

COVER PAGE

SS ZG622 – Software Project Management
2023-24 Semester I

Individual Assignment #1 (10 marks)

[Project topic – Build or Buy decision making]

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[Satish Kumar Sharma] and [2022MT93327]

1 - Real-life Scenario

1.1 Company and the projects

ABC Solutions DMCC is an information technology company. Provide the most comprehensive very advance software solutions in Financial and Core banking sectors, digitalizing the banking and financial sectors.

Strategic objectives are reduced cost, increase speed and keep financial service save and simple. Build strong close relationship with partnership with future IT leaders.

Solutions includes software development, Mobile/Tablet biometric digital onboarding, Core banking system, Agent payment services, Network and IT security solutions ...etc. Company also provides the consultancy services to the other software firm. Company has expertise in the Infrastructure and database development as well.

Company has Vision to digitalize the financial sectors. Values of the Company is Commitment, Clarity and Transparency, Respectfulness, and Social Responsibility.

List of services of ABC Solutions DMCC.

Domain	Service
Software development	End to End IT project development. New application development and Modification or rebuilding application.
Database development	Development, performance enhancement, Configuration, and Query performance.
Network, IT infra and security	Security solution, Advance network solutions, and support.
Consultancy	Software consultancy service.

Project1: Customer on boarding – Onboard new customer digitally by mobile and customer tablet device. Feature includes Scan and upload documents, Capture photo, Biometric finger print capture, Face Id recognition, and send digital receipt to WhatsApp and Email id. This solution will enable financial institutes to onboard new customer or update KYC of exiting customer through the Tablet application. It will help company reduce paper use and follow go green initiative.

Project2: Core banking system- Core banking system provide the capability to perform debit and credit transactions. CBS daily banking transactions, post entry to the account, and other financial entries and records. Company has T24 core module banking system. Customer can open account, deposit money, withdrawal money, bill payments, transaction ledger, send remittance, corporate banking, receive remittance, ...etc. This project enables financial institutions to focus on expand their branches in short time without waiting for long time.

CBS system has an interface to general ledger system and the report system. System has separate admin and customer portal to perform the operations and other transactions. Also have COB (closing-of-business) module is most important T24 activity that brings all the events of the days and process them on daily basis.

CBS system also having a front-end mobile application in android to ease customer to perform their transactions from any ware.

1.2 Build or Buy decision making

Build or Buy decision making in software developments is a crucial decision, it has direct impact on company growth, cost, other expenses, and time to market. It is all depends on your development team capability, project complexity, available infrastructure and budget. There are three major parameter problem, resource and cost.

Build means building a software solution in-house. Build a software development team, infrastructure, hire a specialist with respect to project type and complexity.

Buy means purchasing a software solution from vendors or solution providers. Buying a solution generally need less time and money with compare to building an in-house software. Off-the-shelf solution already develop and ready for use with small changes.

Advantages of Build and Buy the software solutions as follow.

Build	Buy
Full Code ownership	Tested software solutions
Easy to customize	Easy to integrate
Compatibility with system	Rapid prototype and POC
Application support	Less time to market, Fast development

Disadvantages of Build and Buy the software solutions as follow.

Build	Buy
Huge upfront money and expense	Less upfront money and expense
Take lot s time to build	Faster development & implementation
Development risk – Final output	No development risk

In **Customer on boarding** company stakeholders and C-level executive has few meetings, brainstorming and consolidated a listed of advantages and limitations of In-house development and then listed same advantages and limitations of outsourced or buy the solutions options.

Based on the final discussion and considering the projects dynamic requirements and unique complex solutions. Mr. Panday (CTO) strongly suggested to develop in-house solutions. Therefore, everyone was agreed with him to **“Build” in-house** generic solutions. This project has potential to sell in market as well.

In Core banking system company stakeholders and C-level executive has few meetings, brainstorming and consolidated a listed of advantages and limitations of In-house development and then listed same advantages and limitations of outsourced or Buy the solutions options.

