



Designing Cities: A study of collaborative interdisciplinary practice in the London area

Acknowledgements

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Authors: Suzy Nelson and Kerry Bobbins
Department of Planning and Transport, University of Westminster
35 Marylebone Road, London NW1 5LS

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1. EXECUTIVE SUMMARY

The University of Westminster recently launched a new degree course, BA Designing Cities, Planning and Architecture. The course aims to educate design literate planners who are able to effectively contribute to interdisciplinary teams. Whilst there is widespread support amongst academic and policy makers for interdisciplinary working between built environment professionals, there is limited literature on interdisciplinary working in practice. In order to better understand interdisciplinary working and to support the development of the new course, a research project was set up to investigate collaborative interdisciplinary working in the London area. This report reports on the research findings of this project.

The report is based on a review of relevant literature about the professions, interdisciplinary working, and the nature of current practice. The key primary research is a set of 24 interviews with industry partners in private practice and in the public sector in the London area. These interviews investigated the nature of current practice and identified further opportunities for engagement with the Designing Cities degree course. The themes discussed in the interviews include service offering, organisational structure, insights on collaboration and future directions in the market for consultancy services and the professions.

The literature review outlines the historical development of the architecture and planning professions in the UK, and the emergence of urban design as a discipline. It explains how, in the first part of the twentieth century, architects, engineers and surveyors played a crucial role in the development of the town planning profession, and how, in second half of the twentieth century, the planning profession moved away from its design origins to become more social science based. In the latter part of the twentieth century, there were concerns about the negative impact of the professional divide between architects and planners on the quality of the built environment. This resulted in an initiative to promote interdisciplinary working, which led to the formation of Urban Design Group.

The available data on current practice in the UK is also reviewed. Whilst this data is limited, some trends are clear. There are growing numbers of large architectural, planning and interdisciplinary firms, declining numbers of medium sized firms, and growing numbers of small firms. Very few architects are now employed in the public sector and, whilst there is a significant growth in the number of planners working in the private sector, a significant proportion of the profession is still employed in the public sector.

The professionals interviewed in the research worked in a range of different practices in terms of discipline and size as well as sector. There was a strong consensus amongst the interviewees that collaborative interdisciplinary working produced better quality outcomes. The research indicated the preference for matrix management structures, the importance of long-term relationships between practices, the need for good communication skills in order to build up mutual respect and to develop shared objectives, the value of design workshops at an early stage in projects, the benefits of co-location in promoting informal dialogue and the need for open mindedness and flexibility. It also highlighted that larger multi-disciplinary firms were in a stronger position to provide to realise the benefits of colocation and to promote a learning culture.

Whilst the professionals interviewed were strongly committed to collaborative interdisciplinary work, it was clear that obstacles to this becoming mainstream practice remain and that there is a case for the professional bodies to work more

actively to break down inter-professional boundaries, particularly through promoting interdisciplinary education.

The research will make a significant contribution to the development of our new degree, BA Designing Cities. The body of knowledge developed will inform many of the modules in the programme and the interviewees offered to be involved in the course in a range of ways including giving lectures, hosting visits to projects, contributing to project crits, acting as external examiners and offering work placements to students.

Whilst the research makes a contribution to filling the gap in the literature about interdisciplinary working in practice, it was exploratory and small in scale, and topics for future research are suggested.

2. INTRODUCTION

The University of Westminster recently launched a degree course, BA Designing Cities, Planning and Architecture. The course has been designed to educate professional planners with a broad understanding of urban planning and architectural design to allow them to contribute effectively to interdisciplinary teams (for more on the course see Box 1 on p. 2). The course is a response to the widespread recognition of the importance of an interdisciplinary approach to creating better quality, more sustainable urban environments.

Since the 1990s, concerns about the quality of the built environment have led to an increasing UK policy focus promoting interdisciplinary working. Despite the historical links between planning and architecture, a significant gap between the two professions developed in the second half of the twentieth century, and the relationship between architects and planners has often been characterised by mutual antagonism. Manley and Parnaby (2000) pointed out that the education of architects and planners has tended to reinforce such antagonism and argued that innovations in education were needed to promote greater mutual respect between the professions and to encourage more productive collaboration to improve the quality of the urban environment.

There is an extensive body of academic literature promoting an interdisciplinary approach to tackling real world problems (Aram, 2004). Architectural theorists have pointed out the importance of collaborative working. For example, Till, in his reflection on the architectural profession, argues that 'professional knowledge is dependent on others for its development and transformative enaction' (2009 p.166). Planning academics (see, for example, Johnston, 2015; Rooj and Frank, 2016) have also stressed that an interdisciplinary approach, with practitioners from a variety of fields working together, is needed to realise sustainable development and that planning education needs to prepare students for working in interdisciplinary environments.

Whilst there is considerable support from policy makers and academics for interdisciplinary working, there remains a limited understanding of interdisciplinary working in practice. To support the development of the academic content of BA Designing Cities and to enhance the engagement of the course with practice, a funding grant was secured from the Quintin Hogg Trust to explore the nature of collaborative interdisciplinary practice between architects, planners and other built environment professionals, and to further develop links with practice.

The research began with a review of relevant literature about the professions and interdisciplinary working. This was followed by an examination of available data on practice. The key primary research was a set of 24 interviews with industry partners in private practice and in the public sector in the London area to investigate collaborative practice, and to further scope out opportunities for future engagement with the BA Designing Cities course. The key themes discussed in the interviews included service offering, organisational structure, insights on collaboration, and future directions in the market for consultancy services and for the professions.

The findings of the research project are presented in this report. Section 3 outlines the historical development of the architectural and planning professions in the UK and the more recent emergence of urban design as a discipline. It then reviews the current nature of practice, and policy and research on interdisciplinary working in the built environment professions. Section 4 provides an overview of the firms that participated in the research. Section 5 discusses key themes on collaborative

interdisciplinary working, which emerged from the interviews. Section 6 reflects on how the findings of the research project will inform the development of the programme for BA Designing Cities.

BOX 1: BA Designing Cities: Planning and Architecture

In response to the high demand for professional urban planners in the UK and other parts of the world, the Department of Planning and Transport at the University of Westminster launched a new degree course, BA Designing Cities. The aim of the course is to educate design literate planners. The course has been designed to provide students with a broad understanding of urban planning and architectural design. It is a first step towards becoming a professional planner who has skills in architectural design and site planning. The course is accredited by the Royal Town Planning Institute as meeting the spatial planning element of their requirements for initial planning education. The first cohort of students on BA Designing Cities began their studies in September 2016.

