

Cyber Security – Issues & Challenges in Digital India

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Abstract - Indian economy is becoming digital and cashless economy due to digital India and other initiatives taken by the Government of India and technological advancements taking place and covid pandemic happening around the world are pressurizing Indian economy to move towards digitalization. Indian digital population is rapidly growing and touched 560 million internet users in 2020 and it is the second largest internet user base in the world. Indian internet users are accessing internet not just for communicating or web browsing but also for making payments, purchasing of goods or services, online education etc.,. Government of India is taking initiatives to digitalize the entire economy including health sector and MSME sector. As digital population is growing significantly and the various activities taking place on internet is expanding, Indian economy is exposed to various cyber security threats and vulnerabilities. Cyber security breaches and crimes that are taking place in India are almost doubling every year over last five years and Ransomware attackers are targeting different industries in India such as financial services, pharmaceutical, automotive services, professional and consumer services etc.,. During the Covid pandemic Cyber Crimes have increased at very high rate and the loss that is going to be caused by these crimes are very high. Detection, prevention, protection from Cyber Crimes & punishment of cyber attackers is very difficult and challenging.

The research article focusses on the growth of cyber security breaches in relation to digital population growth in India. It also focusses on various cyber security threats and vulnerability issues and challenges that internet users are facing and various measures to be taken to ensure a secured and protected cyber space for India.

Key words- *Digital Population; Cyber Security; Cyber Threats and Vulnerabilities; Cyber Crimes*

INTRODUCTION

The way of human interaction with each other is drastically changing in recent days due to technological developments happening in the world. Man is using internet for every aspect of his life and he can communicate and transact with another person

in any corner of the world with in a fraction of seconds. Along with Physical and Psychological appearance, his social appearance or presence on digital platforms are getting greater importance. Now a days, internet is used not just for communication but for doing many transactions ranging from web searching to the doing financial transactions. Almost each and every human activity is happening on the cyber space and recorded on internet in one or the other way.

Even in India digital population is growing at very faster rate and Indian economy is becoming digital due to digital India and other initiatives. Internet user base in India is magnificently increased due to covid pandemic. As the presence on cyber space is increasing and the activities performed on internet is expanding, we are exposing to various cyber security threats and vulnerabilities. So to protect our digital population from Cyber Crimes and to provide a secured digital future, it is necessary to develop a strong and reliable cyber security system which prevents and protects from various Cyber Crimes.

Cyber Crime means an illegal or criminal activity which uses computer network as means to commit frauds or data theft or disruption to hardware or software etc.,. As the usage of internet is rapidly increasing it is creating room for various cyber frauds and crimes. The cyber attackers are acting intelligently than before on the digital platforms. They are using various advanced technology and methods to commit frauds on internet. Today's Cyber Crimes are not just restricted to loss of information or money. Cyber attackers are stealing the national secrets and creating threats for national security. Hence, it should be the top priority of any nation to develop a strong system to defend these crimes.

Cyber security means defending and protecting of networks, devices, data and resources from malicious attacks, disruption and unauthorized access. Strong and reliable cyber security system brings confidence among the internet users and creates conducive environment for digitalization of Indian Economy.

REVIEW OF LITERATURE

Cyber Security Infrastructure in India: A Study by M M Chaturvedi, MP Gupta and Jaijit Bhattacharya (2009) states that, as investment in ICT infrastructure is growing, the cyber Crimes also growing and creating vulnerability in the country. These vulnerabilities can cause short and long term setback to Indian economy. Operational arrangements should be made to minimize these vulnerabilities

A study of cyber security challenges and its emerging trends on latest technologies by G. Nikhita Reddy and G.J.Ugander Reddy (2019) says that, in this digital era it's not only the question of how to secure the information and infrastructure from Cyber Crimes, it is also the question of what modern and advanced technologies required to secure the cyber space is the matter of greater importance. Frequent up gradation and advancement of required technologies plays a pivotal role in cyber security.

An empirical study on cyber security threats and attacks by R. Sri devi and Dr. M. Mohankumar (2019) suggests that, Cyber Crimes are getting bigger and affecting the people, hardware, software and networks and attackers are stealing the critical information and national secretes. So, Cyber Crimes can affect the stability of a nation. Hence, it is necessary to have effective cyber security system which prevents and protects from Cyber Crimes.

Cyber Crime and Cyber Security by Soumya Satish Revankar (2017) says that, the highest cybercrime in India was reported in Maharashtra and Uttar Pradesh. The lowest reported was Madhya Pradesh. The key to

protect our self from Cyber Attacks is be aware act smart in the cyber space by Inserting firewalls, Uninstalling unnecessary software using secure connection etc.,

STATEMENT OF THE PROBLEM

As the digital population of the country is constantly increasing and Government of India is encouraging for cashless transactions. All government schemes are delivered to the beneficiaries through online platforms. Increased usage of internet is exposing to various security threats and vulnerabilities.

OBJECTIVES OF THE STUDY

- 1) To know the growth trend of Cyber Attacks in India.
- 2) To analyses the issues and challenges of Cyber Security in India.
- 3) To suggest the various measures to ensure the Cyber Security.

RESEARCH METHODOLOGY

The research has been undertaken by using the secondary data collected from various websites and official data released by the government of India. Data so collected will be analyzed using multiple bar diagrams and valid inferences will be drawn.

LIMITATIONS OF THE STUDY

The outcome of this research is dependent on accuracy of data collected from various sources. So results of this study cannot be generalized.

