CHITTAGONG UNIVERSITY OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Report - 4

Feasibility Analysis of the IICT

COURSE CODE : CSE 354
COURSE NAME : SYSTEM ANALYSIS & DESIGN (SESSIONAL)

submitted by

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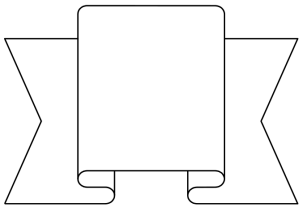

REMARKS

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Introduction

IICT being well-developed institution, there are opportunities to improve some of their functionalities and feasibility analysis of system describes the possible options of improvement that is compared on various parameters.
Feasibility analysis, also known as feasibility study, is an assessment and evaluation of a proposed project or initiative to determine its practicality, viability, and potential for success. It involves analyzing various aspects of the project to determine whether it is technically, economically, legally, and operationally feasible. Feasibility analysis is a crucial step in the decision-making process before committing resources to a project.
Key components of a feasibility analysis typically include:

- Technical feasibility
- Economic feasibility
- Operational feasibility
- Legal and regulatory feasibility
- Scheduling Feasibility
- Market feasibility (if applicable)

But mostly we consider technical, economic and operational feasibility analysis for upgrading any system.

Technical Feasibility

Technical feasibility is one of the key components of a feasibility analysis that assesses whether a proposed project is achievable from a technological standpoint. It involves evaluating the technical requirements, resources, and capabilities needed to develop, implement, and maintain the project.
In technical feasibility analysis, the following aspects are typically considered:

Technology Requirements: This involves identifying the specific technologies, tools, and equipment needed to execute the project successfully. It includes evaluating whether the required technology is available and whether it can be acquired or developed within the project's constraints.

Expertise and Skills: Technical feasibility assesses whether the organization or project team possesses the necessary expertise and skills to handle the technology involved. It includes considering the availability of skilled personnel and determining if additional training or recruitment is required.

Integration and Interoperability: For projects that need to interface with existing systems or external applications, technical feasibility evaluates the compatibility and interoperability between different technologies. It ensures that the project can integrate smoothly with other systems and processes.

Operational Feasibility

Operational feasibility is a component of feasibility analysis that assesses whether a proposed project or system can be integrated smoothly into the existing organizational structure and operations. It focuses on evaluating the practicality and suitability of the project from an operational perspective, considering the impact it will have on people, processes, and resources within the organization.
In operational feasibility analysis, the following aspects are typically considered:

Process Integration: This involves examining how the proposed project aligns with existing business processes and workflows. It assesses whether the project can be integrated without causing significant disruptions or requiring extensive changes to established procedures.

Resource Availability: Operational feasibility evaluates whether the necessary resources. Such as personnel, equipment, and facilities, are available to support the project's implementation and ongoing operation.

Training and Skills: It assesses whether the organization's staff possesses the required skills and knowledge to effectively use and manage the new system or process. If not, training programs may be required to ensure a smooth transition.

Change Management: Operational feasibility considers how well the organization can manage the change that the project will bring. It involves addressing resistance to change, communicating with stakeholders, and providing support during the implementation process.

User Acceptance: This aspect focuses on understanding how the project will be received by the end-users and stakeholders. It includes gathering feedback and insights from potential users to ensure that the project meets their needs and expectations.

Impact on Existing Systems: Operational feasibility assesses the potential impact on other existing systems and services. It ensures that the new project does not cause conflicts or disruptions to other critical operations.

Legal and Regulatory Considerations: It examines whether the proposed project complies with relevant laws, regulations, and industry standards. This includes assessing potential legal implications and ensuring that the project adheres to necessary guidelines.

Maintenance and Support: Operational feasibility considers the long-term sustainability of the project. It involves planning for ongoing maintenance, support, and upgrades to ensure that the project remains effective and relevant over time.

The findings from the operational feasibility analysis help stakeholders make informed decisions about the practicality and implementation of the project within the organization. If operational feasibility challenges are identified, adjustments may be made to the project plan, processes, or resources to ensure a successful and smooth transition.

Economic Feasibility

Economic feasibility is a crucial component of a feasibility analysis that evaluates the financial viability and profitability of a proposed project. It involves assessing the project's costs, benefits, and potential returns on investment to determine whether the project is financially feasible and aligns with the organization's budget and financial goals.
Key aspects of economic feasibility analysis include:

Cost Estimation: This involves identifying and estimating all the costs associated with the project, including initial investment, development costs, operational expenses, maintenance, and any other relevant expenditures. It also includes determining the project's total cost of ownership over its entire lifecycle.

