

A Study on National Cyber Security

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ABSTRACT

Cybersecurity has become a complex and fastmoving security challenge in the age of Information Communication and Technology (ICT). As the dependence on ICT is deepening across the globe, cyberthreats appear likely to penetrate every nook and corner of national economies and infrastructure; indeed, the growing dependence on computers and Internet- based networking has been accompanied by increased cyberattack incidents around the world, targeting individuals, businesses, and governments. Meanwhile, ICT is increasingly being seen by some governments as both a strategic asset to be exploited for the purposes of national security and as a battlefield where strategic conflicts can be fought The objective of the study is to To build a secure and resilient cyberspace for citizens, businesses and Government. To create an assurance framework for design of security policies and for promotion and enabling actions for compliance to global security standards and best practices by way of conformity assessment. To strengthen the Regulatory framework for ensuring a Secure Cyberspace ecosystem. The independent variables are age, gender. ,occupation. The dependent variables are performance metrics does the government have for the strategy in cyber terrorism. Does the criminal law adequately address offenses committed online. The total no of responses are 200. This paper examines the primacy of cybersecurity in the contemporary security debate, deepening the analysis by looking at the domain of cybersecurity from the perspective of India.

KEYWORDS: Cyber security, Cyber Space, Human Rights, National threat, Terrorism.

I. INTRODUCTION:

The concept of security is a core concept in the study of international relations. Traditionally,

and until relatively recently, security analysis focused on state security, viewing it as a function of the levels of threats which states face from other states, as well as the manner and effectiveness of state responses to such threats. However, after the end of the Cold War, scholars shifted focus from the state-centric notion of security, enlarging the concept to include the protection of the individual.("Cyber Security Objectives" 2012) At approximately the same time, the nature of threats changed from external aggression to intra-state conflicts arising due to civil wars, environmental degradation, economic deprivation, and human rights violation. It is in this context that national security came to include within its ambit other issues of security apart from territorial protection, such as poverty, industrial competitiveness, educational crises, environmental hazards, drug and human trafficking, and resource shortages(Lobato, n.d.). Finally, recent Information, the Communication and Technology (ICT) revolution — including the Internet, email, social websites, and satellite communications - has revolutionised every aspect of human life, posing new challenges to national security. Indeed, in the digital age, the arena of national security is confronted with previously unfamiliar threats aimed at destroying a state's technology infrastructure. It is an obvious truism that, in the globalized world, the Internet and ICTs are essential for economic and social development, forming a vital digital infrastructure upon which societies, economies, and governments rely to perform their essential functions. The relatively open nature of the Internet guarantees that it is, on numerous levels, an unsafe environment.(Lobato, n.d.; Shinde 2021) As such, cybersecurity has come to encompass a wide range of issues such as critical infrastructure protection, cyberterrorism, cyberthreats, privacy issues, cybercrime, and cyberwarfare.In the second decade of the twenty-first century, cyberthreats are evolving and increasing at a fast pace. They are still



initiated by criminal actors but also come from new sources, such as foreign states and political groups, and may have motivations other than money making. These latter may include some types of "hacktivism" in the name of a political cause. political destabilisation, cyberespionage, sabotage (e.g., Stuxnet), and even military operations (Lobato, n.d.; Shinde 2021; Graham, Olson, and Howard 2016). The sophistication of cybercriminals, the emergence of cyberespionage, as well as the well-publicised activities of hacker collectives have combined to create the impression that cyberattacks are becoming more organised and that the degree of sophistication has increased significantly, showing clear signs of professionalisation.(Lobato, n.d.; Shinde 2021: Graham, Olson, and Howard 2016; Shukla and Agrawal 2020). The main aim of the research paper is to discuss about the cyber terrorism and its impact in India.

II. OBJECTIVES OF THE STUDY:

The objectives of the present study are as follows 1)To build a secure and resilient cyberspace for citizens, businesses and Government.

2)To create an assurance framework for design of security policies and for promotion and enabling actions for compliance to global security standards and best practices by way of conformity assessment.

3)To strengthen the Regulatory framework for ensuring a Secure Cyberspace ecosystem.

4)To prevent and respond to cyber threats, reduce vulnerabilities and minimize damage from cyber incidents through a combination of institutional structure.

