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The Power of Data: Exploring the Dynamics of Influence in the Digital Age

The world as one knows it today is more technologically dependent than it ever has been, and the depth of that dependence deepens with each moment. As seen in the recent media and over the last decade, one breach, outage, power loss, or down system, among many other technical complications, can nearly cause the world to come to a screeching halt. Just this summer, one of the largest IT outages in history was triggered by a simple software update from the security vendor CrowdStrike, an American cybersecurity technology company based in Austin, Texas, that provides endpoint security, threat intelligence, and cyberattack response services. This update affected millions of Windows systems around the world, estimating a costly \$5.4 billion dollars (TechTarget). Furthermore, while only around 1% of Windows devices were affected by this outage, this quantifies to 8.5 million affected devices worldwide (TechTarget). Still, in the scheme of things, 1% is very small. However, what did that look like, tangibly? One notable impact of this “small” outage was its effect on U.S. airline flights. CNN reported, “hundreds of U.S. flights were canceled Monday as carriers, particularly Delta Air Lines, worked to recover four days after a global tech outage caused massive delays and left travelers stranded at airports around the nation” (CNN). As the tech outage happened early on a Friday morning, four days after the outage, direct consequences of this software update gone wrong were still evident. While much can be gathered from analyzing situations like these, the significant reliance the world has on systems speaks clearly to the irrevocable technological

dependence. Though with a deeper look, while the systems failed, one must put their focus on what the systems are typically being utilized for: data. Airports use data to optimize passenger flow, manage flight operations, enhance security, track baggage, maintain infrastructure, improve customer experience, and maximize revenue. When computer systems do not function properly, data is often not accessible, emphasizing not only a technology dependence but at root, a data dependency (TechTarget). With a widened perspective, data and its applications, along with its dependencies, can be wielded as a superpower, offering vast potential for innovation and advancement. On the contrary, in the wrong hands, data could become a weapon of mass destruction, capable of causing significant harm and disruption. Today, the concept of data as a form of power requires exploration to fully understand its effects in the workplace and its critical implications from a social justice perspective.

While there are various definitions of "data," Dr. Barney G. Glaser's perspective offers an all-encompassing interpretation of what data can be. His well-known dictum, "All is data," emphasizes the inclusivity of data. This dictum signifies that everything happening in the research context is data—regardless of its source, whether from interviews, observations, or documents (Glaser). While it is not only about what is being told but also how it is being told, under what conditions, and all the contextual factors surrounding it. When asked to consider applications of the influence of data as a form of power in the context of a professional work environment, one might examine the world of software engineering and how data is currently being leveraged within this space, particularly relevant in sectors such as national defense.

Andrew Iliadis and Federica Russo lean into this idea in their text **Critical Data Studies – An Introduction**, when they highlight that “organizations own vast quantities of user information and hold lucrative data capital (Yousif, 2015), wield algorithms and data processing tools with

the ability to influence emotions and culture (Gillespie, 2014; Kramer et al., 2016; Striphas, 2015)” (Iliadis and Russo). From a national defense perspective, data classification plays a meaningful role in how accessible data is and how it can be utilized to not only affect emotions and culture but also global decision-making. As a software engineer, one must rely on the requirements set by the U.S. data classification system that details UNCLASSIFIED as open, non-classified data, CONFIDENTIAL as information that could cause damage if disclosed, SECRET as information that could cause serious damage, and TOP SECRET as information that could cause exceptionally grave damage, with each level requiring stricter access controls. From the viewpoint of data as a form of power, especially when performing data analysis and software development utilizing such critical datasets under these classifications, safeguarding this data is key and a requirement due to current policies and legislation for engineers and developers in this realm of work. Therefore, the alternative can also be important. The unauthorized exposure of certain types of data lends back into the idea of using data as a superpower or as a weapon. Consider, again, the recent airline impact. Imagine if an adversarial entity had hacked the Microsoft computer systems instead of the U.S.-based CrowdStrike and it was 20% of the attack surface opposed to the initial 1%. With the root data dependency, this would severely compromise the United States and leave the nation vulnerable to increased attacks during this exposure. While data is power, there is also significant power in the absence of data. Craig Dalton and Jim Thatcher, in “What Does A Critical Data Studies Look Like, And Why Do We Care?” pose important questions: “What is quantified, stored, and sorted? What is discarded?” They argue that datasets are necessarily limited representations of the world and must be understood as such to produce meaningful insights (Dalton and Thatcher). The ability to

withhold information or keep certain aspects hidden is another way data can be wielded as a powerful tool (Gitelman).

In summary, data in the digital age is incredibly powerful, serving as both a superpower for innovation and a potential weapon of mass destruction, as illustrated by incidents like the CrowdStrike outage, if leveraged with malicious intent. Dr. Barney G. Glaser's idea that "All is data" highlights how vast data can be, while Andrew Iliadis and Federica Russo emphasize how organizations use data to impact emotions and culture. From a social justice standpoint, the way data is managed, whether through classification, access, or even its absence, can have ethical consequences, particularly for marginalized groups. Dalton and Thatcher highlight that datasets only represent parts of the world, making it essential to understand what's included or left out. Analyzing data through a social justice lens means ensuring transparency, fairness, and responsibility to use data for positive social change while addressing existing inequalities and inequities. Data absence can hinder social justice by affecting how wealth, opportunities, and privileges are distributed. For genuine impact, it is crucial to see the entire picture and use the data to promote real social equity on a global scale.

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