International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 9 Issue 2, Mar-Apr 2025 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Cybersecurity in the Legal Industry

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ABSTRACT

Cybersecurity is the protection of systems and information connected to the Internet. It refers to the measures taken to protect systems, networks, and data from digital attacks. Cybersecurity breaches for law firms are like others in the industry. Hackers are increasingly targeting law firms because they can become a one-stop shop for a variety of sensitive documents and a gold mine of information. With cyber-attacks ranking as the fifth highest risk, the need for cybersecurity measures in law firms has become imperative. Cybersecurity and data protection play a significant role in the legal profession. They have become a critical aspect of the legal profession since lawyers are bound by various laws and regulations that mandate the protection of their client data. Cybersecurity in the legal sector is no longer a dispensable luxury but an indispensable necessity. This paper aims to explore the complex landscape of cybersecurity in the legal industry.

***KEYWORDS:** security, cybersecurity, law, legal industry*

How to cite this paper: Matthew N. O. Sadiku | Paul A. Adekunte | Janet O. Sadiku "Cybersecurity in the Legal Industry" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-9 | Issue-2, April 2025, pp.861-872, URL: www.ijtsrd.com/papers/ijtsrd78616.pdf

IJTSRD78616

INTRODUCTION

In an era dominated by digital advancements, many legal practices have embraced technology to streamline operations, enhance efficiency, and facilitate better communication. However, with the increasing reliance on digital platforms comes the heightened risk of cyber threats. In the era of digital transformation, the legal profession is not immune to the challenges and opportunities that come with it. Cybersecurity remains a top concern in the legal profession. Lawyers are entrusted with sensitive information, making them prime targets for cyber threats. They must take steps to protect their own security and privacy, as well as that of their clients. Maintaining a strong cybersecurity posture is crucial for safeguarding the legal professional reputation.

Hackers often target law firms due to the wealth of valuable information they possess, ranging from personal client details to sensitive case strategies. A successful cyber-attack can not only compromise the privacy of clients but also erode the trust and credibility of the legal profession as a whole.

OVERVIEW ON CYBERSECURITY

Cybersecurity refers to a set of technologies and practices designed to protect networks and information from damage or unauthorized access. It is vital because governments, companies, and military organizations collect, process, and store a lot of data. As shown in Figure 1, cybersecurity involves multiple issues related to people, process, and technology [2]. Figure 2 shows different components of cybersecurity [3].

A typical cyber attack is an attempt by adversaries or cybercriminals to gain access to and modify their target's computer system or network. Cybercriminals or ethical hackers are modern-day digital warriors, possessing extraordinary skills and knowledge to breach even the most impregnable systems. A typical cybercriminal is shown on Figure 3 [4]. Cyber attacks are becoming more frequent, sophisticated, dangerous, and destructive. They are threatening the operation of businesses, banks, companies, and government networks. They vary from illegal crime of individual citizen (hacking) to actions of groups (terrorists) [5].

Cybersecurity is a dynamic, interdisciplinary field involving information systems, computer science, and criminology. The security objectives have been availability, authentication, confidentiality, nonrepudiation, and integrity. A security incident is an act that threatens the confidentiality, integrity, or availability of information assets and systems [6]. These are known as the pillars of information assurance.

- *Availability*: This refers to availability of information and ensuring that authorized parties can access the information when needed. Attacks targeting availability of service generally leads to denial of service.
- *Authenticity*: This ensures that the identity of an individual user or system is the identity claimed. This usually involves using username and password to validate the identity of the user. It may also take the form of what you have such as a driver's license, an RSA token, or a smart card.
- *Integrity*: Data integrity means information is authentic and complete. This assures that data, devices, and processes are free from tampering. Data should be free from injection, deletion, or corruption. When integrity is targeted, nonrepudiation is also affected.
- *Confidentiality*: Confidentiality ensures that measures are taken to prevent sensitive information from reaching the wrong persons. Data secrecy is important especially for privacy-sensitive data such as user personal information and meter readings.
- *Nonrepudiation*: This is an assurance of the responsibility to an action. The source should not be able to deny having sent a message, while the destination should not deny having received it. This security objective is essential for accountability and liability.

Good practices for cybersecurity in construction companies should include all of these elements.