III. REVIEW OF LITERATURE:

Network outages, computer viruses, data conceded by hackers, and other incidents affect our lives in ways that range from troublesome to lifethreatening, as most government and financial institutions, military groups, corporations, hospitals, and other businesses store and process an abundant deal of confidential information on computers.(Ambika, Ambika, and Senthilvel 2020) Thus, with the increasing volume and sophistication of cyberattacks, there is an increased need to protect personal information and sensitive business as well as to safeguard national security. Accordingly, the term "cybersecurity" refers to the collection of tools, policies, guidelines, training, actions, security concepts and safeguards, risk management approaches, assurance, and technologies that can be used to secure and protect the cyber environment as well as organisation and

user assets(Ambika, Ambika, and Senthilvel 2020; "Cyber Victimization of Women and Cyber Laws in India," n.d.).In addition, cybersecurity aims to secure information technology and focuses on protecting computer programs, networks, and data, along with preventing access to information by unauthorised users as well as preventing unintended change or intended/unintended destruction(Ambika, Ambika, and Senthilvel 2020; "Cyber Victimization of Women and Cyber Laws in India," n.d.; Gupta and Rao 2007).Furthermore, cybersecurity plays a vital role in the ongoing development of information technology and Internet services. In the process, state security and countries' economic well-being have become increasingly reliant upon the successful protection of critical information infrastructures. Consequently, in many countries, making the Internet as safe as possible is now integral to the development of government policy as well as new services. The rest of this article examines the extent to which India has, to date, successfully dealt with this emergent challenge. In the Indian context, the issue of cybersecurity has received relatively little attention from policymakers, to the extent that the government has been unable to tackle the country's growing needs for a robust cybersecurity apparatus(Dasgupta 2009). In short, India lacks effective offensive and defensive cybersecurity capabilities, exacerbated by the lack of access to mechanisms vital to confronting sophisticated malware like Stuxnet, Flame, and Black shades. Moreover, cybersecurity projects and initiatives in India are far fewer in number as compared to other developed nations. Many of the relevant projects proposed by the Indian government have remained on paper only(Dasgupta 2009; Patil 2021). In addition, approved projects like the National Critical Information Infrastructure Protection Centre (NCIPC) and National Cyber Coordination Centre (NCCC) of India have failed so far to materialize. Worse, the 2013 National Cyber Security Policy of India has failed to bear fruitful results, as its implementation seems to be weak in numerous aspects, including privacy violation in general and intrusion into civil liberties in particular(Dasgupta 2009; Patil 2021; Sharma 2017). The IT sector in India has emerged as one of the most significant catalysts for the country's economic growth, and as an integral part of the country's business and governance. The sector is positively influencing the lives of Indian citizens through direct or indirect contribution to the improvement of several socioeconomic parameters, such as the standard of living, employment, and diversity. In addition, IT



has played a key role in transforming India into a global player in providing business services as well as world-class technology solutions(Dasgupta 2009: Patil 2021: Sharma 2017: Ariely 2007) .At the same time, the growth of the IT sphere has been accompanied by a tremendous and increasing need to secure the computing environment, as well as the necessity to build adequate confidence and trust in this sector . For example, most financial institutions as well as the banking industry have incorporated IT in their operations, opening up countless opportunities for growth while at the same time making these institutions vulnerable to cyberattacks in their daily activities and making the evident absence of strategies to deal with these types of threats particularly worrisom. Securing the energy sector has emerged as a critical non-traditional security issue for India. The country ranks fourth in the world in terms of primary energy consumption; at the same time, the average level of consumption per capita is very low(Cohen 2014) .Due to insufficient regulation of information sharing and incomplete institutions to facilitate it, information on cyberattacks and equipment vulnerabilities in the Indian energy sector is nearly nonexistent(Cohen 2014: Elliott 2002). But we can suppose from trends in international cybersecurity that the sector is increasingly targeted by the sophisticated attacks, particularly as India has embarked on linking it with modern technologies in order to meet growing energy needs Indeed, with the advent of new technologies in this sector, several challenges began to appear on the scene(Cohen 2014; Elliott 2002; Ullah 2017). For instance, after India's nuclear test in May 1998, a group of hackers posted anti-India and anti-nuclear messages on the website of Bhabha Atomic Research Center (BARC) In addition, an online hacker called Phr OzenMyst hacked the official website of BARC and leaked some of its sensitive information; the attack was meant as a protest against ongoing government operations in the occupied part of Kashmir .Furthermore, the critical infrastructure supporting every economic activity in India is fully dependent on the power sector; the dependence of this sector on ICT has highlighted cybersecurity challenges(Clarke several and Knake 2010). It is estimated that the period from 1994 to 2004 witnessed around 60 percent of all cyberattacks on the automatic power grids in India More recently, on July 30 and 31 2012, northern India witnessed a severe blackout that affected nearly 670 million people's normal life and work ,damaging all services in the region, including road traffic and railways. Chaos broke out on the roads as traffic lights and systems that supported them