Based on the final discussion and considering the projects deliverable timing. Mr. CEO were suggesting to go with the readymade solutions as core banking is a huge system, will required big team and required lots of testing. It was decided to go with the “**Buy**” option to reduce time to market.

1.3 Typical results

In Customer on boarding project by building in-house in results company has their own solution and easy to customize. Explore new client and sell this solution. Complete ownership of code, Easy to customize as in-house solution, take less time to add new features, Open new vertical as product base company. Follow Agile for fast development process.

In Core banking system project by Buy in results, got ready made solution that helps company to release in short time. Time to market were less, Cost were less, Tested solution and market trust on T24 system. Company has enough time focus on marketing and other operations related arrangements and expansion.

1.4 Challenges

Based on discussion with managers, team leaders and other stakeholders. We have identified the difficulties or hurdles encountered in performing Build or Buy decision making for the given projects in section 1.1.

#Project1: Customer on boarding

Company were exited to build in-house solutions, Hire new tech team. However, Company is facing many difficulties while started developing In-house Customer on boarding project. Please find as follow.

Difficulties:

- a. Building the team. Lack of resources in market.
- b. Taking much time to have POC (Proof of concept).
- c. Challenges and uncertainty which using new technology.
- d. QA, UAT testing taking more time.
- e. Agile development issue as most of team members are new in Agile.
- f. Client keep changing the requirements.

#Project2: Core banking system

Company decided to buy readymade solutions from external vendor. However, Company is facing many challenges while buying Core banking system project along with mobile application in packages. Please find as follow.

Challenges:

- a. For new change request development dependent on vendor.
- b. Hardware compatibility issue.
- c. Billing is very high sometime.
- d. Software maintenance is at higher side.
- e. Performance is not up-to the mark when transactions increases.
- f. Mobile application performance is poor in slow internet.

2 – Analysis

#Project1: Customer on boarding**Critical Analysis of the Customer Onboarding Project Difficulties:**

The challenges that IT organizations face when introducing new internal processes arise in this case in the Customer Onboarding project. Although there are recommendations to solve these problems to some extent, the mentioned practices have many drawbacks and drawbacks:

1. Building the Team. Lack of Resources in the Market.**Weaknesses:**

Overreliance on external recruitment: Solutions focus on external recruitment and collaboration with schools. However, relying on external hiring can increase productivity because new employees need time to integrate into the company culture and understand specific tasks.

Not focusing enough on the development of the existing team: More importantly, there is no emphasis on strengthening the existing team when recruiting from outside. Internal training should be more efficient and improve the skills of existing employees.

Long-term sustainability: Relying on freelancers or contracts may solve immediate inefficiencies, but raises security concerns for long-term groups. High staff turnover and lack of team cohesion can hinder project continuity.

2. Taking Much Time to Have POC (Proof of Concept).**Weaknesses:**

Agile Prototyping Challenge: The solution supports an accelerated approach to POC development. However, agility can lead to intrusions and delays if not implemented correctly. There should be a more detailed plan on how to increase the operational speed of the POC.

Resource Allocation and Coordination Development: There may be coordination problems in parallel development proposals. It is very important to establish clear

instructions and communication methods to prevent conflicts and ensure unity of common development.

Inadequate determination of process complexity: This scenario does not specify the details of the technologies selected for the POC. Complex technologies may require more time and risk analysis to resolve uncertainties associated with the use of new technologies.

3. Challenges and Uncertainty When Using New Technology.

Weaknesses:

Limited exposure to technology risks: Despite empirical studies, consulting experts, and training, there is no emphasis on technology risk management. There must be a proper way to identify and mitigate technology-related problems.

Integration with existing systems: This scenario does not address issues related to new integrations with existing systems. Ensuring consistency is essential to the success of the project and the lack of thought in this area is a weakness.

Relying on outside consultants: Relying on the expertise of external consultants can lead to information silos. Internal teams must collaborate and collaborate with consultants to ensure knowledge transfer and long-term sustainability.

4. QA, UAT Testing Taking More Time.

Weaknesses:

Automation Challenges: While test automation is suggested as a solution, there are challenges with using automation like the learning curve of new technology, initial setup time and regular maintenance. It's not a solution

No content for balance testing: Detail examples of balance testing, but no detailed information on the use of balance testing, including number of environments and parallel systems.

Allocation of resources and environmental management: There is talk of allocating environmental testing to different levels, but how to manage these areas and ensure better, if not better.

5. Agile Development Issue as Most Team Members Are New in Agile.

Weaknesses:

Inadequate training and orientation: While agile training is recommended, the depth and continuity of training is not clear. The importance of ongoing training and coaching for teams just starting out in the fast-paced industry has yet to be seen.

No Agile Metrics: This does not address the use of agile metrics to track the team's progress and identify areas for improvement. Metrics like velocity integration and fire charts can increase your team's efficiency and effectiveness.

Team Collaboration Challenge: Shifting to Agile in culture change. This scenario does not address the possibility of resistance to change and does not provide strategies to promote effective collaboration and communication within an agile framework.

6. Client Keeps Changing Requirements.

Weaknesses:

Inadequate Change Management: Even if the change is approved, then no details of the change request are properly reviewed, accepted and discussed. A strong change management process is required to manage changes in customer needs.

Limited use of agile in changes: This scenario refers to simple changes but does not clearly define agile practices for managing changes. Agile framework is well suited to meet dynamic requirements and their full potential should be exploited.

Customer interaction: The importance of customer interaction is not mentioned in this scenario. Building strong relationships with customers through regular meetings and feedback are key to understanding changing needs and expectations.

General Observations:

Documentation and communication: This situation lack the importance of general information and clear information. communication. Detailed information is necessary for knowledge transfer, project continuity and understanding the customer

Risk Management: Although risk management is briefly mentioned, detailed information on identifying, assessing and mitigating risks associated with each issue. There needs to be an effective and efficient way to manage risk.

Stakeholder Participation: This does not explicitly consider stakeholders in the decision-making process. Collaboration with partners is important to align the project's goals with the organization's goals and complete the project.

In conclusion, although addressing the aforementioned issues, the solution plan still has a number of serious flaws and room for development. The project will succeed if it has a thorough plan that addresses risk management, internal team development, testing innovative concepts, and best practices. An emphasis on ongoing collaboration, change, and monitoring is essential for navigating the difficult path of in-house software development. An evaluation of the distressed consumer that is critical:

Project: “Core Banking System”

Critical Analysis of Core Banking System Project Challenges:

Challenges in purchasing ready-to use Core Banking System (CBS) with mobile applications from third-party vendors indicate weakness should be evaluated carefully. Let's understand its disadvantages:

Let's discuss the key drawbacks:

1. Dependency on Vendor for New Change Requests.

Weaknesses:

Supplier dependencies: Dependency on an external vendor for requested updates leads to significant outages. Companies have limited delivery times and priorities, which can cause delays in responding to dynamic business needs.

Limited Control: Lack of control over the importance and implementation of new features affects the company's pace. Such restrictions could impair the Company's ability to quickly adapt to changing market conditions or regulatory changes.

Cost Impact: Customizing an off-the-shelf solution to changing demand may result in additional costs. Negotiating proposals for these changes with suppliers can cause problems that affect the company's budget.

2. Hardware Compatibility Issues.

Weaknesses:

Vendor Loyalty: Hardware compatibility issues can cause dependency on some vendors. Companies are dependent on vendor-supported hardware features, limiting their flexibility to choose hardware that meets resource and scalability needs.

Update Cost: Social media solutions may require investment to update or replace hardware. This will increase costs and disrupt operations during the transition, affecting both financial and operational aspects.

Scalability Challenges: If the equipment chosen does not have scalability, companies will face difficulties scaling their infrastructure to accommodate growth in business volume or user goods.

3. High Billing and Lack of Cost Predictability.

Weaknesses:

In affordable Costs: High costs and inability to manage finances. Companies will have difficulty accurately predicting and controlling costs, affecting financial planning and potentially leading to overspending.

Uncertain problem: Uncertain payment can lead to dispute between companies and suppliers, damaging the relationship between suppliers-customer and influencer cooperation.

Fair Price Competition: High price fixing, especially without detailed or transparent information, can raise questions about the value of the seller's services.

4. High Software Maintenance Costs.

Weaknesses:

Ongoing cost: high software maintenance costs lead to ongoing financial impact. When a large portion of the budget is allocated to maintenance, companies may have difficulty allocating resources to innovation and startup strategies.

Supplier Dependency Risk: High dependency on maintenance services, suppliers may create services that limit the company's ability to switch suppliers or work in-house. This poses a risk if the supplier has a bad relationship or the company is trying to cut costs.

Impact on Total Cost of Ownership (TCO): The consequences of higher maintenance and other expenses can increase the cost of ownership. This may affect the overall cost-effectiveness of the drug over its life cycle.

5. Performance Issues Under Increased Transactions.

Weaknesses:

Scalability issues: Poor performance as load increases indicate scalability issues. Businesses may face challenges keeping productivity at peak levels, impacting customer experience and potentially causing physical outages at critical times.

Customer dissatisfaction: Best practices can lead to customer dissatisfaction, affecting trust. Smooth and responsive service is the key to customer satisfaction in the field of digital marketing.

Operational disruption: Operational problems can disrupt daily operations and create operational risks for the company. A disruptive work environment affects customer satisfaction and internal processes.

6. Poor Mobile Application Performance in Slow Internet.

Weaknesses:

User difficulties: Poor performance of mobile applications running on a slow network directly affects the user experience. Customers experiencing delays or errors can be frustrating and lead to them abandoning the platform.

Competitive Disadvantage: In the field of digital banking, where mobile applications are important, low performance can put a company at a competitive disadvantage.

antage. Customers can choose competitive banks with more reliable and responsive mobile services.

Part of adoption: Poor mobile experience will impact adoption of digital banking services. If mobile apps can't keep up with demand, customers will turn to traditional business methods.

General Observations:

Relationship Management: Vendor relationship management is important. Establishing clear communications, service level agreements (SLAs), and regular reviews are critical to long-term partnerships.

Continuous evaluation: There is no point in constantly evaluating solutions and sales programs. Regular measurement and performance reviews are important to detect and resolve problems in a timely manner.

Legal Compliance: This does not explicitly address legal compliance. Compliance with business rules is important in the banking sector, and the chosen solutions must also comply with these rules.

In summary, although there are advantages to shopping for ready-made products and mobile applications, challenges are identified as significant weaknesses. Solving these problems requires a strategic approach that focuses on reducing dependency, increasing cost transparency, improving efficiency and prioritizing the customer experience. Regular maintenance and flexibility are essential to minimize risk and ensure the long-term success of the project.

4 – Recommendations

#Project1: Customer on boarding

As a project manager facing difficulties in a "customer onboarding" project, it is essential to systematically address each challenge to ensure the success of the project. Find possible solutions for each problem:

Difficulty: Building the Team. Lack of Resources in the Market.

Solution:

Internal training programs: Create internal training programs to upskill existing employees. Take advantage of online courses, workshops and certifications to improve your skills. Promote cross-functional training to create a well-rounded team.

Cooperation with educational institutions: Establish partnerships with local educational institutions. Offer internships and collaborate on projects to recruit new talent. Conduct university recruitment drives to attract qualified graduates.

Use freelancers and contractors: Hire freelancers or contractors for specific roles or short-term projects. Leverage external expertise to fill immediate skills gaps. Create a talent pool for future projects.

Difficulty: Taking Much Time to Have POC (Proof of Concept).

Solution:

Agile prototyping: Implement agile methodologies to develop rapid prototypes. Focus on Minimum Viable Product (MVP) development to accelerate POC. Get quick feedback from stakeholders for iterative improvements.

Parallel development: Break the POC into smaller tasks for parallel development. Assign dedicated teams or individuals to work on specific components simultaneously. Simplify communication channels to maintain consistency.

Difficulty: Challenges and Uncertainty When Using New Technology.

Solution:

Pilot projects: Conduct small-scale pilot projects to assess the feasibility of new technologies. Identify and mitigate challenges early in the development lifecycle. Document the lessons learned for future reference.

Expert consultation: Hire external consultants or specialists for new technology. Use their expertise to lead the team and solve problems. Facilitate knowledge transfer to internal team members.

Training and workshops: Conduct training and workshops on new technology. Encourage team members to attend relevant conferences and webinars. Foster a culture of continuous learning and experimentation.

Difficulty: QA, UAT Testing Taking More Time.

Solution:

Test automation: Implement test automation for recurring and critical test cases. Accelerate regression testing to ensure faster feedback. Invest in tools that support continuous integration and automated testing.

Parallel testing: Perform parallel testing in multiple test environments. Allocate dedicated test environments for different phases of testing. Optimize test processes for efficiency.

Difficulty: Agile Development Issue as Most Team Members Are New to Agile.

Solution:

Agile training and coaching: Provide comprehensive agile training for the entire team. Hire agile coaches to mentor and guide team members. Foster a culture of collaboration, adaptability and iterative development.

Iterative learning and improvement: Encourage retrospectives after each sprint to identify areas for improvement. Implement feedback loops to continuously improve agile practices. Celebrate small victories to boost team morale and confidence.

Difficulty: Client Keeps Changing Requirements.

Solution:

Create clear communication channels: Set up regular communication channels with the client. Clearly define the project scope and requirements from the beginning. Encourage open and transparent communication to manage expectations.

Management change process: Implement a formal change control process to review and approve changes to requirements. Clearly communicate the impact of changes on timelines and resources. Ensure changes are consistent with project goals and priorities.

Agile adaptation: Adopt agile methodologies that adapt to changing requirements. Use iterative development to incorporate client feedback throughout the project. Prioritize collaboration and flexibility in response to evolving needs. General project management best practices:

Effective project planning: Develop a detailed project plan with clear milestones and deadlines. Allocate resources based on project requirements and timelines. Update the project plan regularly to reflect changes and progress.

Stakeholder engagement: Foster strong relationships with stakeholders through regular communication. Set realistic expectations for project timelines and deliverables. Involve stakeholders in decision-making processes to ensure alignment.

Risk management: Perform a comprehensive risk analysis at project initiation. Implement risk mitigation strategies and contingency plans. Continuously monitor and reassess risks throughout the project.

Documentation: Maintain thorough documentation for all project-related activities. Document decisions, changes and lessons learned for future reference. Make sure documentation is easily accessible to all team members.

Regular reports and reviews: Provide regular progress reports to stakeholders. Conduct regular project reviews to evaluate performance and identify areas for improvement. Use key performance indicators (KPIs) to measure project success.

In conclusion, solving the difficulties in the "customer recruitment" project requires a holistic approach that combines talent development, agile methodologies, effective communication and proactive risk management. By implementing these solutions and following project management best practices, an IT company can successfully manage challenges and achieve project success.

Project: “Core Banking System”

Solutions to Core Banking System Project Difficulties:

Challenges when implementing an out-of-the-box Core Banking System (GIS) using mobile applications with external vendors require strategic solutions to ensure complete project execution and reduce losses.

Here are the solutions for each challenge:

1. For New Change Request Development Dependent on Vendor.

Solution:

Increase internal development capacity: Gradually build internal development capacity to meet the update request. Invest in training to improve the skills of existing teams and reduce dependence on suppliers.

Collaborative Development: Facilitate a collaborative transformation experience between internal development teams and vendors. This ensures that the internal team has the necessary expertise to handle new changes independently.

