

DATAFICATION AND THE DEVELOPMENT OF GLOBAL DIGITAL CIVILIZATIONS

ROOHAM JAMALI

Indus Valley School of Arts and Architecture (Pakistan)
rooham.jamali@ivs.edu.pk

Abstract: New emerging technologies and the continuous process of digitisation around the globe means a new model of civilization is emerging where society is “digitized” or “datafied”. This paper analyses to what extent we have undergone the process of digitisation and datafication through understanding concepts of the surveillance society, spectacle society, our digital footprints and the amount of data gathered by government agencies, individuals and companies and its utilisation; and how this process has led to the development of a “global digital civilization”. Disparity between levels of digitisation in different regions in a globalised world are addressed to determine if certain regions contend hegemony over others within digital realms. To further understand how globalisation itself is perceived in a digitised world, a software called “Mention” was used to collate data in relation to the terms “globalization”, “global” and “globalisation” on digital platforms such as Twitter, blogs, news, websites and forums over a month’s time period. Online rhetoric in relation to this term and the locations from which data was mostly surfacing in higher amounts has greatly added to the findings.

Keywords: datafication, global digital, digitisation, digital civilization, digital citizen.

THE INTERNET AND CIVILIZATIONS

In order to assess what kind of a civilization we exist in today it is important to understand and evaluate a few key definitions and theories. The term “civilization” itself is defined as “a human society with its own social organization and culture” (Collins English Dictionary). When it comes to civilization, there is no black and white, or one particular model, rather it is a process which like humans, societies and cultures is continuously evolving, changing and developing. Often these developments, or lack thereof, may be a result of advancements in technology or previously industrial revolutions and even the introduction of the very first public spaces, salons, monarchy,

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religion and political and social hierarchy which may have led to the ascent or decline of earlier civilizations. This concept aligns with the theory of “cultural globalization” which states that processes or transformations such as early human migration, the emergence of world regions, the imperial system and the development of transregional trade networks have led to globalisation in the premodern period (Hopper 2007: 9-31). The understanding of contemporary globalisation stems from cultural globalisation through the past hundreds of years and is known to be a form of “cultural interconnectedness and a greater intensity and extensity of cultural flows in the form of the movement of people, ideas, goods, symbols and images as well as the greater velocity with which people travel from place to place” (Hopper 2007: 9-31). Developments such as infrastructure, airlines, rail networks, a dramatic rise in the ownership of cars and even more major advancements in communication and information technology is especially important. When it comes to computing and digitisation, the internet has now ensured that communicating on a global platform internationally is easily doable which has led to a space where people from around the globe connect and share ideologies, thoughts, opinions, visuals and updates worldwide to a virtual digital sphere where online rhetoric and imagery are helping shape a new kind of “social organisation and culture” leading to a “global digital civilization”.

Having established that the understanding of civilization is now viewed within a global context or as a global phenomena as a result of our ever-connected globalised world, and that previous models of civilization or one particular model of civilization may not necessarily be predominant, rather models change as a result of changes in society; this leads us to question what being in a global digital civilization entails and to what extent society is “digitized” and “datafied”. In this journal article I introduce the concept and idea of a new digitised society or global digital civilization formed through processes of online interaction, echo chambers and datafication of individuals around the globe. Disparity between levels of digitisation in different regions in a globalised world are addressed to determine if certain regions contend hegemony over others within digital realms. To

further understand how globalisation itself is perceived in a digitised world, a software called “Mention” (Mention.com) is used to collate data in relation to the terms “globalization”, “global” and “globalization” on digital platforms such as Twitter, blogs, news, websites and forums over a month’s time period. The relevance of these terms is seen in the context of this article, which addresses digital civilizations but in a globalised world. Hence, it is important to see the current online narrative surrounding the terms related to globalisation within a digital sphere.

THE EXTENT OF DATAFICATION AND DIGITISATION IN A GLOBALISED CULTURE

In order to understand what being in a global digital civilization entails it is essential first to evaluate and analyse the extent of datafication and digitisation facilitating the formation of global cultures around the world. To understand the process of datafication and digitisation the concepts of the surveillance society, governance and data usage, digital footprints of individuals, the creation of digital wills after death, digitisation of libraries and museums in the information age, data usage in political campaigns, ideology of echo chambers and the emergence of the digital me are discussed and analysed.

