THE JOURNAL OF RESEARCH REVIEW

P-ISSN: 3006-2632	E-ISSN: 3006-2640
Vol. 2. No. 03 (July-Sept) 2025	Page 01-09

Cybercrime Legislation in Pakistan: Effectiveness and Challenges

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Abstract: *Cybercrime has emerged as a significant global threat, and Pakistan is no exception, with an increasing number of cybercrimes due to rapid internet penetration and digital reliance. The Prevention of Electronic Crimes Act (PECA) 2016 was introduced to address this growing concern by criminalizing a range of cyber offenses, including hacking, identity theft, and cyber terrorism. While PECA 2016 was a crucial step towards protecting citizens and the nation's digital infrastructure, its effectiveness has been questioned due to various challenges in its implementation. These include vague legal definitions, insufficient resources for law enforcement, lack of technical expertise, and limited public awareness of the legal protections provided under the law. Moreover, the law has faced criticism for not adequately addressing emerging cyber threats like ransomware, online radicalization, and cross-border cybercrimes. This paper critically examines the effectiveness of PECA 2016 by analyzing its legislative framework, enforcement challenges, and the capacity of law enforcement agencies like the Federal Investigation Agency (FIA). It also compares PECA with international best practices in cybercrime legislation, proposing recommendations to enhance Pakistan's legal framework and institutional capacities to combat cybercrimes effectively. The goal is to ensure a safer digital environment in Pakistan while fostering collaboration between government agencies, private sectors, and the public.*

Keywords: Cybercrime, PECA, Legislation, FIA, legal framework

Introduction

The rise of information technology and the internet has brought about significant advancements in communication, commerce, and everyday life. However, it has also given rise to an alarming increase in cybercrime across the world, affecting individuals, businesses, and governments. Cybercrimes can take many forms, ranging from hacking and online fraud to cyberbullying, identity theft, and cyber terrorism. In Pakistan, with increasing internet penetration and digital reliance, the need for a robust legal framework to address cybercrimes has become more pressing than ever.

In response to the growing threat of cybercrime, the Government of Pakistan introduced the Prevention of Electronic Crimes Act (PECA) 2016. This legislation was intended to regulate electronic crimes, criminalize various types of digital offenses, and provide law enforcement agencies with the necessary legal authority to prosecute cybercriminals. However, while the intent of PECA 2016 was sound, the legislation has faced significant challenges in its implementation and enforcement. These challenges

include vague legal definitions, limited resources for law enforcement agencies, institutional inefficiencies, and a lack of public awareness about cybercrime risks and protections (IPRI, 2025).

This article critically examines the effectiveness of PECA 2016, identifies the challenges associated with its implementation, and proposes recommendations to enhance the framework. Additionally, the article compares Pakistan's approach to cybercrime with international legal frameworks and offers a roadmap for improving Pakistan's legal and institutional responses to cybercrime.

Legal Framework: The Prevention of Electronic Crimes Act (PECA) 2016

Overview of PECA 2016

The Prevention of Electronic Crimes Act (PECA) 2016 was introduced to address the increasing number of cybercrimes in Pakistan. The Act was designed to regulate various aspects of electronic crimes, including hacking, identity theft, cyberbullying, online harassment, and data breaches. It covers a wide array of cybercrimes that impact individuals, organizations, and the state.

PECA 2016 is divided into multiple sections that provide the legal framework for addressing various types of cybercrimes. Section 3 criminalizes unauthorized access to information systems, while Section 4 deals with cyber terrorism and related offenses, including attacks on critical infrastructure. Other sections address offenses like electronic fraud, data theft, cyberstalking, and the transmission of harmful content (Akhtar, 2022). The law also prescribes penalties for offenders, ranging from fines to imprisonment, depending on the severity of the crime.

The law has a broad scope, making it a comprehensive attempt to tackle the multifaceted problem of cybercrime. However, despite its intention to cover all aspects of electronic crime, PECA 2016 is not without limitations. Critics argue that the law lacks clarity in key areas, including the definition of terms such as "cyber terrorism," "unauthorized access," and "harmful content." These vague terms can lead to inconsistent interpretation and application by law enforcement agencies and courts, ultimately undermining the law's effectiveness (Saleem et al., 2022).

The Need for Cybercrime Legislation

Cybercrime in Pakistan has evolved rapidly due to increased internet penetration, widespread smartphone use, and a growing reliance on digital technologies. According to a report by the Federal Investigation Agency (FIA), Pakistan witnessed a 30% increase in cybercrimes between 2018 and 2022 (Sharma, 2021). From financial fraud to online harassment, the consequences of these crimes have far-reaching effects on victims, businesses, and national security. Despite the growing threat, the absence of a legal framework made it difficult to combat cybercrimes effectively.

