GRC101 – WEEK 2 THEORY-BASED ASSIGNMENT

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Solution to Assignment

1. Regulatory compliance in the context of cybersecurity and information management involves the implementation of controls and measures to protect sensitive data, ensure privacy, maintain security, and meet legal obligations. Reasons why regulatory compliance is crucial for organizations include:
    - **Legal obligation**: non-compliance can result in severe legal consequences, including fines, penalties, and in some cases, criminal charges. For example, a data processing organization must comply with the principles guiding the processing activities of customers data based on the General Data Protection Regulation (GDPR). Failure to follow compliance relating to data processing activities will lead to penalty of £20 million or 4% of the global annual revenue.
    - **Reputation Management**: compliance failures can damage an organization’s reputation and erode stakeholder trust. For example, if an organization failed to comply with regulatory standard guiding their business activities, such as PCI-DSS for organizations that include credit card transactions in their activities, and they are faced with data breach leading to the loss of customers data including their credit card information being stolen, it will lead to reputation damage, and trust being broken by customers and stakeholders.
    - **Risk Mitigation**: regulations often address significant risks that could harm individuals, organizations, or society. Regulations like the ISO 27001 is a better example for this, the framework includes risk management which enables organization to identify, assess, avoid and mitigate risks in their organization.
    - **Competitive Advantage**: demonstrating strong compliance can differentiate an organization in the marketplace and build customer confidence. For instance, an e-commerce business that implements the GDPR will have an edge over another e-commerce business which fails to comply with the GDPR regulations. The E-commerce business that is GDPR compliance will build trusts in customers making them confident that their data is secure with them, this will give the organization a competitive edge over the other.
    - **Ethical Responsibility**: many regulations reflect ethical principles regarding the protection of individuals’ rights and interests. The GDPR ensures individual rights with their rights and compliance requirements. The GDPR individual right represents one of the most significant shaped in the privacy law, it changes the relationship between individual and the organization that processes their data. The rights such as right to asses, right to modify, right to erasure and others are not just a theoretical concept, they create practical obligation that organization must be prepared to fulfil.

2. The main drivers that have shaped the evolution of the regulatory landscape are; technology, globalization, industry maturity, high profile incidents.
   - **Technological Advancements**: the rapid pace of technological change has prompted new regulations to address emerging risks. There is high level of risk emergence due to advancement in technology, which also prompted regulatory bodies to advance in their policies, procedures and standards to ensure privacy and security of personal data and reduction in organization being faced with security breaches.
   - **Globalization**: increased cross-border data flows have led to more complex international regulatory frameworks. Organizations can now do business across borders due to globalization, this prompted the regulatory bodies such as the GDPR to come up with laws that will safeguard the processing activities of their citizen's data in which organization who wants to do business with any EU company must adhere to, to ensure smooth transactions and processing activities.
   - **High-Profile Incidents**: major data breaches and privacy scandals have catalyzed the development of stricter regulations. Many data breaches have been recorded over the years, which led to loss of personal information of customers, reputation damages for the organization, identity theft and many more, this act has led to regulatory bodies bringing up stricter policies that organizations must adhere to, to stay ahead of data breaches or at least minimise the rate at which it occurs.
3. Main challenges organizations face in achieving and maintain regulatory compliance and their impact:
   - **Regulatory Complexity**: the volume and complexity of regulations continue to increase. This might impact the ability of an organization to meet its compliance obligations. A large volume of regulations might burden an organization out, to not want to oblige fully.
   - **Jurisdictional Variations**: requirements can vary significantly across different jurisdictions.
   - **Rapid Regulatory Change**: regulations evolve quickly, requiring organizations to adapt.
   - **Resource Constraints**: compliance activities require significant resources, including personnel, technology, and funding.
   - **Technical Challenges**: implementing technical controls to meet regulatory requirements can be complex.
   - **Cultural Resistance**: embedding compliance into organizational culture often faces resistance.
4. Territorial scope of GDPR as it applies to:
   - **EU-based Organizations**: as long as an organization is based in any EU country, irrespective of where the data processing takes place, the GDPR applies to them as long as they process personal data.