A large part of the datafication process is through surveillance in societies. Previously ideas of surveillance evolved around CCTVs which were mostly utilised by the police. Current day surveillance around the world differs drastically where people are being surveilled through CCTVS while performing regular tasks on a daily basis. Nils Zurawski discusses how something as mundane as a customer loyalty card would allow millions of people to provide large amounts of data to global networks of surveillance just through the simple social activity of shopping while utilising a customer loyalty card. However, this would be for the privileged shoppers who would get loyalty cards as a sense of belonging to a community and not necessarily be linkable to all shoppers, which would eventually result in a database consisting of a set of people within society who

may possibly originate from high-income backgrounds and hence, shop often and therefore have loyalty cards. A theory confirms the previous analysis by suggesting that there is social sorting within surveillance societies which is manifested in people's mobilities which "also accelerates and augments the experiences of people considered to be of commercial value and low risk" such as those with "dedicated toll lanes on highways or security prescreening and preapproval schemes at airports" (Squiteriri 2015: 2011-2049). This results in social inequalities within datasets collected in a global digital civilization and also suggests that people with more access and usage of technology are more prone to being surveilled.

Datafication is not just restricted to individuals under surveillance or companies gathering data but a large part extends to governments as well which rely on "big data" to form decisions and create policies. According to Chad Squiteriri "big data" does not have any one definition in particular, but for a broader understanding he refers to it as "an amount of data so large that traditional analytical tools must give way to statistical models" (Squiteriri 2015: 2011-2049). Due to vast technological advancements it is easier than ever to collect and analyse large sets of data, allowing governments, companies and individuals to gain access to amounts of data that was unimaginable ever before. Governments of different countries around the world may utilise big data to combat terrorism and criminals. However, it may not always be possible to determine criminals within a society, which has led to the development of PRISM, a National Security Agency program which gathers data online for foreign intelligence. Edward Snowden, a former National Security Agency employee who leaked information about mass surveillance being gathered by the NSA suggested that this data is being furthered through companies including Facebook, Google and Microsoft (Weaver, Gahegan 2007: 324-350). Vast datasets being accessed from around the world through such companies means that the daily online activities, or digital footprints, of millions of people around the world are constantly being surveilled and recorded. This may, for the first time ever, result in mass categorisation and analysis of society and social patterns around the globe. While there is no doubt that this is



an invasion of privacy and there are loopholes in many privacy policies of online platforms, the process of mass datafication only means that governments, companies and individuals are now viewing global datasets rather than regional and looking at emerging patterns from a global perspective through the digital sphere.

Collection of data through the digital sphere means that our individual digital footprint is continuously growing and under surveillance. A “digital footprint” as defined by Weaver and Gahegan is “the digital trail each one of us leaves behind as we conduct our lives” (Weaver, Gahegan 2007: 324-350). In the current age a digital users’ trail for their travel data alone would include their Uber journeys, daily tube or subway journeys, GPS trackers and access to locations through different applications on users’ cell phones and laptops, airport check-ins, flight details, bus journeys, rented cycles, vehicle insurance details and amount of miles travelled along with destinations and petrol consumption. Digital breadcrumbs may also be left when utilising debit cards in various shops, restaurants, cafes, theatres; records at libraries, check ins at educational institutes and offices along with a record of interaction on email, social media, WhatsApp, Skype and various other applications. Such was the extent of a users’ digital trail or a digital footprint according to a podcast created by George, Jenn, Rooham and Rudy (Philips, Jamali 2016). While this means mass data is being collected, it also results in a large change in the process of social organisation and culture where every act of ours is continuously connected to a digital activity and is being recorded, leading to a new way of being “civilised”.

