The Competing Values of Hackers: The Culture Profile that Spawned the Computer Revolution

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Abstract

In this paper we describe the hacker culture by analyzing 25 years of communication on one of the oldest and most renowned hacker websites. For this purpose, we utilize a previously documented text analysis technique [14] which provides an efficient and effective method of producing a quick overview of values underlying any written text. The technique allows for the creation of culture profiles of texts based on the competing values framework [2]. The paper contributes to understanding an important but overlooked hotbed of creativity—the hacker community. It provides examples of how hackers—by playing with existing technologies—help push technological progress. Furthermore, the paper demonstrates the usefulness of semi-automated text analyses for the purpose of understanding the values and assumptions that are expressed in documents. We highlight the value of the technique in analyzing large volumes of empirical data and assessing cultures of communities, organizations, or other units of analysis.

1. Introduction

Creativity and business renewal are the holy grails of growth and competitiveness in today’s society. It is argued that hypercompetition forces companies to continuously reinvent themselves and explore new opportunities [6]. Each industry has unique characteristics—some are more stable while others face rapidly shifting market trends and changing customer demands, necessitating that companies adapt and stay abreast of new technologies and opportunities. Among the many sources of inspiration for creativity is the hacker culture. Hackers are adept at taking existing technologies and applying them through playfulness in novel and unintended ways [7,20,25].

The hacker culture is overlooked as a source of inspiration in part due to the prejudiced and simplistic picture of hackers painted by mass media [4]. However, according to Levy (1984), hackers sowed the seeds of the computer revolution that spawned the Information Society before corporate interests took control of technological development. Their many accomplishments include developing the personal computer, founding the computer game industry, and establishing the free/libre/open-source software (FLOSS) movement [12,21]. Hackers are more than villains and thieves in the digital age, and this paper seeks to set the story straight and contribute to state-of-the-art knowledge of the hacker culture as a source of creativity and novel ideas by addressing the following research question: “What is the culture profile of the hacker community?”

To answer this research question, we analyze 25 years of hacker communication from “Cult of the Dead Cow” (http://w3.cultdeadcow.com/cms)—one of the oldest and most renowned hacker websites. By doing so, we focus on the security cracker community which is a prominent hacker “scene” (see below). For this purpose, we utilize the text analysis technique documented by Müller and Nielsen (2013). The technique allows for the analysis of values underlying any written text and the creation of a culture profile based on the competing values framework [2]. For a definition of culture and a description of the framework, see the research approach section.

The paper is structured as follows. First, we account for state-of-the-art knowledge about hacker culture. Second, we describe our research approach, including the analytical framework and text analysis technique used. Third, we present our findings, combining quantitative cultural profiling with qualitative content analysis of hacker communication. Fourth, we discuss the results in relation to the existing literature, stressing the contribution to hacker research and the value of the technique for cultural analyses.

2. Theoretical background

The hacker culture has attracted the attention of mass media and scholars alike due to the actions of hacker groups like LulzSec and Anonymous, but it is still shrouded in mystery and secrecy. The hacker
culture is divided into different so-called “scenes”. These scenes are mainly male dominated [11], differ in terms of structure and rules, but share the same cultural mindset [24,25]. The hacker movement originated from MIT in the 1960s and focused on coding [12]. They are still around in the Free Software Movement, where Richard Stallman is known as the last old school hacker [21]. The new school hackers—security crackers—are known from movies like Hackers (1995) and Takedown (2000). This scene focuses on breaking into computer systems [11] and writing viruses [10]. Warez and P2P are two opposing scenes centered around cracking and distributing software and digital media [5,9]. The Demo scene is into computer art [1]. Finally, there is a new wave of mainstream hackers who have adopted the hacker mindset in hacking everything from LEGO Mindstorms to IKEA furniture [18]. Within the hacker culture, there are also hacktivists [22, 28]. They do not constitute a scene per se, but are groups or individuals of politically motivated new school hackers who resort to cyber attacks to further their goals.