Everybody is at risk for a cyber attack. Cyber attacks vary from illegal crime of individual citizen (hacking) to actions of groups (terrorists). The following are typical examples of cyber attacks or threats [7]:

- *Malware*: This is a malicious software or code that includes traditional computer viruses, computer worms, and Trojan horse programs. Malware can infiltrate your network through the Internet, downloads, attachments, email, social media, and other platforms. Spyware is a type of malware that collects information without the victim's knowledge.
- *Phishing*: Criminals trick victims into handing over their personal information such as online passwords, social security number, and credit card numbers.
- *Denial-of-Service Attacks*: These are designed to make a network resource unavailable to its intended users. These can prevent the user from accessing email, websites, online accounts or other services.
- *Social Engineering Attacks*: A cyber criminal attempts to trick users to disclose sensitive information. A social engineer aims to convince a user through impersonation to disclose secrets such as passwords, card numbers, or social security number.
- *Man-In-the-Middle Attack*: This is a cyber attack where a malicious attacker secretly inserts him/herself into a conversation between two parties who believe they are directly communicating with each other. A common example of man-in-the-middle attacks is eavesdropping. The goal of such an attack is to steal personal information.

These and other cyber attacks or threats are shown in Figure 4 [8]. Sources of cyber threats are displayed in Figure 5 [9].

The social and financial importance of cybersecurity is increasingly being recognized by businesses, organizations, and governments. Cybersecurity involves reducing the risk of cyber attacks. Cyber risks should be managed proactively by the management. Cybersecurity technologies such as firewalls are widely available [10]. Cybersecurity is the joint responsibility of all relevant stakeholders including government, business, infrastructure owners, and users. Cybersecurity experts have shown that passwords are highly vulnerable to cyber threats, compromising personal data, credit card records, and even social security numbers. Governments and international organizations play a key role in cybersecurity issues. Securing the cyberspace is of high priority to the US Department of Homeland Security (DHS). Vendors that offer mobile security solutions include Zimperium, MobileIron Skycure, Lookout, and Wandera.

CYBERSECURITY IN THE LEGAL INDUSTRY

Law firms regularly handle substantial funds and sensitive information. This makes them attractive targets for cyber criminals who engage in social engineering, 'man-in-the-middle' cybercrimes or seek ransoms to prevent the release of confidential information. Legal firms face various cyber threats, including data breaches, ransomware attacks, phishing attempts, insider threats and compromises of vendor data, breach and defacement of websites, social engineering attacks, misconfigured cloud services, and data interception. These breaches bring the risk of unauthorized access, exposure, or theft of sensitive client information. They disrupt regular work, causing financial and reputational harm. A breach can result in the loss of client trust, financial penalties, and even legal repercussions for failing to protect client data [11]. Figure 6 shows the top five cyber threats to law firms [12].

Data breaches are not always the result of external attacks; they can also occur due to insider threats, where employees intentionally or unintentionally compromise the security of the firm's data. Cybercriminals might exploit vulnerabilities in a firm's network, gain access through phishing attacks, or even leverage weak passwords to infiltrate systems. Preventing data breaches requires a proactive approach to cybersecurity. In view of this, the technological competency of lawyers has assumed great importance. It is not just a practical necessity but also an ethical duty. Cybersecurity aims to safeguard against unauthorized access, use, disclosure, disruption, modification, or destruction of information. Effective cybersecurity measures are essential for building trust with clients [13].

Legal cybersecurity refers to the strategies, practices, and technologies put in place to protect the data and information systems of legal entities against cyberattacks. It includes securing confidential client files, preventing data breaches, and ensuring compliance with industry rules. Cybersecurity for law firms is necessary to protect the company's information. Figure 7 shows a symbol for legal cybersecurity [14]. A greater part of cybersecurity for law firms stores their data in the cloud; however, this demands very tight security measures. Figure 8 shows best cybersecurity practices for the law firms [12]. Data protection ensures that personal data are secure, while cybersecurity is broad and enjoins all forms of information, be it sensitive commercial data or private data. Cybersecurity also incorporates data storage, transmission, and retention with security measures as the data is in a state of motion either on a server or hard disk.

Best practices for cybersecurity in the legal sector [15]:

- *Regular Training:* Conduct cybersecurity training for all staff members to raise awareness about potential threats, phishing scams, and best practices
- *Update software and Systems*: Keep all software, including operating systems and legal software applications, up-to-date with the latest security patches. Regularly update and patch systems to address vulnerabilities and reduce the risk of exploitation by cybercriminals.
- *Risk Management:* IT infrastructure and networks should be regularly audited to identify and mitigate specific risks and weaknesses in the cybersecurity posture, and the impact of those threats on business operations.
- *Data Encryption:* Ensure that all sensitive data, including client information, legal documents, and communications, are encrypted.
- *Access Controls & Authentication:* Implement strong access controls and authentication mechanisms to restrict access to sensitive legal information.
- *Backup and Disaster Recovery:* Implement a robust backup and disaster recovery plan to ensure the availability and integrity of legal data in case of a cyberattack or data loss. Regularly test backups to confirm their reliability and establish procedures for quick recovery in the event of a security incident.
- *Incident Response Plan*: Develop and regularly update an incident response plan that outlines the steps to be taken in case of a cybersecurity incident. This includes identifying and containing the breach, notifying affected parties, and implementing measures to prevent future incidents.

