The social landscape of Service Design. Exploring the entanglements of the Service Design community on Twitter through social network analysis

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Abstract

Service Design is not only a discipline, a profession, and a field of research but also a community of actors (professionals, researchers, organizations, institutions) working on service design practice and research, locally rooted but often globally connected. With Service Design we design the intangible, the behaviors, and the flows among actors, but still, we rarely look at how these also are part of Service Design. How are the actors of the Service Design community entangled among each other? In our study, we focused on Twitter as a proxy environment for analyzing the connections between Service Design actors, adopting Social Network Analysis and networks as the perspective for understanding complexity and complex systems. In this article, we explore the Service Design actors on Twitter in terms of communities identified, general statistics, centrality measurements, the evolution over time and the geographical location of actors.

Keywords: Service Design, Community, Social Network Analysis, Twitter

Introduction

Service designers are increasingly dealing with multiple stakeholders, localities, cultures, worldviews, and the intersections among them: designing with and for them or analyzing the impact of services upon them, from local to global services. The social and cultural community, more-than-human, collective, pluriversal perspectives are becoming focus of attention for both researchers and practitioners to understand

how they can move within the entanglements generated by all these encounters, controversies, and conflicts among different social groups and different stakeholders. Furthermore, service designers are not only focusing on such complex interactions, but at the same time are enmeshed in their own community at both local and global level. Service Design is not only a discipline, a profession, and a field of research but also a community of actors (professionals, researchers, organizations, institutions) working on practice and research, locally rooted but often globally connected. The designers' communities and stakeholders' communities are in turn also entangled among them, increasingly the complexity of the social dimension of Service Design, among service designers, stakeholders and service designers and stakeholders.

With Service Design we design the intangible, the behaviors, and the flows among actors, but still, we rarely look at how these also are part of Service Design. How are the actors of the Service Design community entangled among each other? To reply to this research question, we focused on Twitter as a proxy environment for analyzing the connections between Service Design actors, adopting Social Network Analysis (SNA) and networks as the perspective for understanding complexity and complex systems.

After this introduction, the paper proceeds with a literature review (2) hinting at Service Design as an emergent community. The following section (3) details the methodology adopted for a) extracting and analyzing data of the Service Design social network on Twitter, b) the communities identified in it, c) general information about the network, d) the measurements of centrality of the nodes in the network, e) the evolution of the network over time, and f) the geographical location of nodes. These results are then discussed (4) and limitations and further research elaborated in the final conclusions (5).

Literature review: Service design as an emergent community

Services have been conceived, planned, and deployed since the beginning of human history (Blomberg and Darrah, 2014). However, the term "service design" entered the stage only a few decades ago, when the centrality of services in the economic activity of our societies highlighted the need and the opportunity to study and formalize processes to effectively organize services (Kim, 2018). The term was first used in marketing literature by the likes of Shostack, who some 40 years ago emphasized the importance of properly designing each of a service's component parts, as well as the fact that virtually all market entities contain both service and product components (1982).

Over time, the work of a group of design researchers (Erlhoff et al., 1997; Hollins & Hollins, 1991; Manzini, 1993; Morello, 1991) and service industry consultancies (Sangiorgi & Prendiville, 2014) helped to establish service design as a distinct field. According to Meroni and Sangiorgi (2011), this new design agenda arose in stark contrast to the dominant practices of design, which were more geared towards a product-centered industry oriented to physical and tangible outputs. Design theorists saw the scope of design expanding; Buchanan (1992) identified four areas in which design operates: symbolic and visual communication (for example, in graphic design, typography, photography, and so on); material objects (clothing, tools, vehicles, and so on); activities and organized services (for example, a marketing event); and complex systems or environments for living, working, playing, and learning (for example, in urban planning or systems engineering).

Following this expansion of the design field, some universities - including the University of Applied Sciences in Cologne, the Politecnico di Milano, Carnegie Mellon University, and Linköping University - established the first service design courses (Mager, 2008, 2009). In 2009, the Laurea University of Applied Sciences launched the first master's degree in Service Design (Ojasalo, 2012). Since then, the number of higher education programs devoted to service design has steadily increased (Polaine, 2010).

A community of service design researchers started forming around some recurring key events, such as academic conferences dedicated to service design (ServDes, which kicked off in Oslo in 2009) or the gatherings organized by the Service Design Network, launched in 2004. Further conference series, such as DRS, IASDR, Cumulus contributed to keep a strong link between service design and the broader design community, whereas solid links have been created between the Service Design community and participatory design research via the conference series on Participatory Design. Further links have been created among the service design community and the research community focusing on service science and marketing studies, which offered opportunities for interaction between designers and marketing experts in the QUIS conference cycle and the Naples Forum on Services.

The exact boundaries of this community are not clearly and firmly definable as service design has been often examined through the integration of various disciplinary perspectives (Nisula, 2013). Just to provide some examples: Hollins and Hollins (1991) analyzed services using a process-oriented approach that was mostly concerned with the organization of business operations. Mager (2008), on the other hand, focused on the client perspective and the interface between clients and service providers as the foundation for visualizing, formulating, or orchestrating service solutions. Clatworthy (2012) viewed services as experiences that occur over time and

must be organized through a series of interactions between service providers and customers. Beside the core design-oriented contributions from design scholars, a few more cross-thematic linkages are worth noticing: the rich interactions between service design studies and participatory design, the contribution of studies that were linking service design to social innovation (Fassi et al., 2013; Manzini, 2014) and the critical contribution of service science and marketing studies, which led towards a fundamental perspective shift from a good-dominant to a service-dominant logic while reformulating the role of Service Design (Lusch & Vargo, 2014; Vargo et al., 2008; Vargo & Lusch, 2004).

These approaches exemplify how research on service design adopted a multiplicity of viewpoints and developed at the intersection of fields and disciplinary areas such as marketing, operations, management studies, participatory design, interaction design and social studies - just to name a few. The result of this continuous work contributed to consolidate the discipline and the community working around service design, but also to fragment the knowledge and the developments to this discipline. Service design is becoming part of studies about innovation (Prestes Joly et al., 2019), urban studies (Concilio & Tosoni, 2019), policy-making (Mortati & Maffei, 2018; Whicher, 2017) and open data, thus creating a complex network of links, and a very disjointed community that this study tries to explore.

Analysis of the Twitter accounts

Methodology

In order to understand how the actors of the Service Design community entangled among each other, we adopted networks as the perspective for understanding complexity and complex systems (Caldarelli & Catanzaro, 2012), as a metaphor and method for understand networks (Kadushin, 2012) and therefore also communities (Giuffre, 2013) by looking at the persistent patterns of behavior of a social system as the structure of a community, a well-established research approach with several algorithms available based on graph theory (Coscia, 2019).

As a source of data, we focused on Twitter because of its ease in terms of data mining, its extensive track record of adoption in research, and for the possibility of easily explore interactions and connections among accounts. For these reasons, albeit Twitter might not be the only or the most relevant platform for the Service Design community, it is arguably the easiest for approaching our initial exploration. Karami et al. (2020) elaborated a systematic literature review of applications and methodologies of Twitter in research, highlighting that Twitter-based research is a

growing field since 2006 and expected to grow even further. Twitter is recognized as an adequate source of data for population-level data in large-scale studies but also as a facilitator for hiring research participants. Several domains of Twitter-based research application were found, and several of things are relevant for Service Design: Politics; Disaster Analysis; Marketing; Stock Market; Ethics, Law, and Privacy; Social Movement; Activism; Medical Education; Public Relations; Information Behavior; Pedagogical Use; Citizen-Government Interaction; Health Discussion; Community Analysis; Human Behavior; Security; Disease Surveillance; Sport/Entertainment. In terms of methods and strategies, for example in Health Research Twitter has been adopted in content analysis (themes), sentiment analysis (positive or negative discussion), image analysis (images of themes), surveillance (monitoring a topic), detection (events), prediction (estimation of disease or behavior), engagement (impact of discussions), network analysis the relationship and interactions) (Sinnenberg et al., 2017). Twitter has also been adopted for identifying scientists in online discussions (Ke et al., 2017) and for improving the dissemination and impact of research (Schnitzler et al., 2016). Following Karami et al. (2020), our approach is a Community Analysis application of Twitter-based Research following a Social Network Analysis (the second methodology found in terms of topics discussed in literature, after Sentiment Analysis). Considering that not all the interactions among the Service Design actors take place on Twitter, we consider it as a proxy environment for our analysis.

In order to extract the data, a custom software (Menichinelli, 2023) was written for querying the Twitter API: it is a further development of previously developed software (Massimo Menichinelli, 2020; Menichinelli, 2015, 2017b, 2023) and publications (Menichinelli, 2016, 2017a; Menichinelli & Gerson Saltiel Schmidt, 2020). Accounts were searched for by looking at four keywords (“service design”, “servicedesign”, “design4services”, “servdes”) and the accounts of the four authors of the paper were added to uncover their entanglement as well (Table 1). The software queries the API for the “GET users/search”[1] endpoint which retrieves the first 1,000 matching results and was written for the 1.1 version of the Twitter API (the latest version of the API, version 2, still does not support this endpoint). Data was extracted on 1st of September 2022, with 1,214 accounts found (of which 1,190 unique accounts after removing duplicates): since 28 accounts were protected (so no friends’ and no followers’ information was available) and 28 other accounts had zero friends and zero followers, the resulting amount of Twitter accounts is 1,158. Of these accounts, 22 were found within 2 queries: 1 account for “service design” and “design4services”, 1 account for “servdes” and “service design” and 20 accounts with “service design”

[1] https://developer.twitter.com/en/docs/twitter-api/v1/accounts-and-users/follow-search-get-users/api-reference/get-users-search

and “servicedesign”. Furthermore, one account was found within 3 queries: “service design”, “servicedesign” and it was part of the team of authors of the article.

