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COURSE 10, TUTORIAL 3

# ELEMENTS OF A CYBERSECURITY PLAN

In this tutorial we will introduce important elements of a small business cyber security plan. These elements include physical, network and data security. In addition to discussing these elements in this tutorial, more detail on each of these security measures can be found in a very approachable document prepared by the Federal Communications Commission or FCC called Cyber Security Planning Guide.

## ELEMENTS OF A CYBERSECURITY PLAN

With respect to **physical security**, the building and/or the room(s) where computer and network equipment are located should have some level of access control to prevent unauthorized access and use.These measures may include perimeter security such as building alarms, security cameras, and/or badge-controlled access to interior areas requiring control or storage of sensitive operations and/or data.

With respect to network security, there are many actions that one can take to enhance this. Computers and their associated networks should be protected against cyberattacks. Protection strategies may include installation of firewalls for internet connections to prevent outside access to internal data; secure Wi-Fi networks; storage of archived data off-site or in the cloud; a clear policy on mobile device security used for company business; and additional authentication requirements for network operators and administrators. Now if your business is short-staffed in terms of security expertise, it is recommended that you seek outside technical support under a managed security services arrangement. Some of the services commonly provided by a managed service provider or MSP include computer and server support, data backup and disaster recovery, network security, and remote network monitoring. Please remember that important items that are part of the cost of doing business can be included as part of your indirect costs, discussed previously in the accounting course.

With **data security** there are many considerations that should be made. Small businesses have considerable data that are proprietary in nature, such as personnel and payroll information, bank and financial information and in many cases, data regarding larger firms that may be customers or suppliers. "All of this information is often impossible to replace if lost and dangerous in the hands of criminals." The FCC recommends that you consider the following when developing a data security plan:

**What kind of data do you have in your business?** Your business data may include account records, customer data,

transactions; bank accounts and financial information; intellectual property and sensitive business data such as marketing plans, product designs; and employee personal information, such as social security numbers, addresses, payroll and other personal identifying information.

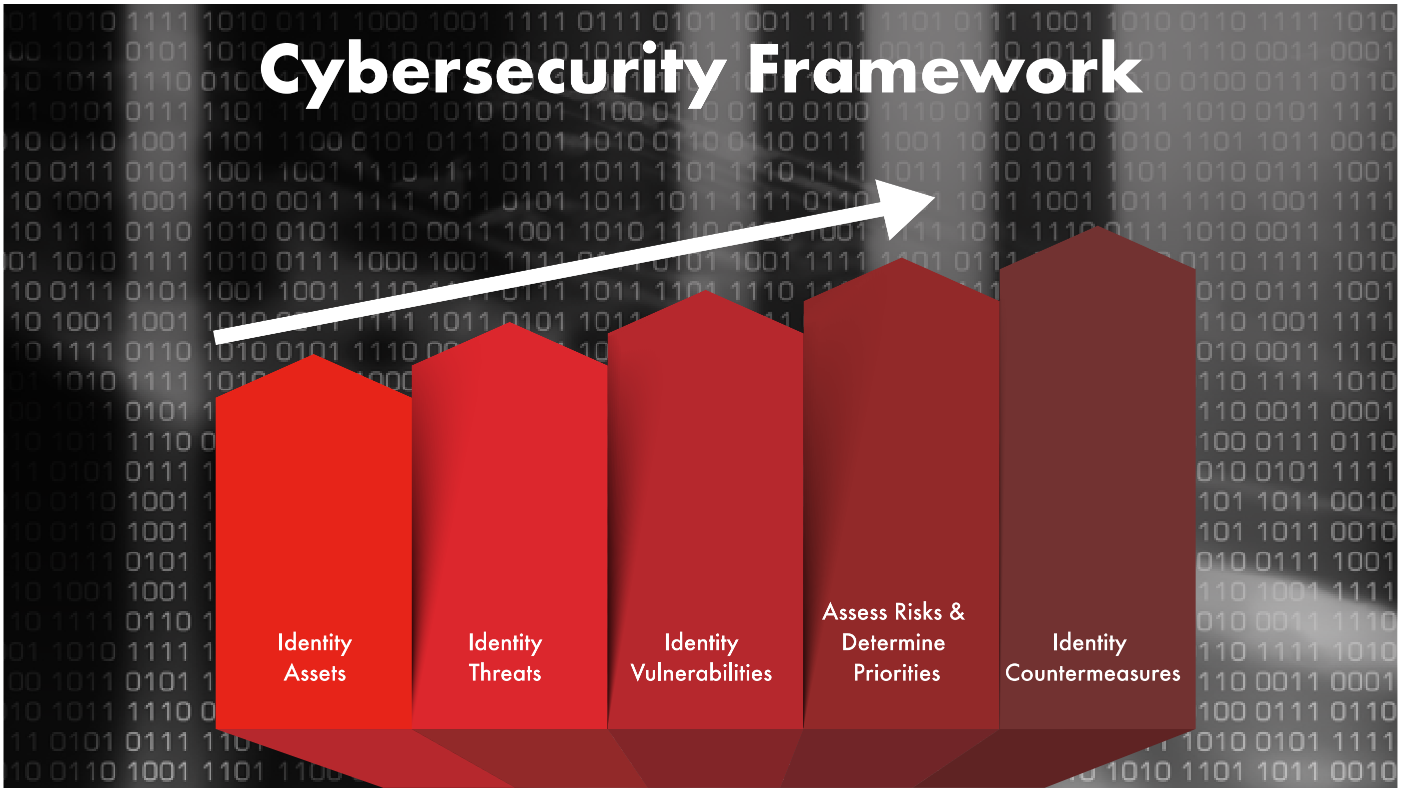
**How are data handled and protected?** If your data resides on a server or computer that is not connected to the internet, then it is probably secure - that is unless it is on a laptop which you inadvertently leave in the back of a cab on the way to the airport. When data move they are exposed to different threats. Your data may move throughout the company between employees via your company network, via the internet, via email and your website, on laptops and cellphones as you and your employees travel, and over Wi-Fi nets, both secured and unsecured. When data moves, it's vulnerable.Every business should know what data it has; how it moves and is handled, and have the appropriate guidelines and polices in place to protect it and minimize the risk of inadvertent loss or disclosure.