Having an extensive digital footprint results in an increasing amount of “digital assets” for individuals. Users may take into account anything and everything from their social media accounts, travel points, blogging, emails etc. as a digital asset. In order to organise assets after the death of an individual, users require a representative or an executor for their digital will in order for their digital assets to be accessible by family members, be deleted or be memorialised as is the case with Facebook accounts, in the event of their death (Ray 2013: 583-615). In case of other social media sites such as Twitter, a family member or

executor may contact to have the account deactivated, similar is the case on LinkedIn (Elliot 2015: 381-405). Until now wills were only created as legal documents for physical assets owned by individuals such as money or property, but the creation of digital wills in the past few years, and a growing demand for them means that one's virtual presence is ever-growing and of extreme importance. The idea of "digital death" creates a new culture for users on the digital sphere and adds to the concept of a global digital way of life.

So far it has been determined that digitisation has impacted individuals, governments and companies, but it also includes libraries, archives and museums. Toth, Emery and France have worked on digital imaging technologies where they describe a new system which would compile large amounts of data from various sources to be utilised by vast audiences. Meanwhile another author, Conway, talks about the ever-changing nature of digitisation which would provide insights for those working to preserve cultural heritage. This means a new kind of study for preservation for professionals in libraries, archives and museums who would be working on digital curation programmes (Marty 2010: 1-5). The digitisation and development of new kinds of studies due to technology would also result in a change in our understanding of previous subject knowledge and eventually a change in the style and culture of studying and education in general.

Along with impacting libraries and museums, datafication is also of growing importance in political campaigns around the world which are utilising big data to contact citizens for votes as volunteers, donors, signing petitions and even attending rallies. The data gathered is also used to construct models which would increase campaign efficiencies (Rogers 2014: 51-73). Hence, big data is being used as a means of marketing and promoting and creating efficient campaigns and products which may also be applied in advertising for different kinds of products and not just restricted to political campaigns in particular.

In his analysis of the phenomenon of the "digital me" and the merging of the material and the cultural, Rob Wilkie suggests that a core part of digitisation is a rewriting of the material world as we know and understand it. Wilkie discusses the

theory of materiality and states that “within the framework of the desiring theory of materiality, interactivity and active consumers and even critical and creative users” replaces a world of “passive audiences or spectators” (Wilkie 2011). What Wilkie is trying to suggest here is that the material and physical world as we understand it is transforming or being “rewritten”. The new world according to Wilkie is one where individuals and spaces are digitised; individuals in the digital sphere are viewed as passive spectators and observers, where audiences are merely observing rather than actively participating. This leads to the development of a new kind of material world and impacts social patterns and behaviour. One such example could be of the decrease in consumers shopping within physical spaces and an increase in online consumer shopping.

Wilkie’s analysis of the passive spectator, changing social patterns and the utilisation of spaces by people brings us to Guy Debord’s theory of the society of the spectacle. Debord suggests that “the spectacle is not a collection of images, rather, it is a social relation among people, mediated by images”, which is the case of social relation through social media and digital platforms (Debord 1967). Wilkie’s spectator evolves as the medium it is interacting in or observing through changes as well, which in the current age would be a shift from traditional media to advanced digital spheres. This would result in a change in our understanding of the spectacle society, changing the “social relation among people mediated by images”. If contemporary spectacle society is viewed as digital spheres and online social media platforms, then these platforms may result in online echo chambers.

An echo chamber means that viewers are “shown content that reinforces their current political or social views” the cause of which originates from “machine learning algorithms employed by companies such as Google and Facebook” (Weebly 2015). This results in the risk of users losing their individuality and instead forming one kind of visual and rhetorical culture, or becoming passive spectators as Wilkie suggested. A good example of this may be the style and kind of imagery on Instagram, such as images and type of food, filters and compositions that may be trending, while hashtags or tweets would qualify as

a new style of rhetoric only used on digital spheres, forming a new kind of culture.

Viewing the various processes of datafication and digitisation around the globe through understanding the concepts mentioned above, it is evident that indeed a new kind of civilization is evolving around the world. This can be seen in the case of impact on utilisation of physical spaces and in some cases the decline of certain spaces altogether due to a shift to online platforms. In other instances, the development of new kinds of study programmes for archivists and museums due to technology would mean that eventually other fields would be impacted too, leading to new methods and content in education. Meanwhile the increasing amount of data collection may result in a change in the kind of jobs required in the market and for an increase in data experts, along with utilisation of data for analysing trends, patterns, consumer behaviour, conducting market surveys or even in the case of political campaigns as mentioned above.

