Framework for the functioning of "Digital Solution Cell", Dibrugarh University"

1. Introduction:

The purpose of this framework is to outline the functioning of "Digital Solution Cell" under the purview of Dean, Research and Development, Dibrugarh University. This cell aims to facilitate the development of software solutions to address various academic, administrative, and research needs of the university.
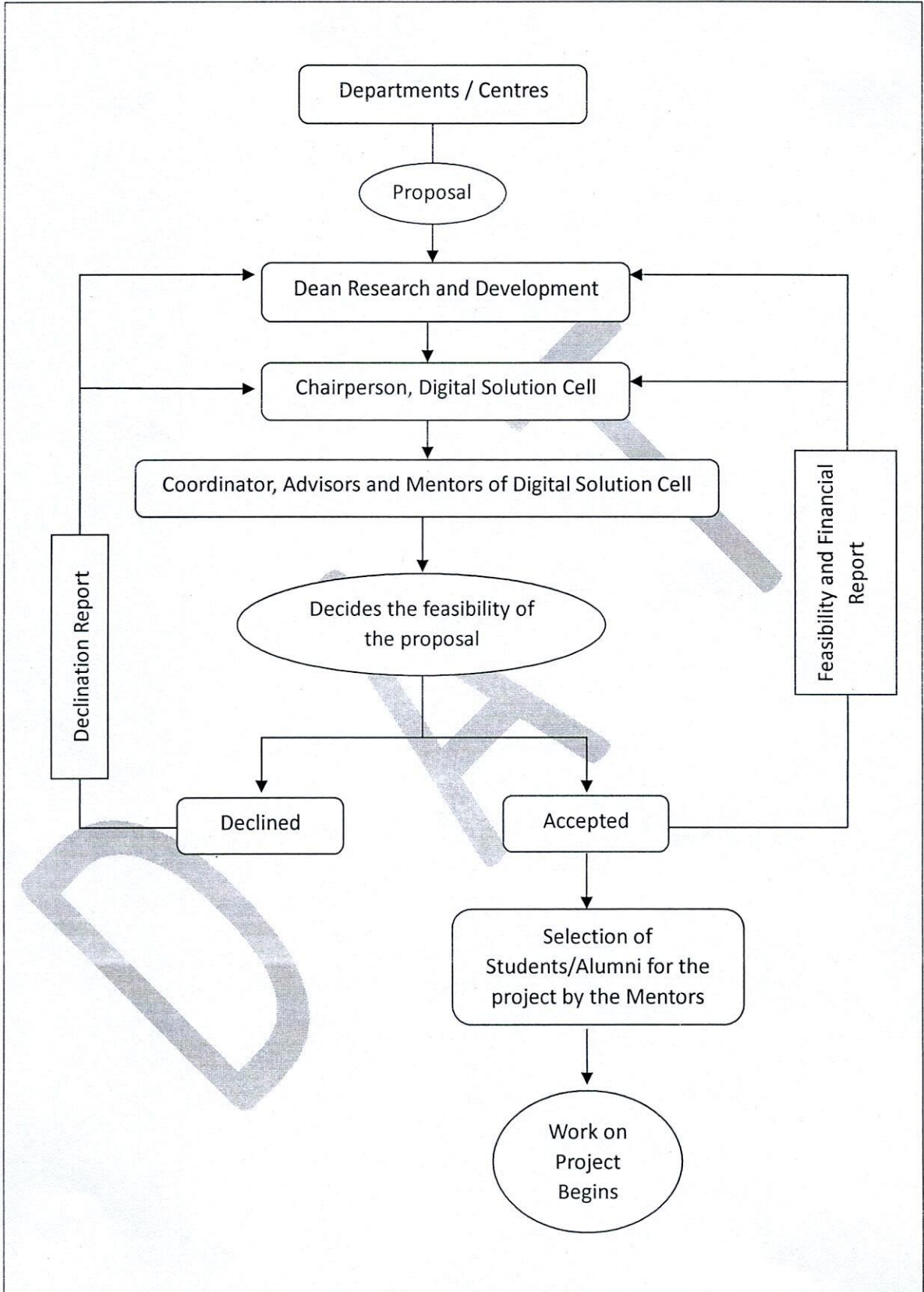
2. Objectives:

- ❖ Develop custom software solutions to enhance academic and administrative processes.
- ❖ Provide learning opportunities for students through involvement in software development projects.

3. Organizational Structure:

- ❖ Chairperson of the Cell: As appointed by the University.

