Internet & Democracy | Project Written Report

Information in the Digital Era is Becoming a "Weapon of Mass Destruction"

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Introduction

Definitions:

Information

The definition of information in this context is digital information. Digital information is any data that is stored, transferred, read and used by networks, computers and other machines. (NordVPN, 2023)

Digital Era

The Digital Era is defined as to have started in the mid-20th century. It has been linked with the onset of the transistor (Castells, 1999). For the purposes of this paper, we consider it to be starting with 1960.

"Is becoming"

The phrase "is becoming" in the topic seems to convey that information wasn't always a weapon of mass destruction, but is becoming one in recent times. However, we have chosen not to focus on the technicalities like the tense of the topic, and presented our arguments in a more universal manner. Thus, we claim that it would be unfruitful as the opposition to argue that information was a WMD but "is becoming" safer.

Weapons of Mass Destruction (WMDs): A Category Apart

WMDs are a distinct class of weaponry designed to inflict catastrophic damage on a large scale (Cooperative Threat Reduction Program, 2023). Unlike conventional weapons, WMDs often cause widespread and indiscriminate harm (National Institutes of Health, 2023). We

emphasize that the term WMD is used specifically for the weapon, and not the tools or scientific methods used to create said weapons.

Brief introduction to the topic

In today's digital era, with an increasing number of people using the internet, there is an abundance of digital information being created. Advanced technologies and computing capacities have made it possible for this large amount of data to be processed. The digital age has democratized information, creating a double-edged sword. While it empowers individuals with unprecedented access to knowledge for personal growth, scientific discovery, and civic engagement, the ease of manipulation and weaponization of information poses serious threats. With multiple instances of information having significant large-scale impacts, both positive and negative, the topic is extremely relevant in today's world.

Structure of our essay

We have divided our arguments into two distinct parts, the proposition and the opposition, to provide points in favor of and against the motion. We have aimed to draw arguments from credible sources and cited them extensively, instead of relying on our limited knowledge of the vast domain. We have supplemented the arguments with case studies for both sides to elaborate upon or counter some of the key ideas explained.

Proposition

As defined earlier, weapons of mass destruction are capable of catastrophic damage. The collection of 'Big Data' and as a result, the advent of big data analytics started in the 1990s. When it first emerged, it was used to implement better decision making, and also, to gain military advantage. (Enterprise Big Data Framework Alliance, 2021)

In her book, 'Weapons of Math Destruction', Cathy O'Neil brings about how this collected data is capable of mass destruction, having become increasingly omnipotent in advanced economies. In the present day, it has the capability of exerting control over populations, governments and countries as a whole.

Not only big data, but various kinds of digital information have the capability of being used as a tool to cause widespread damage. This phenomenon can occur at different scales in the current 'big data economy'.

A. Misinformation/Disinformation

Misinformation (misleading information, unintentional) and disinformation (intended to mislead) has become a rising problem in the modern day and age. With the rise of social media and other platforms, it has become increasingly easy to spread false or misleading information to millions of people in a matter of seconds. Many people are also unable to differentiate between what is fake and what is real. Generation of content like this can lead to disastrous effects. Harmful medical advice can lead to loss of life and the spread of conspiracy theories can lead to unjustified, uncontrollable, wide-spread panic. (*LibGuides: Fake News and Alternative Facts: Finding Accurate News: Why Is Fake News Harmful?*, n.d.) Misinformation can ruin businesses and jobs as people have been encouraged to mass boycott companies over false narratives. Additionally, misinformation can distort the perceptions of political actors in the eyes of the voters, which is a direct threat to democracies, as they rely on the active and honest participation of their citizens. (*Why Americans Crave Fake News*, n.d.)

B. Cyber Attacks and privacy breaches

Collection of data may have its benefits, but with its digitization, it is exposed to the threat of cyber attacks. They are capable of altering, exposing and destroying information that may be private. (*What Is a Cyberattack? | IBM*, n.d.) Governments of countries can be destabilized if classified information is leaked. Nuclear codes, identities of secret intelligence agency employees, details of private court cases, and other data that is vulnerable if exposed to the public can be used against the organizations or people concerned. Additionally, deprivation of resources also falls under this country. If banks are targeted, economies of entire communities can collapse, which can have destructive consequences that are not just digital, but also physical as social unrest is incited. Not only can information be used as a weapon of mass destruction, but it can also be used at a personal level, as individual users can also be targeted.

