

11/22/2024

Assessment 1

Project Proposal Report

MODULE NAME: CHANGEMAKERS, CREATIVITY AND VALUE
CREATION

MODULE CODE: ACCA 5033

STUDENT NAME: GLIB LOMAKIN

STUDENT ID: 2327205

LECTURER: KOUSHIK MODAK

TRINITY SAINT DAVID UNIVERSITY OF WALES (LONDON
CAMPUS)

Koushik Modak
STUDENT ID:2327205

Table of Contents

Introduction	2
Main Body	3
Task 1	3
Ideation and Innovation	3
Innovation	3
Ideation	4
Research	6
Task 2	6
Project Scope	6
Proposed Solution	7
Research tools, Technologies and Resources	7
Task Schedule	8
Project timeline	8
Risk Assessment	9
Task 3	9
Development Method	9
Design	10
Conclusion	13
References	14

Assignment 01: Project Proposal

Introduction

The recent intense development of artificial intelligence has introduced new opportunities in the innovative industries, especially in the development of video games. The proposed research project deals with the transformative nature of Generative AI regarding the revolutionization of narrative design and the player experience in the role-playing games (RPGs). The increasing pressures of the need to offer individualized gaming experiences and dynamic content has generated the necessity of new approaches that can offset the creative quality and production efficiency.

The essence of this project is the constraint of the conventional, pre-written narrative in the present-day RPGs. As players demand more and more distinctive and responsive storytelling experiences, manual generation of branching narratives is time-consuming, resource-intensive and finite in scale. This study will fill this gap by constructing a framework to use the power of Generative AI to generate adaptive and player-driven stories and preserve the sense of narrative integrity and impact.

This study is important because it could transform the interactive storytelling. The project analogous to human creativity shows how a human-in-the-loop system architecture can enhance, but not eliminate human creativity with the help of AI. Not only does this strategy solve the pressing issues of the day, but it also examines the novel forms of interaction with players and customization of the plot.

The given work is based on the traditional approaches to Agile development and is informed by the new developments in the field of large language models and interactive storytelling. The research approach is based on the idea of continuous testing, extensive refinement and stakeholder input to achieve not only technical viability but also creative relevance.

In the given sections, a detailed examination of the scope of the project, suggested solution, research design, and strategy of implementation are offered. The systematic research and prototyping of this study lead to the creation of innovative knowledge on the topic of AI-assisted creative processes, as well as the practical frameworks of game developers interested in using the power of Generative AI in narrative design.

Main Body

Task 1

Ideation and Innovation

Innovation

I. Summary of Topic 1: How Innovation Shapes the World.

Innovation is the applied action of using the creative notions so as to generate a lot of value to the society unlike invention which is the development of the idea itself. This difference is pivotal since inventions are valuable; but their effective implementation by way of innovation brings actual progress. Economic growth and social development are the main drivers of innovation, and this innovation makes our lives and our work in all spheres different. The subject discusses different types of innovation, and there are both incremental changes that make current processes more efficient and radical changes that transform industries altogether. It stresses creativity as the basis of all innovative processes and discusses the role of such factors as market needs, technological opportunities and regulatory conditions on innovation trajectories. The identify of these innovation drivers brings a great insight into the manner in which organizations and societies are adjusting to the changing environment at high rates [1].

II. The Role of Innovation in Society and Self.

Innovation provides more opportunities to human beings and has historically transformed societies and economies [2]. It allows people to gain the necessary skills such as critical thinking, solving complex problems, and ability to adapt in rapidly evolving situations. When one decides and inquires the innovation, it enhances creative confidence and resilience, assisting individuals to shift their position of being passive users of technology to being creators and problem-solvers. Such a change strengthens the level of agency and plays a significant role in the development of the profession and self. In the creative industries, such as the development of games, technology is replacing established methods of production through transformative technologies such as Generative AI, which allow users to create dynamic content and have personalized experiences in ways never seen before. These innovations are altering the production and consumption of content, and new possibilities of interactive storytelling have been opened.

