THE VALUE OF DESIGN AND THE ROLE OF ARCHITECTS

A STUDY FOR ACE ARCHITECTS'COUNCIL OF EUROPE

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ARCHITECTS' COUNCIL OF EUROPE
CONSEIL DES ARCHITECTES D'EUROPE

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This aim of this strategic report has been to consolidate existing knowledge across Europe and develop next steps to be addressed by ACE in demonstrating the value of design and the role of architects.

A call for evidence on methodologies for evidencing the value of architects and architectural design distributed through ACE networks in July 2018 resulted in a patchy and thin response despite considerable efforts to communicate it to colleagues in education and practice. The conclusion is that very little is currently known about work on evidencing the value of architects in Europe and that strategy is needed to provide joined up thinking in this area.

Going forward the triple bottom line of sustainability: social, environmental and economic value and the relationships between them is a useful and common way of framing design value that has some traction with policy.

The mainstreaming of Post Occupancy Evaluation (POE), not just in terms of environmental performance but also in terms of more intangible aspects of social value, is key to the demonstration of value. ACE needs to develop a strategy to promote this increasingly important aspect of architectural practice.

Universities, practice and industry also need to work together to demonstrate value. In particular there is a need to develop the skill-base of practitioners and students in research and POE.

The review identified substantial gaps in knowledge that need to be filled. In particular viewpoints are needed from parts of Europe that gave no response, also from policy makers and clients.

It is vital to acknowledge the multi-disciplinary nature of architectural practice and the way in which the value of design and the role that architects play in it is framed.

Consensus on definitions are needed for capturing value. The more that these definitions can align with definitions used by policy makers the easier it will be to feed findings into policy and procurement which will impact on the future role of architects.

Demonstrating the value of architects has been long term concern of the Architects Council of Europe (ACE). As Georg Pendl the President of ACE states, the value of design shouldn't just be about cost, what is most important is its impact on the life of people.
The ACE Strategy 2016-2021 (approved by the General Assembly (GA2/15) on 23/1/16) includes, within its Strategic Priority 3 'Promoting Responsible Architecture', a key theme on the 'Value of design', which commits the ACE to:

- Work for recognition of the value of design and its relevance through the project life-cycle, as an intelligent investment
- Work for recognition of the role architects play in the design of the built environment for a sustainable future
- Demonstrate the impact of architecture on the quality of life

These precepts are key to the definition of value used in this report, terminology that has been subject to much debate. Whilst some might wish to focus on the value of architects in order to bring concrete benefits to ACE members, others believe this to be too self-serving and believe that the project should focus on design more widely, hence the title of this report. This issue is further blurred by the fact that many 'architecture' practices are interdisciplinary, employing professionals from a wide variety of fields. As Oya Atalay Franck the president of the European Association of Architectural Educators (EAAE) observes:

> '"The project is important because new professional profiles are emerging in the field of architecture. The classic role of architects is for sure "threatened". However, this change is also accompanied by a lot of opportunities. ACE as a representative and advocacy body should be very diligent and constantly monitor and anticipate these developments".

The ACE Value survey, a call for evidence from ACE members and others in over the summer of 2018, on the value of architects and architectural design was conceived to address this key theme and strategic priority and is an important first step in establishing the current baseline of knowledge across Europe, on both the value of architects and methodologies for demonstrating their value.

The report which summarises the findings of the review begins with a brief examination of the recent research context before moving to a discussion of the methodology taken in assembling evidence and a discussion of the findings, categorised according to the type of source: policy papers; industry papers; education papers; Measurements of Value and Toolkits. It finishes with an analysis of findings, the identification of gaps in knowledge and a proposal for future strategy. A spreadsheet of evidence submitted for the review is appended to this report.

> "…architecture and design can and do impact on many aspects of life. Architecture can have either a positive or negative social, economic or environmental effect, depending on the quality of the design." (Scottish Executive, 2006, p9)

Despite the fact that architects, from Vitruvius onwards, have been in the business of selling their services, the profession lacks a robust methodology for demonstrating its value. Further work has been undertaken on the value of 'design' more widely for example a recent New Zealand report which is unusual in addressing the activities of architects (DesignCo, 2017). In the UK the 2014 Arts and Humanities Research Council (AHRC) funded project 'Evidencing and Communicating the Value of Architects' (VoA) revealed that there is almost no convincing evidence of the value of architects, partly because of lack of clarity about definitions and an absence of a framework for developing value (Samuel, 2018). The findings suggest that there is a strong developing evidence base on the importance of environments on wellbeing, productivity and other positive outputs, but these are almost never linked to the activities of architects and, further, that it is important to be specific about the type of value generated.

A central issue is lack of agreement on the meaning of design value or the value of architects. This impacts on the way in which evidence of value might be collated. A recent systematic literature review of design value in the context of housing recently completed by the UK Collaborative Housing Evidence Centre (CACHE) revealed considerable consensus on the 'triple bottom line' of design value (Fig. 1) – social value, environmental value and economic value (Serin et al, 2018). Whilst these values are of course interconnected this definition is useful for the quantifying and indeed monetising of the impact of design value, a necessary step to getting design value included in policy and procurement. If architects don't define design value others will fill the void.

Fig. 1 Triple Bottom Line of Design Value

The need to quantify social value is particularly acute as environmental value can be measured through carbon and economic value, is of course quantified financially. In the UK

the Research Practice Leads, a group of architectural practitioners who lead on research in practice are working with the RIBA, the Ministry of Housing Communities and Local Government, the New Economics Foundation and ARUP are developing a post occupancy toolkit for the measurement of the social value of architecture (Samuel, 2018b).

The measurement of design value is growing particularly important with the advent of outcomes based procurement which focuses on the value a building delivers, rather than its form (Bentley, 2018). This form of procurement, used for example by clients such as Anglia Water in the UK, is being developed hand in hand with integrated project insurance (Samuel, 2018, p.202). Both encourage the project team to focus on collaboration and innovation rather than risk, responsibilities and litigation. They rely on members of the project team being very clear about how to evidence value. Further impetus to define and measure design value comes from data driven design, in particular the development of digital twin models of cities and buildings which are being built on flows of data. It is important that the environmental, economic and social value of design is included in these models. Outcomes based procurement presents the architectural profession with a real opportunity to demonstrate and capitalise on the long term value of good design but these impacts will remain hidden unless Post Occupancy Evaluation, the evaluation of buildings in use, becomes the industry norm (Hay et al., 2017).

