

Team and Project Plan

PORTFOLIO TASK 1

Unit code: COS40005

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Student Name	Student Id	Description of contribution in team and project planning
Al Hamid Arath	103797114	Research and Investigation, Data Analysis, Team Planning, Team code of conduct and Problem statement.
Farzana Moietry	103804690	Quality plan and Ethical Considerations
Jayakodige Lasith Charuka Perera	105106314	Solution approach
Isar Ujoodah	104766678	Scope and Project Backlog
Ashikur Rahman	103515345	High Level Requirements
Luvish Rajnath	104527736	Stakeholders & quality plan

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ACKNOWLEDGMENT OF COUNTRY

The team members of this project acknowledge the traditional custodians of the land on which we live, work and thrive and we pay our respects to their Elders of past and present. We recognise their connection to Country, Culture and Community and we also extend this respect to all Aboriginal and Torres Strait Islander peoples who are part of our university community today.

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Al Hamid Arath acknowledges the Wurundjeri people of the Kulin Nation, the Traditional Owners of the land in Melbourne, and pays respect to their Elders past, present, and emerging.

Ashikur Rahman acknowledges the Wurundjeri people of the Kulin Nation, the Traditional Owners of the land in Melbourne, and pays respect to their Elders past, present, and emerging.

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PART 1 TEAM CODE OF CONDUCT

TEAM PROFILE

Table 1: Team Profile

Student name	Technical skills	Soft skills	Communication	Teamwork	Other
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Al Hamid Arath	Data Science, Data visualization, algorithms, Python, Machine learning, C sharp, HTML, CSS and react.js. Financial calculations.	Analytical thinking, Communication skills and time management. Strong group management. Researcher on Finance and financial decision making.	Confident, Structured Explanations. Effective collaborator. Clear presentation of data insights.	Active and flexible to help others. Works well with research team and reliable with completing projects on time.	Learning enthusiast. Can handle large database tasks. Passionate about technology and music.
Jayakodige lasith	Artificial intelligence, Python, Java, machine learning model training,HTML,CSS. And php	Communication, time management and problem solving	Clear explanations, Structured, Confident in presenting technical idea	Collaborative, reliable in group projects, supports team members	Learning-oriented, passionate about AI and technology, curious about research, detail-oriented
Ashikur Rahman	Software Engineering (HTML, CSS, C, C++, java), Web and Mobile app development systems, cloud deployment.	Time management, Critical Thinking, adaptability, Problem solving.	Clear and structured, Confident in explaining ideas, effective in both written documentation and oral presentation.	Reliable, supportive collaborative, able to co-ordinate task to ensure team goals	Research oriented, motivated to learn emerging technologies
Luvish Rajnath	Software dev & Data science, programming skills, Analytical skills, SQL	Critical thinking and problem-solving, teamwork and collaboration	Available, brief but effective, Good at communicating with the team and about work done	Actively gives suggestions and is ready to help	Finds the topic of digital currency very interesting and actively researches on it to help the team project
Isar Ujoodah	Data Science and Software Development, Python, Java, SQL,	Problem solving, adaptability, time management,	Actively listening and participating, reachable,	Ready to take on more tasks when needed, supportive of others, reliable	Learning-oriented, passionate about technology

	C++, Data Analysis, Data	attention to detail.	confident in sharing ideas.	in completing work, and always willing to step in to help the team succeed.	and innovation, motivated to explore new tools and methods.
Farzana Moietry	Software engineering, Data Structures and Algorithms (C++, Java, Python), Microsoft Azure, PowerBI, Web Development (HTML, CSS, JavaScript, UI/UX principles).	Strong analytical and critical thinking, adaptability, problem-solving, time management, and attention to detail. Skilled at proofreading, grammar correction, and ensuring clear documentation.	Clear & structured communicator. Able to explain complex ideas simply and professionally. Experienced in cross-team communication through academic projects and industry work placements.	Collaborative & reliable, actively contributes to discussions, supports peers while enhancing documents for clarity and professionalism	Interested in learning and getting an in-depth idea of how digital currency works and implementing it in real word applications.