- **Non-EU Organizations**: the GDPR applies to them as long as they offer good or services to individual in the EU. It does not necessarily require their physical presence in the EU.
- Practical Scenarios where a non-EU company would be subject to GDPR requirements:
    i. An Ecommerce website like Amazon that accepts order from the EU customer clearly targeted at the EU residents are subject to GDPR.
    ii. A golf course organization based in US that allows their website track cookies of visitors to their website including EU based countries.

5. A Data Controller is an entity that determines the purposes and means of processing personal data while a Data Processor is an entity that processes personal data on behalf of the controller. The table below explain the roles and obligations of Data Controllers and Data Processors under GDPR:

Data Controller	**Data Processor**
Implementing Appropriate Technical and Organizational Measure ensures that all processing activities comply with the GDPR.	Process Data Only on Controller's Instructions, by acting only on documented instructions from the controller
Data Protection by Design and by Default make sure data protection is implemented from the onset of system designs with highest privacy settings by default.	Ensure confidentiality by making sure that persons authorized to process personal data have committed to confidentiality.
Maintain records of processing activities by documenting processing activities, including the purpose of its creation, categories of data and data subjects, recipients, transfers, retention periods, and security measures.	Maintain records of processing activities by documenting processing activities carried out on behalf of a controller.
Conduct Data Protection Impact Assessments (DPIAs) by assessing the impact of processing operations that are likely to result in high risk to individual rights and freedom.	Assist the Controller to fulfil its obligations regarding data subject rights, security measures, breach notification, and DPIAs.
Ensure processor compliance by making sure only processors that provide sufficient guarantees to implement appropriate technical and organizational measures are used.	Demonstrate compliance by making available to the controller all information necessary to demonstrate compliance
Report Data Breaches by notifying the supervisory authority of personal data breaches without undue delay and, where feasible, within 72 hours.	Implement Security Measure by implementing appropriate technical and organizational security measures.

6. Data Protection Principles established by GDPR are:
    - Purpose Limitation: this principle requires that personal data being collected by organizations is being used for legitimate purpose only, and not for other processing activities. This principle is designed basically to address the tendency of data being collected for a particular purpose to be used gradually for another purpose without proper consideration or consent. Organization must clearly define why they collect personal data before they can collect it, and they must stick to those purpose unless there is a legal basis for additional processing. This principle addresses challenges like overuse of data by organizations, for instance if bank decided to use the data of their customer such as their emails for marketing purpose aside from banking processing activities without proper consent or consideration, they have defied the principle of purpose limitation.
    - **Data Minimization**: this principle requires personal data to be adequate, relevant and limited to the specific purpose for which it was collected. The principle, challenges organization to collect only the necessary data needed to regularly review their data collection practice and eliminate unnecessary processing.
    - **Accountability**: this principle requires organizations to implement a comprehensive privacy program that include the policies and procedures, staff training, privacy impact, assessment of data protection designed by default. Organization must maintain detailed record of their processing activities and be prepared to demonstrate their compliance to regulators and individuals.
7. a. Scope and applicability of HIPAA: HIPAA scope extends to covered entities, business associates and subcontractors:
    - **Covered Entities**: HIPAA covers healthcare providers such as doctors, clinics, hospitals, nursing homes, pharmacies, and other healthcare providers that transmit health information electronically in connection with covered transactions. Health plans such as health insurance companies, HMOs, company health plans, and government programs that pay for healthcare (e.g., Medicare, Medicaid) are also part of the covered entities HIPPA covered. Healthcare Clearinghouses are entities that process nonstandard health information they receive from another entity into a standard format are also applicable to HIPAA.
    - **Business Associates**: this scope covers persons or organizations that perform certain functions or activities on behalf of, or provide certain services to, a covered entity that involve the use or disclosure of protected health information. Example include; billing companies, practice management firms, cloud service providers, HER platforms and consultants.
    - **Subcontractors**: are persons or organizations to whom a business associate delegates a function, activity, or service. Subcontractors that create, receive, maintain, or transmit protected health information on behalf of a business associate.

b. Key components of HIPAA:

