Cyber Security, Career, Certification in Pandemic (C3P)

HUT Cyber Security Community (CSC) 2021
BINUS University

Digit Oktavianto
@digitoktav
https://threathunting.id

Who Am I

- Infosec Consulting Manager at Mitra Integrasi Informatika
- Co-Founder BlueTeam.ID (https://blueteam.id)
- Born to be DFIR Team
- Community Lead @ Cyber Defense Community Indonesia (https://cdef.id)
- Member of Indonesia Honeynet Project
- Opreker and Researcher
- {GCIH | GMON | GCFE | GICSP | CEI | CEH | CSA | ECSA | ECIH | CHFI | CTIA | ECSS} Certifications Holder

Agenda

- Introduction to Career in Cyber Security
- Cyber Security Certification
- Cyber Security Career in Pandemic / Post-Pandemic Era
- Cyber Security Career Path Step by Step

Introduction to Career in Cyber Security Industry

Intermezzo

"Cybersecurity is all about people, not just the processes and technology."

INTRODUCTION

Important Question for All of You :

Do you want career or just a job?

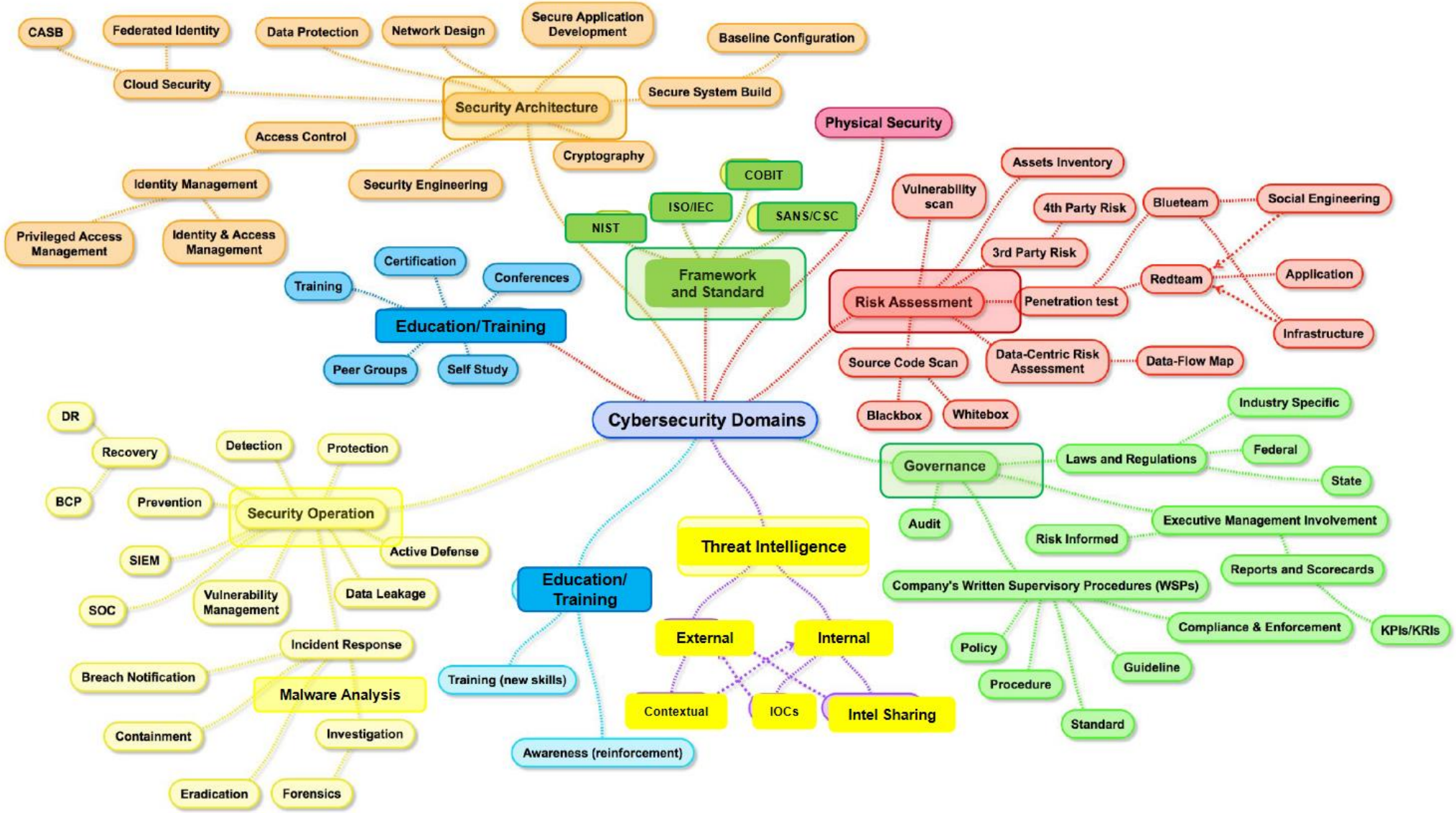
FAQ About Career in Cyber Security :

What does a cyber security career look alike?

Is it really different from normal IT Career?

What is short / long term in cyber security career?

Cyber Security Domain



Cyber Security Professional

WHAT DO CYBER SECURITY PROFESSIONALS DO?

