Justice Ethics and Care Ethics in the Codes of Conduct of Cybersecurity Firms

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Abstract

Cybersecurity is becoming vital in multiple aspects of society. Generally, cybersecurity is acquired with the help of private cybersecurity firms. Cybersecurity professionals hold significant power as they work towards safeguarding the digital environment. A code of conduct is essential for these firms, providing ethical guidelines and professional standards that ensure values such as trust, accountability, and integrity. Such codes mitigate risks of unethical practices, promote transparency, and enhance credibility among clients and stakeholders. This research aims to answer the research question: *How do the ethics of justice and the ethics of care shape the code of ethics and conduct within cybersecurity firms from the United States compared to cybersecurity firms from Singapore*? Based on the ethical theories of the ethics of justice and the ethics of care, qualitative content analysis is conducted. A codebook is created and used to analyze how these theories shape the codes of conduct of cybersecurity firms in the United States and Singapore. The findings indicate that there is a predominance of the ethics of justice when shaping codes of conduct. In addition, there is no significant difference found in the findings of the American and Singaporean cybersecurity firms.

Keywords: cybersecurity, code of conduct, values, ethics of justice, ethics of care

1 INTRODUCTION

The frequency of cyber threats is growing, resulting in many companies facing the problems of cybercrime (Kashyap, 2024). Consequently, these companies turn to cybersecurity professionals for assistance in this area (Kashyap, 2024). According to Fléchais and Chalhoub (2023), cybersecurity professionals hold significant power as they work towards safeguarding computer systems. As they face various ethical dilemmas in their work, such as balancing security and privacy, deciding on vulnerability disclosure, ethical hacking boundaries, and making decisions during cyber-attacks, cybersecurity professionals become responsible for handling sensitive information, investigating threat actors, or even ethical hacking (Fléchais & Chalhoub, 2023). By holding this significant power, cybersecurity firms and professionals could easily infringe upon ethical values such as equality, fairness, or privacy (Fléchais & Chalhoub, 2023). It emphasizes the need for ethical training and guidelines to help professionals navigate these complexities responsibly (Fléchais & Chalhoub, 2023). The ethics of justice is an ethical theory focusing on fairness, individual rights, and equality in ethical decision-making (French & Weis, 2000). The ethics of care is a moral theory emphasizing relationships, empathy, and compassion in ethical decision-making (Gilligan, 1993). For this thesis, exploratory research will be conducted. This study attempts to answer the research question: *How do the ethics of justice and the ethics of care shape the code of ethics and conduct within cybersecurity firms from the United States compared to cybersecurity firms from Singapore*? The codes of ethics and conduct from American and Singaporean cybersecurity firms are analyzed through qualitative content analysis to observe what ethical theories, specifically justice ethics and care ethics, shape their codes of conduct. In addition, it will be regarded if the cultural difference between the two countries has any influence. This research attempts to contribute to academia, as it aims to study two ethical

theories that are not often applied empirically, and how these shape the codes of conduct of cybersecurity firms. Regarding society, analyzing the underlying ethical frameworks of the codes of conduct of cybersecurity firms can provide a critical lens on business conduct in cybersecurity.

To answer the research question, this study first establishes a literature review entailing a discussion on business ethics, codes of ethics and conduct, cybersecurity ethics, and Eastern and Western culture. This is followed by a theoretical framework on the ethics of justice and the ethics of care. Accordingly, a methodology follows discussing this study's research design and the methods of data collection and analysis, continuing with the results and a discussion of the findings. Finally, this paper will end with a summary of the main findings and the research question will be answered. Additionally, the limitations of this research will be reflected on, the broader implications of the findings will be discussed and suggestions for further research will be given.

2 LITERATURE REVIEW

This section provides a comprehensive overview of existing knowledge, theories, and findings related to the research question. This contextualization helps to understand how this paper can fit into the larger academic debate.

2.1 Business Ethics

According to De George (1986), business ethics is a field that involves clarifying issues, assessing the ethical validity of actions or practices in business, and exploring ethical and metaethical aspects related to business activities. It encompasses the application of general ethical theories to business cases, testing ways to expand these theories, and raising

difficulties that may require a re-evaluation of ethical principles (De George, 1986). De George (1986) continues by arguing that business ethics also involves examining terms and ethical assumptions in business, such as private property justification, freedom in negotiations, labor exploitation, and usage of cost-benefit analysis and accounting procedures. Paliwal (2006), defines business ethics as "the application of general ethical rules to business behavior." and "rules of business by which propriety of business activity may be judged." (Paliwal, 2006, p. 7).

Additionally, Paliwal (2006) mentions that the individual is first a member of society, regardless of their role in business or society. Drucker (1981) supports this statement by challenging the concept of business ethics and argues that corporations and their management should not be governed by a separate set of standards from those that apply to private individuals. Drucker (1981) suggests that the idea of business ethics is becoming a popular topic, replacing the previous focus on social responsibility. However, Drucker (1981) implies that corporations should be held to a higher standard of behavior than private individuals due to their significant power and influence in society. Drucker (1981) challenges the notion that the collective conscience of business is already as sensitive as critics would wish, implying that there is a need for higher ethical standards in the corporate world.

Phillips and Margolis (1999) argue that organizations need ethical theory constructed differently from individuals and states as organizations differ from individuals and states in significant ways. Individuals have different ethical responsibilities based on their roles as humans, citizens, and members of economic organizations (Philips & Margolis, 1999). It highlights how moral and political philosophy focuses on general ethical principles for individuals and citizens while engaging in economic activities within organizations and introduces specific obligations unique to that context (Philips & Margolis, 1999). This

understanding paves the way for a more thorough exploration of business ethics and the integration of ethical principles into organizational decision-making and behavior.

Business ethics are crucial for this research, as business ethics provide the foundational principles and values for the creation of the code of conduct of a firm.