REGIONS WITH LIMITED OR RESTRICTED DIGITAL ACCESS

While an analysis of the processes and extent of digitisation and datafication in a globalised culture gives us an insight into the formation of a new global digital civilization, it is not a concept that comes without its issues and limitations. The proposed model of a global digital civilization takes into account people around the world who have access to the internet, a device such as a smartphone, laptop or computer on which they may use the internet, and also be digitally literate and able to understand and operate on social media or digital platforms to gain access to e-bills, online bank accounts, etc. However, in some cases, due to the internet of things, people with limited access and lacking in terms of digital literacy may also be a part of the global digital civilization without being aware of it, as would be in the case of surveillance and even travel records.

This brings us to the debate that there is discrimination in the process of datafication. Big data is often collected from

western industrially developed regions, and may end up marginalising subjects or regions that are already marginalised, as may be the case of developing countries or even regions within developed countries that may have poor infrastructure and hence, lack digital access. Additionally, there is the challenge of data interpretation, lack of representation of regions with limited digital access and ethics in the case of users not being aware of where their data is being gathered and for what purposes. When it comes to data interpretation and lack of representation of regions with limited access, this results in datasets with cultural and social patterns that may be biased as they would inaccurately be representing more users from a particular region as a global representation. When companies and governments access this data as “global” data and create policies or even combat terrorism through them as the NSA does, there will be large bits of data missing and hence, plans and policies may not be as effective once implemented. However, some still assert the fact that researchers should work to “demystify and de-neutralise” data (Leurs, Shepherd 2017).

The overall development of Information and Communication technologies (ICTS) varies drastically when it comes to comparison between developed and developing countries, however, in some developing countries such as Korea and China, the digital divide mostly focuses on the level of accessibility and quality of access to information and communication technologies which include the internet. Digital divide can be defined as “the gap between individual, household, businesses and geographic areas at different social and economic level with regard to the opportunities to access Information and Communication Technologies and to the use for a wide variety of activities”. Lack of ICT or internet resulting in lesser digitisation and internet usage in certain regions may be due to the fact that there are lower levels of infrastructure, literacy rates and economic development available in the region, which means that there are in fact hegemonies that exist within regions (Marco, Billon, Lopez 2010: 39-73).



METHODOLOGY

In order to further understand how globalisation itself is perceived in a digitised world, a software called “Mention” was used to collate data in relation to the terms “globalization, global and globalization” on digital platforms such as Twitter, blogs, news, websites and forums over a month’s time period. The relevance of these terms is seen in the context of this article, which addresses digital civilizations but in a globalised world. Hence, it is important to see the current online narrative surrounding the terms related to globalisation within a digital sphere. While the analysis and its results are derived from individuals posting on different digital platforms, it gives us a more wholistic global analysis of the perception and understanding of “globalization” in a digital realm. The data collected is specific to globalisation, however, it also adds to our understanding of the ease and amount of data available online (and the extent of datafication in society) that may be collected by individuals even, in the current digitised society. Data collected includes geo-locations, sources of online mentions and digital platforms with the maximum reach to audiences around the globe. This helps us to analyse the amount of data surfacing online in relation to the terms specified, the location of data to analyse if some regions contend hegemony over others due to a stronger presence within the digital sphere and digital platforms which are of more relevance due to added global outreach to audiences.

The methodology for collecting data was designed while keeping a few key ideas in mind. First of all, that a new model of civilization is emerging around the world which is digitised, resulting in the creation of a new kind of material world according to Rob Wilkie’s theory or a new kind of global civilization. In the introductory paragraph it is stated that the internet has now ensured that communicating on a global platform internationally is easily doable which has led to a space where people from around the globe connect and share ideologies, thoughts, opinions, visuals and updates worldwide to a virtual digital sphere where online rhetoric and imagery are helping shape a new kind of “social organisation and culture” leading to a

“global digital civilization”. Secondly, since globalisation is a key element of this new model of civilization, the methodology section aims to understand globalisation through individuals on various global digital platforms to “rewrite” and redefine a new understanding of the term. It is individualistic in nature, as is the origin of all data online, it is the users who form data sets and create online trends and patterns and help create algorithms.