COMBATING CYBERSECURITY IN THE LEGAL INDUSTRY

Parallel to the rise of cybersecurity, the concept of data protection began to take shape. Data protection refers to the practices, safeguards, and binding rules put in place to protect personal data. In the legal context, data protection focuses on the secure collection, storage, and processing of personal data while respecting individuals' rights. It involves implementing policies and procedures to protect personal data from unauthorized access, use, or sharing without proper consent. Data protection holds significant importance for lawyers because legal professionals have legal obligations to protect client data. By implementing robust data protection measures, we can assure clients that their personal data is treated with the utmost care and confidentiality. Any data breach or non-compliance with data protection laws can have severe repercussions, including reputational damage [16].

To combat ever-intensifying cybersecurity threats, there are various types of security defenses that law firms can employ to protect their data and systems. These include the following [17,18]:

1. *Routine Risk Assessments*: A law firm's IT department should conduct ongoing security risk assessments, vulnerability scans, penetration tests, and system and network monitoring to protect against and detect suspicious activity and potential data breaches. Firms must revise their security frameworks and lay down stringent security protocols to ensure the protection of client data and confidentiality. Regular security audits, vulnerability assessments, and employee training are also essential components of a robust cybersecurity strategy.
2. *Defend the Network Perimeter:* This involves routinely monitoring and testing security controls. Firms should employ secure configurations and ongoing security patch management for operating systems, applications and network devices, as well as monitoring for cybersecurity risk alerts.
3. *Restrict Access to Data*: Strictly control employees' access to confidential and sensitive information. Employees should only be given the minimum level of access in order to perform the requirements of their respective duty.
4. *Manage Passwords and User Privileges:* Review users' password and privileges policies. A strong password consists of at least 12 to 14 characters. Additionally, the password should include a combination of letters, numbers, and symbols. Law firms should implement the use of multi-factor authentication where feasible and appropriate.
5. *Backup System*: Develop a reliable backup strategy where the firm's data can easily be recovered in order to maintain business continuity. All backups should be stored offline and encrypted with a user-defined encryption key, whether on site, off site or stored in the cloud.
6. *Conduct Security Awareness Training for Employees*: Provide training and education to employees so that they are aware of the law firm's security protocols and responsibility to protect a client's sensitive, confidential information. Law firms should conduct regular employee training and awareness programs to educate employees about security best practices, phishing guidelines, data policies, and procedures. They should provide mandatory cybersecurity awareness training to all users at least once a year. Regular training sessions ensure that attorneys and staff know how to identify phishing emails and scam attempts and report suspicious activity to IT personnel. Foster a culture where cybersecurity is everyone's responsibility. Encourage reporting of suspicious activities without fear of reprisal.
7. *Use Encryption for Transmitting Sensitive Data:* Encryption is the process of changing information in such a way as to make it unreadable by anyone except those possessing special knowledge that allows them to change the information back to its original, readable form. Use data encryption to protect data both at rest (stored data) and in transit (data being transmitted over networks).
8. *Third-Party Vendor Management*: Third-party vendors are one of the biggest security threats to any organization. Therefore, law firms should vet every vendor who works with the firm to ensure they exercise the same security protection as your firm. Law firms should carefully review vendor agreements for issues regarding indemnification, cyber liability insurance, and time periods for providing notice of vendor's "incident" or "breach."
9. *Establish an Incident Response Plan and Team:* Create and implement an incident response plan (IRP) and team (IRT) to be prepared to quickly contain, assess, and respond to a data security incident. Law firms should have a cross-organizational IRT in place, which includes not only management, but legal, human resources, procurement, finance, and IT to develop and implement a plan for detecting and managing a breach.
10. *Purchase a Standalone Cyber Liability Insurance Policy*: Examine all insurance policies in place for cyber coverage and consider purchasing a standalone cyber liability policy to cover first and third-party losses.
11. *Robust Technology Policies:* Clear and documented policies on technology use and security are the primary cybersecurity considerations for law firms. These policies provide a framework for managing technology-related risks. Clear and documented policies on technology use and security help law firms to mitigate risks, protect sensitive client data, ensure compliance with regulations, and guide employee behavior.
12. *Use of Firewall:* Firewalls are a primary tool your company can use to prevent malicious actors from accessing your systems. If you work from home or share a physical office with other lawyers in a different firm, then you should have a firewall and use the firewall to separate your networks

into separate virtual local area networks (vLAN). A firewall is a device or program that controls the flow of network traffic between two networks or a device and a network that employ differing security posture.