Ideation

Project Title: Personalized Narratives: A Framework for Generative AI in Role-Playing Games

Aim: To design and validate a comprehensive framework for integrating Generative AI into role-playing games that creates adaptive, player-driven narratives while maintaining story coherence and emotional resonance throughout the gaming experience.

Objectives:

1. Investigate the technical evolution and capabilities of Generative AI for interactive storytelling applications
2. Analyse global adoption patterns and implementation strategies in game development markets
3. Evaluate how AI-generated narratives impact player immersion and engagement
4. Develop and test a functional prototype demonstrating real-time narrative generation
5. Assess the broader impacts on game development workflows and player satisfaction

Brief Description: This project forms a viable template of how to implement hi-tech AI systems into the new game development processes. The study goes beyond the conventional pre-written scripts to dynamic systems where quests and dialogues between characters are created in real-time depending on the choices made by the player. The project investigates the requirements of technical architecture and is an implementation of advanced narrative coherence mechanisms.

Research Methodology: The study will be conducted using the mixed methodology that will incorporate both technical development and user experience research. This involves methodical review of the available AI tools, comparative case study of the first users, and prototyping and user-controlled testing. It also focuses on application issues of practices, but the methodology also includes academic rigor, which is ensured by the development of research frameworks.

Practical Applications: The framework will provide concrete guidelines for implementing AI narrative systems, including technical architecture specifications, content moderation protocols, and integration strategies for existing game engines. It will address practical considerations such as computational requirements and content quality assurance across different platforms.

Research Investigation:

1. **Technology History:** Trace Generative AI evolution from early neural networks to modern transformer architectures and their gaming applications [3]
2. **Global Adoption:** Analyse implementation variations between North American, European, and Asian markets, noting regional emphasis on either procedural generation or narrative innovation
3. **Industry Impact:** Revolutionizes game design from static storytelling to dynamic narrative systems, requiring new development methodologies and skill sets
4. **Modern Contribution:** Advances interactive entertainment through personalized storytelling, making games more accessible and engaging for diverse audiences
5. **Positive Impacts:**
 - Enhanced player engagement through personalized content
 - Reduced development costs for content creation
 - Infinite replay ability through dynamic narratives
 - New creative possibilities for game designers
6. **Negative Impacts:**
 - Potential job displacement for traditional narrative designers
 - Quality consistency challenges in AI-generated content
 - Technical complexity and computational requirements
 - Ethical concerns regarding content ownership
7. **Implementation Challenges:**
 - Technical integration with existing game engines
 - Maintaining narrative quality and coherence
 - Computational resource management
 - Training data acquisition and processing
 - User acceptance of AI-generated content
8. **Stakeholder Benefits:**
 - **Players:** Receive personalized, evolving gaming experiences
 - **Developers:** Achieve efficient content creation and new creative tools
 - **Designers:** Access enhanced creative possibilities and reduced repetitive tasks
 - **Publishers:** Benefit from reduced production costs and innovative products
 -

Research

Research Plan:

1. Technology assessment of AI narrative tools and architectures
2. Market analysis of implementation strategies across regions
3. Impact measurement through user experience metrics
4. Prototype development with quality control measures
5. Stakeholder analysis of benefits and challenges

Key Research Sources:

1. Tidd & Bessant (2018) on innovation management
2. Industry reports on AI implementation [4]
3. Academic research on interactive storytelling [5]
4. Technical documentation on AI applications