C. Manipulation and Influence Campaigns

Mass manipulation refers to the systematic attempt to influence the thoughts, beliefs, emotions and behavior of a large group of people. Social media is a very popular medium used for this. The type of content that we see, or rather, is shown to us is detrimental in shaping our thoughts and the way that we perceive the world around us. If we are shown posts that are in support of a particular cause, we may start believing in it. Now, if content like that is shown to a larger demographic, all the people of that place can be made to support it. The collection of personal information can be used to appeal to the emotions and preferences of people to make this process easier. Vulnerabilities in online platforms are exploited and entire communities can be manipulated. Not only the spread of

misinformation, but also the strategic suppression of information can be used to influence popular opinion.

The most important part of this process takes place in the cognitive domain, but the internet, or the digital domain is used to transfer information from the sender to the target. (Hansen, 2017)

D. Election Hacking

This is a corollary to cyber attacks and manipulation, but is one of the bigger threats as it can be used to destabilize entire countries. Elections are a fundamental pillar of democracy and provide citizens an opportunity to participate in the governance of their country. Election hacking undermines the purpose of the democratic process and erodes public trust in the leaders. The threat is as great as an actual war with physical weapons, and countries can interfere in the elections of other countries as a way to delegitimize the government and sow discontent in the citizens.

The part that causes mass destruction in most of these cases is not the manipulated information, but rather the public outrage and incitement that results from it.

E. Algorithm bias and discrimination

Biases in algorithms can prove to be destructive, especially if they affect a large number of people.

- ➔ At smaller scales, algorithms can be used to judge loan applications, evaluate criminals, etc. These are employed by institutions and exert control over people at a personal level. Biases in these can deprive people of jobs, human-run trials and many more. (O'Niel, 2016)
- ➔ At a larger level, these biases can be destructive to entire communities of people, as was seen with predictive policing. People belonging to racial and financial minorities were targeted by the police. These can amplify existing inequalities, which may contribute to social unrest and injustice. This can also carry over across generations. Information in this case can be weaponized against marginalized groups. If at an even larger scale, countries decide to use algorithms to decide whether to provide aid to a particular area or not, it can result in deprivation of resources.

NATO's stance

The NATO (North Atlantic Treaty Organization) which is an intergovernmental military alliance identifies the potential of data to be used for malicious practices as 'information warfare'. (Sjs, 2024) It categorizes it as a potential weapon, and has a preemptive approach to

threats that countries can face. Cyberspace and cyberattacks also now come under potential attacks and threats to security that countries can face. Enhancing cyber defenses and national networks and infrastructures is to be treated as a matter of priority. (*CCDCOE*, n.d.) In the 2002 summit meeting, the necessity of planning for electronic warfare was discussed, however no action was taken towards it. Fast forward to 2021, NATO has prioritized cyber deterrence and cyber defense. There are a few approaches that countries can take to achieve this task.

- ➔ NATO can use generative AI driven solutions to help countries identify cyber attacks and assess their impact more accurately. This can also help with filtering false positives. (Sjs, 2024)
- ➔ Additionally, any technology implemented must be merged with military forces, as most attacks are a hybrid of multiple methods with cyber attacks being a part of them. (Sjs, 2024)
- ➔ More research in these areas is also required to effectively estimate the potential that cyber crimes have. (Sjs, 2024)

There have been several incidents that have stood out over the years which highlight the fact that information has become a WMD.

Case Studies

2016 United States Elections

The 2016 presidential elections which resulted in Trump's victory over Hillary Clinton were characterized as an "upset" by the media. They resulted in widespread protests across the nation which continued for several days after. (Healy & Peters, 2016) In 2019, an investigation led by the U.S. intelligence community uncovered operations that played a part in this shocking victory.

