The Role of Product Mindset and Customer-Centric Approach in Technology Modernization

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Abstract

Technology modernization involves updating an organization's infrastructure to incorporate advanced solutions like cloud computing, enabling businesses to improve efficiency, reduce costs, and remain competitive. Central to successful modernization is the adoption of a product mindset, emphasizing iterative development, continuous improvement, and a customer-centric approach. This mindset ensures that modernization aligns with user needs and market trends, enhancing the customer experience. This paper emphasizes the importance of customer first mindset when a product is going through a technology modernization and highlights on what could go wrong if modernization is not envisioned through a customer's perspective. The paper also discusses the critical role of real-time and near real-time data processing in delivering seamless customer experiences. Through examples, such as real-time updates in banking applications, the impact of these technologies on customer satisfaction is highlighted.

Keywords: Technology Modernization, Cloud Computing, Artificial Intelligence, Product Mindset, Customer Centricity, Real-time Data Processing

1. What is Technology Modernization?

Technology modernization is the process of updating an organization's technological infrastructure and systems to align with emerging modern solutions. In an increasingly competitive landscape, businesses must modernize to remain agile and responsive to market demands. By leveraging modern tools such as Artificial Intelligence (AI) and cloud computing, companies can reduce operational costs, enhance efficiency, and improve overall security. This paper explores the role of technology modernization in enhancing competitive advantage, specifically to transition to Cloud Based solutions with particular emphasis on product mindset and customer-centric approaches.

Key benefits of technology modernization include:

- **Reduced Downtime**: modernization reduces application downtime due to the newer and more reliable technologies. New technologies include features like built-in redundancy, automated failoverresulting in fewer system crashes, faster recovery timesultimately minimizing downtime periods.This avoidsproduct delays and ensures high availability.
- **Speed to Market**: improved speed to market by achieved due to streamlined processes through automation. This enables faster development cycles, better collaboration tools, which allows businesses to rapidly scale and adapt to market changes.
- **Better Scalability**: new technologieshandle increased workloads and adapt to changing business needs by utilizing modern architectures like cloud computing. It allows flexible resource allocation and seamless scaling up or down based on demand. This helps product to be more adaptable to future growth without compromising performance
- **Security**: Tech modernization improves security by allowing organizations to implement advanced security features like encryption, intrusion detection, and multi-factor authentication. This ensures better

protection againstcustomer data and staying compliant with current security standards while mitigating the risks of cyberattacks.

2. Why is a Product Mindset Important in Technology Modernization?

A product mindset is essential for successful technology modernization. It emphasizes on long-term strategy, iterative development, and continuous improvement. A product mindset helps you focus on user experience and ensures modernization does not downgrade customer experience leading to user frustration and eventual loss of the customer.

Key elements of a product mindset are:

- Customer Centricity: This involves understanding and addressing the customer expectationand desires at the core of every product development.
- Product Data Driven decision making: This involvesapproaching product development by relying heavily on data accuracy and consistency. It is important to make sure modernization does not affect or downgrade an existing experience in terms of what data is provided to the customer and how accurate it is.

An example to learn from would be the failed modernization effort of the UK's National Health Service (NHS) National Program for IT (NPfIT). The NHS in the UK embarked on a massive modernization effort to digitize patient records and centralize healthcare data with the NPfIT in the early 2000s. The project faced numerous problems and by 2011, the government abandoned the initiative after spending billions of pounds. In case of NPfIT, the understanding was that the end-users including doctors lack of visibility into the planned target state system was the root cause of gaps identified between what was needed and what was being built that led to its failure.

Another infamous example was Target's Expansion into Canada (2013-2015); When Target attempted to expand into Canada, they modernized their technology systems, including inventory management and supply chain systems. However, the systems failed to integrate properly, leading to significant stock shortages. The company's inventory was often out of sync with what was on the shelves, and they were unable to meet customer demand. This technology failure contributed to Target's ultimate exit from Canada, resulting in millions of dollars in losses.