2.2 Codes of Ethics and Conduct

A corporation's code of conduct is "the documented, formal, and legal manifestation of an organization's expectations of ethical behaviors by its employees." (Adelstein and Clegg, 2015, p. 55). It is a tool used by organizations to manage and regulate the conduct of their members, with the primary objective being to minimize business risk and ensure legal compliance (Adelstein & Clegg, 2015). The code of conduct is observed as a strategic mechanism for controlling potential ethical misconduct within the organization and protecting it from the actions of its members (Adelstein & Clegg, 2015). Additionally, the code serves as a public declaration of the organization's commitment to corporate governance, business ethics, and ethical practices (Adelstein & Clegg, 2015).

Erwin (2010) emphasizes the importance of the quality of corporate codes of ethics and conduct by emphasizing the need for comprehensive, clear, and impactful codes of conduct to drive positive organizational culture and stakeholder relationships. The effectiveness of corporate codes of conduct in shaping organizational cultures can be enhanced by several key factors. This includes the quality of the code content, alignment with the organization's core values, leadership commitment, effective communication and training, enforcement and accountability, and adaptability and continuous improvement (Erwin, 2010). The quality of a company's code of conduct significantly influences its ethical performance in several domains by guiding employee behavior, establishing an ethical organizational culture, improving public perception, benchmarking against industry peers, and supporting

longitudinal studies (Erwin, 2010). Investing in a high-quality code of conduct can result in improved ethical performance, and a more reputable image for corporate responsibility and integrity (Erwin, 2010). By analyzing the values of justice ethics and care ethics in the codes of conduct of cybersecurity firms, this study can contribute to the research of high-quality codes of conduct.

2.3 Cybersecurity Ethics

Along with the expansion of the cybersecurity domain, comes the growing problem of ethical issues. Fléchais and Chalhoub (2023) discuss the various ethical dilemmas that cybersecurity professionals face in their work, such as balancing security and privacy, deciding on vulnerability disclosure, ethical hacking boundaries, making decisions during cyber-attacks, navigating AI ethics, and managing conflicts of interest. These challenges underline the intricate ethical terrain in cybersecurity, emphasizing the need for ethical training and guidelines to help professionals navigate these complexities responsibly (Fléchais & Chalhoub, 2023). By adhering to ethical principles, cybersecurity practitioners ensure that they respect individuals' privacy, maintain trust with clients and stakeholders, and follow data protection and security laws (Fléchais & Chalhoub, 2023). Additionally, ethical conduct helps minimize harm to individuals and organizations, demonstrating a sense of responsibility and integrity in the cybersecurity field (Fléchais & Chalhoub, 2023). Moreover, by following ethical guidelines, professionals can prevent the misuse of cybersecurity tools for malicious purposes and contribute to a positive public perception of the industry (Fléchais & Chalhoub, 2023).

Formosa et al. (2021) complement Fléchais and Chalhoub by highlighting several ethical issues within the cybersecurity domain such as hacktivists, ransomware incidents, and system administration. Formosa et al. (2021) suggest that to address ethical issues in the

cybersecurity domain, an adapted version of the AI4People framework can be adjusted and applied. This framework entails five ethical principles including; autonomy, non-maleficence, beneficence, justice, and explicability. Autonomy entails respecting individuals' rights to make informed decisions about their data and privacy, ensuring users have control over their information, and empowering them to make choices affecting their privacy (Formosa et al., 2021). Non-maleficence entails preventing harm to individuals, organizations, and systems by minimizing harm, protecting data from malicious activities like DDoS attacks and ransomware, and mitigating the impact of cyber threats (Formosa et al., 2021). Beneficence addresses using technology to enhance the well-being of individuals and organizations by implementing security measures that improve safety and security, contributing to a safer digital environment (Formosa et al., 2021). Justice emphasizes fairness, equality, and impartiality in cybersecurity practices, ensuring all stakeholders are treated fairly, providing equal access to security measures, and avoiding discrimination in decision-making processes (Formosa et al., 2021). Explicability ensures transparency, accountability, and clear communication in cybersecurity by providing clear explanations of actions, decisions, and policies, and establishing accountability mechanisms to hold individuals responsible for their cybersecurity practices (Formosa et al., 2021). As cybersecurity firms face unique ethical challenges and responsibilities, cybersecurity ethics are significant for this research. In addition to the standard business ethics, cybersecurity ethics address these unique ethical challenges and responsibilities that cybersecurity professionals face.

2.4 Eastern and Western Culture

In addition to researching the values of justice ethics and care ethics in the codes of conduct of cybersecurity firms, this research aims to compare the codes of conduct of American and Singaporean cybersecurity firms and whether their culture has any influence on them.

Culture is when people share values (Pae, 2020). According to Pae (2020), the origin of Eastern and Western cultures stems back to their intellectual heritage. While the intellectual heritage of Westerners is from the Greek, Easterners find theirs in Chinese tradition (Nisbett, 2003). In addition to their intellectual heritage, a fundamental distinction between Eastern and Western cultures is their orientation towards the group or the individual. Eastern cultures are characterized as group-oriented, prioritizing harmony and collective well-being (Pae, 2020). Contrastingly, Western cultures are depicted as individual-centered, emphasizing personal autonomy and self-expression (Pae, 2020). An example given by Pae (2020), is the arrangement of information on envelopes for mail, illustrating cultural values. Americans typically write the sender's and receiver's names first before writing broader identifiers like state or country. Contrastingly, East Asians like Chinese, reverse this order. They start with the largest unit (country or city names) and then specify the sender or receiver, reflecting a cultural emphasis on hierarchy and group identity in everyday activities.

Varnum et al. (2010) supports this perception by Pae (2020) as they argue that Westerners, particularly those from individualistic cultures like the United States, tend to display more analytic thinking styles. Analytic thinking is characterized by a focus on objects and their attributes and having a preference for rules and categories (Varnum et al., 2010). East Asians, demonstrate more holistic thinking patterns. Holistic thinking involves perceiving the world as interconnected and focusing on the relationships between objects and contexts rather than isolating individual elements (Varnum et al., 2010). East Asians tend to consider contextual understanding and relationships when processing information, leading to a more holistic cognitive style (Varnum et al., 2010).