As shown by previous research, creative play with technologies are integral parts of the hacker culture, shaping perceptions and actions of its members [4,7,12,17,19,20,25,26]. Best known is John Draper who—besides creating the first Apple word processor—hacked the American telephone system, using a toy from a Cap’n Crunch cereal box to emit the 2600 hertz tone used by the AT&T lines [12]. As our analysis shows, the hacker culture is, however, more than just breaking and entering such information systems.

Like other cultures, hackers abide by certain norms and—to some extent—rules [11]. Flowers (2008) describes hackers as outlaw innovators who circumvent manufacturers’ intended product use (including software) by jailbreaking copy protection schemes and changing it through homebrew add-ons. Examples include reprogramming the Sony Aibo toy robotic dog, improving its functionality, and hacking the Sony PSP to use it for purposes of, e.g., internet browsing and watching TV [7]. These add-ons or “illegal” improvements are used by like-minded people who gather around and adopt these technologies [7]. In a follow-up study of these outlaw innovators, hackers were intrinsically motivated by the challenge and fun of tinkering with and improving existing technologies [20].

The common perception of hackers as an outlaw culture is, however, too narrow. In Wark’s (2004) seminal work on the nature of hacking, he describes hackers as the antithesis of an established society. In this words, “to hack is to differ” [25]. This anti-social behavior and thinking is nowhere more apparent than in The Mentor’s (1986) “The Conscience of a Hacker”, perhaps better known as “The Hacker Manifesto”:

“We explore... and you call us criminals. We seek after knowledge... and you call us criminals. We exist without skin color, without nationality, without religious bias..., and you call us criminals. You build atomic bombs, you wage wars, you murder, cheat, and lie to us and try to make us believe it’s for our own good, yet we're the criminals. Yes, I am a criminal. My crime is that of curiosity. My crime is that of judging people by what they say and think, not what they look like. My crime is that of outsmarting you, something that you will never forgive me for” [23].

Inspired by The Mentor and others, Wark (2004) argues that hackers are more than loosely coupled groups of cyber renegades. They constitute a social class and an indispensable part of the fabric of society in that they create and recreate technologies that other social groups adopt and exploit, contributing to progress, and societal development [25]. Graham (2008) supports this view and compares hacking to the artistic expressions of painters and other members of the creative class [8]. Levy (1984) emphasizes the societal value of hacking by stating that “in a perfect hacker world, anyone pissed off enough to open up a control box near a traffic light and take it apart to make it work better should be perfectly welcome to make the attempt” [12]. He argues that rules preventing people from accessing new information and improving the world around them stifle creativity and should be ignored. Consequently, hackers are more than cybercriminals and innovation outlaws; they constitute a culture of rebelliousness. It is a culture fostering ingenuity, creativity, and technological development, contributing to growth and prosperity [12].

Quality is equally central to the hacker culture and deeply ingrained in the hacker mindset [24]. Turkle (1984) describes this aspect of the hacker culture as “mastery”, striving “to master—to master perfectly—their medium” [24]. As a consequence, the culture is a meritocracy rewarding members based on the quality of their skills and achievements [3,10,19]. In investigating software piracy (the Warez scene), Craig (2005) describes in detail hackers’ obsession with quality; different scene groups competing fiercely against each other to be first to market with high quality software cracks. He describes the elaborate supply chain of the Warez scene, enabling them to bring new digital products to market within minutes and strict quality standards that ensures the prompt removal (“nuke”) of any release with even minor flaws [5].

3. Research approach

In this paper, we utilize a previously documented text analysis technique [14] which provides an efficient and effective method of producing a quick overview of the values underlying any written text, e.g. communication on websites, in blogs, in online forums, etc. The technique is based on the competing values framework. In the following, we describe the competing values framework and the text analysis technique in turn.

