



Potential of Ethics as a Control for Software Piracy

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Abstract- *The growth in the computer industry in the last two decades has been accompanied by a tremendous increase in software piracy. Software developers and governments incur heavy due to piracy as it affects their revenue and reduces the incentive to develop new products and technologies. A wide range of strategies have been adopted by the software industry and governments to manage piracy, however, they have not been able to control the vice. This paper examines the potential of ethics as a control for software piracy. It highlights why users resort to piracy and examines the strategies to control it. The paper then examines the link between ethics, and behaviour. A case is made that software users who are well rooted in ethics are unlikely to engage in acts of piracy.*

Key words- *Ethics, Control, Piracy, Potential, Software, Strategies*

I. INTRODUCTION

The growth in the computer industry in the last two decades has been accompanied by a tremendous increase in software piracy [1]. Advances in information and communication technology (ICT) have not only resulted in increased availability of ICT-based products but also the capacity to copy or “pirate” such goods [2]. The term piracy refers to unauthorized reproduction, distribution, renting, purchasing or use of copyrighted software [3], [4]. Piracy targets proprietary applications and occurs every time the copyright agreement or a software license is violated. The vice is practiced by business organizations, institutions and individual computer users [5]. A survey carried out by Business Software Alliance [6] showed that software piracy levels dropped in North America, Latin America and Western Europe in 2011, however, the levels increased in Asia and Africa. The survey further revealed that use of pirated software decreased in most countries but the overall global piracy went up because of growth in demand for computer applications in India, China and Africa.

Piracy is a serious problem that has affected the software industry for years [3]. Software firms incur heavy losses due to piracy and this impact negatively on their revenue, growth and taxes paid to governments [7]. In 2003, Microsoft lost \$1.79 billion due to copyright violation in China alone [8]. A survey by Business Software Alliance [9] revealed that software piracy in Africa is double the global rate. The survey also revealed that 83% of software installed on personal computers in Eastern and Southern Africa, with a commercial value of US\$109 million was pirated. The global software piracy rate in 2013 was 43% and the commercial value of unlicensed software installations was \$62.7 billion [10]. Besides revenue, piracy leads to loss of millions of jobs and a reduction in resources that would otherwise be invested in developing the software industry. It also reduces the incentive to develop new products and technologies, and increases computer security risks and crime [11].

The nature of piracy makes it hard to control because it is a multifaceted problem [12]. Scholars like Chen, Chen and Yeh [13] consider piracy as a socio-economic problem which requires socio-economic solutions. Sollie [14] views piracy as a legal issue and asserts that the solution to piracy lies in legislation, law and enforcement. Haque, Rahman and Khatibi [15] consider piracy as a moral issue given that people unconsciously use moral ethics when making choices or judgment about their actions or those of others. Van de Hoven, and Wickert [16] are of the opinion that it is a moral problem and propose promotion of ethics as a solution.

II. CAUSES OF SOFTWARE PIRACY

Many attempts have been made by researchers to determine the factors behind software piracy [17] [18] [19]. Husted [20] established that culture, attitudes and low levels of economic development significantly influence piracy. BSA [10] observed that pirated software is more likely to exist in nations at lower stages of economic development. It attributed the high piracy levels in such countries to limited resources to spend on legitimate software and weak enforcement of patent and property laws. Mishra *et. al.* [5] and Lau [21] cited institutional weaknesses and high cost of software as the main causes of piracy at organizational level. Brina, Keith, Joseph and Thomas [22], Moores and Chang [12] identified low levels of education and income as reasons why individuals resort to piracy. Limayem, Khalif and Ghin [23] assert that many users resort to pirated software versions because they are far cheaper than the original ones. Nemrava [7] noted that cheap and readily available software are pirated as much as the most expensive ones and concluded that it is not price alone that drive people to piracy.

Research [24] reveals that many software users engage in piracy because they are not aware that unauthorized use of software is illegal under the intellectual property. In a study conducted in Turkey among information technology

professionals, Mishra *et al.* [5] observed that most of the respondents did not know that a policy pertaining to distribution of illegally acquired software existed at their workplaces. Moores and Chang's [12] noted that students in Hong Kong universities recognized software piracy as an infringement of intellectual property rights but still breached it. They concluded that awareness of the intellectual property rights was not a barrier to piracy.

Difficulty in understanding the concept of property and social acceptance of software piracy has also been identified as factors that influence the vice [25]. Siegfried [26] established that university students did not regard software as a product and felt that copying commercial software and downloading music from the internet were acceptable. Harrison [27] asserts that many people do not consider intangible assets such as ideas, songs or software as property. They regard only physical things like land, a car or an aircraft as property.