3 THEORETICAL FRAMEWORK

This paper will provide a qualitative content analysis aiming to recognize key features of the ethics of justice and the ethics of care in the codes of conduct of cybersecurity firms. Accordingly, a theoretical framework of the ethics of justice and the ethics of care is established to get a better understanding of both theories. In addition, the key features of the theories will be highlighted.

3.1.1 The Ethics of Justice

The ethics of justice focuses on principles such as individual rights and equality in ethical decision-making (French & Weis, 2000). It focuses on making decisions based on universal principles and rules in an impartial and verifiable manner (Botes, 2000). Kohlberg's stages of moral development or the ethics of justice as described by Gilligan (1993), are derived from the classical realism of Immanuel Kant and the contemporary liberalism of John Rawls (Jos & Hines, 1993). Those who adhere to the ethics of justice strive to uphold justice by making verifiable and reliable decisions, grounded in universal rules and principles (Botes, 2000). To facilitate objective ethical decision-making, individuals must be autonomous, objective, and impartial (Botes, 2000).

Three key features are recognized in the ethics of justice. First, the ethics of justice values individualism. Individualism upholds principles of individual autonomy and individual rights. Individual autonomy acknowledges the importance of individuals being free to make their own choices and decisions within ethical boundaries (French & Weis, 2000). Individual rights are personal claims justified within a system of rules, whether legal, organizational, cultural, or moral (Keeley, 1988). Individual rights serve as the basis for establishing agreements regarding the rules of organizational conduct (Keeley, 1988).

Second, the ethics of justice highlights equality. It prioritizes the principles of equality in decision-making processes, aiming to ensure that all individuals are treated justly and impartially (Botes, 2000; French & Weis, 2000). Individuals and organizations adhering to the ethics of justice are expected to make decisions autonomously, objectively, and impartially, without bias or personal interests influencing the outcome (Botes, 2000; French & Weis, 2000). Equality is regarded as an idealistic and aspirational value, symbolizing a vision for a fair and just society (Carmody, 2012). Finally, the ethics of justice underscores universal rights. Decisions in the ethics of justice are based on universal rules and principles, such as national law and regulations, that can be verified and relied upon for consistency and objectivity in ethical judgments (Botes, 2000; French & Weis, 2000).

3.1.2 Justice Ethics in Cybersecurity

The ethics of justice is represented in values such as equality and accountability in how information and technology are managed, protected, and accessed. In addition, various ethical frameworks can be applied such as priciplism. In the previous section, an example of a principlist framework is given. In cybersecurity ethics, the principlist framework provides a structured way to consider values like beneficence and justice when evaluating the ethical implications of cybersecurity threats, countermeasures, and policies (Loi & Christen, 2020). Accordingly, the ethics of justice consider issues such as human rights as a trade-off with security (Loi & Christen, 2020). Such trade-offs can entail protecting a person's privacy or preventing criminal attacks (Loi & Christen, 2020). Pattison (2020), gives an example of inequality in cybersecurity. A concern mentioned is the exclusion of those who cannot afford cybersecurity. The ones that cannot afford cybersecurity, are more exposed to cyber threats (Pattison, 2020).

3.2.1 The Ethics of Care

The ethics of care originates from feminist theory. Carol Gilligan created ethics of care in her book *In a Different Voice*. According to Gilligan (1993), the ethics of care is a moral theory that emphasizes relationships, empathy, and compassion in ethical decision-making. The ethics of care suggests that moral decisions should be based on understanding the particular needs and contexts of individuals involved, rather than applying universal principles (Gilligan, 1993). This perspective values interconnectedness, emotional responsiveness, and the recognition of the complexity of real-life situations (Gilligan, 1993). In her book, Gilligan (1993) critiques traditional moral theories for neglecting the perspectives and moral development of women. Her book highlights a paradox where qualities traditionally seen as defining women's goodness, such as care and sensitivity to others' needs, are considered deficiencies in moral development within existing frameworks (Gilligan, 1993). Gilligan (1993) argues for a redefinition of moral maturity based on women's experiences, leading to a different moral conception of development. By challenging traditional views that prioritize individuation and abstract reasoning, Gilligan (1993) proposes a more contextual and narrative approach to moral development that incorporates women's experiences and values. Contrastingly, Jos and Hines (1993) discuss the concern of the idea that the ethics of care avoid all universal principles. They critique care ethics by referring to Tronto (1987) who argues that a baseline of relationships is not enough to reflect the nature of the relationship critically. Additionally, Jos and Hines (1993) question whether individuals outside one’s network are excluded from their responsibility to care. These are valid critiques by Jos and Hines and should be considered when applying care ethics.

Three key features are recognized in the ethics of care. First, there is an emphasis on relationships. First, the ethics of care prioritizes the importance of relationships, empathy, and interconnectedness between individuals (Blanken-Webb & Coultier, 2020; Botes, 2000;

French & Weis, 2000; Gilligan, 1993). It values caring for others and maintaining meaningful connections (Blanken-Webb & Coultier, 2020; Botes, 2000; French & Weis, 2000; Gilligan, 1993). By prioritizing relationships, individuals can develop a more compassionate, empathetic, and socially aware approach to ethics and moral development (Gilligan, 1993). Second, central to the ethics of care is the concept of empathy and compassion towards others (Blanken-Webb & Coultier, 2020; Botes, 2000; French & Weis, 2000; Gilligan, 1993). It underlines the understanding and responding to the needs of those involved (Blanken-Webb & Coultier, 2020; Botes, 2000; French & Weis, 2000; Gilligan, 1993). While empathy involves understanding and sharing others' feelings, compassion takes it further by encouraging individuals to act with kindness and a genuine desire to relieve suffering (Gilligan, 1993). This understanding leads to more compassionate and ethical decision-making that considers the impact of one's actions on others (Gilligan, 1993). In the context of the ethics of care, empathy and compassion are necessary to promote positive and healthy interactions with others, ultimately contributing to a more empathetic and socially aware approach to ethics and moral development (Gilligan, 1993). Finally, in the ethics of care, a contextual understanding is essential. Recognizing the importance of the specific context in which ethical decisions are made, the ethics of care considers the unique circumstances and factors influencing each situation (Blanken-Webb & Coultier, 2020; Boeken, 2024; Botes, 2000; French & Weis, 2000; Gilligan, 1993).