Several definitions and theories of organizational culture exist. Prominently, Schein, defines organizational culture as “a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” [33: 17]. While subscribing to Schein’s definition, we also acknowledge that organizational culture is embedded in artifacts, for example written texts [16,34,35]. For the purpose of analyzing and understanding the organizational culture underlying such texts, we have chosen the competing values framework in line with [14-16]. In their seminal book, Cameron and Quinn (2006) describe four culture archetypes grounded in competing basic assumptions, orientations, and core values. The four culture types are Clan, Adhocracy, Market, and Hierarchy. They are theoretical constructs, and all real-world cultures are unique and contain mixtures of these archetypes. The archetypes are illustrated in Figure 1 and described in Table 1. The competing values framework has been used in previous studies (see for example [13,14,16]), demonstrating its usefulness.

The competing values framework outlines a two-dimensional space in which cultures position themselves. On the one hand, cultures differ in terms of internal versus external focus, i.e. the extent to which they are inward- or outward-looking. Cultures are either focused on integration and unity (internal focus) or differentiation and rivalry (external focus). In other words, some are oriented toward internal affairs and others toward the external environment. On the other hand, cultures also differ in terms of their emphasis on either flexibility, discretion, and dynamism or stability, order, and control. The two dimensions are shown on the x- and y-axes respectively in Figure 1.

As seen in Table 1, the four culture types are very distinct. The Clan culture is like a family with shared values and goals and commitment to one another. Think of a small family-owned business. The Adhocracy culture is entrepreneurial and innovative, valuing curiosity and experimentation. A startup company is a stereotypical example. The Market culture is results-oriented, competitive, and focused on goal achievement. The consulting industry is a prime example. The Hierarchy culture is very formal, governed by rules and structure. The military or public bureaucracies fit this description.

![Competing Values Framework](image)

Table 1. Four culture archetypes (adapted from [2]).

<table>
<thead>
<tr>
<th>Clan culture</th>
<th>Adhocracy culture</th>
<th>Hierarchy culture</th>
<th>Market culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendly workplace held together by tradition and loyalty. Emphasis on human resource development and long-term commitment through teamwork, participation, and consensus. Leaders are perceived as innovators.</td>
<td>Dynamic and entrepreneurial workplace. Emphasis on being on the cutting-edge through creativity and innovation, creating long-term growth by acquiring new resources (unique products and services). Leaders are perceived as innovators.</td>
<td>Formalized workplace with standard operating procedures maintaining a smooth-running organization, ensuring stability, reliability, and low cost of operations. Leaders are perceived as efficiency-minded coordinators.</td>
<td>Competitive and demanding workplace focused on measurable goals and targets. Market leadership, competitiveness, and growth are key to success. Reputation is important, and everybody is concerned with</td>
</tr>
</tbody>
</table>
as mentors, and teams exhibit traits like an extended family, and risk takers, and individuals have the freedom to take initiatives, and organizers. Job security and predictability are paramount. Winning. Leaders are perceived as tough and ambitious.

Cameron and Quinn (2006) offer a survey based assessment instrument for the purpose of establishing culture profiles based on the competing values framework. It assesses the relative importance of cultural aspects associated with each of the four archetypes in the culture under investigation. It might, for example, be dominated by Hierarchy (40%), supported by Market (30%), but only marginally influenced by Clan and Adhocracy (15% each). The percentages should be viewed as indicators of tendencies—not facts—which is why the resulting profiles require interpretation [2].

As a supplement, Müller and Nielsen (2013) have developed a technique which provides an efficient and effective method of establishing similar culture profiles based on text analyses. Any text is a cultural artifact embodying certain values and assumptions, and the analysis technique assesses the relative importance of these in the text. The text analysis technique searches for keywords tied to each of the archetypes—each of which is described in detail in [2]—and establishes a culture profile based on the result. The details of the technique is described in Müller and Nielsen (2013), and it has been validated against previous research [16] and used for empirical analyses [15]. The technique is available as a web service: http://processinnovation.dk/octat.html.