- ❖ Coordinator of the Cell: As appointed by the University.

- ❖ Mentors: As appointed by the University.

- ❖ Advisors: As appointed by the University.

- ❖ Software Developers: Students and Alumni from Dibrugarh University as selected by the mentors.

- ❖ Project Managers: Mentors involved in the project.

- ❖ Quality Assurance Team: Mentors and Software Developers involved in the project.

4. Workflow

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              │   Departments / Centres  │
              └─────────────────────────┘
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                      ( Proposal )
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         ┌──────────────────────────────────┐
    ┌───▶│   Dean Research and Development   │◀───┐
    │    └──────────────────────────────────┘    │
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    │  ┌────────────────────────────────────────┐ │
    │  │ Coordinator, Advisors and Mentors of    │ │
    │  │ Digital Solution Cell                    │ │
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    │           ( Decides the feasibility          │
    │             of the proposal )                │
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                      ┌────────────────────┐
                      │  Selection of      │
                      │  Students/Alumni   │
                      │  for the project   │
                      │  by the Mentors    │
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                          ( Work on
                            Project
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5. Roles:

- ➤ Cell Head: Oversees the entire cell (Administrative and Financial Matters).

- ➤ Chairperson of the Cell: Acts as a liaison between the development team and upper management, facilitating communication and ensuring that the team's needs are met.

- ➤ Coordinator of the Cell: Coordinates the day-to-day activities of the development team, schedules meetings, tracks progress, and manages resources.

- ➤ Mentors: Shall provide guidance and support to the software development team.

- ➤ Advisors: Shall provide technical guidance and advice on specific aspects of the project, such as architecture, design patterns, technology selection and project cost.

- ➤ Software Developers: Shall be responsible for writing code, implementing features, fixing bugs, and ensuring that the software meets the specified requirements, documentation, installation and hosting of the project, training etc.

- ➤ Project Managers: Shall oversee the planning, execution, and delivery of software projects, responsible for managing timelines, budgets, and resources..

- ➤ Quality Assurance Team: Shall ensure the quality of the software by testing it thoroughly, identifying and reporting bugs and resolving issues.

6. Responsibilities:

- ❖ **Active Participation:** Software Developers are expected to actively participate in all phases of the software development lifecycle, including requirements gathering, design, implementation, testing, and deployment.

- ❖ **Adherence to Deadlines**: Software Developers must adhere to project timelines and deadlines set by project managers to ensure timely delivery of software solutions.

- ❖ **Quality Assurance**: Software Developers are responsible for ensuring the quality of their work by conducting thorough testing, debugging code, and addressing any issues identified.

- ❖ **Communication and Collaboration:** Software Developers must effectively communicate with team members, faculty mentors, advisors and other project stakeholders to provide updates on progress, seek guidance, and address any concerns.
- ❖ **Documentation:** Software Developers shall maintain comprehensive documentation throughout the project, including requirements specifications, design documents, code documentation, and user manuals.
- ❖ **Hosting Infrastructure:**
  - Software Developers will work closely with Project Managers to select appropriate hosting solutions based on project requirements, considering factors such as scalability, reliability, and cost-effectiveness.
  - Project Managers and Advisors will provide guidance on selecting hosting providers, configuring servers, and deploying software applications to ensure optimal performance and availability.
  - Software Developers will gain hands-on experience in setting up hosting environments, configuring servers, and managing infrastructure resources under the mentorship of experienced professionals.
- ❖ **Maintenance and Updates:**
  - Regular maintenance and updates are essential to ensure the stability, security, and functionality of software projects.
  - Software Developers will collaborate with Project Managers to establish maintenance schedules, monitor system health, and perform routine updates to software components, libraries, and dependencies.
  - Project Managers and Advisors shall provide guidance on implementing best practices for software maintenance, including version control, automated testing, and continuous integration/continuous deployment (CI/CD) pipelines.
- ❖ **Security Considerations:**
  - Security is a top priority when hosting and maintaining software projects, especially when handling sensitive data or serving critical applications.
  - Software Developers will work closely with Project Managers to implement robust security measures, such as encryption, access controls, and vulnerability scanning, to protect against potential threats and breaches.

❖ **Backup and Disaster Recovery:**

- Software Developers will collaborate with Project Managers to establish backup and disaster recovery plans to mitigate the risk of data loss or system downtime.

