SDLC and STLC. Software development methodologies

Assignment

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- Make a **comparative table** of the most common methodologies
- *In your answer, support your opinion on why a given strength/weakness/appropriate field of application is proper for the methodology.*

1. Waterfall methodology: Sequential - no overlapping - fixed

PROs	CONs	INDUSTRY
Predictable costs, defined time scales, ready-made projects	**Monotonous, longer time metrics, fixed sets of features**	**Medical, military, classic retail chains**

- **Predictable costs and defined time** - in offline **retail** services: I consider that in this type of industry, a waterfall model would be a **PRO**, due to no constraint of investments - retail already has the assurance of money from their business income because it's fluid, long-term and continuous regardless of a software that is needed for POS, as an example, or embedded barcode scanning software. I present these examples because **retail** has relied from its early times on non-software procedures, they benefit from traditional human labor and practical operations (written docs, cash registers, etc.)

- **Fixed sets of features** - in medical services: Although it sounds like an advantage, it is practiced and used by **medical** services where the features of a product should be well-defined, reliable and secure regarding the risks and human life at stake. But the **CON** aspect is that the industry is relying on a constantly changing environment which is human health. With this example, I want to point out that if a fixed set of features for an embedded system (such as CT scan, drug or viruses tests, etc.), is targeted for a specific set of data, which was predefined in its planning, when the environment and data sets are changing (new brain-damage conditions, newly discovered drugs or viruses, etc.) then the whole system is outdated and it cannot be used on such new environments and new separate products should be deployed.

  The waterfall model, with its fixed features, is fit for fixed products that could not be changed after they are released and I would list as example products such as in the **military** industry - in aviation, a view-point or bird's eye display screen.

2. Agile methodology: Iterative - collaborative - adaptive

PROs	CONs	INDUSTRY
Dynamics, early improvement, fast deployment, for big projects	**Unpredictable costs and resources, changing technology, ever-growing environment**	**e-Commerce, Software**

- I will start with the **PRO**s of this methodology regarding e-Commerce systems, since they have evolved from the traditional aspects and into a continuously changing environment which is IT and relies on customer's demands that are changing as well. The benefits of Agile would be highly relevant here, since **e-Commerce** main focus is meeting customers' expectations. By its dynamic aspect this methodology serves this system well starting from website design to payment processes. (changes, fixes, updates).

What I mean by that is, a customer mindset is interested in the ‘new’ and ‘convenience’ and if an e-Commerce platform needs to adapt to new design and effortless payment or purchasing processes, it can make changes in the product requirements and be deployed in the same time that the expectations could arise, which is as fast as possible.

- In the same example, the **CON** aspects of using this methodology, is that they can get costly as the customer’s needs and technology is constantly evolving. In an **e-Commerce** platform, if I focus on the security transactions, there is always a risk of breaches and the continuous need to keep up with cybercrime and this varies in many incremental ways. Starting from the smallest bits of an e-shop’s website, if it gets flawed just by a DDoS attack, this can spread throughout the whole product since Agile is best fit for huge projects. Breaching an e-Commerce environment affects each life cycle stage, requirements for security need to be re-evaluated, adapted and be valid, then it proceeds to re-designing and testing the new security changes further to deployment of upgrades or fixes. These processes would take up additional time and costs that are not predictable because the breach was unpredictable in the first place.

The Agile methodology is versatile, fast, and vast to both positive and negative aspects but it fits better for this new age of technology where everything is constantly changing, it can assure faster delivery when compared to the traditional sequential methodologies and higher flexibility.