Exploring the Disciplinary Reach and Geographic Spread of the British Design Professions, 1959-2010

by Leah Armstrong, Karina Rodriguez Echavarria, Dean Few and David Arnold

Abstract

A paper based on our presentation at the Digital Humanities Congress, 2012, incorporating some further developments since then.

This paper will present the application of Geographical Information Software (GIS) technologies in order to analyse the membership of the Chartered Society of Designers (CSD). The main objective is to support the exploration of the disciplinary reach and geographic spread of British designers over a fifty year period, 1959-2010, based on data retrieved from the society's archive. For this, a combination of technologies has been used, mainly to digitise the society's Yearbooks and create a database with information of the membership relating to design discipline, geography, institutional affiliations, status and gender. The project results have shown that presenting the information in a map allows for a more detailed and nuanced analysis of the design professions than has hitherto been possible. The resulting map both substantiates and complicates existing design historiographies, which have made claims about the structure of the design professions based on qualitative research methods. Furthermore, the project has identified some challenges with regards to the technology, such as dealing with legacy data and privacy issues, since it deals with live data of
an existing professional society, a collaborator on the project.
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1. Introduction

In Autumn 2009, the Design Council conducted its second comprehensive survey of the UK design industry. The survey covered over 2,200 design businesses including in-house design teams, design consultancies and freelance designers working across communications, digital and multimedia, interior and exhibition, product and industrial, fashion and service disciplines. The resulting report boasted that the design profession in Britain is the largest in Europe - with over 232,000 practicing professional designers.¹

Nevertheless, the report failed to define in any clear terms what 'professional designer' meant. On closer inspection, the survey extends to include writers, artists and architects under this title. The British Council's latest report 'Mapping the Creative Industries' goes no further in breaking down this elusive category.²

The absence of specificity in these discussions suggests the apparent failure of design organisations and professional societies in Britain, such as the Chartered Society of Designers (CSD), to 'hold together' the design professions in a distinct and visible way, unlike, for instance, the architectural and law professions.³

Questions of the definition, role and identity of the designer have dominated the discipline of Design History since its foundation in the early 1980s. Economic and industrial shifts have conspired to cause major shifts in how designers are viewed both inside and outside of the profession. This has particularly accelerated in the past decade in Britain, with the creation of a number of new disciplines that include service design, information design and interactive design, all of which have established courses at British design schools. As a result of this rapid expansion, the Design Commission recently stated that 'the design sector is not very visible to those outside it'.⁴
So, who is the professional designer today? Where do they live, study and work? Which disciplines come under the umbrella title of Designer? How has this changed since its emergence in 1930? What role has geography played on the working practice and professional identity of the designer? How can we visualise the relationship between geography, gender and social status? What role have design institutions played in this process? This research has tackled these key questions by using Geographical Information System (GIS) technologies. Digitally mapping the profession, based on the membership records of the CSD, a series of 'snapshots' of geographical positioning over time reveal the shifting patterns of the design professions, relating to status, geography, design discipline and gender, between 1960-2010.

Although 'mapping' is regularly deployed as a metaphorical device in policy documents through which the value of the creative professions can be plotted, this project represents the first attempt to digitally map the design professions according to geographical location, design discipline, professional status, gender and institutional affiliations. The core aim of the project, initiated by Dr Catherine Moriarty of the University of Brighton Design Archives, was inspired by the methods and approaches of work in the Digital Humanities, which has also led some important projects in the mapping of art history, sculpture and archaeology. The source material for this project was drawn from an entirely new archive of uncatalogued material, contained in storage by the Chartered Society of Designers. This includes both qualitative (letters, photographs, journals and meeting minutes) and quantitative (Yearbooks and surveys) material. The project has uniquely benefitted from collaborations between an interdisciplinary group of researchers in the University of Brighton.

This paper will describe the project's main aims and outcomes, including the design and technical implementation of a mapping methodology to fit a very unique set of historical and contemporary data. This relates not only to the digitisation of data from the society's Yearbooks, but also to the use of visualisation strategies, which allow researchers to analyse the data with a further degree of specificity. Design historians have long been interested in the shifting structure and organisation of the design profession, how designers have been defined, categorised and represented, but this has never before been captured in visual terms (Woodham 167). As such, this paper will argue that the digital mapping of the society's membership creates a new platform on which researchers and practitioners can engage with this material. Some of the early reflections on the outcomes of the project, presented in this paper will be of interest to academics, designers and policy researchers in the UK and worldwide. The Digital Mapping Tool
of the Design Profession created for this project and described in this paper is now available at: http://csd.culturalinformatics.org.uk/.