3.2.2 Care Ethics in Cybersecurity

The ethics of care provides a valuable perspective by emphasizing the importance of relationships, responsibility, and ethical decision-making that considers the well-being of individuals connected to digital platforms (Blanken-Webb & Coultier, 2020). According to Boeken (2024), adopting a relational view of cybersecurity involves recognizing the

importance of building strong and caring relationships with stakeholders (Boeken, 2024). This relational approach can lead to a more collaborative and supportive cybersecurity environment (Boeken, 2024). In addition, introducing the obligation of empathy and compassion in cybersecurity implies that companies have a responsibility to care for their stakeholders, including ensuring the security of their supply chain (Boeken, 2024). This obligation to care can influence cybersecurity strategies by emphasizing the importance of taking responsibility for stakeholders' well-being (Boeken, 2024). Care ethics principles can guide cybersecurity strategies to consider the context in which security decisions are made (Boeken, 2024). By tailoring cybersecurity measures to specific circumstances and needs of stakeholders, organizations can create more personalized and effective security approaches (Boeken, 2024). Boeken (2024) mentions an illustrative example by Lundgren and Bergström (2019); a company and its employees can feel stress as a result of the implementation of generic cybersecurity standards, which is challenging to adapt to company-specific needs. We can improve cybersecurity challenges by acknowledging the significance of emotions in people's problem-solving approaches, including how they respond to cybersecurity threats (Boeken, 2024). Blanken-Webb and Coultier (2020) propose that by considering the relationships and connections involved in cybersecurity practices, the ethics of care provides a framework for understanding the impact of actions on individuals and communities. Regarding empathy and compassion, Blanken-Webb and Coultier (2020) argue that cybersecurity professionals have to ensure the security and well-being of users. This highlights the importance of caring for the security and privacy of individuals in cybersecurity practice (Blanken-Webb & Coultier, 2020). Contextual understanding can navigate professionals on ethical dilemmas by considering the broader context and impact of their actions on individuals connected to digital platforms (Blanken-Webb & Coultier, 2020). Considering these arguments, academia is urging the incorporation of care ethics in

cybersecurity for a more human-centered approach (Boeken, 2024). This shift goes beyond compliance and considers emotional impacts, promotes relational views, and prioritizes stakeholder well-being in decision-making (Boeken, 2024). It is essential for effectively addressing the evolving challenges in the digital landscape.

3.3 Comparison

Table 1. *Contrast between the ethics of justice and the ethics of care.*

Ethics of Justice	*Ethics of Care*
Individualism	Emphasis on Relationships
Equality	Empathy and Compassion
Universal Rights	Contextual Understanding

In contrasting the two ethics, there are three differences noted. First, the ethics of justice emphasizes individualism. It values individual autonomy and individual rights. Appreciating the liberty of making one's own choices and making personal claims justified within a system of rules, whether legal, organizational, cultural, or moral. In contrast, the ethics of care emphasizes relationships, valuing care, and maintaining meaningful connections.

The second difference highlights the contrasting nature of the two ethics. Justice ethics emphasize equality, expecting individuals and organizations to make decisions autonomously, objectively, and impartially, without bias or personal interests influencing the outcome. The ethics of care emphasizes empathy and compassion, underlining the understanding and responding to the needs of those involved.

The third and final difference deals with the orientation of both ethics. The ethics of justice is oriented towards universal rights. Decisions are based on universal rules and principles that can be verified and relied upon for consistency and objectivity in ethical judgments. In contrast, the ethics of care is oriented towards a contextual understanding. It

recognizes the importance of the specific context in which ethical decisions are made and considers the unique circumstances and factors influencing each situation.

This section has established a theoretical framework for the ethics of care and the ethics of justice. First, the definition of the ethics of justice was provided. The key features recognized are the emphasis on the individual, fairness and equality, and universal rights. While researching the ethics of justice, a limitation had to be considered. There are limited sources on the ethics of justice as the ethics of justice is a collective of multiple theories such as classical realism and contemporary liberalism.

In contrast to the ethics of justice, the ethics of care is a moral theory that emphasizes relationships, empathy, and compassion in ethical decision-making (Gilligan, 1993). In addition, three key features of care ethics were recognized. The first key feature of the ethics of care highlights the importance of relationships. The second key feature emphasizes empathy and compassion. Finally, the third key feature underscores the importance of contextual understanding.

4 METHODOLOGY

Based on the theoretical framework of the ethics of justice and the ethics of care, this study applies a qualitative content analysis using ATLAS.ti to answer the research question: *How do the ethics of justice and the ethics of care shape the code of ethics and conduct within cybersecurity firms from the United States compared to cybersecurity firms from Singapore*? In the previous section, several key features of the ethics of justice and the ethics of care are recognized. These key features will serve as a baseline for the qualitative codebook created in ATLAS.ti.