2. REVIEW

This report presents a review of a series of papers and resources received from members of the ACE after they were sent a short survey, requesting examples and reports that captured the contribution of architects to urban design. A total of **69** papers and resources are reviewed here. The references were received from members in **six** countries. Additional references to work or research were included in those documents, referring to a further **six** countries. There is no information from **19** countries out of the 31 countries represented by ACE (see Table 1).

TABLE 1. RESOURCES RECEIVED FROM ACE MEMBERS

ACE members	Papers provided from country	Reference to work in country
AUSTRIA		Y
BELGIUM		
BULGARIA		
CROATIA	Y	
CYPRUS		
CZECH REPUBLIC		
DENMARK		Y
ESTONIA		
FINLAND		Y
FRANCE	Y	Y
GERMANY		Y
GREECE		
HUNGARY		
IRELAND		Y
ITALY		
LATVIA		
LITHUANIA		
LUXEMBOURG		
MALTA		
NETHERLANDS	Y	
NORWAY	Y	
POLAND		
PORTUGAL		
ROMANIA		
SERBIA		
SLOVAKIA		
SLOVENIA		
SPAIN		Y
SWEDEN	Y	
SWITZERLAND		
UNITED KINGDOM	Y	

The resources received were arranged into five different categories, according to the sectoral origin of paper or type of resource:

- National policy (16 papers)
- Educational perspectives (19 papers)
- Industry-based perspectives (14 papers)
- Value measurement resources (15 papers)
- Toolkit resources (5 papers)

In each category, common themes were identified that cut across the papers within each category, in relation to understanding the contribution of the architect to design quality. These themes are presented in the subheadings in each section of this report. A spreadsheet was created to try and capture distinct values and where possible, identify how those values were established and evidenced.

A set of 16 papers was received that were derived from a government initiative or public policy. The papers give an indication of what public policy-makers see as good practice, as well as ways in which they are trying to enhance the quality of design, through policy requirements and guidance. The following section provides an overview of the common themes emerging from those papers, in relation to the contribution of the architect and urban designer regarding synthesizing role, achieving public policy objectives, facilitating collaborative processes and establishing a positive design culture.

2.1.1 CONTEXTUAL AND STRATEGIC SYNTHESIS

Within the design process, architects and urban designers have to take account of an array of contextual, environmental, social, economic and spatial intentions and attributes, including the relationship of these issues to a building or site (CCA, 2016; Dutch Ministry of Infrastructure and the Environment, Dutch Ministry of Culture, Education and Science, 2016; Farrells 2014; HMG, 2018; Norwegian Ministry of Local Government and Modernization, 2018; Swedish Government, 2018). Balancing such varied, contextual questions creates considerable complexity for architects who add value through their synthesising role as they work, iteratively, towards creating a strategic vision and detailed spatial design solutions.

The Croatian Chamber of Architects refers to the role of local government in establishing architectural and design policies that require developers to promote and protect distinctive local character and identity, "to avoid the danger of communities being absorbed in an unrecognisable urban whole" (2015). Similarly the Swedish government, talks about the role of planning and design to try to counter social segregation and decline (Swedish Government, 2018). For example, municipal architects, Dominique Perrault and François Grether, used the historical and contextual requirements as the basis for creating a new urban plan for the Island of Nantes, in France. The plan was created after a year-long dialogue with three multidisciplinary teams. It sets out a ten year evolutionary plan-guide to establish a new form, creating a better link with the Loire river and preserving an historical link to the city's port. The plan promotes a compact mixed-use urban form so that by 2030, there will be 10,000 new housing units, 450,000 square meters of business and office space, 350,000 square meters of facilities and 160 hectares of public space (Bloche, 2014).

2.2 ACHIEVING PUBLIC POLICY OBJECTIVES

The reports are very clear that architects have considerable technical knowledge about how to design buildings and places in a way that can contribute to a range of local government policy intentions, including promoting health and wellbeing, enhancing social interaction, education and learning, sense of identity, productivity at work, improving safety, boosting local economies through enhancing, and promoting environmental goals. For example, targeted design measures to increase daylight and a sense of space (such as increasing the ceiling height of apartments to 2.70 metres, introducing high windows up to the ceiling and the even distribution of daylight) have been found to help worker productivity and sense of wellbeing. These measures can also support energy saving for lighting and passive solar heating can reduce the need for heating in the winter (although this needs to be balanced with design solutions that ameliorate overheating during hot summers).

The Psychiatric Department in Aabenraa Region (Norway) was redesigned to increase daylight and promote views and access to nature, encouraging visual transparency, more exercise, and sensory stimulating tools. A 30 % reduction in work-related accidents, and a 59 % reduction in cases requiring medication was recorded, when compared to the previous year in the old buildings (Norwegian Ministry of Local Government and Modernisation, 2018).

In the UK, the government has mandated the use of Post Occupancy Evaluation (POE) for publicly contracted projects, according to the principles of the government's 'Soft Landings' framework and the British Standard 8536-1:20159 within BIM Level 2. This information can help authorities to ensure they are achieving their public objectives and delivering value for money from their contracts (Hay et al, 2017). For example, a trial Social Return on Investment (SROI) was applied at Maggie's health care centre in Nottingham to evaluate the social value of a design intervention to renovate the site and buildings. The SROI sought to quantify the social outcomes identified using qualitative stakeholder engagement, and adopting financial proxies for social outcomes. This means that the social returns for every €1 spent on a project could be estimated and the payback period could also be calculated. The SROI methodology involved six stages:

1. Establishing scope and identifying stakeholders
2. Mapping outcomes
3. Evidencing outcomes and giving them a value
4. Establishing impact
5. Calculating the SROI
6. Reporting, using and embedding

The analysis was carried out over a six-month period, five years after first occupation, through a series of interviews with the project team, Centre manager, different user focus groups, user surveys and application of monetisation techniques to the quantitative results. The SROI analysis produced both qualitative stories, quantitative user feedback and financialised returns data which helped adapt communication for different audiences. The total SROI benefit of the design of Maggie's Centre Nottingham for the building users was found to be £134,800 per year (Hay et al, 2017, p16).