Researchers [1], [28] have established that consumers' attitudes and culture influence their responsibilities to a product and related copy right laws. Attitude is defined as the state of mind, feeling or disposition towards a person, event or object [26]. Moores and Chang [12] observed that attitudes influence decisions made when faced with the option of engaging or not engaging in piracy. Lau [21], Wang *et al* [4] assert that the casual attitudes of Asians towards software piracy as compared to Americans are rooted in their culture which emphasises the virtue of sharing. Other reasons advanced as causes of software piracy are; opportunity to engage in the vice [29], risk of penalty [30], previous behaviour [31] and moral factors [15]

III. STRATEGIES ADOPTED BY SOFTWARE VENDORS TO CONTROL PIRACY

In an attempt to protect intellectual property and compete effectively in the market, software developers in collaboration with government agencies have employed a number of strategies to counter piracy. The strategies include; awareness campaigns, legal measures, technology based software protection systems, open sourcing, dual licensing and ethics [32]. Awareness campaigns enable software users to differentiate between legal and counterfeit software [33]. The campaigns educate users about the copyright and intellectual property laws, the advantages of using legally acquired software and problems associated with pirated versions. Harrison [27] observed that those who are aware of the benefits of legal software and the problems associated with pirated versions are less prone to engage in the vice. Mishra *et al* [5] established that there was a negative correlation between awareness and software piracy. These observations are an indication that software users who are aware of copyright laws and intellectual property rights are less unlikely to practice piracy.

Governments and international bodies such as World Intellectual Property Organization have recognized software as a product and enacted copyright and intellectual property rights laws to govern production, distribution and use [27]. Anybody who breaches these laws is liable for punishment. A survey conducted by BSA [34] attributes the low software piracy rates in United States and Japan to comprehensive copyright laws and strict enforcement. BSA [10] attributes the high piracy levels in China and developing countries to weak copy right laws and enforcement mechanism.

Open source is among the strategies used by vendors as a mitigation against piracy. Open source refers to any software whose codes are made available for use or modification by developers and users [35]. Open source software is usually developed as a public collaboration and is freely available [7]. Those who use open source software are required to only pay for its special features, technical support services and training. Banerjee, Khalid and Sturm [36] noted that open sourcing leads to a reduction in the cost of software. Global surveys show that more people are moving to open source software [22]. However, there is a feeling from proprietary software companies that open source has provided an alternative legal avenue for piracy [37].

Sometimes, software developers market a single product under two license model as a strategy for reducing software piracy. The first license model imposes open source terms while in the second model, the licensors distribute software to licensees under proprietary terms [7]. This is what marketers refer to as dual licensing [38]. It is a way of putting a product in the hands of many by lowering its cost. Dual licensing allows the licensor to simultaneously leverage the advantages of both open source and proprietary licenses [39]. It is based on the assumption that making a product affordable discourages consumers from illegal activities such as piracy

The software industry also uses technology based strategies to protect its products against piracy. Vendors incorporate special features on proprietary software that makes it harder to copy, distribute or use without authority [7]. Examples of such technologies include; enterprise digital rights management (E-DRM), digital watermarking, code obfuscation, product activation and serial keys [40]. E-DRM controls access to documents created by an application with such features while digital watermarking facilitates tracking of the software purchaser. Obfuscation conceals program codes thus making it harder to analyze the program and understand how to remove protection against illegal use or copying [41]. An application with product activation can only function normally if it has been authenticated using a unique activation processor or serial key [42]. Although technological strategies have helped in reducing piracy, they have their draw backs. E-DRM requires a permanent local area network or internet connection while watermarking comes with added cost [14]. Product activation is a nightmare to those without internet connection since the product must be activated or reactivated during or after installation [43].

IV. ETHICS AND BEHAVIOUR

Ethics has been proposed as a control for software piracy by those who consider it as a moral problem [15], [4]. Ethics is a branch of philosophy that focuses on what is good for the individual and society, and ways of determining duties that people owe themselves and society [14]. Ethics is concerned with questions of what is right or wrong, good or bad and determining how people should behave [45]. Ethics demands fairness, honesty, trustworthiness, equity,

confidentiality, and respect to property rights [46]. Gerd [47] asserts that ethics helps people make acceptable choices among several alternative actions or make judgment about their own actions or those of others. Ethics is important to business organizations, professional bodies and individual members of society for it sets and puts in place mechanisms of enforcing standards of behaviour [32].

Business ethics is concerned with moral guidelines, good corporate governance, obligations and actions of employees of a firm, as well as the organization itself [48]. Ethics assists firms employees make moral judgments, have a sense of responsibility and accountability for their actions and those of others [49]. Business ethics also ensure that firms work only with partners that follow standards and business practices that are consistent with their values. Ethics is a necessity because businesses do not operate in a vacuum but in a social and natural environment [50]. By virtue of this, businesses are duty bound to account for the social and natural environment in which they operate. However, most businesses do not create environments which foster ethical behaviour. Reynolds [51] attributes this to the tendency of firms to use unethical practices to gain competitive advantage and practices perceived to be ethical are not the same around the world.