1. TEAM ROLE

Table 2: Team Role

Student name	Team role	Justification
AL Hamid Arath	Research Analyst/ Scrum Master	I am confident in gathering insights, doing research and sharing with my team for this project. I am also taking the role of scrum master for my previous experience in leading teams and events. My role will ensure deadlines are met, keep the team on track and solve project related problems.
Jayakodige Lasith	Project Contributor & Team Support	I am confident in analyzing project requirements, solving problems, and supporting the team to achieve milestones. My role focuses on ensuring tasks are completed on time, assisting team members with challenges, and contributing to effective project planning and decision-making
Ashikur Rahman	Project Contributor	I am confident in providing project insights, conducting research, and analyzing requirements while exploring blockchain technologies, system

		architecture, and open-source tools that can support CBDC design. In this role I am determined to address the project's needs, goals, ensure that requirements are met and support the team in all aspects.
Isar Ujoodah	Project Contributor & Scope & Planning Lead	I am responsible for defining the project boundaries and objectives, ensuring the scope is clear and aligns with client and supervisor expectations. I have led the creation of the project scope and developed the project backlog, breaking down deliverables into manageable tasks and phases. I also contribute as a Project Contributor , assisting other team members with research and analysis as needed. In addition, I coordinate documentation to maintain version control, clarity, and professional presentation across all outputs. My role supports the team by keeping the project structured, collaborative, and on track.
Luvish Rajnath	Project Contributor & Technical Lead	I bring strong technical expertise in software development, data science, programming, SQL, and analytical problem-solving to the team. My role focuses on driving the technical aspects of the project, analyzing requirements, and delivering efficient solutions. I actively collaborate with team members, communicate progress clearly, and contribute ideas to enhance project outcomes. Additionally, I have a keen interest in digital currency and conduct independent research to support the project's goals and innovation.
Farzana Moietry	Quality & Ethics Lead	I am responsible for the Quality Plan and Ethical Considerations , ensuring deliverables meet academic, professional, and ethical standards. I also handle proofreading and grammar correction to maintain clarity and consistency across outputs. My industry experience as an Engineering Cadet equips me with practical skills in problem-solving, and quality control, which I apply to strengthen the team's work.

2. TEAMWORK ROADMAP

1. Communication Approach:

- Primary channel: Microsoft Teams (Formal Communication, Meetings and Documentation)
- Secondary channel: Discord (Informal discussions and chats, sharing resources and quick clarification)
- Email: For client and supervisor communication when formal records are needed
- Responses: Within 3hrs of queries asked. Urgent queries are mostly answered within a day.

2. Meetings:

- Weekly Client Meetings (Every Wednesday {4:30 pm – 5:30 pm}): Important questions asked, doubts cleared, feedback received, required tasks and validations from client and assessment of project progress.
- Weekly supervisor meeting (Every Monday {6:00 pm – 6:30 pm}): Important guidance, research validation and updates on project and task expectations.
- Weekly team meetings and stand-ups (Every Monday {6:30pm – 7:30pm}): Planning, task allocations, check-ins to update progress and help each other out for maximum output.

3. Task and workflow management:

- Methodology: Agile with stages – Ideas → Planning → Active → Under Review → Completed
- Tasks will be managed through kanban principles which is: Ideas > Planning > Active > Under review > Completed.
- Assignment tasks will be distributed based on skills, growth opportunities and volunteering
- Progress will be reviewed and polished by mid-week for quality checks; final review is conducted before submission.

4. Deliverable timeline:

- Tasks allocated on Monday.
- First draft submission on Wednesday before 5pm for internal review.
- Completed feedback on Thursday before 5 pm.
- Final Submission on Friday before 10pm.

5. Weekly Deliverables:

- Week (1-2): Team formation, client and supervisor introduction, Communication channels introduced, and roles distributed.
- Week (3-5): Project Planning, Literature review and technical groundwork
- Week (6-9): Prototyping and Iterative testing
- Week (10-11): Performance evaluation and refinement based on feedback
- Week 12: Presentation

6. Tools and Practices:

- Discord/ Microsoft teams/ Email: Communication, Screen Sharing, recording meetings, drafts sharing.
- GitHub: Structured branches, code repository and pull request workflow
- Miro: Task tracking, sprint planning and roadmap visualization
- OneDrive: Shared document editing and document storage.
- Google/ChatGPT/AI tools: Research.

7. Team Commitments:

- Each member is responsible for updating their progress twice a week.
- Equal opportunities for all team members to contribute and grow.
- Redistribution of tasks when members face time restraints or unavoidable circumstances.
- Constructive feedback to promote learning and improvement.
- Follow task guidelines and complete tasks within designated time.
- Equal task distribution or no team members is burdened with more than 20% of their active tasks.
- Team members will be held accountable for inadequate communication and missed meetings.

8. Conflict Resolution

If disagreements occur:

- Discuss in the next stand-up meeting or an ad-hoc session.
- If unresolved, escalate to the Scrum Master (Al Hamid).
- As a last resort, consult the supervisor for mediation.

3. DOCUMENT MANAGEMENT

All project materials will be managed through two dedicated platforms to separate development work from documentation.

