going to be difficult and this may impact on the quality of information handed over.

Some noted that the handover information is often woeful and, sometimes they did not even know who the previous PD was.

It was noted that it was also common for CDM advisors to be transferred from the Architect to the Principal Contractor. This can encourage consistency although it could get complex contractually.

Concern was also expressed in relation to the quality of the Health & Safety File not being appreciated by PCs delivering the PD role or following the termination of the PD role. It was suggested that many PCs still seem to think it is an Operations and Maintenance (O&M) Manual containing information received from suppliers.

5.5 Other issues

5.5.1 Definition of the PD role

Stakeholders suggested that the criteria for appointing a PD in CDM 2015 (more than one contractor anticipated on the project) was not helpful. The Principal Contractor is there to coordinate multiple Contractors who work in parallel / together. As such, the PD role should be to coordinate multiple Designers who work in parallel / together.

The definition of PD as a '*Designer with control over the pre-construction phase'* differs from that for the Principal Contractor who is '*a Contractor'*. A need for clarity was expressed to make it clear whether the PD is coordinating multiple Designers in respect of health and safety in design or whether they are in control over the pre-construction phase which includes construction.

Questions were also raised as to whether the intent of the PD role should be to just manage the pre-construction phase, or whether there should also be clear leadership of the pre-construction phase.

5.5.2 Clarity of the PD role

Stakeholders expressed the need for clarity in what is required of the PD role so that Clients are aware of the services they need to procure, and PDs are aware of the services they need to provide.

This clarity may require Clients to be a bit more prescriptive in their service requirements to drive consistency.

5.5.3 The onerous nature of the PD role

Stakeholders noted that, done properly, the PD role is an onerous one. The PD role requires skills, knowledge and experience of design, construction, maintenance and operational as well as health and safety.

It was suggested that this may be part of the reason why some, such as Lead Designers, do not want to take on the role.

There were suggestions that there was a need to create a PD role that is more achievable for people to do.

5.5.4 The need for the PD

The question about the need for the PD was raised. Good designers (whether permanent works or temporary works) act professionally and diligently and, as such, it was suggested that they should not need someone who does not have direct design involvement in the project.

It was suggested that the PD role cannot continue to be an additional minor role allocated to an existing more dominant role.

5.5.5 The Lead Designer

It was suggested that the benefits of the Lead Designer being the PD need to be better explained and understood by all parties including PDs, Clients, Contractors, Designers and Professional Indemnity Insurers. It was suggested that insurers just see this PD role as another potential claim risk and want to off-load the duty as soon as possible to another insurance policy.

It was noted that by not appointing the Lead Designer as PD the potential design safety benefits of having a PD are never realised in the main.

Others raised a note of caution whereby some Clients also undertake the PD role but then introduce a Lead Designer role through contractual appointments. Some of those Lead Designer contracts require the Lead Designer to undertake some of the PD activities even though the Client is PD.

5.5.6 The definition of Designer

It was noted that HSE's definition of Designer encompassed a wide range of organisations and individuals who could attract design duties:

- **Explicit Designers –** professionally qualified Designers (e.g. architects, civil and/or structural engineers, etc.)

- **Implicit Designers –** those others who might make decisions that affect designs (e.g. quantity surveyors, project managers, Clients, etc.)

However, there was a significant difference between explicit and implicit Designers, and it was felt that this should be recognised within CDM.

5.5.7 Designer duties

Concern was raised that despite 25 years of CDM there is still a lack of understanding about significant residual risk. In particular, Permanent Works Designers do not know how far to go. It was suggested that they still provide generic information that is of no benefit, and the message that you do not need to tell a competent Contractor what they already know appears to have been lost.

5.5.8 Whether the PD role should be undertaken by a Designer on the project

Some stakeholders expressed concern about the HSE preference for the PD role to be held by either the Lead Designer or a Designer on the project. This was considered not to recognise the value that a suitably competent independent PD could bring to hold all Designers to account on design risk.

5.5.9 CDM advisors

Stakeholders noted that the loss of the CDM Coordinator role in the move from CDM 2007 to CDM 2015 left a void as the Client was left without an advisor. Industry filled this void with the CDM advisor – the role is still needed as is evidenced by the number of CDM advisors.

It was also noted that CDM advisors were regularly appointed by Principal Contractors and other organisations who had been appointed as PD but did not have the necessary capability or resources to discharge the PD role.

However, concern was expressed that the CDM advisor role was not recognised in either CDM 2015 or the L153 guidance.

There were also suggestions that the Client advisor needs to be recognised as a CDM 2015 duty holder (even though they would have duties under other health and safety legislation).

5.5.10 Late appointments

Problems were noted when the PD is appointed post-tender. At that stage any issues raised by the PD are not costed. It is then difficult to get them addressed as the Principal Contractor's tender has already been accepted.

5.5.11 Safe construction sequence

It was noted that Permanent Works Designers (and thus PDs) should provide information about the indicative construction sequence, showing how their design can be built safely. Contractors may then adopt this method or develop their own approach.

This was included explicitly in Paragraph 134 of the CDM 2007 ACoP but has not been included in the L153 CDM 2015 Guidance. This was considered to be an important point that should be mandated for Designers and PDs as it is essential that the design can be built safely.

5.5.12 Temporary works and pre-construction information

It was suggested that as part of bringing together the pre-construction information the PD should also consider the information required by Temporary Works Designers (not just the Permanent Works Designers).

If a PD does not have expertise in temporary works, then they should seek input from a specialist. Early contractor involvement was encouraged as a potential solution.

5.5.13 Health and Safety Files

Stakeholders expressed concerns about Health and Safety Files. In particular, there were concerns that existing Files are rarely updated and, in some instances, nobody knows where the File is.

Concerns were also expressed about the quality and accuracy of the information in Health and Safety Files. This leads to their contents not being trusted and surveys being commissioned

to satisfy duty holders that they have access to the appropriate information (to be sure and to satisfy Professional Indemnity (PI) insurance requirements).

Some stakeholders perceived that there was no duty in CDM 2015 to ensure that the information in the Health and Safety Files is accurate (Regulation 12(6) states that '*The principal designer must ensure that the health and safety file is appropriately reviewed, updated and revised from time to time to take account of the work and any changes that have occurred.*'). Getting as-built drawings was acknowledged to be difficult as people want to move on to the next project.

5.5.14 Recording design risk management decisions

Stakeholders considered it important for the Design Risk Management (DRM) schedule to contain records of why design decisions were made. This would help to ensure that the reasons for these decisions were not lost in value engineering workshops.

5.5.15 Engineering decisions are being taken by non-Engineers

Concern was expressed that changes to designs undertaken by Engineers may be made at a later date by people who are not qualified as Engineers (for instance, in value engineering or on site) and who may not appreciate the safety implications of those changes. This was then compounded if the PD did not have an appreciation of the safety implications of those changes either.

5.5.16 Guidance

The issue of improved guidance was raised in relation to the need for:

- More guidance on what must be done to discharge the PD role so that Clients are aware of the services they need to procure, and PDs are aware of the services they need to provide
- A simple ACOP type document for small and micro builders
- Guidance that leads to more standardisation of documents so that people know what is expected of them
- The necessary skillset must be made clear
- The whole life (concept to demolition) responsibilities must be made

Stakeholders also highlighted guidance that was available now or in the near future that could help PDs in discharging their duties. This included:

- The RIBA Plan of Work DRM Toolkit (accessible by RIBA members)
- ICE Publication: '*Designing a Safer Built Environment: A complete guide to the management of design risk*' (published on 5 May 2021)

- ICE '*Guidance for design risk management – Improving design risk management (DRM) in the construction industry*' (free to download)

- Confidential Reporting on Structural Safety (CROSS) reports of near misses and lessons learned. Designers and PDs can use this to identify issues similar to those on their projects and potential design risk management solutions (free searchable online database)

5.6 Other issues raised by the survey respondents

Question 81 of the survey asked respondents *"Are there any comments that you would like to make in relation to the PD role?"* A total of 209 people responded to the question, although many simply stated that they had already commented elsewhere or didn't have anything further to say.

Of those that did provide further comments, almost all raised issues that had already been extensively covered elsewhere – either when respondents commented on the strengths and barriers to PD implementation, or when they were proposing solutions to overcoming the challenges of implementation.

For example, issues that were raised again included:

- The opposing views around whether the PD should be an independent appointment or part of the Lead Designer team;
- The appropriateness of a PD / CDM for smaller projects (e.g. domestic housing, designing car parks, etc.);
- The need to consider different sectors (e.g. rail, highways, public, private, etc.);
- PD competence to match project complexity;
- Clarity around responsibilities in the Design Phase versus Construction Phase;
- The need to appoint a PD early on; and
- External competency accreditations.

There were no significantly different additional comments, suggesting that the key issues had been sufficiently captured.

6. What has worked well with the PD role

Both the survey respondents and the stakeholders were asked a question relating to what has worked well with the PD role. The findings in this section are based on those responses.

6.1 Survey

The survey asked respondents, *"In a very few words, what do you feel are the 3 key successes that the PD role has had in bringing about improvements to health and safety in the construction industry?"*

For each of the three successes stated, the responses were categorised under common themes. The findings for the first success are presented in Figure 6-1. The term 'Other' was used to classify those responses that could not be classified under the themes listed and did not occur frequently enough to warrant a theme of their own.

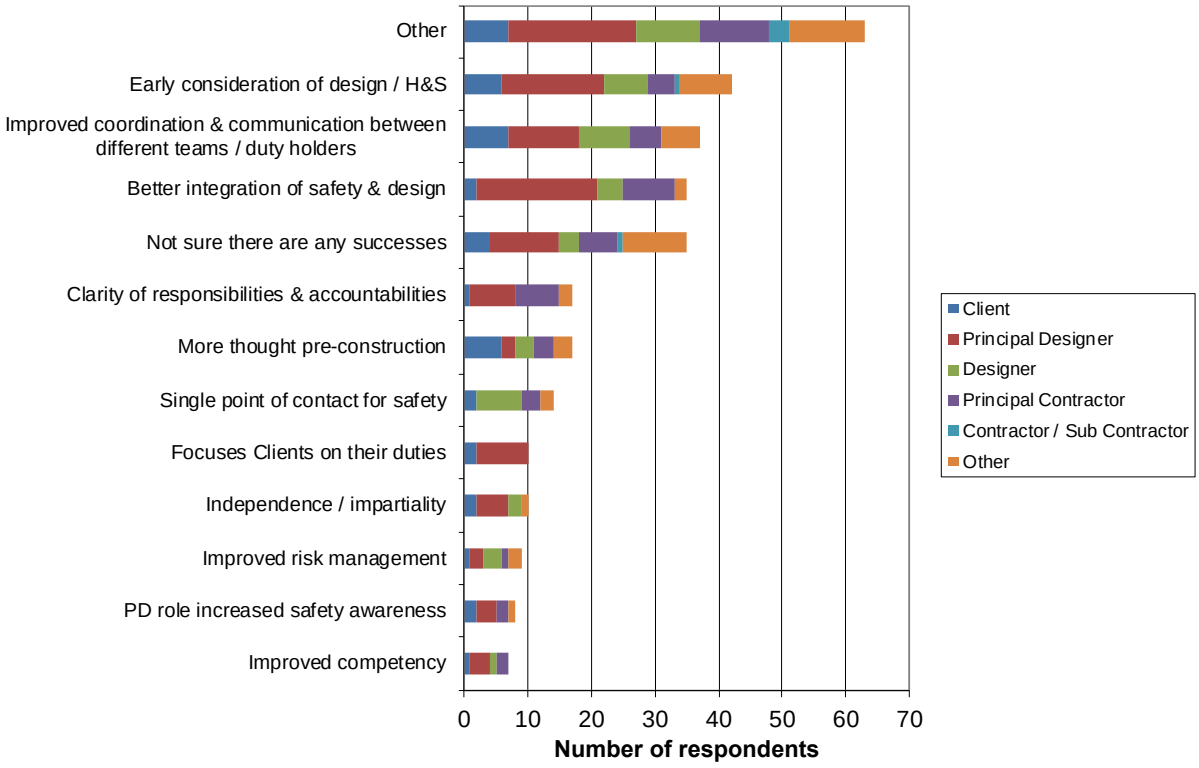

Figure 6-1 Key Success 1 (n=315)

Figure 6-1 highlights that the most frequently occurring success was that there was an earlier consideration of design / H&S in construction projects. The PD role was also felt to have brought about improved coordination and communication between the different project teams and duty holders. One respondent explained that the PD role was useful for *"collating and providing construction H&S risk management information to all who may need it, such as designers, contractors, and workers."*

Another frequently occurring success was that the PD role was good for more generally integrating safety and design in a more effective way. These responses suggest the role has been important for raising industry awareness around design risk.