Task 2

Project Scope

1. **Chosen Technology and Industry:** The project focuses on Generative AI, specifically large language models (LLMs), within the Video Game Development industry. This technology is revolutionizing how narrative content is created and delivered. [6]
2. **Departments Embracing the Technology:**
 - Narrative Design & Writing: For generating dynamic dialogue, branching storylines, and character backstories.
 - Game Design: For rapidly prototyping and iterating on quest designs and narrative mechanics.
 - Quality Assurance (QA): For simulating a wider range of player choices and dialogue paths to identify narrative inconsistencies.
3. **Benefits and Drawbacks:**
 - Benefits: Key advantages include the creation of deeply personalized player experiences, a significant reduction in time and cost for generating vast amounts of narrative content, and enhanced infinite replay ability. <https://digitaldefynd.com/IQ/digital-transformation-case-studies/>
 - Drawbacks: Potential challenges include a risk of narrative incoherence or a "sameness" in AI-generated text, high computational costs for real-time generation, and potential workforce transformation concerns as the role of narrative designers evolves [7].
4. **Future Aspects and Departmental Impact:** Future development will focus on emotion-aware AI that adapts stories to players' real-time emotional states. This will further blur the lines between scripted and emergent narratives, requiring narrative departments to shift from writing every line to becoming "narrative curators" and system architects who design the rules and boundaries for AI-driven stories.

Proposed Solution

1. **Research Philosophy and Motivation:** This project adopts a pragmatist research philosophy, focusing on practical, real-world solutions to the challenge of integrating Generative AI into creative workflows. The motivation stems from the gaming industry's need to create more expansive and responsive worlds without exponentially increasing development time and costs, a challenge highlighted in studies on technological change [7]. The goal is to augment human creativity, not replace it.
2. **Expectations from the Research:** The research expects to deliver a functional framework and prototype that demonstrates a significant reduction in manual scripting time while maintaining a high standard of narrative coherence and emotional impact. A key expectation is to define clear guardrails and ethical guidelines for AI use in creative processes.
3. **Problem-Solving Approach:** This research solves the problem by providing a structured, human-in-the-loop framework. It offers game developers a practical toolkit to harness the efficiency of AI while ensuring that human creativity and oversight remain at the center of the storytelling process, thereby mitigating the risks of poor-quality or ethically problematic content.

Research tools, Technologies and Resources

Research Identification and Sourcing.

- **Sources and Tools:** Academic research was sourced from databases like IEEE Xplore and ACM Digital Library. Industry trends and case studies were gathered from reputable consulting firms like McKinsey & Company and tech publications [8][6].
- **Credibility Check:** Credibility was ensured by prioritizing peer-reviewed journals, established industry reports from recognized firms, and cross-referencing information across multiple reputable sources. The authority of the publishing platform and the date of publication (prioritizing 2023-2025) were key factors.

Technologies for Project Implementation

- **Core AI Technology:** GPT-4 API or similar advanced LLMs for natural language processing and generation.
- **Game Development Engine:** Unity or Unreal Engine for prototyping the game environment.
- **Backend & Integration:** Python with frameworks like FastAPI to create a dedicated service that handles communication between the game engine and the AI model.
- **Project Management:** Software supporting Gantt charts and Critical Path Method (CPM) analysis, such as Project Manager or similar tools. <https://www.projectmanager.com/blog/project-management-techniques-for-every-pm>

Task Schedule

Work Breakdown Structure (WBS) Model [\[9\]](#)

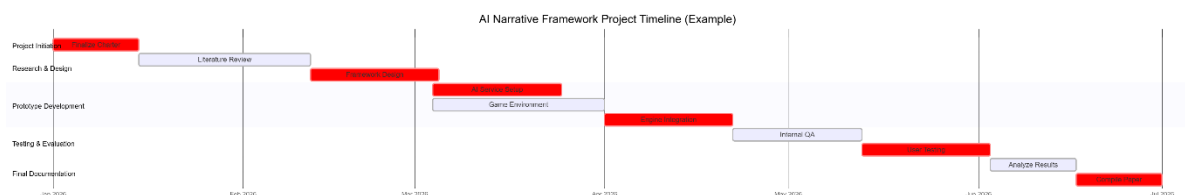
1. Project Initiation
 - Finalize Project Charter
 - Stakeholder Identification
2. Research & Design
 - Literature Review on Generative AI in Gaming
 - Framework Architecture Design
 - Define Narrative Guardrails & Ethics Guidelines
3. Prototype Development
 - Set Up AI-Generation Service
 - Develop Basic Game Environment
 - Integrate AI Service with Game Engine
4. Testing & Evaluation
 - Internal QA and Coherence Testing
 - User Experience Testing with Focus Groups
5. Final Documentation & Reporting
 - Analyse Test Results
 - Compile Final Research Paper

Project timeline

Critical Path Method (CPM) Model: The CPM will identify the longest sequence of dependent tasks, which is likely the "Prototype Development" phase (3.1 → 3.2 → 3.3). Any delay in this sequence will directly impact the project's final completion date. This method helps in identifying which tasks are critical and cannot be delayed [\[9\]\[10\]](#).

Project Gantt Chart: A Gantt chart will be used to visualize the project timeline. It will show all WBS tasks, their start and end dates, durations, and dependencies (e.g., Development cannot start until Research is complete). This offers a clear overview of the project schedule and progress.
<https://www.projectmanager.com/blog/project-management-techniques-for-every-pm>

Below is a simplified example of how the Gantt chart would be structured across a 6-month timeline:



Risk Assessment

Identified Risks and Challenges:

- Technical Risk: AI-generated narratives could lack coherence or emotional depth.
- Resource Risk: High computational cost of running sophisticated LLMs in real-time.
- Project Risk: Scope creep due to the expansive possibilities of AI features.
- Ethical Risk: Unintended bias in AI-generated content or copyright ambiguity.

Mitigation Strategies:

- Implement a multi-layered "narrative coherence checker" and maintain strong human creative oversight.
- Prototype with cost-effective AI models first and optimize the code for efficiency.
- Define a Minimum Viable Product (MVP) with a fixed scope and use a Change Log to formally track any requested changes.
<https://www.projectmanager.com/blog/project-management-techniques-for-every-pm>
- Curate training data carefully and establish clear ethical guidelines from the project's start.

Task 3

Development Method

Analysis of SDLC Life Cycles

Various Software Development Life Cycle (SDLC) methodologies offer distinct approaches to project management according to the Software Development Life Cycle (SDLC) framework [11]:

1. **Waterfall Model:** A sequential, linear approach where each phase must be fully completed before the next begins. While this method works well for projects with fixed requirements, its rigidity makes it unsuitable for projects requiring flexibility [12].
<https://www.lucidchart.com/blog/pros-and-cons-of-waterfall-methodology>
2. **Agile Methodology:** An iterative approach that emphasizes flexibility, collaboration, and customer feedback. Development occurs in short cycles (sprints), allowing for continuous improvement and adaptation to changing requirements [13].

3. **Iterative Model:** This approach develops a system through repeated cycles, building incremental versions that evolve into the complete system. It enables early delivery of core functionality.
4. **Spiral Model:** Combines iterative development with systematic risk analysis. Each cycle involves planning, risk assessment, engineering, and evaluation, making it suitable for complex, high-risk projects.
5. **V-Model:** An extension of Waterfall that emphasizes verification and validation activities. Each development phase has a corresponding testing phase, ensuring quality but maintaining rigidity.

Chosen Development Method: Agile Methodology

For the AI-Driven Dynamic Narrative Framework project, I have selected the Agile methodology as the most suitable development approach.