Types of accounts	Number of accounts
“service design” query	979
“servicedesign” query	228
“design4services” query	2
“servdes” query	1
Accounts of the authors of this paper	4
Total number of accounts found	1,214
Total unique accounts (without duplicates)	1,190
Protected accounts	28
Accounts with zero friends and followers	28
Number of nodes of the resulting graph (Total number of nodes minus Protected accounts minus Accounts with zero connections)	1,158
Number of edges of the resulting graph	13,396

Table 1. Results of the query of the Twitter API

Furthermore, the custom software adopted does not just download users’ data from the Twitter API but also looks, for each user, for its “friends” (users that the specific user follows - the user following them) and “followers” (users that follow the specific user - user is followed by them) connection among the nodes[2] in order to build the graph based on how Twitter users are following each other that we consider as a predisposition to listening and talking to each other and thus as a proxy for interaction in the Service Design community on Twitter. The resulting graph of Twitter

[2] https://developer.twitter.com/en/docs/twitter-api/v1/accounts-and-users/follow-search-get-users/overview

users with 1,158 nodes and 13,396 edges among them was then analyzed with the Gephi software (Bastian et al., 2009) and visualized with the Fruchterman-Reingold force-directed layout algorithm (1991). The graph has a network diameter (the shortest distance between the two most distant nodes) of 15 nodes, with an average path length of 3.119 nodes; graph density (number of existing edges compared to number of possible edges) is very low with a 0.01 value. The graph consists of a core of 708 (61.14%) connected nodes, with a periphery of less connected nodes (104, 8.98%) and 346 (29.88%) poorly connected nodes (Figures 1-2).

Analysis of Communities in the graph

As a first step, we identified the communities within the graph with Gephi and its community detection algorithm (Blondel et al., 2008) that subdivides the graphs into partitions (communities) by calculating their modularity, a value that compares the density of edges inside communities with edges between communities. We found good results (333 communities) with the default high resolution (optimization) value (Lambiotte et al., 2008) of 1.0. Among the first ten communities by number of nodes, five main communities were identified (Figure 1, communities C01 to C04 and C06), while we consider that 5 more were discarded because they were not relevant for our research, since they were communities related to interior design, events, or printing services (Figure 1, C05, C07 to C10). After the first 8 communities, all the other ones are with 3 (0.26%) nodes or less and thus too small to be considered.

The first community (C01), made of 227 (19.6%) nodes, connects mainly researchers in the field of Service Design. The second one (C02), made of 193 nodes (16.67%), connects mainly practitioners and key consultancies in the field. A central node in this community is the Service Design Network (SDN) account that serves also as a connector between these first two communities. The third community (C03) is made of 178 nodes (15.37%) and identifies the English community of service designers, mainly from the industry side. While the community of academics and the English community (C01 and C03) are strongly interconnected, the community of practitioners (C02) is more dispersed, and the nodes appear equally distant from the central SDN node. The fourth community (C04) is made of 110 nodes (9.5%) and depicts the mainly the German and Canadian community, while the fifth community (C06), made of 36 nodes (3.1%) is mainly representing service designers from the Finnish community.

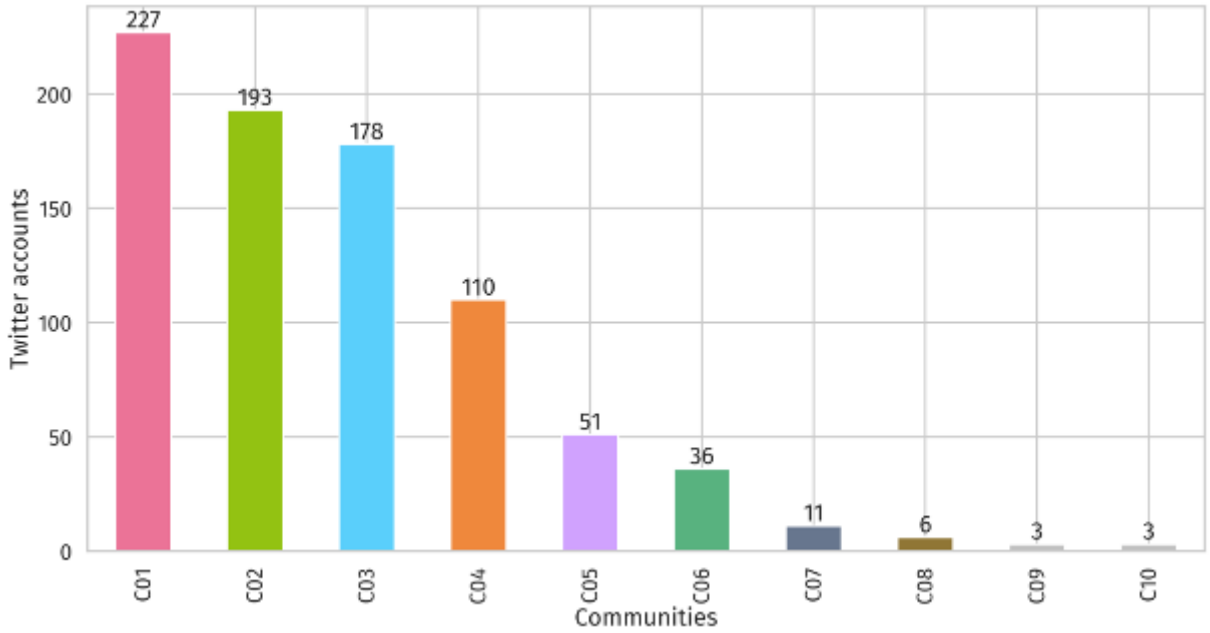

Figure 1. Distribution of the sub-communities found in the network with a resolution of 1.0

The very same communities are highlighted in the graph in Figure 2, where the importance of the first three communities is clearly visualized, together with the peripheral role of C04 and C06. The image shows in grey also many loosely connected (3 or less edges) or disconnected nodes: each of these groups or individual nodes are identified by the community detection algorithm as communities on their own, not as one community (the same grey color was chosen to instead highlight the main bigger communities) and represents Twitter users not or almost not interacting with main users (hence the low graph density).

General description

In this section we elaborate upon general information of the nodes; in Figures 3 to 9 in this and the following section the color and size of each node is directly related to the value plotted - larger and darker nodes have higher values. Figure 3 shows the Status Count of the nodes in the network, which is number of tweets of each account. It can be observed that the 3 biggest nodes (@360DegreeDigita, @Bouken_jp, @safnhaco) are located at the periphery of the network: those nodes are isolated with respect to the rest of the communities identified by the algorithm. All the three nodes are companies that, while mentioning services or even Service Design in their account description, work mainly in related design areas, such as web design, animation design or graphic design. Getting closer to the center of the graph, it is possible to identify nodes with relevant activity: mainly independent consultants or practitioners with key roles such as lab directors or senior design researchers. A

significant number of these accounts are from England, but Spain, Japan, USA, Portugal, and Ireland are also represented (@ybnr, @rekabarth, @thirdsectorlab, @jbaldaia, @jeffsussna, @CreativeDynamix, @alexgsmith). Less active but quite central nodes are all from England and are practitioners strongly connected with academia (@mistergough, @phillirose, @em606, @adamstjohn) because of their role into key organizations such as the Design Council or the NHS Innovation Lab.