4.1 Qualitative Content Analysis

For this study, qualitative content analysis is conducted using ATLAS.ti. Content analysis is a systematic and objective research method used to describe and categorize phenomena by analyzing documents (Elo & Kyngäs, 2008). This method allows testing of theoretical issues and enhances understanding of data by refining words into categories (Elo & Kyngäs, 2008). It helps to uncover underlying meanings, patterns, and relationships within the data (Elo & Kyngäs, 2008). Deductive content analysis is a research approach where the analysis structure is based on existing knowledge and theories, and the primary aim of the study is to test these theories (Elo & Kyngäs, 2008). A deductive qualitative content analysis is the appropriate method for this study, as it aims to find features of the ethics of justice and the ethics of care in the code of conduct of cybersecurity firms. Employing a deductive qualitative content analysis offers the freedom to adapt the analysis to this study and to answer the research question. In addition, qualitative content analysis is a flexible method that can be applied to different types of qualitative data sources, such as codes of conduct (Elo & Kyngäs, 2008).

Applying a qualitative content analysis comes with its limitations. Graneheim et al. (2017) note that a text can imply more than one single meaning, which can lead to variability in interpretation. This variability can pose challenges in ensuring consistency and reliability in the analysis (Graneheim et al., 2017). Using a deductive approach can lead to remaining data that does not fit the ethics of justice or the ethics of care (Graneheim et al., 2017). This can raise concerns about the compatibility of the ethics of justice or care. The remaining data can indicate that the model might not be able to explain all aspects of reality or that there are limitations in its applicability (Graneheim et al., 2017). Additionally, Elo and Kyngäs (2008) argue that the risk of extensive interpretation can impact the objectivity and validity of the

findings. Data should not be overinterpreted, as bias can be introduced and affect the credibility of the analysis (Elo & Kyngäs, 2008). Despite these limitations, deductive qualitative content analysis is the appropriate method to employ, as this study aims to test theory within data. Additionally, by using a codebook, the risk of bias is limited.

4.2 Data Collection and Analysis

For the qualitative content analysis, the codes of conduct of 30 cybersecurity firms across the United States and Singapore were considered. Cybersecurity firms "develop, sell, and support applications that safeguard clients such as organizations and their computer networks, data, and users from cyberattacks." (*Cisco Security: A Better Way of Doing Security.*, 2024, p.1). The US was selected as most cybersecurity firms are in and from the US. Singapore was selected as it holds different cultural values and has different policies, unlike the US. Firms were selected based on their estimated yearly revenue, specifically those that made the highest annual revenue. This particular factor is considered as the pursuit of money and wealth can lead to a focus on financial gain over ethical considerations (Macdonald, 2020). It can potentially overshadow values such as fairness and compassion (Macdonald, 2020). The firms' revenue is estimated from their financial reports or data websites such as statista.com, macrotrends.net, and rocketreach.co. Firms are included if the codes of conduct are publicly available and written in English. If not publicly available, content under titles such as "about us" or "core values" aimed at clients are analyzed instead. Firms that have not made their code of conduct or other content such as their core values public, are excluded from this study. Additionally, firms that were founded in the United States or Singapore and then relocated their headquarters to another country are excluded. By limiting this study to 30 cybersecurity firms, many firms are excluded. Limiting this study to 30 firms may result in limited and incomplete findings, making it less generalizable. Despite this limitation, the

study is still relevant as it is novel research on this topic and will create an indication of how justice and care ethics shape the codes of conduct of cybersecurity firms.

Data is analyzed through ATLAS.ti. The codebook as shown in Table 2 contains six codes based on the key features of the ethics of justice and the ethics of care recognized in the theoretical framework to analyze and quantify the codes of conduct. A qualitative codebook is a codebook designed to standardize research (Sybing, 2024). It is a reference to the research codes as well as supporting details that describe what the codes are intended to represent (Sybing, 2024). For this study, there are two code groups created. The first code group encloses the key features of the ethics of justice, these are "individualism", "equality", and "universal rights". The second code group encloses the key features of the ethics of care, these are "emphasis on relationships", "empathy and compassion", and "contextual understanding". The creation of these code groups allows the recognition of the features of the ethics of justice or the ethics of care in the analyzed codes of conduct.

Table 2. *Codebook of key features.*

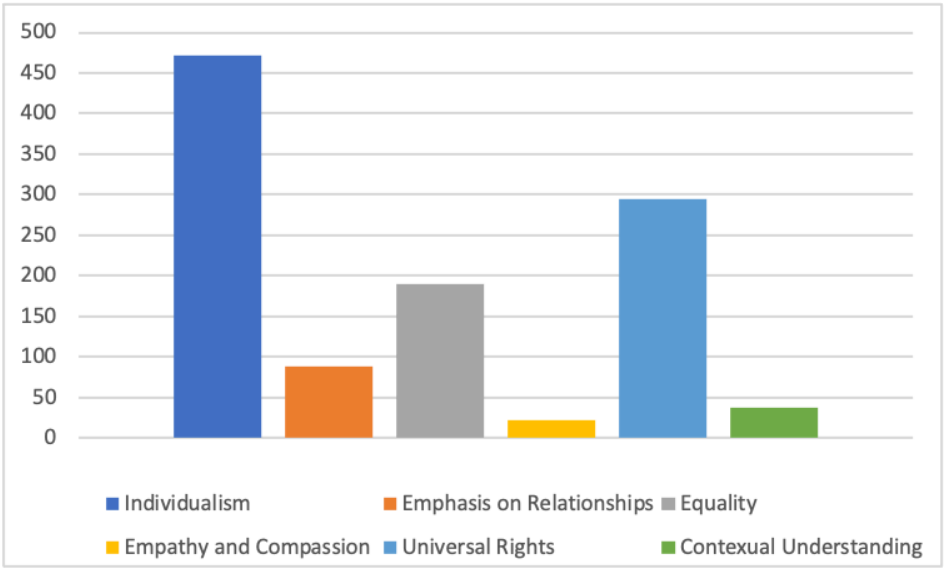
Code name	*Code definition*	*Code group*	*Indicators*
Individualism	Focus on the principles of the firm.	Ethics of justice	Referring to the company and its values, image etc.
Equality	Impartiality, objectivity	Ethics of justice	Mention of conflict of interest, discrimination, etc.
Universal rights	Abiding by agreements, laws, and regulations.	Ethics of justice	Mention of law, regulations, etc.
Emphasis on relationships	Focus on connection with employees or clients.	Ethics of care	Referring to employees, clients, business partners etc.
Empathy and compassion	The understanding and responding to the needs of those involved.	Ethics of care	Mention of disabilities, diversity, emotions such as compassion, etc.