CYBERSECURITY ATTORNEY

Recent surveys reveal that one of the top concerns for general counsel at private companies is cybersecurity. There is a need to build a cybersecurity practice within a law firm. It is in the company's strong interest to see the discipline of cybersecurity law develop and mature. The cybersecurity attorney must have a strong role within the company. They attorney must be a part of the operational team and needs a firm understanding of privacy law. A cybersecurity attorney must establish a strong base in foundational cybersecurity statutes in order to contribute effectively to the company's operations. An effective cybersecurity attorney has to be in the trenches, helping to develop the statements of work for new contracts, negotiating information-sharing agreements, advising on legal risks associated with the many and varied daily decisions of securing networks, and managing the hour-by-hour response during an incident. The attorney must be a key player in responding to cybersecurity incidents. Figure 9 illustrates a cybersecurity attorney [18].

In addition, a cybersecurity attorney must also be aware of emerging legislation. The attorney should be able to help the company build relationships with key government agencies. The attorney must be multilingual in the jargon of both law and tech. One of the key jobs of such an attorney is to translate legal requirements (such as obligations imposed by regulations) into design requirements and to understand the technical details enough to ask probing questions, spot legal issues, and translate risks to organizational leadership. Much of the cybersecurity attorney's responsibility will involve decisions around avoiding, mitigating or accepting risk [19].

Modern cybersecurity experts must be well-versed in their understanding of privacy law and cyber law, which are actually two distinct branches of legal studies. Cyber law tends to be more concerned with broader rules and regulations related to the use of web-enabled devices. Privacy law, on the other hand, is more focused on a person's rights regarding the collection, storing, and sharing of their information. Cyber laws are the laws that provide legal protection to Internet users against a multitude of complexities and legal issues emerging every now and then. In addition to cyber laws at the federal level, it is also worth noting that 47 states have passed their own specific cybersecurity laws—with topics ranging from data privacy to breach notification.

BENEFITS

The impact of security breach is too large and too deep to allow any slip with respect to security preparedness. The consequences of data breach are severe. It includes financial losses, damage to reputation, legal liabilities, and loss of client trust. Law firm data security should be a top priority for any legal practice because clients trust you with their most confidential information. Data security failures can also have incredibly negative consequences for your clients. Cybersecurity has therefore become an essential part of legal practice management. Other benefits of cybersecurity include the following [20,21]:

- *Cloud Storage:* A common type of cloud service is cloud storage. Using a cloud service (as opposed to storing data on your own server or hard drive) may be an ideal security option for small-firm practitioners. Cloud storage is a simple way to store, access, and share data over the Internet. In other words, it is a method of storing data electronically so that the data is accessible anytime, from anywhere. When you use a cloud-storage service, instead of using your computer's hard drive or a networked server that you have to maintain, you pay a company to store that data on its servers. Provided you are selecting a vendor with adequate security practices, cloud storage is an excellent way to improve your efficiency and ensure that you are protecting files from inadvertent destruction.
- *Restricting Remote Access:* One of the appealing features of cloud services is that you can access your data from anywhere with an Internet connection. Cloud services also make it easy to collaborate with your co-workers and share files externally. Because cloud services make it easier for you to access data from anywhere, it also becomes easier for a third party to access your data from their own device. Although the ability to access information from anywhere gives you greater flexibility, it may cause you to expose client information.
- *Requiring Two-Factor Authentication:* One security strategy is protecting the login process with two-factor authentication. This requires two or more methods of verification before access is permitted. No matter how strong your password is, it can still be hacked. Adding two-factor authentication—which requires your password (the first factor) and a temporary code sent to another device (the second factor)—makes it that

much more difficult for someone to access your device. In other words, two-factor authentication means you have to (1) enter your password, and (2) verify your identify by doing something like answering a secret question, or entering a code that is texted to your phone.