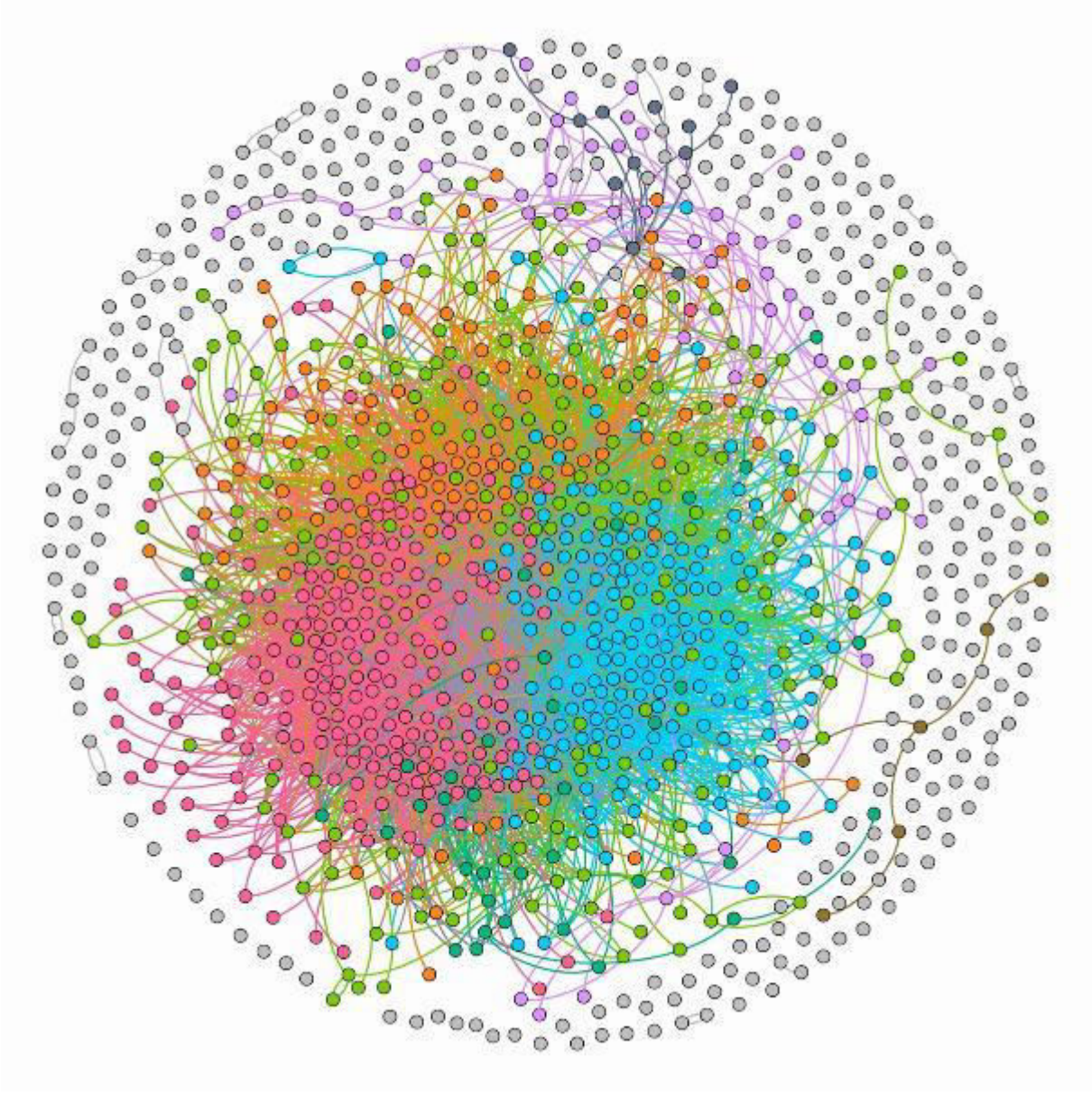

Figure 2: Graph of the Twitter users found, nodes colored by community detected (first 8 communities colored, all other communities are grey)

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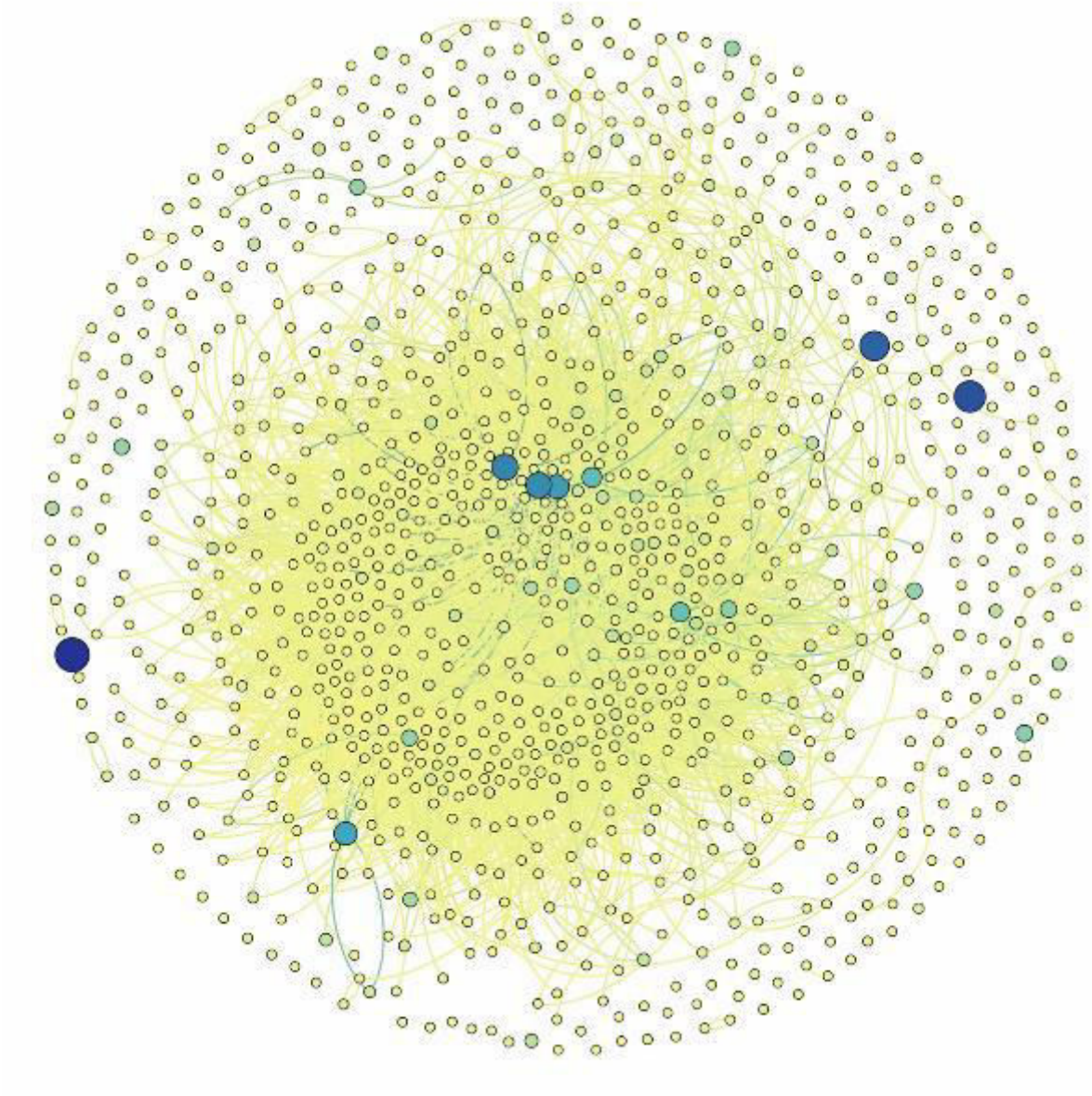

Figure 3: Distribution of Status Count in the graph

We analyzed the number of accounts each account follows (friends, Figure 4) or is followed by (followers, Figure 5). The account with most friends (Figure 4), even if not very central in the graph, is @ThirdSectorLab, followed by English consultancies such as @wearesnook, @foolproof_UX and @hereatengine. Also in this case, there are very peripheral accounts (@LS1print, a design and print service) with good numbers, but clearly not interesting for the current analysis. A bit on the borders of the central community, also @innovationLat has a good number of friends, being an

account that tries to catalyze the Spanish speaking community of designers in UX and Service Design.