2.3 FACILITATING COLLABORATIVE PROBLEM-SOLVING

A number of the papers refer to the role of architects in facilitating problem-solving (RIBA 2016; RIBA 2017). In the process of design, it is often the architect / designer who brings together different actors to identify, analyse and distil 'constraints' regarding particular planning and design issues, in order to create a shared vision and then a more detailed outline of what a place or building might become. Yaneva (2005) describes the 'scaling-up and down' approach adopted by architects when enacting the design process. This refers to the capacity to both scale down - looking in great detail and understanding at the minutia of one aspect of a building, but also to scale up - zooming out to a more strategic view of how that specific component functions within the wider functioning of the building and its surroundings, as well as accounting for external requirements / constraints. Design studio in which 'artefacts of knowing' – drawings, models etc – evolve iteratively through democratic debate is the distinctive research methodology of architecture, one which other fields are starting to covet (Samuel, 2018, pp.64-67).

The Dutch government describes its 'cooperative' design model and the importance of the designer or architect listening to multiple intentions and communicating solutions through visual means:

> The designer's ability to visualise is an important asset in any spatial planning process which demands an exploration of possibilities and interests. The designer will translate knowledge, insights and ideas to arrive at images which are accessible and readily understood by stakeholders of various backgrounds. The process of creating concrete, visual scenarios brings the potential solutions clearly into view, together with the wider consequences of each choice (Dutch Ministry of Infrastructure and the Environment and Ministry of Culture, Education and Science, 2016, p.15).

The potential for architects to use technology and digital tools to enhance collaborative design processes is really beginning to emerge, promoting competitive advantage, design efficiency and cost savings.

2.4 POSITIVE DESIGN CULTURE

Various papers refer to the importance of governments in enabling a national culture that appreciates and values good design principles. For example, the Finnish government led the way in promoting strong environmental principles: 'One of the major results was the implementation of the right to a beautiful and healthy environment in the Finnish constitution (1998)" (Proceedings of the International Symposium on Architecture and Children, 2015, p13). Similarly, the potential contribution of architecture schools to the enhancement of their home towns and cities is affected by the level of support they receive from local government, the private sector and financial systems in order to engage in their local area.

A set of 19 papers was received from the educational perspective, illustrating the ways in which the educational sector can improve understanding about good design; how learning about architecture and design can also encourage learning in other disciplines. There was also a series of papers relating to how good design can promote a better learning environment and how educational institutions can stimulate wider urban regeneration and innovation.

3.1 ENCOURAGING LEARNING ABOUT DESIGN AND THE BUILT ENVIRONMENT

> …Built Environment Education will help children and young people to understand architectural design and the process by which the environment is shaped so that, as adult citizens, they will be able to participate effectively in the creation of high quality architecture that is humane, sustainable and respectful of its context (Croatian Chamber of Architects, Faculty of Architecture, University of Zagreb, 2015, p 21).

Learning about design and architecture can help to build an appreciation of its form and function and contribution to society and wider environment. In France, there are various architectural education outreach programmes to engage children in understanding the vocabulary and appreciation of architecture, through a range of learning institutions and museums (e.g. the network of Cities and Territories of Art and History: www.vpah.culture.fr; The Councils on Architecture, Urbanism & Environment (CAUE): www.fncaue.asso.fr; The Houses of Architecture: www.ma–lereseau.org; Cité de l'architecture et du patrimoine: www.citechaillot.fr); Centre George Pompidou, le Louvre, le Musée de la Ville de St Quentin en Yvelines, La Maison des Banlieues d'Athis Mons, le Musée Carnavalet). Similarly, in Austria children are encouraged to learn about architecture both inside and outside schools. For example, the KulturKontakt Austria (founded by the Federal Ministry for Education, the Arts and Culture) has carried out more than 2,500 'dialogue events' in schools, where artists have run workshops with over 120,000 children across the country. In Spain, they encourage applied learning or 'learning through doing'. For example, the 'Our cities' programme is an interactive series of workshops that seek to affect how children understand their built environment (see table below):

Our Cities Programme, Spain (from Proceedings of the International Symposium on Architecture and Children, 2015, p75**)**

Theme	Activities
1. Learning about each other	Learn about other people's country, history, geography, customs, and culture. Develop skills such as map work and communication.
2. Designing a city	Discover and understand urban design. Activities related to urban design include experiment. We make planning decisions based on community need. We make a street grid with principal and secondary streets.
3. Building a city	Promote a cooperative project. We decide on the type of building we can construct (residential, commercial, institutional, etc).
4. Neighbourhood	Learn to examine and appreciate the built environment. A neighbourhood reflects the values and needs of its people. It tells the history of that place. Exploring the homes, streets, parks, stores, school they learn about and understand the local area.
5. Outcomes	The most value outcome of the project is not what has been specifically created. It is what has been learnt, encouraging a new way of looking at the built environment.

In Germany, they describe the importance of 'learning through play' and highlight the need to invest in teachers, through training and support, so they can better guide children to appreciate architecture. For example, in 2002, the Chamber of Architects in Thuringia signed a contract on further education in architecture with the State Institute of Further Education of Teachers (Proceedings of the International Symposium on Architecture and Children, 2015, p111).

3.2 ENABLING WIDER LEARNING

Stimulating learning through the study of the built environment encourages young people to "orient themselves in space, to re–appropriate their environment, and consider their own role as active citizens to proactively work towards a sustainable future".
This recognises the potential role of architecture to highlight and looks for ways to address critical social and environmental challenges, such as climate change and informal human settlements (Ewa Struzynska, Proceedings of the International Symposium on Architecture and Children, 2015, p57).