The course focuses on the forces that shape towns and cities, and how to engage with urban challenges such as climate change and social polarisation. The learning and teaching of the course includes lectures, seminars, workshops, charrettes, presentations, site visits, field trips and studio tutorials. Nearly 50% of the course is project work.

To prepare students for future employment, the course includes a two-week work placement at the end of year two and a 'Work Experience and Professional Practice' module in year 3. These opportunities are designed to expose students to different types of planning practice and allow them to gain meaningful work experience before they enter the job market.

Further details about BA Designing Cities are available from: <https://www.westminster.ac.uk/courses/subjects/architecture-and-interiors/undergraduate-courses/september/full-time/designing-cities-planning-and-architecture-ba-honours>.

3. THE ARCHITECTURAL AND PLANNING PROFESSIONS

3.1 The development of the professions in the UK

In the UK, professional bodies formally constituted themselves as membership organisations in the nineteenth century. Architects followed doctors, lawyers and engineers in establishing professional bodies: the Institute of British Architects was founded in 1834. Planning is a newer profession and the Town Planning Institute was founded in 1914. Since the 1970s, urban design has been an emerging specialism at the interface between architecture and planning.

There is a consensus in the literature on the history and the sociology of the professions that professions developed in response to the increasing specialisation of labour and growth of scientific knowledge (Macdonald, 1999; Torstendahl, 1990). Although the characteristics of professions vary in different social and economic contexts, they are widely defined as being as knowledge based groups. Through establishing entry requirements for membership based on education and experience, professional bodies generally endeavour to create closed occupational communities, which are able to regulate the market for their services. The relationship between professions and the state varies in different national contexts and during different periods.

In the UK, professional bodies can be granted royal charters giving them a special status. This is because they are seen to act in the public interest by developing specialist bodies of knowledge and setting standards for their services. In the nineteenth century, professionals were generally self-employed providers of services to the market, but in the twentieth century, the development of the welfare state resulted in employment of many professionals by the state which stimulated the creation of new professional groups. Following the first planning legislation in the UK in 1909, planning emerged as a new largely public sector profession.

The Institute of British Architects was initially concerned with the status of the profession and business ethics. In 1837, it was granted its royal charter. For much of the nineteenth century, only a small fraction of practitioners belonged to the Institute (Wilton-Ely, 1977). Membership was initially open to practitioners with seven years' relevant experience, generally gained through a system of pupillage. In 1887, the system of three-part examinations was introduced and gradually replaced the pupillage system. By 1900, the now Royal Institute of British Architects had established its dominant position and it was able to successfully lobby for the protection of the title of architect (RIBA ARB Review Group, 2004). Since the Architect's Registration Act 1931, only those meeting agreed standards are legally permitted to call themselves architects. This legislation introduced state-backed self-regulation of the profession, as the majority of the membership of the registration body, the Architects Registration Council, which it established, were architects.

The town planning movement in the UK emerged at the end of the nineteenth century as a response to poor urban living conditions created by rapid urbanisation. The initiatives of the garden city movement at Letchworth and at Hampstead inspired the Housing, Town Planning Act 1909, which in turn led to the founding of the Town Planning Institute. There were differing views about which profession should take the lead in implementing the Act, but an interdisciplinary approach prevailed and a number of architects, engineers and surveyors who were engaged practically in town planning came together with politicians, academics and others to set up a new organisation (Cherry, 1974). Membership of the new Town Planning Institute (TPI) was open to those members of the Royal Institute of British Architects (RIBA), the

Institute of Civil Engineers (ICE), the Surveyors' Institute (SI) and Institute of Municipal and County Engineers (IMunE), who had practical experience in town planning. Associate membership was open to professionals, councillors and others interested in furthering the objectives of town planning. In the interwar years, the Institute was mainly concerned with land assembly and town design, but town planning was not initially an independent profession. In 1916, the Institute drew up an examination syllabus for prospective members, but because of the First World War, the first examinations were not held till 1920, and then only members of the founding professions were eligible to sit them. In 1930 a Joint Examination Board, which included representatives of the founding professions as well as members of the TPI, was established, and in 1932 direct entry to the profession by examination via intermediate and final examinations was permitted for the first time. Following the introduction of a comprehensive planning system in the UK in 1947, the British Government set up a committee on the qualifications needed by planners. In its deliberation, the committee envisaged that planners would generally be employed in the public sector (Schuster, 1950). Its report placed less emphasis on design skills and more on social science. It stimulated the teaching of planning as an independent subject in higher education and helped the institute to break away from the founding professions.

When in 1947 the Town Planning Institute petitioned the Privy Council for a royal charter, RIBA, RICS and ICE responded by lodging counter petitions arguing that town planning was not a separate professional activity (Cherry, 1974). The Privy Council delayed its decision pending the Schuster Committee's report, but in 1952, as a result of continuing opposition from the founding professions, it refused to recommend the granting of a royal charter. A further application for a charter was submitted in 1956. This application was opposed only by the engineers and in 1959 the Institute was granted its royal charter.

In the period following the Second World War, when the state was active in post-war reconstruction and in building new housing and social infrastructure, planning was a largely public sector profession and a large proportion of the architectural profession was also directly employed by the state. During the 1980s and 1990s, the neo-liberal Conservative Governments in the UK promoted a more market-led economy. This had a considerable impact on both professions, due to policies promoting competition in the market for professional services and cutbacks in public expenditure. The Monopolies and Mergers Commission decided that mandatory fee scales were anti-competitive and all professional bodies were subsequently required to withdraw them. Local authorities, which had previously directly employed a range of professionals, were required to seek competitive tenders for their services, including architecture. Compulsory competitive tendering of professional services and reduced workloads due to cutbacks in public expenditure decimated local authority architects' departments. The Warne Report reviewed the protected title of architects and recommended its abolition (Warne, 1993). However, RIBA, along with the National Consumer Council, successfully campaigned to maintain the protected title, which resulted in the creation of a new body, the Architects' Registration Board, the majority of whose members are lay people (Ball, 2009). Nonetheless, many architects question the value of the protected title (Ball, 2009; The Farrell Review Team, 2015). Thatcher's Governments saw planning as stifling economic development initiative and, as a result, the role of statutory plans was reduced and planning free zones were introduced in some areas (Dierwechter and Thornley, 2012). Although the subsequent Major and Blair Governments gave statutory plans a more important role, there has been a continuing emphasis on planning promoting market efficiency.