Russian Interference

A combination of tactics aimed at influencing public opinion with disinformation and targeted news was employed by the Russian government. The project, called 'Project Lakhta', was uncovered by the U.S. intelligence and made public in 2019. (Russian Project Lakhta Member Charged With Wire Fraud Conspiracy, 2020)

Between 2014 and 2017, russian hackers intruded into voter databases and reached millions of social media users with the intention of converting areas that were "key constituencies" for the Democratic party. They used the Clinton's campaign data analytics and voter turnout models against them. (Mayer, 2018) Voters that were in these constituencies were sent fabricated articles and targeted negative content about Clinton was spread on social media. Additionally, during the election campaign, hackers infiltrated systems of Clinton campaign officials and released these leaked files to the public. Together, these methods were successful in turning a majority of the people in these constituencies into republican voters.

Cambridge Analytica

Cambridge Analytica was a British political consulting firm, which fell into a scandal for the unauthorized collection of Facebook data for millions of users. The company had reportedly been collecting data through an app called “This Is Your Digital Life” which was a personality profiling app. 87 million profiles were used to gather data including personal data of the users Facebook friends. (Meredith, 2018) The leaked data was also linked to Russia, and is believed to have been used in their interference in the presidential elections. Users were not made explicitly aware of the fact that their data would be used to this extent. Other high-profile clients of this company included the UK’s Leave.EU campaign, where again, there were accusations of manipulation of public opinion and the spread of disinformation.

Burning of 5G towers in the United Kingdom (2020)

5G is a technology that was introduced to provide high data rates, have low latency and essentially increase the quality of the service. In the first week of January, some social media users listed this as the reason for the accelerated spread of COVID-19. The misinformation slowly spread and resulted in widespread panic and chaos. Born out of conspiracy theories, it became a trending topic on twitter in the country and spread through WhatsApp messages and YouTube videos. In April, this panic resulted in more than 30 acts of vandalism and arson against 5G towers and around 80 incidents of harassment towards telecom workers were reported. (Ahmed et al., 2020) Misinformation in this case was a direct threat to public safety. Pre the digital era, it would have taken a lot longer to spread, but in current times, it can reach millions of people within seconds. Whether intentional or not, it is capable of influencing public opinion. Fortunately, the situation was effectively contained by the police and the media.

SolarWinds Supply Chain Attack (2020)

SolarWinds is an American technology company, with several public and private corporations as clients. One of their key products, Orion is an IT monitoring system, and was used by several of these corporations, including USA’s Department of Homeland Security, Department of State, Department of Commerce and Treasury, etc.

Malicious attackers mounted what is referred to as a ‘supply chain attack’, where the targets are not directly attacked, but rather through a third party software. Through ejection of infected code in some updates of Orion, hackers were able to get into the clients’ systems as they updated their Orion software. (Kerner, 2023)

Thousands of organizations worldwide were now exposed, and attackers could steal data, read communications, and potentially disrupt the systems through this virus that infiltrated through a trusted vendor, SolarWinds.

The hackers behind this incident have yet to be identified, although they are highly likely to be state-sponsored. Through attacks such as these, a country's national security is at risk, since the information and communications are key to the functioning of security systems. This information stored, in a digital age where third party vendors, the internet, and hackers like this exist and are sponsored, becomes a weapon through which an entire country can be compromised.

Aadhaar Card Data Breach (2023)

In India, millions of Indians' Aadhaar Card data is available for sale on the dark web, exposing flawed security systems, and leaving citizens open for threats of identity theft, financial scams, stalking, theft, among so many others.

The malicious hacker was holding all this data, willing to sell for about Rs. 66 lakhs, and was even able to provide a sample of 100,000 data points of personally identifiable information. (Patnaik, 2023)

This primarily puts Indians at a massive physical and financial threat, but also importantly undermines public trust in government systems. Such a cyberattack is a threat to a nation and its people, and is only possible due to data and digitized institutions.

These case studies demonstrate how information has been, and certainly can be used for targeting nations. Weapons of mass destruction are employed as absolute weapons, used to destabilize entire nations - consider the bomb dropped on Hiroshima & Nagasaki, which entirely removed Japan from WW2, securing an absolute victory for the Allies. The so-called 'nuclear button' has long been recognised as capable of removing a threatening nation from the picture.