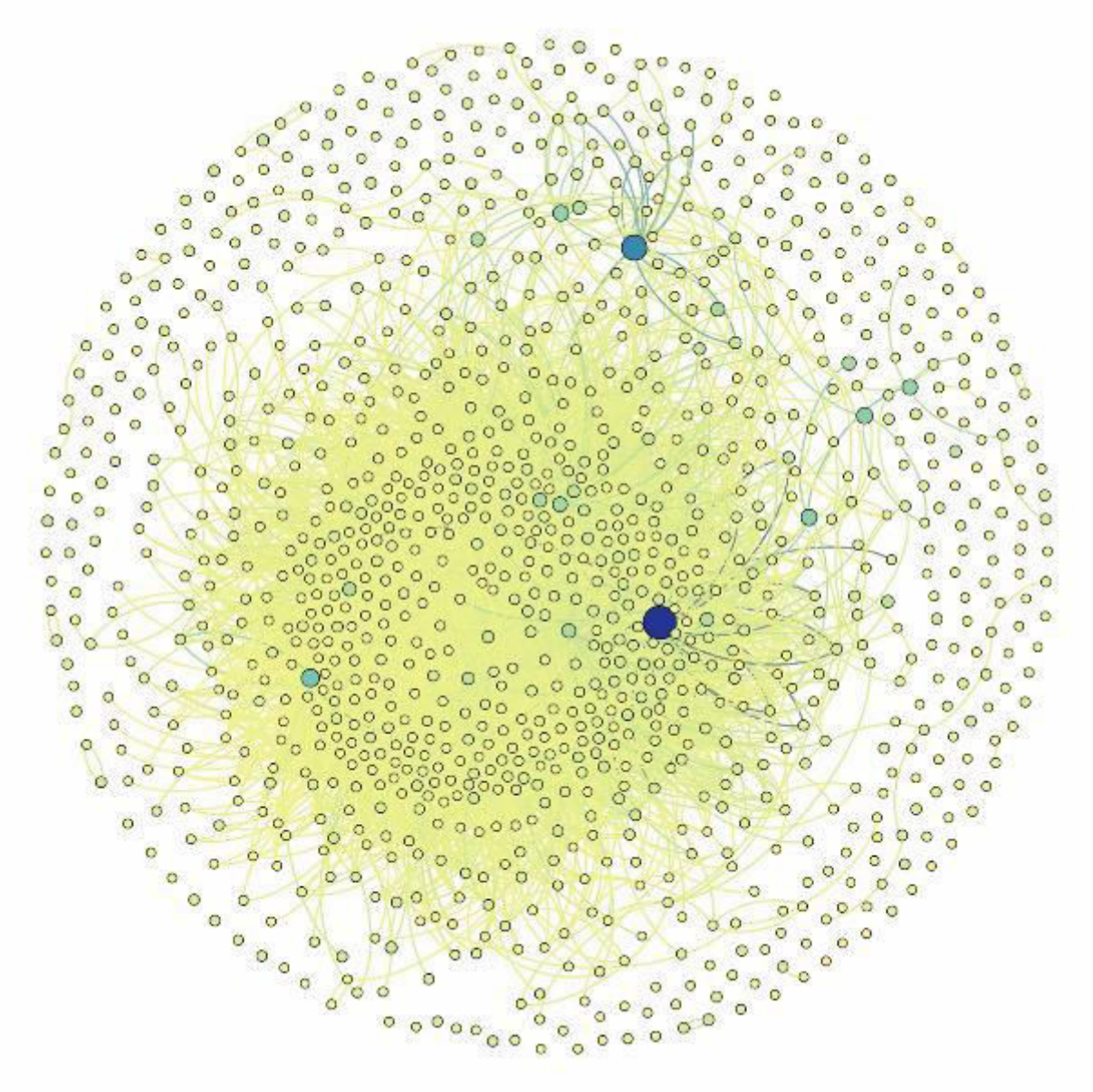

Figure 4: Distribution of Friends in the graph

The number of followers (Figure 5) in the graph seems to be quite homogeneous except for two outlier accounts with a significantly higher number of followers belonging to other realms, such as “forest services” and “military aircraft services” (@parveenkaswan and then @prattandwhitney). It is interesting to note how these are not part of the main communities and arguably very peripheral to service design, and that the high number of followers could be explained as either a very popular

account, a very active account or a strongly connected account to other communities outside of this analysis - in any case an account more active and connected outside of Service Design than here, and more popular that main famous Service Design accounts, meaning that they could probably be more active on using Twitter in promoting Service Design.

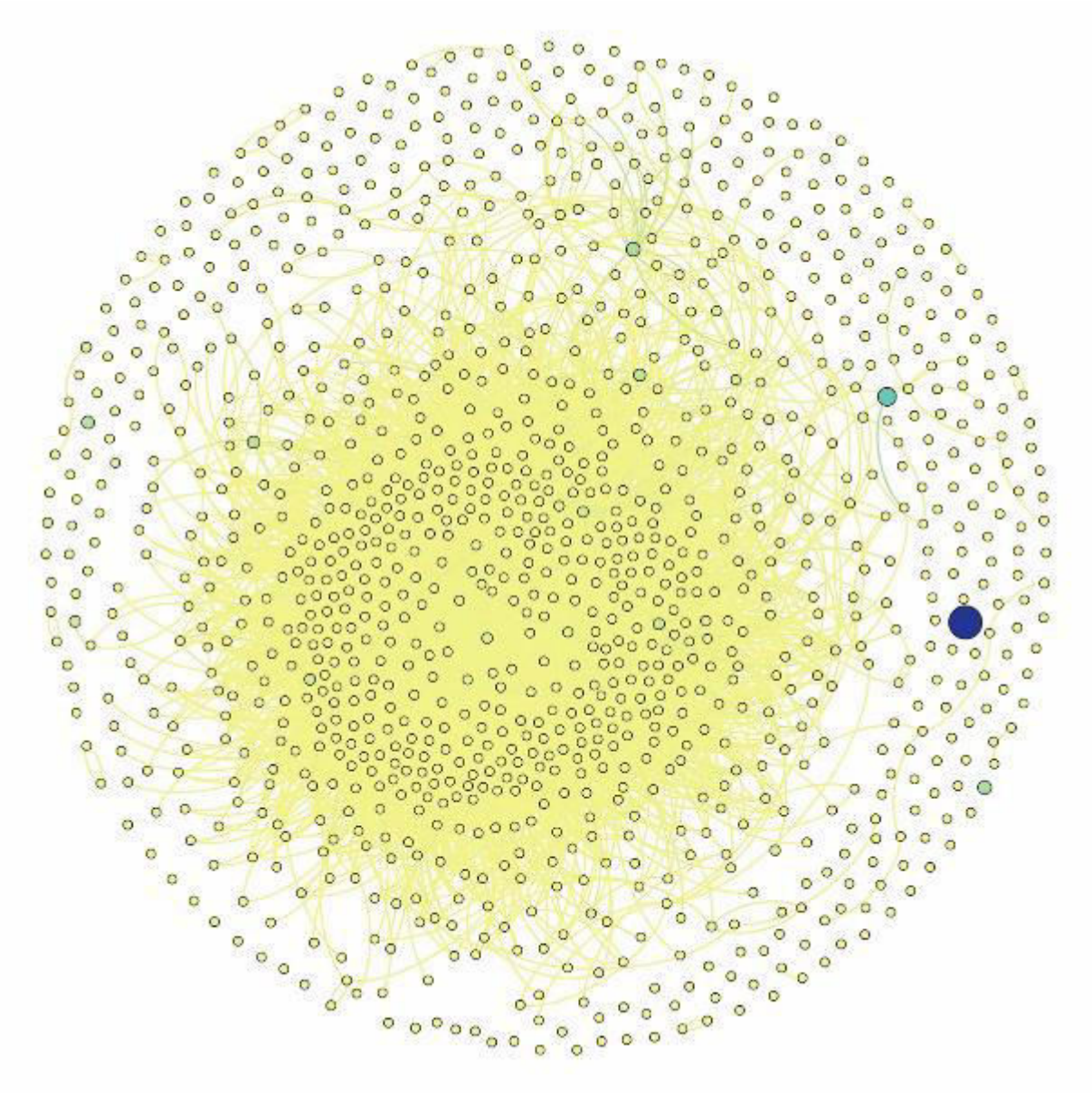

Figure 5: Distribution of Followers in the graph

Analysis of Centralities in the graph

Different ways of measuring centrality of nodes in a graph are important for understanding their social role. Degree centrality is the number of edges of a node (the more the edges, the higher the centrality in the network): the average degree here is 16.777 (Figure 6). This measure confirms the centrality of @SDNetwork together with some of the accounts that have been mentioned before: the English community with its consultancies (@HereatEngine, @wearesnook, @sdn_uk) and some key figures that connects the two worlds of academics and practitioners (@adamstjohn, @MrStickdorn, @apolain, @Birgit_Mager). It is also interesting to notice that many of the accounts that are part of the academic big community refers to specific events such as jams, conferences, general gatherings (@GsJam, @ServDes, @SDDMilan) or services (@This_is_SDT, @sdxjobs).