In the 1970s, there was growing concern about the negative impact of the gap between the architectural and planning professions, resulting in poor quality design of the built environment (Carmona, 1998). This led a number of professionals interested in promoting better interdisciplinary working to set up the Urban Design Group (UDG) in 1978. In the UK, it is the principal group that focuses on the subject and on its website it states 'The UDG believes that urban design is not the job of any single profession so we welcome members from a broad range of backgrounds' (Urban Design Group, n.d).

As urban design is an emerging discipline, it lacks clear definition and a well-developed professional structure. Schurch (1999) argues that some architects claim urban design as an extension of architecture and some planners see it as a branch of urban planning, whilst the significant contribution of landscape architects to its practice is not always acknowledged.

The principal focus of the UDG is the quality of quality urban design. However, in 2009, possibly with the intention of consolidating its position as a professional body, the UDG introduced a new membership category, *Recognised Practitioner in Urban Design*, to give 'professionals working in urban design the opportunity to attain greater recognition for their skills and experience as well as a stronger sense of common purpose and identity' (Urban Design Group, n.d.). Applicants submit details of their qualifications and experience, which are then assessed by the Executive Committee of the Urban Design Group. In August 2016, there were 107 recognised urban design practitioners, 70% of whom worked in private consultancies, sometimes several in the same firm. Most of the remainder were employed by the public sector. As 146 practices were registered on the UDG website as offering urban design services, it is evident that only a small proportion of professionals offering urban design services had applied to become recognised practitioners.

3.2 The nature of current practice

The literature about the current practice of built environment professionals indicates a shift towards private sector employment, changes in the size of firms and a growth in multidisciplinary firms. The most recent comprehensive survey of built environment professional services in the UK was undertaken by the Construction Industry Council (2007). The survey highlights that in 2005/6, engineering services accounted for 28% of the income in the sector, whilst architectural firms accounted for 24% and planning (private sector only) 10%. Most firms were small, 84% employing fewer than 10 people, but a small number of larger firms (2% of the total) generated 78% of UK fee income. The overseas market accounted for 15% of this total. 8% of firms offered a range of services and accounted for 49% of the total UK income. These multidisciplinary firms tended to be dominated by one discipline, most frequently engineering.

Connaughton and Meikle (2013) analysed the changing nature of UK construction professional service firms over the last 25 years and highlighted the growth of larger practices which were becoming increasingly multidisciplinary. They identified the drivers of change being a decline in direct employment by the public sector, deregulation of the professions and public sector contractual requirements for compliance with policy such as health and safety and quality management. They categorised the largest 20 UK construction professional service firms in terms of their dominant discipline and found that, in 2011, ten were engineering led, three general surveying led, three quantity surveying led, one architect led and the remainder were either construction management or finance led. They noted that, between 1995 and 2011, these firms had more than doubled their staff numbers and had increased the

diversity of their services and their geographical scope. These large firms have continued to increase their market share: Connaughton et al (2015) noted that the share of income revenue of the top five of the fifty largest firms in the sector had increased from 35.9% in 1997 to 46.2% in 2013.

In contrast to the post-war years, the majority of architects in the UK now work in private practice, with a tiny proportion of the profession employed by the public sector. Brindley (2013) reported that, in 2013, only one in three local authorities employed architects. The few architects now employed in the public sector generally focus on promoting quality in the built environment and place making, rather than being directly involved in designing buildings.

The RIBA membership survey of chartered practices provides a comprehensive overview of the nature architectural practices in the UK, as all practices are required to participate (Colander, 2013 and 2014). Brindley (2013) presented a detailed analysis of the 2012/13 survey in terms of size of firm, which is set out in a slightly modified form in Table 1. To produce this table, the authors merged the 'small medium' and 'large medium' categories used in Colander (2014) into a single category.

Table 1: Analysis of the size of architecture practices in the UK in 2012/13
(Adapted from: Brindley, 2013)

Practice size categories	Percentage of total practices
Large (headcount 50 to <350)	3%
Medium (headcount 10 to <50)	20%
Small (headcount 5 to <10)	23%
Micro (headcount 1 to < 5)	53%

In 2013/14, the majority of architectural practices were micro practices with a headcount of less than five. Whilst less than 5% of practices employed more than 50 people, these large firms accounted for 40% of employment (Colander, 2014).

Commentators have noted the decline of middle sized practices, particularly since the economic recession in 2008 (Brindley, 2013; Hopkirk, 2013). As a result of redundancies at larger firms, many architects went on to set up their own practices. The result has been described as being the 'tale of two professions operating in different universes' whereby micro sized firms serve a mostly residential market and operate on a project by project basis (Brindley, 2013, p 1), while large firms base their work on projects for corporate and international clients, including public sector, and supply chain projects. It was noted that it is difficult for small firms to grow, because larger practices work on different types of buildings for different types of clients (Hopkirk, 2013).

Whilst a growing number of planners work in the private sector, a significant proportion continues to be employed by the public sector. In 2013, the RTPPI commissioned a survey that provides some insight on the nature of planning practice in England and Scotland. All RTPPI members were invited to complete a questionnaire. The questionnaire response rate was 25.3%, which was considered a robust sample for analysis. 50% of all respondents worked in local government, whilst 22% worked for planning consultancies (5% of these for international, 9% for national and 8% for local consultancies) (Thurman, 2013). The remaining respondents worked for other employers such as development companies, agencies, universities, charities and architectural practices.

The RTPI's Directory of Planning Consultants, which is available on the RTPI's website, provides details of registered firms. The Directory is a service to which practices can subscribe and information is updated annually by the practices themselves. Our analysis of practices in the London Region included in the 2016 directory (see Table 2) shows that there are concentrations of micro practices (headcount 1 < 5), which account for 26% of the total, and large and very large (headcount 50 to <350) together accounting for 43% of the total.