Information, too, demonstrates this capability in the modern digital age. In the UK's 5G towers incident, misinformation propelled violence, arson and vandalism, resulting in many people injured, especially telecom workers, public structures being destroyed by the public. The Cambridge Analytica incident, shows how foreign actors can meddle in a country's domestic politics, infringing on their democratic institutions, and causing mayhem and polarization. The SolarWinds Attack shows how the digital age creates conditions where third party vendors are necessary, but also makes systems vulnerable to data breaches, leading to threat in national security, also sponsored by foreign actors as is suspected in this case. Lastly, incidents like the Aadhaar card breach undermine public trust in government systems, making nations exposed to failing public service delivery systems, security systems, and in the long-run, potentially leading to violent public dissent and destabilization.

Ultimately, to characterize the last two attacks simply, one can say, that a certain country A intended to attack and destabilize another country B, and employed tactics that made use of information and conditions created by the digital age, to launch cyber attacks, resulting in a threat to the security of the nation and its people. This characterisation is in line with that of a weapon of mass destruction.

Opposition

WMDs: Designed for Catastrophic Damage

The term "weapon of mass destruction" (WMD) evokes images of unimaginable devastation. Understanding WMDs and the immense harm they cause clarifies why information, despite its potential downsides, does not fall into this category.

WMDs are a distinct class of weaponry designed to inflict catastrophic damage on a large scale (Cooperative Threat Reduction Program, 2023). Unlike conventional weapons, WMDs often cause widespread and indiscriminate harm (National Institutes of Health, 2023). These weapons possess the capability to:

- ➔ Kill or injure a significant number of people.
- ➔ Devastate infrastructure.
- ➔ Cause lasting environmental contamination.

Examples include nuclear bombs, chemical weapons that release toxic gases, and biological weapons that spread deadly diseases (Centers for Disease Control and Prevention, 2023).

The Global Threat of WMD Proliferation

The spread of WMDs poses a significant threat to international security (Department of Homeland Security, n.d.). The potential for these weapons to fall into the wrong hands creates a climate of fear and instability. Strict international treaties and organizations work diligently to control the spread of WMDs, including:

- ➔ **Nuclear Non-Proliferation Treaty (NPT)**: Aims to prevent the spread of nuclear weapons and promote nuclear disarmament (UNODA, n.d.).
- ➔ **Chemical Weapons Convention (CWC)**: Prohibits the development, production, stockpiling, and use of chemical weapons (UNODA, n.d.).
- ➔ **Biological Weapons Convention (BWC)**: Prohibits the development, production, and acquisition of biological and toxin weapons (UNODA, n.d.).

Many countries also have additional national regulations to further restrict access to WMD-related materials (Ministry of External Affairs, Government of India, 2005).

Information: A Tool, Not a Weapon

To claim that information in the digital era is a weapon of mass destruction is an oversimplification. Information, at its core, is a neutral tool. Like any tool, it can be used for good or for evil. For example, it is nuclear weapons that are classified as Weapons of Mass Destruction, and not nuclear energy. Thus, nuclear fission isn't inherently destructive or productive, but neutral. Similarly, in the case of information in the digital era, while the potential for misuse exists, the vast benefits information provides in the digital age cannot be ignored, making it a neutral tool and definitely not a weapon.

Hence, in the following paragraphs, we argue that information in the digital era, though susceptible to misuse, is not a weapon of mass destruction but rather a powerful tool with immense potential for positive change.

A. Increased Access to Knowledge: Democratizing Education and Beyond

The digital age has ushered in a revolution in how we access and utilize information. Gone are the days of limited resources confined to physical libraries. Today, with just an internet connection, individuals from all walks of life can access a vast ocean of knowledge. This democratization of education has empowered individuals in numerous ways:

- ➔ **Formal Education**: Massive Open Online Courses (MOOCs) offered by prestigious universities like Harvard, MIT, and Stanford have become a game-changer. These online courses provide high-quality education at a fraction of the traditional cost, making previously unattainable degrees accessible to a global audience (Athey, 2001). For example, Khan Academy, a non-profit educational platform, offers thousands of free video tutorials on a wide range of subjects, making high-quality education accessible to anyone with an internet connection!
- ➔ **Lifelong Learning**: The internet fosters a culture of lifelong learning. Individuals can pursue specific interests, develop new skills, or simply stay curious by exploring online tutorials, educational websites, and educational YouTube channels. This self-directed learning empowers individuals to navigate career changes, adapt to new technologies, and enhance their overall knowledge base. Platforms like Duolingo, a popular language learning app, gamifies the learning process, making it fun and engaging for users to learn new languages at their own pace. Furthermore, Crash Course, a YouTube channel created by the educational non-profit PBS, provides entertaining and informative crash courses on various academic subjects, making knowledge readily available to a younger audience.
- ➔ **K-12 Education**: Digital tools and resources are transforming K-12 education. Interactive learning platforms, educational apps, and online simulations provide

engaging and effective ways for students to learn complex concepts. Furthermore, digital resources can personalize learning experiences, catering to diverse student needs and learning styles.

Beyond formal education, information empowers individuals in other ways:

- ➔ **Financial Literacy**: Online resources equip individuals with the knowledge and tools to make informed financial decisions. Budget tracking apps, educational websites, and online courses can help users understand personal finance, manage debt, and invest for the future.
- ➔ **Civic Engagement**: Information empowers individuals to be active participants in their communities and democracies. Online resources provide information about local and national issues, voter registration tools, and platforms for civic engagement.

B. Empowering Individuals: Information as a Tool for Personal Growth and Wellbeing

The democratization of information extends far beyond formal education. In the digital age, individuals have access to a wealth of resources that empower them to take charge of their personal and professional lives:

- ➔ **Healthcare Management**: Digital platforms have revolutionized healthcare management. Patients can access reliable medical information online, connect with healthcare providers remotely through telehealth services, and manage chronic conditions through online tools and apps (National Institutes of Health, 2021). For example, diabetics can utilize apps like MyFitnessPal, a popular calorie tracking app, to not only monitor their food intake but also set fitness goals and connect with a supportive online community for motivation and accountability. Telehealth services allow individuals in remote areas or with limited mobility to consult with healthcare providers virtually, increasing access to quality care.
- ➔ **Mental Health Awareness**: Information empowers individuals to learn about mental health conditions, identify potential issues, and seek appropriate help. Online resources like those offered by the National Alliance on Mental Illness (NAMI) provide user-friendly websites with information on various mental health conditions, support groups, and crisis hotlines, empowering individuals to take the first step towards getting help.
- ➔ **Empowering Consumers**: Information empowers individuals to make informed purchasing decisions. Online reviews, product comparisons, and consumer protection websites like Consumer Reports, an independent non-profit organization, allow users to research products and services before making a purchase (Smith, Anderson, & Mauriello, 2018). This not only benefits consumers financially by ensuring they get the

best value for their money but also fosters a sense of agency and control over their purchasing decisions.

Beyond Health and Finances:

- ➔ **Entrepreneurship and Innovation**: Information empowers individuals to pursue entrepreneurial dreams. Online resources provide valuable information on business planning, marketing strategies, and fundraising. Platforms like YouTube offer tutorials on various skills needed to launch and manage a business, from accounting and social media marketing to customer service. This empowers individuals to transform their ideas into reality and contribute to economic growth.
- ➔ **Personal Development**: The internet offers a plethora of resources for personal growth. Individuals can access self-help guides, mindfulness apps, and online courses on various topics like communication skills, time management, and leadership development. By empowering individuals to develop their soft skills and knowledge base, information can play a significant role in career advancement and personal fulfillment.

C. Advancing Science and Collaboration: Unleashing the Power of Shared Knowledge

The digital age has fostered a global environment of collaboration, accelerating scientific discovery and innovation. Information sharing through online platforms and digital tools is transforming the way researchers work:

- ➔ **Open Access to Data**: Traditionally, scientific research relied heavily on published papers, limiting access to the raw data that underpins those findings. Today, open-source data repositories like those offered by the European Molecular Biology Laboratory - European Bioinformatics Institute (EMBL-EBI) allow researchers to share and access vast datasets (European Molecular Biology Laboratory - European Bioinformatics Institute [EMBL-EBI], 2023). This is akin to dismantling the walls between individual labs, creating a global knowledge commons that fosters collaboration and accelerates the pace of discovery. A powerful example of this can be seen in the response to the COVID-19 pandemic. Open access to viral genome sequences allowed researchers worldwide to rapidly develop diagnostic tests and vaccines. Platforms like the COVID-19 Open Access Research Database (CORD19) provided a central repository for research articles, accelerating scientific collaboration and knowledge dissemination (National Institutes of Health, n.d.).
- ➔ **Global Collaboration**: Online communication tools and platforms like video conferencing software enable researchers across the globe to collaborate on projects in real-time, overcoming geographical barriers. Imagine a team in New York City brainstorming with colleagues in Tokyo and London - this is now a reality. This

fosters the exchange of ideas, expertise, and resources, leading to a more diverse and robust scientific landscape.