**Who has access to company data and under what circumstances?**Not everyone in the company needs access to everything. As part of the data inventory, access and privileges to that data should be identified. Assigning access rights is an important step toward securing your data. Establishing policies and guidelines about how data are handled, validated, protected and who has access based on its use and where it goes, are essential steps in data security. Other access protection considerations may include: (1) use of advance authentication such as one-time passwords and hardware tokens; (2) cloud-base authentication platforms; and (3) two-factor authentication that often combine a password with another verification method for those employees with access to networks and data.

**Employ best practices for financial and banking activities.** Businesses should work with their banks and other financial institutions to ensure that best practices and up-to-date fraud prevention tools are being utilized.Other protection strategies to consider include the following: (1) isolation of business financial systems from other network systems; and (2) using separate computers for payment processing and web surfing the internet. Apart from physical, network, and data security it is important that every small business establish clear policies and guidelines for use of computers, protection of data, and employee responsibilities.Topics for consideration include proper use of company computers and networks; mobile device action plans and policies; prohibited computing activities; and password and authentication policies. Once the policies are in place this should be coupled with staff training. The first line of cyber protection is an adequately trained staff that is well versed and knowledgeable in security principles. It is recommended that companies establish basic security practices, policies and training for employees regarding password protection requirements; mobile device use; protection of company and client data; and penalties for violation of company cybersecurity guidelines.

**An additional form of protection that some companies implement to** mitigate the impacts of a possible cyberattack is the purchase of cybersecurity insurance. PwC reports that the global cyberinsurance market will grow to $7.5 billion in annual sales by 2020, up from $2.5 billion in 2015. Cyberinsurance can cover: (1) data destruction, denial of service attacks; (2) theft and extortion; (3) incident response and remediation, (4) crisis management; and many other risks associated with cybertheft of company information .

In closing, it is recommended that you review what you are doing now within your firm to protect your network and data. If you find that your plan has gaps - consider implementing the risk based Cybersecurity Framework developed by the National Institute of Standards and Technology, most commonly known as NIST. This Framework enables organizations – regardless of size, degree of cybersecurity risk, or cybersecurity sophistication – to apply the principles and best practices of risk management to improve the security and resilience of critical infrastructure. The Framework assembles standards, guidelines, and practices that are working effectively in industry today such as those developed by NIST and the International Standardization Organization (ISO).The framework promotes five core functions: Identify, Detect, Protect, Respond, and Recover.



Cybersecurity Framework

Identity Assets

Identity Threats

Identity Vulnerabilities

Assess Risks & Determine Priorities

Identity Countermeasures

The NIST Framework will help an organization to better understand, manage, and reduce its cybersecurity risks and can assist organizations determine which activities are most important to maintain critical business operations and service delivery, while providing a common language to address cybersecurity risk management.

## ENDNOTES

1. "10 IT Security Risks that Small Businesses Can't Afford to Ignore." [Author: Ellen Messmer, NetworkWorld, May 28, 2014] http://www.networkworld.com/article/2358151/network-security/network-security-10-it-security-risks-that-small-businesses-can-t-afford-to-ignore.html

2. Federal Communications Commission. Cyber Security Planning Guide. https://transition.fcc.gov/cyber/cyberplanner.pdf

3. "PwC," Turnaround and Transformation in Cybersecurity: Key Findings from The Global State of Information Security © Survey 2016, 2015 PwC., http://www.pwc.com/gx/en/issues/cyber-security/information-security-survey/download.html

4. "Framework for Improving Critical Infrastructure Cybersecurity", Version 1.0, February 12, 2014, the National Institute of Standards and Technology, http://www.nist.gov/cyberframework/upload/cybersecurity-framework-021214.pdf

5. "Framework for Improving Critical Infrastructure Cybersecurity", Version 1.0, February 12, 2014, the National Institute of Standards and Technology, http://www.nist.gov/cyberframework/upload/cybersecurity-framework-021214.pdf

6. PwC, *Why you should adopt the NIST Cybersecurity Framework*, May 2014, http://www.pwc.com/us/en/increasing-it-effectiveness/publications/assets/adopt-the-nist.pdf