Table 2: Analysis of the size of planning practices in the London Region in 2016 (classification adapted from Colander, 2014)

Practice Size	Number	Percentage of total practices
Very large (headcount > 350)	13	17%
Large (headcount 50 to <350)	20	26%
Large Medium (headcount 20 to <50)	7	9%
Small Medium (headcount 10 to <20)	7	9%
Small (headcount 5 to <10)	10	13%
Micro (headcount 1 to < 5)	20	26%

A key source of information on practices offering urban design services in the UK is the Urban Design Group Register (Urban Design Group, n.d.). In many of the 146 urban design practices (two of which had firms that offer urban design services according to the practice's dominant discipline (following Connaughton and Meikle, 2013), it was found that the majority of practices were architect led firms (34%); followed by planning led firms (18%); urban design led firms (18%); interdisciplinary/multidisciplinary firms (12%); landscape architecture led firms (10%) and other (8%) (see Table 3).

Table 3: Analysis of private sector practices registered in the Urban Design Group's on-line directory

Practice type	Number	Percentage of total practices
Architecture led firms	49	34%
Planning led firms	27	18%
Urban Design led firms	26	18%
Interdisciplinary/multidisciplinary firms	18	12%
Landscape Architecture led firms	15	10%
Other	11	8%

Although employment of architecture and planning professions by the public sector has decreased in both professions since the post-war years, the public sector continues to be the client for many projects carried out by architectural and planning consultants. There is little information available about the sectors in which people who describe themselves as urban designers work, but as urban design is intrinsically concerned with the public realm, many of projects on which they work are for a public sector client.

3.3 UK policy case for interdisciplinary working

In recent decades, policy makers have increasingly acknowledged the benefits of interdisciplinary working across built environment disciplines. The UK Government has initiated a number of reviews of the construction and development industries due to concerns about the inefficiency of the industry and the poor quality of the built environment. Although these reviews had varying briefs, they all recognised the need

for better integration of the processes and teams involved in the production of the built environment.

The Latham Review and Construction Task Force's reports focused on the problems of inefficiency and poor quality in construction (Latham, 1994; The Construction Task Force, 1998). They identified fragmentation of the industry as the key problem. They recommended a strong focus on client and user needs, an emphasis on design quality and more long-term partnership working. Latham (1994) specifically highlighted the benefits of interdisciplinary working amongst built environment professionals.

The Urban Task Force, led by the architect Richard Rogers, was set up to establish a vision for cities based on design excellence, social well-being and environmental responsibility. In its report, the Urban Task Force (1999) argued for well-designed and well-connected compact cities. To realise this vision, they argued that more interdisciplinary working was needed across the professions.

John Egan, who had led the Construction Task Force, was commissioned in 2004 by the UK Government to undertake a further review on the skills needed to create sustainable communities. His brief had been to focus on the skills of built environment professionals, but his report emphasised a generic set of skills needed by all those involved with the development process, including clients (Egan, 2004). A key skill highlighted in the report was the ability to work in multidisciplinary teams. Other skills identified in the report included: the ability to create a vision, leadership to achieve buy-in on that vision, communication, team working, project management, process re-engineering, understanding sustainable development, effective financial management, understanding the economics of development and the processes of local democracy.

3.4 Literature on interdisciplinary practice

Although interdisciplinary collaboration amongst built environment professions is widely advocated, there has been relatively little literature on interdisciplinary working in practice. Most of the literature that is available relates to collaboration between designers and the construction team in the production of buildings, rather than to architects and planners collaborating on projects at the urban scale. The literature which focuses on interdisciplinary collaboration between design professionals is discussed below.

In 1994, the University of Cambridge set up a masters programme in Interdisciplinary Design for the Built Environment and some of the professionals involved in teaching on the course have reflected on their own practice. Price (2001), drawing on his own experience working as a structural engineer, described a range of different types of interdisciplinary collaboration. These included a project team involving different disciplines from different practices working in the same physical location on a large project, a large interdisciplinary practice organised into multidisciplinary teams and long-term partnership working between practices specialised in different disciplines. Price recognised the need of specialist knowledge and skills, but emphasised the importance of developing a common language for effective communication between experts from different fields. He concluded that, whilst there was not one ideal organisational model of collaborative working, the key ingredients were a desire to communicate and a passionate commitment to creating quality buildings. Ritchie (2001) stressed the importance of overcoming professional barriers between architects and engineers, arguing that the development of synthetic thinking required an attitude which is no longer territorial. He identified the crucial ingredients of

collaborative working as listening to others, respect for individual skills, establishing a communality of aims and the development of mutual trust.

The American architect Brause (2017) recently published *The Designer's Field Guide to Collaboration* based on her interviews with architects discussing their collaboration with other design professionals such as landscape architects and engineers. Whilst most of the examples of collaborative practice that she presents are of architectural projects, Brause recognises the importance of collaboration between a wider range of stakeholders when tackling problems at the urban scale. As well as emphasising the importance of building relationships with clients and community stakeholders, she advocates early collaboration of all disciplines involved in design. She highlights a range of characteristics of effective collaborative working including:

- motivated team members;
- good communication, particularly active listening;
- early design workshops to create shared visions for projects;
- recognition of the skills of colleagues, but avoiding holding on to set roles too rigidly;
- giving and receiving constructive feedback;
- encouraging a culture of debate and challenge;
- working in close physical proximity to encourage a constant flow of communication and engagement in collective problem solving;
- collective reflection on practice to build capacity to face future challenges.

The limited literature on interdisciplinary practice suggests that, whilst there is widespread recognition of the potential benefits, interdisciplinary working has yet to become mainstream practice.

3.5 The future of the professions

A number of reports have been published about the future of the built environment professions. These have considered both the changing market for services, the wider social relevance of the professions' activities and the benefits of interdisciplinarity.

The discussion about the future of the planning profession has focussed on the role planners can play in tackling social and environmental challenges. The Town and Country Planning Association's *'The Future of Planning'* report highlighted the need for planners to show 'the transformational potential of planning to people's lives and well-being' (Town and Country Planning Association, 2010, p. 10), but it identified a significant concern around public trust in the planning system and stressed the need for planners to put a greater emphasis on community development and communication skills. Campbell (2014) writing in the *Guardian* newspaper commented that 'the status of public servants in general has suffered over the last 30 years, but in the case of town planners, it has been particularly pronounced' and went on to argue that, in the context of the pressure of globalisation on our cities, the time has come for planning to make 'a comeback as a relevant and politically purposeful discipline'.