- ➔ **Citizen Science**: Digital platforms empower citizen scientists to contribute to large-scale research projects. For instance, projects like Galaxy Zoo enlist volunteers to classify galaxies based on online images. By leveraging the collective intelligence of the crowd, citizen science contributes valuable data that would be impossible to collect by professional researchers alone (Galaxy Zoo, n.d.).

Beyond Scientific Research:

- ➔ **Innovation in Various Fields**: Information sharing fosters innovation across various disciplines. Engineers can access open-source hardware designs and software code, accelerating product development cycles. Designers can share and collaborate on creative projects using online platforms. This fosters a more open and collaborative approach to innovation, leading to faster progress across various fields.

D. Fostering Global Communication and Cross-Cultural Understanding

The digital age has revolutionized communication, transcending geographical borders and fostering a more interconnected world. Information empowers individuals to:

- ➔ **Connect with People from Different Cultures**: Social media platforms and online communities connect people from all corners of the globe. Individuals can engage in conversations, share experiences, and learn about diverse cultures, fostering empathy and understanding (Pew Research Center, 2018). For example, language learning apps like Duolingo not only help users learn new languages but also connect them with native speakers, creating opportunities for cultural exchange.
- ➔ **Access Global News and Information**: The internet provides access to a vast array of news sources from around the world. This empowers individuals to stay informed about global events, develop a more nuanced understanding of international issues, and challenge biased perspectives.
- ➔ **Break Down Stereotypes**: By fostering communication and cultural exchange, information helps break down stereotypes and prejudices. Online interactions allow individuals to see beyond cultural generalizations and appreciate the richness of human diversity.

Beyond Social Connections:

- ➔ **International Collaboration**: Information sharing fosters collaboration on issues that transcend national borders. Environmental challenges like climate change require global cooperation. Online platforms facilitate communication and knowledge

exchange between scientists, policymakers, and activists from various countries, enabling the development of coordinated solutions.

- ➔ **Promoting Global Trade and Business**: Information empowers businesses to connect with international partners and customers. Online marketplaces and digital communication tools facilitate cross-border trade and economic cooperation, promoting global prosperity.

E. Strengthening Societies: Information as a Tool for Transparency and Accountability

Information empowers citizens to hold institutions accountable and participate actively in shaping their societies. Transparency and access to information are fundamental pillars of a healthy democracy:

- ➔ **Empowering Citizens**: Accessible government data and open-source platforms enable citizens to track government spending, monitor policy decisions, and hold elected officials accountable (Government of India, Ministry of Electronics and Information Technology [MEITY], 2023). This fosters greater civic engagement and strengthens democratic processes. For instance, initiatives like India's Open Data Platform make government data readily available to the public, empowering citizens to analyze information, identify potential issues, and engage in constructive dialogue with their representatives.
- ➔ **Combating Corruption**: Transparency reduces the space for corruption. By shedding light on government activities, information empowers citizens to identify and report corruption, leading to a more accountable and efficient public sector (Press Information Bureau, Government of India [PIB], 2023). Online whistleblowing platforms can provide safe avenues for individuals to report wrongdoing without fear of retaliation.
- ➔ **Promoting Social Justice**: Information empowers marginalized communities to advocate for their rights and hold authorities accountable. Social media platforms can be powerful tools for raising awareness about social injustices and mobilizing communities for positive change.

Beyond Government Transparency:

- ➔ **Fact-Checking and Combating Misinformation**: The digital age presents challenges alongside opportunities. The ease of information sharing can also lead to the spread of misinformation and disinformation. However, access to reliable information empowers individuals to fact-check information, identify bias, and make informed decisions.

The digital age has ushered in a revolution in how we access and utilize information. While concerns regarding the misuse of information exist, the potential for positive impact far outweighs the risks. Information empowers individuals to learn, grow, manage their health and finances, and participate actively in their communities. It fosters scientific collaboration, promotes global understanding, and strengthens democratic societies by increasing transparency and accountability.