The ACE papers indicate how architecture requires a wide breadth of knowledge but also contributes to addressing critical issues currently facing humanity. Architecture requires students to attain understanding across a vast range of subjects and disciplines. Teaching architecture also encourages students and researchers to addresses an array of contemporary issues – including those summarised in the following figure:

Architecture and Urban Design	importance of urban design; organisation of urban space; preservation of landscape space; settlement as designed form
Heritage and Modernity	value of architectural heritage; relationship to new use and to modern architecture; criteria for objective debate and evaluation of old and new architectural forms
Construction& Design Quality	industrialised production and 'genius loci'; individual design and prefabricated houses; qualities of good architecture
Modern Forms and Materials	meanings of the materials : steel, glass, concrete, wood, stone, brick; traditional or modern processes; new characteristics of materials
Economy and Ecology	building costs and sustainability; use of renewable natural resources; structural maintenance (value of the existing building stock)
Social Factors / Needs	adequate shelter for all (Habitat II); individual and social needs; universal access; public, community and privacy
Participation / Involvement	self–build housing (as economic necessity or self– realisation); involvement in planning personal and public environment

FIGURE 1. CONTEMPORARY ARCHITECTURAL ISSUES
(PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ARCHITECTURE AND CHILDREN, 2015, P39)

Barbro Grude (2017) describes how architects are taught to balance both the creative 'art' of architecture with their own personal ideas and wider social perspectives and how the architect learns to adopt a range of approaches to gather and synthesize different perspectives to help deliver multiple design intentions.

3.3 DESIGNING SPACES THAT STIMULATE LEARNING

Alongside how learning about architecture can also encourage a breadth of multi-disciplinary learning, there is the role of design in creating spaces that encourage positive learning space. For example, in Croatia, they describe how the design of kindergarten spaces can encourage a sense of home, where children can feel more relaxed and comfortable, enjoy their time at school e.g. through the provision of soft comfortable beds, armchairs and mats, curtains of pleasant colours, soft cushions and carpets, green plants and nice paintings, as well as the importance of design to create 'multi-sensory' stimulation and exploration, such as through the provision of outdoor play and wild spaces (Proceedings of the International Symposium on Architecture and Children, 2015, p111).

Architects' practice, Hawkins and Brown also describe how designers are adapting the way in which they design educational institutions and office environments to meet changing user needs. They have seen a shift from more formal classroom-type learning spaces towards more informal group and interactive spaces to allowing students a more fluid, agile and collaborative learning environment (Morison, 2015). Demonstrating the impact of spaces on learning is an under-explored area with considerable potential. Building with unskilled students as a part of their education, for example the work of Invisible Studio at Westonbirt Arboretum in the UK, is a growth area that was not addressed the review (Samuel, 2018, p.129).

3.4 UNIVERSITIES AS DRIVERS OF REGENERATION, RENEWAL AND INNOVATION

Universities are described as both 'in' and 'of' their home cities, helping to drive visions and shape the place that surrounds them. They can help to promote a transition from industrial to service economy, supporting urban renewal and regeneration, as well as targeting development of new skills and innovation. A university presence in urban areas can support a better-educated local labour force and higher local wages. This may link to academic research and applied research practices. For example, Durham University, was a key actor in the economic and social regeneration of Teesside in the early 1990s, emphasising issues of health, poverty, and lack of access to higher education during the development of its Queens Campus site in Stockton (Melhuish, 2015).

Learning institutions, can also be at the forefront of seeking innovative new ways to address key environmental challenges, such as climate change and biodiversity loss through both their physical design and research activities. For example, the University of Cambridge (UK), is developing a new urban quarter in the northwest of the city to accommodate its post-doctoral research staff but also to provide community and housing infrastructure for the wider residential area and also to demonstrate that it is possible to achieve new standards of sustainable design (Melhuish, 2015). Architecture academics have an important leadership role to play in driving innovation with cities, for example through the use of Urban Rooms as a nexus of collaborative research with communities, universities and cities (Place Alliance, 2019).

The industry papers provided a rich insight into private sector perspectives of the ways in which architects can add to urban design quality. 14 papers provided examples of the ways in architects could enhance project delivery, evaluation of performance, the future economies of the construction sector, as well as how architecture can contribute to wider industry goals through more common standards, procurement innovations and greater exchange of good practice learning.

4.1 ADDED VALUE AND VALUE FOR MONEY

> The proportion of clients who are 'very' satisfied with the job is higher amongst those who used an architect than a non-architect (RIBA, 2017, p7).

> If you had to pick one word in the built environment lexicon that is associated with the architect more than any other fellow professional, it may well be vision. (RIBA, 2017, p.12).

Architects are reported to enhance the retail value of property and promote local economies through improving urban design quality (Scottish Executive, 2006, HMG 2013 & 2005). For example, the industrial park 'Kleefse' Waard in Arnhem (Netherlands) was the winner of the Golden Pyramid in 2015. Kleefse Waard is an exemplar for redevelopment of obsolescent industrial sites. Developers Schipper Bosch saw the potential in the ninety-hectare industrial area, formerly occupied by chemicals concern AkzoNobel. Schipper Bosch asked architects West 8 to produce a design to restore cohesion to the now-fragmented area. The existing buildings were subject to careful evaluation. Those buildings of any cultural-historical value were upgraded to meet modern sustainability requirements while retaining their historical character. The commissioning client managed to transform an obsolescent complex into a vibrant business community which also contributes to a sustainable world. The project was not confined to spatial interventions: various collective amenities and activities were also been added. Rental revenue was reinvested in further facilities (www.goudenpiramide.nl) (Dutch Ministry of Infrastructure and the Environment and Ministry of Culture, Education and Science, 2016).

Few of the ACE papers provide specific figures to directly evidence the economic contribution of design per se and in terms of delivering value for money there is uncertainty about the specific added value contribution of the architect to design. In a UK client survey, nearly half of projects were found to go over budget (43%). Whether this overspend was due to the excessive ambitions of the architects was uncertain but clients often blamed them. (RIBA, 2017).