1. **GitHub:** Our team will manage project artefacts using a combination of cloud storage and version control to maintain accuracy and accountability. GitHub will be dedicated to all programming tasks, where work is separated into branches linked to individual features or fixes. Changes will only be merged after team review, ensuring quality and reducing errors. For planning materials, reports, and presentations
2. **OneDrive** will be used as the collaborative space for non-code artefacts, including meeting notes, research papers, reports, and presentations. It will act as a central library, allowing real-time co-authoring and automatic backup. To prevent duplication and confusion, documents will be labelled with a clear title and date stamp, with “final” marked only on the confirmed submission copy. Responsibility for keeping both platforms organized will be shared, with each member taking turns to oversee updates and verify that the latest versions are accessible

By using this method, the team can maintain dependable records, streamline collaboration, and keep all project assets in one organized location.

4. RISK MITIGATION

Risk	Effects	Mitigation plan
Unclear regulatory framework for CBDC in Australia	Could create compliance issues with Reserve Bank of Australia (RBA), Australian Securities and Investments Commission (ASIC)	Monitor ongoing consultations; allocate a team member to track policy updates; align design with existing payment standards
Limited technical expertise in distributed ledger technologies	Incorrect architecture design may lead to scalability and security issues.	Assign tasks based on members' strengths; build small proofs-of-concept before finalizing architecture.
Conflicting availability of group members	Could cause missed deadlines for deliverables or uneven workload distribution.	Maintain a shared calendar; rotate responsibilities; allow asynchronous contributions via GitHub and OneDrive
Knowledge gaps in economics and financial policy	Risk of producing a technically sound system that lacks policy compliance.	Dedicate research sessions on economic implications; divide policy readings among members; consult RBA and IMF resources
Uneven participation among members	Some members may carry more work, leading to burnout or reduced quality.	Review workload weekly; use peer feedback in retrospectives; redistribute tasks according to capacity.
Time constraints near submission deadline	Inadequate testing of CBDC prototype; risk of incomplete documentation.	Adopt milestone-based planning; prioritize "minimum viable prototype" by mid-project; schedule buffer weeks for integration and report polishing.
Data privacy and cybersecurity risks	Breaches of personal data could undermine public trust and approval.	Enforce role-based access; test security with simulated attack scenarios; use Hardware Security Modules

PART 2 PROJECT OVERVIEW AND PLAN

1. PROBLEM STATEMENT

Australia must ensure that its payment systems continue to be reliable, efficient, and trustworthy as the global financial ecosystem becomes more digital. Cards, bank transfers, and mobile payments are examples of current infrastructures that are beneficial to the economy, but they might not be able to completely support upcoming innovations like tokenized assets, programmable money, and international digital trade. Australia runs the risk of becoming overly dependent on proprietary payment systems and foreign-issued stablecoins in the absence of a central bank-backed digital alternative, which could jeopardize financial stability and monetary sovereignty. A well-thought-out Central Bank Digital Currency (CBDC), known as the eAUD, offers a chance to boost innovation, foster confidence, and improve the inclusivity of the Australian payments system.

AIM:

To research and suggest a strategic design for the eAUD that supports the Reserve Bank of Australia's (RBA) larger monetary policy objectives while guaranteeing security, compliance, and innovation.

GOAL:

The eAUD is envisioned as a central bank-backed digital currency that safeguards Australia's monetary sovereignty while addressing emerging challenges in the financial system. By providing a secure alternative to private cryptocurrencies and stablecoins, it ensures continued trust in the national currency. At the same time, the eAUD has the potential to broaden financial inclusion by giving all Australians access to safe and affordable digital payment options. It can also act as a catalyst for innovation, enabling tokenized markets, programmable transactions, and smart contracts that reshape how value is exchanged. Beyond domestic benefits, a well-designed eAUD could improve the efficiency of cross-border transactions, making international payments faster and less costly. Underpinning all of this is the need to build strong public confidence through clear policies on privacy, security, and transparency.

OBJECTIVES:

Designing the eAUD requires careful consideration of Australia's legal and policy environment to ensure compliance and long-term viability. Alongside this, it is essential to establish a strong theoretical framework for how the currency would be issued, distributed, and settled within the financial system. Public adoption pathways must also be explored, with particular attention to features that safeguard privacy and enable offline transactions. Insights from international CBDC experiments can provide valuable lessons and best practices that can be adapted to the Australian

context. Ultimately, the project must deliver an implementation roadmap that balances the goals of financial stability and effective risk management with the drive for innovation and progress.

2. Research and Investigation

In the initial stages of the eAUD project, the team undertook extensive research to explore the policy, technical, and adoption considerations associated with designing a Central Bank Digital Currency in the Australian context. This investigation was organized into several key domains, each providing insights that informed the project's direction.