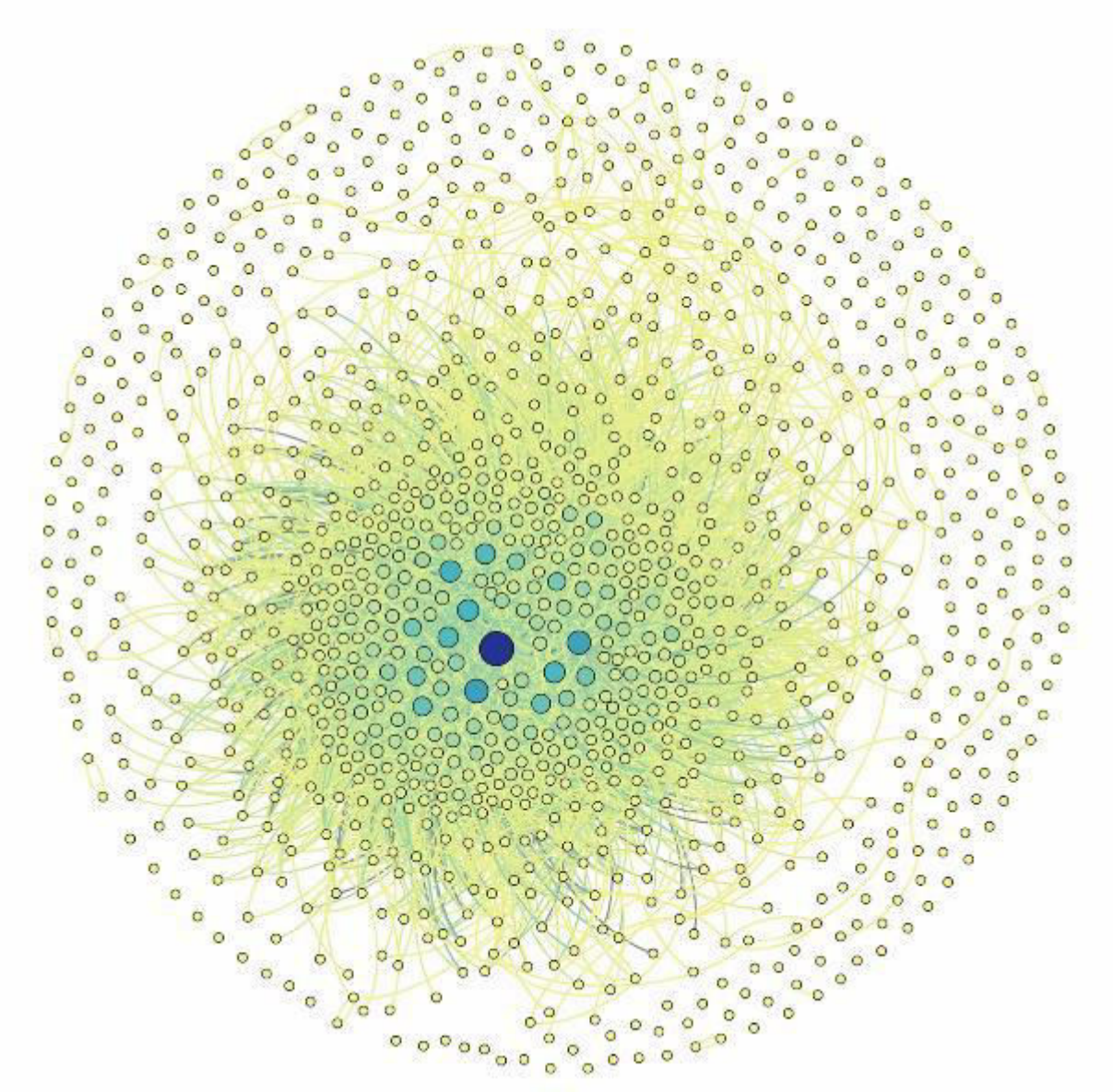

Figure 6: Distribution of Degree centrality in the graph

Betweenness centrality measures how many times a node acts as a bridge along the shortest path between two other nodes, i.e., how many nodes it can bridge (Figure 7). The role of consultancies and @SDNetwork is still a very central one between accounts and communities: @SDNetwork, @WeareSnook, @hereatEngine, @sdxjobs, @SD_LDF, @SDN_UK. Quite important are also specific actors that are well known in the different communities that we identified (@adamstjohn, @Birgit_Mager, @apolain).

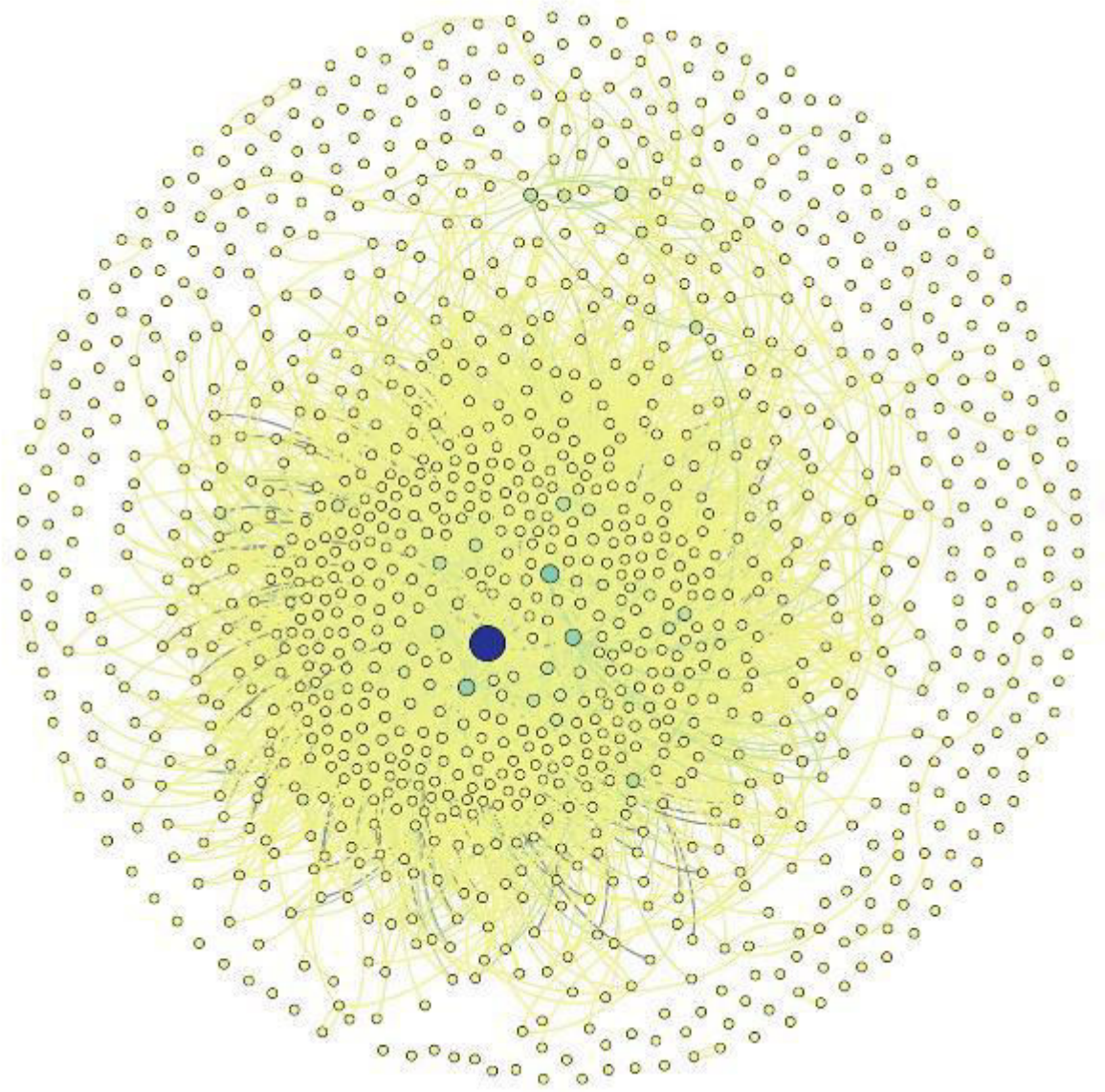

Figure 7: Distribution of Betweenness centrality in the graph

In Eigenvector centrality a node is central if it is connected to other important nodes (Figure 8). From the analysis of the graph, we can clearly see that the important nodes mentioned in the previous analysis are highlighted. @SDNetwork is still the account that has the highest number of connections followed by @Mrstickdorn, co-author of a very popular book about Service Design tools and methods (Stickdorn & Schneider, 2011). We can observe that the important consultancies are part of a very interconnected network together with the very same actors mentioned in previous analysis (@SdBerlin, @thinkpublic, @HereatEngine, @ServDes, @GSJam,

@AdamStJohn, @This_is_SDT, @Birgit_Mager, @Apolain, @WeareSnook, @Breasy).

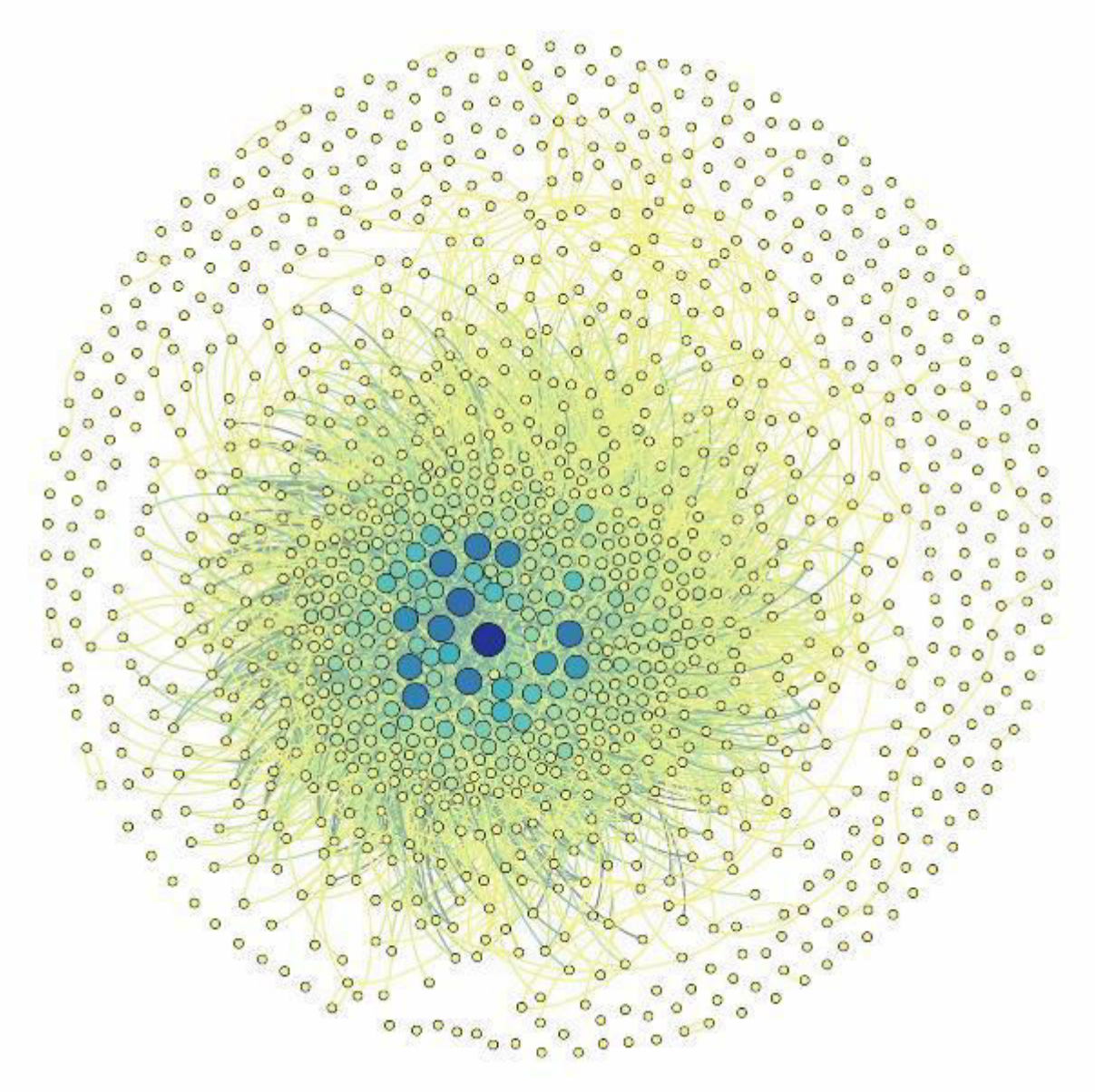

Figure 8: Distribution of Eigenvector centrality in the graph

Still central and interconnected but with lower values, there are consultancies and single actors that very often work across academia and industry or researchers that are very well known also in the industry context (@STBY, @PDR_SD, @SDN_UK, @Martin_Jordan, @PDRSD, @slhmld, @Jamin, @clivegrinyer, @lavranslovlie). It is worth noting that most of these are from the British Service Design community.