4.2 MEASURING PERFORMANCE

In a UK survey of 1,000 public and private clients there was a positive indication of the role of architects in producing good technical designs; with approval for the work done greater for architects than non-architects and two thirds of respondents being very or fairly satisfied with the final outcome (RIBA, 2017) (see figure 5).

per cent 'very' or 'fairly' satisfied highlighted in orange where 50 per cent or more are 'very' or 'fairly' satisfied	type of client			
	private domestic	contractors	commercial	ALL
OVERALL	76	51	73	66
TECHNICAL DESIGN PERFORMANCE				
aesthetic qualities of project	78	64	78	73
project meets brief	78	52	54	67
effect project has on function of building	79	49	72	66
other design qualities of project	75	56	68	66
effect project has on maintenance of building	73	29	62	54
PROCESS MANAGEMENT				
developing / interpreting the brief	69	46	68	61
explaining design proposals	66	36	66	56
communicating with client	59	43	65	55
understanding client needs	68	36	60	54
collaborating with the project team	61	36	56	50
managing their work	63	27	60	49
technical design spec	n/a	30	60	45
managing the handover process	55	30	51	44
efficiency of admin	51	26	54	43
adhering to programme	55	18	50	40
data management approach	n/a	31	42	36
commercial understanding	n/a	16	49	32
value adding activities	n/a	17	49	32

FIGURE 2. UK CLIENT SURVEY ABOUT ARCHITECT PERFORMANCE (RIBA, 2017)

Such research highlights the value of undertaking Post Occupancy Evaluation (POE) after a project is completed, to improve the rigour behind the anecdotal rhetoric about the benefits of design (Hay et al., 2017).

There are a range of benefits that can be derived from applying POE, including enhancing building performance and efficiency, improving user experience and using the findings to enhance future projects and learning (Hay et al, 2017; RIBA, 2016). POE can benefit clients to help them better understand how to further enhance the value of their investments. Companies such as Snøhetta in Norway and Archetype in the UK apply POE appraisals to iteratively refine and improve how they work.

4.3 ECONOMIC POTENTIAL OF ARCHITECTURE AS A 'CREATIVE' INDUSTRY

A EU-wide study of the creative and cultural industries found that they directly or indirectly employ about 7 million people, or 3.3 percent of the EU's active population, accounting for 4.2 percent of gross domestic product. According to one report, architecture employs nearly 500,000 people and generates €36.2bn euros in revenue (7% of the total generated in the wider creative and cultural sector) (Ernst and Young, 2014). A later report from the Architecture Council of Europe (in 2016) indicates a lower revenue of €15.6bn, and employing nearly 600,000 architects (ACE, 2016).

In Croatia, the Economic Institute indicates 2,040 people were employed as architects in 2014, representing nearly 5 % employment of the entire country's creative and cultural industries (Rašić Bakarić, 2015).

4.4. CONTRIBUTING TO WELLBEING

There is a growing recognition, however, that good design is not just reflected by glamorous individual buildings but also through spatial design and urban layout, the 'spaces between' the buildings and how they can act to create an inclusive sense of place for people of all ages and abilities, including children, families and older people (BNA, 2014; Swedish government, 2017).

Architecture and urban design can be designed to help promote the liveability of communities. Projects, such as Funen Park (planned by architect Frits van Dongen) in Amsterdam and Katendrecht (involving architects such as Vincent Jeanson) in Rotterdam are typical Dutch initiatives that emphasise this concept of creating a liveable city. This includes the design of schools and hospitals:

> Well-designed schools form the basis for a healthy pupil and an inspiring learning environment and are, therefore, the cradle of talent. The same principle applies in healthcare: well-designed healthcare environments are healing environments that lead to faster healing and thus help to reduce healthcare costs (BNA, 2014, p.4).

The Swedish Agenda for Living (2017) outlines their ambitions to promote the liveability of their towns and cities by 2025, through establishing common industry standards and rules that aim to take existing experiences from sustainable cities to the next level. In particular, setting clearer requirements towards sustainable intentions and adopting a more transparent approach to procurement was seen as an important means of driving change in project decision-making. In addition, greater support for collaborative research projects between academia and industry can support learning and the enhancement of design quality in practice.

This section focuses on the different ways in which the architectural sector can be evaluated, reviewing fifteen papers that evaluate architectural performance and impact, from sector-wide surveys at European and national scales, to looking at how government elucidates different architectural qualities through procurement policy, as well as how action research and open dialogues have been used to provide an alternative evaluative method.

5.1 SECTOR-WIDE STATISTICAL ANALYSIS AND SURVEYS

The ACE (2016) estimate of the economic contribution of the sector was calculated to be around €15 billion (in terms of revenue generated by the sector) across Europe in 2014 and slightly higher in 2016. This was less than half the level estimated by an Ernst and Young survey in 2014, which referred to an estimated €36 billion revenue. The Architect Council of Europe (ACE) sector survey in 2016 was a very large data set, with responses from 27,000 professionals working in 27 member countries (approx.. 5% of architects in Europe). It aims to provide a rigorous statistical record of changes in the sector, while Ernst and Young used secondary data from market research analyses and Eurostat to estimate turnover data. Clearly different methods were adopted but this is a significant difference and raises the question regarding which surveys get read by whom, who pays attention to the methods adopted in terms of data collection and what are the objectives that determine which data is collected and how? For example, by only looking at revenue and not profit, there is less clarity about the costs and liquidity of the sector.

When using statistics on such a large scale, it will only tell part of the story. It doesn't give us a real sense of the experience of being an architect or how to become a more effective one. The ACE report (2016) indicates that 62% of architects are men (compared to 48% women) and that full-time male workers earn 48% more than their female counterparts (and that this was worse than in 2014), with the average working age of each gender (40-44 years for women and 50-54 years for men). What we don't see from this data is *why* these differences, e.g. the apparently growing gender income disparity, occur and what that means in terms of the working conditions for men and women, and whether and how that disparity might affect the quality of output in some way.

A survey of architecture in France, indicated that the majority of work for architects was from housing and public facilities projects (77%), compared to 18% of projects from 'trade, hospitality and tourism', and only 5% from storage and agriculture industries. Again, whilst these statistics are interesting, there is a need to drill down further, to find out more about how actors in the different sectors perceive and understand the role of architects, to clarify why they are commissioned in certain projects and not others.

Further it is unclear to which sector architects belong. In the UK they are not officially part of the construction industry. They are a service industry - a term to which many architects do not relate. They also constitute a small but marginal part of the creative industries. More indirect and qualitative aspects of the contribution of architects to the positive impacts of the creative industries as a whole are hard to measure.