The great part about cyber security is that it encompasses many different fields. Yes, there are the extremely technical roles. But there are also many different fields that contribute to a business's security posture (how good their cyber defences are).

As today's companies do more of their business online, the need for cyber security professionals continues to grow.

Job roles can be separated into four basic categories. Let your interests guide you when choosing a career path.

Cyber security professionals work in diverse fields and perform important roles, such as:

- Defending our nation
- Securing our telecommunications infrastructure
- Safeguarding our money
- Protecting our electrical distribution systems
- Protecting our identities
- Ensuring our medical information remains private
- Stopping ransomware attacks
- And many more

Cyber Security Roles (1)

Govern and Support

Manage and provide direction and support to ensure an organization conducts effective cyber security work. Roles include cyber legal advisor, policy analyst, privacy officer, and risk analyst

Protect, Detect, and Respond

Detect, prevent, respond to, and recover from cyber incidents and threats. Roles include cyber threat assessor, data scientist/modeler, big data analyst, cyber security analyst, information security analyst, DFIR (digital Forensic and Incident Responder), vulnerability assessment analyst, and penetration tester.

Cyber Security Roles (2)

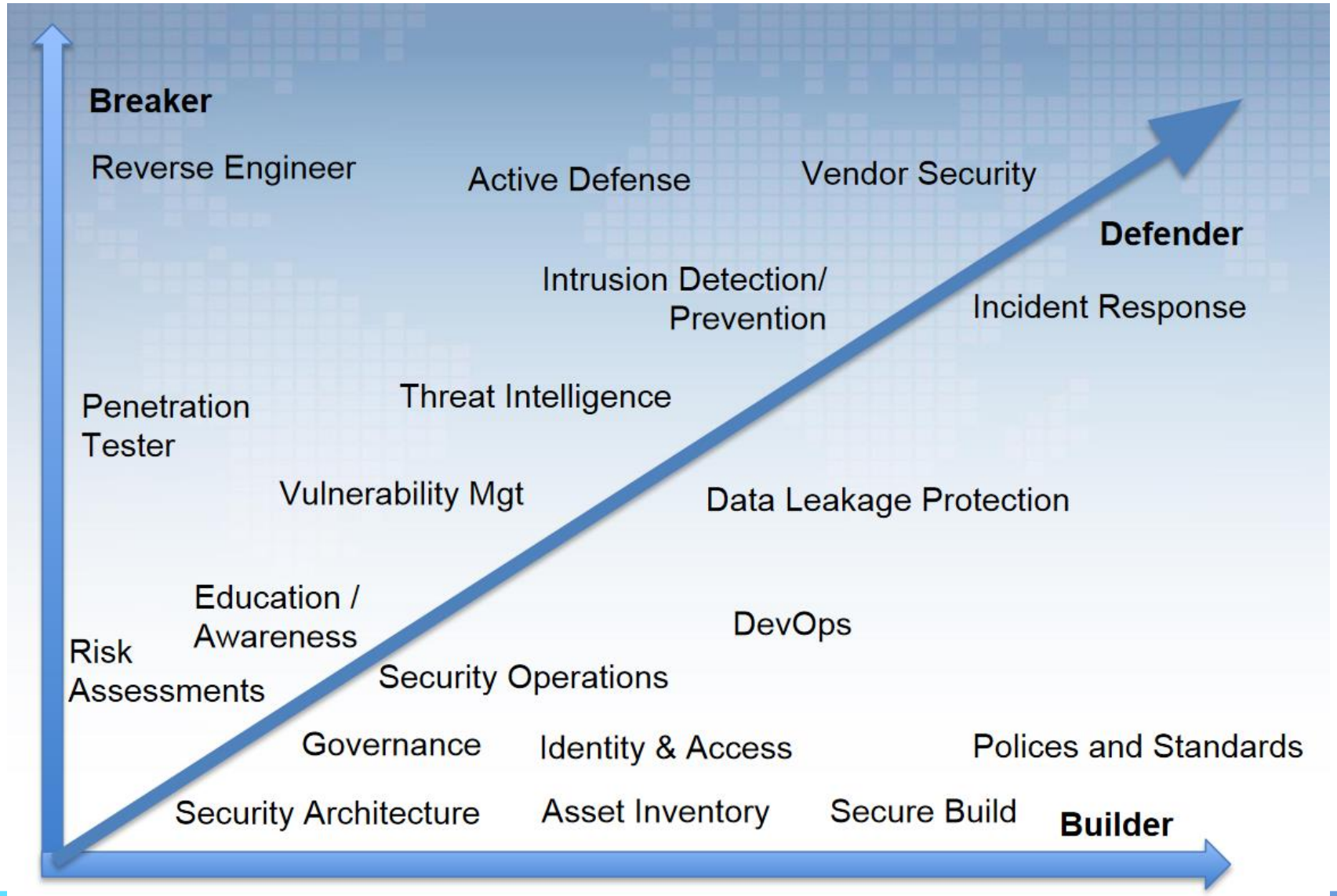
Design and Develop

Develop, secure, test, and integrate hardware, software, and systems throughout a product's life cycle. Roles include security architect, security engineer, application developer, and secure software developer.