Professionals bodies also have detailed and enforceable ethical codes of conduct for their membership. For example, in the United States of America, the medical profession is guided by the American Medical Association code of conduct while in Britain, there is the Institute of Electrical Engineers (IEE) for electrical engineers and British Computer society for computer professionals [52]. The codes lay down standards of behaviour and support them thus ensuring quality services [32]. They stress the need for competence, professionalism, fairness and honesty [16]. Compliance with ethical codes assist member to uphold integrity and dignity of the professions. The codes also play a critical role in detection and prevention of misconduct by members and affiliate organizations, and meting punishment whenever they are breached.

V. ETHICS AND COMPUTING

A number of professional bodies have been developed codes of ethics for those in the computing industry such as systems analysts, software developers, programmers and database administrators. Examples of such bodies are; Association of Information Technology Professionals (USA), Australian Computer Society and Institute of Electric and Electronic Engineers [53]. These bodies analyse the social impact of computer technology and developed codes of behaviour for their members, and enforce them [46]. The codes emphasis competence, fairness and honesty, and touch on social issues such as responsibilities, information access rights, confidentiality, workplace monitoring, censorship and junk mail [54]. The codes also define computer contracting and cover legal issues such as data protection, computer misuse and software piracy [52]. Other topics discussed under the rubric of computer ethics are emerging issues such as hacking, values to promote via the internet and the digital divide [16].

Identifying ethical issues within the computing profession as well as dealing with them has been problematic [7]. Problems arise because of the complexity and diversity of activities involved in computing, and lack of solid ethical codes that can be monitored and enforced [55]. Ayres [52] argues that computer ethics alone cannot be a solution to a multifaceted challenge such as piracy as the codes focus only on professionals whereas the vice is practice by end users majority of who do not belong to any professional body. Ayres further argues that problems faced by computer professionals are no different from those which people encounter in their daily lives, whether they belong to a profession or not.

VI. POTENTIAL OF ETHICS AS A CONTROL FOR SOFTWARE PIRACY

As citizens of this world, we are bound by social contract to act within societal norms, and other institutions of the state [32]. The social contract expects more from professionals beyond those expected from individual members. Software users, like other members of society are expected to operate within the societal norms and laws of the state. They are not supposed to engage in illegal and unethical behaviour such as piracy. The high levels of piracy recorded in the recent years [10], [6], [34] are an indication that software users do not adhere to societal norms and breach patent laws and intellectual property rights.

Software users have easy access to both licensed and unlicensed software and operate in an environment with varied values, culture and ethical practices [22]. In such an environment, whether to use licensed software or not is a matter of choice. Making a choice is usually a challenge because it is not easy to classify piracy as "right" or "wrong" given the diversity of societal norms, culture and attitudes of software users [49]. Ethical skills make the process of choosing or making judgment easier. Ethics motivate individuals to think through their attitudes and beliefs and thus decide in advance whether their opinions are appropriate or not [55]. Ethics enhances the decision making capacity of professional and non professional software users as it encourages them to be guided by the codes of practice, societal norms and values [32]. Ethics reminds users of their moral obligations and provides the intrinsic drive to avoid what is not right. It also makes software users feel guilty whenever they fail to live by those obligations [44]. Ethics has the greatest potential as a control for piracy given that it equips software users with the ability of determine what is "right" and "wrong" and make acceptable choices. It thus makes the process of selecting not to engaging in piracy easier.

VII. CONCLUSION

Software piracy has grown to become the ugly face of the computing industry [6]. Literature has provided empirical evidence that people resort to piracy because of high prices of original software, lack of awareness of copyright laws, low incomes, and negative attitudes towards property [13]. Culture, level of education, law and mechanisms to

enforce them also influence piracy [4]. Literature further shows that a remarkable level of success has been achieved in reducing piracy through open sourcing, enactment and enforcement of anti-piracy laws, awareness campaigns, software protection and dual licensing among others [1]. The future piracy trends will depend on the foregoing measures, emerging technologies that make it hard to pirate software and the characteristics of new software users.

Controlling piracy is not going to be easy given that it is a multifaceted problem. The best defence against software piracy therefore lies neither in the physical and technological barriers nor stiffer penalties. The ideal strategy of preventing theft is not the presence of guards and electronic alarm systems but the fact that most people have no desire to steal. The best way of dealing with software piracy is to instill a similar mind frame in all players in the computing industry, particularly individual computer users who subscribe to no professional code of conduct. Sound moral education and ethical decisions by all the players in the computing industry will break down the reasons and excuses by which software pirates justify their actions. These interventions coupled with intellectual property rights awareness campaigns, comprehensive copyright laws and mechanisms to enforce them is the way forward.

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