> The creative industries may have positive external effects. Creative entrepreneurs receive no compensation for this. The contribution to society can consist of non-economic values such as a contribution to good education, culture and other social purposes. This social contribution

has no market price and so we do not find it back in economic statistics (Buunk and Tieben, 2017, p.6).

This contribution includes how the industry can contribute to establishing alternative ways of thinking and working – the informal creation and exchange of 'tacit' knowledge. As Goetheer and Heide (2017) point out:

> Newly created knowledge is rarely recorded in scientific journals, ...By constantly collaborating in new combinations, both with companies from their own sector, as well as with companies and organizations from other sectors, the creative industry is able to make new connections and networks. The creative sector thus creates value, both within and outside one's own sector (p.32).

Therefore, wide-reaching quantitative research would benefit from being supplemented with 'deep' qualitative data, that seek to draw out alternative working arrangements, understanding how they function and are experienced, and considering how ways of working might be improved.

5.2 GOVERNMENT POLICY THAT DEFINES VALUE

Policies can put in place principles that evaluate and promote good design practice but it is how those policies are applied and interpreted in practice that is important. For example, Governments may set public procurement requirements that promote transparency, architectural excellence, sustainability, functionality and quality but the reality remains that those bidders who meet basic criteria at the lowest cost still tend to be selected (CCA, 2018; and Order of Architects, 2017). The Croatian Chamber of Architects, like other Architects across Europe , have interpreted their government Public Procurement Act to establish a formula for the 'most economically advantageous offer' based on the best price and a series of quality criteria to be applied at each stage of the procurement process:

- *Design quality:* including technical value, aesthetic and functional features, accessibility, solution for all users, social, environmental and innovative features, as well as trading and trading conditions
- *Organisational quality:* organisation, qualifications and experience of personnel engaged in the execution of a particular contract, if the quality of the staff involved can significantly affect the level of performance execution of the contract, or
- *Temporal quality:* post-sales and technical assistance services, delivery terms such as delivery date, delivery process and delivery deadline or execution deadline.

The procurement guidelines indicate that candidate architects will need to demonstrate a good understanding of the various range of design criteria (or intentions) and that the selection criteria must also be based on the following principles: i) equal treatment; ii) transparency; iii) proportionality; iv) non-discrimination.

There is generally a lack of appraisal regarding the efficacy of regulatory and policy tools in supporting the delivery of design intentions value delivery. The Croatian guidance recognised that such policy requirements may actually increase the complexity of expectations on architect practices, and may reduce the range of competition that will have the capacity to tender for bids. It will also require greater expertise and knowledge of these issues from the clients in order to apply such principles.

Another approach to measure the value of the architectural sector is through more qualitative action research and multi-actor dialogues, such as workshops and focus groups. For example, the French Order of Architects held a series of 'summer universities of architecture' in 2017 (and earlier 2015), involving 150 architects, elected officials, professionals and industry partners to examine how changing societal contexts were effecting the profession. Participants discussed two broad areas:

- *how to make the city*: the role of architects in the context of digital transformation, environmental challenges (such as climate change) and collective decision making; and;
- *the changing business of architecture*: how architects are organising themselves in the context of new laws and policy, new client expectations, meeting new environmental (e.g. energy efficiency) targets, the impact of digital technology and the emergence of new organisational approaches.

The dialogue approach to measuring value, provides a more open space to consider emerging phenomena, which might give an indication as to where the architectural practices might be heading in the future (Order of Architecture, 2015). For example, participants described the growing role of architectural 'collectives', that cross between the nexus of 'making a city' and 'ways of working', offering a new mode of engaging with urban challenges (Order of Architecture, 2017).

Similarly, the Dutch Ministry for Economic Affairs (Goetheer and Heide, 2017) conducted a qualitative review of the contribution of the creative industries, using a combination of surveys, interviews and workshops with the intention of gathering 'concrete policy recommendations' to further strengthen the opportunities and reduce the barriers between the creative industries and other sectors.

Even with more qualitative measurement, indirect values and the creative capital derived from architecture can remain hard to measure and monitor. Goetheer and Heide (2017) propose the adoption of semi-qualitative measures to try and gauge these indirect values. For example, they equate 'creative capital' to 'knowledge capital' and propose adopting existing methodologies such as the OECD (2002) Frascati Manual to try to capture the value of the creative sector.

The Stockholm Commission on Social Sustainability (Dahlin, 2018) has also adopted a mixed-method combination of applied learning, consultation and secondary review to try to understand what contributes to urban social sustainability for the city of Stockholm. Dahlin (2018) recommends capturing 'everyday life stories' to highlight how urban spaces are experienced and calls for more stories to be heard to influence urban planning and design. For example, in understanding what contributes to a sense of security the Commission conducted surveys and reviewed existing studies that indicated various specific recommendations, such as how people are more likely to stay and enjoy public spaces that are well maintained, accessible, overlooked, vibrant and welcoming.The surveys were able to rank different neighbourhooods in terms of how safe they felt. They also indicated that women tended to feel more insecure in the public realm than men, suggesting that planning and design needs to learn from and reflect how different groups of people experience places.

The use of participatory design methods to measure design value was also demonstrated, where temporary architecture installations can be used to consider potential impact and refine

design solutions. For example, temporary architecture was adopted in a public square in Kärrtorp, Stockholm. Through a community dialogue with local residents the city of Stockholm decided it wanted to improve the local square. During a week in September, removable wooden cubes were placed in the square (with inspiration from the computer game Minecraft), all participants were encouraged to examine, figure out and leave comments on issues such as: 'where do you want seating ?', 'where would you like plants or trees ?'.

FIGURE 3. PEOPLE INTERACTING WITH TEMPORARY ARCHITECTURE ON THE SQUARE IN KÄRRTORP. PHOTO: HELENA LOMBRINK (DAHLIN, 2018, P.42)

> Temporary structures can become one of several tools for the city to strengthen cooperation and community, meet different groups' needs and show directions towards one democratic and fair access to the city's public spaces (Zimm, 2016, p.6).