The research examined publications from the Reserve Bank of Australia (RBA) and Treasury, including the 2024 joint consultation paper on digital money, which outlined policy positions and future directions for CBDCs in Australia (Australian Treasury, 2024). Insights were also drawn from the RBA's pilot with the Digital Finance Cooperative Research Centre (DFCRC), which tested CBDC use cases in tokenized asset settlement and wholesale markets (Reserve Bank of Australia, 2023). International reports from the International Monetary Fund (IMF, 2023) and the Bank for International Settlements (BIS, 2022; 2023) provided additional context on global standards, monetary sovereignty, and compliance obligations such as Anti-Money Laundering and Counter-Terrorism Financing (AML/CTF) requirements.

Different distributed ledger technologies, including Hyperledger Besu, R3 Corda, and Hyperledger Fabric, were analyzed to assess their suitability for CBDC deployment. The focus was placed on scalability, security, interoperability, and the ability to integrate with existing financial systems such as the New Payments Platform and the Reserve Bank Information and Transfer System (RITS). (Hyperledger Foundation, 2023; R3, 2023).

The team investigated open-source interoperability frameworks, including Hyperledger Cacti and Firefly, to understand how the eAUD could connect with both domestic and international payment networks. Global pilot projects, such as those conducted in Nigeria and Jamaica, were also reviewed after consultation with client to identify best practices that could be adapted for the Australian environment.

Adoption strategies were examined with particular emphasis on privacy-preserving features and offline payment models. Drawing on resources such as the BIS Project Polaris and other CBDC trials, the research highlighted the importance of building public trust through security, transparency, and inclusivity.

Finally, literature on financial risk management was reviewed to evaluate how the introduction of a CBDC could avoid destabilizing existing banking structures. This included examining approaches for managing liquidity, strengthening cybersecurity, and addressing the risks of disintermediation.

3. SCOPE

Within Scope:

- Research and analysis of Central Bank Digital Currencies (CBDCs), with a specific focus on the Australian context and the proposed eAUD.
- Comparative review of international CBDC projects (e.g., Project Atom 2021, CBDC Pilot 2023, Project Acacia 2025) to extract lessons for Australia.
- Evaluation of suitable open source blockchain platforms (such as Hyperledger Fabric, Corda, Quorum) for potential CBDC implementation.
- Consideration of policy and regulatory alignment with existing Australian financial laws and frameworks (e.g., Reserve Bank Act, AML/CTF).
- Development of a conceptual design and strategic roadmap for the eAUD, including adoption strategies and stakeholder analysis.
- Production of project deliverables: stakeholder matrix, policy architecture, feasibility scenarios, and a final presentation.

Out of Scope:

- Building or deploying a fully operational CBDC system.
- Live integration or testing within Australian financial infrastructure.
- Detailed macroeconomic modelling of monetary policy impacts.
- Drafting or enacting new legislation (the project will only make recommendations, not legal documents).
- Development of consumer-facing apps, wallets, or commercial payment systems.

4. STAKEHOLDER

1. Client / Industry Partner (if applicable)

- Role: Provides project brief, clarifies expectations, and validates deliverables.

- Involvement: Attends weekly meetings, reviews progress, and gives timely feedback to ensure alignment with goals.

2. Academic Supervisor and Teaching Team

- Role: Guides and mentors, the project team.
- Involvement: Reviews progress and ensure academic and professional standards are met.

3. Student Project Team

- Role: Core execution team responsible for research, analysis, design, and documentation.
- Involvement: Includes individual roles such as Scrum Master, Technical Lead, Scope Lead, and Quality Lead. Each member contributes according to assigned tasks and collaborates to achieve project milestones

4. Reserve Bank of Australia (RBA)

- Role: Key policy and regulatory authority; central reference point for CBDC-related insights.
- Involvement: Provides indirect input through consultation papers and pilots; influences the design and recommendations even if not directly engaged.

5. Other Regulators / Industry Bodies (contextual)

- ASIC, APRA, AUSTRAC: Relevant to financial regulation and compliance.
- Considered when discussing legal and operational frameworks.







6. End Users / Public

- Role: Represents businesses, consumers, and the unbanked population who might use the eAUD.
- Involvement: Indirectly represented through research, user studies, and policy reviews. Their needs (e.g., accessibility, privacy, inclusivity) shape the design features of the proposed eAUD.

7. Technology Vendors / Platforms (contextual)

- Role: Providers of open source blockchain platforms (e.g., Hyperledger, R3 Corda).
- Involvement: Referenced when evaluating technical options but not engaged directly.