stopped working, with the police unable to cope with the situation(Clarke and Knake 2010; Jarmon and Yannakogeorgos 2018). Simultaneously, there were reports of devastating fires and explosions in major refineries, with extensive damage and loss of life, all while pipelines were ruptured and oil flow was disrupted India has an extensive defence industrial base and maintains the third-largest armed forces in the world(Richards 2014) .At the same time, it has linked its defence sector with the new technologies, in the process opening the country up to a set of ever-evolving threats due to a dependence on these technologies and the reliance on integrating networks. For instance, in 2012 a cyberattack was launched by hackers against the Indian Navy's eastern command computer systems which oversee the testing of India's ballistic missile submarines and maritime activities in the South China Sea(Richards 2014; "Cyber Security Threat Actors" 2016). The naval computers were infected by a virus that secretly collected confidential documents and files and transmitted them to Chinese IP addresses.While Indian officials have vet to disclose the type of information that was targeted in this attack the Navy is not the only Indian defence institution to have faced such adverse events — the National Security Agency (NSA) and the Air Force have proved to be vulnerable as well. In 2010 the hackers targeted the NSA's office as well as several computers of the Indian Air Force, opening up numerous small windows through which classified files and documents were stolen (Stratton 2009). In the same year, the country witnessed the biggest cyberattack yet, in which more than 10,000 email addresses of the top government officials were hacked, particularly military officials, the Prime Minister's Office (PMO), defence. home ministries, external affairs, and intelligence agencies.

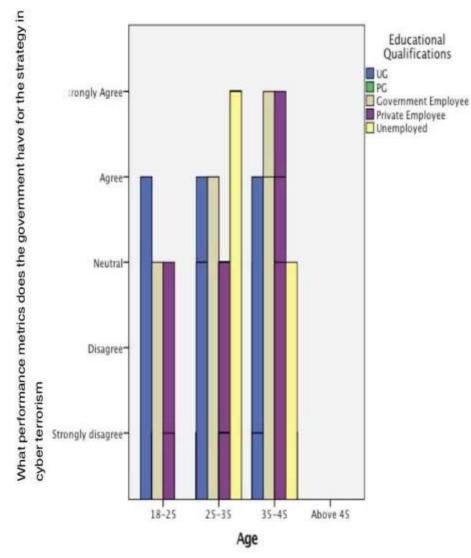
IV. MATERIALS AND METHODS:

The present research is based on empirical study and this research is made in Analytical and descriptive form in a science that the issues have been resolved into Elements and the structure of the issues has been described and classified. This is widely used in social research and also in legal research form. The source of Information is from the primary sources which are gathered as a result of survey Questions and by reference of certain books and other such journal articles. In a Random Method about 200 samples were collected for this survey. The sampling method was a random sampling method. The independent variables are



based on the sample's Age, Gender, Qualification and Occupation. The dependent variables are based on the questions: 1.What performance metrics does the government have for the strategy in cyber terrorism. 2. Does the criminal law adequately address offenses committed online?

4.1. ANALYSIS AND DISCUSSION: FIGURE:1



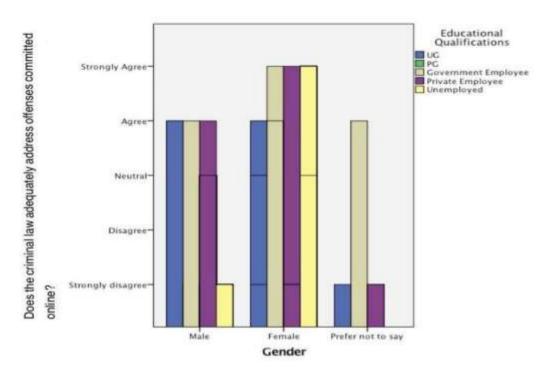
LEGEND:

The figure 1 defines the relation between age and educational qualification of the respondent across

Chennai and their opinion on performance of the government for the strategy in cyber terrorism.