- Project Managers shall provide guidance on implementing backup strategies, scheduling regular backups, and testing disaster recovery procedures to ensure business continuity in the event of unexpected incidents.

❖ **Continuous Monitoring and Optimization:**

- Monitoring system performance and optimizing resource utilization are essential for maintaining the health and efficiency of hosted projects.

- Software Developers will work with Project Managers to implement monitoring tools, analyze performance metrics, and identify areas for optimization to enhance system reliability and responsiveness.

❖ **Training:** Software Developers before leaving the project will have to train their counterparts/new Software Developers regarding all the aspects of the project in consultation with the mentors for the smooth transition. It shall be mandatory for the Software Developers to obtain a No Objection Certificate from the Digital Solution Cell before leaving the project.

7. Mentorship and Support:

❖ Mentors will select the Software Developers for the project. Selection of the Software Developers for the project shall be solely decided by the mentors and their decision shall be final and binding.

❖ Faculty mentors and Advisors shall provide guidance, support, and feedback to Software Developers throughout the project duration.

❖ Regular meetings, code reviews, and progress assessments shall be conducted to monitor the projects by all the members of the committee.

❖ Project Managers shall be responsible for facilitating the seamless transition of project from one group of software developers to the next batch.

8. Recognition and Rewards:

Successful completion of software development projects shall be recognized through certificates, acknowledging Software Developers' contributions and achievements. There will also be a provision of remuneration depending upon the fund position. The minimum remuneration will be fixed by the respective committee from time to time.

9. Professional Conduct:

❖ Software Developers are expected to conduct themselves in a professional manner, demonstrating integrity, professionalism, and respect for project teammates, mentors, advisors and other stakeholders.

❖ Software Developers should adhere to ethical guidelines and academic integrity policies, avoiding plagiarism, unauthorized collaboration, or any form of dishonesty.
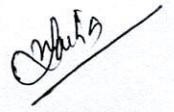
10. Legalities:

❖ Data Protection and Privacy: As per Dibrugarh University Data Protection rules.

❖ Software licensing ensures legal compliance, protects intellectual property rights, and defines the terms and conditions of software usage. The following points outline the key considerations and principles regarding software licensing by the Digital Solution Cell:

❖ **Licensing Models:**

- The cell adopts appropriate licensing models based on the nature of the software, project requirements, and strategic objectives.
- Common licensing models include open-source licenses, proprietary licenses, and custom licenses tailored to the university's needs.
- Open-source licenses, such as the GNU General Public License (GPL) or the Apache License, may be preferred for projects intended for community collaboration, transparency, and innovation.
- Proprietary licenses may be used for projects requiring commercialization, exclusivity, or protection of intellectual property rights.

❖ **Open Source Contributions:**
- The Cell encourages contributions to open-source software projects and promotes the adoption of open-source licenses for software developed within the University.
- Open-source contributions foster collaboration, knowledge sharing, and innovation within the academic and wider community, aligning with the University's commitment to academic freedom and knowledge dissemination.

❖ **Intellectual Property Rights (IPR):**
- The Cell shall ensure that intellectual property rights associated with software developed by faculty, staff, or Software Developers are appropriately protected and managed.
- Clear policies and agreements shall be established to define ownership, licensing, and distribution rights, considering contributions from all parties involved in the software development process.

❖ **License Selection and Compliance:**
- The cell shall conduct a thorough evaluation of licensing options and selects licenses that align with project goals, user requirements, and legal considerations.
- Compliance with license terms and conditions shall be ensured throughout the software development lifecycle, from project initiation to distribution and deployment.

❖ **Documentation and Attribution:**
- Software projects developed by the Digital Solution Cell shall include clear documentation specifying the applicable license(s), copyright notices, and terms of use.
- Proper attribution shall be provided to contributors, licensors, and third-party libraries or dependencies used in the software, in accordance with license requirements.

❖ **License Enforcement and Monitoring:**
- The Digital Solution Cell shall monitors compliance with software licenses and takes appropriate measures to enforce license terms if violations are identified.

- Regular audits shall be conducted to assess license usage, address compliance issues, and mitigate legal risks associated with unauthorized use or distribution of licensed software.