- **Privacy Rule**: the HIPAA Privacy Rule establishes national standards to how certain health information are protected with limits and conditions on the usage and disclosure of PHI without proper permission from its owner. Key provisions established include:
    - **Individual Rights**: such as right to access PHI, right to request amendment of PHI, right to an accounting of disclosures, right to request restrictions on uses and disclosures, right to request confidential communications, right to receive a Notice of Privacy Practices.
    - **Permitted Uses and Disclosures**: include patients' treatment, payment records and other healthcare operations, providing opportunity for individual to agree or object to the use and disclosure of their PHI.
    - **Authorized Uses and Disclosures**: uses and disclosures requiring an authorization, requirements for valid authorizations and compound authorizations and conditioning of authorizations
    - **Administrative Requirements**: this includes designation of a privacy official, workforce training, safeguards for PHI, complaint procedures, documentation requirements and mitigation of harmful effects.
- **Security Rule**: the HIPAA security rule establishes national standards to how ePHI (Electronic PHI) created, transmitted, stored and used by covered entities. It requires covered entities and business associates to implement administrative, physical, and technical safeguards:
    - Administrative Safeguards include security management process such as risk analysis, risk management, sanction policy and information activity review. It also covers assigned security responsibility, designating a security official. Workforce security such as authorization and supervision, workforce clearance, termination procedures are part of the administrative safeguards. Information access management, security awareness and training, security incident procedures, contingency plan, evaluation and business associate contracts are all administrative safeguards required for HIPAA security rule.
    - **Physical Safeguards**: are not limited to facility access controls, policy and procedures for workstation use, physical safeguards for workstations, device and media controls, the disposal, media re-use, accountability, data backup and storage are what made up of physical safeguard.
    - **Technical Safeguards**: include access control, audit controls, integrity controls, person or entity authentication and transmission security.

The Security Rule implementation specification can be categorised into either "required" or "addressable". Required specifications must be implemented while Addressable specifications are implemented if reasonable and appropriate, if not, the covered entity must document why it is not reasonable and appropriate.

- **Breach Notification Rule**: the HIPAA breach notification rule requires covered entities and business associates to provide notification following a breach of unsecured PHI. The following are steps to be covered in breach notification rule:
  - Definition of Breach
  - Notification to Affected Individuals
  - Notification to the Secretary of HHS
  - Notification to the Media
  - Notification by Business Associates
  - Content of Notifications.

c. HIPAA protects patient information and ensures healthcare data security by setting our standards for how covered entities such as healthcare providers manage, transmits, store and use patients' data. They ensure healthcare data security by setting out administrative, physical and technical safeguards to ensure healthcare data are not accessed by unauthorized user.

8. a. PCI-DSS applies to all entities involved in payment card processing, including:
   - Merchants: if they accept payment cards as a form of payment
   - Service Providers: if they store, processes, or transmits cardholder data on behalf of another entity, or that could impact the security of cardholder data.
   - Financial institutions: such as banks or other institutions that issue payment cards or that perform acquiring services.

   b. 12 requirements of PCI DSS:

   - **Install and maintain network security controls:** by installing and configuring security controls such as a firewall to restrict inbound/outbound traffic to/from the cardholder data environment with regular review of the network security controls.
   - **Apply secure configurations to all system components**: all system components in scope for PCI-DSS must be securely configured, all accounts used to access the cardholder data must be managed and maintained.
   - **Protect stored account data**: storage of account data must be limited to what is necessary for business, protect stored account data such as the Primary Account Number (PAN), mask PAN when displayed, render it unreadable anywhere it is stored, implement key management processes and procedures for cryptographic keys.
   - **Protect cardholder data with strong cryptography during transmission over open, public networks**: by using strong cryptography and security protocols to safeguard sensitive cardholder data during transmission.
   - **Protect all systems and networks from malicious software**: by deploying up-to-date anti-malware solutions on all system components commonly affected by malware

- **Develop and maintain secure systems and software**: by establishing a process to identify and manage security vulnerabilities.
- **Restrict access to system components and cardholder data that business needs to know**: by defining access and restricting access to privileged users only.
- **Identify users and authenticate access to system components**: by defining and implementing policies and procedures to ensure proper user identification and authentication management.
- **Restrict physical access to cardholder data:** by implementing appropriate facility entry controls to restrict physical access to systems in the cardholder data environment.
- **Log and monitor all access to system components and cardholder data:** by implementing audit trails to link all access to system components to each individual user.
- **Test security of systems and networks regularly**: by implementing processes to test for the presence of wireless access points.
- **Support information security with organizational policies and programs**: by establishing, publishing, maintaining, and disseminate a security policy.