There was also a group of respondents that felt there had not been any notable successes. One such respondent noted, *"the PD role has never been adopted by the lead architects and is avoided by contractors. I therefore feel the duties of the PD have been heavily subsidised by company and persons previously providing the CDM C role. If anything, I've seen less focus by designers on CDM since 2015 and more focus on avoiding the risk of taking on the role."*

The findings for the second success are presented in Figure 6-2.

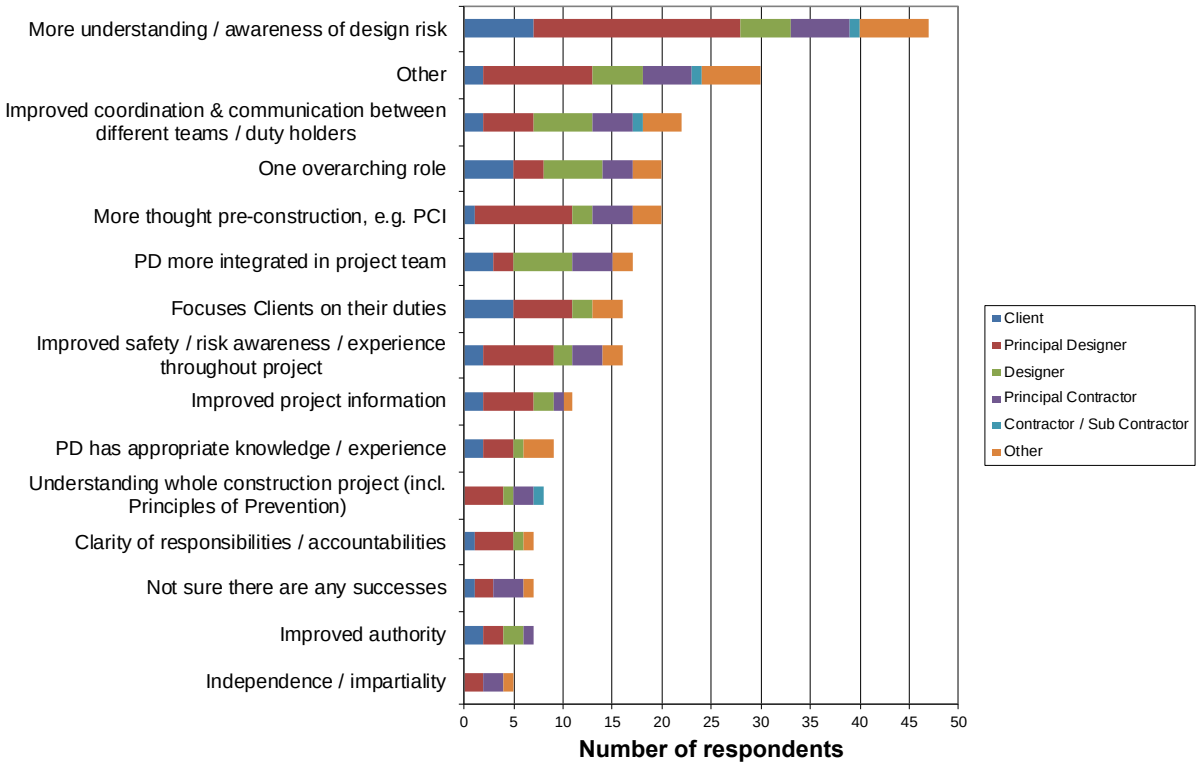

Figure 6-2 Key Success 2 (n=247)

Figure 6-2 highlights that improved coordination and communication was a frequently occurring theme again. Also related to the previous graph, the largest proportion of respondents highlighted how the PD role had been important for raising awareness around design risk.

Other frequently occurring successes included the PD being more integrated on the project team, more thought being given to projects pre-construction, having one overarching role with project oversight, having improved risk awareness throughout a project and encouraging clients to focus more on their duties.

The third and final set of success are presented in Figure 6-3.

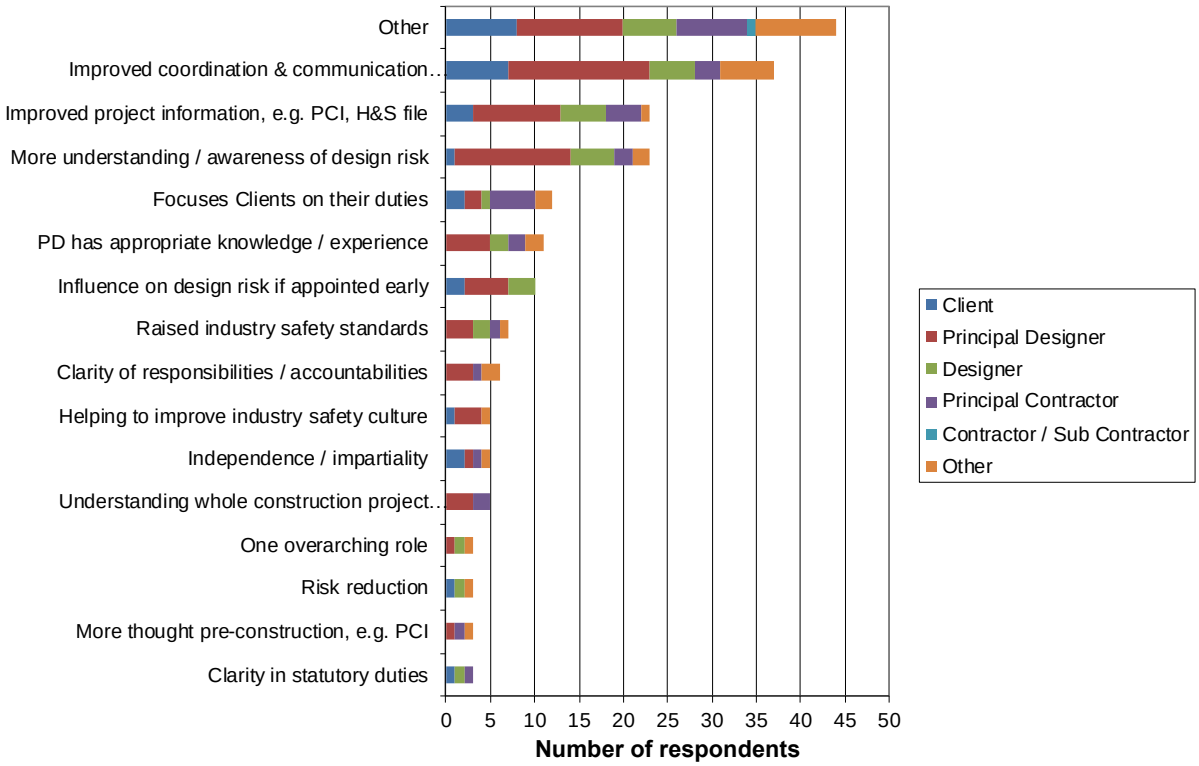

Figure 6-3 Key Success 3 (n=201)

Figure 6-3 highlights that yet again a large proportion of respondents picked up on the PD role helping to improve the coordination and communication between different teams and duty holders, helping the industry to become more aware of design risk, improved project information (e.g. pre-construction information (PCI)) and focusing Clients on their duties under CDM 2015. Suggesting these successes are key in terms of what the PD role has brought to the construction industry.

6.2 Stakeholders

Whilst a small number of stakeholders indicated that it was difficult to discern any successes, most of the stakeholders did identify successes with the PD role.

6.2.1 The PD role would have been undertaken anyway

Stakeholders suggested that on the larger more complex projects, the PD role would have been undertaken anyway as part of the coordination activities due to the need for coordination and the number of interfaces that needed to be managed. The statutory nature of a role that would have been undertaken anyway was considered to be helpful in embedding that role within the project.

6.2.2 Design Risk Management has been promoted

Some stakeholders saw the PD role as a positive step change from the CDM Coordinator role in CDM 2007. In particular, they saw CDM Coordinators as focusing on health and safety risks but being 'hands-off'. In contrast, they see the PD role as a hands-on and proportionate design risk management role that is undertaken by those who are also Lead Designers on projects. The change in emphasis from a 'health and safety lead' to a 'Designer lead' was considered to be positive as this meant that the role was embedded in design organisations and there was more awareness of the implications of design decisions.

However, others suggested that any industry-wide successes are more likely to be linked to a continuation of a CDM Coordinator-type role rather than specifically to the PD as this meant that someone with a safety background was involved in the design process.

Other successes were considered to be where the PD was educating the Client and design team on the Principles of Prevention, encouraging them to design out residual risk and agreeing controls for the accepted residual risks.

6.2.3 The role of independent PDs

Some stakeholders suggested that as the PD does not have to be a Designer on the project, this has enabled independent PDs and PD companies to develop the PD role as an independent duty holder with no attachment or allegiance to the other project Designers. This was considered positive as it enabled them to challenge the identified residual risk.

6.2.4 Clients who appreciate the value of the PD particularly on infrastructure projects

There were some indications that on larger projects with intelligent clients, the PD role was discharged more effectively and thus demonstrating the influence of the Client.

It was also suggested that where Clients really understand both their duties and the PD role they were more likely to fully engage and value the PD appointment and ensure a competent, timely PD appointment.

Differences between sectors were highlighted, with the suggestion that in infrastructure projects the Clients are more mature, and the PD role is better understood. In contrast, it was suggested that one-off commercial client hire external PDs and the approach is not as collaborative.

6.2.5 Earlier appointments

It was suggested that the PDs duties are more defined and the duty to appoint the PD as early as possible has made progress on timing of the appointment resulting in PD having greater influence.

6.2.6 Adds clarity to roles and responsibilities

The PD role was considered to add clarity to roles and responsibility in some projects. The PD role was also considered to give a platform for continuity. It was suggested that accountability has improved as has understanding.

6.2.7 Influence of behavioural safety programmes

It was suggested that improvements in safety have come from:

- Individual Designers, and Contractors and Clients having their awareness raised
- Their cultural / behavioural safety programmes which have spilled over into safety in design
- Aspects of BIM development

6.2.8 The use of BIM

It was suggested that on major projects, the examples of PDs leading the development of safety information integrated with BIM is a good success, and this will eventually filter down to smaller projects when the tools become simpler to use.

6.2.9 The PD role and the Project Manager / Director

It was suggested that the PD role works well when undertaken by Project Manager / Director as they are in control, manage the budget, can take decisions and get things done.

It was suggested that what is required is for all engineers to be properly trained in CDM so that as Project Managers they can carry out the PD role. This starts with graduate engineers – they learn the CDM aspects of their role via specific company training and on projects (not a half day course) and are then able to carry this on forward with confidence.

7. Barriers to implementing the PD role

Both the survey respondents and the stakeholders were asked a question relating to the barriers to implementing the PD role. The findings in this section are based on those responses.

7.1 Survey

The survey asked respondents, *"What do you feel are the 3 key barriers to implementing the PD role?"* For each of the three barriers stated, the responses were categorised under common themes. The findings for the first barrier are presented in Figure 7-1. The term 'Other' was used to classify those responses that could not be classified under the themes listed and did not occur frequently enough to warrant a theme of their own.