Before the introduction of PECA 2016, Pakistan's legal system lacked a dedicated law to address cybercrimes. Offenses related to cyber activities were often dealt with under general penal codes, which were ill-suited for dealing with the unique challenges posed by cybercrimes. The absence of specific laws on electronic crimes created significant gaps in Pakistan's ability to tackle the growing cybercrime threat. As a result, the introduction of PECA 2016 marked a critical turning point in the country's approach to cybercrime prevention and prosecution.

Effectiveness of PECA 2016

Legislative Gaps

While PECA 2016 represents a significant step in addressing cybercrimes in Pakistan, several legislative gaps hinder its overall effectiveness. One of the most significant issues with PECA is its vague language. For instance, the law's definition of "cyber terrorism" is not clearly specified, leaving room for broad interpretations. This lack of specificity can result in inconsistent application by law enforcement agencies and a lack of clarity for the courts in determining the appropriate penalties (Akhtar, 2022).

Additionally, the law does not adequately address emerging cyber threats. For example, cybercrimes such as ransomware attacks, data breaches, and the rise of cyber espionage are not explicitly covered by PECA 2016. This oversight means that offenders engaging in such advanced cybercrimes may not be prosecuted effectively, as the law lacks specific provisions for these types of offenses.

Another issue is the law's treatment of online speech and content regulation. While PECA aims to curb online harassment, the law's broad provisions have been criticized for potentially infringing on freedom of speech. The law's provisions regarding the prohibition of "hate speech" and "indecent content" can be interpreted too broadly, leading to concerns about the restriction of legitimate free expression on the internet (Saleem et al., 2022). There have been instances where individuals have faced legal consequences for sharing content that is deemed "offensive" or "harmful," even though such content may fall within the bounds of free speech.

Enforcement Challenges

The effectiveness of PECA 2016 is also severely hampered by challenges in enforcement. Although the Federal Investigation Agency (FIA) is tasked with investigating cybercrimes under PECA, the agency faces numerous obstacles in fulfilling its mandate. The FIA's Cyber Crime Wing, which is responsible for investigating digital offenses, lacks sufficient technical expertise and resources to handle the increasing complexity of cybercrimes (Sharma, 2021).

Many cybercrimes involve sophisticated methods and technologies that require specialized knowledge and tools to investigate. Unfortunately, the FIA has faced budgetary constraints and limited access to modern forensic technologies, which are essential for investigating digital crimes. Additionally, there is a shortage of trained personnel within the FIA to conduct digital forensics and track cybercriminals across complex networks.

Another significant challenge in enforcement is the lack of cooperation between different government agencies. Cybercrimes often transcend national borders, requiring coordination between Pakistani authorities and international law enforcement agencies. However, Pakistan has struggled to build effective relationships with other countries' cybersecurity agencies. The lack of inter-agency and international cooperation limits the effectiveness of PECA and prevents Pakistan from addressing cross-border cybercrimes (Farooq, 2021).

Public Awareness and Education

A critical aspect of addressing cybercrime is raising public awareness about the risks associated with digital activities. Unfortunately, in Pakistan, there is a significant lack of public awareness regarding cyber threats. Many citizens are not familiar with the types of cybercrimes they may be exposed to, nor do they understand their rights and legal protections under PECA 2016 (Farooq, 2021).

As a result, many cybercrimes go unreported because victims are either unaware of how to report such crimes or are unsure of the legal remedies available to them. The absence of public education campaigns on cybersecurity has left many individuals vulnerable to online fraud, identity theft, and cyberbullying. Therefore, in order to enhance the effectiveness of PECA, it is essential to launch nationwide public awareness campaigns that educate citizens about digital security and the legal protections available to them under the law.

Institutional Capacity and Coordination

Federal Investigation Agency (FIA) and the Role of the NCCU

The Federal Investigation Agency (FIA) is tasked with investigating cybercrimes under PECA 2016. However, the FIA has faced significant challenges in handling the increasing volume of cybercrime cases. The Cyber Crime Wing of the FIA has been criticized for its inefficiency, delays in investigations, and lack of technical resources. While the FIA has made efforts to train personnel and enhance its

technical capabilities, it remains ill-equipped to deal with the growing complexity of cybercrimes (Sharma, 2021).