PageRank centrality (Brin & Page, 1998) is a variant of Eigenvector centrality: here importance is determined with an iterative approach where nodes vote for the importance for other nodes (calculated with iterations of voting over connections instead of connections only) (Figure 9).

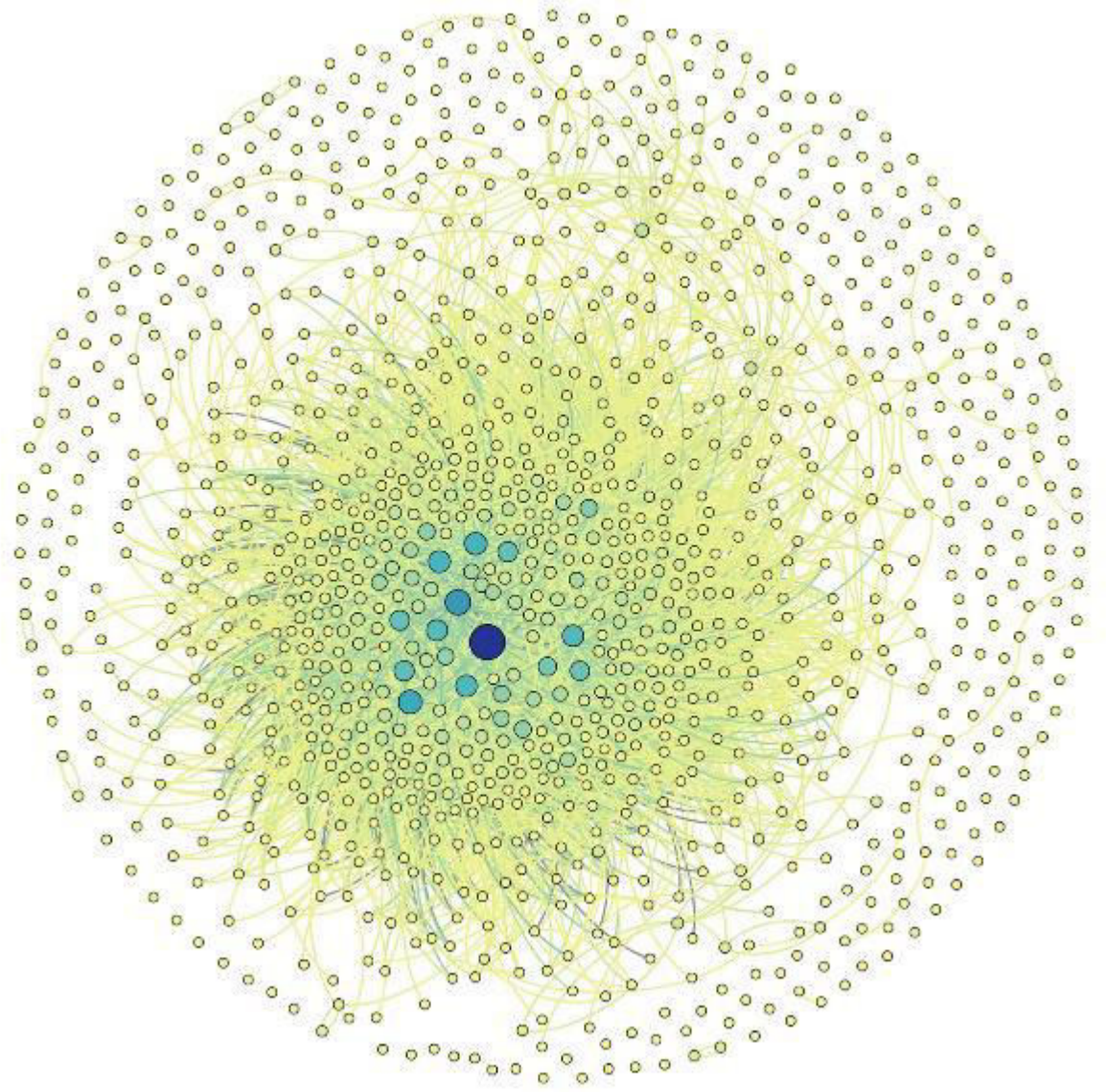

Figure 9: Distribution of PageRank centrality in the graph

The PageRank centrality confirms the previous analysis, with a prominent position of @SDNetwork, followed by @MrStickdorn and then the consultancies and events, mainly from the English context, and key actors from different geographical locations (@HereatEngine, @WeareSnook, @GSJam, @AdamStJohn, @BirgitMager,

@Apolaine). With lower numbers, but still quite central, accounts that refer to well-known conferences or books (@ServDes, @This_is_SDT) and sub chapters of @SDNetwork with known practitioners (@SDN_UK, @Martin_Jordan, @Breasy). Other accounts emerge from the network, such as @SD_Berlin, @RCA_SD, @STBY, @thinkpublic, @jamin, @hlmld, @leisa, @clivegrinyer, @PDR_SD, @roscamabbing: even if with fewer connections they confirm the names emerged from the Eigenvector centrality.

Evolution

Figure 10 shows the creation of the Twitter accounts over the years considering all the accounts included in this analysis and through a yearly resampling. While it can be observed that Twitter accounts in general had an exponential growth around 2008-2009, it is possible to correlate this peak in the Service Design community with a specific event, the first ServDes Conference that took place that year and in 2010 and then was regularly organized every second year. In 2009, also the first courses in Köln started together with a master education at Laurea University of Applied Science. The same year also the website “Service Design Tools” was launched, probably contributing to some Twitter activity, including accounts’ creations. Other key dates for the service design community are the creation of the SDN network back in 2004, the publication of the manual “This is service design thinking” in 2010 (Stickdorn & Schneider, 2011) and the organization of the first Service Design Fringe Festival in London in 2014 (that we can argue it is visible in the evolution of C02 in Figure 11). It is particularly interesting that while all the communities align around 2009 in terms of activity (Twitter was launched in March 2006), then they slightly differentiate. This could be an interesting indication that would help better define the nature of the communities.

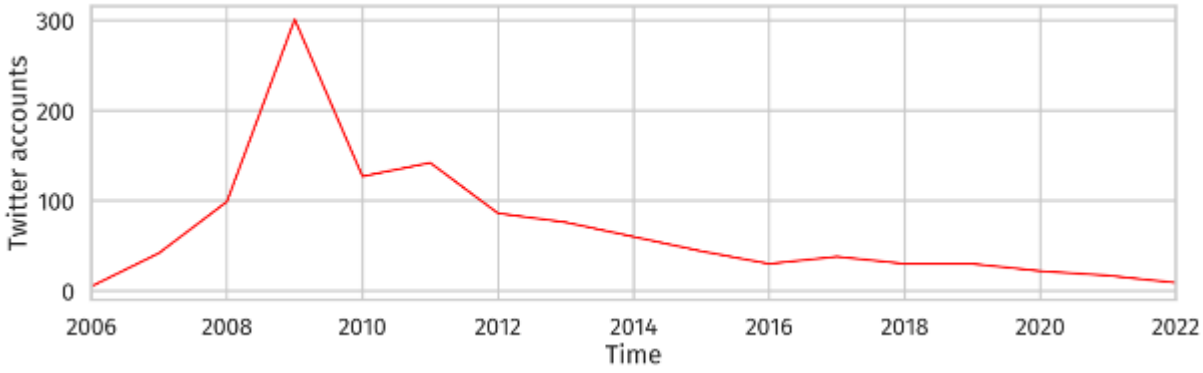

Figure 10: Creation of Twitter accounts over the years (yearly resampled)