Benefits Analysis: Economic feasibility assesses the benefits and potential gains that the project is expected to generate. These benefits can be tangible, such as increased revenue, cost savings, or productivity improvements, as well as intangible, like enhanced customer satisfaction or improved brand reputation.

Return on Investment (ROI): Calculating the expected ROI is a critical part of economic feasibility analysis. It compares the net benefits (benefits minus costs) of the project against the initial investment. A positive ROI indicates that the project is financially attractive.

Payback Period: The payback period is the time it takes for the project to recover its initial investment through the net benefits. A shorter payback period is generally more desirable as it reduces the financial risk and indicates a quicker return on the investment.

Cost-Benefit Analysis: Economic feasibility involves comparing the project's costs against its benefits to determine whether the benefits outweigh the costs. It helps in making informed decisions about whether the project should proceed or not.

Risk Assessment: Economic feasibility evaluates the financial risks associated with the project and identifies potential factors that might affect its profitability. It involves developing risk mitigation strategies to address these financial risks.

The results of economic feasibility analysis provide stakeholders with a clear understanding of the project's financial implications and its potential impact on the organization's bottom line. It helps decision-makers assess whether the project is financially sound and aligns with the organization's strategic objectives. If the economic feasibility analysis indicates that the project's financial prospects are not favorable, it may lead to reassessing the project's scope, budget, or implementation approach to improve its financial viability.

Organizational Feasibility

Organizational feasibility is a component of feasibility analysis that assesses whether a proposed project aligns with the organization's overall goals, culture, and capabilities. It focuses on evaluating the project's fit within the existing organizational structure and its potential impact on the organization as a whole.

Limitations of the Current System

Registration System

Registration system is one of the important task done by IICT. There are some limitations of the system such as redundant submission of transaction number, no refund policy, only one platform available such as "Roket", less user-friendly interaction such as only available by dialing and no app usability etc. Following charts are some reflection of the unhappiness of users.

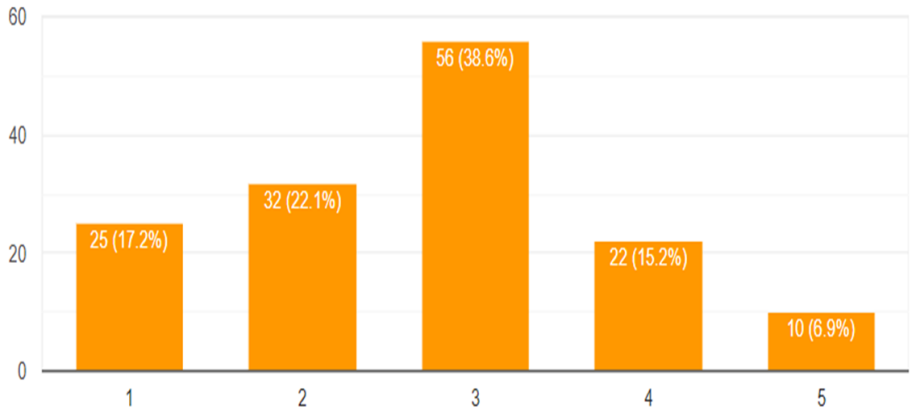

Figure 1: User satisfaction on current registration service

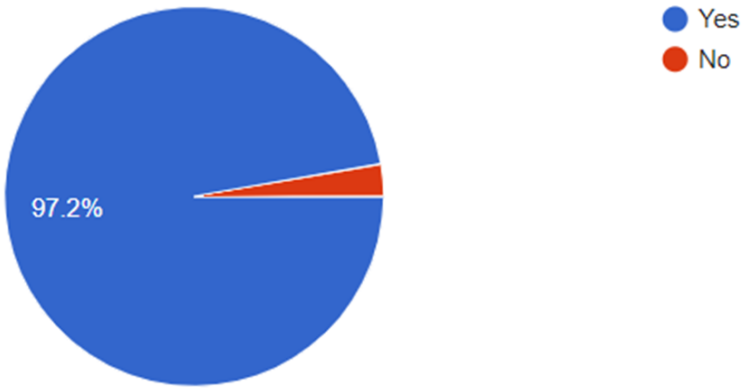

Figure 2: User satisfaction on current registration service

Internet Service

Another service provided by the IICT is Wi-Fi coverage all over the university. Practically, most of the users are not satisfied with the services or speed. And the following charts are some illustration of demand on Wi-Fi system.