Operate and Maintain

Administer, maintain, and support to ensure effective and efficient performance and cyber security. Roles include network security operator, security operation center analyst, cryptanalyst, and technical support specialist

Cyber Security Roles



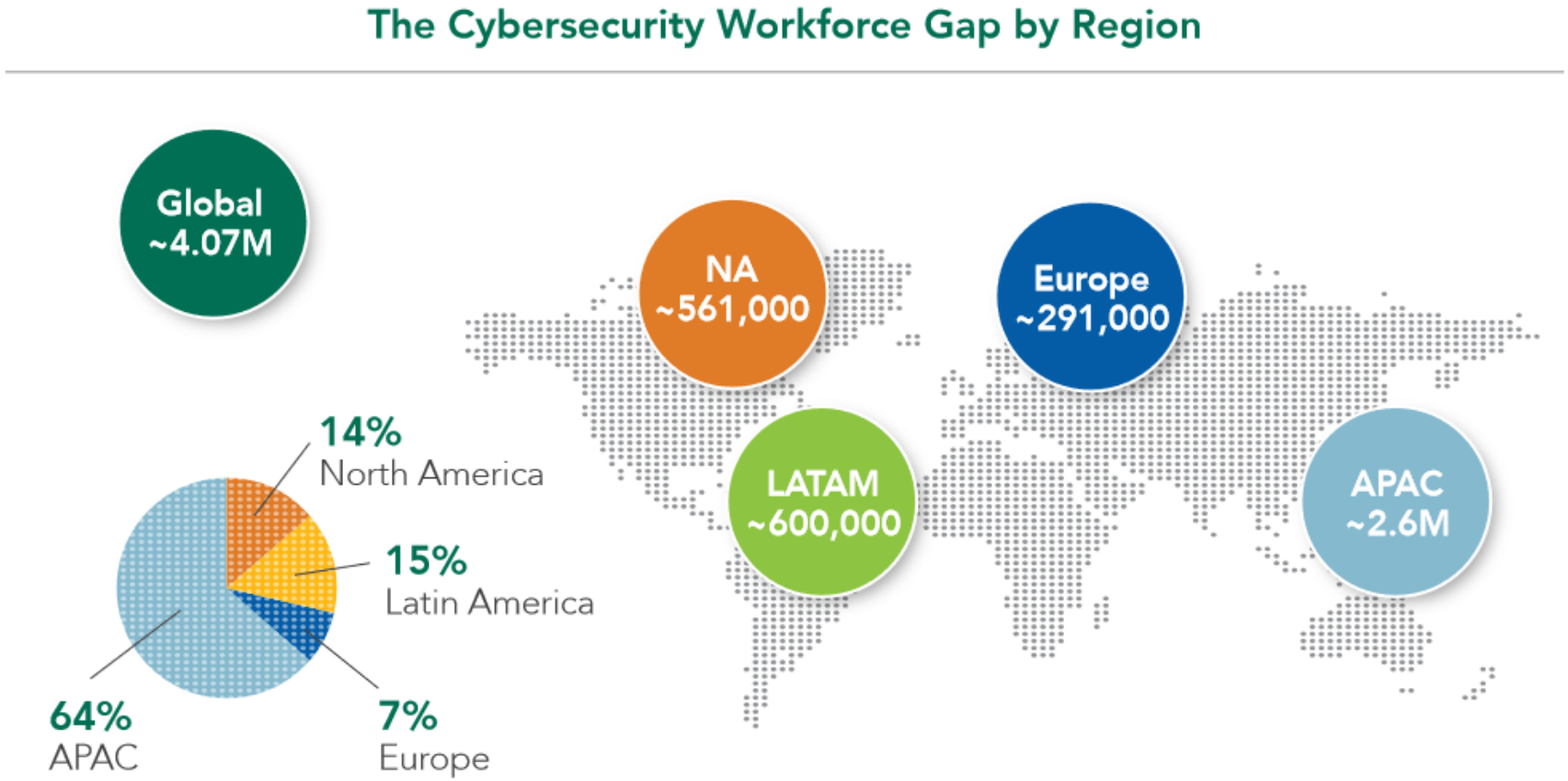
Cyber Security Roles

Average Number of Employees in Each Role (Across All Company Sizes)

Cybersecurity team roles	Total	NA	LATAM	EUR	APAC
Security Operations	22	23	19	22	22
Security Administration	15	16	15	15	15
Risk Management	13	13	13	13	13
Compliance	12	13	10	12	11
Operational Technology Security	11	11	14	11	12
Secure Software Development	10	9	12	9	11
Penetration Testing	8	8	9	9	9
Forensics	8	8	8	9	8

https://www.isc2.org/-/media/ISC2/Research/2019-Cybersecurity-Workforce-Study/ISC2-Cybersecurity-Workforce-Study-2019.ashx?la=en&hash=D087F6468B4991E0BEFFC017BC1ADF59CD5A2EF7

Cyber Security Workforce Gap



https://www.isc2.org/-/media/ISC2/Research/2019-Cybersecurity-Workforce-Study/ISC2-Cybersecurity-Workforce-Study-2019.ashx?la=en&hash=D087F6468B4991E0BEFFC017BC1ADF59CD5A2EF7