For the purpose of conducting this study, we analyzed communication on “Cult of the Dead Cow”—one of the oldest and most renowned hacker websites. Thus, this research is a case study of one prominent hacker community. All communication that took place from 1984-2009 in the ezine bearing the same name was accessed and downloaded, spanning more than 2000 pages of text, just short of 1 million words. First, we analyzed the text using the aforementioned technique. The resulting culture profile is illustrated in Figure 3. Second, we interpreted the result drawing on existing theory. Third, we performed in-depth content analysis in support of the interpretation. The content analysis was guided by the word frequency distribution that the technique calculates (part of the software algorithm). The frequency of each keyword (associated with the archetypes) in the text is counted as part of the output from using the technique. From the resulting list (see Table 2), we identified the keywords most frequently used to describe the hacker culture, focusing on the dominating (Adhocracy) and supporting (Market) culture types. Subsequently, we searched through the text, reading entries in which the keywords appeared. To ensure theoretical saturation, all entries containing the keywords were read and analyzed. Furthermore, the entries were categorized according to subject and a short summary was written for each entry, synthesizing the content. This in-depth analysis allowed us to identify patterns in the communication and the values being espoused. In the following, we quote selected hackers by referring to their alias, for example “The Nightstalker”. We also refer to ezine entries by citing the titles, e.g. “How to Break the Law”.

<table>
<thead>
<tr>
<th>Keyword (Adhocracy)</th>
<th>Frequency</th>
<th>Keyword (Market)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptation</td>
<td>25</td>
<td>Aggression</td>
<td>30</td>
</tr>
<tr>
<td>Anticipation</td>
<td>27</td>
<td>Competitiveness</td>
<td>13</td>
</tr>
<tr>
<td>Change</td>
<td>398</td>
<td>Contract</td>
<td>32</td>
</tr>
<tr>
<td>Creativity</td>
<td>29</td>
<td>Control</td>
<td>316</td>
</tr>
<tr>
<td>Cutting edge</td>
<td>2</td>
<td>Customer</td>
<td>83</td>
</tr>
<tr>
<td>Dynamism</td>
<td>14</td>
<td>Environment</td>
<td>40</td>
</tr>
<tr>
<td>Experimental</td>
<td>59</td>
<td>External</td>
<td>7</td>
</tr>
<tr>
<td>Flexibility</td>
<td>5</td>
<td>Goal</td>
<td>38</td>
</tr>
<tr>
<td>Imagination</td>
<td>147</td>
<td>Penetration</td>
<td>20</td>
</tr>
<tr>
<td>Innovation</td>
<td>15</td>
<td>Performance</td>
<td>88</td>
</tr>
<tr>
<td>New</td>
<td>1023</td>
<td>Productivity</td>
<td>7</td>
</tr>
<tr>
<td>Pioneering</td>
<td>8</td>
<td>Profit</td>
<td>25</td>
</tr>
<tr>
<td>Rapid</td>
<td>33</td>
<td>Results-</td>
<td>144</td>
</tr>
<tr>
<td>Research</td>
<td>65</td>
<td>orientation</td>
<td></td>
</tr>
<tr>
<td>Risk taking</td>
<td>11</td>
<td>Supplier</td>
<td>5</td>
</tr>
<tr>
<td>Specialization</td>
<td>5</td>
<td>Target</td>
<td>46</td>
</tr>
<tr>
<td>Temporary</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td>84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Word frequency count.

Compared to an open thematic analysis, the competing values framework and the text analysis technique allows for more focused content analyses, providing an efficient and effective method for investigating the cultural values underpinning the “Cult of the Dead Cow” ezine. This qualitative text analysis gave us an in-depth understanding of the hacker culture. A word of caution: Although we in this paper talk about “the hacker culture”, hackers are a motley crew and not a homogeneous group. There are many scenes (see “Theoretical background”) and in this paper we limit our analysis to security crackers—the target audience of “Cult of the Dead Cow”.