Stakeholder Matrix

Stakeholder	Role / Interest	Influence on Project	Communication Frequency
 Client / Industry Partner	Defines project brief, validates deliverables, ensures goals align with industry needs	High Approve direction and outcomes	Weekly meetings (formal updates, feedback)
 Academic Supervisor & Teaching Team	Guide research, ensure academic and technical quality, align project with unit outcomes	High Mentor and quality authority	Weekly check-ins ad-hoc as needed for guidance
 Reserve Bank of Australia (RBA)	Executes all project work, (research, design, documentation): Informs collaboration	High Directly responsible for delivery	Indirect (via published papers, updates monitored)
 Other Regulators (ASIC, APRA, AUSTRAC)	Legal and compliance bodies/ensure recommendations meet standards	Medium Shapes risk and compliance	Indirect (via secondary research, user needs considered throughout)
 End Users / Public	Future users (consumers, businesses, Underbanked), usability and	Medium User needs	Indirect: low Medium via touchpoints
 Technology Vendors / Platforms	Providers of technical platforms (e.g. Hyperledger, R3) influence architecture choices	Low-Medium via technical input	Low - Medium technical input

5. HIGH-LEVEL REQUIREMENTS

Designing Australia's Central Bank Digital Currency (CBDC) project requires to develop a strategic framework for a proposed eAUD issued by Reserve Bank of Australia (RBA). The central bank will be directly responsible for the CBDC, in contrast to current bank deposits, which are the responsibility of the commercial banks. As a result, this reduces reliance on intermediaries, lower transaction costs, and increases resilience.

This system will be centrally regulated, digital and auditable, while aiming to provide privacy safeguards for users. Based on international pilots (such as Nigeria's eNaira and the Bahamas')

Sand dollar) and Australian own wholesale experiments (Project Atom, DFCRC Pilot, Project Acacia), this project will propose a policy-aligned design and implementation roadmap tailored to the Australian Context.

The outcome of this project will be documentations for design, architectural frameworks, and policy proposals rather than a complete production system.

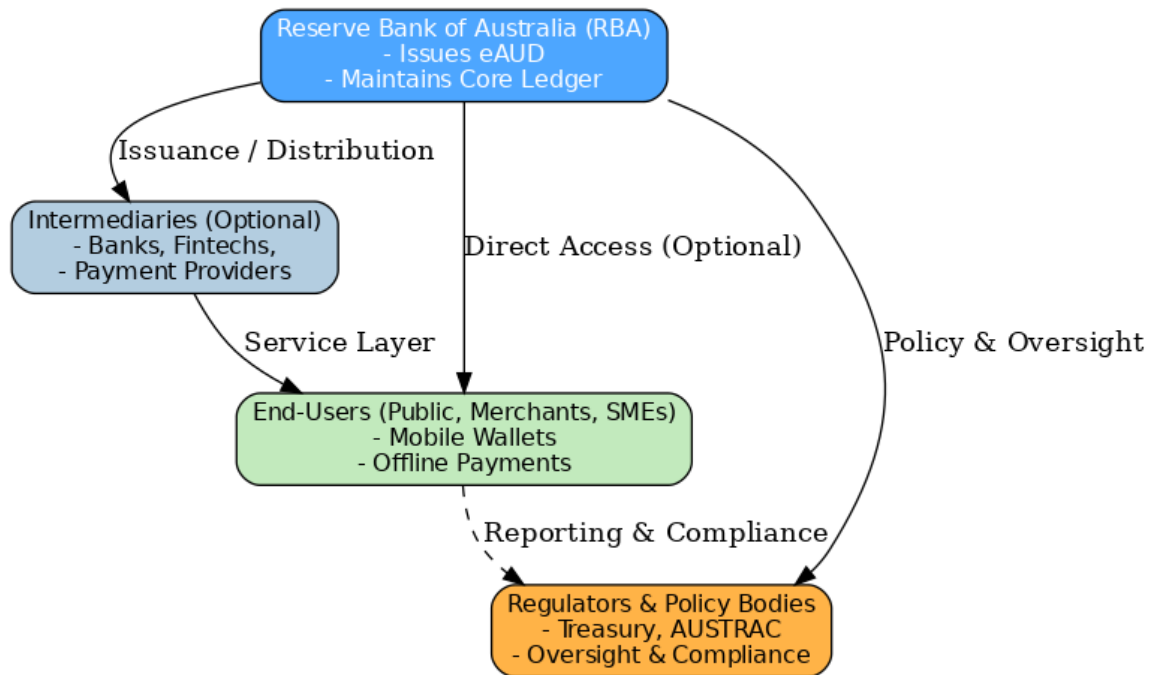


Figure 1: System Context Diagram (Conceptual)

4.1 Functional Requirements

FR1-Issuance and Ledger:

- The RBA is required to issue and redeem CBDC directly.
- For transparency and immutability, all transactions must be recorded on a shared, permissioned ledger.
- Ledger must support real time, 24/7 settlement without any downtime.