The paper is organised as follows. Section 2 gives background information on the Chartered Society of Designers and the Yearbooks which is the main dataset used in this research. Section 3 posits the methodology used to map the membership data using GIS technologies. Section 4 presents an analysis of the mapping results, followed by section 5, which presents conclusions and further work.

2. A Brief History of the Chartered Society of Designers

The SIA was established in 1930 as the first professional body for designers in Britain and changed its name in 1963 to Society of Industrial Artists and Designers (SIAD), a symbolic recognition of the emergence of Designer as a profession distinct to the Artist (Woodham 75). The society held its first meeting in 1929, when a small group of what were then known as 'commercial artists', met in the Cock Tavern pub on Fleet Street, to discuss 'the fantastically utopian project of establishing a professional body for artists and designers'. The society's 'founding father' was Milner Gray, a graphic and industrial designer who had founded the Bassett-Gray group of artists and writers in 1934, which became the Industrial Design Partnership (IDP) in 1935 and the Design Research Unit (DRU) in 1945. The main aim of the society, as stated in its first Articles of Association was to:

'Establish the Profession of the Designer on a sounder basis than has been the case hitherto by forming a controlling authority to advance and protect the interests of those who are engaged in the production of Design for Industry, Publishing and Advertising'.

In 1932, the society represented only a small band of 46 artists and illustrators from London. However, by 1959, membership had risen to 1,460 and by 1989 it had reached a peak of 9,200 members (Figure 1). Initially, membership was strongly biased towards those in graphic arts and illustration, with 6/7 of the 'formative' members of the society being from this discipline. By 1936, it had moved into the textile and pottery industries in Manchester and Stoke On Trent respectively, opening branches there and gaining members from the trade unions that had formed to protect workers.
In 1986, the society changed its name for the last time, to the Chartered Society of Designers, (CSD), in recognition of its newly acquired Chartered status. The only published history of the Society, Minerva at Fifty was written by James Holland, an eminent member, in its Jubilee Year, 1980. Although many historians have noted the society’s significance as the first professional body for design in Britain, they have been unable to fully address its role due to the unavailability of the archive. This archive was made accessible for this project, forming the principle source material for both qualitative and quantitative study of the shape, structure and identity of the design professions, 1930-2010.

3. The Archive Data

The Society of Industrial Artists began to publish its Yearbooks in 1958 (Figure 2). Before this, there is no surviving evidence of any attempts to record membership, though it is possible that these records were lost during the many moves from headquarters across London and in Birmingham.
These books possess significant similarities in style and format to those published by other design societies and organisations, including the Design and Industries Association (DIA) and the Royal Institute of British Architects (RIBA). It listed, in alphabetical order, members' names, addresses, design disciplines, membership status (i.e., Fellow, Member or Licentiate/Diploma/Student) and affixes which related to the designer's education, status or institutional affiliations. The society stopped printing these Yearbooks in 1989, switching to a digital database in 1990, which contained the same information about each member: name, address, design discipline, membership status and affix.

Although the essential function of the Yearbooks remained the same throughout the period 1958-1989, perhaps unsurprisingly, the society frequently re-designed the format, layout and style of the Yearbooks. This often reflected the talents and tastes of an interested member who took on the responsibility for the Yearbook in any one year. As such, the size of the books, quality of paper, type of binding, font size and style all changed regularly. To a lesser extent, the organisation of the information inside the
book also changed across this period. The most significant change was in the categorisation of membership into distinct design disciplines. From 1945, the society had imposed a simple distinction between commercial and industrial designers, but by 1952, this division inadequately reflected the disciplinary growth in the design profession which saw the emergence of more specific job titles, such as 'Consultant Designer', 'Graphic Designer' and 'Exhibitions Designer'. To cope with this change, the society created a simple structure of 'Sections and Categories A-H'. This consisted of; A: Industrial Design, B: Design for Craft Based Industries, C: Textile and Dress Design, D: Display, Furniture and Interior Design, E: Graphic Design, F: Television, Film and Theatre, G: Design Direction, H: Illustration. To further complicate matters, while still remaining officially in this structure, members in the 1969 Yearbook were not assigned a code to reflect their design discipline, instead expressing their discipline in words (for example, Exhibitions Designer or Graphic Designer). Whilst the majority of these descriptions matched the terms encoded in previous and subsequent years, some reflected the personal language of individual members, explaining why some of these members defined themselves in literal terms such as 'wallpaper' or 'shoes'.