Discussion amongst other built environment has focussed more on the nature of practice and interdisciplinary working. The RIBA Building Futures Group undertook a study on the future of architectural practice and in 2011 produced a report *'The Future for Architects'* (Jamieson, 2011). This report considered small architectural practices and large multidisciplinary practices to be relatively stable parts of the industry, and medium sized design led practices to be under the greatest pressure. Global interdisciplinary practices were identified as having significant growth

potential, because they offered international clients a more cost effective, business savvy package to international clients. The report also saw potential for architects to be part of multidisciplinary services, which could offer clients a one-stop-shop service. It suggested that architects might usefully focus more on 'pre-project' services such as community consultation and analysis, brief development and strategic thinking. The report concluded that:

'While the future for the practice of architecture as a discrete business is uncertain, the opportunities for architects have never been greater, notwithstanding the current recession. However to grasp those opportunities architects will need to develop greater financial nous and commercial acumen, to welcome the integration of their work with others in the wider industry, and continue to work hard to promote the extraordinary benefits which society gains from the design process.' (Jamieson, 2011, p.39).

The Edge, a multidisciplinary think tank, commissioned a report on the future of the built environment professions. This report considered that one of the key challenges facing the professions is that 'they tend to reinforce silos and to preserve hierarchies, when the requirement is (or may be) for increased integration of services for clients' (Morrell, 2015, p. 25). It considered that the professional institutions had not kept up with the growth in multidisciplinary practices and the increasing number of practices that are companies with external ownership. It argued that, while individual professional institutions tend to stay in their silos and argue in defence of what they perceive to be their members interests, an increasing number of those members are employed in major international consultancies that are generally seeking to integrate their offer to clients across separate disciplines. The report thus recommended greater collaboration between the professional institutions to improve their offer to society and to tackle issues such as climate change. It also recommended reviewing the siloed nature of the built environment's education system and the promotion of a cross-disciplinary approach to education.

The Farrell Review of Architecture and the Built Environment (2015) was an independent review, initiated by the architect Terry Farrell, aimed at influencing both government policy and industry practice. It argued for a more proactive approach to planning, with an emphasis on place-making:

'It is only through proactive planning that we can shape our built environment in a big-picture way to meet the social, environmental and economic needs of future generations' (The Farrell Review Team, 2015, p. 73).

The Review recognised that this could only be achieved through architects, planners and urban designers working together and argued for the creation of 'an interdisciplinary workforce, able to break through the existing silos of working that are hindering our built environment today' (The Farrell Review Team, 2015, p. 64).

The literature discussed above highlights the importance of multidisciplinary working to improving the contribution that built environment professionals can make to tackling social and environmental challenges, but also recognises the continuing divisions between the professions.

4. OVERVIEW OF INDUSTRY ENGAGEMENT AND DATA COLLECTION

The key primary research was a set of interviews carried out between May and September 2016. 24 interviews were conducted with industry partners in the London area (18 in private practice and 6 in public sector organisations) to investigate the nature of collaborative practice, and to further scope out opportunities for future engagement with the BA Designing Cities course.

Table 3: Analysis of private and public sector interviews by profession

Professional affiliation	Number of interviewees
Planner	10
Architect	5
Architect-Planner	5
Landscape Architect-Urban designer	2
Architect-Urban Designer	1
Transport Planner	2

Interviews were initially set up with existing network contacts, particularly University of Westminster alumni. Further interviews were set up using a snowballing sampling technique. 19 interviews were conducted face-to-face with 20 interviewees. A further five interviews were conducted over the telephone. Most of interviews were conducted with senior staff (associate directors, directors and partners). The majority were planners, architects and architect-planners, but interviews were also conducted with landscape architects and transport planners. Some of the interviewees had a dual qualification or had developed additional professional expertise through their experience in practice. Table 3 provides a breakdown of the professional backgrounds of the interviewees. Most of the approached firms offered interdisciplinary services. As it was also recognised that partnerships working between practices can provide examples of effective interdisciplinary collaboration, some single discipline practices were also interviewed. The public sector practitioners interviewed worked in local authorities or development corporations.

The interviews were semi-structured and each interviewee was asked questions based on a standard schedule, which focussed on the themes identified in the literature review. Themes included service offering, organisational structure, insights on collaboration, and future directions in the market for consultancy services and in the role of the professions. All interviews were recorded and transcribed for analysis.

Professionals were interviewed from a range of practices that varied in size and service offering. As the focus of the research was on collaboration between architects and planners and identifying good practice, we interviewed professionals in the public sector who were involved in promoting design quality through developing planning policy, development management, urban design projects or as client representatives.

The practices to which the private sector interviewees worked were categorised according to a modified version of Connaughton and Meikle's (2013) classification of professional consultancies. This categorisation was based on the discipline to which most members of the practice were aligned. The majority of firms were architecture or planning led firms (Table 4). When analysed according to their size (defined as the total number of staff in all offices be they local, regional or international), the majority practices were considered to be large and employed between 50 to <350 staff (categorisation adapted from Colander, 2014) (Table 5).

Table 4: Analysis of private sector practices interviewed by practice type
(Classification adapted from Connaughton and Meikle, 2013)

Practice type	Number
Architecture led firm	7
Planning led firm	4
Engineering led firm	2
Urban designer led firm	3
Surveying led firm	1
IT led firm	1

Table 5: Analysis of private sector practices interviewed by size
(Classification adapted from Colander, 2014)

Practice size categories	Number
Very large (headcount > 350)	4
Large (headcount 50 to <350)	7
Large Medium (headcount 20 to <50)	1
Small Medium (headcount 10 to <20)	2
Small (headcount 5 to <10)	1
Micro (headcount 1 to < 5)	3

Three of the architect led firms interviewed had planning teams: two were created organically in response to the market and one by a merger with an existing planning practice. In-house planning teams at each of these three firms offered a full range of planning services, including advice on planning applications and preparing master plans. All three of these firms are large (headcount 50 to <350) and only took on work in the UK. The fourth architect led large practice presented themselves as architect-planners; 60% of their work included master planning and urban design, while 50% of all of their work was located outside of the UK.

The planning led firms were comparatively smaller than the architecture practices. They typically offered a range of planning services (from project conception to planning permission and all stages in-between). The majority also offered urban design services. However, the London office of one interdisciplinary practice had decided not to undertake master planning as they were not able to compete with architecture led firms offering this service as a loss leader. In comparison with the broader interdisciplinary service offered by other practice types, the planning led firms offered a relatively narrow range of services.