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3.1. About cDc

cDc—also known as “Cult of the Dead Cow” or cDc Communications—is a hacker organization established in 1984. They are by their own account the “longest-running group in the computer underground” (http://w3.cultdeadcow.com/cms/about.html).

![Figure 2. The Cult of the Dead Cow ezine.](image)

cDc maintains an electronic publication—an underground ezine also called “Cult of the Dead Cow”. The target audience is security crackers. The ezine contains everything from thrash metal lyrics and descriptions of UFO sightings to instructions in how to conduct mail fraud and pyramid schemes (“The B!G Envelope Stuffing Scam”). In other words, it is a hodgepodge. There are examples of diary entries, displaying teenage angst (e.g. “Smothered Hope”); drugs are being discussed (“Sex, Ecstasy, and the Psychedelic Drugs”); government sanctioned seizure of private property and the curbing of civil rights are being criticized (“[The law: Guilt doesn’t matter]”); and there are numerous guides, for example a guide to hacking the criminal justice system (“How to Break the Law”). And most obviously, there are countless examples of “hacks”—some of which have nothing to do with IT—including building a rocket car (“Rocket Car”) and making cement-filled teddy bears (“Cement Teddy Bears”).

4. Findings

Figure 3 shows the resulting culture profile of the hacker culture from having analyzed the communication in “The Cult of the Dead Cow”. Visually, it is a diamond shaped figure pointing toward Adhocracy. Looking at the numbers, the hacker culture is dominated by the Adhocracy (35%) culture type, supported by elements of the Market (26%) culture type, but only marginally influenced by the Clan (21%) and Hierarchy (18%) culture types. Comparing dimensions, the Adhocracy and Clan culture types—emphasizing flexibility, discretion, and dynamism (as opposed to stability, order, and control)—are more dominant as a group (than Hierarchy and Market). Especially the Adhocracy culture type with its emphasis on creativity, innovation, experimentation, and flexibility is prominent. Mu Iler and Nielsen (2013) have described the Adhocracy culture type as “an innovative organization pioneering new products; it emphasizes adaptation and flexibility in environments characterized by uncertainty and ambiguity” [14]. Conversely, the Adhocracy and Market culture types—espousing an external orientation, differentiation, and rivalry (rather than internal orientation, integration, and unity)—dominate as a group. In addition to Adhocracy, the strong influence of the Market culture type helps us understand the hacker community as a results-oriented culture, concerned with achieving ambitious goals and winning through competitive actions. From a bird’s eye perspective, it can be concluded that the hacker culture is oriented toward the external environment rather than internal affairs. Competitiveness and productivity are achieved through a strong emphasis on external positioning vis-à-vis other hacker groups. It is also a culture that values discretion and flexibility in achieving the stretch goals of the individual hacker groups, allowing members to be creative and pursue innovative ideas through experimentation rather than requiring them to follow pre-established procedures.

This claim is substantiated by analyzing the content of the communication in the ezine which also contributes to a more detailed and nuanced picture of the hacker culture.

![Figure 3: Profile of hacker culture.](image)
high quality standards, ensuring the reliability and proof of cracks. These standards include instructions and guides on, e.g., phone phreaking ("Better Homes and Blue Boxing"). However, hackers are creative people and do not believe in slavishly following standardized quality procedures in the pursuit of progress: “quality” is exemplified by the arts performed by men of antiquity. The contrast between the work performed by an artisan of antiquity, who produced unique goods that were a natural outpouring of his potential, is a stark contrast to the work performed in modern day offices and factories, which consists of dreary ‘quantitative’ tasks that reduce everything to numbers and figures … there is no room for anything but ‘efficiency’ in the Corporation” ("Dark Sorcerer"). In other words, quality is more than just striving for efficiency; it lies in the uniqueness of the contribution which requires thinking outside the box.

Furthermore, the hacker culture is a meritocracy where hackers’ power, prestige, and influence follow abilities and achievements rather than formal positions in a hierarchy [3,10,19]. This is illustrated by one hacker’s confessions: "Once a week they give me a 's00per sekrut mission' which usually involves the acquisition of hi-tech equipment to further their wonderful plans they have for the future of us all. They can't tell me these plans, you understand, as I am but a cDc/WorkerDrone in the K-K0W F0RCE! and do not need such information. When I succeed in returning back to my base with my job completed they lavish me with praise ... I will learn to be elite" (“The Grim Eggbert”). Besides being a meritocracy, the hacker culture is a counterculture formed in protest against “today's media-saturated consumer culture, a culture which seems ever able to absorb outrage and atrocity, as long as there's a profit to be made” (“The Pusher”). There are examples of entries through which hackers create an identity by joking about other “boy cultures”, specifically skaters. They also define themselves through “pranksting”, i.e. by making fun of others or posting jokes. Illustrative examples are offered by someone uploading detailed instructions on how to “Steal a Dumpster” and “How To Lock Someone In Their Own House” (“The Dark Static”).

Figure 4 shows in a humorous way the rebellious and creative nature of the hacker culture. It is easily interpreted as a “fuck the establishment” statement with playful undertones, cf., S H I T—“Suburban Highly Intelligent Teenagers” (“Panama Joe”). By voicing support for a counterculture, for example in opposition to today’s celebrity culture, the hackers also implicitly express another important feature of the hacker culture, rewarding people based on merits: “The obsession with so-called ‘celebrities’ that is rampant in our society today seems to me one of the most obvious manifestations of evil around. Celebrities in most cases are manufactured idols who contribute nothing of significance to society. They are … parasites-in short, people who become ‘known’ for their ability to generate ‘publicity’ rather than people who make real contributions to the welfare of others” (“Paul Connelly”). This and similar entries ("Celebrity Culture") criticize celebrities for not contributing anything of real value which stands in stark contrast to the meritocracy of the hacker culture.

Similarly, several entries verbally attack “the powers that be”, e.g. “Unscrupulous, greedy, money and power seekers” (”Psychotic Opposition”). Some hackers make it a point to expose the deception and hypocrisy of politicians, for example by analyzing the rhetoric behind the Iraq War. In addition, a number of entries express outrage at social injustice, for example the lack of government help and support for war veterans, leading one hacker to write in frustration "SCREW THE FLAG and WIPE MY ASS WITH IT!" (“The Nightstalker”). These and other hackers see themselves as watchdogs, exposing secrets, injustices, and lies. These hackers are “mainly kids who've grown up with a joystick in their hands, who have rewired their brains to take in huge amounts of information at one shot, filter the crap and distractions, and make The Right Decision instantly. So there's one group who's interested in freedom and being left alone by Big Brother … members of the cyber-community who actively work to promote freedom on the Net and restrict the overarching influence of the inbred Kallikaks and Jukes' in the House and Senate” (“The Nightstalker”). A select few, are involved in hacktivism (i.e., hacking for political purposes), for example fighting for Chinese citizens’ right to access censored content online, regarding access to information as a basic human right and “using technology to improve human rights across electronic media” ("Oxblood Ruffin").

Hackers are described as curious and inquisitive who "want to learn, or want to satisfy their curiosity, that's why they get into the system. To search around inside of a place they've never been, to explore all the little nooks and crannies of a world so unlike the boring cesspool we live in” ("Dissident"). Some are drawn by the allure of being able to access any information anytime and anywhere. In the words of
one hacker: “The experience of being able to access so much human culture for free had a great impact on me. This process ignored the rules and regimentation of private property, and I saw it all first hand … I have always been addicted to this digital world. To me, it's not cold and dead here; it’s colourful and filled with content and communication and free stuff. It's my interface to the endless human cultural production” (“elliott.pank”). The fact the information is sometimes restricted, requiring break-ins through hacking only, makes it challenging, exciting, and appealing to some; “make it sexy, sweaty, and dangerous. That's what would get hackers interested” (“Oxblood Ruffin”).

As mentioned, it can be inferred from Figure 3 (due to the prominence of the Market culture type) that the hacker culture is very competitive. The competitive nature is displayed openly at hackathons, for example the “Linux Deathmatch”: “Here’s the basic idea: keep your Linux system responsive to network requests, and hack your opponents' systems to death. Which makes it, essentially, a demolition derby” (“Reid Fleming”). Their preoccupation with excelling at such events, shows that hackers are very aware of their own performance vis-à-vis other hackers. At the individual level, competition is also expressed in the battle between hackers producing ASCII art (text based visual art). The following quote is one hacker artist disssing another: “Lick my self-cleaning oven, you Hee Haw-watching-in-your-underwear, Froot Loops-spearig-with-your-penis, twelth-generation-West Virginian-product-of incestuous-bestiality-fiends non-person. I'm going to defrost my freezer with your WARM BLOOD!” (“S. Ratte”). The same competition is evident at the group level. There are plenty of examples of groups waging war against each other, for example: “We considered leaching well-known files and distributing them under the BSept name, writing ridiculous files and doing the same thing, and generally undermining the group's prestige” (“Franken Gibe”).

5. Discussion

In this paper we aim to describe the culture profile of the security cracker (hacker) community. On the one hand, our analysis confirms previous studies of the hacker culture showing that hackers are curious, playful, and rebellious [4,7,12,17,19,20,25,26,27]. On the other hand, it shows that the hacker culture is not one-dimensional but draws on values associated with all four culture archetypes (see Table 3).

<table>
<thead>
<tr>
<th>Table 3: Competing values of the hacker culture.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clan values</strong></td>
</tr>
<tr>
<td>The hacker culture is built on clan values; Experiments with technology are carried out in tightly knit groups, sharing a common counterculture identity. Each member contributes his part and is in turn supported by his cohorts. Decisions are reached through consensus about what serves the group's interests best.</td>
</tr>
</tbody>
</table>

From existing studies, Adhocracy is expected to dominate the culture with its focus on creativity, innovation, and risk-taking [4,7,8,19,20,28,32]. It does. Though this result (that the hacker culture is heavy on Adhocracy) may not be surprising, the competing values framework and our analysis offer both a vocabulary and the empirical evidence to describe the cultural richness of the hacker community. In fact, our analysis shows that hackers thrive in the face of danger and opposition, challenging conventional thinking. Importantly, there are supporting elements of Market culture as well. Competition is central to the culture. Through competition, hackers prove their worth, gaining respect, and reputation [5]. Both Adhocracy and Market have an external focus and from our analysis of the cDc communication it is evident that the hacker culture defines itself against the external environment (cf. the external focus in Figure 2), i.e., against the established rules and norms of society. This external focus is nevertheless surprising and paradoxical considering the secrecy of the hacker community. This outward-oriented behavior is linked to the competitive nature of the hacker culture, striving
for perfection (“mastery”) [24], which requires benchmarking and collaboration with others. This finding extends our existing knowledge by showing that hackers not only define themselves in opposition to the surrounding society but also against other hackers, which in turn suggests that hackers do not constitute a homogeneous group.

Despite its marginal influence, the Clan culture is evident in the sharing of a common identity. By talking about shared interests in deviant art (e.g. music) etc., verbally attacking “the powers that be”, criticizing today’s celebrity culture, and dising other “boy cultures”, the hacker culture establishes itself as a counterculture. This counterculture can be traced back to the early days of the computer revolution in the 1960s [29]. Within this counterculture, hackers work together in tightly knit groups toward common goals guided by elite hackers who have won the respect of others through their actions [11]. Likewise, hierarchy manifests itself not only in the culture being a meritocracy where respect and influence follow skills and accomplishments, but also in the fact that high quality standards guide their work and determine whether a product (release) is acceptable or not [5].