By adopting this applied learning approach throughout the city (Zimm, 2016) Stockholm has been encouraged to develop the presence of culture in public spaces, to make targeted urban investments aimed at increasing social inclusion, stimulating cultural activities and enhance the architectural quality of the city (Dahlin, 2017, p51). Through the research the Commission was also able to distil principles that might support a more just, sustainable Stockholm. They identified fifteen principles to support a fairer city:

1. Convert city highways into city streets
2. Pedestrianise every other city street
3. Maximise the sidewalks
4. Build a cohesive, secure bicycle network
5. Lower speed limits everywhere
6. Introduce car-free weekends and summer streets
7. Welcome pop-up parks and food trucks
8. Remove parking on the street and introduce maximum parking requirements
9. Expand all kinds of public transport
10. Prepare for self-driving cars
11. Introduce congestion charges
12. Increase density to increase housing supply and service offerings
13. Maximize rooms at the street level
14. Ensure the amount of free space
15. Develop new squares and parks

(Alexander Ståhle, technician and urban construction researcher KTH Architecture School, 2016, p.5)

A similar independent Commission was convened in Malmö, over 2011-2013, to try and address the health inequalities that were present in the city (Stigendal and Östergren, 2013). Such independent consultative commissions, involve multiple actors and multiple mixed-method techniques to seek to clarify a problem and distill potential practical and policy solutions. Adopting the broad-based evaluative methodology for Malmö led the Commission to apply a five-pronged approach to tackling the problem, based on: Ethics, Sustainability, Sociology, Gender, and Social Investment. The outcome, was the Commission's final report outlining *what* should be done in the city and *how*, covering 24 objectives and 72 actions, divided into six themes: everyday conditions during childhood and adolescence; residential environment and urban planning; education; income and work; health care; as well as transformed processes for sustainable development. Urban design was identified as a central part of that solution:

> A CITY'S DESIGN and residential environments affect well-being, health and their social distribution in many respects (1). Some physical characteristics of the city environment such as access to green spaces, lack of physical barriers to walking and cycling, safe and inviting outdoor environments, are directly connected to well-being and health and are often socially inequitably distributed. Since the physical environment also provides a framework for all the social interactions that occur in a city, the city's design is a fundamental prerequisite for the health of the residents... *(Stigendal and Östergren, 2013, p.67).*

These more qualitative evaluative approaches are still relatively new and there needs to be more rigorous appraisal of how effective they are for enhancing learning and enabling good design outcomes.

6 Toolkit resources

Fewer links (five) were provided to practical resources that provide guidance and good practice for enhancing the role of the architect in generating good design. Some tools seek to help architects in their role as mediators of value, whilst others demonstrate how good design can be evaluated on a spatial scale. A third set of tools distils a range of good practice and research to provide an overview of principles that architects should apply. The RIBA Report *Building Knowledge: Pathways to Post Occupancy Evaluation* provides a useful summary of toolkits currently being used in a UK context (Hay et al, 2017).

6.1 Value creation

The BNA (Royal Institute of Dutch Architects) has created a three-step process, based on Strategyzer's 'Value Proposition Canvas' (https://www.strategyzer.com/canvas/value-proposition-canvas) which aims to help architects focus primarily on understanding the customer needs and values at the 'value creation' stage of design and construction projects.. The first step of the BNA 'Value Cards' is to get at the heart of who the customer is, what are their values, intentions, motivations and long term aspirations. The second step aims to add-value, by identifying unique, distinctive, even surprising solutions, that align the architect's way of working with the client's values. The third step, seeks to establish specific products and services that will align these values and innovations, within an agreed level of cost and revenue generation, such as through innovative projects that will improve the environmental impact of the built environment in an efficient way, for the entire life cycle (BNA, 2015).

6.2 Mapping quality spatially

The number of systems for measuring the quality of placemaking is growing. An example from the review is Spacescape (Ståhle et al, 2016). They describe some of the challenges of measuring quality of an urban area. The first problem relates to demarcating a specific area that will be measured and deciding whether to use a consistent area, such as an administrative boundary or a physical block, or to demark a space according to how it is used.
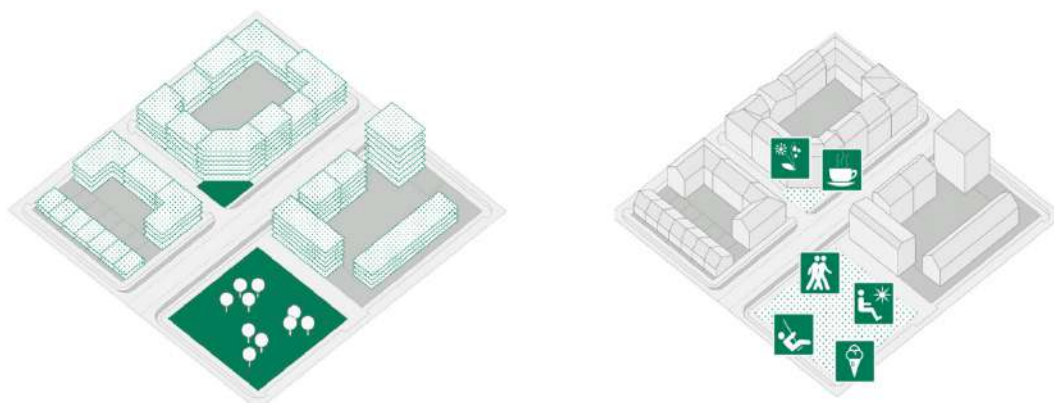

FIGURE 4. MEASURING SOCIAL QUALITY OF URBAN DESIGN USING DEMARCATED BLOCK AND DISTRICT BOUNDARIES (STÅHLE ET AL, 2016)

Ståhle et al (2016) propose measuring the social quality of a neighbourhood by counting the number and quality of social services and amenities provided within a fixed area. They recognise however, that use of the public realm is often larger than one block or district, so that associated activities and experiences outside a demarcated area would be lost.

Another prominent example is the work of Bill Hillier who established the concept of Space Syntax and applied the approach to measure the impact of connectivity to levels of crime in an area (Hillier and Sahbaz, 2008). Importantly, they found urban designers would need to consider a range of other important factors regarding crime levels, in addition to the space syntax connectivity measure, including density, layout, permeability and income levels. As a result, they advised against using one measure in isolation, noting the interdependence of these factors.