The key to harnessing the full potential of information lies in promoting responsible information use and fostering digital literacy. By equipping individuals with the skills to critically evaluate information, identify bias, and navigate the online world effectively, we can ensure that information remains a powerful force for good in our ever-evolving digital age.

Case Studies

Literature Review: Broadband Internet Access Is a Social Determinant of Health!

Benda et al. (2020) asserts that Broadband Internet Access is a Social Determinant of Health. The paper goes over many circumstances and aspects of daily life that can benefit from Internet access. Especially in the context of the COVID19 pandemic, BIA becomes a direct indicator of the health of a household.

The healthcare system observed a shift in how consultations are done. The paper notes that the major portion of healthcare consultations require telecommunications systems either for booking, scheduling or for the actual visit. Telehealth saw a boost in popularity and with its ease and effectiveness, Internet access became essential, and significantly more so during a pandemic. Those without Internet access will have experienced a non-trivial loss in the quality of the healthcare that they received.

Remote learning has become the main way of learning and consuming academic material for many people. Internet access remains necessary for this medium of education. As education and health have a strong correlation (Griffiths, 2012) (among other positive indicators), Internet access ensures an increase in wellbeing throughout populations.

The Internet has allowed for many communities and groups to take things online. Especially of note are mental health support groups, addiction recovery groups etc. The inherent nature of the Internet allows for these groups to reach more people in need and widen their influence (Zajacova, 2018).

Literature Review: Internet Access and Empowerment

Internet access is especially important to the disadvantaged. It offers them an opportunity to break out of years-long oppression due to whatever may be the conditions behind it, be it race, caste, gender, economic status among others. By nature, information and education

empowers people to take things into their own hands. As the greatest source of information, the Internet offers free education, training, support and many other avenues through which the disadvantaged can be empowered. This report wants to bring to light the paper from Masi et al. (2003) that captured the capacity with which information in the digital age can be used to empower.

The paper goes about showing this by providing Internet access to particular citizen leaders of a community in West Chicago. The citizen leaders then proceeded to assist family members, neighbors and themselves as well through Internet means—communication via email, accessing community health resources, asking questions via an "Ask-a-doc" program, visiting links that contained information regarding substance abuse, grandparents raising grandchildren etc.

The results were then compared between the intervention group and a comparison group. The numbers showed an overall increase in attitude towards technology and indications that it will be further utilized as well as improved wellbeing.

Case Study: Kerala IT Mission's efforts during floods

In 2018, Many parts of Kerala were hit with severe flooding and. Over 1.3 Million people were affected by the floods. Being one of its worst natural disasters in recent times, many people were left injured and stranded in places with no ways of escape. An effective information exchange system was crucial to rescue efforts and for those who were yet to be affected as the floods rolled in. Kerala State IT Mission set up a platform that went from ideation to reality within 12 hours (Cris, 2021). The platform, keralarescue.in, became a crowdsourced platform where information was exchanged regarding the status of flooding at a granular, local level. More importantly, people who have been stranded, or relatives, friends of them can easily post rescue requests on the platform that were automatically geo-tagged. With the help of this information, the requests were prioritized according to certain parameters by a Machine Learning model. Factors such as the presence of words like "elderly", "children", "injured" were taken into account and rescue attempts were coordinated.

At a big-picture level, the data from this platform was used by the NIRF/Army and other first-responder agencies to calculate which areas are in dire need and where to concentrate resources. The information could be used to generate heat maps, essentially, that led to forces being distributed in a more efficient manner, allowing help to arrive quicker to those that have been affected.

Other platforms were also set up to help in other issues. The lack of proper supply chains also led to widespread shortages. Even those that were not directly affected by the floods might find themselves without enough food, water, fuel or other necessities. The system featured real-time mappings of relief camps, rescue efforts and damages. The information was relayed through mostly volunteered information that was delivered through various ICT sources. Documentation of flood related damages, in particular, received concerted efforts from ICT professionals as well with a platform set up to survey affected areas with the help of text, images and geo-tagging.