Contextual understanding	Recognizes the importance of the specific context and considers the unique circumstances and factors influencing each situation.	Ethics of care	Mention of unique circumstances such as environmental impact and human rights.

5 RESULTS

This section discusses the findings of this study. Data and results are derived from a qualitative content analysis. This was done by using ATLAS.ti and creating a codebook containing code groups on the ethics of justice and the ethics of care. First, the general features are discussed. Continuing with a discussion of the results sectioned by key features.

Figure 1. *Bar chart of the frequency of the key features in the analysis.*



15 codes of conduct from American cybersecurity firms were analyzed, two codes of conduct from Singaporean cybersecurity firms, and the core values of 13 Singaporean cybersecurity firms. The length of the codes of conduct varied from 1 page to 46 pages. The core values analyzed primarily consisted of four to six different values. These values are described in one

or two words and sometimes have a short description following. The firms with the highest revenue from the 30 firms selected all reside in the US (see Appendix 1). Firms with the lowest revenue all reside in Singapore. The highest estimated revenue is 61.9 billion dollars from American company IBM while the lowest estimated revenue is 983 thousand dollars from Singaporean company Onesecure Asia (see Appendix 1). Combining the results of justice ethics of the American and Singaporean firms, the key feature “individualism” was used 471 times, the key feature “equality” was used 190 times, and the key feature “universal rights” was used 294 times (see Figure 1). Combining the results of care ethics of the American and Singaporean firms, the key feature of “emphasis on relationships” was used 88 times, the key feature of “empathy and compassion” was used 22 times, and the key feature of “contextual understanding” was used 37 times (see Figure 1).

5.1 Individualism

The codes of conduct from cybersecurity firms in the US analyzed, were primarily centered around individualism. This could be observed as the code “individualism” was the code used most frequently. The code “individualism” was used 389 times in the American codes of conduct and 73 times in the Singaporean codes of conduct or values (see Appendix 1). The key feature “Individualism” could be recognized in codes when the company and its values or image were prioritized. “There are no exceptions to this policy, even if our competitors engage in corrupt behavior or corruption is an accepted practice in a country where we operate.” (CrowdStrike, 2022, p.14). In this quote by CrowdStrike, especially by stating that there are no exceptions, the priority of the firms' values is demonstrated. In addition, it is observed that most codes start with an introduction, stating that employees have to refer to the code as a guide, to keep up values and the business interest of said company. “This Code of Conduct (the “Code”) provides resources and information to help guide our business decision-making in thoughtful, legal, and ethical ways and in accordance with our core

values." (Okta, n.d., p.4). The codes of conduct and core values analyzed from Singaporean cybersecurity firms did not differ from the US firms. In most firms' code of conduct or core values, was the key feature of "individualism" most frequently recognized. Similar to the US, this key feature was recognized in Singaporean firms through values that prioritized the company.

5.2 Equality

In the codes of conduct analyzed a great significance on equality is put. The code "equality" was used 163 times in the American codes of conduct and 27 times in the Singaporean codes of conduct or values (see Appendix 1). The codes of conduct of the American firms portrayed equality by having codes on subjects such as discrimination and conflicts of interest. "McAfee does not discriminate on the basis of pregnancy, marital status, gender, gender expression, gender identity, sexual orientation, or any other status or characteristic protected by applicable laws, regulations, or ordinances." (McAfee, n.d., p.10). Singaporean firms portrayed equality in their values by upholding values such as "Anti-Corruption". "We work against corruption in all its forms, including extortion and bribery." (Chong, 2022, p.1).

5.3 Universal Rights

In addition to individualism, it is observed that codes of conduct are shaped by universal rights. The code "universal rights" was used 266 times in the American codes of conduct and 28 times in the Singaporean codes of conduct or values (see Appendix 1). The key feature "universal rights" was recognized in codes of conduct and values as these were often centered around laws or regulations. As the codes of conduct were written to serve as a guideline to uphold an image and values, they were also written as a guide to abide by various laws and regulations. "Worldwide laws restrict the physical shipment of equipment and the transfer or electronic transmission of software and/or technology to certain destinations, entities, and

persons. In many cases, laws require an import and/or export license or other appropriate government approvals before an item may be shipped or electronically transmitted. Zscaler has a responsibility to comply with all applicable import and export laws including, but not limited to, U.S. Export Administration Regulations." (Zscaler, 2021, p.4). This quote by Zscaler demonstrates the importance of law in codes of conduct. This code makes their employees aware of laws that should be considered and the responsibility the firm has to abide by these laws. In solely three Singaporean firms was the key feature "universal rights" recognized.

5.4 Emphasis on Relationships

The code "emphasis on relationships" is one of the less common key features in codes of conduct, though the most used key feature of care ethics. It is observed that a firm emphasizes relationships when mentioning employees, clients, or stakeholders. The code "emphasis on relationships" was used 71 times in the American codes of conduct and 17 times in the Singaporean codes of conduct or values (see Appendix 1). Singaporean firms demonstrate an emphasis on relationships by upholding principles such as "Team over Self". "At Win-Pro, we understand that success isn't a solo endeavor. It's a symphony, played by an orchestra, where each musician is vital. We prioritize the collective over the individual, knowing that a unified team can scale mountains and cross oceans. The strength of the team is each member, and the strength of each member is the team. It's a bond, a promise, and a commitment to one another that transcends personal ambition." (Soh, 2023, p.1). This quote by Win-Pro demonstrates the collective mindset of the company. They acknowledge that every employee is important and that they are stronger as a team.