- *Limiting BYOD at Work:* Besides your own devices, if you have employees you also need to consider what devices they are bringing to work, and what devices they are using to review or access firm data. Your employment agreement should set out guidelines for staff.
- *Updating Software:* Out-of-date software is a hacker's dream. Keep the installation of your software and your operating systems really up to date. In essence, you are patching up possible security gaps in your software each time you update it. This decreases the chances of compromise of your information. Whether you are using a computer that runs Windows, Apple, or even Android, you can set your computer to allow for automatic updating, generally overnight.
- *Educating Your Clients*: Clients can still leave your firm vulnerable to cyberattacks despite your best efforts. Therefore, it is vital that you educate your clients on the latest trends and digital threats facing the legal industry. Notifying your clients about phishing attempts, ransomware, and other looming cyer threats can keep them from falling victim to hackers' deceptive attempts to steal their data.
- *Legal Obligations:* Non-compliance with these regulations not only exposes law firms to legal consequences but also undermines the reputation and credibility of the entire legal profession. Cybersecurity measures, therefore, become imperative to ensure compliance with regulatory standards and legal obligations.
- *Fraud:* Cyber laws are there to protect consumers from online frauds. They exist to prevent online crimes including credit card theft and identity theft. A person who commits such thefts stands to face federal and state criminal charges.
- *Copyright*: Copyright is a legal area that defends the rights of an entity be it an individual and/or a company to profit from their creative work. Individuals and companies both need copyright laws to prevent copyright infringement and enforce copyright protection.
- *Maintaining Operational Continuity*: Cybersecurity is not just about preventing unauthorized access; it also plays a crucial role in maintaining operational continuity. Ransomware attacks, for example, can paralyze law firms by encrypting essential data and demanding hefty ransoms for its release. Investing in cybersecurity measures, including regular backups and recovery plans, is essential to ensure that legal professionals can continue their work uninterrupted in the face of potential cyber threats.
- *24/7/365 Monitoring*: While up-to-date anti-virus and anti-malware software and firewalls are critical to security, they will not stop every threat. These protections must be supplemented with 24/7/365 monitoring of your entire system to identify unusual activity that could indicate an attack has occurred or is underway. Round-the-clock monitoring must be accompanied by a breach response plan to ensure rapid response to thwart potential attacks and limit any damage.

CHALLENGES

A lack of technological competency poses great cyber risks to data breaches and misuse. Working in cybersecurity law will require specialized education. Sometimes, companies have a poor cyber defense posture due to a lack of substantive knowledge about cybersecurity. Small firms are not immune to cyber attacks and are particularly at risk of impersonation fraud and business email compromise. Other challenges include [22]:

- *Skills Gap:* Cybersecurity law professionals are in high demand. From security analysts to pen testers, the need for employees trained and qualified in this field far outstrips the current supply. This skills gap includes people who hold a cybersecurity law degree. A common route to a job in cybersecurity law is to obtain a J.D.(Doctor of Jurisprudence) and pass the state bar exam. The need to understand and adhere to new and changing laws and regulations creates a thriving market for cybersecurity legal expertise.
- *Reputation:* For law firms, it is not just about the quality of legal services provided; it is about the trust and confidence clients place in them to handle sensitive information and navigate complex legal matters. Cyberattacks or breaches of client data can significantly tarnish a firm’s reputation, leading to loss of clients, legal liabilities, and financial losses..
- *Regulation Compliance:* Legal firms are subject to various regulatory requirements. Cybersecurity regulation compliance is crucial to business success. It is a critical concern for law firms in today's digital landscape. Law firms are prime

targets for cyber-attacks as highly sensitive client information custodian. A cybersecurity attorney needs to understand the regulatory landscape. Various regulations, like the General Data Protection Regulation (GDPR) in the EU and state-specific laws in the US, mandate strict data security measures. Regular updates, training, and compliance checks are crucial to safeguarding the sensitive information that is the bedrock of the legal profession.

- *Government:* In cybersecurity, companies must expect to engage with government. This is inevitable. A cybersecurity attorney must understand the delineation of each government agency's authorities. Government lawyers often seek to negotiate novel public-private arrangements that benefit both the company and the larger ecosystem.
- *Ethical Concern:* Be aware of your ethical and legal obligations, including ABA Ethics Opinions and state data protection laws. As an entity that collects, manages, stores, and interacts with confidential information, your law firm has a moral, ethical, and legal responsibility to its clients. Specifically, you must proactively work to maintain the security and integrity of sensitive data.

CONCLUSION

Cyberattacks have unfortunately become part of the environment for businesses and other organizations. Since law firms handle large volumes of sensitive data, the cybersecurity risk is significantly more present than ever. The importance of cybersecurity and data protection in the legal profession cannot be overstated. The journey towards robust cybersecurity and data protection is ongoing, evolving with technological advancements and emerging threats. The practice of cybersecurity law is still very much in the early stages. Law firms' cybersecurity environment is expected to undergo continuous change as cyber threats are anticipated to emerge.