❖ **All legal disputes shall fall under the jurisdiction of Dibrugarh only.**

11. Right to Accept or Reject Projects/Proposals:

While the cell aims to foster innovation and collaboration, it also recognizes the importance of aligning projects or updates to the project with strategic objectives, resource availability, and feasibility. Therefore, the cell reserves the right to accept or reject projects based on the following considerations:

❖ **Alignment with Strategic Objectives:**
- **Projects/Proposals** should align with the mission and objectives of the Digital Solution Cell, as well as the broader goals of the University.
- Priority may be given to **Projects/Proposals** that support academic, administrative, or research initiatives, contribute to technological advancement, or address critical needs within the university community.

❖ **Resource Availability:**
- The cell will assess the availability of resources, including personnel, funding, and infrastructure, to determine its capacity to undertake new **Projects/Proposals.**
- **Projects/Proposals** may be accepted based on the cell's ability to allocate resources effectively and manage project workload without compromising quality or timelines.

❖ **Feasibility and Impact:**
- **Projects/Proposals** will be evaluated based on their feasibility, complexity, and potential impact on stakeholders.
- Consideration will be given to the technical feasibility of the **Projects/Proposals**, availability of required expertise, and potential risks and challenges involved in execution.

❖ Client Requirements and Expectations:

- The cell will consider client requirements, expectations, and **Projects/Proposals** scope when evaluating project proposals.
- **Projects/Proposals** should have clearly defined objectives, deliverables, and success criteria to ensure mutual understanding and alignment between the cell and the client.

❖ Ethical and Legal Considerations:

- **Projects/Proposals** will be assessed to ensure compliance with ethical standards, legal regulations, and university policies.
- The Digital Solution Cell reserves the right to reject **Projects/Proposals** that raise ethical concerns, pose legal risks, or conflict with university values and principles.

❖ Evaluation Process:

- **Projects/Proposals** will undergo a thorough evaluation process, which may include review by a project review committee, consultation with relevant stakeholders, and assessment of feasibility and impact.
- Clients will be notified of the outcome of the evaluation process and provided with feedback and recommendations for any rejected **Projects/Proposals**.

12. Financial Considerations:

As part of the establishment of Digital Solution Cell at Dibrugarh University, it is crucial to allocate sufficient budgetary resources to support its operations, including remuneration for both Software Developers and Mentors involved in project development at the Digital Solution Cell. The budget provision plays a pivotal role in ensuring the sustainability, effectiveness, and success of the Cell's activities.

❖ Software Developers Remuneration:

- Recognizing the valuable contributions and efforts of Software Developers participating in software development projects, the university shall allocate a portion of the budget to provide financial compensation or stipends.
- Remuneration may vary based on factors such as project complexity, duration, developer's expertise, and level of involvement, with fair compensation provided for their time and contributions. The remuneration for the Software Developers involved in a project will be proposed by the Project Managers based on their contribution towards the project.

- Software Developers who leave the project before its completion and implementation will not be eligible for any remuneration or certification, except in exceptional cases approved by the Chairperson of the cell.

❖ Mentors Remuneration:

- Experienced faculty members of the committee serving as mentors within the cell will play a crucial role in guiding, supervising, and supporting Software Developers throughout the project lifecycle.

- The University shall acknowledge the expertise and time commitment of mentors by providing them with an appropriate remuneration or honorariums for the completed projects, as forwarded by the Dean Research and Development, Dibrugarh University.

- Mentor remuneration reflects their level of experience, qualifications, responsibilities, and the extent of their involvement in project supervision and guidance hence University shall ensure the timely release of the remunerations for the mentors.

❖ Budget Allocation:

- The University shall allocate a dedicated budget for the Digital Solution Cell under the Dean Research and Development of Dibrugarh University or shall allocate budget from the existing relevant heads from general fund encompassing various operational expenses, including personnel costs, infrastructure, training, and project-related expenses.

- Budget allocation shall consider the cell's strategic objectives, projected workload, resource requirements, and expected outcomes. The University shall formulate provision for smooth release of the funds from time to time,

13. Performance Evaluation:

- Budget provision, including software developer(s) and mentor(s) remuneration, is subject to periodic review and evaluation to assess the cell's financial performance, effectiveness, and impact.

- Performance metrics, such as project outcomes, software developer(s) learning outcomes, stakeholder satisfaction, and financial sustainability indicators shall be the factors in budgetary decisions and resource allocation strategies.

14. Collaboration and Partnerships:

- ❖ Internal Collaboration: Foster collaboration with various departments, centers, and institutes within the university to identify software needs and opportunities for collaboration.

- ❖ External Partnerships: Forge partnerships with industry stakeholders, government agencies, and non-profit organizations to leverage expertise, resources, and funding for software development initiatives.