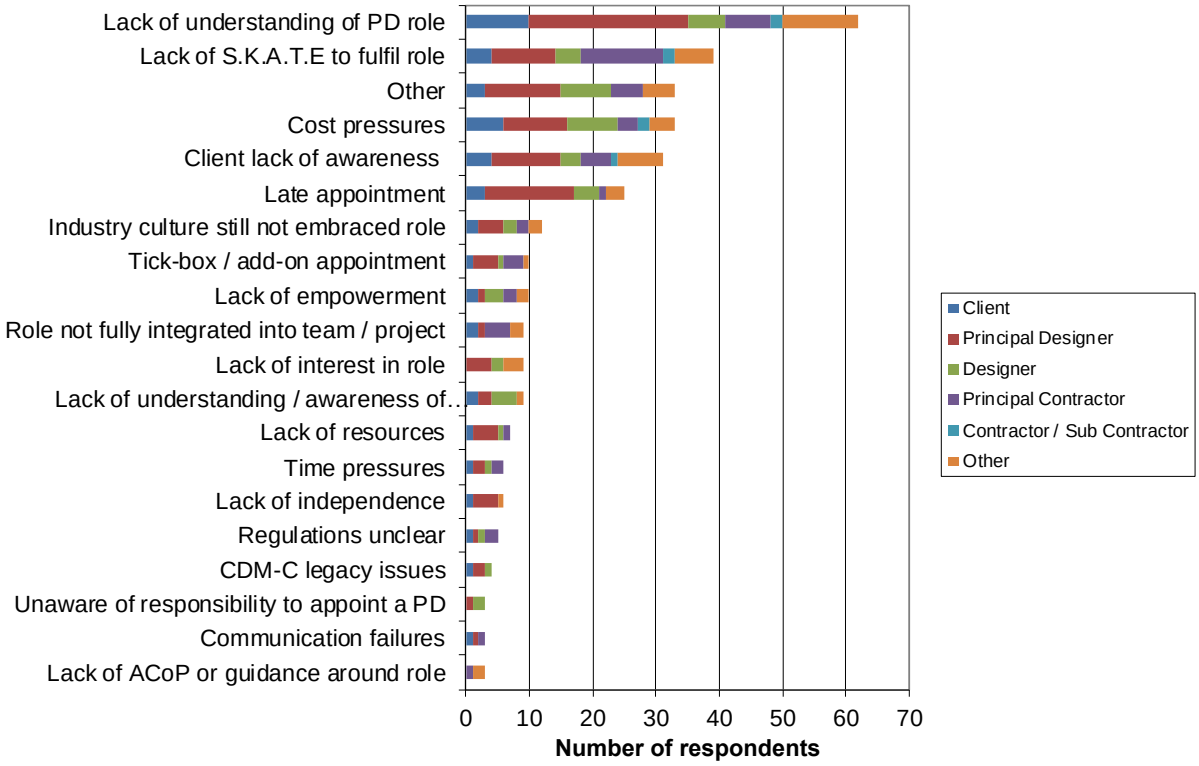

Figure 7-1 Key Barriers 1 (n=320)

Figure 7-1 highlights how the most commonly cited barrier to implementing the PD role was a lack of understanding of the role. One respondent explained, *"the purpose of the role is not understood, most activities were already taking place by other parties, the addition of the PD role confused things".*

Other barriers commonly given included a lack of competency (Skill, Knowledge, Attitude, Training and Experience (SKATE)) to fulfil the role, commercial pressures to deliver project as cost effectively as possible, Client's lack of awareness of their own duties under CDM 2015 and appointing the PD late into the project.

In terms of not being appointed early enough, one respondent explained, *"late appointments from Client (i.e. making the appointment at Stage 4 (sometimes just before tender)) when most design decisions have already been made. I would really like to see there being an "Absolute Duty" to appoint the PD at an early design gateway. Think this will be addressed in the Building Safety Bill, but I would like it to be a CDM requirement*."

The second set of barriers are presented in Figure 7-2.

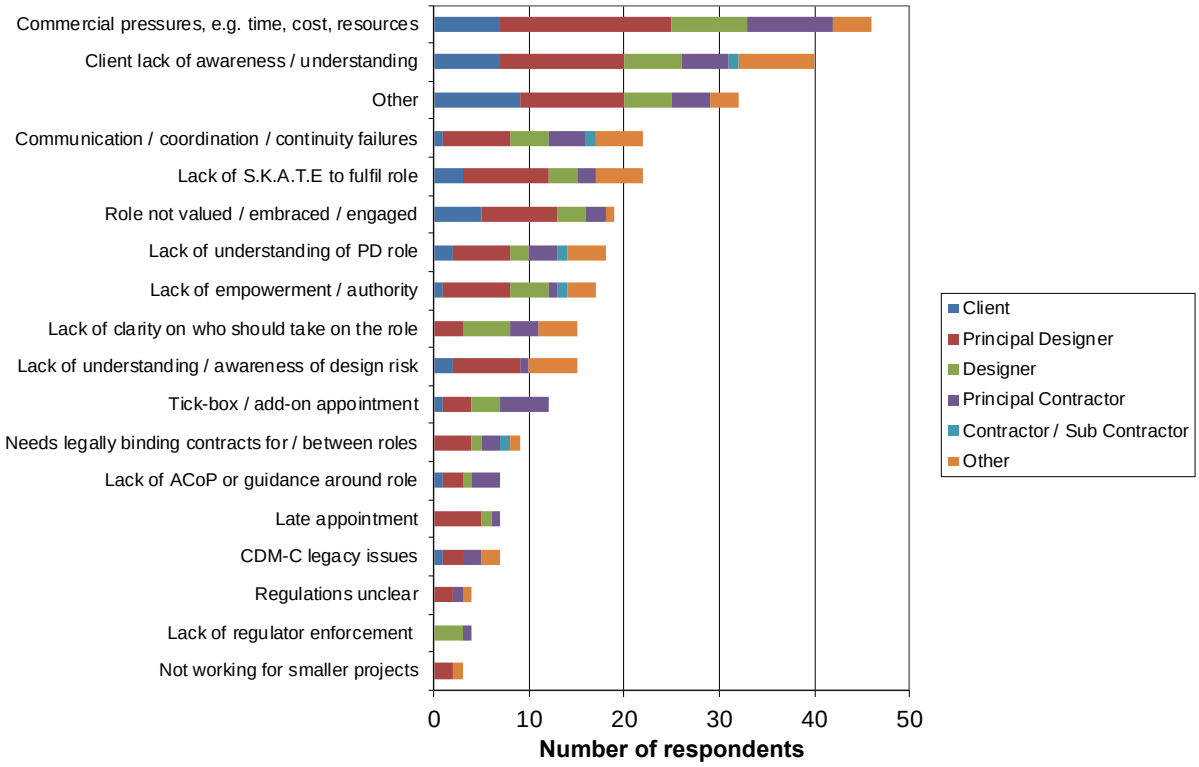

Figure 7-2 Key Barriers 2 (n=299)

Figure 7-2 highlights how the most frequently occurring second barrier were commercial pressures to deliver the project, including cost and time constraints, as well as resource limitations. The Client and their lack of understanding or awareness of the role, CDM 2015 and/or design risk also featured as a frequently occurring barrier to the implementation of the PD role. Similarly, a lack of understanding around the role itself, a lack of SKATE to fulfil the role, a lack of industry awareness around design risk in general and a lack of role authority were all stated as key barriers. The role was also felt not to be embraced sufficiently by industry.

Interestingly (as this had also been stated as a success), coordination, communication and continuity failures had also been commonly cited as a barrier to implementing the role. One example of this was stated by a respondent as, *"the lack of interaction in the design process leads to risks being missed."*

The third set of barriers are presented in Figure 7-3.

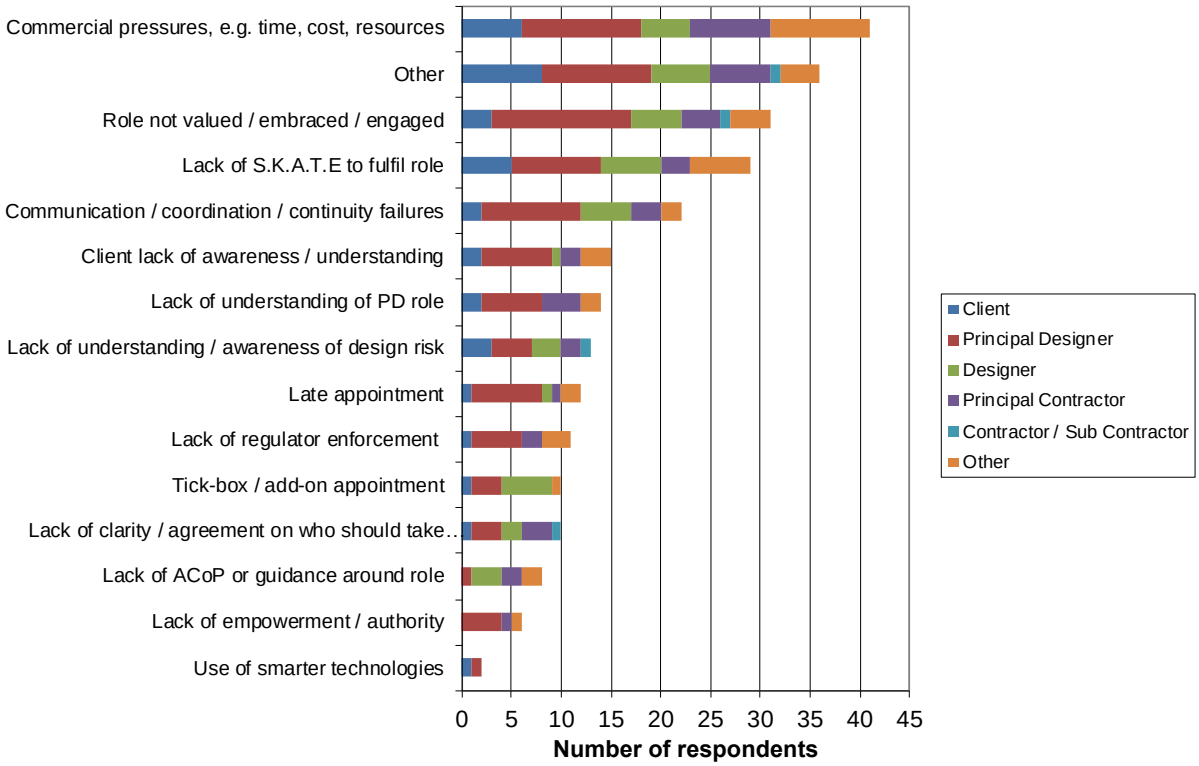

Figure 7-3 Key Barriers 3 (n=260)

Figure 7-3 highlights how many of the same barriers featured in the third and final set of barriers to implementation. The most commonly cited barrier was commercial pressures (e.g. cost, time and resources). This came from both sides; commercial pressure to not procure PDs until absolutely necessary, as well as pressure on PDs to keep fees low for what is actually a high liability role. The role not being valued, embraced or engaged by industry also came up as a common barrier again, along with lack of SKATE to fulfil the PD role, and communication/coordination/continuity failures.

These findings suggest a lack of understanding across industry regarding the concept of design risk (e.g. principles of prevention), as well as the PD role itself and therefore its potential value may be making Clients question the commercial benefits of appointing a PD. In order to encourage Clients to appoint PD's early on, the findings suggest there needs to be a better understanding (and ideally tangible evidence) of what the PD role actually is and the value it will bring (e.g. H&S, cost, time). Unfortunately, because the tangible value may not be explicitly recognised in the pre-construction phase, it may be making it harder for Clients and Principal Contractors to justify the cost to the project early on meaning they don't embrace or engage PD's until they absolutely have to.

7.2 Stakeholders

7.2.1 Confusion and uncertainty over what is required of the PD role

A range of issues were raised that indicated a degree of confusion and uncertainty existed over the role of the PD that were acting as barriers to the role being implemented. These included:

- The requirements for Planning, Managing, Monitoring and Coordinating are not clear
- There is a lack of guidance on appointments; in particular, a need was identified to specify appointments by contract route
- Clients were asking for the PD role even though they do not know what is required or what it offers
- Many Clients are still reluctant to issue PD appointments in writing – as such, the PD appointment has not been made and defaults back to the Client
- Some tenders still ask for a range of services that reflect the Planning Supervisor role in CDM 1994 or the CDM Coordinator role in CDM 2007 rather than the PD role in CDM 2015
- The reticence of former CDM Coordinators to accept this change and their provision of potentially misleading information regarding the intentions of the PD role to Clients and Contractors
- Some people see the PD has having an 'operational' role rather than an oversight role with Clients also asking for Construction Phase Plan (CPP) and Risk Assessment and Method Statement (RAMS) reviews
- Some PDs add in additional services and this muddies the waters as to what the Client should expect from a PD
- The role of the CDM advisor needs to be defined in order to clarify the differences between an advisor and a PD

Others commented that they have had to educate professionally qualified / competent construction professionals on what the PD role was and, more importantly, what the CDM Regulations require of them.

7.2.2 Unwillingness of some Designers to take on the PD role

It was noted that some Designers do not necessarily want to take on 'coordination for health and safety' even though they are coordinating the design. They think it attracts extra liability.

The potential liability was raised as a concern and is causing issues in relation to professional indemnity (PI) insurance. PI insurance is costly and, as such, some architectural practices

stepped back from undertaking the PD role. It was suggested that those costs were causing issues with external PDs.

It was also suggested that historic attention to 'all health and safety risks' has led to an aversion among Lead Designers to taking on the PD role. It has not been fully appreciated that the PD role should concentrate on significant risks, not the routine or standard risks that should be managed by competent Contractors.

7.2.3 Unwillingness of some Contractors to take on the PD role

It was suggested that some Clients are 'forcing' the Principal Contractor to take on the PD role. However, some Contractors do not take on the PD role due to PI insurance issues whilst other Contractors form a joint venture with consultants to offer the PD role.

7.2.4 The role is not valued

It was suggested that the PD role is under-valued by Clients and not greatly valued by Tier 1 Contractors

7.2.5 Fee levels

Low PD fee levels were indicated to be a significant barrier. It was suggested that it is not uncommon for PDs to be told they have less than 10 hours budgeted for the Principal Designer role. The acceptance by some of PD the role without fee (tagged onto another role) has diminished the PD role and has made it difficult for other PDs to compete.

It was suggested that this may also be a reflection of what little value the Clients, Lead Designers or Contractors believe they obtain from the PD.

7.2.6 The range of competences required

It was noted that the range of skills, knowledge and experience required, for the role may include designs that cover civil, structural, architectural, building services, temporary works, fit out, etc. As such, it cannot realistically be covered by one individual.

However, for many organisations that range of skills, knowledge and experience is not necessarily there (and specifically with regard to temporary works). Fees, which are effectively constrained by the market, do not allow for multiple people to cover the role. Hence, the PD role is not adequately resourced.

It was also noted that the PD role is analogous to Principal Contractor and needs the range of skills.

7.2.7 Variation in competence of PDs

It was noted that the PD role is onerous if done properly, and the breadth of skills, knowledge and experience required is wide-ranging. However, some PDs appeared to lack sufficient design experience to undertake the PD role.

7.2.8 Procurement and contractual relationships

It was noted that procurement in the construction industry is often complex and can complicate the PD role as the PD:

- Has duties relating to multiple Designers often appointed by sub-sub-contractors, with which the PD has no contractual relationship
- Has responsibilities, but no authority unless they are undertaking another role on the project (such as Lead Designer or Project Manager)
- Organisation often sits uncomfortably between statutory duties and a Client from whom further works is sought

7.2.9 Late appointments

The issue was raised that some Clients are still not appointing the PD early enough to influence the design. Also, Contractors can be appointed at RIBA Stage 3 (Developed or Spatial Design) in 'design-led' appointments.

An example was identified of a procurement where minimum or no pre-construction information (PCI) had been prepared on the basis that design and build (D&B) would be used to procure the project. Consequently, the preference is to get the D&B Contractor to take all the risk and obtain additional surveys to provide the PCI. It was noted that this will also result in increased cost.

7.2.10 Empowerment

It was noted that, contractually, PDs are not empowered. If a Client does not act on a PD's recommendations, for example to invest in additional surveys, then the role is ineffective.

7.2.11 Bypassing the PD

Stakeholders raised the issue that the PD can be bypassed in some projects and expressed concern about what happens if the PD has been bypassed.

It was suggested that some Client Project Managers may not have a full understanding of PD role and, as such, were not involving the PD adequately. This then resulted in poor coordination and communication on the project.

Other examples were identified of developer Clients and Project Managers selecting the components of the PD role they required so reducing the PD role and its effectiveness.

7.2.12 Temporary works and the construction process

The point was raised that there was a lack of sufficient knowledge of temporary works and the construction process among some PDs.

There was also a failure to recognise that the pre-construction phase (in the form of temporary works design) continues throughout the construction phase and, as such, there was little PD interaction with Temporary Works Designers (TWD)

In addition, some stakeholders had encountered an unwillingness amongst Temporary Works Designers to engage with PDs.

Where the PD does interact with the temporary works, it was noted that there can be confusion about whether the Temporary Works Coordinator (TWC) or the PD should be doing the coordination.

It was noted that the lack of early engagement in considering temporary works issues and the failure to recognise that periodic constructability reviews would have consequences later on.

7.2.13 Confusion over delegating the PD activities and duties

It was suggested that people who 'outsource' the PD role to a CDM advisor think they are offloading their statutory PD duties as well as the day-to-day PD activities. Many of these organisations are thus unaware of duties they have been attracting.

7.2.14 Projects that require more planning than design

An issue was identified in relation to of the role of the PD in those projects where little traditional design is required but considerable planning is needed. The example of a roof replacement project was used where it was not obvious what a PD would bring to project. In this situation the PD role may best be done by the Principal Contractor themselves within their Health and Safety department and the Client should consider appointing the Principal Contractor to undertake the PD role.

7.2.15 Differences between sectors

Concern was expressed about their being 'two separate industries', with large infrastructure projects operating to a higher standard.

7.2.16 Design and build projects

In Design and Build (D&B) projects where the Principal Contractor is also undertaking the PD role, it was suggested that those fulfilling the role typically have addition roles too (e.g. Health & Safety, Temporary Works or Design Manager).

The PD may also be stretched by working across other schemes that a Principal Contractor is involved in.

7.2.17 The role is not a natural fit within the industry

It was suggested that the PD role is not a natural derivative of the UK construction industry. Indeed, the introduction of someone within the team, specifically to check on what others should be doing as a matter of course, is an indictment on the industry itself.

7.2.18 Clarity of the CDM Designer duties

The issue was raised as to how a PD can practically determine the adequacy of a Designer's work with regard to CDM 2015 if there is little clear guidance available for Designers to use as the yardstick to assess against.

7.2.19 Understanding among Designers

It was noted that many Designers assume that the Design Risk Management responsibility is solely for the PD and not the Lead Designer. A lack of understanding of CDM was also highlighted.

7.2.20 Contractor appointments

It was suggested that sometimes the PD / CDM advisor appointed by the Principal Contractor will have little contact with the Client and does not have direct control.

The initial PD may be replaced at the start of the construction phase by a Principal Contractor's employee, acting as PD. However, this means that the knowledge gained by the first PD is lost.

7.2.21 Managing the interfaces

It was suggested that one of the major concerns is the risk at interfaces and there is concern about who is responsible for those interface risks.

8. The value that the PD role could potentially bring to future projects

Both the survey respondents and the stakeholders were asked a question relating to the value that the PD role could potentially bring to future projects. The findings in this section are based on those responses.

8.1 Survey

The survey asked respondents, *"How would you describe the value that the PD role could potentially bring to future projects?"* The findings on a scale of 'High' to 'Low' are presented in Figure 8-1. The term 'Other' was used to classify those responses that could not be classified under the themes listed and did not occur frequently enough to warrant a theme of their own.

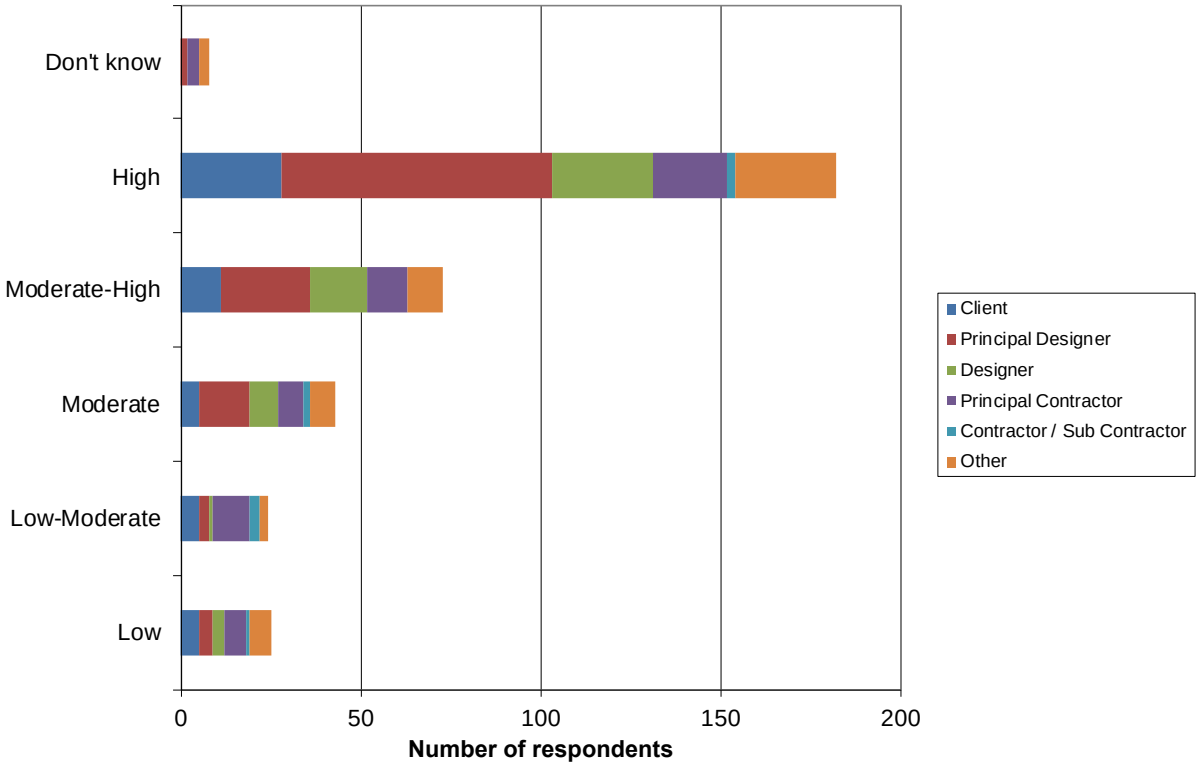

Figure 8-1 The value the PD role is perceived to bring to future projects (n=355)

Figure 8-1 indicates the largest proportion of respondents (51%) indicated that they felt the PD role would bring a 'High' value to future projects, whilst 21% considered that value to be 'Moderate-high'.

The survey then asked these respondents why they gave the value rating 'High'. Figure 8-2 presents the main reasons given.

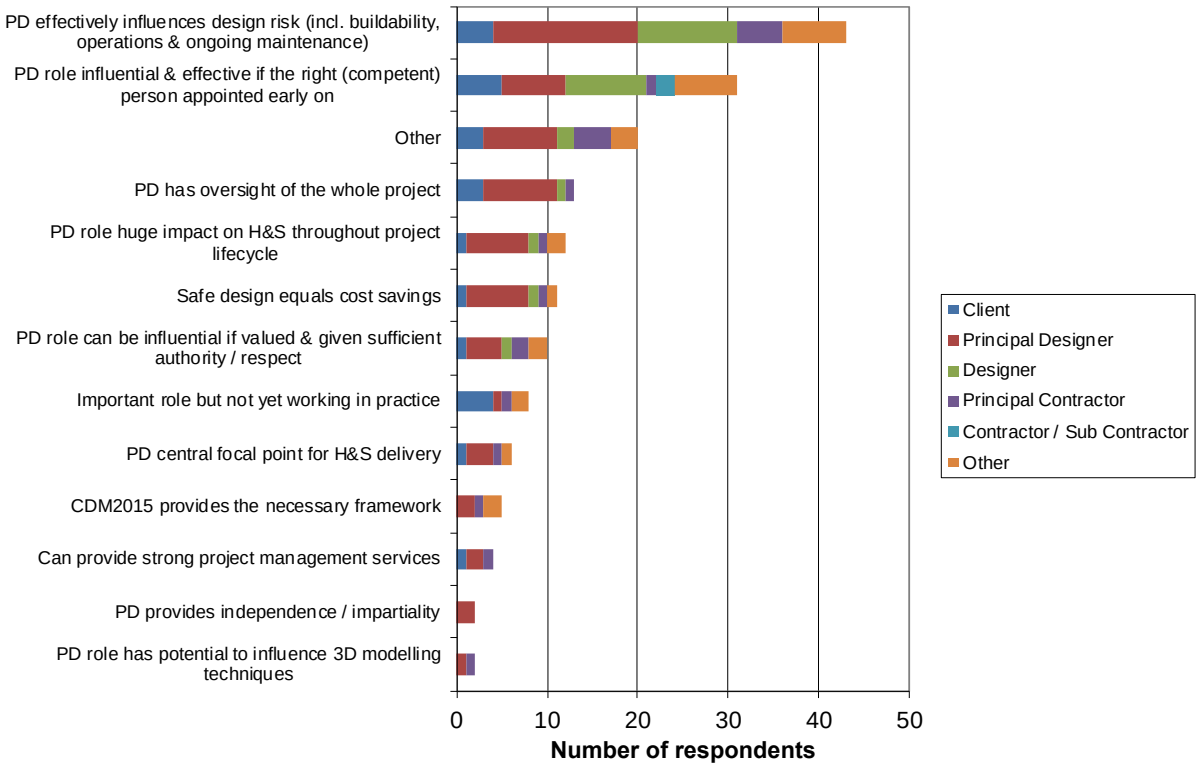

Figure 8-2 Reasons for thinking the PD role could bring a 'High' value to future projects (n=182)

Figure 8-2 indicates that the most frequently occurring reason why PDs could bring a high value to future projects was felt to be because they effectively influence design risk – which embraces the whole project lifecycle from buildability, to operations to ongoing maintenance.

