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The CIA Triad

Within Cybersecurity, protecting important data and information from unauthorized access, alteration and unavailability are all priorities. The CIA which stands for Confidentiality, integrity and availability, serves as a model. The Triad ensures that information systems are secure (National Institute of Standards and Technology (NIST, 2020)). Authentication And authorization are also important regarding access control, and deciding how many people interact with the protected resources and data.

The Triad has three core principles. First is confidentiality. Confidentiality makes sure that sensitive information and data is only accessible by authorized parties. There are various security measures: encryption, ACLs and two factor verification. They all help to maintain confidentiality (NIST, 2020). For example, online banking makes you give your username and passwords, and another form of verification after to be extra sure. Integrity is next, and ensures that data is accurate and trustworthy. Organizations use digital signatures and checksums to protect data integrity and make sure it is unaltered as well (NIST, 2020). Software updates usually use checksums to make sure files have not been modified by unauthorized parties before they do anything. Lastly, we have availability, which makes sure authorized users can access data whenever they need to. Redundancy and disaster recovery helps maintain availability during system failure or attacks (NIST, 2020).

Two security concepts that regulate access to data are authentication and authorization. Authentication is a process of verifying someone's identity before granting them access. It answers if one claims to be who they say they are. Methods include passwords, two step verification and more. Authorization decides what a user is allowed to do within a system. It answers what actions the user is allowed to do and take. For example in a health record system database, doctors can update patient records but receptionists can only do things like deal with appointments (NIST, 2020).

The CIA Triad makes sure a network for cybersecurity is safely protected and accessible. Authentication and authorization are used and serve important purposes. The principles that need to be understood are necessary to implement a good security system in any business.

National Institute of Standards and Technology. (2020). *An introduction to information security*

(NIST Special Publication 800-12 Rev. 1). U.S. Department of Commerce.

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