The time period recorded for the collection of the data set was for a period of 30 days from 8th January 2019 till 6th February 2019. The overall data set consisted of a total of 3,706 online mentions, out of which 1,988 were for “globalization”, 6,821 for “global” and 1,729 for “globalisation”. While it was possible to access data through Facebook and Instagram from this particular software, that has not been done for this paper due to access requested to personal Facebook and Instagram accounts to gather datasets. The data sample of mentions collected through online platforms is large, however, it only covers a months time period and is by no means a complete and accurate representation of the overall online rhetoric surrounding globalisation.

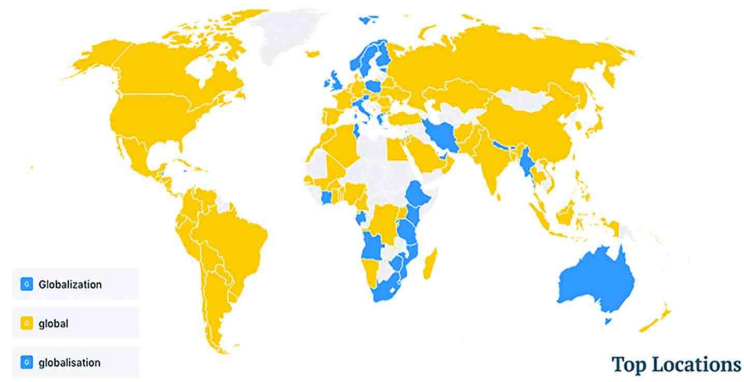
Secondary texts, journals, white papers, books and news articles were referred to in order to analyse and discuss various definitions, theories and previous research to introduce the ideology of a global digital civilization, analyse the extent and the process of datafication and digitisation and evaluate regions with limited or restricted digital access. The literature and text in this article provide a base and understanding of the entire process of digitisation of individuals, spaces, cities (especially in the case of surveillance society), institutions such as libraries, museums, education and increasing online interaction and social relations.

FINDINGS

Data findings analyse geo-locations, sources of online mentions and digital platforms with the maximum reach to audiences around the globe covering data collected over a period of

30 days from 8th January 2019 till 6th February 2019. The overall data set consisted of a total of 3,706 online mentions, out of which 1,988 were for “globalization”, 6,821 for “global” and 1,729 for “globalisation”. A visual map was created by the software to represent the geo-locations of where the online rhetoric utilising the terms “globalization”, “global” and “globalisation” were generated from. “Global” was utilised the most, followed by “globalization” and then “globalisation”. A detailed list after the map shows that maximum rhetoric surfaced online in the United States for all three terms, followed by France, United Kingdom and Spain. It is interesting to see that maximum rhetoric was being generated from developed regions in the west. This may suggest that western regions are more digitised, or rather more people have access to the internet and are digitally literate. It may also suggest an advancement of technology and more utilisation of the twittersphere, where the maximum amount of data was found. In the dataset that has been gathered, the results have been collected from around the world, however, a much higher percentage is generated from the west which means that overall data may be western-centric or euro-centric and largely represents online trends and patterns in these regions which are dominating overall global digital patterns. This results in the fact that the understanding of globalisation itself may be western centric and that while it is meant to represent the globe it is biased due to more emergence of data from one particular region and leads us to question the authenticity of trends and patterns emerging through datafication which are being used around the world for various purposes.