Negotiate Access: Include a clause in the contract that allows the company to access the source code of the solution. This makes it easier to adapt to home improvements and helps respond to changes faster.

2. Hardware Compatibility Issue.

Solution:

Do a comprehensive hardware assessment: Conduct a comprehensive evaluation of the company's existing hardware before implementation. Identify potential relationship problems and work with sellers to resolve or mitigate these problems.

Negotiating Equipment Repairs: Include simple clauses in contracts that allow companies to repair equipment as needed without major penalties. This enables growth and minimizes disruption when changing hardware.

Explore cloud-based solutions: Consider switching to cloud-based solutions to reduce hardware costs. Cloud platforms often provide a flexible and consistent architecture that reduces the need for on-premises hardware management.

3. Billing Is Very High Sometimes.

Solution:

Follow transparent billing practices: Work with vendors to develop transparent practices. Clarify the details of the billing structure to ensure the company understands and agrees to the fees associated with various services.

Negotiate a Rate Agreement: Negotiate a fixed rate agreement or variable rate for a specific service. This provides a predictable budget and protects the company from unexpected cost increases.

Periodic Invoice Review: Review your invoice regularly to check the accuracy of charges. Establish a robust process to promptly resolve billing discrepancies and foster a positive relationship between the vendor and the responsible party.

4. Software Maintenance Is at a Higher Side.

Solution:

Find alternative maintenance options: Contact your dealer to explore alternative options, such as support systems or cleaning service, as needed. This allows companies to optimize treatment costs based on actual needs.

Invest in employee training: Improve internal teams' skills in managing daily maintenance operations. This reduces dependence on suppliers for simple maintenance and results in long-term savings.

Evaluation period of improvement: Periodic analysis of specific service needs. Adjust the scope of your maintenance contract according to your company's changing needs to avoid unnecessary costs.

5. Performance Is Not Up to the Mark When Transactions Increase.

Solution:

Performance Testing: Work with vendors to conduct rigorous performance testing based on different products. Identify conflicts and work together to increase productivity and ability to meet business growth.

Do Load Balancing: Check the use of load balancing techniques to distribute the load efficiently across servers. This improves the body's performance during intense work and prevents performance degradation.

Periodic health checks: Establish a schedule for physical health checks to monitor performance indicators. This approach ensures that operational issues are detected and resolved early before they impact operations.

6. Mobile Application Performance Is Poor in Slow Internet.

Solution:

Optimize mobile app code: Work with vendors to optimize mobile app code libraries to improve performance under slow network conditions. Use caching mechanisms to improve performance and reduce unnecessary data transfer.

Improve loading: Use advanced loading techniques for mobile applications. Prioritize ease of use, allow users to access important features even if the internet is slow, and gradually install additional features as the connection improves.

User Feedback Mechanism: Track user feedback on your mobile app to collect data on performance issues. Use this feedback to do the most important thing that directly affects the user's difficulties in case of slow internet.

General Recommendations:

Establish Key Performance Indicators (KPIs): Identify and monitor KPIs for performance work on supplier performance, reliability and customer satisfaction. Review these metrics regularly to ensure the project is meeting its goals.

Continuous Communication: Promote open and ongoing communication with suppliers. Regular meetings, brainstorming, and problem-solving collaborations help build strong vendor-client relationships.

Contract Flexibility: It has been seen again that flexible terms are included in contracts to adapt to changes in demand, technological developments or unforeseen conditions. This ensures that the project can be adapted to changing conditions.

In conclusion, solving problems in the core banking system should have a combination of strategic planning, collaboration with suppliers and a focus on capacity building. Using these solutions, companies can improve management, optimize costs and increase the success of the banking system. Challenges encountered when implementing an out-of-the-box Core Banking System (GIS) using mobile applications with external vendors require solutions that will ensure project success and reduce losses. Here are the solutions for each challenge:

References

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Thank you