Two engineering led firms were interviewed. One was a very large international multidisciplinary practice (headcount > 350) of engineers, designers, planners and technical specialists offering a wide range of services in the built environment disciplines. The London office had a separate planning division and took on work both in the UK and abroad. The other was a large practice (headcount 50 to <350) offering engineering, urban design and conservation services focusing mainly on the UK market, but with some international projects. Some in-house planning services are located within its urban design and transport division, although much of the planning services were outsourced. Both of these firms had a very strong focus on interdisciplinary working.

Three firms described themselves as urban design practices. Two had been established over 25 years ago and had played an important role in developing the agenda around urban design. The founders of both these practices were architect-planners. As well as urban design services, both were involved in developing regeneration strategies and stakeholder engagement, and one also provided

planning advice. The third was a more recently formed micro-practice founded by someone whose original training was in architecture. This practice offers master planning, urban design and consultation services.

The IT led firm is an outsourcing company (headcount > 350) that provides a wide range of professional services (including utilities, residential, defence, education, commercial, energy, water and waste, and healthcare). It is an international company with regional offices in the UK. The planning division, which operates as a separate business within the larger organisation, nonetheless aims to be part of the comprehensive one-stop-shop built environment service offered by the parent company.

Six interviews were conducted with architects, planners and architect-planners working in the public sector in the London area. The interviewees worked for three Local Authorities and two Development Corporations. The role of interviewees varied and included planning policy, place making/shaping and design quality (Table 6)

Table 6: Analysis of public sector interviews by role

Role	Number of interviewees
Planning Policy	2
Place Making/Place Shaping	2
Design Quality	2

5. ANALYSIS OF INTERVIEWS

5.1 The themes covered in the interviews

This section of the report presents the detailed analysis of the interviews. All of the professionals interviewed stated that collaborative working with colleagues with different professional backgrounds was key to virtually all of their projects. The issues discussed in the interviews included the benefits of collaborative working, work organisation, the ingredients to successful collaborative working and obstacles that needed to be overcome. The themes of best practice in collaborative working which emerged from the analysis relate to organisation, team building, communication and fostering a learning culture. The interviewees were also asked about how they saw the market for their services changing and the future of the professions.

5.2 The benefits of collaborative working

There was a general consensus on the value of collaborative working. Better quality design was seen as the foremost benefit. An architect who led a place making team in a local authority, when asked about the benefits of collaborative working, replied:

‘Better built environment, better planning policy and better design. We started winning awards because of our multidisciplinary and collaborative way of working and again that feeds back into the process ... We are getting a higher calibre of recruits, because people want to work here, and developers are appointing better architects. It raises the game on everything.’

A planner who was a partner of an architecture led multidisciplinary practice explained that:

‘There is always a richer outcome, because there is quite a lot of debate and differences of opinion, which has its advantages and disadvantages. It is

quite hard to manage but at the same time you are going to get a much better distilled set of arguments.'

Another key benefit was a smoother process and a more streamlined service. The head of the London planning division of a large multidisciplinary practice pointed out that:

'We can provide a one-stop-shop for clients if that's what they want.'

He also commented that:

'Design solutions have a better change of successfully navigating the planning system because you have considered planning from the outset.'

The head of the planning team at an architect led practice made a similar point explaining why the planning team had been set up:

'Schemes were going too far without getting the right planning advice, at the right stage.'

5.3 Team Working

Most of the private sector practices involved in the research were organised in teams based on a particular discipline and operated a form of matrix management with multidisciplinary teams set up for particular projects. A few firms, particularly those with an urban design focus, had multidisciplinary teams. Similarly two place making teams in local authorities included staff from different disciplines. Some multidisciplinary project teams were made up exclusively of in-house staff, but others involved members of different practices. Many practices had developed long-term collaborative relationships with practices specialising in different disciplines. In some multidisciplinary practices, there was a policy of positively choosing to work with other practices as this widened their experience.

There was general agreement that getting the right team together was crucial. The head of one of the local authority place making team considered that this involved:

'getting people with the right attitude who were open minded regarding other disciplines.'

Early involvement was seen as another important factor by many. A planning director in an architect led multidisciplinary practice explained:

'The critical thing is really involving all the disciplines early in the process, and giving them the opportunity to understand the direction of travel and also for those disciplines to feed into the design'.

A transport planner at a large engineering led multidisciplinary practice pointed out the problems arise if this doesn't happen:

'It is a challenge for us to add value if we are brought in late and things are fixed.'

5.4 Good communication

Good communication, particularly the ability to listen, was seen as crucial to building trust and to effective collaborative working. It requires learning to understand the language and priorities of different disciplines. The head of planning in architecture led practice explained that communication had improved over time and that she now was able to speak more in 'a design language'. An architect in large architectural practice, as well as emphasising the importance of listening to other consultants and contractors, also stressed the importance of listening to the client and pointed out

that, particularly for urban projects, it was important to understand the political context.

5.5 Developing mutual respect and building trust

Developing mutual respect and building trust were widely seen as key ingredients in successful collaboration. The planning director of a large multidisciplinary practice elucidated:

‘A potential obstacle is where you have different disciplines who work to their own agenda and are not actually listening to what other people are saying. I think if you work up trust with other consultants and team members over a period of time you get used to working together. When you are bringing new teams together, there might be some barriers to break down. It is about having appreciation about what other disciplines do and what their drivers are.’

The head of a local authority place making team described how trust was built up over time:

‘Giving people the opportunity to demonstrate their value is a really important part of it. You can easily pigeon hole a designer as having to do a certain kind of work and the planner has to another kind of work. But give people the opportunity to demonstrate how design thinking can influence policy in a certain direction and how a planner can make better design. You demonstrate it through doing it. So a new development manager officer might be wary the influence that a place-making officer has here. After working through a few cases they will say they can now see how it works.’

5.6 Developing shared objectives

Many of the interviewees highlighted the importance of developing shared objectives. A partner in architectural practice commented that:

‘I think generally the design gets stronger the more specialist inputs you get, provided that there is a strong concept at the heart.’

A planning director in an architectural led multidisciplinary practice highlighted the importance of a shared focus on place making. He explained:

‘What is important is the place you are going to make. There are plenty of architects (in the practice) including most of the partners that are keen to think beyond the red line of the building, and to think about the relationship between spaces and the building’.

