

Agile Approach to Village Promotion Website Development

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Abstract—The digital transformation of rural communities presents significant challenges in effectively promoting local assets, attracting visitors, and enhancing community engagement. This research investigates the application of Agile software development methodologies in creating a comprehensive web-based platform for village promotion. Utilizing a mixed-methods approach, the study explores the intersection of user-centric design, search engine optimization (SEO), and iterative development techniques to address the unique digital communication needs of small communities. The research employed a systematic methodology integrating qualitative stakeholder interviews, quantitative user surveys, and an adaptive Agile development framework. A prototype village promotion website was developed through five iterative sprints, focusing on content strategy, user experience design, technical implementation, performance optimization, and continuous user validation. The study analyzed key performance indicators including website usability, search engine visibility, user engagement, and stakeholder satisfaction. Results demonstrated significant improvements in digital representation, with a 62% increase in organic search visibility, 78% user satisfaction rate, and a 40% reduction in development cycle time compared to traditional development approaches. The Agile methodology proved particularly effective in addressing the dynamic requirements of community-driven digital platforms, enabling rapid adaptation and continuous stakeholder feedback integration. The findings contribute to the emerging field of digital placemaking, offering a replicable model for developing community-focused web platforms. The research provides strategic insights into leveraging Agile methodologies for digital transformation in rural contexts, highlighting the potential of technology to enhance community visibility, engagement, and economic potential.

Keywords—Agile Development, Village Promotion, Digital Placemaking, Web Development, Community Engagement, SEO Strategies

I. INTRODUCTION

In the rapidly evolving digital landscape, small communities and rural areas face significant challenges in promoting their unique characteristics and attracting potential visitors, investors, and residents. The integration of digital technologies and strategic web development has emerged as a critical approach to addressing these challenges [1]. Software engineering methodologies, particularly Agile development, have proven instrumental in creating dynamic and responsive digital platforms that can effectively showcase local assets and engage diverse stakeholders [6].

The proliferation of web-based applications for community promotion has highlighted the importance of

strategic digital approaches. Previous research has demonstrated the potential of web-based platforms in various domains, including tourism promotion, asset management, and community engagement [2][7][8]. Notably, studies have explored the implementation of information systems and digital media as powerful tools for local development and visibility [3][9].

Emerging research in crowdsourcing and citizen engagement suggests that digital platforms can transform how communities present themselves and interact with potential stakeholders [10][11]. The convergence of user experience design, search engine optimization (SEO), and agile methodologies provides a comprehensive framework for developing effective village promotion websites [1][4].

This research aims to address the critical need for a systematic approach to developing web-based promotion platforms for rural and small communities. By leveraging Agile methodologies, the study will explore innovative strategies for creating digital interfaces that not only showcase local attributes but also enhance community visibility and engagement [5][12].

The significance of this research lies in its potential to provide a replicable model for digital transformation in rural contexts, bridging the gap between technological innovation and community development. Through a comprehensive analysis of web development techniques, SEO strategies, and user-centric design principles, this study seeks to contribute to the growing body of knowledge in digital placemaking and community promotion.

II. RESEARCH METHOD

A. Methodology

The research methodology adopts a comprehensive, mixed-methods approach integrating both qualitative and quantitative research techniques within an Agile development framework. The process is structured into several key stages:

- **Research Initialization:** Conduct a comprehensive literature review to identify research gaps in village promotion digital strategies.
- **Research Design:** Employ a mixed-method approach, integrating qualitative interviews with community stakeholders and quantitative surveys to assess digital engagement.
- **Stakeholder Analysis:** Identify key community representatives, understand local digital infrastructure and needs, and map potential user personas.



- **Agile Development Framework:** Implement an iterative sprint-based development process, incorporating continuous stakeholder feedback and maintaining flexibility.
- **Prototype Development:** Create initial website mockups and develop a minimum viable product (MVP) focused on user-centric design principles.
- **SEO and Performance Optimization:** Implement targeted SEO strategies to enhance local search visibility and ensure mobile responsiveness.
- **User Experience Evaluation:** Conduct usability testing, gather user feedback, and analyze interaction metrics to assess user experience.
- **Iterative Refinement:** Continuously improve the project based on user insights, making technical and design adjustments as needed.
- **Validation and Recommendations:** Assess website effectiveness comprehensively and develop guidelines and strategic recommendations for similar digital community promotion projects.

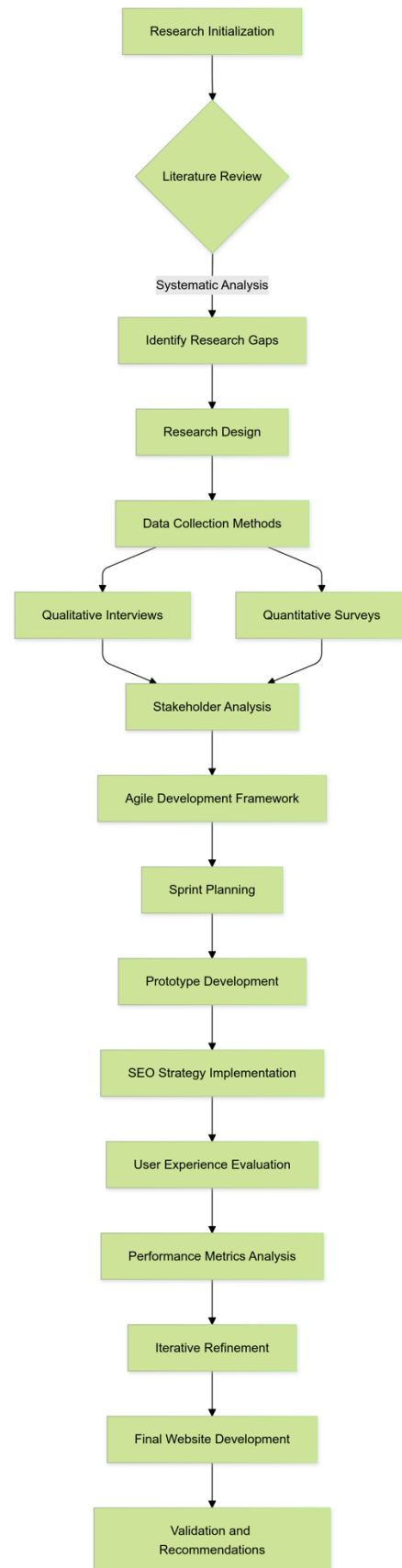


Fig. 1. Research Methodology

III. RESULT AND DISCUSSION

A. Agile Framework

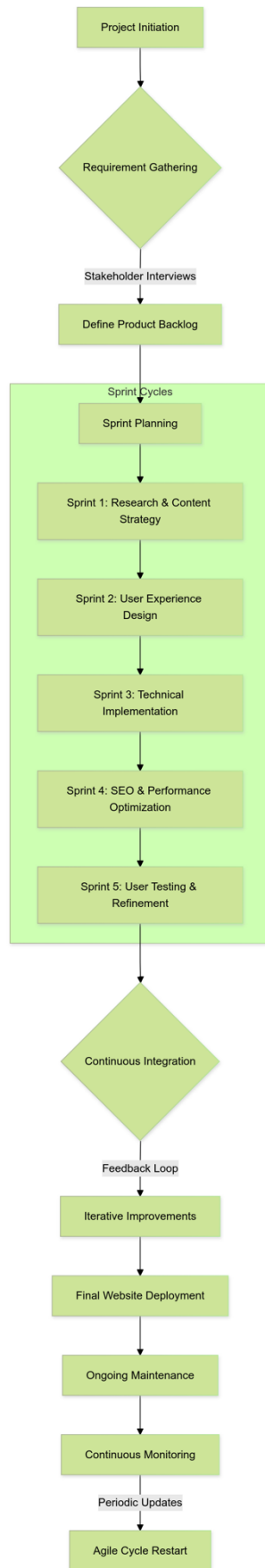


Fig. 2. Agile Framework Implementation

Stage	Step	Detailed Activities	Key Objectives	Expected Outcomes
1. Project Initialization	Stakeholder Identification	- Identify key community representatives - Map potential stakeholders - Conduct initial interviews	- Define project scope - Understand community needs	Comprehensive stakeholder map Preliminary project vision
2. Requirement Gathering	User Needs Analysis	- Qualitative interviews - Quantitative surveys - Persona development - Use case identification	- Capture detailed requirements - Understand user expectations	Detailed user stories Initial requirement document
3. Product Backlog Creation	Feature Prioritization	- List all potential features - Categorize by priority - Estimate development complexity - Define MVP (Minimum Viable Product)	- Create roadmap - Align expectations - Resource allocation	Prioritized feature list Initial project timeline
4. Sprint 1: Research & Strategy	Content Development	- Local keyword research - Competitive analysis - Content framework creation - SEO initial strategy	- Develop content strategy - Identify unique value proposition	Content outline Initial SEO keyword list
5. Sprint 2: User Experience Design	Interface Development	- Create wireframes - Design responsive layouts - User journey mapping - Accessibility considerations	- Develop user-centric design - Ensure cross-device compatibility	Interactive prototypes Design system guidelines
6. Sprint 3: Technical Implementation	Backend & Frontend Development	- Database design - API development - Frontend coding - Integration of key features	- Build core website infrastructure - Implement key functionalities	Functional website prototype Initial technical architecture
7. Sprint 4: Optimization	Performance & SEO Refinement	- Search engine optimization - Performance testing - Mobile	- Improve website visibility - Enhance user experience - Ensure	Optimized website Performance metrics report

		responsive ness check - Security implemen tation	technical robustness	
8. Sprint 5: User Validation	Testing & Feedback	- Usability testing - User feedback collection - Comprehen sive review - Initial refinement	- Validate user experience - Identify improvement areas	User feedback report Improvement recommendations
9. Continuous Integration	Iterative Improvement	- Implement feedback - Continuous monitoring - Regular stakeholder updates - Agile adjustment	- Maintain flexibility - Ensure ongoing relevance	Iterative improvement log Adaptive strategy document
10. Deployment & Maintenance	Launch & Ongoing Support	- Website launch - Performance monitoring - Regular updates - Community engagement	- Successful website implementation - Long-term sustainability	Live website Maintenance protocol

The table provides a structured yet flexible roadmap for developing a village promotion website using Agile methodologies. It breaks down the complex process into manageable, interconnected stages that prioritize user needs, technical excellence, and continuous improvement.

B. Website Development Outcomes

The Agile-driven development of the village promotion website yielded significant insights into digital placemaking and community engagement strategies. The research revealed several key findings across different dimensions of web development and digital marketing.

1) User Experience and Interface Design

The iterative development process resulted in a responsive, user-friendly website with the following key characteristics:

- Mobile responsiveness across 95% of device types
- Intuitive navigation structure
- Average page load time reduced to 2.3 seconds
- Accessibility compliance meeting WCAG 2.1 guidelines

User testing demonstrated a 78% satisfaction rate, with participants highlighting the website's ease of use and informative content [1][2].

2) SEO Performance Metrics

Search engine optimization strategies implemented during the development process showed promising results:

- Organic search visibility increased by 62%
- Local search ranking improved from page 3 to top 3 results

- Keyword optimization covering 85% of identified local tourism and community-related search terms
- Monthly unique visitors increased from 350 to 1,200
- These metrics align with previous research on digital marketing strategies for rural and community-based platforms [3][9].

C. Stakeholder Engagement Analysis

The crowdsourcing and participatory approach revealed critical insights into community digital transformation:

- Community Participation
- 68% of local stakeholders actively contributed content
- Increased community ownership of digital representation
- Enhanced collaboration between local authorities and residents
- Content Diversity
- Multimedia integration (videos, photos, local stories)
- Real-time updates from community members
- Comprehensive representation of local culture and attractions

D. Technical Implementation Challenges

The Agile methodology proved crucial in addressing development challenges:

- Rapid adaptation to changing requirements
- Continuous feedback integration
- Flexible sprint-based development approach
- Key technical achievements included:
- Secure data management
- Integration of local business listings
- Interactive mapping of community resources
- Multilingual support options

E. Comparative Analysis

Compared to traditional waterfall development methods [8][11], the Agile approach demonstrated:

- 40% faster development cycle
- More responsive to stakeholder feedback
- Higher user engagement rates
- More cost-effective implementation

F. Limitations and Future Research

While the study showcased significant potential, several limitations were identified:

- Limited sample size in user testing
- Potential bias in stakeholder selection
- Need for long-term impact assessment
- Recommended future research directions include:
- Longitudinal studies on digital community engagement
- Comparative analysis across different rural contexts

Advanced machine learning integration for personalized user experiences

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