Peta Okupasi Cyber Security

PETA OKUPASI NASIONAL DALAM KERANGKA KUALIFIKASI NASIONAL INDONESIA PADA AREA FUNGSI KEAMANAN SIBER

KKNI		STRATA JABATAN	
LEVEL	KATEGORI	PEMERINTAH	INDUSTRI
9	AHLI	AHLI UTAMA	DIREKTUR UTAMA, PRESIDEN DIREKTUR, CXO, MANAGING DIRECTOR
8	AHLI	AHLI SENIOR	DIREKTUR; VICE PRESIDENT; GENERAL MANAGER; SCIENTIST
7	AHLI	AHLI PERDANA	MANAGER; EXPERT
6	TEKNISI/ANALIS	TEKNISI/ ANALIS MADYA	ASISTEN MANAGER; DEPUTY MANAGER; ADVISOR
5	TEKNISI/ANALIS	TEKNISI/ ANALIS MUDA	SUPERVISOR; PENYELIA

BEFORE				DURING			AFTER	
100904,07	CHIEF OF INFORMATION SECURITY OFFICER (CISO)							
100805,04	CYBER RISK SPECIALIST						100808,01	CYBER INCIDENT INVESTIGATION MANAGER
100806,04	SECURITY ARCHITECT						100809,01	CYBER FORENSIC SPECIALIST
100807,04	CRYPTOGRAPHIC SPECIALIST							
100723,04	CRYPTOGRAPHIC ENGINEER	100704/ 100704.07	MANAJER CYBERSECURITY/CYBERSECURITY MANAGER					
100724,04	ICT SECURITY PRODUCT LEAD EVALUATOR	100701/ 100701.04	MANAJER KEAMANAN JARINGAN/ NETWORK SECURITY MANAGER				100728,07	DIGITAL FORENSIC ANALYST
		100720,04	CYBERSECURITY AWARENESS LEAD OFFICER					
		100721,07	INCIDENT RESPONSE TEAM MANAGER					
		100722,04	AUDITOR KEAMANAN INFORMASI					
		100725,06	THREAT HUNTER					
		100726,04	PENETRATION TESTER					
		100727,07	CYBERSECURITY GOVERNANCE OFFICER					
100608,04	ICT SECURITY PRODUCT EVALUATOR	100605,04	CYBERSECURITY AWARENESS OFFICER	100601/ 100601.03	CYBERSECURTY ANALYST/ CYBERSECURITY INCIDENT ANALYST			
100610,04	CRYPTOGRAPHIC ANALYST	100606,04	VULNERABILITY ASSESSMENT ANALYST				100612	DIGITAL EVIDENCE FIRST RESPONDER
100611,04	CRYPTOGRAPHIC MODULE ANALYST	100607,04	NETWORK SECURITY ADMINISTRATOR					
		100609,04	CYBERSECURITY ADMINISTRATOR					
		100508,06	CYBERSECURITY OPERATOR					
		100501/ 100501.04	JUNIOR CYBER SECURITY					
		100509,04	TEKNISI PERANGKAT KERAS KRIPTOGRAFI					
		100510,04	CRYPTOGRAPHIC ADMINISTRATOR					