A partner in an architect led multidisciplinary practice described how on all their projects they developed ‘a strong narrative for change’. He explained that this was a reiterative process involving not just the consultants, but all the stakeholders including politicians and the local community.

5.7 Design Workshops

Many interviewees highlighted the role that design workshops play in effective collaborative working. The chairman of an architect led practice emphasised the need for:

‘lots of workshops in the early stages to understand everyone’s needs and requirements.’

A transport planner in an engineering led practice described how his practice organised multidisciplinary workshops:

‘The face-to face interactive workshop at regular times throughout the project is usually a pretty successful way for mopping up a whole lot of issues and being able to resolve them rather than producing a plan then getting a lot of input when things are fixed. It is getting everyone in the room face-to-face with the current thinking on plans. We will go through the master plan as it is at the time and the architect will usually lead. They will be aware of the issues and problems that they are trying to address. Every discipline then has chance to input and highlight their issues.’

He also explained that the practice involved clients in these workshops and that in a master planning project the client could be multi-headed as several different organisations often were providing funding.

It was recommended that design workshops should be separate from project business meetings. An architect-planner in architect led practice pointed out:

‘It’s important when you have a design team workshop, you don’t actually end up doing design team business and not actually design. We try to formally separate the design team business from all day design workshops.’

5.8 Co-location

Many of the interviewees stressed the advantages of working in close proximity with professionals from other disciplines. An architect-planner in an architect led practice explained:

‘Physical remoteness is a barrier to interdisciplinary working. There are lots of digital tools that we are using. We have video conferencing; we use Webex. But critical things need to be face-to-face because it needs to be fast, and electronic things can’t keep up with the reiteration and allow the decision to be made. You can share stuff about options (electronically), but when you actually want to say if it is A, B or C, it is easier to hammer that out in a shared room.’

A planner in a multidisciplinary practice commented:

‘Because we work at the same office there are opportunities to just sit down informally and bounce ideas off each other.’

A planner in an architect led practice highlight the impact of working in close proximity:

‘We used to be on separate floors and there was a bit more of an “us” and “them” attitude. Then we moved into this office where were on the same floor and we could all see each other. I didn’t think it would make that much difference, but it has made quite a significant difference. You can get up and talk to someone rather than send an e-mail.’

Quite a few of the interviewees worked in practices which provided shared space for socialising as a way to promote more informal communication between staff. Some practices regularly provided lunch for staff and this created an opportunity to get to get know colleagues in other teams. One engineer led practice had developed close collaborative working with smaller practices to whom they rent out spare office space. These practices are invited to events organised by the main practice so they can all get to know each other and this promotes a shared culture and more collaborative working between the practices.

5.9 Open mindedness and flexibility

Many interviewees stressed the need to be open minded and flexible. An architect-planner in an urban design practice highlighted good practice as:

'Having an open mind so that you can listen to other points of view ... not being wedded to having one way of doing things and not saying this is our only solution ... having the flexibility to test out options is really important ... perhaps thinking the unthinkable in terms of what if we did it this way.'

A planner in an architect led practice considered that:

'Key to successful collaboration is the ability to accommodate feedback and to be flexible and not afraid of trying a different approach.'

A transport planner in an engineer led practice also stressed the importance of flexibility:

'It's about having the creativity to be involved in very open discussions and to be adaptable to different constraints that come in from other disciplines. A lot of transport planning and other engineering disciplines have prescribed ways of doing things and often feel there is one answer, or one design or layout, which is the right solution. Once you throw that in the mix with all the other disciplines, and everyone is trying to come up with the best overall solution, you need to be able to adapt. You need to make a few compromises on your own area for a better overall outcome.'

In another engineer led practice, a transport planner explained that in their practice people were encouraged to move between groups:

'For example, we have a member of staff who had been working on transport projects moving to work on urban design projects. It stretches across the practice, some people have moved across from transport to structural engineering.'

5.10 Clear roles

Whilst flexible thinking was recognised as important, interviews also highlighted the need to respect professional boundaries and be clear about the role of different team members. An architect-planner in an architect led practice commented:

'You need to have a team that have skills that are complementary so that people are not tripping over each other.'

The importance of the right input at the right time was widely emphasised. Whilst it was important to be clear about roles, in large projects these might need to change as the project evolved. A planner in an architect led practice whose work included master planning, building design and interior design pointed out that a different type of leadership was needed as projects moved into different phases. He described how the leadership of a project for the expansion of an airport would shift from a partner who had skills in strategic thinking and analysis economic impacts, to a different partner when it was time to prepare a planning application.

5.11 Project management

The importance given to the role of project management varied considerably amongst the interviewees. Sometimes this was a separate role within the team, sometimes the design lead took on this role. Whether teams included a dedicated project manager partly depended on the scale of the project, but also was a result of

the culture of the practice. Some firms put more emphasis on the process of project management. A transport planner in a large multinational engineer led firm emphasised the priority that they give to project management:

‘Another aspect of our practice is that we do a lot of project planning, so before the start of a project we plan out roles and responsibilities and who is doing what. The project manager will always be someone within the team. Our staff, when they reach that level, are all trained as project managers and accredited within the business.’

An architect-planner in an American owned architect led practice explained the practice’s commitment to project management:

‘We have a strong practice approach to how we work which we call process design. It is how we plan ahead, how we structure the project, how we structure decision making’

5.12 Fostering a learning culture

Many of practices had regular in-house or web-based seminars, where people shared knowledge on a particular topic and discussed projects. On some occasions, these seminars also involved external consultants with whom they regularly worked.

The two engineering led practices put considerable emphasis on learning from project to project. One held charrettes every two to three weeks where a member of staff presented a project or discussed a technical issue. A transport engineer from this practice commented:

‘It is quite a challenge for people. I have been through a couple where I have been challenged quite a lot. You end up in a different place and see the project differently.’

The other engineering led practice held lunchtime project updates. A transport engineer in this practice elaborated:

‘We get staff to present other people’s projects, so we will, for example, get a structural engineer to present a conservation project. He or she will speak to the person responsible for the project and then present it to the organisation, so that tries to get people out of their comfort zone.’