3. Importance of Customer Centricity alignment with Tech Modernization

Technology modernization often encounters challenges around how new technologies can be used to enhance tech capabilities and keep the use experience optimal. In cloud adoption, modernization generally involves creating API's/microservices and in certain cases use of event-driven or batch-basedtechnologies to make data available to the customer.

Below is an example on how customerexperience is affected when modernization uses Real-time and Near Real-time data processing technologies. Real-time data processing and near real-time data processing are terms used to describe how quickly data is processed and made available for use. The key difference lies in the strictness of the timing requirements. This aspect of data could drive how customer gets to feel and utilizes experiences provided by the product.

Real-time Data Processing

Real-time processing refers to systems that process data immediately as it is received. The primary goal is to

handle data with no significant delay so that actions or decisions can be made without interruption. This is critical in situations where instant responses are necessary, such as:

- **Financial Markets**: Where stock prices and trades need to be processed as soon as they occur.
- **Autonomous Vehicles**: Where decisions must be made in real time to ensure safety.

Near Real-time Data Processing

Near real-time processing refers to data that is processed shortly after it is received, but with a slight delay—typically from a few seconds to a minute or so. While it's almost immediate, there's typically some buffer in processing, making it suitable for scenarios where a slight delay is acceptable, but where it's still important to process and react to data quickly, such as:

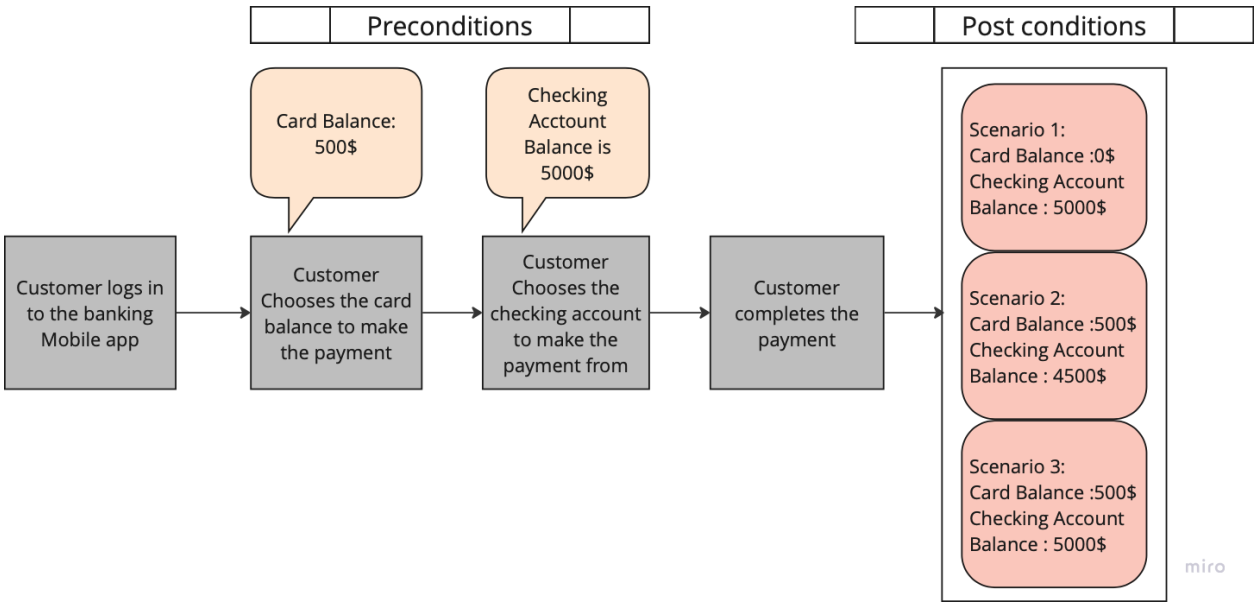
- **Social Media Platforms**: Where posts or tweets are processed in near real time for analytics or recommendations.
- **Weather Forecasting**: Real-time data collection happens continuously, but the processing of this data might not be instantaneous, yet still within a short window.

Example: Real-time vs. Near Real-time Processing and its impact to Customer Centric experiences

In the scenario where a customer logging into their banking mobile application and trying to make a payment on the outstanding balance of the credit card, the importance of real-time processing is demonstrated.