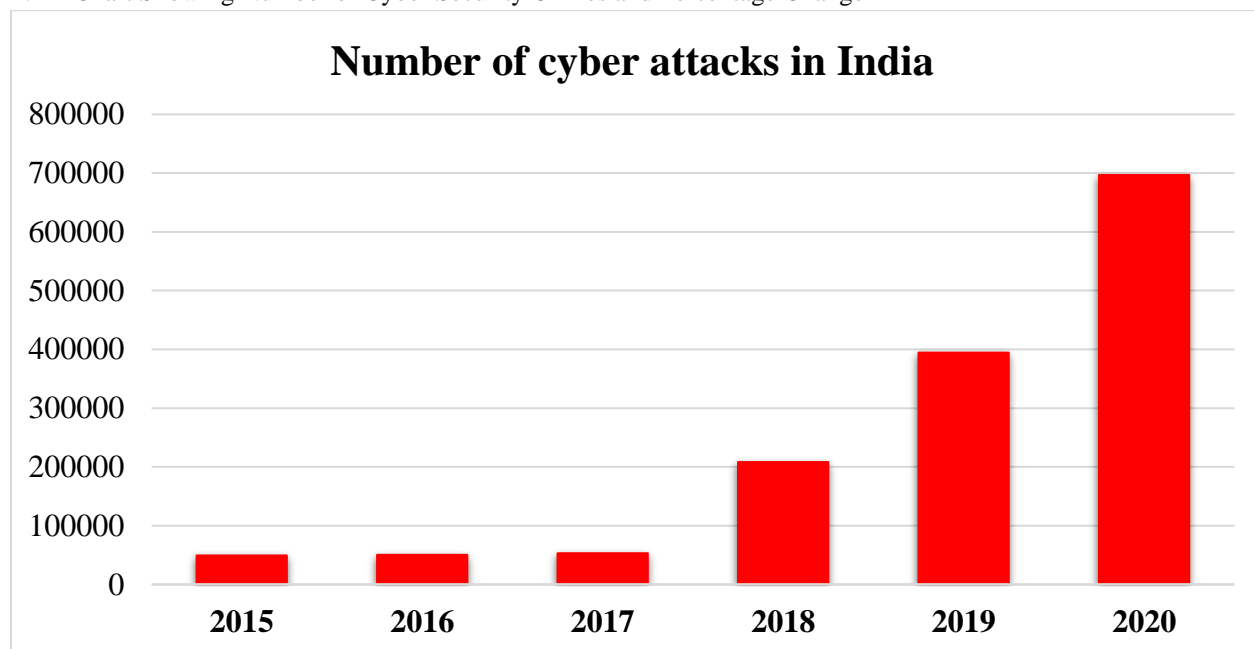
ANALYSIS AND INTERPRETATION

1.1 Table Showing Number of Cyber Security Crimes and Percentage Change

Sl. No.	Year	Number of Cyber Attacks	Percentage
1	2015	49455	
2	2016	50362	1.83
3	2017	53117	5.47
4	2018	208456	292.45
5	2019	394499	89.25
6	2020	696938	76.66

Source: Official data released by Government of India (CERT – In)

1.2 Chart Showing Number of Cyber Security Crimes and Percentage Change



Analysis

From the above table and chart it is clear that Cyber Security issues in India are increasing year by year. In the year 2018 cyber security cases are increased drastically in India reached from 53117 to 208456 cases. After that Cyber Security issues are growing every year. 394499 cases were reported in the year 2019 and 696938 cases were reported in 2020.

Findings

The above analysis shows that Cyber Security breaches are increasing day by day in India. As the digital population is growing cyber security vulnerability issues also growing day by day. Government of India should take initiatives to ensure security of the digital users against the cyber security attacks.

1.3 Table Showing percentage of users attacked with ransomware out of all users encountering malware

Country	2018	Country	2019	Country	2020
Afghanistan	30.64%	Afghanistan	26.44%	Afghanistan	15.29%
Pakistan	20.99%	Bangladesh	23.15%	Papua New Guinea	14.51%
Iran	17.69%	Pakistan	19.07%	Bangladesh	14.20%
Bangladesh	15.24%	Iran	15.45%	Pakistan	13.63%
Ethiopia	14.65%	Papua New Guinea	15.20%	Solomon Islands	9.80%
Suriname	9.28%	Mozambique	12.02%	Iran	9.29%
Papua New Guinea	8.49%	Turkmenistan	11.27%	Virgin Islands	7.46%
Saint Lucia	8.33%	Uzbekistan	10.50%	Yemen	6.58%
Somalia	8.11%	Ethiopia	8.59%	Montenegro	6.18%
Uzbekistan	7.97%	Tajikistan	8.08%	Turkmenistan	5.89%

Source: Data released by Kaspersky Networks

Analysis

Above table shows the top ten countries which are encountered by ransomware attacks in the world in the year 2018 to 2020. All the three years almost same countries are facing the problem of highest maximum attacks. Afghanistan is the top country which has maximum ransomware attacks in all the three years.

Findings

From the above table and analysis it is known that, still ransomware attacks are the major cyber security threats to the world. Many countries are facing this ransomware problems to the maximum attack. Hence, measures should be taken to avoid these cyber security breaches.

CONCLUSION

As the digital population of India is rapidly growing our vulnerability of cyber security is also growing. Increased cyber security attacks can create short term and long term set back to the nation. Mitigating these Cyber Security issues is greatest challenge for the modern computerized and technology enabled society. The width and depth of Cyber Crimes are expanding in terms its volume, intensity and scope. Effective measures and security systems should be developed to detect, prevent Cyber Crimes and protect from the Cyber Crimes. Awareness should be created among the people to take safety measures while using internet and acting on digital platforms.

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