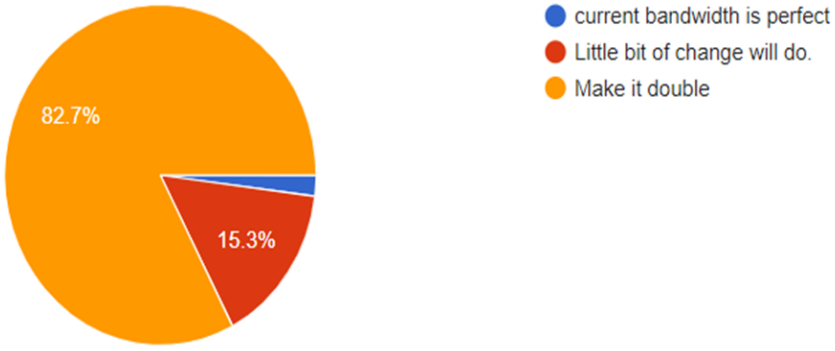

Figure 3: User response on increasing bandwidth.png

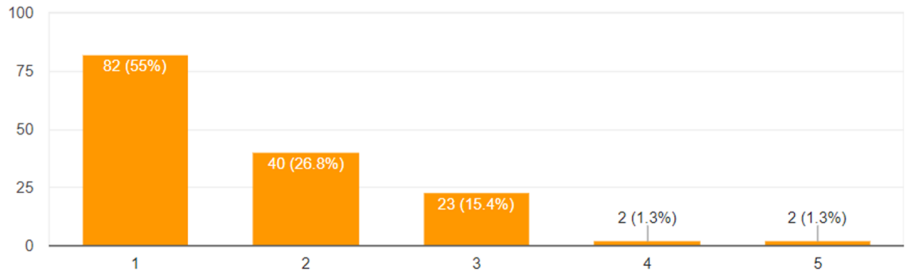

Figure 4: User response on increasing bandwidth

Proposed System

Although there are several ways of improve, we mainly focused in improving registration system and internet connectivity. Recently, using our survey on current registration system and broadband service, we concluded on some possible solutions. In summary:

- Introduce payment gateway and different payment methods
- Reducing complication of registration system
- Introducing app based registration system
- Increasing Wi-Fi bandwidth up to double

Updating Registration System

Technical Feasibility

- Introducing payment gateway
- Make an agreement with a responsible bank to control the whole system

Operational Feasibility

- An officer will monitor the system
- Server maintenance

Economical Feasibility

Economical feasibility is divided into three parts:

Investment	Cost (Taka)
Signing deal	30,000
Agreement with responsible bank	10,00,000
Total Invest	**10,30,000**

Figure 5: Investment on updating registration system

Running Cost	Cost (Taka)
Server Maintenance	1,80,000
Salary increased of responsible employee	2,40,000
Total Cost	**4,20,000**

Figure 6: Cost per year

Total Investment	10,30,000
Total Cost (Per Year)	4,20,000
Expected Income	5000*50*2 + 5,00,000 (Budget) =10,00,000
Net Benefit	Expected Income - Total Cost = 10,00,000 - 4,20,000 = 5,80,000
Payback Period	Investment / Net benefit = 10,30,000 / 5,80,000 = 1.77 years ≈ 1 years 10 months (approx.)

Figure 7: Updating registration system

Increasing Wi-Fi Bandwidth

Technical Feasibility

- Increase Wi-Fi bandwidth up to double
- Increasing and updating device

Operational Feasibility

- An officer will monitor the system
- Server maintenance
- Device maintenance

Economical Feasibility

Economical feasibility is divided into three parts:

Investment	Cost (Taka)
Increasing Bandwidth up to 2GB	22,00,000
Buying and maintaining device	14,00,000
Total Cost	**36,00,000**

Figure 8: Investment on increasing Wi-Fi bandwidth

Running Cost	Cost (Taka)
Increase in salary of responsive employee	2,40,000
Server and device maintenance cost	1,00,000
Total Cost	**3,40,000**

Figure 9: Cost per year

Total Investment	36,00,000
Total Cost (Per Year)	3,40,000
Expected Income	50*8000 + 10,00,000 (Budget)
	=14,00,000
Net Benefit	Expected Income - Total Cost
	=14,00,000 - 3,40,000
	=10,60,000
Payback Period	Investment / Net benefit
	=36,00,000 / 10,60,000
	=3.396 years
	≈ 3 years 5 months (approx.)

Figure 10: Increasing Wi-Fi Bandwidth

Verification of Proposed Solution

First solution(Updating Registration System) is technically, operationally & economically feasible as technical, operational support is not so much challenging & IICT can get the money back in almost 1 year & 10 months.
Second solution(Increasing Wi-Fi Bandwidth) is also technically , operationally & economically feasible as technical, operational support is not so much challenging & IICT can get the money back in almost 3 year & 5 months.

Conclusion

Introducing payment gateway is a top demand of CUET students because users are not satisfied with the current system. So we've proposed a new and up-to-date system. Updating bandwidth will be crucial for long term service and users are disappointed with current system. Therefore, an increased bandwidth is proposed for the system.