Case study: Etsy

etsy.com is an American e-commerce website that focuses on handmade, vintage items that normally form the core of cottage industries. The site has a unique proposition wherein it allows users to create and put up a personal digital storefront where they can advertise and sell their own products. The business model of etsy has allowed it to become a phenomenon in the art community. Everyone from hobbyists to professionals found a democratic platform where they can showcase their work and sell it to buyers that are inclined to value them as handmade, one-of-a-kind products. Etsy's explosion in popularity has thus seen the rejuvenation of many cottage industries that can find a good chunk of profits from the website. Etsy sellers contributed $13 billion to the US economy(Jean, 2022), not only boosting trade but also effectively providing employment for many of its sellers.

Being privately owned and operated also allows Etsy sellers to trade in goods regardless of political pressure. The politicization of arts and crafts production has been consistent since the early eighteenth century, starting with the Arts and Crafts Movement(Haq, 2021). And it is no different within the twenty first. The Arts and Crafts movement of the late nineteenth century played a significant role in politicizing craft production and consumption. It emphasized the importance of intentional, individual labor and criticized the dehumanizing effects of industrialization. Etsy has always offered a platform to solo artists and has remained a giant in terms of supporting local, handmade arts and crafts.

Case Study: A Pilot Community Network in Pakistan

In a remote village in Pakistan, a pilot project from the Internet Society has brought internet connectivity to a school in the rural town of Chak-5 Faiz. This connection opened up new opportunities for the girls' education in the Government Girls High School. The Internet Society happened upon the school and the computer lab lying idle within its compound. They set up the infrastructure to provide Internet access in the lab. Subsequently, the digital literacy of the townspeople was brought up to speed in the following 6 months, engineers from the Internet Society visited the town and trained the people, teachers especially, on how to use the computers and the Internet. The school then began to offer online supplementary education to the girls attending the school. Scores in subjects such as English, Mathematics and Science were boosted when compared to the baseline of before the Internet connection was set up. A particularly important step that was taken was to establish relevance in the town for the use of the Internet. A "training-of-trainers approach" allowed the capacities and benefits of the Internet, as well as how to use it, to spread among the population.

Conclusion

The digital age has democratized information, making it more accessible than ever before. This presents a double-edged sword. On one hand, information empowers individuals and fosters innovation. On the other, the ease of manipulation and weaponization of information creates significant threats. Both views possess compelling arguments and evidence.

The widespread dissemination of information in the digital era through digital platforms has transformed the way we perceive and interact with it, not only at a personal level, but globally. Our case for the argument that this has made information a weapon of mass destruction centers around the fact that this change has enabled the rapid spread of misinformation, propaganda and manipulation. Everything from personal data to global news is now digitized and the impact of manipulating or spreading this information maliciously is significant and can actually sway public opinion. Additionally, we have examined a few cases where the spread of opinions and leaked data has had disastrous consequences on people and countries.

While we acknowledge the existence of weapons designed for catastrophic harm, we assert that information itself is neutral, functioning as a tool rather than a weapon. Our argument centers on the transformative power of information in various spheres, highlighting its role in democratizing education, empowering individuals, advancing science and collaboration, fostering global communication and cross-cultural understanding, and strengthening societies through transparency and accountability.

We make a case for the positive impact of information in the digital age, citing multiple examples including increased access to knowledge through online education platforms, empowerment of individuals in managing their health and finances, fostering global collaboration in scientific research, facilitating cross-cultural communication, and promoting transparency in governance. Furthermore, we present case studies including the Kerala IT Mission's efforts during floods, Etsy's support for local artisans, and pilot projects like the Community Network in Pakistan to illustrate real-world examples of how information technology has been leveraged for social good and empowerment.

Ultimately, information itself remains just a tool; it’s the intent behind its use that differentiates it between a weapon or an implement for creation. The key to harnessing the full potential of information lies in responsible information use and fostering digital literacy. By developing the skills to critically evaluate information, identify bias, and navigate the online world effectively, we can ensure that information remains a powerful force for good in the ever-evolving digital landscape. Governments play a major role in the prevention of harm using any tool. This remains true for the Internet and information on it. We urge governments to take steps towards writing competent legislation in preventing any harm

that can be caused via the Internet. Policies like GDPR and the French Digital Republic Act are leaps forward in terms of preventing bad actors from taking advantage of the Internet. Fostering a culture behind internet use and information literacy will only take us, as a species, forward.

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