An important issue when handling this archive was the need to anonymise as much as possible the membership data. This was particularly relevant in the later sets of data, which included the names and addresses of membership which would currently be accurate.

### 4. Designing and Implementing a Methodology for Mapping the Data

The main aims of the project were to portray the shifts in the structure, size, geographical location and social make-up of the designer in Britain from 1930 to 2010. The challenge was therefore to make the most of the data available, without compromising the integrity or quality of the society's Yearbooks and presenting the information in a way which would allow
analysis of shifts in five key categories: geographical location, membership status, design discipline, institutional affiliations and gender. The aim was to create a research tool which would be of interest to both the researcher looking for a general image of the design professions over time, and the researcher who wanted to 'zoom in' on specific aspects of the design professions, such as discipline or gender.

4.1. Mapping Methodology

The interest on data visualisation techniques based on geographical attributes of datasets has increased since the advent of applications such as Google Maps and Google Earth. Geographical Information Systems (GIS) technologies allow diverse type of data to be organised, visualised and manipulated by including a value representing a geographical location, usually expressed in terms of latitude and longitude. This visualisation technique lends itself very well to datasets which have an address as a relevant piece of information, which is the case of the CSD Yearbooks. Examples of the use of GIS for the humanities are diverse.\(^\text{16}\) Nevertheless, there are almost no examples of mapping dedicated to visualise and analyse trends of dataset involving memberships or groups of people such as the CSD archive.

The main challenges to consider for mapping the CSD data were the fragility of the society's Yearbooks, the diversity of formats when presenting the members' data as well as the fact that the only geographical location information was the members' addresses and not the exact latitude and longitude. In order to overcome some of these challenges, a smaller dataset was selected by using the Yearbook from the end of each decade to present a view of the membership every decade - 1959-1969-1979-1989. The 'live database' was also used to portray the current membership of the society. Although a complete set of data from 1930-2010 would have provided a more comprehensive and detailed picture of the society's membership. Under the limited time and resources available for the project, it was felt that this decade-based view, which includes recorded information for over twelve thousand individual members, would adhere to the project's main aims to portray the shifts in the structure and identity of the designer over a broad time frame.

The methodology used for the project consisted in the following steps:

1. Digitise the CSD Yearbooks using OCR (Optical Character Recognition).
2. Post-process the OCR data in order to automatically store it in a database.
3. Obtain geographic coordinates (latitude and longitude) using the members' addresses.
4. Visualise the data using a web based mapping visualisation interface.

The following subsections will describe these steps in more detail.

4.2. OCR Extraction and Database

Each page of the CSD Yearbooks which contained membership information was scanned using OCR. Whilst hugely time saving, OCR is known to be an imperfect system. Hence, the data had to be manually post-processed in order to fix the text which was not recognised correctly. In addition, gender information was omitted in the later editions of the Yearbook, from 1979 onwards. While the society never felt it necessary to designate male members, before 1979 female members had been assigned (Miss) or (Mrs) after their name. However, after this, female members had to be manually demarcated with an F or M or U to represent Female, Male or Unknown. Unknown often referred to names like Leslie or Alex. Although this method clearly introduced another layer of inaccuracy to the scans, it was felt that this was minimal and was the most realistic method in view of the time and resources allocated for this project.

Once the information was post-processed, the membership information was automatically extracted using regular expressions. Each OCR document varied in layout and data structure, therefore a unique regular expression had to be defined for each document format. The extracted information from the different Yearbooks was then exported to a unified formatted XML file. The resulting XML file was then passed into a database which was used as the data source for the web based mapping visualisation interface. Each member entry in the database contained an associated name, address and CSD membership details.

4.3. Obtaining and Visualising the Dataset Geographical Information

The Google Geo coding API was used to retrieve the latitude and longitude of each address in the database. This information was stored alongside the member's address, and used to identify the address locations on the map.

In order to visualise the data, a web-based solution was preferred. This solution was deemed to be adequate to allow secure access to specific aspects of the data both to the public and researchers. The Content
Management System (CMS), Drupal, was used to host and manage the site. This provided themes and modules for customisation and also a secure user management system which protects the anonymity of the data. User privileges were configured so that the public could only view anonymised data.

Different criteria were implemented to allow different types of users to browse the data. This included accessing the data by:

- **Discipline**: the discipline under which members identify themselves.
- **Affix**: the affix on the members' title.
- **Category**: the category of membership (e.g. Associate, Diploma Member, Fellow, Graduate, Honorary Fellow, Student).
- **Gender**: whether the member is male, female or unknown.
- **Date of Affiliation**: the earlier date on which the member is found in a Yearbook.
- **Multiple Criteria Search**: this option allows to customise the query based on the above criteria.

Furthermore, the web based interface allows access to the CSD Yearbooks information by grouping members into disciplines and affixes (Figure 3). The text used for displaying the disciplines and affixes in each grouping was designed so that the number of people within each discipline is reflected by the text's size. This provides a visual aid to quantify the membership number under each option.

For example Figure 3 shows four groupings: "Commercial and Industrial Design", "Craft", "Design for Advertising" and "Design Management and Administration". The grouping "Commercial and Industrial Design" encompasses two disciplines: "Commercial and Industrial Design" and "Commercial and Industrial Industries". To support organising all groupings, a taxonomy manager was implemented to give the researcher control over creating, editing and deleting these groupings.

*Figure 3: Website Interface showing groupings of disciplines included in the CSD Yearbooks.*
Once the user selects a specific discipline, affix, category, gender or date of affiliation, the website presents different countries for which data on this criterion is available. Although the project aims consider mainly members living in the UK, it is possible to visualise members living in other countries. Thereafter, the user can visualise the data relevant to the selected criterion in a map.

The Google Maps API was used to implement the mapping in the website. The map has two options for visualisation: i) to visualise the intensity of data in geographical areas by using a heat map technique; or ii) to visualise the source data by identifying all addresses in the map. From these, only the heat map option is available to the public, as it anonymises completely the addresses of members.

4.4. Heat Map Visualisation

As shown in Figure 4, the "Total Distribution Heatmap" option presents the total distribution of the population for a selected criterion. A slider below the map allows the user to visualise the data across time by iterating over the different Yearbooks. This slider is configured to run on a timer. Therefore when the "Animate slider every x seconds" option is selected, it will automatically update the slider to the next position according to the time interval the user has selected.
When a discipline or affix grouping is selected, the heat map allows the visualisation of the members belonging to all the disciplines or affixes in the grouping. In addition, to allow the visualisation of the members of the individual disciplines or affixes, a further option is provided for visualisation. This visualisation option, called "Group Distribution Heatmap", allows for a more detailed analysis of a group’s geographic distribution. To enable this visualisation, the user needs to select the radio button at the top of the visualisation interface.

For example, Figure 5 shows the heat map visualisation for the "Engineering Design" grouping, which consists of the disciplines: "Engineering Based Products", "Engineering Product Design" and "Engineering Design". The user interface includes: i) the Map Legend (to the left) where the user can enable or disable the visualisation of the members for each discipline in the grouping; ii) the map (centre) displaying the data for each discipline in layers; and iii) a pie chart displaying the percentage of members for each discipline (to the right). In addition, a slider is available for visualising the data through time. The Google heat map layers API and the Google chart API were used to implement the "Group Distribution Heatmap" visualisation.
By default each heat map layer for each element of the grouping is only normalised within its own data set and the representation of individual disciplines are not weighted against the others in the same grouping. This can be visualised using the example shown in Figure 5. Although the individual spread of the "Engineering Design" (two purple circles shown around Birmingham and London) and the "Engineering Product Design" (a large pink area shown in the midlands and the south) groups are quite prominent, their representation within the entire grouping should be minimal compared to the "Engineering-Based Products" (the green area shown throughout the country). This is because the latter discipline represents an 87.4% of the total data. However, the default behaviour makes it appear as though the "Engineering Design" and the "Engineering Product Design" disciplines have a large impact on the final dataset. To overcome this issue, manual customisation was required for normalising the data between the datasets. Normalisation of the group's disciplines was achieved by setting an opacity level relating to the disciplines membership size against the total membership size in the selected group. The opacity level has a range of 0 to 1; 0 being transparent and 1 being solid. It is calculated by dividing the subset of members for each discipline by the total number of members for all the disciplines.