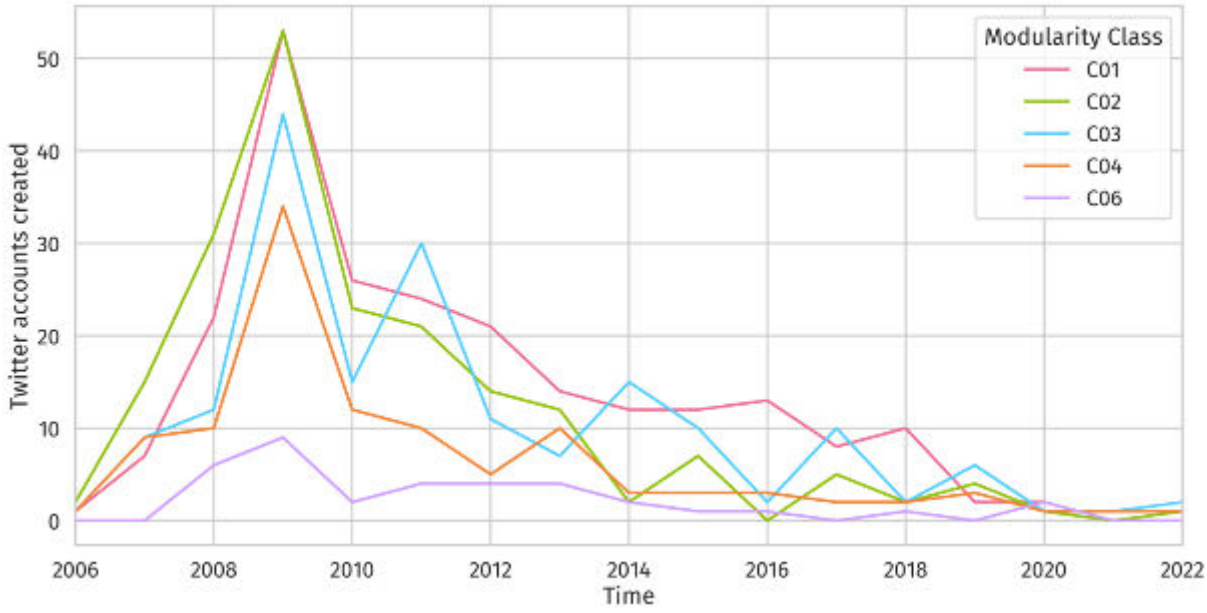

Figure 11: Creation of Twitter accounts in the main 5 communities identified over the years (yearly resampled)

Geographic location

Twitter accounts have a specific field for storing information about their geographic location; it is a simple text field, not a proper address or coordinate system, so any text can be added. We recovered the address of each account through geocoding, skipping all geographic locations that were not properly written and thus gave errors during the geocoding process (i.e., mistakes, multiple locations at the same time, not real geographic locations), thus not all accounts could be analyzed: of the 1158 accounts, 1011 had a location defined of which 680 were unique values, but after geocoding only 590 were the resulting valid addresses (50.95% of accounts). Unique values are 40 for countries, 117 for regions and 202 for cities. UK is the country with the highest count, England the region and London the city. Figures 20, 21 and 22 give an overview of the geographical locations of the networks' nodes, starting from the country and zooming in to the region and then the city. The biggest community, and the most active, is the English one, where London is the city with most accounts. USA has the second highest number of accounts, but the community is clearly more dispersed and less interconnected.

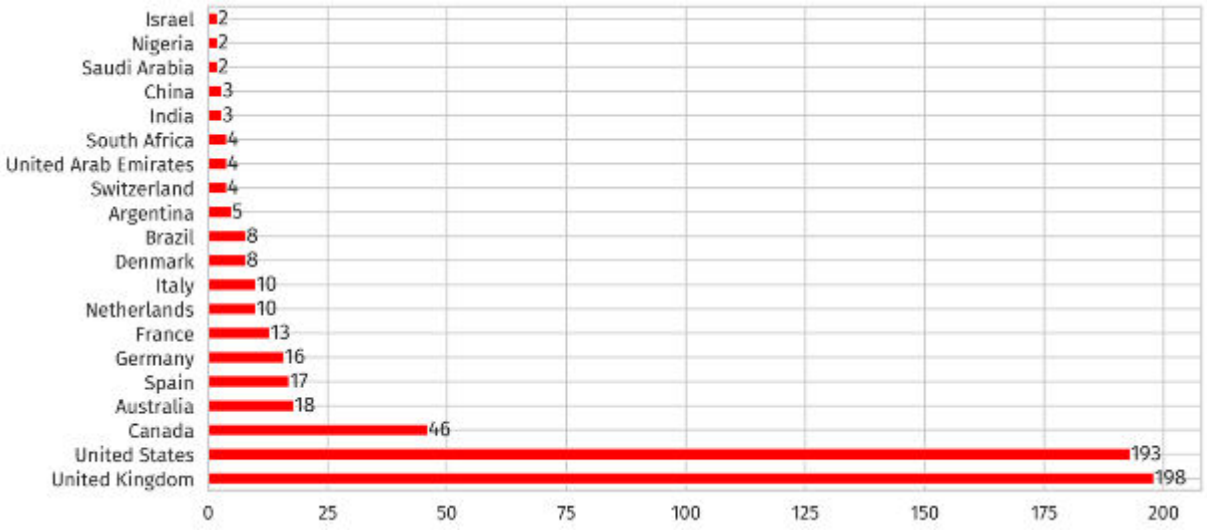

Figure 12: Twitter accounts by country (first 20 countries)

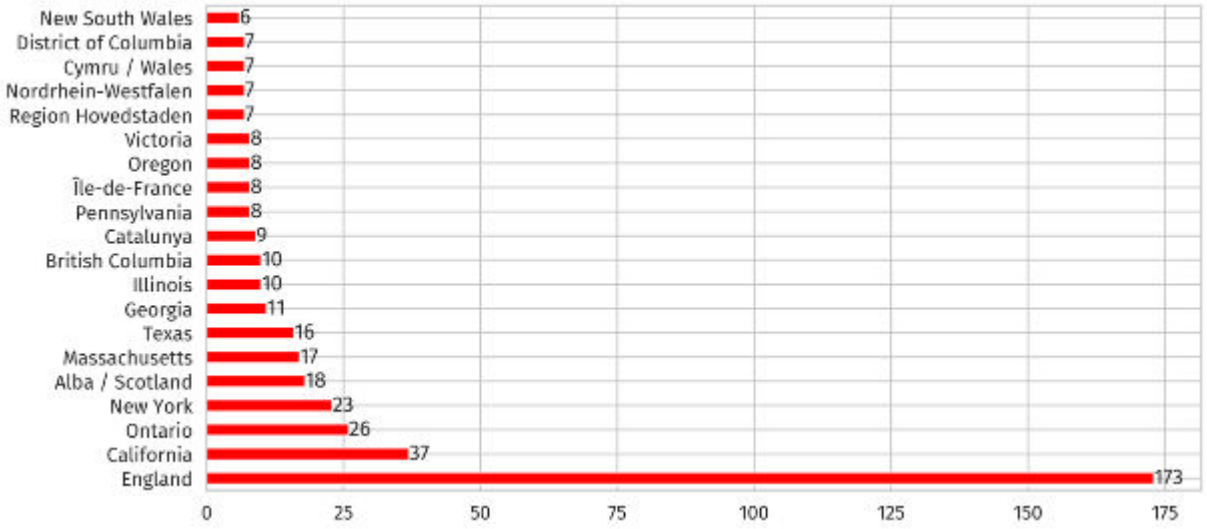

Figure 13: Twitter accounts by region (first 20 regions)

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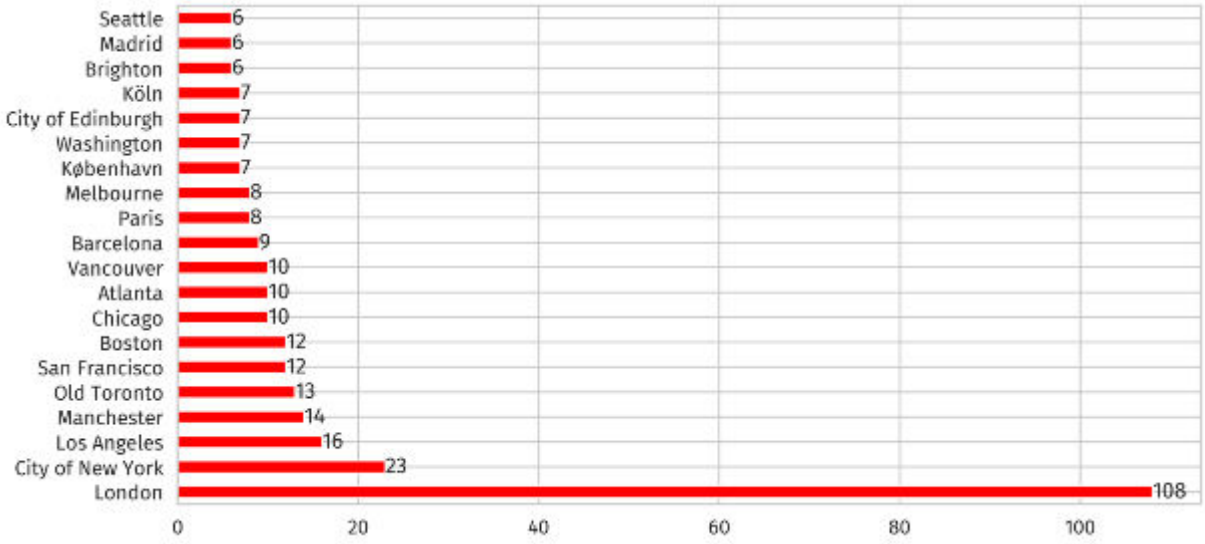

Figure 14: Twitter accounts by city (first 20 cities)

Discussion

General considerations

As discussed at the beginning of the paper, the global Service Design community appears fragmented in many sub-communities that look at the discipline from their own perspective nevertheless they are entangled through key nodes. The complex ecosystem that then unfolds also through the analysis of Twitter's data (as a proxy) gives some interesting insights about the nature of the sub-communities and raises some open questions for their future development.