UNIT KOMPETENSI TELAH DILENGKAPI
SEBAGIAN UNIT KOMPETENSI TELAH DILENGKAPI
UNIT KOMPETENSI BELUM DILENGKAPI

LAUNCHING PETA OKUPASI NASIONAL KEAMANAN SIBER

Peta Okupasi Cyber Security

CAREER PATH

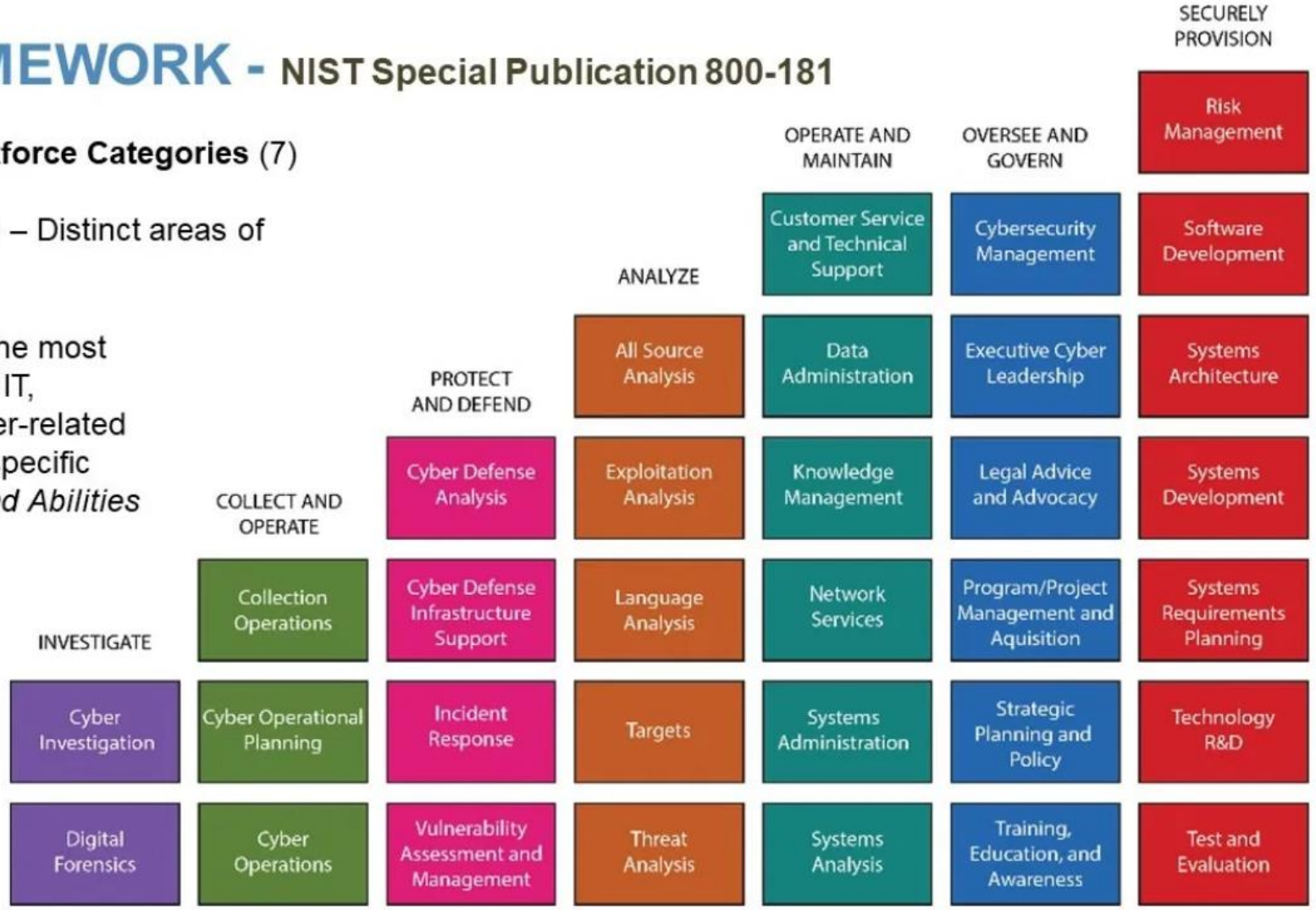
NICE Framework

NICE FRAMEWORK - NIST Special Publication 800-181

Cybersecurity Workforce Categories (7)

Specialty Areas (33) – Distinct areas of cybersecurity work

Work Roles (52) – The most detailed groupings of IT, cybersecurity, or cyber-related work, which include specific *Knowledge, Skills, and Abilities*



Cyber Security Training and Certification

Do We Need to Take Certification Program?

- Yes, Of Course. But Why?
- What Kind of Certification Should I Take?
  - **Vendor Based :**

  CISCO, F5, Checkpoint, Palo Alto, Microsoft, Juniper, etc
  - **Non-Vendor Based :**

  Offensive Security : OSCP, OSWE, OSCE, OSEP, OSEE

  EC-Council : CEH, ECSA, CHFI, ECIH, CHFI

  GIAC : GCIH, GPEN, GCFA, GSEC

  ISC2 : CISSP, SSCP

  ISACA : CISA, CISM, CRISC

Why Do You Need Certifications?

- The global cyber security market is forecast to expand at a compound rate of 10% a year through 2027, and that means new jobs — and fierce competition for those high-paying jobs as more and more people try to get into cyber security
- In the cyber security industry, certifications show the cyber security skill you have and can be absolutely critical to your cyber security career trajectory.
- Keep in mind that some certifications are for the beginning of your career while others are more important later on. Often, there are multiple certifications for a specific path. Depending on your interest, there's a different certification that fits your path. So let's figure out what certifications you need for your cyber security path.

Prerequisites for a Cybersecurity Certification

Cyber security certifications are important, but they can vary widely in terms of what you need in order to get them.

When choosing your program, your core focus should be on whether the certification will help you in your chosen career path, but there are also a few other things to consider when choosing your certification. That is, you need to account for your eligibility, timeline, and the certification's cost.

- **Eligibility.** Do they require you to have a bachelor's degree in a technical field? Do they require a certain work history? Do you need to complete some preliminary assessments or courses?
- **Time.** What is the average study time/course time? When is the earliest you can expect to hold the certification? Make sure to look out for certifications that may only become valid after you have gathered a certain number of years' work experience.
- **Cost.** How much does it cost to complete the course or take the exam? Are study materials included?

Job Search and Certification Statistics

Certification	LinkedIn	Indeed	Simply Hired	Total
CISSP	30,857	11,630	7,756	50,243
CISA	7,262	5,432	3,485	16,179
CISM	5,173	3,779	2,488	11,440
CEH	4,179	2,717	1,858	8,754
Security+	3,618	2,933	2,202	8,753
GSEC	3,039	1,873	1,521	6,433
SSCP	2,908	1,850	1,490	6,248
CCSK	5,466	264	151	5,881
CCNA Security	2,879	1,566	1,034	5,479
CASP	2,342	1,556	1,208	5,106

Number of US job search results for each certification when searched on December 22, 2020

What Specific Area of Certification ???