The result after normalising the data sets is shown in Figure 6, which shows
a more accurate representation of the data. The users of the website have the option to enable data normalisation via a checkbox within the Map Legend box in the left side of the screen.

Figure 6: Heat map visualisation of the CSD Yearbook 2010 for the grouping "Engineering Design" after normalising the data.

The colours for displaying the disciplines on the map are chosen via a random selection from a pallet of contrasting colours. This allows for the easy editing of the taxonomies. As a discipline gets added or removed, the colours are automatically adjusted.

Another functionality implemented to support the visualisation of the CSD Yearbooks is the "zoom in" functionality. This functionality allows the user to mark an area by double clicking on the map. As a result a circular selection tool is generated. Once a standard sized circle is drawn, a window pop-ups with information on the memberships composition for that area using a pie chart as shown in Figure 7. The circle interface is dynamic, so the user can change the diameter and location of the circular selection tool producing an updated chart for the new area. It is also automatically updated as another Yearbook is selected in the time slider. Figure 7 and 8 show the movement along the timeline from 1989 to 2010 in the area around Birmingham for the grouping "Design for Advertising". The overall ratio of "Design for advertising and print" to "Publicity Design" remains similar, but it can be shown that certain areas such as parts of Wales differ over the period.

Figure 7: Zoom in functionality for the CSD Yearbook 1989 for the discipline grouping “Design for Advertising” in the area around Birmingham.

Figure 8: Zoom in functionality for the CSD Yearbook 2010 for the discipline grouping “Design for Advertising” in the area around Birmingham.
4.5. Address Visualisation

The "addresses" view, which at the moment is only available to the project researchers, provides another tool for deeper analysis of the group's geographic distribution. Information such as address location and user ID were made available for visualisation. Figure 9 shows an example view.

*Figure 9: Visualisation of addresses of the CSD Yearbook 2010.*

5. CSD Yearbooks Mapping Analysis

The resulting mapping visualisation gives a comprehensive set of evidence profiling the location, distribution and spatial organisation of the design professions in Britain, 1959-2010. It can be used as a tool through which to test existing assertions about the design professions as well as illuminating some new areas for research. This section will give some brief examples of both by looking at the category of design disciplines. Further and more detailed analysis, investigating gender, status and institutional affiliations will be presented in the forthcoming PhD thesis for this project.

5.1. Shifting Gravity of Design Activities

An extensive literature of design history exists to connect particular design disciplines with geographical regions relating to industrial shifts and
economic concentration. As Jonathan Woodham states, 'Changing centres of gravity of design activity, different and evolving national perspectives... all have a bearing on the ways in which design may be historically evaluated' (7). These histories have covered pottery in the midlands, textiles in Manchester, advertising and graphic design in London and more recently, the 'creative economies' that have been supported in Brighton, Manchester and Bristol, for instance. The design maps provide the first quantifiable evidence of these design centres, some of which have shifted corresponding to industrial and economic investment. Pictured below are some of the key 'design centres', which can be accessed by clicking through the 'Discipline' criteria on the website.

Pottery is classified under the taxonomy of "Craft". By selecting only "Craft-Based Products" and "Ceramics" on the map legend (Figure 10), the map reveals those members working in these fields of practice in Britain. The map in Figure 10 clearly shows that in 1959 the majority of those working in ceramics lived in the Staffordshire area. This confirms the evidence previously presented by design historians such as Cheryl Buckley who has drawn on qualitative source material from the trade unions in the pottery industry in Staffordshire. However, as is clearly illustrated on the maps in Figure 11, design activity in this area has been in decline since the 1980s.

*Figure 10: Map showing taxonomy of "Craft" in 1959.*
Evidence of the design activity for textiles and fashion in Manchester and cutlery in Sheffield can similarly be illustrated through the maps shown in Figures 12 and 13.