5.5 Empathy and Compassion

“Empathy and compassion” was the least used key feature in the analyzed codes of conduct and values. The code “empathy and compassion” was used 20 times in the American codes of conduct and 2 times in the Singaporean codes of conduct or values (see Appendix 1). The portrayal of empathy and compassion could be recognized through the mention of emotions. Solely two Singaporean firms included empathy and compassion in their code or values. “Along with our passion to succeed and prosper as individuals, as teams, and as a business, we also reach out to express our genuine care and responsibility for one another, our communities, and the broader world community. We rally around those in difficulty to understand their troubles and actively help them with our time, energy, and money.” (ST Engineering, n.d., p.4). This quote by ST Engineering demonstrates empathy and compassion, as they express care and feel a responsibility for employees, their communities, and society. In addition, they display compassion by wanting to help those in difficulty.

5.6 Contextual Understanding

As the key feature of “empathy and compassion”, the key feature of “contextual understanding” was one of the least commonly used codes in analyzing the codes of conduct and values. The code “contextual understanding” was used 28 times in the American codes of conduct and 9 times in the Singaporean codes of conduct or values (see Appendix 1). The key feature “contextual understanding” could be recognized by mentioning unique circumstances such as the environment and human rights. “The Company believes in and supports international human rights. It is imperative to our Company that all of its suppliers uphold the same level of integrity and support for human rights around the world. As a result, the Company supports and complies with Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act which requires companies to disclose whether the products

they manufacture or contract to manufacture contain conflict minerals that originated in the Democratic Republic of the Congo (DRC) or other Covered Countries. As a result, the Company has adopted a Conflict Minerals Policy, which addresses its policy statement, commitment and supplier expectations." (Palo Alto Networks, 2020, p.6). This passage by Palo Alto Networks demonstrates contextual understanding, as they recognize human rights and the connection to conflict minerals, which is a unique circumstance.

6 DISCUSSION

Using the key features of justice ethics and care ethics, the findings of this study help recognize the ethical theories in the codes of conduct and values of cybersecurity firms and provide a starting point for further research in the ethics of corporate codes of conduct. The findings indicate that for both American and Singaporean firms, the key features of justice ethics; individualism, equality, and universal rights are the most frequently used codes, demonstrating a dominance of the ethics of justice in the analyzed codes of conduct and values. These key features are followed up by the key features of care ethics; emphasis on relationships, contextual understanding, and empathy and compassion.

In the literature review, it is argued how Fléchais and Chalhoub (2023) discuss the various ethical dilemmas that cybersecurity professionals face in their work, such as balancing security and privacy, making decisions during cyber-attacks, and managing conflicts of interest. In the theoretical framework, it is discussed that justice ethics is represented in values such as equality and accountability. Additionally, the literature review discusses a principlist framework by Formosa et al. (2021) that can address the ethical issues discussed by Fléchais and Chalhoub (2023). This principlist framework includes ethical principles such as justice. Considering these arguments, it is expected that justice ethics leads over care ethics as the values of justice ethics address most ethical dilemmas that

cybersecurity professionals face. However, there is an urge in academia for the incorporation of care ethics in cybersecurity for a more human-centered approach (Boeken, 2024). Considering emotional impacts, promoting relational views, and prioritizing stakeholder well-being in decision-making (Boeken, 2024). It is essential for effectively addressing the evolving challenges in the digital landscape (Boeken, 2024).

Adelstein and Clegg (2015) argue that codes of conduct have several objectives, with the primary objectives being to minimize business risk, ensure legal compliance, and control potential ethical misconduct. Codes of conduct serve as a public declaration of the organization's commitment to corporate governance, business ethics, and ethical practices (Adelstein and Clegg, 2015). The findings demonstrate that firms ensure legal compliance by shaping their code of conduct around universal rights, such as international export laws.

Accordingly, the individualistic culture of the US can play a part in the dominance of justice ethics. Western cultures are portrayed as individual-centered, emphasizing personal autonomy and self-expression (Pae, 2020). Additionally, they display a more analytic thinking style that is characterized by a focus on objects and their attributes and having a preference for rules and categories (Varnum et al., 2010). This individualistic culture of the US aligns more with the values of justice ethics rather than the values of care ethics, as justice ethics focuses on principles such as individual rights (Botes, 2000; French & Weis, 2000; Von Brück, 2006).

Based on the literature review, it was expected that the analyzed codes and values of Singaporean firms would be shaped by the ethics of care. Contrastingly, the findings demonstrate that the codes and values primarily are shaped by the values of justice ethics. According to Pae (2020), Eastern cultures are characterized as group-oriented, prioritizing harmony and collective well-being. In addition, Varnum et al. (2010) argue that they demonstrate more holistic thinking patterns that involve perceiving the world as

interconnected and focusing on the relationships between objects and contexts rather than isolating individual elements. It can be argued that the codes and the values of Singaporean firms are based on the values of justice ethics, as most ethical issues cybersecurity professionals face align with justice ethics. Resulting in codes and values that are shaped by justice ethics. Accordingly, cybersecurity firms worldwide have to adhere to international standards such as ISO/IEC 27001, promoting risk management, cyber-resilience, and operational excellence (ISO/IEC 27001:2022, 2022). In addition, assuming that the social culture of Eastern cultures is collective could have created a misconception that their business culture would be similar.

The lack of codes of conduct of Singaporean firms supports the argument by Drucker (1981) implying that corporations should be held to a higher standard of behavior than private individuals due to their significant power and influence in society. As most Singaporean firms have no code of conduct to hold them accountable, firms must instead adhere to a higher standard of behavior. This study can assist in creating a higher standard of behavior, as it researches the ethical theories of justice and care ethics in the codes of conduct and values of cybersecurity firms.