In summary, our analysis adds to the existing body of knowledge of the hacker culture by painting a more nuanced picture, describing it as a multidimensional culture. Researchers can use our study and our methodological approach as a source of inspiration when studying community cultures and countercultures. Policy makers may draw on our findings when discussing new copyright laws that leave room for further developing other people’s ideas and intellectual property [30]. Companies faced with hypercompetition, forcing them to reinvent themselves and explore new opportunities, can find inspiration in the hacker culture and learn from it. Thus, practitioners are urged to see the benefits in opening up to the organizational environment and embracing creative input by allowing ideas and products to be hacked. This challenges the current behavior of companies hiding between walled gardens of security and secrecy. This recommendation is in line with extant literature which provides several examples of companies collaborating with hackers, playing with technology, breaking the rules (i.e. breaking away from conventional thinking), striving for perfection, and making things better. For example, Koerner (2006) explains how LEGO collaborated with hackers and embraced the hacker mindset when creating LEGO Mindstorms while Flowers (2008) explores the impact of outlaw hacker communities on technology development [7]. This topic is addressed separately in a forthcoming publication.

To our knowledge, this is the first study to use the competing values framework for the analysis of a community culture. This study shows the usefulness of the text analysis technique used in assessing cultures based on what members communicate to each other. We demonstrate its value in understanding the culture of a hacker community—cDc—based on what members write in the ezine “Cult of the Dead Cow”. Practitioners and researchers alike may use the technique as an efficient and effective method for cultural analysis, focusing on written communication. We demonstrate the value in combining semi-automated text analyses with qualitative content analysis for the purpose of understanding the values and assumptions that are expressed in documents. Researchers and practitioners are advised to follow our example by (1) using the technique to establish an overall profile of the culture under investigation and (2) acquiring an in-depth understanding of the culture by reading through selected text passages espousing the underlying values and assumptions, guided by the word frequency distribution calculated by the technique. By way of example, we have also shown that the technique is helpful in understanding the creativity and innovativeness of organizations, communities, or other units of cultural analysis by zooming in on elements of Adhocracy and other cultural elements. Our study reveals that a creative and innovative culture is not only about fostering elements of Adhocracy, but may also draw on other culture archetypes.

A word of caution: The “hacker culture” concept is highly elusive. As highlighted in the theoretical background section, there are several hacker “scenes”, and the communication in the “Cult of the Dead Cow” is only representative of the security cracker (hacker) community. It is assumed that the people voicing their opinions on the cDc website and the people doing the hacking are the same or are at least culturally aligned. Additionally, there are a couple of limitations to this study worth mentioning. First, the research is constrained by the limitations of text analyses. An ethnographic study might yield additional insights. Second, we have only analyzed the content on one hacker website—though a prominent one. In the future, we plan to expand the study to include other websites. Third, this study only includes security crackers (target audience of cDc). In the future, we want to compare subcultures across scene groups in order to understand any potential differences. Fourth, although we have included 25 years of hacker communication in our analysis, we do not investigate whether the culture has changed over time. By doing a thematic analysis in which the year of publication is taken into account, it might be possible to discern trends and changes over time, for
example in response to events in the environment. In
the ezine, there are numerous examples of
commentaries on current politics, e.g. wars and
political struggles. We leave, however, this to future
studies.

6. Conclusion

In this paper, we have profiled and described the
hacker culture based on the analysis of 25 years of
communication on one of the oldest and most
renowned hacker websites. We have analyzed the
content of an ezine using a text analysis technique
developed by Müller and Nielsen (2013),
supplemented by qualitative content analysis. The
findings reveal that the hacker culture is a creative,
externally focused counterculture. It adds to the
existing body of knowledge by describing the
multidimensional nature of the hacker culture, drawing
on values from different culture archetypes. The paper
also contributes by demonstrating the value of semi-
automated quantitative text analysis complemented
with in-depth qualitative content analysis. It confirms
the efficiency and effectiveness of the technique
employed and shows how to interpret the resulting
culture profiles by identifying and reading text
passages associated with the keywords that the
technique uses as part of its software algorithm.

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