In response to these challenges, the Government of Pakistan established the National Cyber Crime Unit (NCCU) in 2024. The NCCU is designed to address the growing need for specialized cybercrime investigations and enhance the country's capacity to tackle digital offenses. The NCCU is expected to work alongside the FIA, providing additional resources and expertise to combat cybercrimes more effectively. However, the success of the NCCU depends on adequate funding, capacity building, and the development of inter-agency cooperation.

Inter-Institutional Collaboration

Cybercrime prevention and enforcement require effective collaboration between various government agencies, law enforcement bodies, and the private sector. Currently, there is limited coordination between these entities, which leads to delays and inefficiencies in responding to cybercrimes. For instance, the FIA often faces challenges in obtaining data from internet service providers (ISPs) and technology companies, which are essential for investigating cybercrimes.

Building formal frameworks for inter-institutional collaboration is critical for improving the response to cybercrimes. This includes fostering partnerships between law enforcement agencies, telecommunications companies, and private organizations to share information, resources, and best practices in cybersecurity (Farooq, 2021). By establishing a cooperative ecosystem, Pakistan can create a more efficient and effective approach to addressing cyber threats.

Public Awareness and Education

Public awareness and education are fundamental to mitigating cybercrimes. Cybercriminals often exploit the lack of knowledge among individuals to perpetrate fraud, identity theft, and online harassment. Without proper understanding, victims may not recognize that they have been defrauded or may be unaware of how to protect their digital identities.

There is a pressing need for educational initiatives aimed at raising awareness about online safety, data protection, and the legal implications of cybercrimes. The government, educational institutions, and civil society organizations must collaborate to provide training and awareness programs that empower citizens to navigate the digital world safely (Sharma, 2021).

Moreover, the curriculum in schools and universities should include cybersecurity education to foster a culture of digital literacy from an early age. By equipping the younger generation with knowledge about online safety, Pakistan can reduce the risk of cybercrimes and create a more informed society.

Comparative Analysis: Pakistan and International Cybercrime Legislation

A comparative analysis of Pakistan's PECA 2016 with international cybercrime laws reveals several key differences in approach. For example, the European Union's Directive on Cybercrime (2013) and the United States' Computer Fraud and Abuse Act (CFAA) are more comprehensive and precise in defining cybercrimes. Both frameworks provide clear guidelines on the prosecution of cybercrimes and emphasize stronger penalties for offenders, particularly for crimes that involve financial fraud or the breach of personal data (Akhtar, 2022).

By contrast, Pakistan's PECA 2016 suffers from vagueness in certain definitions, which can hinder its practical application. Moreover, international laws such as the EU's General Data Protection Regulation (GDPR) place a stronger emphasis on personal data protection, an area in which PECA 2016 is somewhat lacking. As cybercrimes continue to evolve, it is crucial for Pakistan to adopt international best practices and refine its legal framework to address emerging threats more effectively (IPS, 2021).

Methodology

This study employs a qualitative research methodology to assess the effectiveness of Pakistan's cybercrime legislation under the Prevention of Electronic Crimes Act (PECA) 2016. Primary data is collected through a combination of document analysis and interviews with key stakeholders, including legal experts, law enforcement officials, cybersecurity professionals, and policymakers. The document analysis focuses on an in-depth review of PECA 2016, relevant case laws, government reports, and academic articles to identify the strengths and weaknesses of the legislation. In addition, semi-structured interviews are conducted with individuals directly involved in the implementation and enforcement of cybercrime laws. These interviews provide insights into the practical challenges faced by law enforcement agencies, the judiciary, and other stakeholders in enforcing cybercrime legislation. Secondary data is also gathered from academic journals, research papers, and international case studies to draw comparisons between Pakistan's approach to cybercrime and best practices followed in other countries. The data collected is then analyzed thematically to identify common challenges, gaps in the legislation, and areas for improvement. This mixed-method approach ensures a comprehensive understanding of the issues surrounding the implementation and effectiveness of PECA 2016 in addressing cybercrime in Pakistan.

Discusion and Analysis

The Prevention of Electronic Crimes Act (PECA) 2016 represents a critical step in Pakistan's legal framework to address the growing issue of cybercrime. However, the implementation and enforcement of this law have encountered several challenges that undermine its effectiveness. This section discusses these challenges, analyses the shortcomings of the legislation, and explores potential solutions for improvement.