Justification for Selection

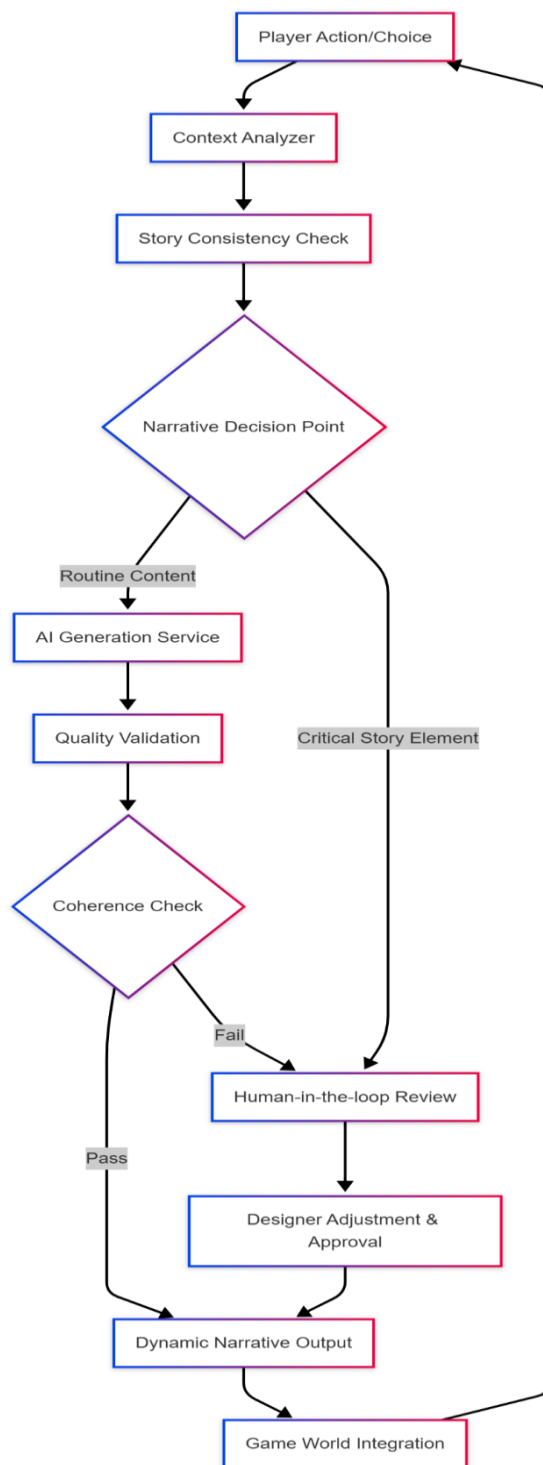
The Agile methodology aligns perfectly with this project's requirements for several key reasons:

1. **Adaptability to Research Findings:** As this project explores innovative applications of Generative AI in gaming, requirements may evolve based on research outcomes. Agile's iterative nature allows for incorporating new insights and adjusting direction as the project progresses.
2. **Stakeholder Collaboration:** Regular sprint reviews enable continuous feedback from potential users and domain experts, ensuring the framework addresses real industry needs and remains practically applicable.
3. **Risk Management:** The incremental delivery of working prototypes helps identify technical challenges or narrative coherence issues early, reducing the risk of major setbacks during development.
4. **Performance Measurement:** Using key DevOps metrics (Hall, n.d.), we can track deployment frequency and mean time to recovery, ensuring continuous delivery alignment [\[12\]](#).

Design

Design Work 1: System Architecture Flowchart

The system architecture employs a sophisticated workflow that balances AI automation with human creative oversight:



Description: This architecture creates a responsive narrative system that begins with player input, which undergoes context analysis and consistency checking. The system intelligently routes content generation based on narrative importance - routine content goes directly to AI generation, while critical story elements require human review. All AI-generated content passes through

quality validation and coherence checks before integration into the game world, ensuring maintained narrative quality while providing personalized player experiences.

Design Work 2: Requirements Specification

Functional Requirements:

1. AI Integration Module
 - Must process player choices and generate context-appropriate narrative responses
 - Shall maintain character consistency across generated dialogue
 - Must support multiple narrative branching paths based on player history
2. Quality Control System
 - Shall implement real-time coherence checking for all generated content
 - Must flag content violating established narrative guidelines
 - Should provide manual override capabilities for narrative designers
3. Player Experience Components
 - Must deliver personalized narrative elements within 2-second response time
 - Shall maintain persistent player choice history across gaming sessions
 - Should adapt narrative difficulty and complexity based on player preferences

Technical Requirements:

1. Performance Specifications
 - AI response time: <2000ms for narrative generation
 - System uptime: 99.5% during active gameplay
 - Maximum concurrent users: 10,000 players
2. Integration Requirements
 - Compatibility with Unity and Unreal Engine
 - RESTful API support for cloud-based AI services
 - Real-time save system for player progress and choices
3. Security Requirements
 - Secure API key management for AI services
 - Player data encryption and privacy protection
 - Content filtering for inappropriate AI-generated material