Fundamental Cyber Security Certification

CEH, GSEC, CompTIA Security+, ISACA CSX Fundamental, ISC2 SSCP

Higher Level Cyber Security Certification

CISSP, CCISO, CISM, GSE,

What Specific Area of Certification ???

Offensive Security Certification Example :

- Offensive Security : OSCP, OSCE, OSWE, OSEE, OSWP, etc
- GIAC : GPEN, GXPN, GWAPT, GMOB
- EC Council : ECSA, LPT, CPENT
- CompTIA : Pentest+

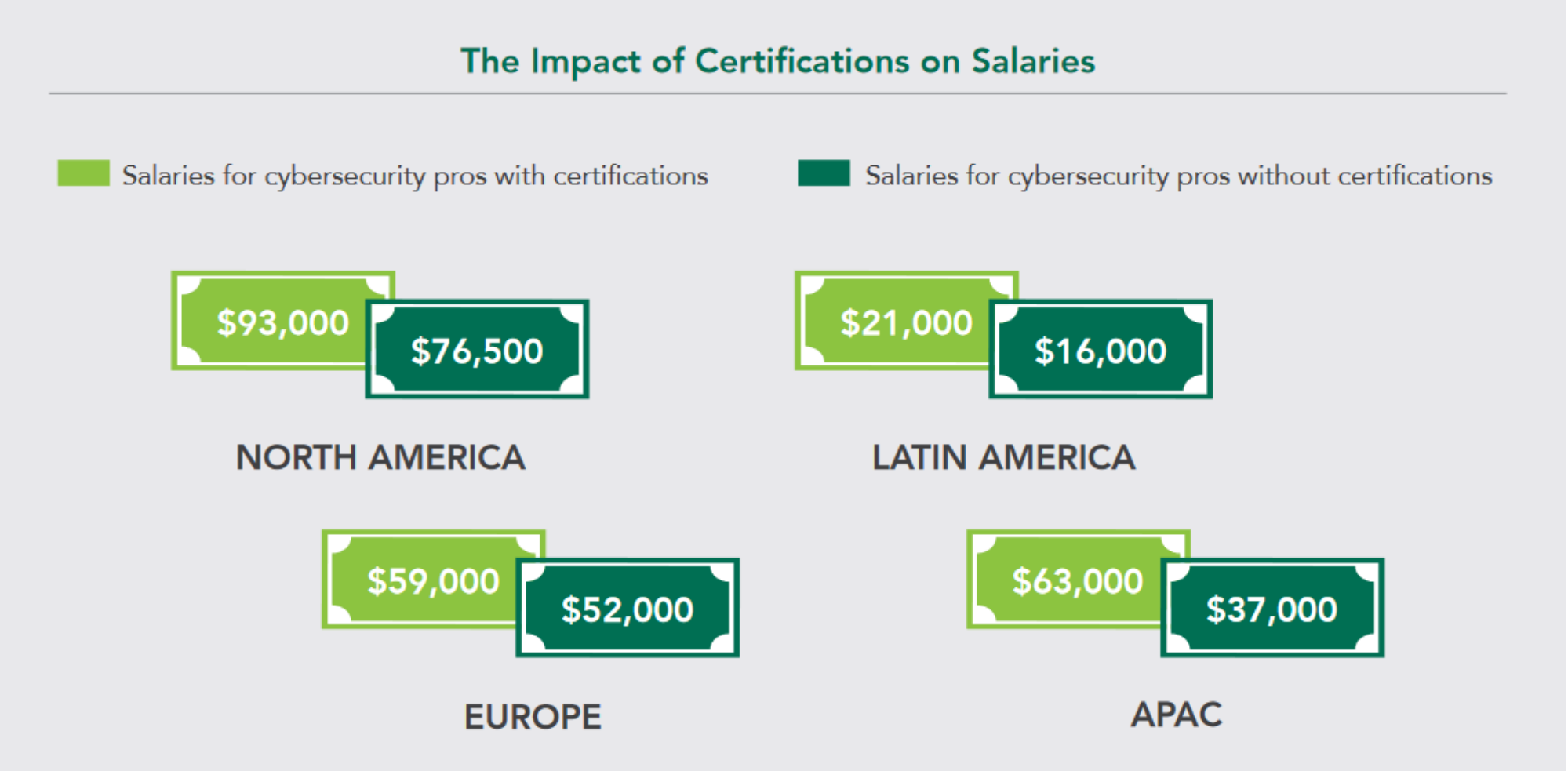
Defensive Security Certification Example :

- GIAC : GCIH, GMON, GCFA, GCFE, GDSA
- EC Council : ECIH, CHFI, CSA, CTIA
- Comptia : CySA+

Motivation for Pursuing Certification

https://www.isc2.org/-/media/ISC2/Research/2019-Cybersecurity-Workforce-Study/ISC2-Cybersecurity-Workforce-Study-2019.ashx?la=en&hash=D087F6468B4991E0BEFFC017BC1ADF59CD5A2EF7

Impact of Certification on Salaries



https://www.isc2.org/-/media/ISC2/Research/2019-Cybersecurity-Workforce-Study/ISC2-Cybersecurity-Workforce-Study-2019.ashx?la=en&hash=D087F6468B4991E0BEFFC017BC1ADF59CD5A2EF7

Cyber Security in Pandemic / Post Pandemic Era

Cyber Security Career in Pandemic and Post-Pandemic Era

- In almost every industry, ranging from technology, healthcare, education to banking and finance, employees are working remotely. The result is ***companies*** being ***vulnerable to breaches and data redundancy*** even more than ever before.
- According to the data shared by the job portal **Indeed**, between February to May 2020, searches related to cybersecurity jobs increased by 30%. They reported a 6% rise in the cybersecurity based job postings by employers.
- As the workforce plans to work from home for some time, **organizations are creating a more secure environment to guard against data breaches**, which is the **key reason why remote jobs in cybersecurity are the need** of the hour **during this pandemic**.