FR2-Identity and Compliance

- Integrate the AML/CTF and KYC compliance system.

- b. Transactions must protect users' privacy while being traceable by regulators.
- c. Governance structure to specify which organizations are accountable to the RBA.

FR3- Accessibility and Inclusion

- a. The general user or stakeholders should be able to use CBDC using mobile wallets that just require internet connectivity; No need for bank offices or branches.
- b. Include offline transaction functionality to serve remote communities who live far away.
- c. Provide user-friendly designs for people who are not very tech savvy or financial literacy.

FR4-Interoperability

- a. Enable integration with the new payment's platform with the other existing domestic payment rails.
- b. Facilities cross-border communication using tokenized settlement and multi CBDC bridges.

FR5- Governance control and Policy

- a. Include configurable policy levers such as transaction and holding limits, tiered access models (wholesale vs retail), interest bearing vs non-interest-bearing models.
- b. Provide audit trails for compliance and monetary policy supervision.

4.2 Non-Functional Requirements

NFR1- Privacy and Security

- a. Implement encryption, access controls and secure key management.
- b. Must align with cybersecurity standards set out by ISO/NIST.

- c. Enable privacy by design to balance user privacy with regulatory monitoring.

NFR2-Performance and Scalability

- a. High transaction volume (thousands of TPS) must be handled by the system.
- b. Transaction confirmation should happen within seconds.

NFR3- Reliability and Resilience

- a. Offline fallback modes to ensure the transaction continuity.
- b. High availability with no single point of failure.
- c. Disaster recovery functionality with clear RTO/RPO targets.

NFR4-Inclusivity and usability

- a. Application for wallet must comply with accessibility standards.
- b. Provide multi language support and simple user interfaces flows.

NFR5- Sustainability

- a. Preference to consensus processes that are energy efficient, such as proof of stake or BFT, over those that need high energy.

4.3 Constraints and Dependencies

- a. Australian law, rules and regulations must be followed, and the RBA's cautious approach which prioritizes wholesale settlements over retail- must be followed.
- b. Open source blockchain technologies (such as Hyperledger, Corda and Ethereum test nets) will be used for prototypes and demonstrations.
- c. The global CBDC experiments will be used as reference models, but adapted to Australia's financial, legal, and social context.

6. SOLUTION APPROACH

Research-Driven and Industry Collaboration Focus

The proposed solution is built upon extensive research and insights from the Australian CBDC pilot conducted in 2023. This pilot involved collaboration between the Reserve Bank of Australia (RBA), the Digital Finance Cooperative Research Centre (DFCRC), major banks, fintech companies, regulators, and academic experts. Early and ongoing engagement with this broad range of stakeholders allows the project to incorporate real-world perspectives on use cases, user experience, regulatory compliance, and operational realities.

This collaborative and research-driven approach ensures that the CBDC design is practical, effective, and aligned with Australia's unique financial ecosystem.

Technology Architecture

The CBDC system employs a two-tier architecture, leveraging secure and scalable distributed ledger technology (DLT) platforms such as Hyperledger Fabric, R3 Corda, or Quorum, chosen for their compliance with Australian regulatory frameworks and performance capabilities.

- **Tier 1:** The Central Bank issues the digital currency and operates the core ledger system and settlement infrastructure.
- **Tier 2:** Authorized financial intermediaries, including banks and payment service providers, handle customer onboarding, digital wallet management, and direct distribution of CBDC to end users (households and businesses).

Programmable smart contracts are integrated into the platform, enabling automated and conditional payments, multi-party transaction processes, and atomic (all-or-nothing) settlement. This capability allows the CBDC to support complex financial instruments, enforce policy-driven payments, and enhance transaction efficiency.

Compliance mechanisms—including comprehensive Know Your Customer (KYC), Anti-Money Laundering (AML), and Customer Due Diligence (CDD) processes—are embedded throughout the system to satisfy regulatory requirements and promote trust.

Pilot and Iterative Development

The CBDC will be introduced initially within a controlled ring-fenced pilot environment containing a selected set of industry participants. This environment uses real legal claims on the RBA, ensuring transactions replicate actual financial conditions.

This pilot phase will test multiple use cases including retail payments, asset tokenization, programmable disbursement, and interoperability with existing payment platforms. Operation, integration, usability, security, and regulatory challenges will be rigorously analyzed.

Feedback loops will enable iterative improvement, ensuring the system is robust and scalable before wider rollout.