Another frequently occurring reason was considered to be if the right (competent) person was appointed to the project early on, they could be influential and effective on the project. One respondent explained, *"A good PD can add value, reduce cost and improve safety if involved at an early stage to effectively ensure safety in design and changes in design to prevent accidents during the construction phase and O&M phase."*

8.2 Stakeholders

When looking forward, some stakeholders focussed on the value that could be brought purely in relation to CDM 2015, whilst others also considered the PD role in the context of future Building Safety Regulations (BSR).

The potential value that PDs could bring was typically caveated by the need to have the right people doing the role properly. This included:

- The role, properly done can indeed bring value but not without resolution of the previously mentioned items
- By using the RIBA Plan of Work Design Risk Management Toolkit, the PD role can be executed and delivered on all projects in a proportionate, intelligible and demonstrable manner
- The benefits outlined in the question could be realised within traditional design arrangements; however, a clear project brief and early consideration of temporary works issue (e.g. early contractor involvement) is essential – Permanent Works Designers and Temporary Works designers need to work together closely
- A strong PD role, with authority and resources brings added whole life value – properly integrated across the design / pre-construction elements is a strength, but it does need to work closely within the Client's arrangements
- A fully trained PD, engaged from the very start can make a big difference to projects but, at the moment, the industry is making do with ex CDM Coordinators which are not helping; Designers also need to be properly trained
- If the PD is doing the role properly then there should be ways of improving the project e.g. maintainability

Some without caveats included:

- A good competent independent PD adds to the project in a constructive way by interrogating the design with the Client and design team all the way through the pre-construction phase, especially under more traditional contracts where only specialist packages include a design element post contract; they can discuss and review value engineering design risk and stop design choices being based purely on cost.

However, there were some who thought that the PD would bring little value and the role should be scrapped and all responsibility placed on Designers.

In relation to the BSR, some stakeholders were of the opinion that the PD role could add value although it was difficult to provide detailed comments as the BSR PD role had yet to be defined. However, views were expressed that the PD role will be onerous in Building Safety Regulations.

9. Potential solutions to overcome the issues identified

Both the survey respondents and the stakeholders were asked a question relating to potential solutions to overcome the issues identified. The findings in this section are based on those responses.

9.1 Survey

The survey asked respondents *"What solutions would you propose to overcome any of the challenges that you have identified in implementing the PD role?"* A total of 303 people responded to the question, although many provided more than one suggestion each. Figure 9-1 presents the main suggestions proposed. The term 'Other' was used to classify those responses that could not be classified under the themes listed and did not occur frequently enough to warrant a theme of their own.

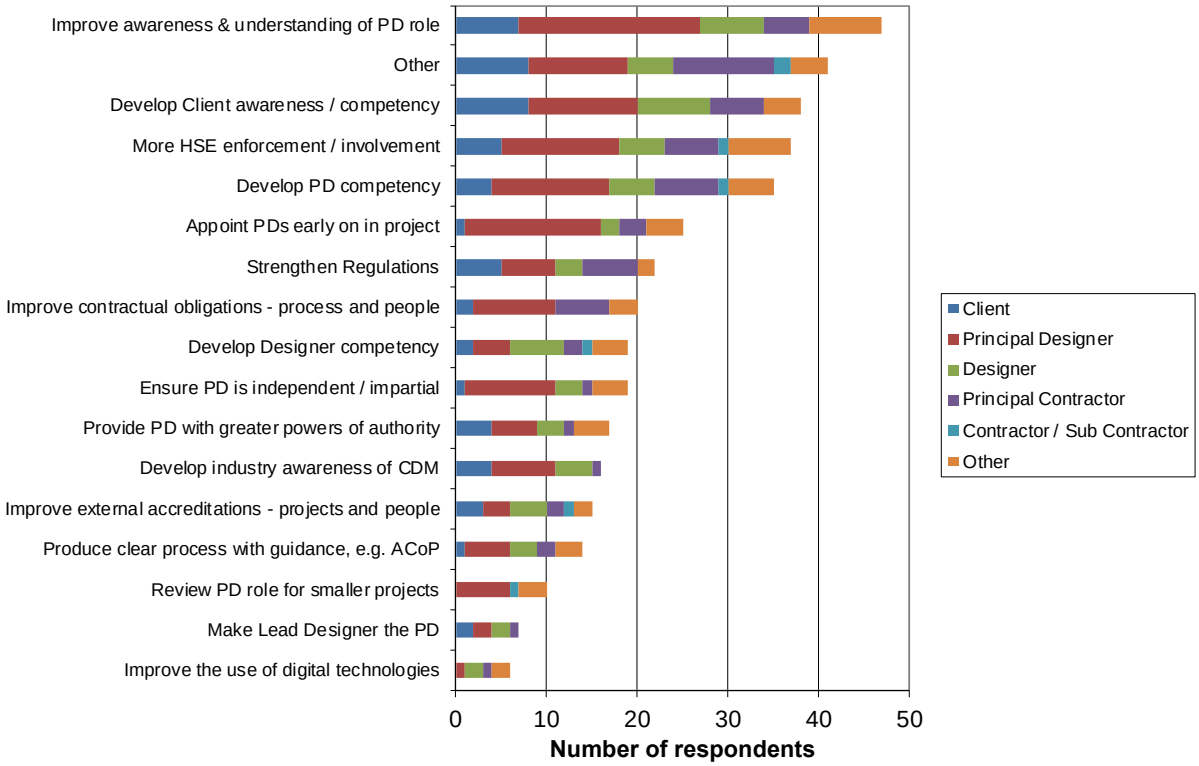

Figure 9-1 Potential solutions proposed for overcoming the challenges of implementing the PD role (per response)

Figure 9-1 highlights the most frequently occurring solutions proposed. Representative comments for each of these solutions have been identified and reproduced verbatim in the following text.

9.1.1 To develop the Client's awareness/competency of their own duties under CDM, as well as develop their understanding of the PD role.

- *Ensure Client (particularly in the public sector) better trained to understand their duties and the need to appoint a PD from the outset of the project.*
- *Educate clients to appoint chartered and experienced H&S / PD consultants.*
- *Produce a 'short guide for clients' on PD role [we use CITB guides]*
- *Client needs to understand risks and implications of not fulfilling their duties, including formal appointment of PD.*
- *There should be a greater emphasis to make Clients aware of their obligations by education or enforcement, or a combination of both.*
- *Client requires undertaking a mandatory health and safety regulation awareness course.*

9.1.2 Increase the level of HSE enforcement action and involvement in the overall CDM process.

- *More enforcement by the Regulator.*
- *HSE to up level serious involvement including the issue of improvement notices and threat of legal action.*
- *Ensure HSE policing is visible to industry so that dodgers have some fear of being caught out.*
- *Still waiting for HSE to knock on a few principal designers' doors to see how they are actually discharging their duties and perhaps when that happens standards and expectations will change.*
- *More enforcement action on projects during design stage.*
- *More visible coverage in the media/ HSE publications on case studies or prosecutions where there have been failings in PD duty holders.*
- *What is the F10 for? A clearer audit trail by HSE would help - maybe H&S construction phase plans should be 'lodged' with HSE.*
- *A form of reporting back to the HSE to demonstrate clear involvement from all parties in supporting the PD role.*
- *Independent companies with the knowledge and skills should be appointed by the HSE to audit the CDM process at several times of the year and across specialist sectors. The*

HSE can follow up and apply fee for intervention and possible prosecution to ensure that all costs are covered.

9.1.3 Improve the overall awareness and understanding of the PD role and the value it can bring to the whole construction project lifecycle.

- *End the role of the CDM advisor*
- *An HSE-led education programme, along the lines of recent campaigns in relation to construction related healthcare issues, to emphasise the importance of the role and the value it can bring if discharged correctly.*
- *Why can't the client just appoint a H&S consultant to advise him on all H&S matters? including CDM? Why complicate matters by calling someone a 'Principal Designer'?*
- *Rename the role - the term Principal Designer leads people to believe the role is primarily about Design when it is in fact primarily about CDM and Health and Safety.*
- *Provide more high scale case studies on PD in CDM doing well (or not so) to bring it to life.*
- *Bring some exemplar cases against a few big council/NHS/Prison Service Clients*
- *The role needs to be clearly and unambiguously defined (not left to interpretation) with defined competence that outlines H&S qualifications.*

9.1.4 Develop the PD's own competency and level of training, including clarification around exactly what competencies are required.

- *There needs to be a clear definition of the competencies that the PD must have, as an organisation and more importantly as an individual.*
- *Link PD competence to the new Building Safety Bill requirements.*
- *Update PAS91 with something that adds real value in terms of PD competence.*
- *The PD should have undergone a prescribed level of training.*
- *PDs to have a specific qualification such as NEBOSH or similar and not just their base professional qualification.*
- *To gain that appointment undertake a competence assessment with associated training and development.*
- *CPD programme for PDs only to increase knowledge gap. The current training arrangements and courses are not adequate.*

9.1.5 Appoint PD's early in the construction project giving them the best chance to positively influence safe design

- *Ensure that competent Principal Designers are appointed early with adequate resources.*
- *I would really like to see there being an "Absolute Duty" to appoint the PD at an early design gateway.*
- *Enforcement of early appointment of the PD by the Client.*
- *Have it written in CDM law that the appointment of the PD is done very early on, say at the same time as the Lead Designer or Project Manager.*
- *Update the guidance on when to appoint the PD (i.e. RIBA 0 or 1)*

9.1.6 Strengthen Regulations:

Although this research was not aimed at seeking information on amending the CDM Regulations, the survey respondents provided the following suggestions under this theme:

- *Change the regulations to make them more prescriptive and integrate with the building control and planning regulations to make them work back-to-back for H and S.*
- *Mandate the preparation of a pre-construction phase plan and include within it a record of the skills, knowledge / qualification and experience of those filling PD and lead design roles.*
- *A clear flow-chart showing how the CDM regulations fit against procurement types would help clients and their teams see when appointments need to be done. You could make it a planning permission or building regulations condition?*
- *Make it a requirement that a Pre-Tender Health and Safety plan forms part of the Building Regulations submission for ALL projects, and that the person/organisation undertaking the role of PD is identified.*
- *PD role should be a legal first appointment not as an 'add on' undertaken by someone, at the least cost, by the Lead Designer.*
- *Statutory timescales for projects / appointment of the Principal Designer.*
- *State that the PD role must be a named individual.*
- *Ensure it is a requirement to appoint a PD if there is more than one designer/design discipline involved.*
- *More clarity in the wording of legislation so inexperienced clients can understand their responsibilities.*

- *Where the PC also carries out the PD function it must become law that PC/PD design review meetings are held and recorded.*

9.1.7 Develop Designer competency:

- *Ensure all designers must spend time on site.*
- *Motivate D&B contractors to be the PD more often.*
- *Much better DRM education in designers.*
- *Need to focus on bringing our designers up to the required H&S skills, knowledge and experience level where they have similar skills to those labelled CDM advisor, making H&S just business as usual for designers.*
- *Encourage the further development of the General Principles of Prevention and its use by designers - this could be improved by serious training or possibly including the training of design teams as a duty and function of the PD role?*
- *The identification and elimination or control of construction and lifecycle risks needs to be rigorously taught in undergraduate and BTEC architecture, engineering and surveying courses.*

9.1.8 Improve contractual obligations – process and people:

- *Mandate collaborative contracts.*
- *Better contractual terms and conditions that allow change orders with less penalties.*
- *Ensure contractual steps [like planning permission stages] to ensure the RIBA stages are respected.*
- *Review how standard contracts could better emphasise the [PD/CDM] requirement and ensure it is followed through the supply chain.*
- *In terms of design risk management, the Employers Requirements/Contract should include items to ensure the design teams through all stages provide early and relevant design risk information and engage in design risk workshops with the PD.*
- *Why not make it a legal contractual requirement that a design risk review is carried out at various stages in a project?*