Prioritizing cybersecurity can provide a competitive edge for a law firm. In today's digital age, clients are increasingly concerned about the security of their personal information. By adhering to strict data protection practices, we can attract clients who value privacy and data security, setting ourselves apart from competitors in the legal industry. As a legal practitioner, your goal should not only be to respond to a cyberattack, but also to actively prepare for one. By taking proactive steps, you can significantly reduce the risk of a cyberattack and ensure that your data remains secure. More information on cybersecurity in the legal practice can be found in the books in [23-32] and the following related journal: *Law Society Journal.*

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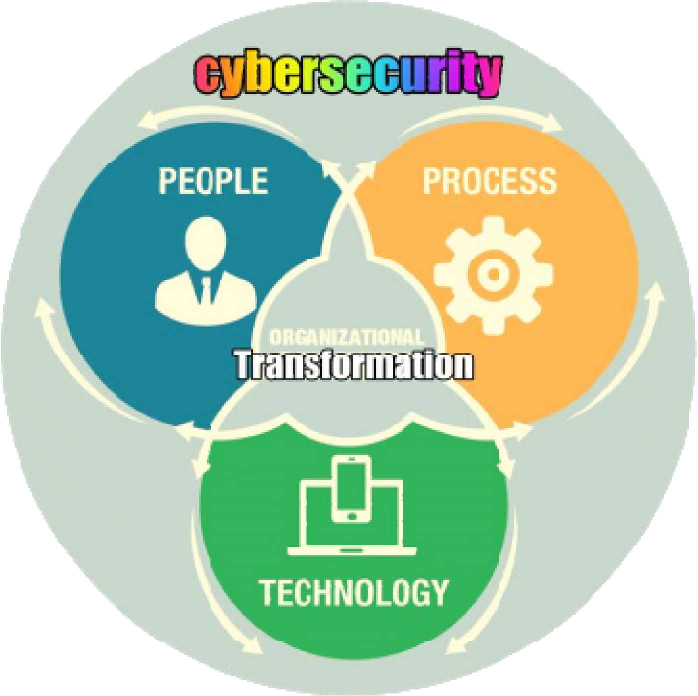

Figure 1 Cybersecurity involves multiple issues related to people, process, and technology [2].

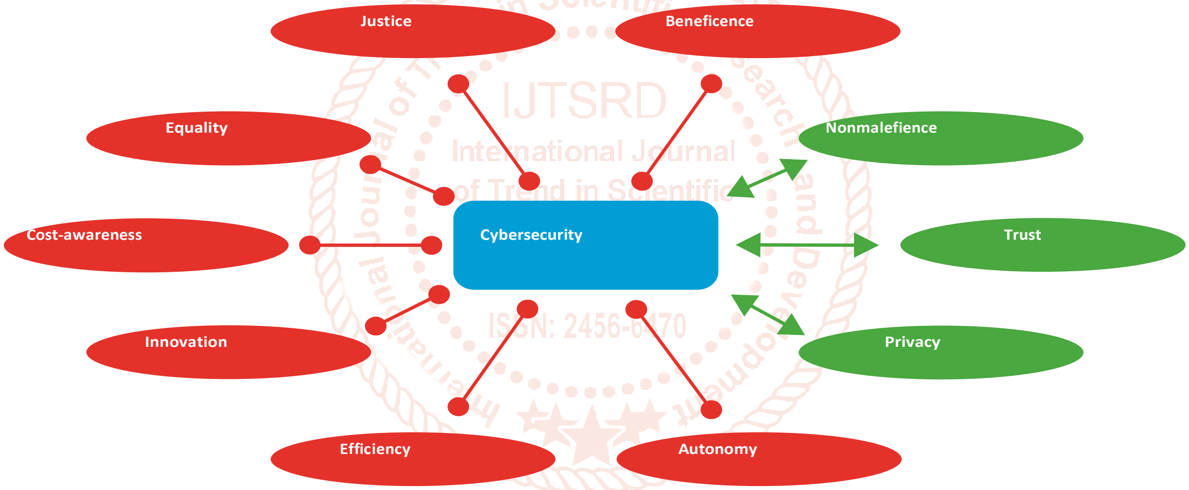

Figure 2 Different components of cybersecurity [3].(Green: supportive; red: in tension)

Figure 3 A typical cybercriminal [4].

