1. Explain the elements of data strategy based on the article or other material by using cited statements and references
2. Data security: it’s one of the key objectives in Data Defense, which is a part of data strategy. Data defense is about minimizing downside risk. Using analytics to detect and limit fraud, and building systems to prevent theft, which is related to data security. Data security means protecting digital data, such as those in a database, from destructive forces and from the unwanted actions of unauthorized users, such as a cyberattack or a data breach.[1] I think data security is mainly related to taking actions to prevent data being stolen, destroyed and so on.
3. Data Privacy: is the relationship between the collection and dissemination of data, technology, the public expectation of privacy, and the legal and political issues surrounding them. Data privacy issues may arise in response to information from a wide range of sources, such as: Healthcare records, Financial institutions and transactions and so on.[2] It is also the key objectives in data defense, and also this part is what should be defensed.
4. Data integrity: Data integrity is a fundamental component of information security. In its broadest use, “data integrity” refers to the accuracy and consistency of data stored in a database, data warehouse, data mart or other construct[3]. Data integrity is one of the key objectives of data defense, defensive efforts also ensure the integrity of data flowing through a company’s internal systems by identifying, standardizing, and governing authoritative data sources.
5. Data quality: it refers to the condition of a set of values of qualitative or quantitative variables. There are many definitions of data quality but data is generally considered high quality if it is "fit for its intended uses in operations, decision making and planning"[4]. It is one of the key objectives in data defense, I think there should be some operations to ensure the data quality in data strategy.
6. Data governance: it is a defined process an organization follows to ensure that high quality data exists throughout the complete lifecycle. The key focus areas of data governance include availability, usability, integrity and security. In data strategy, governance controls help to ensure that the data can be relied on in defensive and offensive activities.
7. Data extraction: is where data is analyzed and crawled through to retrieve relevant information from data sources (like a database) in a specific pattern, the process of data extraction involves retrieval of data from disheveled data sources. The data extracts are then loaded into the staging area of the relational database. [6]. In data strategy, it is one of the core activities.
8. Data standardization: is the critical process of bringing data into a common format that allows for collaborative research, large-scale analytics, and sharing of sophisticated tools and methodologies[7]. In data strategy, defensive efforts also ensure the integrity of data flowing through a company’s internal systems by identifying, standardizing, and governing authoritative data sources.
9. Data Storage: is a general term for archiving data in electromagnetic or other forms for use by a computer or device. Different types of data storage play different roles in a computing environment. In addition to forms of hard data storage, there are now new options for remote data storage, such as cloud computing, that can revolutionize the ways that users access data[8]. It is also one of the core activities of defense of data.
10. Data access: typically refers to software and activities related to storing, retrieving, or acting on data housed in a database or other repository. Data access crucially involves authorization to access different data repositories. Data access can help distinguish the abilities of administrators and users. For example, administrators may have the ability to remove, edit and add data, while general users may not even have "read" rights if they lack access to particular information[9]. Cross-industry studies show that on average, more than 70% of employees have access to data they should not, so data access controls are important, it is one of the core activities in data defense.
11. Single source of truth: In the data strategy, we can find the definition: The SSOT is a logical, often virtual and cloud-based repository that contains one authoritative copy of all crucial data, such as customer, supplier, and product details. It must have robust data provenance and governance controls to ensure that the data can be relied on in defensive and offensive activities, and it must use a common language—not one that is specific to a particular business unit or function. Thus, for example, revenue is reported, customers are defined, and products are classified in a single, unchanging, agreed-upon way within the SSOT. It is the enabling architecture for data defense.
12. Explain, why it is important to take into the consideration both exploitation/defense and exploration/offence.

Exploration requires managers to neglect familiar routines and listen to the employees in the organization and learn from them instead of giving orders

Exploitation usually signifies top-down orders as opposed to learning from subordinates, formal routines and guidelines and established procedures that support the existing course of action.

Exploration is rooted in learning through trial and error experimentation, exploitation refers to stability and maintenance activities and meticulous problem-solving. Where exploration creates a future that may require processes created in the past to be abandoned, exploitation builds on an organization’s existing competences, moreover, products that have been created as a result of exploration activities are often competing with existing products that exploitation activities maintain and refine. Exploration refers to change, whereas exploitation adheres to continuity.

A paradox refers to the tensions in a situation, which are juxtaposed through an actor’s cognition that requires both exploration and exploitation. March (1991) and later Levinthal and March (1993) made it clear that organizations need to conserve the balance between exploiting the existing competencies and investing sufficient resources for exploring new business opportunities that ensure future success or survival at least. March discussed firms’ exploitation actions describing those as “refinement, choice, production, efficiency, selection, implementation, [and] execution” and stated that its opposite, exploration tasks, are characterized by “search, variation, risk taking, experimentation, play, flexibility, discovery, [and] innovation”. Finding, achieving or maintaining this balance between exploration and exploitation ambidexterity literature refers to “being ambidextrous”, “acting ambidextrously” or “building ambidexterity”.

While the strong focus on exploitation might deliver positive short-term results, and performance is likely to be more steady for a certain time, paths to new opportunities in volatile markets can be blocked.

Similarly, mere focus on exploration might significantly reduce efficiency within the company due to the inability to improve existing processes and that the performance of explorative organizations is characterized by greater fluctuations, which can become great success stories but also bring a risk of a failure. Thus, the recommendation from the ambidexterity scholars is to find ways to invest enough managerial attention and resources to both, exploration and exploitation activities.Characteristic to the exploration and exploitation activities is that the need to satisfy these opposite demands cause tensions. So we need to take into the consideration both exploitation/defense and exploration/offence, both are important and the tradeoff between both should be find for optimization.

Reference:

[1] <https://en.wikipedia.org/wiki/Data_security>

[2] <https://en.wikipedia.org/wiki/Information_privacy>

[3] <https://www.veracode.com/blog/2012/05/what-is-data-integrity>

[4] <https://en.wikipedia.org/wiki/Data_quality>

[5] <https://en.wikipedia.org/wiki/Data_governance>

[6] <https://www.techopedia.com/definition/25328/data-extraction>

[7] <https://www.ohdsi.org/data-standardization/>

[8] <https://www.techopedia.com/definition/23342/data-storage>

[9] <https://en.wikipedia.org/wiki/Data_access>

[10]<https://www.doria.fi/bitstream/handle/10024/143656/P%C3%A4ivi%20Karhu_A4_artik_6.pdf?sequence=2>