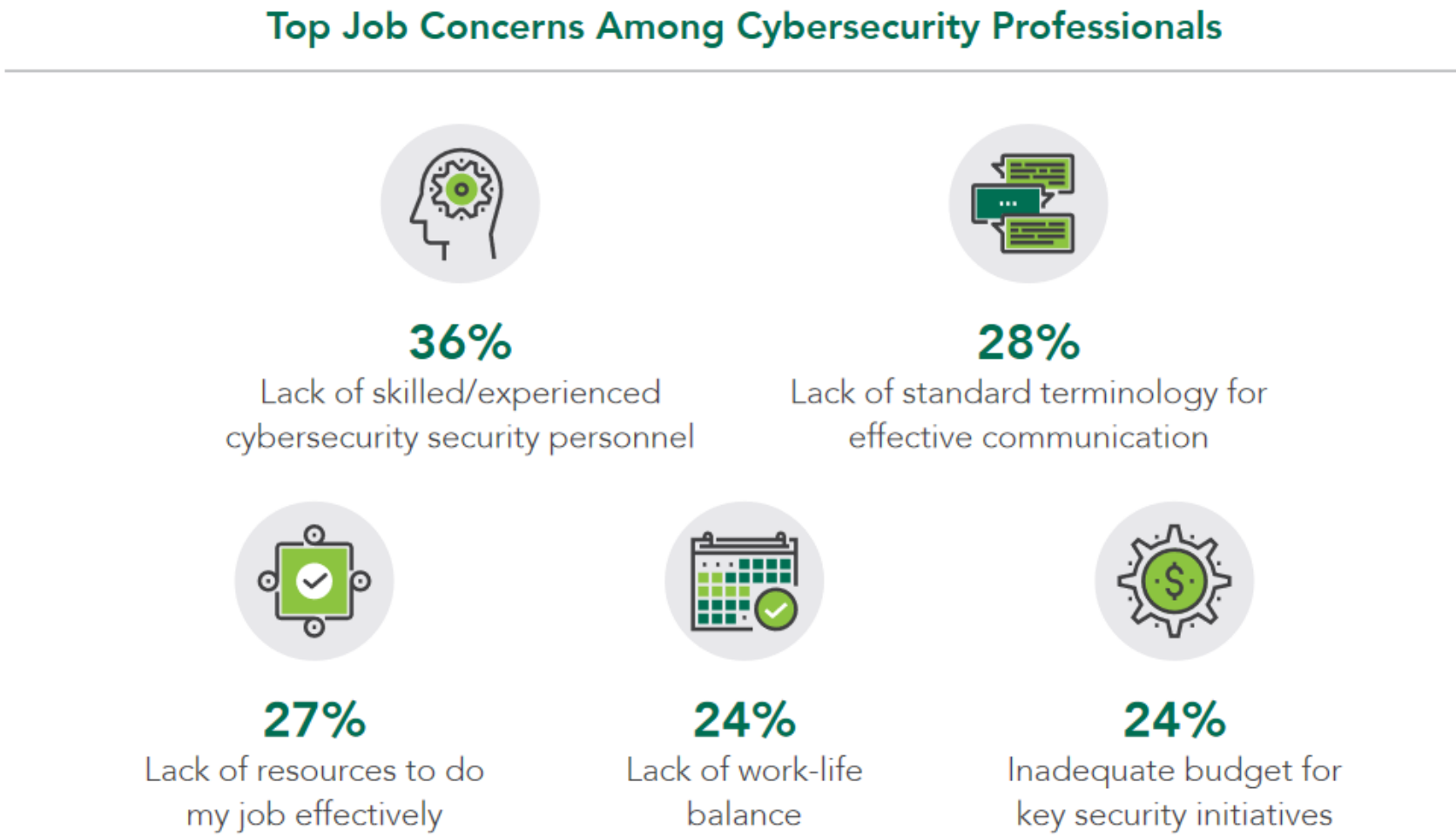
3 Main Reasons Career in Cyber Security is a Great Choice:

1. **Digitization will keep growing, even after the pandemic** – A research by McKinsey showed that we **have accelerated five years in digital adoption in a matter of eight weeks, due to the Coronavirus pandemic**. Banks transitioned to digital banking platform and offering digital customer support. Grocery stores moved to online deliveries. Schools pivoted to online learning and digital classrooms. Doctors are adopting telemedicine. The list of digitization goes on.
2. **Cybersecurity is a competitive edge** – Banks and the financial organizations are ramping up their surveillance mechanisms to detect threats at every level of their organization. The demand for information security analysts and cybersecurity engineers is witnessing an upward trajectory because **data protection and cyber hygiene will be a competitive edge for brands to gain the trust** of their digital consumers.