c. Different compliance levels and validation processes:

Merchant Compliance Levels (Visa/Mastercard):

- **Level 1**: Merchants processing over 6 million card transactions annually, or merchants that have experienced a data breach. Requirements: Annual Report on Compliance (ROC) by a Qualified Security Assessor (QSA) or Internal Security Assessor (ISA), quarterly network scans by an Approved Scanning Vendor (ASV), and Attestation of Compliance (AOC).
- **Level 2**: Merchants processing 1 to 6 million card transactions annually. Requirements: Annual Self-Assessment Questionnaire (SAQ), quarterly network scans by an ASV and AOC.
- **Level 3**: Merchants processing 20,000 to 1 million e-commerce card transactions annually. Requirements: Annual SAQ, quarterly network scans by an ASV, and AOC.
- **Level 4**: Merchants processing fewer than 20,000 e-commerce card transactions annually, or all other merchants processing up to 1 million card transactions annually. Requirements: Annual SAQ, quarterly network scans by an ASV (if applicable), and AOC.

Service Provider Compliance Levels:

- **Level 1**: Service providers processing over 300,000 card transactions annually. Requirements: Annual ROC by a QSA, quarterly network scans by an ASV, and AOC.
- **Level 2**: Service providers processing fewer than 300,000 card transactions annually. Requirements: Annual SAQ, quarterly network scans by an ASV, and AOC.

Validation Processes: this process varies depending on the compliance level but generally includes the following steps:

- **Scope Determination**: identifying all system components in the cardholder data environment.
- Assessment
- Vulnerability Scanning
- Reporting
- Continuous Compliance.

d. Consequences for Non-Compliance:

- **Fines**: ranging from $5,000 to $100,000 per month, depending on the merchant's size, level of non-compliance, and the payment card brand.
- **Increased Transaction Fees**: higher per-transaction fees may be imposed
- **Card Replacement Costs**: in the event of a breach, merchants may be responsible for the cost of reissuing compromised cards.
- **Forensic Investigation Costs**: merchants may be required to pay for a forensic investigation following a breach.
- **Brand Damage**: reputational harm and loss of customer trust.
- **Termination of Processing Privileges**: in severe cases, merchants may lose the ability to process payment cards.

9. ISO Standards:

ISO/IEC 27001	ISO/IEC 27002	ISO/IEC 27701	ISO 31000
Provides framework for establishing, implementing, maintaining, and continually improving an information security management system	Provides guidelines for information security controls. It complements ISO 27001, by providing detailed guidance on implementing ISO 27001 controls.	An extension to ISO 27001, and 27002 for privacy information management. Provides a framework for establishing, implementing, maintaining and continually improving a Privacy Information Management System (PIMS)	Provides principles and guidelines for effective risk management, ISO 31000 is a general risk management standard applicable to any type of risk, unlike ISO 27001 which focuses on information security.

These standards complement each other by providing a comprehensive framework for information security and risk management. ISO 27001 provides framework for an ISMS, while ISO 27002, provides guidance on implementing the controls, ISO 27701 extends ISO 27001, by providing requirement for privacy information management, ISO 31000 provides a broader risk management framework. If organization implements these multiple ISO standards, it will enhance their security posture, help them in demonstrating compliance and improve their risk management approach.

10. Cross-Regulatory compliance is when organizations have to comply with multiple regulations, laws and standards simultaneously, especially if they operate across borders. Challenges organization face when dealing with overlapping requirements include; documentation alignment, control rationalization, regulatory mapping.

Strategies for unified compliance according to *ZenGRC* *(https://www.zengrc.com/blog/efficient-compliance-harmonizing-multiple-regulatory-frameworks/)*

Step 1: inventory your compliance obligations: start by cataloguing all regulatory frameworks, standards that applied to the organization

Step 2: map controls across frameworks

Step 3: create a harmonized control framework

Step 4: implement a centralized evidence collection process

Step 5: establish ongoing monitoring and maintenance