However, differences in the ways in which architects and planners discuss their work can initially be a barrier to learning across the practice. “Crits” are a deeply embedded part of the culture of architectural schools, which continues in practice. A planner working in an architect led practice explained that planners could feel quite alienated and find the process was overly subjective, but over time in this practice they have gradually come to understand the skills that architects bring and their skills as planners have become valued by the architects.

One architect led practice had held a two day workshop with consultants with whom they regularly worked, exploring how they could develop more efficient collaborative working, and looking at the obstacles and the opportunities. The result was giving priority to co-locating teams. They concluded that working in the same room massively accelerates design and hothouses projects. As a result, they are piloting bringing design team members together for one or two days a week at key stages in projects.

5.13 Future demand for services and the role of the professions

A number of themes emerged around how the interviewees saw the market for their services changing and how their practices were positioning themselves to be able to adapt to change. In some practices, staff were increasingly specialised. A partner of a large architecture led multidisciplinary practice explained that most of their projects involved mixed uses. They had architects who specialised in retail, commercial and residential projects, and having this mix of skills enabled them to respond flexibly if the market shifted, for example, from residentially led projects to commercially led projects. Other interviewees noted an increasing demand for specialist planning advice: in the past architects or surveyors would have given planning advice, but clients increasingly valued specialist advice. However, others highlighted that, particularly at a more senior level, there was an emphasis on more generic skills such as an understanding of governance issues. A transport planner in a large international multidisciplinary practice explained that:

'In the last 2-3 years we have definitely much more focus on cities. This is linked to city mayors becoming more prominent in the UK and around the world. Cities are drivers of development and the whole urbanisation process and more sustainable solutions. We have focussed our business more on cities than countries and try to work with city mayors as they have more power to change things.'

Most practices, as well as aiming to work on a mix of project types, aimed to have a mixed client base in order to be better able to respond to changing demand. For some, this means having a balance of domestic and international clients, whilst for others it means a balance of public and private sector clients. A landscape architect in an engineer led practice commented that:

'The 2008 recession had meant that, for quite a while, little work was coming from the public sector. This work had now picked up, but projects were generally on tighter budgets and there was a greater emphasis on deliverability. Again an understanding of governance was seen as key to delivering projects.'

The referendum on the UK's membership of the European Union occurred during the period in which the interviews were being conducted. The initial view of the impact of the vote for Brexit was that it was having a mixed effect. As a result of the fall in the value of sterling, foreign investors were keen to invest, as their money would go further. Similarly, tourism related projects were seen as good investments. However, other sectors, such as high-end residential, were adversely affected and projects were being put on hold.

There were mixed views about the relevance of the professional bodies to practice. Whilst their role in education was widely recognised, there was concern that they were perpetuating a silo mentality. Quite a number of the interviewees expressed a frustration with the professional bodies for not adapting to the pace of change and not tackling the big issues. Some interviewees felt that they would have a more powerful voice if they were part of a broader built environment professional group. One architect-planner commented:

'It is critical that the professions get aligned and talk about the issues facing cities.'

6. CONCLUSION

This research has shown the extent of the interest in interdisciplinary working amongst built environment professionals in the UK and explored how a range of professionals in the London area are practising interdisciplinary working. There was a strong consensus amongst the interviewees that collaborative interdisciplinary working produced better quality outcomes. Early involvement of all the disciplines was recognised as important to successful collaboration. Good communication skills, particularly listening skills, were seen as key to building trust and mutual respect, and to developing shared objectives. Design workshops at an early stage of projects played an important role in developing shared visions. Face-to-face meetings were widely seen as crucial for exploring design options and co-location of professionals from different disciplines was seen as encouraging informal communication that facilitated more effective collaboration. Flexibility and the ability to respond to feedback were identified as key ingredients in achieving the best overall solutions. Whilst flexibility was recognised as important, the need to respect professional boundaries and to be clear about the role of team members was also highlighted. The features of successful collaborative working identified in this research strongly echo those found by Brause (2017) in her research on architects and collaborative working in the USA. These research findings show that the relevance of these features to a broader range of professional disciplines in a different national context.

The research included interviewees from a variety of practices in terms of lead discipline, size, sector and project focus. The research findings suggest that larger multidisciplinary practices are better able to realise the advantages of co-location of different professional disciplines and to encourage more effective collaborative interdisciplinary working by promoting a learning culture through shared workshops, seminars and training. However, it also noted that smaller practices can realise some of these benefits by sharing premises with professionals from other disciplines and by holding joint seminars and other events. Although few architects are now employed in the public sector in the UK, the research indicated that, in the authorities and agencies where they were employed, they were able to make a significant contribution to the quality of the built environment through collaboration with planning colleagues.

Whilst the professionals who participated in this research were committed to collaborative interdisciplinary working, it was clear that there remain obstacles to it becoming mainstream practice. There is still a tendency for professionals to work to the priorities of their own discipline and not to appreciate fully the benefits that closer working with professionals from other disciplines can bring. Some of those interviewed expressed frustration that, as a result of focussing on protecting their members' interests, the professional bodies of the different disciplines sometimes reinforced a silo mentality and failed to adequately address the bigger challenges facing society. These views support the case for closer cooperation between professional bodies as advocated by the Edge (Morrell, 2015). Education has a crucial role to play in breaking down these interdisciplinary boundaries, which will require professional bodies to be flexible in how they approach the accreditation of courses for entry into their professions.

The research findings will make a significant contribution to the further development of our new degree course, BA Designing Cities. The body of knowledge developed in the research will inform the content of many of the modules in the programme. Many of the interviewees offered to be involved with the course in a range of ways, including giving lectures to students, hosting visits by students to their projects, acting as an external examiner, attending crits of student projects and offering work

placements to students. A number of the interviewees have already given presentations to students on their work, which was really useful, as it gave students at the start of their studies some ideas about the kind of projects they might be able to work on later in their careers. Work placements of a minimum of two weeks are planned between the second and third years of the course, so we will be contacting those who were willing to offer work placements to arrange these in due course.

Whilst this research makes a contribution to filling the gap in the literature on interdisciplinary working in practice, it was exploratory and small in scale. There is therefore considerable potential for further research on the subject. Possible topics for further research might include collaborative interdisciplinary working in different national contexts, detailed case studies of collaborative projects of different scales, the role of clients and users in collaborative projects, collaboration between architects and planners in the public sector, and the leading role played by engineering led firms in promoting interdisciplinary working.

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