This brief review of evidence on the value of design and the role of architects therein reveals a paucity of robust evidence on the value of architects. Much of the emphasis from the policy and industry papers is on how to respond to *poor* design quality, such as through improving education and research in design, finding ways of working more collaboratively between sectors, engaging the public or citizens more effectively in the process - the so called 'democratising' of design. There was less consideration about how 'good' quality design is defined and by whom, or the processes by which that is achieved. Clearly agreement is needed on this key issue.

In terms of national policy papers, there was evidence that architects can contribute to establishing an integration of these complex aims, and the intentions or 'values' that people seek from an architectural project. This can contribute to achieving public policy goals, facilitating collaborative problem solving. Policy makers are thought to be important in creating a culture that thinks it is worthwhile investing in those that can help deliver good quality design (architects and urban designers).

From the educational sector, there is a two-way process, where learning about architecture and urban design can improve the quality of what is designed, and also enhance wider learning around a whole range of issues, including history, politics, culture, natural environment etc. Good design itself can be used to create spaces that are conducive to learning and in addition higher education institutions can also act as catalysts for regenerating a local area.

The industry-based papers indicated that architects can help create added-value in projects although the evidence for whether they bring value for money was more nuanced, where it seemed hard to disaggregate costs from different stages of the process and the more intangible benefits of good design where not always captured or understood. It was clear that architecture can contribute to longer term benefits, including boosting economic growth, as well as promoting the liveability of cities and urban areas.

When measuring the contribution of architecture, sector wide statistical surveys were found to be useful to provide a broad sense of the sector's performance, but were less effective in explaining why certain trends were occurring or what the longer term and more qualitative experiences of 'good' design might be. Government policies often include clear expectations of how architects are expected to contribute to society, but there lacked appraisal of the efficacy of regulatory and policy tools in supporting value delivery. Participatory Action Research might offer a way to provide deeper insights into the impacts of architects work, but again these are relatively new tools and there is still much to be done to improve and examine how effective they are in evaluating good design outcomes.

Finally, the emerging tools that have been created to help architects and urban designers enhance the quality of design, indicate there is considerable potential to enhance the role of architects, to better elucidate different actors' priorities and intentions, to map out and visualise how urban design works on the ground, and to pilot a range of design options in order to 'learn through doing' what works best for different 'users'. It is likely there are other

toolkits amongst the rest of ACE members and it could be useful to reach out and pool such resources to enhance sharing of good practice.

There needs to be greater clarity about the types and efficacy of different evaluative *methods,* how they are applied and by whom, to clarify the process (BNA, 2016) or 'value creation' where 'good' design values (or intentions) are defined and measured. Certain challenges need to be reflected upon. First, some factors are clearly more easily quantifiable than others, for example the use of energy, and more research has been undertaken to capture those values. Second, it is necessary to recognise that different actors will have different, potentially conflicting, design values (or intentions) and some actors will be more dominant that others in deciding which values are more important than others. There is a potential convening role that architects can play in the value creation process that informs design processes, where architects can mediate the negotiation of different actors and design intentions but this role needs to be more formally recognised and itself evaluated.

8 Recommendations

> ACE has to play a more active role in convincingly explaining and demonstrating that achieving high-quality architecture always means considering economic, environmental and social contexts and that architects with their background on all these themes need to be involved especially these days where developments in the built environment are getting more and more demanding and complex (Oya Atalay Franck, President EAAE).

1. **Support the mainstreaming of Post Occupancy Evaluation across the European Profession** Post Occupancy evaluation is mentioned by many respondents from industry and also policy makers as a key way to support the quality of future projects and commissions, POE will identify good practice for the architect and the client as well as economic, environmental and social value, informing future practice. It is really critical that this be factored into fee proposals to ensure that it happens for every project and is supported by ACE to create a body of information to support Architects as a knowledge base.

2. **Support the development of research in practice –** A multi-pronged approach is needed. To establish networks - regionally nationally and internationally - to work with academics and other disciplines and to establish case studies of best practice, which can be shared.

3. **Develop strategies to address gaps in knowledge** - The study has a range of gaps in knowledge. These gaps are geographical as 19 out 31 countries are referred to in the study so more views and information from the remaining countries in section 8 need to be covered in future studies so this report is inclusive al all ACE members .

    In terms of content, more information from policy makers, clients and other users is essential to understand the users' view of the role of Architects and the value of design. Also, more information is needed on how value is measured across Europe so that the cultural and practical differences can be understood for any future study. This could include reference to the Council Work Plan for Culture adopted in November 2018 which lists "High Quality Architecture & Built Environment for everyone "as one of 17 topics for development. In particular "the focus will be put on architecture

as a discipline that encompasses the right balance between cultural, social, economic, environmental and technical aspects for the common good".

4. **Develop Guidance** - for Architects to evidence and communicate value across Europe. This needs to include a set of case studies which exemplar best practice in this area. Establish a data base of research and relevant resources on the Value of architects to make available via the ACE website.

5. **Develop tools for the quantifying and monetising of design value** – This is necessary to ensure that design value is included in procurement and policy.

6. **Develop an expanded definition of architectural practice** - This is necessary to maximise the value of the architectural service, both at the start of a project and long after completion. The range of services offered by Architects has shifted dramatically in the last few years and will continue to change as clients' needs change and technologies offer alternatives to the design management and implementation of built and other projects. The role of the architect needs to respond to the changing needs of the client and society, the education of architects needs to keep abreast of changes in technology to inform the skills students learn in both education and the practice environment. It is important that a dialogue is maintained between education and practice, to ensure these skills continue to evolve so Architects remain relevant to the construction industry and clients' needs. Architects' services can range from project management to graphic design and beyond - this should be celebrated to ensure that the diverse skills set of the Architect is understood by clients, policy makers and the construction industry.

This study is a start of a process of working with Architects across Europe, in industry, commercial , private and public practice, in education sectors - both public and private - and to develop a dialogue with clients and user groups to provide information and a knowledge base that can support and sustain the value of design and the role of architects.

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