Design Work 3: Data Structure ERD

The system utilizes a comprehensive data structure to manage dynamic narrative elements:

Entity Relationships:

- Player Profile (1) to (Many) Game Sessions
- Game Session (1) to (Many) Player Decisions
- Narrative Branch (Many) to (Many) Story Elements
- Character Database (1) to (Many) Dialogue Trees

Key Data Entities:

- **Player_Profile:** Stores player preferences, choice history, and narrative preferences
- **Story_Context:** Maintains current narrative state, character relationships, and plot progression
- **AI_Generation_Log:** Tracks all AI-generated content for quality analysis and improvement
- **Coherence_Rules:** Stores narrative constraints and character consistency guidelines

This structured approach ensures that the dynamic narrative system maintains continuity while adapting to player choices, providing both flexibility and consistency in storytelling.

Conclusion

The "AI-Driven Dynamic Narrative Framework" project addresses a significant opportunity at the intersection of artificial intelligence and creative storytelling. By selecting Agile methodology, the project maintains the flexibility needed to navigate the uncertainties of AI integration while ensuring practical utility for game developers. The designed system architecture emphasizes a balanced approach, leveraging AI's generative capabilities while preserving human creative control through strategic oversight mechanisms.

This research contributes to the evolving field of AI-assisted creativity by providing a structured framework for implementing dynamic narrative systems. The human-in-the-loop design ensures that technological advancement enhances rather than replaces human creativity, potentially setting a standard

for ethical AI implementation in creative industries. As gaming continues to evolve toward more personalized experiences, this work provides a foundation for developing systems that combine computational efficiency with artistic integrity, ultimately enabling richer, more responsive storytelling in interactive entertainment.

References

- [1] J. Tidd and J. R. Bessan, *Managing Innovation*, Hoboken, NJ: Wiley, 2018.
- [2] J. Mokyr, *A Culture of Growth: The Origins of the Modern Economy*, Princeton, NJ: Princeton University Press, 2016.
- [3] A. Smith, *AI in Game Development*, Berlin: Springer, 2020.
- [4] L. Brown, *Generative AI Applications*, Cambridge, MA: MIT Press, 2021.
- [5] M. Johnson, *Interactive Storytelling*, Oxford: Oxford University Press, 2019.
- [6] T. DigitalDefynd, "Top 30 Digital Transformation Case Studies [2025]," 2025. [Online]. Available: <https://digitaldefynd.com/IQ/digital-transformation-case-studies/>.
- [7] J. H. Hammerling, "Technological change in five industries: Threats to jobs, wages, and working conditions," 28 September 2022. [Online]. Available: <https://laborcenter.berkeley.edu/technological-change-in-five-industries/>.
- [8] "Tech & AI Case Studies," McKinsey & Company, 2025. [Online]. Available: <https://www.mckinsey.com/capabilities/tech-and-ai/case-studies>.
- [9] P. Landau, 9 Sep 2024. [Online]. Available: <https://www.projectmanager.com/blog/project-management-techniques-for-every-pm>.
- [10] "Project management techniques, project planning and project controlling," [Online]. Available: <https://twproject.com/blog/project-management-techniques-project-planning-and-project-controlling/>.
- [11] "Software Development Life Cycle (SDLC)," 1 Jul 2025. [Online]. Available: <https://www.geeksforgeeks.org/software-engineering/software-development-life-cycle-sdlc/>.
- [12] "The pros and cons of Waterfall methodology," [Online]. Available: <https://www.lucidchart.com/blog/pros-and-cons-of-waterfall-methodologyZ>.

- [13] "https://www.easyagile.com/blog/agile-trends-predictions-2025ZZZZZZZZZZ," 7 January 7, 2025 2025. [Online]. Available: <https://www.easyagile.com/blog/agile-trends-predictions-2025>.
- [14] T. HALL, "DevOps metrics," [Online]. Available: <https://www.atlassian.com/devops/frameworks/devops-metrics>.