Near Real-time processing:

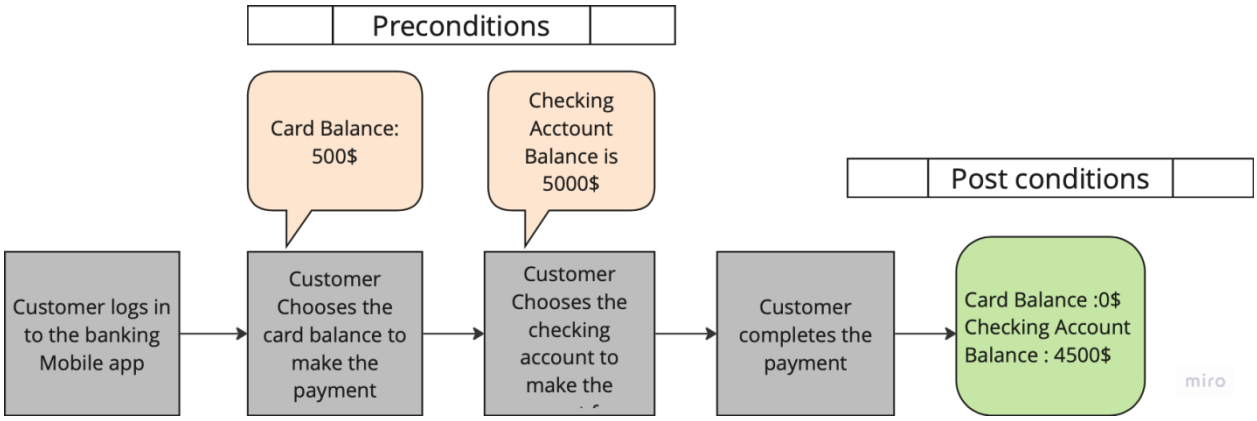
What the customer experience could be if a near real-time data processing utilizes technologies like event-driven or batch processing mechanism is demonstrated below.



- **Preconditions**: Customer logs in to the Mobile Banking app and before the payment is made, Card Balance = $500, Checking Account Balance = $5000.
- **Post-Conditions**:
    - **Red Box (Near Real-time)**: Since the interactions between the systems was not real time, data update and hence visualization was delayed causing confusion about updates on the accounts and eventually doubting the success of the payment itself.

- **Scenario 1**: Update to checking account was not real time making the customer worry when the money will be deducted from the checking account
- **Scenario 2**: Update to the card balance was not real time questioning if the payment was a success.
- **Scenario 3**: Both the checking account and Card balances were not updated leading to confusion around if the payment was event made successfully.

Real-time processing:
Real-time data processing utilizes technologies like API driven interactions



- **Preconditions**: Before the payment is made, Card Balance = $500, Checking Account Balance = $5000.
- **Post-Conditions**:(Card Balance = $0, Checking Account Balance = $4500).
    - **Green Box (Real-time)**: Since data transmission and updates were in real-time balances updates accurately leading to optimal experience on updates and visualization as well.

The examples clearly explain how a sub-optimal customer experience can be created if technology modernization is not done with a customer centric mindset. Customer frustration is one of the main causes affecting brand loyalty and at times leading to customer loss. Product Mindset is key to aligning customer needs to products technology goals they both need to go hand in hand to create a successful product for the customer and the organization.

4. Conclusion

In today's rapidly evolving technology advancements, modernization is essential for organizations seeking to stay competitive and efficient. Central to this transformation is the adoption of a product mindset, which fosters iterative development, continuous improvement, and a strong focus on customer-centricity. This approach ensures that modernization efforts are directly aligned with user needs, driving innovation and improving overall customer experiences.Moreover, utilizing the right technology stack for the product plays a pivotal role in enhancing customer satisfaction by providing timely, accurate information.

By combining technology modernization with a product-first mindset and a customer-centric approach, organizations are better positioned to navigate challenges, foster innovation, and achieve sustained competitive advantage. This holistic approach will not only improve customer engagement but also enable businesses to thrive in a digitally driven future.

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