FIGURE :2

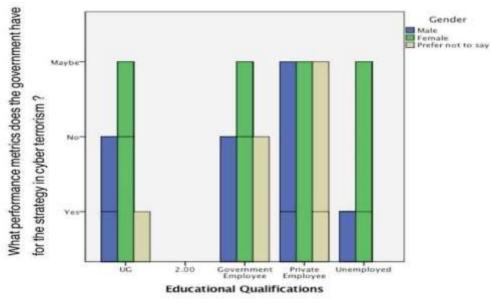


Legend:

The figure 2 represents the bar chart of gender and educational qualification across Chennai and their

opinion on criminal law adequately address offences committed online.

FIGURE:3

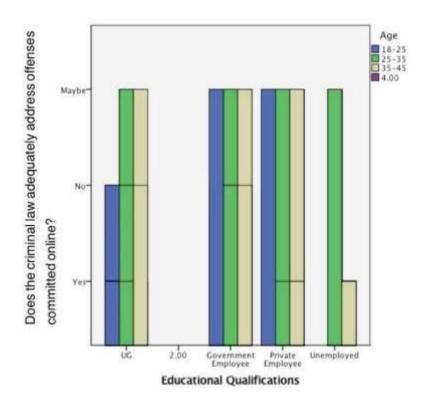




Legend:

The figure 3 represents the bar graph of education qualifications based on gender in performance of the government for the strategy in cyber terrorism.

FIGURE: 4



Legend:

The figure 4 represents the analysis of educational qualification with age of the respondents for the criminal law adequately address offences committed in online.

V. **RESULTS**:

Figure 1: From the figure, it is revealed that age has a very vital influence on public response regarding performance of the government in making strategy of cyber terrorism. From the result it is clearly seen that age of the person on the basis of their educational qualification shows their opinion varies from one to another.

Figure 2: From the figure, it is found that there is a significant change between independent and dependent variables.Because criminal law adequately addresses the offences even committed online . In the case of gender with the educational qualification female opinion varies from male respondents, it shows that women's respondents' opinion given high interest over male respondents.

Figure 3: From the figure , it is revealed that educational qualification has a very important role in public opinion on the performance of the government in making strategies on national security threats. From the gender of the respondents there is significant change in opinion. Figure 4: From the figure, it is found that relation between dependent and independent variables. The age with educational qualification shows the significance of the respondents on their opinion. And the opinion of the respondents in government and private employees are similar to each other.

VI. DISCUSSION:

In fig. 1 on an average people in the age category of 25-35 and 35-45 had given their opinion as strongly agreed as performance of the government in making strategy in cyber terrorism.In fig.2 on an average, respondents from gender with educational qualifications categorised as others and belonging to females have stated that there is greater effectiveness, this may be due to the



reason that people from that category are aware about the conditions of this provision. In fig.3 respondents had given highest respondents and its is to be the prominent opinion over males opinion. This may be due to awareness of the situation in practical aspects. In fig.4 with analysis of educational qualification with age in the category of government and private employees are similar and opinions are given equal based on educational matters.

VII. LIMITATION OF THE STUDY:

The research is done using empirical research methods through e-survey due to COVID-19 restrictions. The restrictive area of the sample size is the major drawback. The physical factors are not impactful and are not a major factor limiting the study as the present study is with online response. Moreover, the sample frame is also a limitation. The sample frame is Chennai which is having no specific reference.

VIII. SUGGESTIONS:

Conclusions When a country develops its cyber security strategies at national or federal level, it is a very difficult question what issues are covered by the specific strategy, how and in what form it is intended to address cyber-challenges. In accordance with the above-mentioned difficulties it to take into account is necessary the recommendations made by the international organizations, which can serve as a basis for building a country's national cyber security strategy and its key regulatory issues. This enables the possibility that, although the countries at national level form a cyber security strategy, they can still be in line with each other, with the same philosophical background, and thus more or less independent of the strategic ideas that are in the same direction from the interests and values of the given country.

IX. CONCLUSION:

As the preceding pages make clear, cyberattacks targeting critical information infrastructures in India, such as energy, financial services, defence, and telecommunications, have the potential of adversely impacting upon the nation's economy and public safety. From the perspective of national security, the securing of the critical information infrastructure has become a top priority, in line with policies already adopted by other digital nations. Indeed, the ever-growing interdependence of the digital sphere, across borders, has provoked the emergence of cybersecurity as a major component of national

security strategies in states across the globe ; India should not delay in following their example.

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