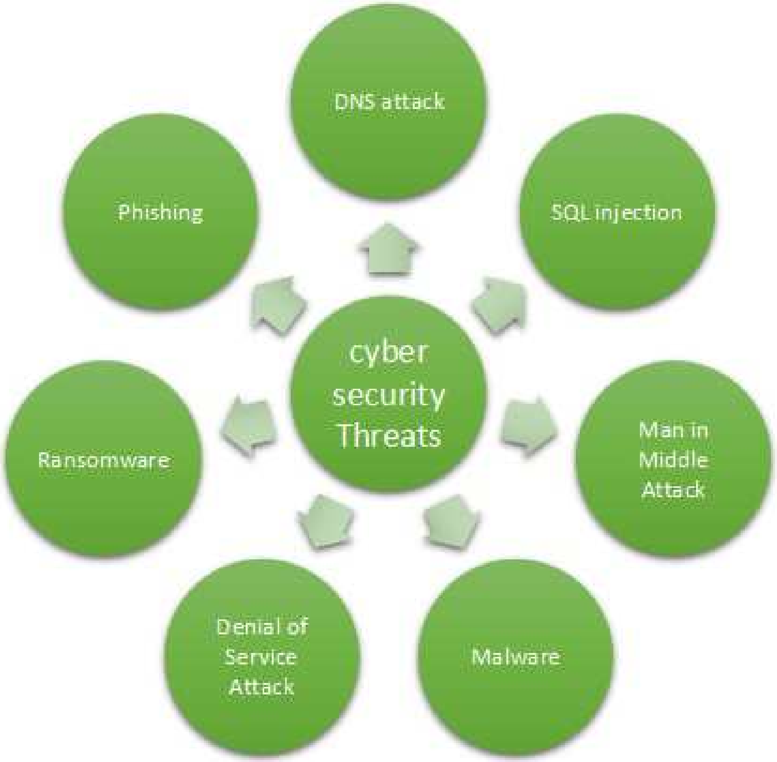

Figure 4 Common types of cybersecurity threats [8].

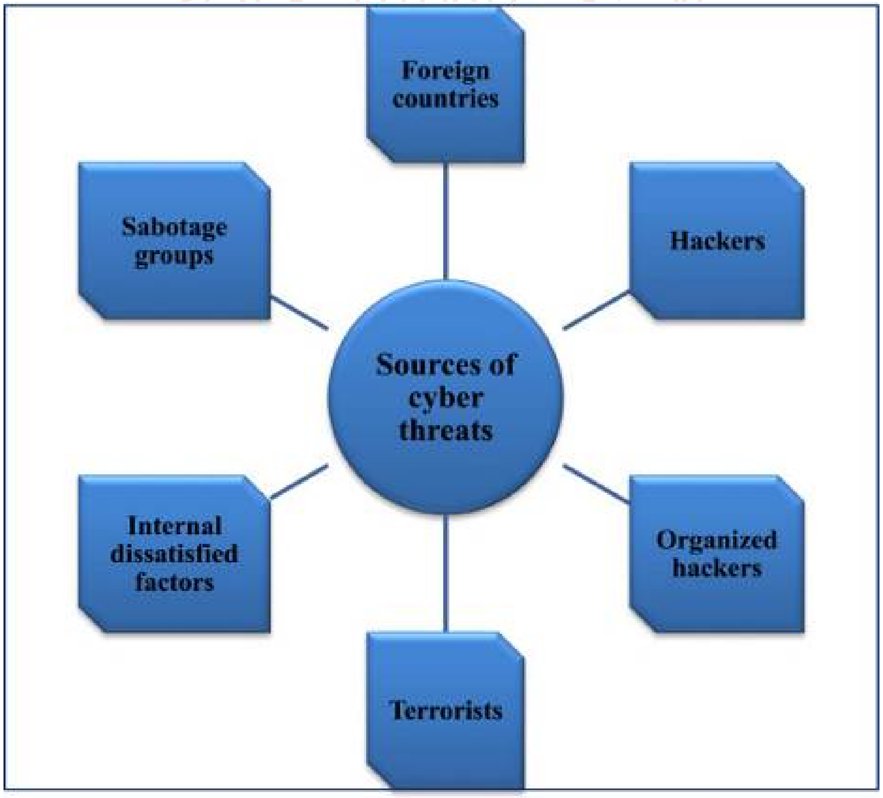

Figure 5 Sources of cyber threats [9].