9.1.9 Improve external accreditations - projects and people:

- *Give designs 'NCAP' ratings as to how H&S they are to build.*
- *More should be done by the H&S professional bodies to promote their members so that the role becomes specialist rather than it being seen as a fee earner by architects without the necessary knowledge or experience to effectively fulfil the role.*
- *Work with institutions to make it a mandatory part of their accreditation and to promote its important role.*
- *Licensing scheme.*
- *Have a register available with contact details and accreditation checks.*
- *Minimum chartered standards for PDs in a relevant institution.*
- *Ensuring that all appointed PDs are Certified Members of the Association for Project Safety and introduce a scheme, whereby there is a database of PDs, with their SKE listed, so that clients are able to ascertain the skill and competence level of a PD.*
- *Qualification requirement managed by RIBA perhaps.*

9.1.10 Develop industry awareness of CDM:

- *Education on CDM duties of all duty holders.*
- *Provide proper campaigns regarding CDM compliance for all duty holders.*
- *Better learning among design colleagues on what CDM is trying to achieve and an understanding that least-worse or just-compliant outcomes are not the answer.*
- *Developing an overall CDM Toolkit for use on every project (no matter how big or small), which is a requirement and legally binding, would bring about a change in the perception of H&S and the role of PD within the industry and also drive those with the relevant skills, knowledge and experience to the forefront to deliver the service required.*

9.1.11 Produce clear process with guidance, e.g. ACoP

- *Leave the CDM 2015 Duties alone. Instead endorse Guidance as to how to deliver.*
- *If you want a process for them to follow, then reintroduce the ACoP and allow them to follow a set process.*
- *More guidance on risk registers, change management and quality assurance.*
- *More guidance on where PD changes at various stages of the project.*

9.1.12 Provide PD with greater powers of authority:

- *Providing greater powers to the PD in ensuring those duty holders comply with their duties under CDM and other relevant legislation.*

- *Support necessary level of influence.*

- *The whole construction process lacks a single H&S 'champion' with true authority to act who will integrate H&S throughout the construction process from design through to construction and completion.*

9.1.13 Ensure PD is independent / impartial:

- *I am of the firm opinion that this can be best delivered by an independent but suitably qualified PD. Things like challenging designs, ensure designers comply with their duties cannot be successfully achieved by making the Lead Designer the PD.*

- *Separate the role from Lead Designer.*

- *Remove the focus of the PD being integral to the design team and make it an independent appointment.*

- *Allocated through an enforcing authority. Independent of the cost consultants and project manager.*

9.1.14 Make Lead Designer the PD:

- *Make Lead Designers take on the role as part of either architectural or structural appointments.*

- *Could require the lead designer to take on PD role by employing (directly or indirectly) the PD personnel - rather than make the client responsible for appointing PD and letting a big designer run the show.*

- *PD to be fully integrated into the Design by being undertaken by lead designer or managed by senior member of design team.*

9.1.15 Review PD role for smaller projects:

- *A clear or differently defined role for smaller projects.*

- *On smaller residential projects, make the appointment of the PD a mandatory part of the planning consent and building control checks during the construction phase.*

- *HSE to target smaller construction companies in a CDM 2015 campaign which enables those who solely work on domestic projects to have a full and frank understanding of what the Regulations mean to them.*

9.1.16 Improve the use of digital technologies:

- *Create a legislative road map to all projects adopting a digital twin.*
- *Increased use of 3D modelling for design, checks and pre-construction work.*

9.2 Stakeholders

Although a lot of concerns and barriers were identified, fewer solutions were proposed. Those proposed by individual stakeholders included:

- Explaining what is expected of the Designer role so that the PD has a framework within which to oversee Designers
- Remove the PD role and place the responsibility with the design team including a Lead Designer
- A high-profile individual should be appointed to lead the re-generation of the PD role, and to give it status
- Appoint senior staff such as Directors and Managers with budgetary responsibility to the PD role so that they can exercise the necessary control and authorise changes
- Whilst appointing the Lead Designer as PD, it is recognised that there would be a challenge in identifying the Lead Designer legally and for a range of projects
- The PD role could be integrated in the supply chain with a nominated PD in each organisation – this could be analogous to the approach specified for Temporary Works Coordinators (TWC) in BS 5975 where the like the Principal Contractor's TWC is the Lead TWC but other Contractors also appoint their TWC who coordinate both within their own organisations and with the Principal Contractor's TWC
- The PD appointment must reflect all the key inputs required, be involved throughout the design process and fees include sufficient time to review design at key gateways with design team and appropriately advise the Client – standardised key inputs and involvement for PD would be a potential way of achieving this
- Clients must clearly identify in Tender documents:
- if there is a proposed change to the PD
- how they expect it to be provided by the Principal Contractor under a D&B contract; and
- the co-ordination arrangements post contract for design management to ensure fully understood and discussed at Tender stage
- The term 'pre-construction' causes confusion when construction starts and should be changed to 'design process'
- Recognise that Clients, particularly smaller ones, require more support potentially via CDM advisors

- The PD should produce a Design Risk Management (DRM) Plan to mirror the Construction Phase Plan – this would also allow them to demonstrate compliance by measuring the calls, DRM meetings, emails etc.

- BIM should be used more regularly – BIM is not just for large projects and does not always require a 3D model – being able to see the visual impact of design risks is good as is having it one location and the facility for clash detection

- A better way is required for Designers to record their decision – DRM templates typically in use do not allow Designers to record their decisions adequately

- There needs to be greater attention to Client arrangements, so that they recognise the duties, responsibilities and opportunities of the PD appointments and make the appropriate appointments

- The competence of PDs should be better defined in a similar manner to Appendix 4 of the CDM 2007 ACOP – currently, skills, knowledge and experience have no definition within CDM

- Explicitly list the activities that the PD is to undertake e.g.
  - compile the PCI and prepare an information registry
  - undertake scheduled Design Safety Reviews and document these
  - compile the initial H&S File during design phase and request information from Designers at that stage
  - provide H&S advice in relation to design as requested

- Change to a Design Safety Review process that is required for all projects requiring planning permission (or some other relevant criteria), which requires an independent review of the design by a 3rd party and a report prepared that the Client and Designers consider and decide – in that way HSE could legislate simply for what safety in design activities are required.

- Require an independent review of the draft H&S File to be undertaken during the construction phase so that, by the time it is handed over to a Client, it would be useful to them

Appendix A

Survey question set

Broadening the understanding of how the CDM 2015 Principal Designer role is working in practice

This survey is being conducted for HSE who are launching this important new research to broaden understanding of how the CDM 2015 Principal Designer (PD) role is working in practice (both the benefits and challenges).

HSE has appointed MPW R&R Ltd (an independent construction safety consultancy) to undertake this important research. We are inviting you to take part in this important survey.

In this survey, we are seeking views from a range of people and organisations that have experience of the PD role either by being appointed as a PD, by being appointed as one of the other CDM 2015 duty holders (Client, Designer, Principal Contractor or Contractor) or by working on construction projects where a PD was appointed.

In particular, we are seeking your views on how the PD role is being implemented.

This survey is structured in four parts as follows:

- Part 1 - General information about you and your organisation
- Part 2 - Application of the PD role in relation to a recent project
- Part 3 - Use of scenarios to understand key behaviours that support or detract from the PD role
- Part 4 - Your overall conclusions in relation to the PD role

To complete this survey in relation to the questions in Part 2, we would like you to focus on a recent project that your organisation has completed where a PD was appointed and where you have knowledge of the implementation of the PD role on that project.

To complete this survey in relation to specific behaviours in Part 3 and the overall conclusions in Part 4, we would like you to consider all your experiences with PDs on all of the projects that you have worked on.

There are opportunities to provide comments and suggestions in Parts 3 and 4.

It would be very helpful for us to have your response by midnight on Sunday 7th March 2021.

The questionnaire has been set up so that you can complete it electronically in SurveyMonkey in one go. You will not be able to return to a partially completed survey later on. It should take around 30 minutes to complete.

All responses will be treated in the strictest confidence. We will be compiling tables of statistics and drawing general conclusions. No individual company will be identifiable.

Information on the survey forms remains confidential to MPW R&R and our subcontractors Catchfly Ltd and RJ Roels Ltd. Your reply will not be passed on to any other party, including HSE. All survey data will be stored on secure media. Your contact details will not be used for any other purpose other than this survey.

Results will be provided to HSE in aggregated format only, and no individual will be identifiable in our data or reports. Our report will contain aggregated data and conclusions drawn from that data and will be published on HSE's web site as a Research Report.

If you have any queries about completing this survey you can contact MPW R&R.

Part 1 - About you and your organisation

Please provide information about yourself. We are asking this information to provide context to your answers and also if we have a query about your answers.

Please note that all information remains confidential to MPW R&R and our subcontractors and will not be passed on to third parties. The results will be aggregated and no individual organisation will be identifiable. Your contact details will not be used for any other purpose other than this survey.

About you

*Your name:

*Your organisation:

Your role:

Telephone No:

*Email (Your contact details will not be used for any other purpose other than this survey):

How many times have you undertaken the PD role as an individual?

- None
- 1 to 4
- 5 to 9
- 10 to 19
- 20 to 29
- 30 to 39
- 40 to 49
- More than 50

How many times have you undertaken the PD role as part of an organisation?

- None
- 1 to 4
- 5 to 9
- 10 to 19
- 20 to 29
- 30 to 39
- 40 to 49
- More than 50

About your organisation

What is your organisation's primary CDM 2015 role:

- One-off Client
- Occasional Client (less than 5 projects in a year)
- Repeat Client (more than 5 projects in a year)
- Principal Designer
- Designer
- Contractor / Sub Contractor
- Principal Contractor
- Other (please specify)

What are your organisation's main areas of work?
(Please select all that apply)

- Client
- Client Advisor
- Project Management
- Quantity Surveying
- Cost Consultant
- Health & Safety Consultant
- Principal Contractor
- General Contractor
- Specialist Contractor
- Temporary Works Contractor
- Principal Designer
- Designer
- Architect
- Landscape Architect
- Interior Designer
- Civil Engineer
- Structural Engineer
- Building Services Engineer
- Contractor's Designer
- Temporary Works Designer
- Manufacturer Designer
- Permanent Plant Designer

- Specifier
- Heritage organisation
- Other (please specify)

If you are an employer, how many people do you have working for you as employees in Great Britain?

- None / Self-employed
- 1 to 9
- 10 to 49
- 50 to 249
- 250 to 999
- 1,000+

How many construction projects was your organisation involved with in the last 12 months?

- None
- 1 to 2
- 3 to 4
- 5 to 9
- 10 to 19
- 20 to 49
- 50 to 99
- 100+
- Don't know

What was the approximate value of construction work undertaken by your organisation last year? (i.e. not your fees or contribution, but the overall cost to build the projects)

- None
- Under £50k
- £50k to £199k
- £200k to £499k
- £500k to £749k
- £750k to £999k
- £1m to £4.9m
- £5m to £24.9m
- £25m to £49.9m
- £50m to £149.9m

- £150m to £499m
- £500m to £999m
- More than £1bn
- Don't know

Part 2 - Application of the PD role in relation to a recent project

Please think of a project that your organisation has completed recently. This should be a project of which you have knowledge and which represents the kind of work typically undertaken.

All of the questions in this part should be answered in relation to that project.

About the Project

Which sector was the project in:

- Infrastructure (new build & RMI)
- Commercial
- New-build housing
- Domestic housing repair / maintenance / improvement
- Local (schools, hospitals, town centre, etc)
- Social
- Other (please specify)

Description of the structure:
(e.g. new-build RC frame, steel bridge repair, etc.)

What was the estimated project construction cost:

- Under £50k
- £50k to £199k
- £200k to £499k
- £500k to £749k
- £750k to £999k
- £1m to £4.9m
- £5m to £24.9m
- £25m to £49.9m
- £50m to £149.9m
- £150m to £499m

- £500m to £999m
- More than £1bn
- Don't know

Construction procurement route:
(We are asking this in order to see what impact the procurement route has on how the PD role is implemented)

- Traditional procurement
- Design and Build
- Other (please specify)

Construction Contract used by the Client for the Principal Contractor:
(We are asking this in order to see what impact the contract has on how the PD role is implemented)

- Bespoke Contract
- JCT Standard Building Contract
- JCT Intermediate Building Contract
- JCT Minor Works Building Contract.
- JCT Design and Build Contract
- JCT Major Project Construction Contract
- JCT Management Building Contract
- JCT Construction Management Contract
- JCT Measured Term Contract
- JCT Prime Cost Building Contract
- JCT Repair and Maintenance Contract
- JCT Home Owners Contract
- JCT Constructing Excellence Contract
- Government Contracts GC/Works 1
- NEC3 Engineering & Construction Contract
- NEC3 Framework Contract
- NEC4 Engineering & Construction Contract
- NEC4 Design, Build and Operate Contract
- NEC4 Facilities Management Contract
- RIBA Contract
- Scottish Building Contract Committee (SBCC) Contract
- PPC2000 Contract
- Don't know

- Other (please specify)

On some smaller projects (e.g. replacing the roof sheets on an industrial shed or demolishing a small domestic structure) there is little requirement for traditional design input but a significant requirement for pre-construction planning. Was this the case on this project?