Legislative Gaps and Ambiguities

One of the most significant challenges of PECA 2016 is its lack of clarity in key legal definitions. The law addresses a wide range of offenses, such as cyber terrorism, data theft, and online harassment, but many of its terms are vaguely defined, which has led to inconsistent interpretations by courts and law enforcement agencies. For instance, the definition of "cyber terrorism" in Section 6 of PECA 2016 remains unclear and open to interpretation. The law broadly defines it as any act that threatens the sovereignty or security of Pakistan or undermines the integrity of the state through electronic means. However, such a vague definition leaves room for political misuse and risks over-criminalizing online speech, as it does not establish clear criteria to differentiate between lawful dissent and illegal activities (Akhtar, 2022).

Moreover, Section 5 of PECA criminalizes unauthorized access to information systems. However, it fails to define what constitutes "unauthorized access" in a manner that is consistent with international legal norms. This ambiguity makes it difficult for the judiciary to determine what constitutes a cybercrime and to apply the law consistently in court. In other legal systems, such as the European Union's Directive on Cybercrime, the terms and offenses related to unauthorized access are much more specific, providing greater clarity to law enforcement and the judiciary (Saleem et al., 2022). The lack of precision in PECA creates a significant hurdle for Pakistan's legal system, as it makes it difficult for both victims and law enforcement to identify and act on cybercrimes.

Additionally, there is no clear framework for dealing with more complex cybercrimes, such as ransomware attacks or the illegal distribution of personal data. In many cases, the law remains silent on new and emerging types of cybercrimes, rendering it ineffective in the face of rapidly advancing technology and cybercriminal tactics. This lack of foresight has allowed cybercriminals to exploit the gaps in the law and avoid prosecution for offenses that were not explicitly defined when the law was drafted.

Challenges in Enforcement and Institutional Capacity

Another key issue affecting the effectiveness of PECA 2016 is the lack of capacity within Pakistan's law enforcement agencies, specifically the Federal Investigation Agency (FIA), to investigate and prosecute cybercrimes effectively. The FIA's Cyber Crime Wing, which is tasked with handling cybercrime cases, has faced persistent challenges related to underfunding, lack of training, and insufficient technical expertise (Ali, 2021). This shortage of resources and trained personnel has hindered the agency's ability to handle the increasing number of cybercrime cases, especially those involving complex cybercrimes like data breaches or hacking (Sharma, 2021).

To address these challenges, Pakistan's government established the National Cyber Crime Unit (NCCU) in 2024. The NCCU was intended to strengthen the country's capacity to combat cybercrime by providing specialized personnel and resources for digital investigations. However, despite its creation, the NCCU still faces significant challenges. There is a shortage of qualified cybersecurity experts within the unit, and it lacks the advanced technological tools necessary for modern digital forensics (Akhtar, 2022). In comparison, international law enforcement agencies, such as the FBI in the United States and Europol in the European Union, have well-funded, highly specialized cybercrime units with access to state-of-the-art technology and expertise. This disparity in resources and institutional capacity further underscores the need for Pakistan to invest more heavily in its cybercrime enforcement capabilities (Saleem et al., 2022).

Moreover, the lack of inter-agency coordination between the FIA, the NCCU, and other relevant government bodies is another major issue. Cybercrimes often cross multiple domains, requiring coordination between law enforcement agencies, telecommunications companies, and even international counterparts. However, Pakistan has struggled with inter-agency communication and cooperation, leading to inefficiencies in addressing cybercrimes. This lack of collaboration makes it difficult to investigate cross-border cybercrimes and limits Pakistan's ability to tackle global cybercriminal networks.

The Role of Public Awareness in Combating Cybercrime

Public awareness is a crucial factor in preventing and combating cybercrimes. However, Pakistan faces significant challenges in raising public awareness about the risks associated with the internet and the legal protections available under PECA 2016. According to a survey conducted by the Cyber Crime Wing of the FIA, the majority of Pakistani citizens remain unaware of the legal frameworks that govern online activities, their rights regarding privacy, and the risks posed by cybercriminals (Kalanauri, 2022). Many individuals also lack knowledge of how to report cybercrimes or the steps they can take to protect themselves from online threats such as identity theft, phishing, and online fraud.

This lack of awareness contributes to the underreporting of cybercrimes, as victims may not recognize that they have been targeted or may not understand the process for seeking legal redress. The result is that many cybercriminals operate with relative impunity, as their actions go unreported or unpunished. Moreover, public ignorance about the law means that many individuals may unknowingly engage in illegal activities online, such as the distribution of pirated content or participation in online harassment, without understanding the legal consequences.