3 Main Reasons Career in Cyber Security is a Great Choice:

3. **Companies providing cybersecurity solutions are seeing an uptick in the number of users** – From a technology perspective, with entire teams of hundreds and thousands of employees being digitally connected, their laptops, VPN and cloud infrastructure are vulnerable to cybersecurity attacks. Products and services addressing these risks are in demand, as a result the hiring for cybersecurity engineer jobs is only going to increase. **While every department is coming under the radar of layoffs, it seems that cybersecurity is one area that will remain virus-proof during and after COVID-19.** However, that brings us to the next point, a shortage of cybersecurity professionals at present.

Job Concern Among Cyber Security Professional



https://www.isc2.org/-/media/ISC2/Research/2019-Cybersecurity-Workforce-Study/ISC2-Cybersecurity-Workforce-Study-2019.ashx?la=en&hash=D087F6468B4991E0BEFFC017BC1ADF59CD5A2EF7

But, I don’t have Experience…..

So, you’ve decided to make the jump and enroll in a cyber security program. Now what, you ask? “Will I be able to find a job in the field after school if I have no work experience in cyber security?

The odds are in your favour. Consider this: graduates of cyber security programs tend to be quickly recruited by public and private sector organizations.

In fact, **the shortage of cyber security professionals** is so pronounced that organizations are retraining employees in basic cyber security skills on the job! **As a skilled graduate of a cyber security program, you are sure to be an attractive candidate for many employers.**

FAQ

Most common questions from college student in their last year of uni : what should I do to improve the chance getting hired from the employer in cyber security roles?

- Understand the Basic of IT

  Understanding the fundamentals of IT, such as administering & configuring systems, networks, database management and coding will go a long way towards getting your first job.

- Networking

  Get a LinkedIn account and start connecting with people in the industry. Businesses post jobs there and recruiters use it as a tool to find candidates. Join local community in cyber security, attend the meetup, discuss with the community, getting involved in conference, event, CTF competition.

FAQ

- Focus on your Interests

  It is impossible to be an expert in all categories. Focus on an area (e.g. offensive security, cloud security, blue team, etc) and understand it well. Think ahead 5-10 years to your dream job, then look for an entry-level position that will give you the right skills.

- Gain Practical Experience

  Gain as much hands-on experience as possible. A co-op position or internship will help you get a sense of IT procedures and real-world business operations. Even if you're not in a program that offers these types of positions, you can accomplish a lot with self-directed learning. Many universities or certification authorities offer free online resources. Take cyber security online learning platform such as TryHackMe, Hack The Box, RangeForce, CyberDefenders.org, LetsDefend.io, AttackIQ, etc.

How to Prepare Cyber Security Career Path

- **Education**
  - Learn and study the basic knowledge
  - Develop hard skill and soft skill from college
- **Networking**
  - Build relationship from Local Community.
  - Build your profile in Networking Site (LinkedIn, Twitter, Medium, etc)
- **Experience**
  - Practice. Practice. Practice.
  - Build your Own Lab in your Home
  - Involve in many Projects. (e.g open Source Projects)
  - Joining in a competition (e.g CTF Competition)
- **Seek for Mentorship**
  - Find the right mentor to guide you in cyber security industry
  - Find a partner to discuss all things related cyber security
- **Training and Certification**
  - Getting the right training from the industry
  - Getting acknowledgement from industry

Step by Step

1. Creating Your Goals
2. Know Your Skill
3. Skill Self-Assessment
4. Developing Your Career Plan
5. A Short Career Plan
6. Effective Career Investment

Creating Effective Plan

- **The Best Plan**
  – Ties long-term career strategy to short-term activities
  – Matches your skills, aptitudes and potential
  – Allows you to move forward daily.
  – Deals with more than just your career - your career should be a part of your overall life plan.
- **How do you do that?**
  – Go beyond Job Descriptions
  – The importance of Mentoring and having good models
- **Every Plan Has a Risk**
  – You can do anything you want, but you can't do everything that you want.

TOP NEWS | LATEST NEWS | PRESS RELEASE

Antaranews.com

About Us

ANTARANEWS.com

Friday, 11th June 2021

HOME CURRENT ISSUE WORLD BUSINESS & INVESTMENT EXPLORE INDONESIA ARTICLE PHOTO PRESS RELEASE BAHASA

Legislator calls for good cyber security to protect citizens' data

23rd May 2021

POPULAR

Govt plans 14-day quarantine for travelers from abroad

4th June 2021

Home / Tekno / e-Business

Dilema Pekerja Keamanan Siber, Banyak Dicari tapi Syarat Berlebihan

Kompas.com - 04/12/2020, 20:09 WIB

BAGIKAN:

Komentar

Easter Egg : Interesting Topic in Infosec Field for Research

- IoT Security
- Big Data Security
- Mobile Apps
- Cloud Security
- Malware Analysis
- Digital Forensic and Incident Response
- Governance Risk Compliance Area (Security Policy, Security Procedure, Cyber Security Framework)

THANK YOU
Q & A