7 CONCLUSION

To conclude, this paper discussed the application of the ethics of justice and the ethics of care to the codes of conduct and values of American and Singaporean cybersecurity firms to answer the research question: *How do the ethics of justice and the ethics of care shape the code of ethics and conduct within cybersecurity firms from the United States compared to cybersecurity firms from Singapore*? To answer this research question, this paper started with a literature review, providing a comprehensive overview of relevant subjects to the research

question. These subjects entailed business ethics, codes of ethics and conduct, ethics in cybersecurity, and Eastern and Western culture. Accordingly, a theoretical framework on the ethics of justice and the ethics of care was established. Continuing with the methodology section where research design and methods were discussed. Finally, the findings demonstrated that the ethics of justice led over the ethics of care in shaping codes of ethics and conduct.

To answer the research question, both ethical theories shape codes of ethics and conduct of cybersecurity firms, though care ethics has a minimal impact compared to justice ethics. This is demonstrated in the findings, as it shows that key features of justice ethics were the most frequently used codes in analyzing the codes of conduct. Additionally, there was no significant difference found in the findings of both countries. Similar to the American firms, the codes of conduct and values of the Singaporean cybersecurity firms were mostly shaped by justice ethics.

This research has succeeded in establishing a comprehensive literature review on relevant subjects to answer the research question. Accordingly, the theoretical framework of the ethics of justice and the ethics of care displays a comprehensive overview of both theories. In addition, there are a few limitations to this study. Though the theoretical framework displays a comprehensive overview of both theories, there were limited sources on the application of the ethics of justice and the application of justice ethics in cybersecurity. Consequently, the theoretical framework could be less accurate than the theoretical framework of care ethics. Second, of the 15 Singaporean firms, only two had their code of conduct publicly available. Consequently, the core values of the other 13 firms were analyzed instead. This is a limitation as core values are not as extensive as codes of conduct. As for the credibility, dependability, and transferability of this study, it can be established that the credibility of this study is neutral. The findings on the American cybersecurity firms are more

accurate than the findings from the Singaporean firms, as all selected American firms had a code of conduct available. Since there were only two codes of conduct available from the 15 Singaporean firms selected, the findings on the Singaporean firms are less accurate, making this study less credible. Accordingly, it can be ensured that the dependability of this study is high. This study has provided a methodology section including a research design, methods of data collection, and a codebook, allowing researchers to replicate this study. As for transferability, this study can be applied in other contexts such as business conduct in healthcare. Justice ethics and care ethics provide critical lenses to business conduct and should not only be applied to business conduct in cybersecurity. However, it has to be taken into account that the codes of conduct and values analyzed apply to cybersecurity firms and address the unique ethical challenges and responsibilities that cybersecurity professionals face.

By finding that justice ethics predominates over care ethics in shaping codes of conduct and values of cybersecurity firms, this study implies that there is an emphasis on the values of individualism, equality, and universal rights when addressing business conduct. In academia, this can lead to more in-depth research on how organizations form and apply ethical policies, which can lead to an even more justice-centered approach to the business conduct of cybersecurity firms. However, the findings indicate that care ethics still play a part in shaping codes of conduct and values. Care ethics cannot be neglected in codes of conduct as it promotes a healthy work environment and upholds relationships with various clients. In addition, it is essential that firms keep addressing issues such as diversity, the environment, and human rights. Care ethics promotes a human-centered approach and should not be neglected.

Given the implications, further research can be done on the application of justice and care ethics in cybersecurity as it can serve as a guideline for cybersecurity firms in creating

codes of conduct. In addition, research can be done on employees to evaluate the effectiveness of codes of conduct.

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APPENDIX 1

company	country	revenue	pages	individualism	emphasis on relationships	equality	empathy and compassion	universal rights	contextual understanding
IBM	US	$61.9B	46	52	8	18	3	31	2
Cisco	US	$53.6B	34	40	8	13	2	24	3
Palo Alto Networks	US	$8B	12	20	3	12	1	21	3
Juniper Networks	US	$5.6B	35	52	17	22	10	36	9
Fortinet	US	$5.3B	23	26	4	15	0	26	0
Splunk	US	$4.2B	28	47	2	12	0	22	2
Akamai	US	$3.8B	2	3	6	1	0	1	0
CrowdStrike	US	$3B	20	29	4	14	3	23	0
Check Point Software Technologies	US	$2.4B	7	13	2	9	0	6	0
Okta	US	$2.2B	16	11	1	8	0	14	2
McAfee	US	$1.9B	28	44	9	17	1	22	4
Trend Micro	US	$1.7B	1	8	1	3	0	8	0
Zscaler	US	$1.7B	8	26	3	9	0	10	0
Rapid7	US	$806M	13	23	3	8	0	14	3
Tanium	US	$599.2M	1	4	0	2	0	8	0
Group-IB	SG	$46.9M	13	26	2	11	0	10	0
ST Engineering	SG	$29.6M	19	19	3	11	1	15	2
i-Sprint	SG	$23.4M	1	4	0	2	0	3	1
Titansoft	SG	$21M	1	4	1	2	0	0	1
Horangi	SG	$18.4M	1	2	0	0	0	0	0
Vinova	SG	$18.4M	1	2	1	0	0	0	0
Genesis Networks	SG	$18.1M	1	1	0	0	0	0	0
IWV	SG	$15.9M	1	2	1	0	0	0	0
SecureAge Technology	SG	$15M	1	1	0	0	0	0	0
WinPro	SG	$9.2M	1	0	3	0	1	0	4
Acclivis group	SG	$9M	1	3	0	0	0	0	0
Attilla cybertech	SG	$3.5M	1	5	1	1	0	0	1
WebOrion	SG	$2.9M	1	1	3	0	0	0	0
Blackpanda	SG	$2M	1	2	0	0	0	0	0
Onesecure Asia	SG	$983K	1	1	2	0	0	0	0
Total				**471**	**88**	**190**	**22**	**294**	**37**