- Yes
- No
- Don't know

To what extent was BIM (Building Information Modelling) referenced in the contracts for this project?

- BIM fully integrated in the contracts
- Referenced specific outputs of a BIM in the contracts
- Referred to BIM in the contracts
- Had to amend one or more existing contracts to accommodate BIM
- Had to create one or more bespoke contracts to accommodate BIM
- BIM not referenced in contracts, but duty holders chose to use it on this project
- BIM not referenced in contracts and not used on this project
- Don't know
- Other (please specify)

PD Appointment – Regulations 5(1) & 5(2)

Was the PD role described in a Client Brief?

- Yes
- No
- Don't know

When was the PD appointed (RIBA 2013 Stage or equivalent):

- 0 – Strategic definition
- 1 – Preparation and Brief
- 2 – Concept Design
- 3 – Developed Design
- 4 – Technical Design
- 5 – Construction
- 6 – Handover & Close Out
- 7 – In Use
- Don't know
- Other (please specify)

When was the PD appointment terminated (RIBA 2013 Stage or equivalent):

- 0 – Strategic definition
- 1 – Preparation and Brief
- 2 – Concept Design
- 3 – Developed Design
- 4 – Technical Design
- 5 – Construction
- 6 – Handover & Close Out
- 7 – In Use
- Don't know
- Other (please specify)

Was there a handover from a previous PD appointed on the project:

- Yes
- No
- Don't know

Did the PD handover to another appointed PD for the next stage of the project?

- Yes
- No
- Don't know

Was the PD role handed over to the Principal Contractor?

- Yes
- No
- Don't know

Did the Client appoint a CDM advisor to help them discharge their role?

- Yes
- No
- Don't know

Did the PD appoint a CDM advisor to help them discharge the PD role?

- Yes
- No
- Don't know

Did the PC appoint a CDM advisor to help them discharge their role?

- Yes
- No
- Don't know

What other roles did the PD hold or undertake on the project: (Please select all that apply)

- None
- Lead Designer
- PC Design Manager
- Other Designer on the project
- Client
- Principal Contractor
- Project Manager
- Cost Consultant
- Quantity Surveyor

- H&S consultant
- Other (please specify)

Did the appointed PD have control over the health & safety aspect of the pre-construction phase?

- Yes
- No
- Don't know

Did the PD check that the client is aware of their duties?

- Yes
- No
- Don't know

PD Capability – Regulations 8(1), 8(2) & 8(3)

Design capability – Were the key staff who undertook the PD role Chartered, Incorporated or Technician members of:
(Please select all that apply)

- Royal Institute of British Architects (RIBA)
- Chartered Institute of Architectural Technologist (CIAT)
- The Royal Incorporation of Architects in Scotland (RIAS)
- Institution of Civil Engineers (ICE)
- Institution of Structural Engineers (IStructE)
- Chartered Institution of Building Services Engineers (CIBSE)
- Institution of Chemical Engineers (IChemE)
- Institution of Mechanical Engineers (IMechE)
- Institution of Engineering and Technology (IET)
- Institution of Demolition Engineers (IDE)
- Chartered Association of Building Engineers (CABE)
- Chartered Institute of Building (CIOB)
- Track record of Construction design skills, knowledge and experience compatible with that required with the institutions listed
- Don't know
- Other (please specify)

Health & Safety capability – Which of the following applied to the key staff who undertook the PD role:
(Please select all that apply)

- Member of the Association for Project Safety (APS)
- On the Institution of Construction Safety (ICS) register
- On the Institution of Civil Engineers (ICE) Construction health and safety register
- Chartered Member of the Institute of Occupational Safety and Health (IOSH)
- Member of the International Institute of Risk and Safety Management (IIRSM)
- Track record of Construction design and health & safety risk management skills, knowledge and experience
- Don't know
- Other (please specify)

Where the PD was an organisation, did the PD provide information to demonstrate that they had policies and systems in place to set acceptable health and safety standards which comply with the law in relation to:
(Please select all that apply)

- The PD provided an adequate H&S policy
- The PD provided details of the companies past performance as a PD on similar projects and checks showed no negative feedback
- The PD provided a documented design risk management system
- The PD had a system for helping the client to meet their duties under CDM 2015
- The PD had a system for gathering, preparing, communicating and coordinating information, including design information, with other duty holders during the pre-construction phase
- The PD had a system for planning, managing and monitoring health and safety-related information, including design information, in the pre-construction phase of a project, with the aim of identifying, eliminating or controlling foreseeable risks;
- The PD had a system for ensuring Designers carry out their duties, including oversight and co-ordination within the design team and with other designers/contractors
- The PD had a system for liaise with the Principal Contractor
- The PD had a system for preparing and providing relevant information to other duty holders, including the H&S file
- The PD provided self-certification evidence based on he standard health and safety pre-qualification questions in Publicly Available Specification PAS 91
- The PD provided certification from a third party pre-qualification assessment service (such as Safety Schemes in Procurement Forum (SSIP))
- None provided
- Don't know
- Other (please specify)

Organisational capability – Did the PD have the resources and people to ensure the standards were met?
(Please select all that apply)

- Yes - the PD has provided a resourcing schedule that was appropriate for the project
- No - small business
- No - no experience
- No - not required by Client
- No - no time available for procurement
- No - no money available
- Don't know

- Other (please specify)

Did the Client use PAS 91 or any of the listed 3rd Party Accreditation to assess the skills, knowledge and experience and organisational capability of the PD:
(Please select all that apply)

- PAS 91
- Acclaim
- ACDC
- Achilles
- Atrius
- Association for Project Safety
- Avetta
- CHAS
- CQMS
- DW
- Eurosafe
- Greenlight
- MSL Safepartner
- Principal Safety
- PQS
- SafeCert
- SafeContractor
- Safemark
- SMAS Worksafe
- No
- Don't know
- Other (please specify)

Planning, Managing, Monitoring and Coordination – Regulation 11(1)

Did the PD undertake the following activities when discharging the planning, managing, monitoring and coordinating aspect of the role?
(Please select all that apply) (Yes / No / Don't know)

- Collate pre-construction information (PCI) received from the Client
- Ascertain and list Designer contacts
- Work with Designers to ascertain gaps in the PCI
- Inform Client of the need for further PCI
- Obtain further PCI
- Agree the contents / format of the Health & Safety File with the Client
- Work with Designers to prepare an initial Health & Safety File
- Issue initial Health & Safety File to the Client / Designers
- Complete design risk management and PCI and issue to potential Principal Contractors
- Organise design review meetings with Designers
- Liaise with the Principal Contractor
- Obtain contact details of PC-appointed Designers
- Obtain contact details of PC-appointed temporary works Designers
- Obtain further PCI as required by temporary works Designers
- Obtain further PCI as required by design changes
- Obtain further PCI as required by design changes
- Liaise with the Principal Contractor over design changes
- Liaise with the Designers over design changes
- Reviews and Update the Health & Safety File
- Hand over the latest Health & Safety File to the PC on termination of the PD role
- Hand over the final Health & Safety File to the Client on project completion
- Other activities (please specify)

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD understood that the role is analogous to that of the PC in the pre-construction phase
- The PD ensured that health and safety is an integral consideration of the projects design process
- The PD understood the oversight role of the PD to other designers, and how this should be fulfilled

Planning and Time Requirements – Regulation 11(2)

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD had a detailed knowledge (e.g. received training on) of the General Principles of Prevention
- The PD considered the General Principles of Prevention and PCI when design, technical and organisational aspects are being decided in order to plan the various items or stages of work which are to take place simultaneously or in succession
- The PD considered the General Principles of Prevention and PCI when estimating the period of time required to complete such work or work stages

Managing risks during construction, maintenance and use – Regulation 11(3)

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

That risks were properly foreseen, eliminated, reduced, controlled through design and treated and communicated through a structured design risk management process during:

- Feasibility - Preparation and Brief (RIBA Stage 1 or equivalent)
- Outline design - Concept Design (RIBA Stage 2 or equivalent)
- Detailed design - Developed Design and Technical Design (RIBA Stages 3 and 4 or equivalent)
- Construction - (RIBA Stage 5 or equivalent)

To what extent to do you agree with the following statements that risks were properly manged by the PD which may arise:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- During construction
- During use
- During maintenance or cleaning

Ensuring Designers comply with Regulation 9 – Regulation 11(4)

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD worked with Designers to mitigate risks through design
- The PD interacted with all the Designers appointed by the Client
- The PD interacted with all the Designers within the PC's supply chain
- The PD interacted with all the Temporary Works Designers

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD understood the oversight role of the PD to other Designers
- The PD fulfilled this oversight role
- The PD had a process to ensure that risk elimination, reduction, and control through design were being carried out
- The PD had a process to ensure that risks were identified, controlled and information on key risks widely disseminated
- The PD had a process to ensure that Designers considered the General Principles of Prevention when preparing their designs
- The PD ensured all designers were kept informed of relevant design changes
- The PD provided scrutiny and challenge of designs
- The PD ensured that effective scrutiny and challenge of designs was provided by others where they did not have the specific expertise themselves
- The PD ensured that Designers addressed health risks as well as safety risks

Did the PD promote the use of 3D models / BIM to communicate and visualise risk information?

- Yes
- No
- Don't know

Coordination and Cooperation – Regulation 11(5)

In relation to **Coordination**, to what extent to do you agree with the following statements: *(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)*

- The PD held Design Review Meetings
- The PD had a process for issues raised at Design Review Meetings to be considered and resolved
- The PD had an effective process for raising risks / concerns with the Client
- The PD had an effective process for working with the Client in relation to the impacts of variations and changes to scope
- There was early contractor involvement
- The PD understood the joint roles of PC and PD and how co-ordination should be carried out
- The PD had mechanisms to ensure the Client, any advisers, and other parties involved in the pre-construction phase were able to contribute information, and raise concerns about risks

In relation to **Cooperation**, to what extent to do you agree with the following statements: (Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD ensured the Designers cooperated with the Client
- The PD ensured the Designers cooperated with the PD
- The PD ensured the Designers cooperated with each other

Did the PD carry out a digital visual rehearsal (e.g. using 3D models) before construction?

- Yes
- No
- Don't know

Pre-construction Information (PCI) – Regulation 11(6)

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD made sure that the Client was aware of the importance of PCI
- The PD worked with Designers to ascertain gaps in the PCI
- The PD advised the Client to commission site surveys, site investigations, etc. to fill the gaps in the PCI
- The PD obtained further PCI as the design progressed
- The PD used a checklist to confirm that all the necessary information was included in the PCI
- The PD provided the relevant parts of the PCI to all Permanent Works Designers; all Subcontractors with Permanent Works Design roles; all Temporary Works Designers; and all Contractors on the Project

Liaison with the Principal Contractor – Regulation 11(7)

In relation to **the mechanisms for liaison and information exchange between the PD and PC**, to what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- There was a PD to PC information handover process
- The PD had identified the need for the PC to have the right information at the right time for the right activity
- The PD arranged for the PC to be involved in design review meetings
- The PD was involved in site meetings during the construction phase
- The PD interacted with the temporary works designers
- There were effective liaison and information exchange arrangements in relation to temporary works

In relation to **how the health and safety implications of late design changes were managed through the liaison arrangements between the PD and PC**, to what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD managed the PC's requests for design changes effectively
- The PD managed comments, queries and complaints from the PC effectively
- The PD helped the PC develop and review the Construction Phase Plan
- Late design changes were minimised
- There was effective communications between all parties
- Value engineering did not have an adverse effect on the safety of design changes

Health & Safety File – Regulation 12

To what extent to do you agree with the following statements:
(Strongly Disagree / Disagree / Neutral / Agree / Strongly / Agree / N/A)

- The PD had a process to identify information necessary for the H&S file
- The PD had arrangements for coordination with the PC for the H&S file
- Where the PD completed their role before the project is completed, the PD had a process to hand over the partially completed H&S File to the PC for completion
- The H&S file was of a good standard that was useful to the Client / End user
- The H&S File was delivered in an indexable and searchable digital format

You will get the opportunity to provide comments and suggestions the final two parts of this Question set

Part 3 - Use of scenarios to understand key behaviours that support or detract from PD role

Part 3 of the survey has 4 scenarios that have been developed to understand the following parts of the PD's role:

- Scenario 1 – Appointment of the PD
- Scenario 2 – PD authority and empowerment
- Scenario 3 – PD on design and build projects
- Scenario 4 – PD handover

Each scenario has a series of ‘situations’ that may arise over the course of a CDM project. Each situation has a set of accompanying statements – using the experience you have gathered across a range of projects, please rate each statement as to its influence on the situation. Please skip any items where you feel you do not have enough experience / knowledge.

Scenario 1: Appointment of the Principal Designer

Regulation 5 of CDM requires the appointment of a Designer with control over the pre-construction phase as PD. In response, the sector has evolved several different models for the provision of PD services.

Making sure that a suitable PD is appointed is an important aspect in the discharge of PD duties. The following statements describe four situations for you to rate.

Situation 1.1: Someone that does not have appropriate health, safety and design capability holds the PD role. If you have experience of this, please rate each of the following explanations as to why you believe this happens?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- It is difficult to find a PD with suitable skills, knowledge and experience
- PDs have the skills, knowledge and experience for some aspects of the role, but not all (e.g. pre-construction experience, but not detailed design)
- The PD understands the capability gap, but is driven by their own commercial interest, and takes it on
- The PD does not understand the requirements of the role, and takes on PD role
- The PD does not understand the requirements of the project, and takes on PD role
- PDs with the appropriate capability are perceived to be expensive, so there's a desire to keep costs down by using alternative personnel
- The Client does not understand the skill, knowledge and experience requirements for the PD role
- Where the PD role changes in a project, the changing skills, knowledge and experience requirements are not properly identified

Situation 1.1 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 1.2: A PD organisation knows how to provide a good level of service but also knows what level of cost (and service) is required to win the tender. Why do they choose to offer the 'cheap' alternative?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- The Clients' priority is on the cost and programme objectives, and the PD organisation responds accordingly
- There is a belief that the PD role does not deliver value and so less qualified PDs are nominated
- They expect their competitors are doing the same for this Client
- They believe that a low-cost model is required to win the job
- They perceive that the Client is only interested in 'ticking the PD box'

Situation 1.2 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 1.3: Why do Clients appoint one of their advisors to the PD role, rather than passing the role on to the Contractor?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- The Client wants to nominate a single provider for professional services
- Bundling professional services creates clear accountability in the eyes of the Client
- Professional advice points to a single supplier for topics such as cost, programme, quantity surveying and the PD role

Situation 1.3 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 1.4: An organisation with staff from traditional technical design professions (that cover H&S) does not take on the PD role, but other organisations do so even though their staff are not typically from traditional technical design professions. Based on your experience, what makes an organisation take on the PD role even if they don't have people with a traditional technical design profession (including H&S) background?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- The PD role is seen as another service that can easily be offered by health and safety consultants
- The industry has developed a model for the provision of PD services that does not always prioritise health, safety and design capability
- The PD duties are sometimes understood to require a degree of independence from the design team, and hence should not be integrated
- The PD role is seen as an administrative oversight role that does not require significant health, safety and design capability
- The PD role is perceived to command a small fee that does not match the work the required to discharge the role as required under CDM
- Design organisations are comparatively more risk averse, therefore prefer it if others take on PD duties.

Situation 1.4 (continued): If there are any additional explanations that you have encountered, please enter them here:

Scenario 2: Principal Designer authority and empowerment

For the PD to be effective in their role, they need to act with authority, in accordance with CDM provisions. The following situations describe activities the PD might request are completed. Please indicate which factors have most influence on a successful outcome.

Situation 2.1: The PD maintains that various issues on the risk register have not been satisfactorily resolved and requests that the design team addresses them. Please indicate which of the following influences a successful outcome here.
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- Having the PD as Lead Designer
- The PD escalates the issue to the Client to raise them with the design team (assuming the PD is not part of the same organisation as the design team)
- The PD has active support from the Client or their representative at a design review meeting (assuming the PD is not part of the same organisation as the design team)
- The PD and the Lead Designer actively cooperate and agree resolutions
- There is a contractual requirement for risk items to be closed off
- The provision of digital tools enhances sharing and understanding of risk information

Situation 2.1 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 2.2: Ideally, the PD would be integrated in the Lead Designer's team but sometimes this does not happen. Please indicate why this doesn't always happen.
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- A PD organisation is appointed by the Client, but the Design & Build Contractor runs the design via its Design Manager / Contracts Manager which limits the PD's contact with the Contractor's design team
- The Client appoints a PD organisation which does not have key staff with traditional technical design profession backgrounds but is providing the Client with Project management / Cost management / Client advisory services
- The PD lacks the knowledge to enable proper integration in the design team across all parts of the project
- Nobody in the procurement chain has identified the need for design integration to be included in the contracts

Situation 2.2 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 2.3: Ideally the PD would instigate a design review using suitable digital tools, such as 3D / 4D model reviews, digital rehearsal techniques etc. What influences the likelihood of the PD being able to convene an effective review that uses such digital technologies?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- Access and use of suitable modelling technologies is not understood properly
- Cost of digital rehearsal not identified in the procurement process
- Limited awareness in the design team about the benefits of digital rehearsals
- The PD lacks the confidence to use digital tools in the best way
- The competence to operate the design software lies with the design team, and they do not prioritise supporting a digitally-based design review
- The PD uses the design review as an opportunity to increase their understanding of the design, rather than to influence it

Situation 2.3 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 2.4: The PD requests that a detailed design review is undertaken at the end of the pre-construction phase, but this does not receive enough support from other duty holders to allow a thorough review. What influence do each of the following have on this?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- The PD lacks authority with the design team
- The review is seen as redundant by the design team (e.g. many issues have already been resolved, but the PD is not aware of them)
- The review did not take account of the complexity and the need to review in stages
- The PD's own organisation does not want to commit the time required
- The other duty holders do not understand the benefits of digital rehearsals to health and safety reviews

Situation 2.4 (continued): If there are any additional explanations that you have encountered, please enter them here:

Scenario 3: Principal Designer and Design & Build projects

Design and Build projects are convenient solutions for Clients, but sometimes the contractual arrangements might lead to behaviours that impact the effectiveness of the PD role.

Situation 3.1: A Contractor is awarded a Design and Build project, but is reluctant to take on PD responsibility (e.g. they maintain it is the architect's responsibility). Based on your experience, why are some contractors reluctant to take on the PD role?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- To reduce Contractors' statutory liabilities
- The Contractor genuinely does not understand what is required of the PD role / duties
- The Contractor is trying to avoid costs
- The design and build contract does not address who the PD is
- The Contractor perceives that the Client has had poor advice and has a lack of knowledge on how the role should be fulfilled.
- The Contractor would have to 'outsource' the day-to-day PD activities to a CDM advisor (leaving the Contractor with the statutory liabilities)
- The Contractor is already planning, managing, monitoring and coordinating the Contractors portion of design, but without the statutory PD liabilities

Situation 3.1 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 3.2: PDs in the Client team may not be 'in control' of the pre-construction phase to the same extent as a PC undertaking the PD role. Please indicate what you think causes this. *(No influence / Minor influence / Moderate influence / Major influence / No experience of)*

- Information from the Designers in the Contractor's supply chain does not always reach the PD
- The PD does not have contractual relationships with the Designers in the Contractor's supply chain
- The PD has to route all requests for information through the Contractor's Design Manager / Contracts Manager
- The Client or Contractor has not included contract clauses requiring the Designers in the supply chain to provide information to the PD
- The PD is not invited to the Contractor's design review meetings
- The Contractor's Design Manager undertakes PD-type activities as part of their role (even though the Contractor has not been appointed as PD)
- The PD in Client team is not seen as having authority by the PC team
- The culture amongst Clients and the design professions does not encourage the PD as a single point of control over the pre construction phase (in the same way that the PC is over the construction phase)

Situation 3.2 (continued): If there are any additional explanations that you have encountered, please enter them here:

Scenario 4: Principal Designer handover

Over the course of some projects, it may be necessary for the PD to change, resulting in the need for a handover of information. This scenario is aimed at understanding the factors that influence handover.

Situation 4.1: On some projects, the need to handover information from one PD to another is not identified. Please indicate why this happens?
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- The Client did not realise handover was necessary
- The PD did not advise the Client that handover was necessary
- The transfer of information was not adequately incorporated into the contracts

Situation 4.1 (continued): If there are any additional explanations that you have encountered, please enter them here:

Situation 4.2: Despite detailed information being provided to a new PD, the details are not all acted on by the new PD. Please indicate why this may happen.
(No influence / Minor influence / Moderate influence / Major influence / No experience of)

- Previous work has not been recorded, so there is nothing to handover
- Previous work has been recorded but is not handed over
- There are omissions / quality issues in what has been recorded which prevents an effective handover
- The new PD does not have enough time to understand the issues
- PDs do not have a face-to-face handovers
- Material is not made available in a clear, indexed format
- Digital tools have not been used to structure health and safety information making it difficult to search / analyse / present information
- There's nothing to stop the new PD ignoring the old PD's information
- It’s easier for the new PD to do a quick review of the information and just get on with the job

Situation 4.2 (continued): If there are any additional explanations that you have encountered, please enter them here:

Part 4 - Your overall conclusions in relation to the PD role

In a very few words, what do you feel are the 3 key successes that the PD role has had in bringing about improvements to health and safety in the construction industry?
(Free text response)

Likewise, what do you feel are the 3 key barriers to implementing the PD role?
(Free text response)

How would you describe the value that the PD role could potentially bring to future projects?

- Low
- Low-Moderate
- Moderate
- Moderate-High
- High
- Don't know

Please tell us why you gave that rating?
(Free text response)

What solutions would you propose to overcome any of the challenges that you have identified in implementing the PD role?
(Free text response)

Are there any comments that you would like to make in relation to the PD role?
(Free text response)

Appendix B

Stakeholder question set

HSE RESEARCH PROJECT TO BROADEN UNDERSTANDING OF HOW THE CDM 2015 PRINCIPAL DESIGNER ROLE IS WORKING IN PRACTICE

We would be interested in your views on the following questions based on your experiences and those of your members in relation to both small and large projects (identifying any differences):

1. **What do you consider to be the key successes that the PD role has had in bringing about improvements to health and safety in the construction industry?**

2. **What do you consider to be the key barriers to implementing the PD role?**
   (e.g. projects with little traditional design, but significant health and safety risks, and a need for planning)

3. **Are suitable people and organisations being appointed to the PD role?**
   (e.g. with appropriate levels of skills, knowledge and experience in design and health & safety and the right experience for the project; and where they are an organisation, organisational capability necessary to fulfil the role)
   If not, why not, and what could be done to address this?

4. **Are PDs authorised and empowered to undertake the role effectively?**
   (e.g. are PDs the Lead Designer, can PDs authorise new surveys, organise design reviews, hold individual Designers to account, challenge cost consultants, escalate risk issues, interact with temporary works Designers, challenge the contracting side of the business in design & build projects)
   If not, why not, and what could be done to address this?

5. **Is the PD role discharged effectively on design & build projects?**
   (e.g. should the PC undertake the PD role, is there a tendency for the PC to 'outsource' the day-to-day PD activities to a CDM advisor, is a PD within the Client team 'in control' of the pre-construction phase, can a Client team PD discharge the PD role effectively via a Design & Build Contractors Design Manager / Contracts Manager, how does a Client team PD interact with temporary works Designers)
   If not, why not, and what could be done to address this?

6. **If there is more than one PD on a project (not simultaneously, but as a result of a handover), does this cause problems and if so, what are they?**
   (e.g. is the PD role handed over to the individual / organisation best placed to undertake the design risk management for that phase of a project, is risk information lost in the handover, does the advice change, do temporary works designs get overlooked in the handover)
   What could be done by CDM duty holders to address this?

7. **Are there any key issues in relation to the PD role that you would like to raise on behalf of your members?**
   (Both positives and negatives)

8. **What further solutions would you propose to overcome any of the issues that you have identified in implementing the PD role?**

9. **How would you describe the value that the PD role could potentially bring to future projects?**
   (e.g. delivering the project on time, to budget, and without incident, or can planning, managing and monitoring the pre-construction phase be measured more directly?)

10. **Are there any documents that you would like to provide us with as part of your response?**

11. **Are there any other people or organisations that you would recommend that we contact in relation to the PD role?**