**Final Portfolio Project: Data Security and Management Plan**

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MIS455: Data Ethics

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July 7, 2024

**Milestone One: Data Security Plan** My prerogative, as the project manager, is to lead the development of ABC Company's data security plan. With our transition to cloud-based operations impending, safeguarding our sensitive data, including government contracts, is paramount. This plan is designed to ensure the integrity, confidentiality, and availability of our data assets in the cloud, aligning with our objectives to maintain business continuity, regulatory compliance, and our esteemed reputation for quality (van Gils, 2020). Our assets encompass internal and external servers and storage, housing proprietary manufacturing data, government contracts, and customer information. To effectively manage this data, it'll be classified into three categories: highly sensitive, sensitive, and non-sensitive, each with corresponding security measures. Highly sensitive data will be stored in encrypted cloud storage with stringent access controls, while sensitive data will reside in a secure, encrypted environment with regular backups. Non-sensitive data will be housed in standard cloud storage with basic security protocols. (van Gils, 2020) To boost security, role-based access control (RBAC) and multi-factor authentication (MFA) will be implemented, ensuring only authorized personnel have access to sensitive information. Regular security audits and vulnerability assessments will be conducted to mitigate risks, alongside logging and monitoring mechanisms to track data access and changes. Furthermore, comprehensive training sessions on data security best practices and phishing awareness campaigns will be conducted to equip employees with the necessary skills for handling sensitive data securely. We'll enforce robust password policies and encryption for data at rest and in transit, minimizing the risk of unauthorized access. Addressing potential data bias, we'll review data collection methods, utilize diverse datasets for machine learning, and monitor algorithms to prevent biased decision-making. Our data analytics plan will leverage advanced analytics for anomaly detection and predictive analytics for anticipating security threats, ensuring proactive risk mitigation (van Gils, 2020). By implementing these measures, we aim to mitigate overall risk, safeguarding against financial losses and reputational damage. While the initial implementation may take 3-6 months, ongoing maintenance and updates are essential for sustained value. Financial considerations include budget allocation for cloud security services, encryption tools, and employee training programs. Investing in a hearty security framework now will yield long-term benefits, safeguarding our data assets and upholding our reputation for quality. Additionally, understanding the different types of data, including master data, unstructured data, transactional data, metadata, hierarchical data, and reference data, will enhance our ability to manage and analyze data effectively, driving better outcomes (Data Strategy’s Influence on Five Aspects of Analysis, 2023). Furthermore, the establishment of data governance policies is foundational for operationalizing our data governance program. These policies serve as guiding principles for decision-making, ensuring data management efficiency and protection. Collaboratively developed by the data governance board, data stewards, and data owners, these policies cover various data management areas, including metrics for determining success, roles and responsibilities, data quality, security and access, and compliance requirements (Creating data governance policies, 2023). Following a structured, Agile approach, we will understand the need for each policy, conduct thorough research, develop the policy collaboratively, seek approval from the data governance board, and effectively communicate the policy to all stakeholders. This systematic process will ensure the successful implementation of data governance policies, setting the foundation for effective data management and protection across ABC Company.

**Portfolio Continuation of Data Management Plan:**

The establishment of a comprehensive data management plan is the next strategic step for ABC Company, building upon the foundational security protocols outlined in the data security plan. This plan integrates organizational objectives with efficient data management practices to optimize operational efficiency and mitigate risks associated with data handling.

ABC Company's organizational goals encompass maintaining data security, enhancing operational efficiency, and ensuring compliance with regulatory requirements. Given our extensive government contracts and sensitive customer information, our primary objective is to streamline operations, reduce data-related risks, and uphold our reputation for quality and reliability in the marketplace. Organizational Assets With approximately 5000 employees and a large customer base, ABC Company operates with a significant infrastructure of internal and external servers and storage facilities. These assets are mandatory for managing and storing proprietary manufacturing data, sensitive customer information, and contractual obligations with various vendors, including government entities. (Martin, 2022) Building upon the data security plan, ABC Company's data management plan incorporates stringent security policies tailored to different data classifications. Highly sensitive data, such as government contracts and proprietary designs, will be stored in encrypted cloud environments with restricted access and regular audits. Sensitive data, including customer information and operational data, will also benefit from encrypted storage solutions and robust access controls to prevent unauthorized access and data breaches. Non-sensitive data will be stored in standard cloud environments with basic security measures, ensuring operational flexibility without compromising security. (van Gils, 2020)

Authority and access control policies within our data management plan ensure that only authorized personnel have access to sensitive and classified data. RBAC assigns specific roles and responsibilities, granting access based on job functions and security clearance levels. MFA adds an additional layer of security by requiring multiple forms of verification to authenticate user identities and mitigate potential security threats. (Bowman and Tunks, 2024)

Effective data classification is pivotal in our data management plan, categorizing data into highly sensitive, sensitive, and non-sensitive categories based on importance and confidentiality. This classification facilitates streamlined data management operations, ensuring appropriate security measures are applied to protect sensitive information across all operational levels. (van Gils, 2020)