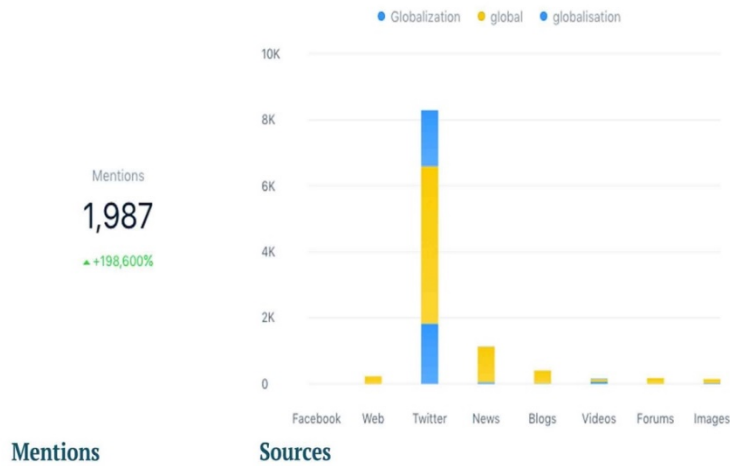
The maximum amount of data collected on digital platforms was gathered from Twitter, followed by news websites, blogs, the web in general, forums, videos and then images. In order to analyse the different kinds of sources, a sample of them with the maximum outreach has also been collected and shown in the image on the next page. This included a blog with an outreach of 44.4 million users called the kyroinstitute.wordpress, followed by an article on tumblr with an outreach of 28.3 million, a newspaper called Business Insider with a 6.8 million outreach, an individual, the page for the World Economic Forum and other public relation firms and news agencies.



Top Locations								
	Globalization		global		globalisation			
United States	480	United States	1,636	United States	209			
United Nations	395	United Nations	1,003	United Nations	387			
France	180	France	1,231	France	173			
Other	229	Other	620	Other	183			
United Kingdom	163	United Kingdom	295	United Kingdom	396			
Spain	68	Spain	402	Spain	24			
Unknown	89	Unknown	351	Unknown	18			

Fig. 1. *Top locations.*

When we think of online rhetoric and digital platforms we mostly think of individuals, however, this dataset put forth the idea that digital media is stronger than ever and is influencing it in a way similar to but far more advanced and with much more outreach than traditional media has had in the real world



Online Mentions with maximum reach for 'globalization'

kyrosinstitute.wordpress.com The theme of the event was "Globalization 4.0: Shaping a Global Architecture"	44.4M Reach	mailchi.mp US-China, Yellow Vest, Foxconn, VW, Chickenomics Caracal Global Daily Janua	1.3M Reach
tumblr.com ... Ayurveda: its history and practice Better health through Yoga and Ayurve	28.3M Reach	Marc Benioff RT @wef: Best of Davos: Jack Ma plans to reform globalization from the b	992.2K Reach
Markets Businessinsider.com - News "Risen Energy, based on its globalization strategy, has already staked out other	6.7M Reach	prnewswire.com Risen Energy, based on its globalization strategy, has already staked out o	754.8K Reach
ANJANEYULU RT @wef: Best of Davos: Jack Ma plans to reform globalization from the bottom	4.4M Reach	nasdaq.com Risen Energy, based on its globalization strategy, has already staked out o	639.2K Reach
World Economic Forum Best of Davos: Jack Ma plans to reform globalization from the bottom up. Her	3.3M Reach	Finanzen.net "Risen Energy, based on its globalization strategy, has already staked out o	472.6K Reach

Fig. 2. Mentions.

in recent years. News agencies, public relation companies, firms, websites, political figures and all companies with an online presence would also greatly influence digital cultures

worldwide as they would often have maximum outreach to audiences and hence facilitate new trends of imagery and online rhetoric on the virtual sphere.

CONCLUSION

Based on the data analysis it is evident that “rewriting” or redefining our understanding of the material and physical world through our evaluation of datasets is not entirely possible as it would require a complete understanding of online rhetoric and imagery on all digital platforms and spheres. It can be said that the concept and ideology of a global digital civilization exists and is rapidly growing, however, on a global level this kind of civilization with a new kind of virtual social organisation and culture may be more evident in the span of a few years. Perhaps there is a need to develop taxonomy for this new model and its constantly growing and evolving character. One must also realise that it is highly unlikely that the entire human race may be digitised at any point in the near future, however, there may be some people who may be unaware of digitisation and yet unknowingly be digitised through means of surveillance, for example. The analysis of this particular dataset also suggests that there is an inaccurate online representation of all those around the globe and that some regions contend hegemony over others resulting in a biased opinion online. The possibility of data collection on such a vast and global scale through individuals also proves that if individuals have access to such information then governments and companies may have access to much larger datasets. This further proves that society is indeed datafied due to digitisation and there is a dire need for taxonomy of all data in order to provide a better understanding of this new model of civilization.



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