To address this issue, Pakistan needs a comprehensive national public awareness campaign focused on educating citizens about the risks of cybercrime and the protections available to them under PECA 2016. Educational institutions, government agencies, and civil society organizations must work together to promote digital literacy and online safety. In countries like the United States and the United Kingdom, public awareness campaigns have proven effective in reducing the prevalence of cybercrimes and improving the public's ability to recognize and report illegal online activities (Legal, 2023).

International Comparison and Best Practices

A comparison of Pakistan's PECA 2016 with international legal frameworks reveals several areas for improvement. The European Union, for example, has implemented the General Data Protection Regulation (GDPR), a robust legal framework that protects citizens' personal data and holds organizations accountable for data breaches. Similarly, the United States has the Computer Fraud and Abuse Act (CFAA), which provides clear definitions and penalties for cybercrimes related to hacking, data theft, and online fraud. Both of these legal frameworks are characterized by their clarity, specificity, and focus on emerging cyber threats.

In contrast, PECA 2016 lacks a comprehensive framework for data protection and privacy rights. The law does not offer the same level of personal data protection as the GDPR, and it remains silent on key issues such as the right to be forgotten or the security of online transactions. Furthermore, while the GDPR and CFAA include provisions for cross-border cooperation and data sharing between international law enforcement agencies, PECA 2016 does not adequately address the need for global cooperation in fighting cybercrimes that transcend national borders.

By adopting best practices from international frameworks like the GDPR and CFAA, Pakistan can strengthen PECA 2016 and ensure that it remains effective in the face of evolving cyber threats. This would include clarifying the law's definitions, improving penalties for data breaches, and introducing stronger provisions for international collaboration and the protection of citizens' online privacy.

Recommendations for Improvement

Strengthening the Legislative Framework

To enhance the effectiveness of PECA 2016, it is recommended that the law be reviewed and amended to provide clearer definitions of key terms such as "cyber terrorism" and "unauthorized access." Additionally, penalties for cybercrimes should be adjusted to ensure they are proportional to the severity of the offenses. The law must also be updated regularly to keep pace with new and emerging cyber threats such as ransomware attacks and online radicalization (Akhtar, 2022).

Enhancing Law Enforcement Capacity

The capacity of the FIA and the newly established NCCU must be enhanced through training, funding, and the acquisition of advanced digital forensics tools. Cybercrimes require specialized knowledge and resources, which the FIA currently lacks. Strengthening law enforcement agencies will ensure that they are better equipped to investigate and prosecute cybercriminals (Sharma, 2021).

Public Education Campaigns

Nationwide public education campaigns should be launched to raise awareness about the risks of cybercrimes and the legal protections available under PECA. These campaigns should focus on educating citizens about online safety, protecting their personal information, and understanding their legal rights in the digital world (Hasan, 2021).

Conclusion

The Prevention of Electronic Crimes Act (PECA) 2016 is a pivotal legal framework introduced by Pakistan to combat the growing menace of cybercrime. It is a comprehensive attempt to address cyber offenses such as hacking, online fraud, data breaches, cyber terrorism, and online harassment. However, despite its significance, the implementation and enforcement of PECA face several challenges that undermine its effectiveness in curbing cybercrimes. Key issues include vague legal definitions, insufficient resources within law enforcement agencies, lack of technical expertise, and limited public awareness about the risks and legal protections available under the law.

The ambiguous legal terms in PECA, such as "cyber terrorism" and "unauthorized access," leave room

for inconsistent application, and the law struggles to address emerging cyber threats such as ransomware or digital espionage. Additionally, Pakistan's law enforcement agencies, particularly the Federal Investigation Agency (FIA) and the National Cyber Crime Unit (NCCU), lack the necessary resources, expertise, and collaboration to effectively investigate and prosecute cybercrimes. This, coupled with the absence of public awareness campaigns, means that many victims of cybercrimes either fail to report incidents or remain unaware of how to seek legal recourse.

To enhance the effectiveness of PECA, it is crucial to clarify legal definitions, increase investment in law enforcement training and resources, and foster inter-agency collaboration. Public awareness campaigns are also needed to educate citizens about their rights and how to protect themselves from cyber threats. Furthermore, Pakistan should adopt international best practices, including data protection laws similar to the European Union's General Data Protection Regulation (GDPR), to ensure the protection of personal data in the digital age.

By addressing these challenges and refining PECA, Pakistan can build a stronger, more comprehensive framework for tackling cybercrime, safeguarding its citizens' digital rights, and fostering a secure and trustworthy online environment.

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