A critical component of our data management plan is security awareness and training programs designed to educate employees on data security best practices and procedures. Regular training sessions will be conducted to enhance employee awareness of phishing threats, social engineering tactics, and data handling protocols. By empowering employees with the knowledge and skills to identify and respond to potential security risks, ABC Company strengthens its overall security posture and minimizes the likelihood of human error leading to data breaches. (Stair & Reynolds, 2018) ABC Company's password and encryption policies are integral to maintaining data security and confidentiality. Strong password policies require employees to create complex passwords and change them regularly to prevent unauthorized access. Encryption protocols are implemented for data at rest and in transit, ensuring sensitive information remains protected from interception and unauthorized disclosure. (van Gils, 2020) Incorporating advanced analytics and automation tools introduces the potential for biases that must be addressed proactively. Bias in data analytics can arise from skewed data samples, algorithmic biases, or inherent biases in data collection methods. To mitigate these biases, ABC Company adopts diverse dataset approaches, ensuring representation across different demographics and user groups. Regular audits and validation checks of algorithms identify and rectify bias, promoting fair and unbiased decision-making processes. (Martin, 2022)

ABC Company's data analytics plan focuses on leveraging advanced analytics techniques, such as anomaly detection and predictive analytics, to proactively identify and mitigate security threats. By analyzing patterns and trends in data, we anticipate potential risks and vulnerabilities, enabling timely intervention and risk mitigation strategies. Real-time monitoring and reporting through BI tools and dashboards provide senior leadership with actionable insights into data security metrics and performance indicators.

Strategy to manage data within the Organization ABC Company employs a sophisticated strategy to manage data across its operations, utilizing document and content management systems (DCMS) tailored to handle diverse data sources and formats. Our DCMS ensures secure storage, retrieval, and dissemination of documents related to parts assemblies, vendor contracts, and internal communications. By standardizing data entry protocols and synchronization mechanisms, we maintain data consistency and integrity across all departments and operational units. (Martin, 2022) Maintaining data consistency is vital for ABC Company's operational efficiency and product quality. Standardized data entry protocols, regular data audits, and synchronization mechanisms ensure uniformity and accuracy in data interpretation and reporting. By eliminating discrepancies and errors in data, we enhance decision-making capabilities and operational performance across the organization. (van Gils, 2020) ABC Company's data quality plan emphasizes proactive measures to prevent and correct data errors through continuous monitoring and validation processes. Data quality standards ensure accuracy, completeness, and reliability of information. Automated data validation checks and data profiling tools identify and rectify quality issues promptly, ensuring high standards of data accuracy and reliability. (Martin, 2022) ABC Company prioritizes accountability and transparency in data management, assigning clear responsibilities and roles to ensure compliance with data protection principles and regulatory requirements. Transparent data usage policies and practices promote ethical data handling and trust among stakeholders. By fostering a culture of transparency, ABC Company enhances data integrity and mitigates the risk of data misuse or unauthorized access. (van Gils, 2020)

Master and reference data sets play a pivotal role in maintaining data integrity and consistency across ABC Company's operations. Master data management (MDM) ensures accuracy and reliability of key business entities, such as customer information, product details, and vendor records, across internal and external data sources. Reference data sets provide a standardized framework for data interpretation and reporting, supporting informed decision-making and regulatory compliance. (van Gils, 2020) ABC Company's automation tool strategy leverages advanced technologies, including natural language processing (NLP), artificial intelligence (AI), and machine learning (ML), to enhance efficiency and accuracy in data management processes. NLP tools streamline text analysis and sentiment detection, facilitating faster insights into customer feedback and market trends. AI and ML algorithms enable predictive analytics capabilities for proactive decision-making. However, the adoption of automation tools requires careful consideration of their pros and cons to mitigate risks, such as algorithmic biases and data privacy concerns. (Martin, 2022) Pros and Cons ABC Company utilizes various automation tools, each offering specific advantages and limitations. NLP tools expedite text analysis and sentiment detection, facilitating faster insights into customer feedback and market trends. However, initial setup costs and ongoing maintenance requirements may pose financial challenges. AI and ML algorithms enhance predictive analytics capabilities, enabling data-driven insights for strategic decision-making. Nonetheless, ensuring algorithmic fairness and transparency is crucial to mitigate biases and uphold ethical standards in data management. (Martin, 2022) To address potential biases in automation tools, ABC Company implements rigorous validation checks and diversity strategies in data collection and algorithm development. Diverse dataset approaches ensure representation across different demographics and user groups, minimizing biases in predictive models and decision-making processes. Regular audits and transparency in algorithmic processes promote fairness and accountability, fostering trust among stakeholders and enhancing the reliability of automated insights. Analytics and business intelligence (BI) play an important role in ABC Company's data strategy, providing actionable insights into operational performance, customer behavior, and market trends. BI tools aggregate and analyze data from various sources, enabling real-time reporting and decision support across the enterprise. (van Gils, 2020)

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