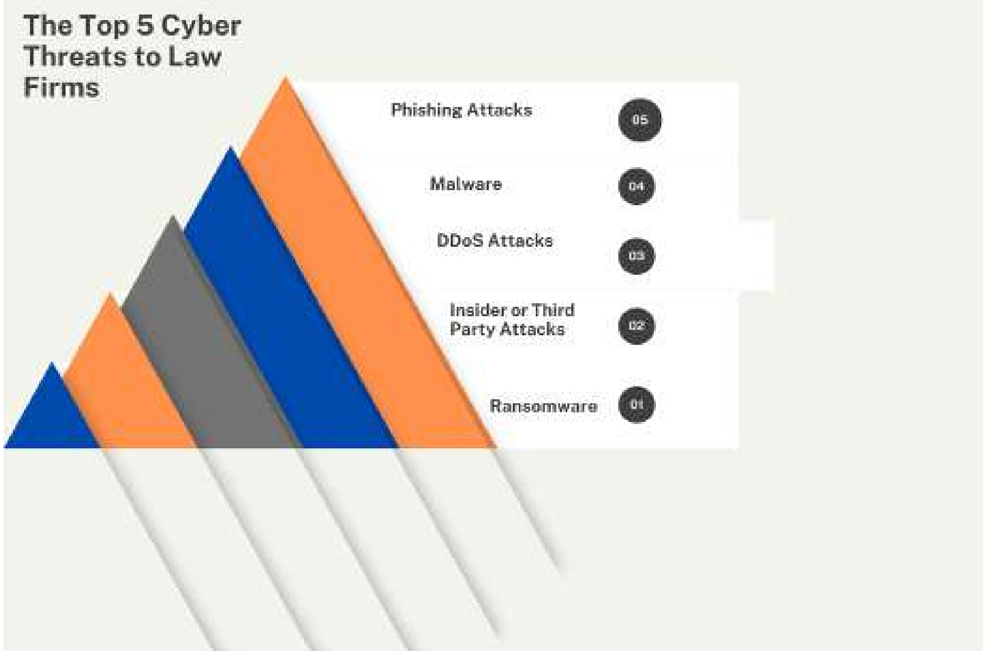
The Top 5 Cyber Threats to Law Firms
Phishing Attacks
05
Malware
04
DDoS Attacks
03
Insider or Third Party Attacks
02
Ransomware
01

Figure 6 Top five cyber threats to law firms [12].

Figure 7 A symbol for legal cybersecurity [14].

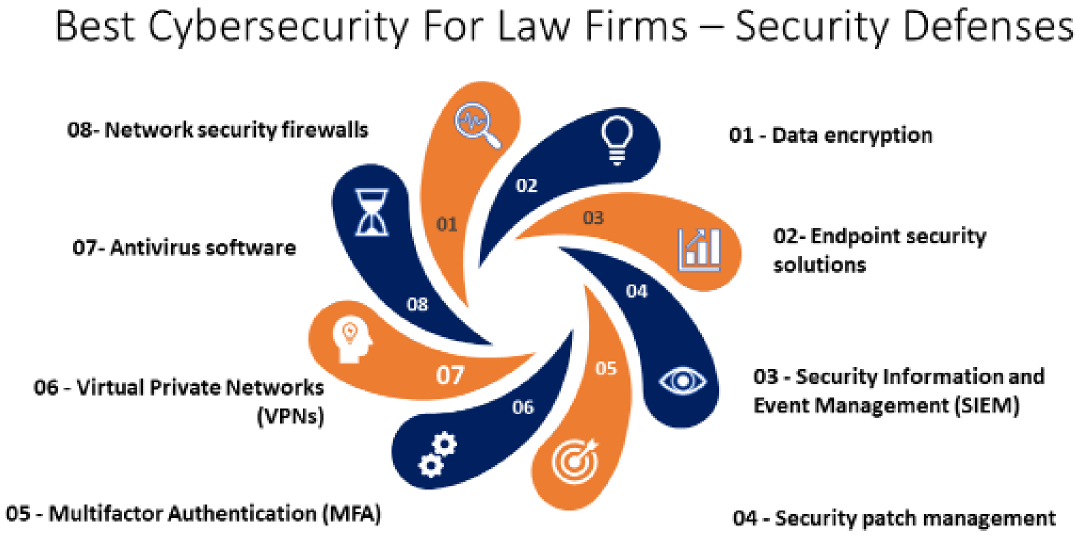
Best Cybersecurity For Law Firms – Security Defenses
08- Network security firewalls
07- Antivirus software
06 - Virtual Private Networks (VPNs)
05 - Multifactor Authentication (MFA)
01 - Data encryption
02- Endpoint security solutions
03 - Security Information and Event Management (SIEM)
04 - Security patch management
01
02
03
04
05
06
07
08

Figure 8 Best cybersecurity practices for the law firms [12].

Figure 9 A cybersecurity attorney [18].