Compliance and Privacy Balance

Balancing user privacy with regulatory compliance is a core design principle. Advanced cryptographic techniques and privacy-enhancing technologies (such as selective disclosure and encrypted data sharing) will safeguard user information against unauthorized exposure.

Meanwhile, regulatory oversight is maintained via transparent transaction records accessible to authorized parties. Regular consultation with regulators is planned to maintain this equilibrium.

Scalability and Interoperability

The architecture is designed to scale from initial wholesale-focused deployment to broader retail adoption as technology maturity and regulatory clarity evolve.

Interoperability with Australia's existing payment infrastructure (such as the New Payments Platform) ensures seamless integration, while planned cross-border compatibility supports future expansion in international trade and finance. This forward planning aligns with global trends toward multi-national CBDC collaborations.

Risk Mitigation and Quality Assurance

The system incorporates comprehensive security protocols including cryptographic safeguards, continuous monitoring, and formal verification of smart contracts to eliminate vulnerabilities. Project risks such as technological integration challenges, regulatory shifts, and adoption barriers will be documented and regularly reviewed in a risk registry. Quality assurance processes comprising thorough testing, audits, and compliance checks will secure the platform's reliability and legal alignment throughout development and deployment.

Alternative Designs Considered and Rejected

- **Single-Tier CBDC Model:** Direct issuance and management by the central bank to end users. Rejected due to excessive central bank operational load, privacy concerns, and scalability limitations.
- **Centralized Digital Currency Systems (Non-DLT):** Traditional centralized accounts managed by the central bank without blockchain. Rejected because of lower transparency, immutability, and lacking programmability.

- **Fully Decentralized Public Blockchain:** Use of public blockchains like Ethereum for CBDC. Rejected due to lack of regulatory control, privacy issues, and unpredictability in performance.

The chosen hybrid, permissioned DLT approach with tiered distribution effectively balances control, scalability, privacy, and programmability, consistent with international best practices and suitable to Australian regulatory and market conditions.

7. PRODUCT BACKLOG

Backlog Item	Description	Business Value / Priority	Dependencies	Target Sprint
Team & Project Setup	Team formation, role allocation, communication tools (Discord, Teams).	High	None	Week 1 (Prep)
Project Plan & Scope Definition	Drafting scope, identifying deliverables, stakeholders, constraints.	High	Item 1	Week 2 (Prep)
Stakeholder Matrix	Identify and analyse client, supervisor, regulators, end users.	High	Item 2	Sprint 1
Literature & Context Review	Review Project Atom, CBDC Pilot, Project Acacia, international pilots.	High	Item 2	Sprint 1
Technology Scan	Research open-source platforms (Hyperledger, Corda, Quorum).	Medium-High	Item 4	Sprint 1–2
Requirements Gathering	Identify functional and non-functional	High	Item 4	Sprint 2

	requirements, constraints.			
Architecture Design	High-level CBDC conceptual design (ledger, access, policy layers).	High	Items 5 & 6	Sprint 2
Policy & Regulatory Framework	Map laws (RBA Act, AML/CTF) and design policy controls.	High	Items 4 & 6	Sprint 2
Stakeholder Engagement	Supervisor and client feedback sessions; refine backlog.	Medium	Items 2–8	Sprint 1–3
Scenario Testing & Feasibility	Develop paper-based or low-fidelity tests for proposed architecture.	Medium	Items 7 & 8	Sprint 3
Alpha Deliverables	Submit stakeholder matrix, tech evaluation, initial architecture.	High	Items 3–8	End Semester 1
Extended Research (Beta)	Explore advanced topics: offline payments, programmability.	Medium	Items 7 & 10	Sprint 4–5
Implementation Planning	Define steps for pilot and scaled deployment (conceptual).	Medium	Items 7–10	Sprint 5
Demo Storyboard	Visual mock-ups of user flows and system interactions.	Medium	Items 7–10	Sprint 5
Final Presentation & Handover	Compile findings, present to client/supervisor.	High	All items	Sprint 6

Final Report & Poster	Complete written report and poster summarizing project.	High	All items	Sprint 6
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8. QUALITY PLAN

Quality Standards and Benchmarks

The project will benchmark its outputs against both academic standards (clarity, originality, APA referencing, and structured argument) and industry standards (compliance with Reserve Bank of Australia guidelines, alignment with ISO/NIST cybersecurity frameworks, and use of WCAG accessibility criteria). These benchmarks ensure that the deliverables are credible not only in an academic setting but also in a real-world policy and technical context.

Target Quality Expectations:

- Deliverables must be **accurate, research-driven, and referenced** with credible sources.
- Documents should be **clear, well-structured, and professional**, suitable for academic and industry review.
- Outputs must **meet all unit requirements** and align with client/supervisor expectations.
- Recommendations should be **practical and feasible**, showing clear understanding of Australian CBDC needs.

Steps to Assure Quality:

1. Review and Validation

- Weekly internal reviews of work against project requirements.
- Supervisor feedback integrated at each milestone (scope, architecture, analysis, final report).

2. Collaboration and Version Control

- All documents stored in a shared version-controlled space (e.g., Teams, Google Drive).

- b. Changes tracked and reviewed by at least one other team member before finalising.

3. Research Integrity

- a. All findings referenced using academic citation standards.
- b. Cross-check data and insights from multiple sources (e.g., RBA publications, industry reports).

4. Consistency and Presentation

- a. Standardised formatting across all deliverables (headings, styles, diagrams).
- b. Proofreading and editing before submission to eliminate errors.

Planned Testing and Verification:

- **Document Testing:**
 - Checklists used to verify each deliverable meets requirements (stakeholder matrix, architecture, policy design).
 - Peer review by team members before submission.
- **Scenario Testing (for concepts):**
 - For architecture and design recommendations, use **hypothetical scenarios** (e.g., simulated payment flows, policy enforcement examples) to validate feasibility and logic.
- **Presentation Testing:**
 - Conduct a dry run of the final presentation to ensure clarity, timing, and audience readiness

Definition of Done

To formalise expectations, the team defines “Done” for any deliverable as:

- Requirements fully met (checked against backlog/assignment rubric).
- Reviewed by at least two team members.
- Free from spelling, grammatical, or formatting errors.
- Properly cited and referenced.
- Approved in the final internal review meeting.

9. ETHICAL CONSIDERATIONS

When designing a Central Bank Digital Currency (CBDC) such as the eAUD, ethical issues extend beyond technology choices to the social, economic, and legal frameworks that surround its use. The team has identified several key areas where ethical awareness is critical to ensure the project’s credibility and long-term value.

Data Privacy and Security

Financial information is among the most sensitive categories of personal data. The project aligns with the Australian Privacy Principles (APPs) and international cybersecurity standards (ISO, NIST) by embedding “privacy by design” into all recommendations. No personally identifiable data will be collected during the prototype or research stages. Any reference to user activity will be anonymised and drawn only from publicly available case studies and pilot reports. This reduces the risk of exposing private information while ensuring that our design frameworks remain realistic.

Inclusion and Accessibility

A CBDC must serve the whole population, not just the technologically literate or urban communities. Ethical responsibility requires careful attention to the needs of vulnerable groups—such as older Australians, people living in rural or remote areas, or those without access to advanced smartphones or stable internet. The project therefore recommends features such as offline payment modes, simplified wallet interfaces, and compliance with accessibility standards (e.g., WCAG 2.1). These measures ensure that the eAUD contributes to financial inclusion rather than reinforcing digital divides.

Transparency and Accountability

Because central bank money underpins national trust, it is essential that the design process is transparent. All assumptions, limitations, and uncertainties are clearly documented in the project deliverables. The team commits to acknowledging the sources of information used and providing balanced interpretations without altering or omitting evidence to suit a predetermined view. In academic terms, this also means maintaining honesty in citation, referencing, and collaborative work.

Avoidance of Bias

The project takes a neutral stance when evaluating competing blockchain platforms (such as Hyperledger, R3 Corda, or Quorum). Technology recommendations are based on performance, security, and compliance criteria rather than personal preferences. Similarly, multiple stakeholder perspectives—Reserve Bank of Australia (RBA), regulators, commercial banks, fintechs, and end users—are considered equally, avoiding undue emphasis on a single group’s interests.

Social and Economic Responsibility

The potential consequences of a CBDC extend into social and economic life. Risks such as over-reliance on digital infrastructure, cyber-attacks, or the exclusion of cash-reliant communities must be addressed. The project proposes safeguards like redundancy mechanisms, energy-efficient consensus algorithms, and the continuation of financial literacy programs to ensure responsible adoption. These considerations reflect the broader obligation to design technologies that support public trust and resilience.

Academic and Professional Integrity

As students, the team recognises its responsibility to adhere to Swinburne University's academic integrity standards. All contributions are original, references are cited appropriately, and collaboration is carried out with fairness and respect. The project also reflects professional integrity by ensuring that deliverables are unbiased, practical, and aligned with recognised ethical frameworks in computing and financial research.

In summary, the team is committed to upholding ethical standards by embedding privacy, inclusivity, transparency, fairness, and integrity into all stages of the CBDC project. These principles not only safeguard the quality of the research but also enhance its potential value for stakeholders in Australia's financial ecosystem.