General considerations in relation to Degree centrality:

- The top 20 busiest nodes refer to organizations and individuals mostly based or headquartered in Europe; most of them declare that their location is in the UK, Germany, or Milan.
- A good number of these Twitter profiles were created more than 10 years ago.
- The ranking is dominated by well-established networks (SDN) and service design companies (Livework, Snook or Engine) or by individuals who contributed to the discipline, e.g., because they wrote important publications (Marc Stickdorn, Birgit Mager, Andy Polaine, Stefan Holmlid - among others).
- Three important events for the service design community (ServDes, the Service Design Fringe Festival and Service Design Drinks) are also included among the top 20 busiest nodes.

- Editorial projects such as “This is Service Design Thinking” (Stickdorn & Schneider, 2011) and the website “Service Design Tools” managed to attract interest and traffic.
- In terms of gender differences, among the individuals topping the 50 busiest nodes, only a bit more than 40% self-report as female.
- Higher education institutions, departments, research centers and labs offering service design education do not often appear as central nodes.

Considerations in relation to the communities:

- Companies, networks, and a selected number of individuals are also the busiest nodes of Twitter communities.
- While the community of academics (C01) is strongly interconnected, it is also clearly less successful in terms of connections with the broader community.
- The community of practitioners (C02), while less strongly interconnected, has a very important role since, through its central node, SDN, it bridges the two main communities (C01 and C03).

Key takeaways:

- This map draws an uneven geographic distribution – the majority of the busiest nodes are located in Europe and with some other relevant nodes in USA and Australia.
- Busiest and most central nodes correspond to a handful of service design companies and individuals who are well-known in the community.
- SDN and some of its local chapters are central nodes of several communities.
- Higher education institutions, departments, research centers and labs do not seem to be central Twitter discussants.
- An analysis of the maps does not show any distinction by country, except for Finland, Germany, Canada.
- If we consider the most active accounts (the ones with the highest status count) the geographical distribution is a bit different, with a predominant presence of the UK (28% of the highest 50), and USA (18%). Europe is still the predominant continent (50% of the highest 50, but also America has quite a strong presence (24%). The most active account, however, seems to be a Japanese consultancy.

Self-disclosure

We, the authors of this paper, are all part of the academic community (C01) and are not particularly central to the graph - we are at the periphery of the main communities

(Figure 15). Furthermore, we all authors are from the same Southern Europe country but living and working abroad in Southern and Northern Europe. It has thus to be noted that our positions clearly influence our analysis of the graph, since we rely on our own understanding of the Service Design development and of the emerging new realities.

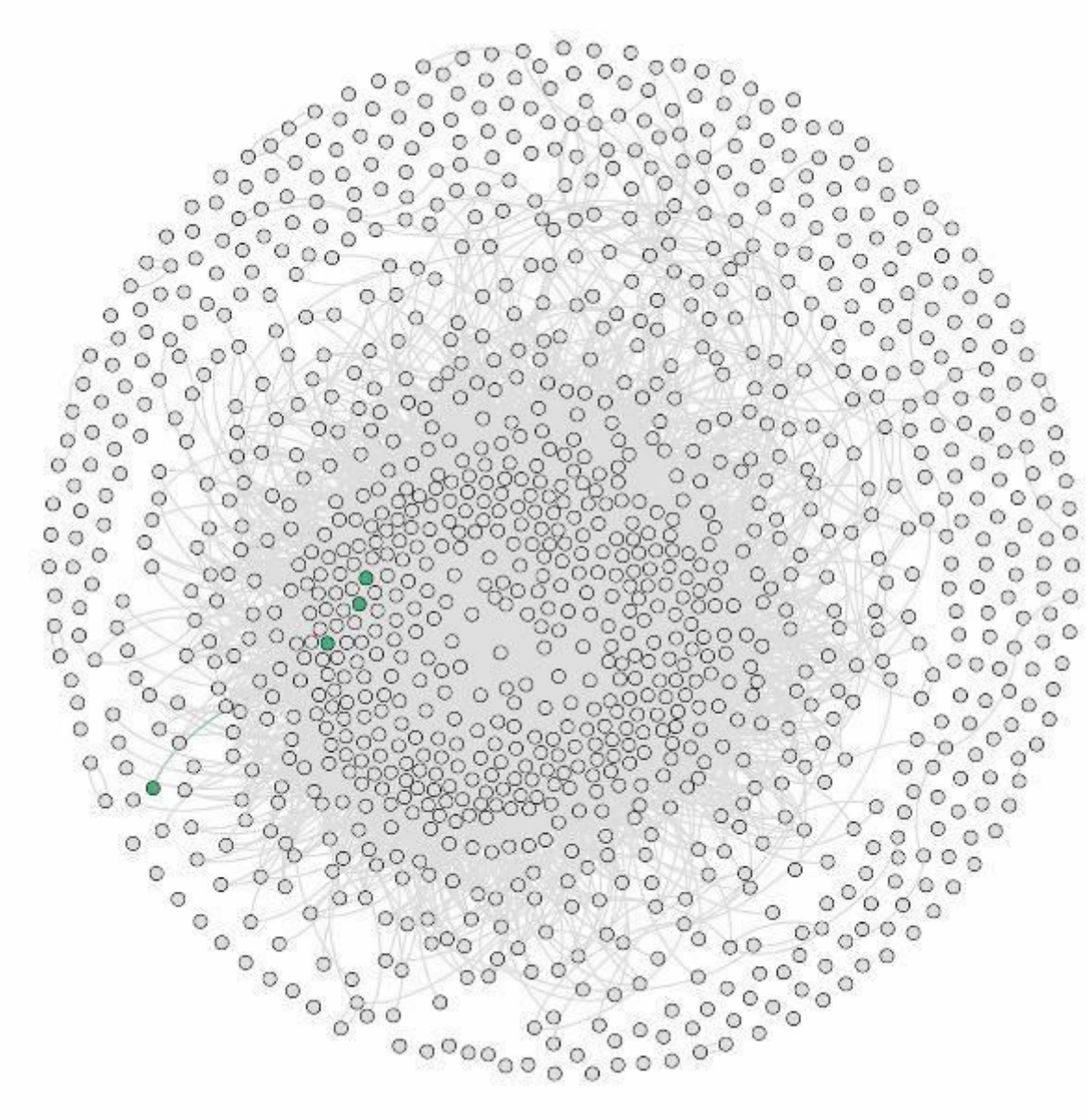

Figure 15: Positions of the four authors of the paper within the graph

Conclusions

Previous research has showed how Twitter and social media could be adopted in Service Design, for example by combining quantitative digital methods with traditional qualitative ethnographic approaches for generating data-driven personas (Tassi et al., 2018), by engaging diverse stakeholders in designing services and improving their quality (Walsh et al., 2021), or for the identification of customer needs (Kuehl, 2016). This paper presents, instead, a first attempt to consider Twitter not just a tool for designing services by analyzing users but also a tool for analyzing the Service Design community itself through its Twitter accounts - the social network analysis of Twitter accounts as a self-reflexive and community-centered approach. While the Twitter community is a small part and thus proxy of the real one, it allows us to get a first understanding of its complex and entangled ecosystem.

Service Design appears to be still a very Global North dominated discipline, especially with the UK and London as the center. The most active and central node is the Service Design Network, together with some of its local chapters, and some English consultancies which also acts as bridges among the different communities, particularly the academic and the industry ones. Few key figures that launched Service Design in Europe by creating new academic courses or education in, or that were part of important editorial endeavors, are also connected to different communities, being quite central in the ecosystem. Generally, academia is underrepresented and not very active. Further research shows investigate more the presence and position of non-Eurocentric design voices and activities.

The graph obtained is based on how Twitter users are following each other, a dynamic that we consider as a predisposition to listening and talking to each other and thus as a proxy for interaction. The number of accounts found in this way are limited by the features of the v.1.1 of the Twitter API, which only retrieves first 1,000 results for a search term. Therefore, more Service Design accounts might exist, and alternative search queries and methods could be elaborated to find them. Related to this, specific methods for identifying and analyzing new emerging actors should be considered and developed, not only on Twitter, as new platforms and sources could be necessarily identified. Furthermore, we could also improve this analysis by analyzing the interactions among all these accounts in the past, to validate our assumption that following other accounts can be considered a proxy of interaction. This could be also compared with the frequency of tweets and hashtags generally related to Service Design over time. Search results could be analyzed in both quantitative and qualitative terms. Another validation strategy could be to discuss these results with key members of the community.

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Furthermore, we should also elaborate further research towards understanding to which extent Twitter could be a common place for the Service Design community, which could be other places or what would the community need or desire in terms of a common global online platform for meeting. More broadly, further research should also investigate the importance of digital platforms for supporting a global community of service designers, and how we could design them accordingly. Twitter represents here a place for both the academic and the practitioner sides of the community to meet, further research could focus on only one side, for example with a bibliometric analysis of academic research or interviews with practitioners. Overall, beside validation of these results, future research should explore how to make the global Service Design community more equally and globally connected by studying strategies, tools, and platforms.

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