The distribution within these disciplines also changed over time. For example, the discipline of 'textile design' included designers working in surface pattern design, rugs and carpets, wallpaper design and laminates and synthetics. Shifts between these disciplines over time and the evolving terminologies invented to distinguish particular specialisms can be viewed...
on the map. A dramatic shift can be seen here in the dominance of textile design in 1979 which changes to surface pattern design in 1989.

*Figures 12 and 13: Maps showing textile design distributions, 1979 and 1989.*
5.2. Interesting Patterns

In addition to these established design centres, the mapping visualisation reveals some interesting distributions for design disciplines that have not been studied by historians. For instance, the discipline of typography appears to be particularly concentrated in coastal areas of Britain, as shown in Figure 14.

*Figure 14: Heat map showing 'typography' in 1979 and 2010.*
No design historiography currently exists to explain this pattern. Additionally, the mapping visualisation shows evidence of design disciplines that appear and disappear within decades. For example, 'Fancy Goods' appears on the design map as a discipline, particularly concentrated in the tourist areas of Brighton and Bournemouth, but has disappeared from the map by 1979. In this way, the map can be used to tell interesting stories about Britain's cultural history, as well as highlight the unique ways in which design disciplines are contingent upon economic and industrial fluctuations.

This section has therefore illustrated how the resulting mapping visualisation serves to provide evidence for existing design histories, as well as new evidence from which future research might be based.

6. Conclusions and Further Work

This paper has presented the use of GIS technologies to visualise and analyse the disciplinary reach and geographic spread of British designers between 1959 and 2010. The resulting web based mapping interface has proved the advantages of these technologies in order to visualise the information on the members of the CSD and their characteristics. The maps convey the growth of a profession with constantly shifting borders. The results shown above give both validity to and complicate existing assessments of the design professions, which have previously been based on qualitative evidence.

By creating a set of 'taxonomies' for both affixes and design disciplines, we
have created a tool which allows design researchers and practitioners to access a greater degree of knowledge about the site and distribution of fields in design practice. The time slider, 1960-2010, which is set to automatically update, further contextualises this contemporary view by allowing the user to view change over time. This change includes the migration of design disciplines across the country, shifts in the identity of the designer, including gender and status and the emergence of new design disciplines. The website forms a long term outcome of this project.

Finally, this paper has highlighted only some of the findings and uses of this research tool. A more detailed examination which forms the content of a PhD thesis was submitted in February 2013. The findings point to opportunities for further research. Further work, involves improving the visualisation of the information for specific areas. This could be useful for somebody investigating the design history of a particular post-code, town or city. The recent turn towards global design histories also indicates for mapping on a bigger scale.20

The resources produced during this project are intended as a platform on which design historians, researchers and practitioners, as well as those in the field of Digital Humanities, can engage and discuss this future work. We therefore welcome any feedback readers may have.

7. Acknowledgements

This work has been funded by an AHRC studentship, initiated and hosted by the University of Brighton Design Archives21 and the Chartered Society of Designers22.
Footnotes


2 Higgs, Peter, Stuart Cunningham and Hasan Bakhshi, Beyond the Creative Industries: Mapping the Creative Economy in the UK, 2008.


6 Jonathan Woodham states that these shifts can lend insights into the changing politics of professional validation’, Twentieth Century Design, 1997.


9 For more about Gray, see Avril Blake, Milner Gray, Design Council, 1980.

10 Declaration of Aims and Objectives, CSD Archive.


12 The University of Brighton Design Archives also holds the individual designer collections of FHK Henrion, Willy de Majo, James Holland, Arthur Rothholz, Natasha Kroll (all members of the CSD) and the archives of the Council of Industrial Design (1944- present).
13 The society held headquarters in London, 1930-1939 and moved to Coventry during the war, during which time much of its archive was lost in the blitz. Any surviving material was then re-housed in its headquarters in Carlton House Terrace London, 1950-1976 and Bedford Square, London. The archive material was then moved to a storage unit in Birmingham and brought to London once again exclusively for this research project in 2010, stored by the Chartered Society of Designers in Bermondsey, London.

14 DIA was founded in 1915 and the RIBA in 1836. Yearbooks of both were found in the CSD Archive.

15 This was suggested by John Sermon, MCSD, Interview, (24/10/2011).


21 http://arts.brighton.ac.uk/collections/design-archives

22 http://www.csd.org.uk/