

Security and Risk: Management and Certifications Simple (for real)



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Summary

[2 Course Introduction (Soderi Part) 3](#_Toc159840646)

[3 M1.1 - Basic Concepts 3](#_Toc159840647)

**Disclaimer**

# Course Introduction (Soderi Part)

The course is mainly divided into two parts (two teachers: Simone Soderi = red / Antonio Belli = blue)

1. Basic Concepts;

2. Planning for Cybersecurity;

3. Cybersecurity Operations and Management;

4. Security Assessment and use cases;

5. Certification and Frameworks for Organizations and management systems;

6. Certification of products and technologies;

7. Frameworks that describe the competencies;

8. Certification of people;

9. Most common Certifications available on the market;

10. Audit techniques and approach examples

About the exam:

* last year, there was a report made about the contents of the course
  + many copied with ChatGPT, so the professor is quite vocal about it
* this year, it’s not defined yet

Basically, the contents of “00-Course Introduction” is a presentation about thesis possible with the teacher and other general content. Move on.

# M1.1 - Basic Concepts

Let’s first talk about the cyberspace (as defined by Nation Research Council in USA) based mainly on:

* *artifacts* based on/dependent on computer and communications technology;
* the *information* that these artefacts use, store, handle, or process;
* the *interconnections* among these various elements.

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Descrizione generata automaticamenteThe following are the cybersecurity knowledge areas, with figure coming from the CyBOK (Cyber Security Body of Knowledge):

In general, we can say:

* it aims to codify the foundational and generally recognised knowledge on cyber security
* CyBOK grouped into five (not orthogonal) broad categories
* Clearly, other possible categorisations of these Knowledge Areas (KAs) may be equally valid
  + Immagine che contiene testo, schermata, Carattere, logo

    Descrizione generata automaticamenteand ultimately some of the structure is relatively arbitrary

Cybersecurity is the collection of tools, policies, security concepts, security safeguards, *guidelines*, risk *management approaches*, actions, training, best practices and technologies that are used to protect the cyberspace environment and organizations and user’s asset.

We give some useful definition:

* asset
  + Where
    - Software-hardware
  + What
    - *Data contained* in an information system; or a service provided by a system or a *system capability*
      * such as *processing power* or communication bandwidth
      * an item of system equipment
        + such as hardware, firmware, software, or documentation
* risk
  + Where
    - Measure-impact
  + What
    - The risk is the *possibility that human actions or events lead to consequences* that have an *impact* on what humans value
    - It is important to estimate the *likelihood* of events that may lead to an impact
* threat
  + Where
    - Capability-danger
  + What
    - A *potential for violation of security* that exists when there is a circumstance, a capability, an action, or an event that could breach security and cause harm
    - Basically, a threat is a possible danger that might *exploit a vulnerability*
* vulnerability
  + Where
    - flaw-design
  + What
    - A *flaw or weakness in a system’s design*, implementation, or operation and management that could be exploited to violate the system’s security policy

We discuss also about information security, which is:

* Preservation of *confidentiality, integrity and availability* of information
* In addition, other properties, such as *authenticity, accountability, non-repudiation, and reliability* can also be involved

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Descrizione generata automaticamenteCybersecurity has different objectives:

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Descrizione generata automaticamenteBut also has different dilemmas:

Risk is the possibility that human *actions* or events *lead to consequences that have an impact* on what humans value. There are different dimensions to consider:

* *Risk Assessment* is a process of *collating observations and perceptions* of the world that can be *justified by logical reasoning* or comparisons with actual outcomes
* *Risk Management* is the process of *developing and evaluating options* to *address the risks* in a manner that is agreeable to people whose values may be impacted
* *Risk Governance* set of ongoing processes and principles that aims to *ensure an awareness and education of the risks* faced when certain actions occur, and to *inspire a sense of responsibility* and accountability to all involved in managing it

There are different reasons on why risk assessment is important (analytic process to reduce the risk and possibly mitigate the costs):

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Cyber is a special case inside risk management (*cyber risk*):

* Cyber security risk assessment and management
  + fundamental special cases that everyone living and working within the digital domain
  + should understand and be a participant in it
* There are a number of global standards
  + aiming to formalize and provide a common framework
  + for cyber risk assessment and management

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Descrizione generata automaticamenteConsider the *difference* between the level of analysis inside systems (source [here](https://complianceforge.com/grc/policy-vs-standard-vs-control-vs-procedure)):

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Descrizione generata automaticamenteStandards and Best Practices documents have different dimensions of value:

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Descrizione generata automaticamenteFollowing here, some *important standards and best practices documents*: