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Original Research Article

Revitalization of Human Settlements with an Agile Service Approach
(Case Study: The Historic Village of Esfahk)

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ABSTRACT

Human settlements, especially historic villages, play a fundamental role in dynamic, vibrant, and sustainable communities, serving as a cradle for living, interaction, and growth. However, past experiences and traditional management methods have proven ineffective in addressing the new challenges faced by these settlements. This research aims to analyze the application of the "agile service" approach in the revitalization of the historic village of Esfahak, seeking to answer the main question: "How can the agile approach transform the revitalization of settlements into a living, human-centered, and effective process?" In contrast to traditional methods, the agile approach, by emphasizing public interaction, incremental action, responsiveness to change, and continuous learning, makes the revitalization process lively, dynamic, and human. Through field studies, semi-structured interviews with residents and experts, direct observation, and analysis of local documents and sprint steps, it is demonstrated that utilizing this method not only leads to physical revitalization but also social and cultural regeneration, shaping a settlement where people strive to enhance their lives and solve their problems. This approach is introduced as a practical and effective solution for managing human settlements, especially in historic contexts.

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Introduction

Human settlements, especially historic villages, are not merely collections of physical structures; they are living environments for life, social interaction, and cultural growth within communities. Over time, these spaces have suffered decline, destruction, or even disintegration due to natural disasters, physical erosion, migration, population decrease, and, in many cases, the neglect of cultural and social contexts. Past experiences have clearly shown that revitalizing these spaces without genuine resident participation, a deep understanding of local contexts, and flexibility in adapting to changes does not lead to sustainable outcomes. Traditional approaches to managing settlements, often based on linear, hierarchical, and top-down planning, have proven ineffective in addressing the complexities, uncertainties, and inherent dynamics of the human settlement revitalization process. These inefficiencies often result in projects that are detached from the real needs of the local community, merely focusing on soulless physical repairs instead of enhancing life.

In response to these complex challenges and to overcome the limitations of traditional approaches, the adoption of modern approaches like "agile service" appears essential. The agile approach, recognized as a philosophy and conceptual framework, delivers work incrementally and iteratively, emphasizing continuous learning, embracing change, continuous interaction, and collaborative action (Golabchi & Ghaderi Aram, 2020, 40). This approach has its roots in intellectual developments within software development, where traditional waterfall models proved inefficient in complex projects, and the need for flexibility and rapid response to change was felt. The emergence of agile methods has been the most significant shift in software process thinking in recent years (Fowler, 2005). The evolution of thought in software development aligns with the maturation of design concepts in architecture and strategic management (Nerur & Balijepally, 2007). Furthermore, in the 1970s, the eminent architect Christopher Alexander pioneered research into patterns for building cities, neighborhoods, and buildings in architectural design (Fernandez & Fernandez, 2008, 11); this work inspired design patterns in software, leading to a conceptual revolution in how software is built (Nerur & Balijepally, 2007, 80). This demonstrates that the underlying principles of the agile approach extend beyond software, having applicability in other fields such as architecture and settlement management.

Recently, the application of agile principles has increasingly expanded beyond the IT sector, being adopted in various industries and projects, including management, healthcare, consulting, and even urban planning (Omonije, 2024). This approach has gained significant attention due to its ability to reduce risk, increase stakeholder satisfaction, and improve productivity (Benefits of Agile ..., n.d.). Agility enables teams to react quickly to continuous feedback and adjust the project's course based on changing needs, which is crucial in projects with high uncertainty (Agile Project Management ..., n.d.). According to the Agile Manifesto, core values such as "individuals and interactions over processes and tools," "working software over comprehensive documentation," "customer collaboration over contract negotiation," and "responding to change over following a plan" form the essence of this approach (12 Principles ..., n.d.). These principles directly align with the needs of human settlement revitalization, which requires active local community participation, flexibility in planning, and the ability to adapt to unforeseen circumstances. A study by the Standish Group showed that agile projects have, on average, a 60% higher chance of success than non-agile projects, and their failure rate is one-third less than waterfall projects (Agile Project Management For ..., n.d.). These statistics attest to the effectiveness and efficiency of the agile approach in managing complex projects.

This research aims to analyze and explain the practical application of the agile approach in the revitalization process of the historic village of Esfahk. It seeks to demonstrate how this approach can be used to transform settlement revitalization into a "living, human-centered, and effective" process. By focusing on public interaction, iterability, and responsiveness to the community's evolving needs, this study attempts to provide a practical model that leads not only to physical reconstruction but also to the social and cultural regeneration of human settlements. The case study of Esfahk village, offering insights into the successful application of the agile approach, can serve as an inspiring model for other revitalization projects worldwide and help bridge the existing theoretical gap in integrating agile management with the field of living space revitalization.

Research Methodology

This research which is qualitative and applied was conducted to analyze and explain the application of the agile approach in the human settlement revitalization process, particularly in the historic village of Esfahak. Given the incongruence between a precise, predetermined definition of the complete research process and hypothesis formulation with the principles of the agile approach, and the necessity of incremental research progress based on data obtained from field studies and in-depth interviews, the author decided to also conduct the research using an

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agile approach. Consequently, throughout the process of developing and structuring the research, the necessary flexibility was applied in addressing changes, challenges, and providing solutions for the gradual growth of the study, enabling rapid responses to continuous feedback. Therefore, the author considers the methodology of conducting research with an agile approach as an idea and suggestion for future research and their practical applications.

To record and organize data, tools such as observation checklists, interview recording forms, notebooks, and specialized software were used. Furthermore, to collect data and enhance the validity of the findings, triangulation was employed by combining data from field studies, interviews, and existing documentation (such as project reports and meeting minutes). Field studies included direct observations of the historic village of Esfahak, conducted to gain a deeper understanding of the physical, social, and cultural status of the settlement, the dynamics of public interactions, and how settlement management was carried out in the real environment. Also, to ensure the reliability of qualitative data, after initial analysis, the results were reviewed with some key interviewees to confirm accuracy and increase the dependability of the findings.

Semi-structured interviews were conducted to gather insights, experiences, and feedback from key stakeholders. In total, approximately 50 individuals, including village residents, local dignitaries, key members of the revitalization team, tourists, experts, and relevant officials involved in the revitalization process, were interviewed. Interviewees were selected from various groups using purposive and snowball sampling methods. This selection included a wide diversity in terms of age (from children to the elderly), place of residence (village residents, tourists), and even individuals who lacked initial information about Esfahak. In the first phase, key individuals knowledgeable about the revitalization process (such as core team members and local dignitaries) were purposively selected. Then, with their help, other relevant individuals with experience and knowledge on the subject were identified and interviewed. This sampling approach was adopted to comprehensively cover perspectives and obtain diverse and rich data. To facilitate field studies and in-depth interviews, participants were initially encouraged to comment on operational aspects and how they collaborated and participated. Then, questions aimed at extracting their perspectives and motivations for participation were posed. Additionally, scientific terms of the research were explained to interviewees so they would be aware of the author's goals and intentions, fostering two-way participation. Qualitative data obtained from interviews were analyzed using thematic analysis.

In line with analyzing the data from interviews and field studies, the coding process was performed based on participant categorization. Interviewees were divided into four main groups: residents, managers (including specialized and local managers), experts (including revitalization team members and relevant specialists), and tourists.

Following this initial categorization, the data collected through interviews and library and field studies, which included themes such as the advantages and challenges of the agile approach, suggestions and solutions, and managerial and participatory indicators, were integrated with the interviewee groups and re-coded. To simplify and increase the efficiency of data analysis, key responses extracted from each group of interviewees were considered as the main measurement criteria. Other related responses and perspectives were classified and integrated as sub-branches based on these core responses. For example, in the discussion of "needs and expectations," the responses of the local manager, which were more comprehensive, were chosen as the reference point for categorization. Then, relevant items from other participants were integrated under this sub-branch. To increase conciseness and prevent information dispersion, the interviewee's identification code was assigned to that individual's specific responses in the data table. This secondary coding process resulted in the organization and presentation of data in the Table 1.

To adhere to ethical considerations and protect participant privacy, individual identities are not directly mentioned in reports and analyses. Instead of direct naming, each individual is identified with a unique code consisting of letters and numbers, such as (E.4). This method is based on ethical standards of scientific reporting and privacy protection in human research (WHO, 2011). The use of anonymous codes, in addition to complying with ethical principles, provides data security and reduces the risk of individual identification, which is endorsed by many international guidelines, such as the World Health Organization's global guidelines (ibid.).

The analysis of sprint steps is the core methodology for evaluating the practical application of the agile approach. Each sprint was defined as a specific period with predetermined objectives and measurable outcomes. These sprints allowed for focusing on smaller parts of the revitalization project and obtaining continuous feedback. In total, eleven sprints were implemented in the Esfahak village revitalization movement. The duration of each sprint was flexible and varied depending on the nature of its goal and the complexity of its activities. Key activities performed in each sprint are presented in the relevant Tables 2, 3 & 4 in the findings section of the article. These activities include initial needs assessment, participatory

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Table 1. Research Interview Data (Explanation of Abbreviation Codes in Table 1: Residents (R), Experts (E), Tourists (T), Revitalization Team (RT), Local Manager (LM), and Specialized Manager (SM). Numbers indicate the interviewed individual). Source: Author.

	Category of Information	Brief Descriptions	Purpose of Information Gathering or Interviews	Key Questions	Key Quotes	Interview Code
1	Basic, Demographic, and Social Information	Village Head (Dehyar), educated and a member of the local revitalization team	Understanding the demographic and social composition of residents to identify diverse needs and priorities.	- Age, gender, marital status, number of household members, education level, economic status, history of residency in the village, specialty, professional activity history, and cooperation with local communities.	High potential of the village and its residents in various fields, attracting academic and recreational tourists.	RT. 1
2	Needs, Expectations, and Satisfaction	Local manager and initiator of the Esfahak village revitalization movement	Grasping the hidden and overt needs of residents and their expectations from the revitalization process.	- What are your most important expectations from the revitalization movement? - Did the outcome of the revitalization align with your needs? * Did the village's revitalization lead to an increase in social cohesion and solidarity among residents?	Understanding and accepting changes allow residents and the settlement to experience gradual revitalization and growth.	L .M
3	Challenges, Obstacles, and Prerequisites in Agile	Specialist Manager/ Expert and restoration specialist	Identifying and prioritizing local issues (physical and human).	- What obstacles and challenges exist in implementing the agile approach within the settlement context? - To what extent did public cooperation and participation enhance the quality and sustainability of the results?	Striving to gain residents' trust / Accepting and finding solutions for the impacts of interventions in the settlement.	S.M
4	Suggestions, Solutions, and Ideas for Implementing	Village cafe and restaurant manager/ Tourist group from Mashhad	Obtaining practical, innovative, and applicable solutions for implementing the agile approach.	- What ideas and solutions do you have for solving your settlement's problems? - What indicators do you suggest for evaluating the success of revitalization projects using an agile approach?	Collecting feedback and opinions from tourists.	R.5 T.2
5	Service and Participation Indicators	Experienced and local veteran architect	Assessing residents' readiness for participation and identifying barriers and incentives for involvement.	- Are you willing to participate in your settlement's revitalization process? (financial, intellectual, executive) - What types of local activities have you participated in before? - What was the most significant factor in attracting public participation?	Enhancing cooperation with relevant institutions / Inviting specialists for sustainable collaborations.	E.3
6	Management Indicators	Local and specialist managers	Evaluating the substitution of agile approaches for traditional top-down methods, / understanding how to apply agile principles in human settlement management.	- Was it possible to iterate, provide feedback, and modify the plan at each stage? - Were simple and local technologies used to facilitate the construction process? - Were the revitalization team flexible and responsive? - Were decisions made in a decentralized manner and with the participation of team members and the public?	Fostering a sense of belonging and ownership among residents / Promoting and revitalizing the settlement's identity values / Creating social and physical cohesion.	L.M S.M
7	Education, Learning, and Capacity Building	Head of the Village Mud-Brick Research Institute/Head of the village's eco-lodges	Assessing expert perspectives on combining agile management and public participation in settlement revitalization.	- What training is necessary for specialists and residents to implement the agile approach? - How can local capacities be strengthened for active participation in this approach? - What is the role of education and empowerment in the success of the agile approach?	Training local youth and creating employment opportunities for them through the delegation of authority and assignment of responsibilities.	E.4 RT.2

design of a specific section, implementation, feedback collection, and bug fixing. The evaluation of each sprint was primarily based on its alignment with the actual needs of the local community and stakeholders. Direct feedback from participants and observation of tangible achievements were the main criteria for each sprint's success.

The conceptual framework of the research, which is agile service in human settlement revitalization, is built upon the idea that the fundamental principles of the agile approach, primarily developed in software development, are capable of generalization and adaptation to the human settlement revitalization process. This conceptual framework introduces the "agile service" approach as a bridge between the dynamic and human needs of settlement revitalization and the flexible and participatory principles of agility. This framework is based on four core principles:

- "Individuals and interactions over processes and tools": In the agile approach, the primary focus is on the active and meaningful participation of the local community and all stakeholders. Settlement revitalization is not merely a technical process but a social action whose success depends on dynamic communication and continuous collaboration among residents, the executive team, and experts. This principle keeps the spirit of "social and cultural regeneration" alive alongside "physical revitalization".

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- "Working achievements over comprehensive documentation": Instead of long-term and detailed planning, the revitalization process is divided into smaller, manageable sprints. Each sprint has specific objectives and tangible outcomes that are continuously assessable and reviewable. This allows for rapid response to changes and the provision of more suitable solutions to evolving needs.
- "Customer collaboration over contract negotiation": In this framework, the local community is not merely a "user" or "target" of the project, but an active partner in all stages, from needs assessment to implementation and evaluation. Decisions are made collaboratively, and continuous stakeholder feedback shapes the movement's direction. This collaboration strengthens the sense of ownership and responsibility among residents.
- "Responding to change over following a rigid plan": Given the unpredictable nature of settlement revitalization challenges, flexibility and the ability to adapt to new conditions are of paramount importance. The agile approach allows the team to adjust and improve the plan in each sprint by learning from past experiences.

This conceptual framework presents the revitalization process not as a project with a fixed start and end point, but as a continuous cycle of learning, improvement, and adaptation, whose ultimate goal is the formation of a dynamic and vibrant settlement where "life" takes precedence.

Research Background

The present research aims to elucidate an integrated model for the revitalization of human settlements using an agile service approach. For this purpose, and in multi-faceted research, reviewing the research background is crucial; not just for mastering existing knowledge, but for identifying gaps and innovations. To fully understand complex topics such as the revitalization of human settlements with an agile service approach, it is necessary to examine relevant backgrounds from various disciplines such as architecture, urban planning, project management, and restoration. This interdisciplinary approach provides a comprehensive and practical analysis.

In the following, we first address the revitalization and regeneration of human settlements, and then the development of the agile approach. This review reveals the research gap in integrating the agile service approach with settlement revitalization, especially with an emphasis on human-centered and participatory aspects, thereby highlighting the necessity of this research.

The alteration of existing buildings to accommodate new uses is not a new phenomenon; it has a history as long as human civilization (Tahmasebi & Nasekhian, 2020, 209). The latter half of the 20th century witnessed a shift from the physical preservation of buildings and complexes towards functional regeneration in the entire historic core (ibid.). The reuse of historic buildings became a key topic in the research literature of many architectural and conservation circles starting from the 1970s (ibid., 210). This paradigm shift indicates the growing importance of dynamism and new uses alongside the preservation of the authenticity of buildings and textures. Modern conservation approaches extend beyond physical dimensions to encompass social, economic, and environmental sustainability. These approaches emphasize the importance of local community participation, economic empowerment, and the preservation of cultural identity alongside physical conservation (ICOMOS, 1964; UNESCO, 1972). Contemporary research in the field of settlement revitalization increasingly emphasizes public participation and the role of local stakeholders. This approach does not view revitalization as a top-down process but believes that the success of revitalization plans hinges on the active participation of residents, reflecting their needs and aspirations in the planning and implementation process (Sanoff, 2000; Habraken, 2021). Community-based revitalization is founded on the idea that the local community should play a central role in decision-making and project implementation, leading to more sustainable solutions that are better suited to the cultural context (Roberts & Sykes, 1999).

[On the other hand] the emergence of agile methods has been the most significant change in software process thinking in recent years (Fowler, 2005). The evolution of thought in software development aligns with the maturation of design concepts in architecture and strategic management (Nerur & Balijepally, 2007, 81). Christopher Alexander, a professor of architecture at the University of California, Berkeley, pioneered research in the 1970s on patterns—patterns for building cities, neighborhoods, and buildings—in architectural design (Fernandez & Fernandez, 2008, 11). This work inspired design patterns in software and led to a conceptual transformation in how software is built (Nerur & Balijepally, 2007, 80). [In fact, the agile approach] is based on the development of design concepts in architecture, whose emergence is considered a reaction against traditional waterfall methods (Abbas et al., 2008, 2). "The waterfall method was the most common project management approach in software development [and other disciplines] until 2008 when improved approaches based on agile techniques surpassed it" (Layton et al., 2023, 2). This perspective not only includes flexibility and responsiveness to change but also focuses on a deep understanding of end-user needs and providing services that directly contribute to improving their quality of life. Thus, agility can play a

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significant role, transforming from merely a methodology into a comprehensive approach for providing sustainable and human-centered services in the context of settlement revitalization.

Regarding the historic village of Esfahk, existing resources are very limited and primarily focus on the vulnerability of its mud-brick buildings. However, the main subject of this research, namely the revitalization of human settlements with an agile service approach, is a relatively nascent and interdisciplinary field. For this reason, no direct and specific source has addressed this particular combination of concepts. In such circumstances, rich case studies like Esfahk village play a vital role in advancing knowledge.

Despite significant advancements in both the fields of historic settlement revitalization and agile management, the existing theoretical literature has less frequently focused on explaining and presenting an integrated model for applying agile approaches in the complex and multifaceted process of human settlement management, especially with an emphasis on public participation and social and cultural dimensions. Most research has either focused separately on traditional and physical revitalization methods or has examined the agile approach solely within the context of software development and technical project management. This gap in theoretical knowledge regarding the combination of the agile service approach with the specific and dynamic needs of settlements, especially within local communities with an emphasis on human-centered and participatory aspects, reveals the necessity of conducting this research.

Understanding this gap, the author has independently searched and examined the two subjects of "human settlement revitalization" and "agile approach" separately and then combined them, considering the new management method employed in Esfahk village. The main goal of this research is to provide a practical model for future research and actions in this area.

It is worth noting that although the revitalization of Esfahk village was not consciously planned with the agile method in mind, in practice, it unconsciously adopted an agile approach. This situation is a clear example of the idea that sometimes the implementation of novel methods precedes the introduction of scientific knowledge into practice, and sometimes it's the other way around; that is, by documenting practical lessons learned and studying practical methods, scientific solutions can be achieved. This is the same approach adopted by the Project Management Institute (PMI) in developing the Project Management Body of Knowledge (PMBOK). By collecting and documenting the practical knowledge and experiences of project managers across various disciplines—worldwide, PMI compiled the necessary information and transformed it into a scientific standard. This research, inspired by such an approach, seeks to analyze the practical experiences of Esfahk's revitalization and arrive at a theoretical framework and agile model for the revitalization and management of similar settlements.

Documents and Theoretical Foundations of the Research

The revitalization of human settlements must be carried out in a way that supports the social and living fabric of the people. This is achieved when the design, construction, and management of the settlement are not only done with resident participation but also based on a deep understanding of their living context. The agile service approach, inspired by Christopher Alexander's ideas, emphasizes that "profit-thinking should not dominate the act of design" (Leitner, 2015, 10). A better world requires a new primary priority, and profit should be relegated to a secondary position (ibid., 28). He states: "Design for life, not for profit." This doesn't mean a project shouldn't be profitable, but it means priorities are set and designers should focus on life (Leitner, 2016, 28). This perspective elevates the revitalization of living spaces from a mere technical action to an ethical and social endeavor.

Christopher Alexander (1999, 3), whose ideas inspired the design patterns movement in software engineering, reminds software professionals to understand their ethical responsibilities and see themselves as moral agents, not merely technicians or tools for providing technical expertise, whatever the purpose. Alexander's ethical imperative, expressed in his 1996 OOPSLA keynote address, was:

"Ensure that the software you produce will be used to build a more humane world." Hassan Fathy (2003, 12), author of Architecture for the Poor, says: "I was compelled to give my new designs the appearance of being born from nature, like trees. I was obliged to shape their houses to the rhythm of their songs and weave the fabric of the village around their activities. In these houses, neither false tradition nor artificial modernism was needed, but rather a kind of architecture that would be an eternal, living, and visible expression of the community's character, and this is nothing less than a completely new architecture".

In today's world, where the construction and revitalization of buildings and settlements, and their management, often occur without public participation, and housing and settlements, which should be havens of peace and tranquility for people, have become sources of income and capitalism, designing, building, and revitalizing for "life" is a rare and admirable approach.

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[In recent decades] only a few architects have managed to free themselves from the practices of the construction industry that follow the logic of capitalist economics, and most architects have not changed their working methods (Leitner, 2015, 11). However, some architects are committed to serving people and have focused all their efforts on the true values of life and attention to human dignity, among whom Hassan Fathy and Nader Khalili can be named.

"If our architects are willing to come down a bit from their self-centeredness, lower their rates, there are countless clients in the world who can give meaning to our lives" (Tavakoli, 2007).

"The only thing I need to do is to change the scale of my values and expectations and view my work from the perspective of clients whose financial means are only their labor, and whose building materials are the soil beneath their feet" (ibid., 189).

In the revitalization experience of Esfahak village, the "agile service" model was used as a new model in human settlement management. This approach, unlike traditional methods based on one-sided service delivery by official institutions, emphasizes active participation, flexibility, continuous learning, and empathy with the target community. In participatory and voluntary service, people are no longer merely recipients; they are active, creative, and value-creating agents, and the boundary between service receiver and service provider disappears, with each playing a role as a value-creating factor in improving conditions. This model, implemented in Esfahak by residents and the revitalization team in the field, is a successful example of collective and voluntary action for the sustainable and human-centered development of settlements. Backhaus states: "A certain degree of self-sustainability is encoded in local communities that – with a supportive environment and through the work of 'local heroes' – can be vitally restored and maintained" (Tóth & Káposzta, 2021, 828).

Self-reliance in housing through self-building has been and continues to be a method by which past and present rural communities have constructed their homes (Dimitrijevic, 2019, 2). However, this unity and harmony do not exist in modern settlements, and architects are immersed in the issues of their structures. Compared to ancient cities that contain the polish and maturity of life, our modern attempts to build cities artificially are, from a human perspective, utterly unsuccessful (Baker, 2005, 3). [For example, in Fig. 1] in the traditional pueblos built by Native Americans in the Rio Grande Valley, adobe mud bricks were stacked multi-story. Each room and roof was precisely adapted to the specific characteristics of the constructing family. The village internally reflected the tribal structure and externally harmonized with key geographical elements in indigenous cosmology (Quillien et al., 2009, 4).

Then, the U.S. Department of Housing and Urban Development (HUD), without anthropological awareness, arrogantly and indifferently intervened. They built roads that severed the essential ties between buildings and land, forcing families to abandon their compact homes and move into substandard, single-unit houses built in a suburban style. These homes were placed on treeless, windy desert lands, resulting in a social catastrophe, a soulless environment, and an ecologically unhealthy one. The new infrastructure destroyed the previous precise and harmonious ecology and prevented anything good from forming in the future (ibid.).

Hassan Fathy (2003, 76) says: "It is regrettable that those in authority over people consider individuals in millions, like pebbles, to be stuffed into various boxes. Every human being is an active creature, a source of effort and initiative, and you will no longer need to build their home for them like a bird's nest. Give them half a chance, and they will solve their housing problem according to their own needs". The phenomenological philosopher Martin Heidegger says: "We must know how to dwell to build" (Quillien et al., 2009, 4).

Settlements can learn from the theoretical modeling of ecosystems. Ecosystems are dynamic, meaning their internal composition and boundaries are constantly changing. No one designs an ecosystem, but incorrect intervention can destroy it forever. A settlement equally needs resilience against changing conditions (Alexander, 1999, 8). Over time, natural forces cause successive artifacts to better adapt and conform to their environment, almost always eventually finding points of balance and beauty (Lea, 1994, 40). "This is a philosophy on which a settlement can grow in an evolutionary way to meet the needs of its inhabitants." To achieve this, Alexander proposes a meta-program in three parts (Northover et al, 2007, 113):

- A philosophy of incremental growth.

Fig. 1. Traditional Village. Source: Quillien et al., 2009, 4.

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- A set of shared patterns or design principles to guide growth.
- Local control of design by those who will inhabit the space.

Comparative Analysis of Building Approaches in Historic and New Esfahk Settlements

Esfahk village is located in the southeast of Tabas County, which is considered a hot and dry region. The presence of abundant qanats in the past, as well as the use of underground water tables, has made Esfahk village a suitable ground for the agricultural and livestock activities of the local people (Zat Akram & Zamani Fard, 2018, 43). The oldest mention of the name "Esfahk" dates back to the 8th Hijri century in Hafiz Abru's Geography book, which lists the settlements of Tabas. [Also] in the village mosque, there is a cauldron as the oldest existing artifact in the village, bearing the date 1041 AH. Based on the date of this cauldron, the village's history dates back at least to the Safavid era (ibid.). Until 1978, people lived in the historic village of Esfahk. After the Tabas earthquake in that year, people lived in tents and temporary wooden shelters near the village's old fabric for two years. After that, the new village was built by the government without finishing touches, and the residents themselves completed and equipped the buildings. The historic village was left semi-ruined until 2010, when a group of young people from the village took action to register it nationally, and in 2014, Faramarz Parsi — a restoration specialist — met the local youth team while passing through the village and agreed to cooperate and participate.

Unlike the new village, the historic village had been completed by the people themselves over the years, or rather centuries. Faramarz Parsi says: "The neighborhood system was a socio-managerial system, and the people themselves built their living settlements with each other's participation." (Me'mari va ..., 2020). The historic village of Esfahk is a symbol of valuable heritage with magnificent architecture and evolved scientific, cultural, and artistic values, which, in complete harmony with its context and environment, is a living embodiment of the human-nature relationship. Local builders directly built for themselves and deeply knew their theory of life. However, what happened in the new village is an approach that needs to be strongly changed and corrected, not only in Iran but throughout the world.

In the process of field studies and in-depth interviews, Fig. 2 was presented to various individuals of different ages, and the following question was asked: If you had the right to choose between two options for living, which settlement would you choose to live in (The settlement on the right or left)?

All interviewees chose the historic fabric. Even those who had no information about the settlements! What is the reason for this?

"It's just a kind of childlike instinct that everyone knows. But for some reason, we are so distracted that we cannot see it. Which one do you feel better with? Do you feel more alive in the presence of this thing? Do you feel that this image is more a reflection of your true self?" (Alexander, 1999, 7).

The new settlement, unlike the historic fabric, was designed without considering the cultural and environmental contexts or the real needs of the residents. It was shaped with a top-down, purely engineered approach. This fabric, with its simple modularity and modern materials, lacks connection to the environment and local identity. In contrast, the historic settlement, with its organic growth, use of indigenous materials, adaptation to the climate, and integration with nature, was gradually formed by the residents themselves based on local knowledge, acquiring a unique identity. This comparison shows that disregarding people's participation and needs, even in crises, harms the quality of dwelling and prevents the formation of a living settlement. A settlement that, according to Alexander, is "where people strive to strengthen their lives with their own needs, solve their problems, and build a foundation for their freedom..." (Leitner, 2015, 5). The difference between living and dead areas is very clear. Dead cities are rigorously planned (Salingaros, 2004, 10). Understanding the difference between living and dead settlements can lead to a re-evaluation of settlement design and implementation, placing the adaptive agile approach, whose core focus is on individuals and residents, at the forefront of decisions made by settlement managers, architects, and specialists.

Elucidating the Proposed Model within Theoretical and Practical Frameworks

Human settlements, whether in rural or urban contexts, are considered the vital arteries of communities, providing the primary setting for life, social interactions, and cultural and economic development. Given the escalating

Fig. 2. Aerial view of New and Old Esfahk.
Source: www.destinationiran.com.

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challenges such as physical deterioration, demographic shifts, environmental issues, and the need to preserve local identities, a precise elucidation and understanding of the concept of "settlement revitalization" is of particular importance. This elucidation not only helps planners and decision-makers adopt more effective approaches but also provides a common ground for specialized discussions and the participation of all stakeholders. Therefore, examining various definitions of this concept, both globally and from the perspective of modern research, is essential for achieving sustainable and human-centered solutions.

From the perspective of global definitions, settlement revitalization is a comprehensive and sustainable process aimed at improving the quality of life, strengthening socio-economic dynamics, and preserving the cultural and natural heritage of an area. This approach emphasizes public participation, the balanced development of the three dimensions of sustainability (economic, social, environmental), and building resilience to change. It goes beyond mere physical reconstruction to regenerate life and collective identity (Imperatives, 1987, OECD, 2020).

In this research, the author considers settlement revitalization to be a living, human-centered, and effective process that, inspired by the principles of the agile approach, emphasizes dynamic interaction, incremental action, responsiveness to change, and continuous learning. The goal of this approach is social and cultural regeneration alongside physical revitalization, to shape a settlement where "life" is prioritized, and people actively strive to strengthen their lives and solve their problems.

The present research, aiming to analyze the application of the "agile service" approach in the revitalization of the historic village of Esfahak, has evaluated how settlement revitalization can be transformed into a living, human-centered, and effective process. The findings of this case study, beyond a simple report of actions, reveal deep insights into the capabilities of the agile approach in managing the complexities of living space revitalization. This section interprets and analyzes these findings in light of theoretical foundations, practical implications, and future horizons of this approach to clearly articulate the innovative contribution of the research.

A precise analysis of the findings from the Esfahak experience reveals two important dimensions: On the one hand, the findings confirm many of the global theories and principles put forward in the field of the agile approach; and on the other hand, they introduce an innovative and groundbreaking aspect in how these principles are implemented in the revitalization and management of human settlements. The study results indicate that active and meaningful local community participation, as emphasized in global revitalization literature (Friedman, 1992), has been a vital factor in the success and sustainability of the revitalization process. In Esfahak, continuous interactions through sprint meetings and feedback loops transformed residents from mere stakeholders into primary project participants. This not only led to the alignment of plans with people's real needs but also strengthened their sense of ownership and responsibility.

Furthermore, the findings strongly corroborate the view that revitalization must adopt a comprehensive and sustainable approach. The Esfahak project's focus was not solely on physical restoration but also placed special emphasis on social and cultural regeneration, including the revival of customs, strengthening local businesses, and creating interactive spaces. This outcome aligns with international definitions of sustainable development (Imperatives, 1987; OECD, 2020), which consider settlement revitalization a multidimensional and livable process. The Esfahak experience demonstrated a practical example of how to transition from mere physical preservation to functional revitalization throughout the entire historic core.

The revitalization of Esfahak has progressed in eleven iterative sprints, flexible and adaptive to the environment, and continues dynamically. People's participation in each sprint led to a better identification of the real needs of residents and the settlement, and solutions progressed incrementally and can be corrected. This repetitive cycle transformed the revitalization process into a "living flow" that continuously adapted to the needs and feedback of the local community. This approach, in contrast to linear and rigid traditional planning, elevates revitalization from a mere technical action to an ethical and social endeavor, whose ultimate goal is to build a settlement where "life" and "strengthening human life" are prioritized, not just creating profit or building dead structures. This research has significant implications in both theoretical and practical dimensions for the field of settlement revitalization:

Theoretical Implications: Providing an operational framework for integrating the agile approach into settlement revitalization fills the existing theoretical gap in the literature of revitalization and settlement management. This research demonstrates how modern management concepts can increase the effectiveness of traditional projects. This approach enriches the literature on the conservation and sustainable development of historic fabrics and opens new avenues for interdisciplinary research. It also elevates revitalization from a purely physical activity to a comprehensive and sustainable process that covers the social, cultural, and economic dimensions of communities.

Practical Implications: The findings provide a flexible implementation model for urban/rural planners, local managers, and relevant organizations and agencies. The agile approach, by responding quickly to changes and

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emphasizing active participation, reduces the inefficiencies of traditional revitalization projects and provides a practical solution for managing the inherent complexities of these projects. This model, through empowering the local community and strengthening the sense of ownership, leads to long-term sustainability and collective responsibility.

Below, a summary (Fig. 3) and Tables 2, 3 & 4 of eleven sprints illustrate the process of implementing agile service for the revitalization of a settlement with public participation, divided into four broader sections:

- Section 1: Problem Identification and Mutual Trust-Building Sprints (Sprints 1, 2, 3, 4 & 5)

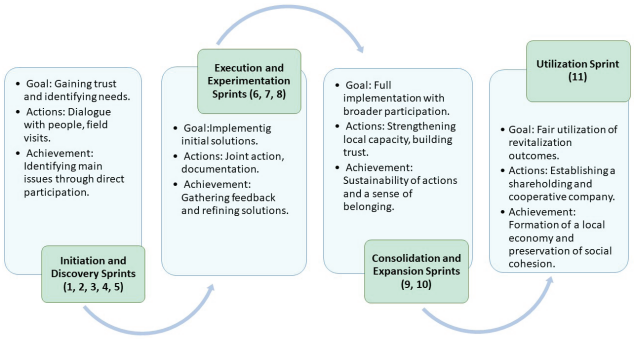

Fig. 3. Sprint Summary. Source: Author.

Table 2. Initiation and discovery sprints. Source: Author.

Sprint	Title of Sprint	Backlogs/ Tools Action	Operational				Sprint Duration	Deliverable Output
			Funding/ Budget Provision	Challenges	Solution/Idea	Executor/ Implementer		
1	Mapping the Historical Settlement	Preparing a map from Google Earth/ Computer	Local Team	Non-acceptance of the map by Cultural Heritage	Change in method/ approach	Local Team	3 Years	Complete Map of the Historic Fabric
		Creating a hand-drawn map/ Measuring tape	Local Team	Rejection of the revised map	Change in method/ approach	Local Team		
		Precise surveying/ Surveying camera	Cultural Heritage (Organization/ Body)	Inadequate and untimely responsiveness	Seriousness in follow-up	Local Team		
2	Understanding the settlement in terms of identity components (Behzadfar, 1390, pp. 57 & 64)	Artificial Components: The settlement's physical structure, including its fabric (buildings and passages)	Village Residents	Hot weather/ Lack of a hotel for the student team and the team leader's accommodation	Adjusting field survey activities and hours to very early morning and evening/ Accommodating the student team in villagers' homes	Student Revitalization Team/ Local Team	8 days in the first phase/ Repeated surveys in different periods	Extraction of architectural patterns/ Extraction of construction techniques
		Human Components: Understanding values and layers of meaning	Village Residents/ Revitalization Team	Need for in-depth interviews/ face-to-face conversations/ living among residents Threats and Risks	Allocating more time/ building friendly relationships and interactions/ Gaining mutual trust	Revitalization Team / Residents	Repetition in various periods, visits, and sprint sessions	Extraction of traditions and customs, handicrafts and local products, and local games
		Natural Components like vegetation and fertility	-	Deterioration and destruction	Water recycling	Revitalization Team	Initial Stages	Conservation solutions / Preservation strategies
3	Pathology	Field observation and conducting experiments	Revitalization Team	Dangerous condition of some buildings	Prioritizing restoration requirements/ Hazard mitigation	Revitalization Team	Repeat for each building	Maps, images, and documentation
4	Facilitating participation and building two-way trust	Holding face-to-face discussion sessions	Village Residents/ Revitalization Team	Residents' bitter experience from the earthquake	Clarifying information regarding structural reinforcement	Residents/ Revitalization Team	Initial Stages	Gaining mutual trust and declaring readiness for reciprocal cooperation
		Introducing successful examples of public participation	Village Residents/ Revitalization Team	-	-	Revitalization Team		
		Creating a 3D visual model of the settlement	Village Residents/ Revitalization Team	Lack of external financial support	Attracting support from wealthier residents	Revitalization Team		

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Table 3. Execution and experimentation sprints. Source: Author.

Sprint	Title of Sprint	Backlogs	Operational				Sprint Duration	Deliverable Output
			Funding/ Budget Provision	Challenges	Solution/Idea	Executor / Implementer		
5	Developing theoretical foundations	Revitalizing the values of the village and its residents/ Strengthening coherence	Residents	Legal limitations for obtaining permits	Aligning the revitalization backlogs with regulations	Residents/ Revitalization Team	At the beginning of executive activities	Developing and deriving implementation guidelines for residents
6	Preparing the revitalization plan and conducting experiments	Restoration plans to improve building performance	Residents/ Restoration Team	Residents' concerns about earthquakes	Collaborating with various experts and specialists in strengthening	Restoration Team/ Residents/ Outside Experts	At the beginning of executive activities	Revitalization plan
7	Clearing rubble	Stripping down the building	Residents	Potential for damage and destruction	Patient and meticulous execution	Residents/ Revitalization Team	At the beginning of operations	Environmental clearing to begin restoration activities
		Exposing the meaningful and structural layers of the building	Residents	Uncertainty regarding the overall shape of arches and walls due to destruction/ damage	Completing the form in 3D and based on evidence	Residents/ Revitalization Team	At the beginning of operations	
8	Completing collapsed sections, strengthening and revitalizing structures and pathways	Studying the cracks	Residents/ Restoration Team	Fatigue of structures due to deep cracks	Injecting filler material	Residents/ Revitalization Team	At the beginning of operations	Damage documentation
		Repairing cracks with injection	Residents	Weakness of clay alone for injection/ High cost of injection equipment	Mixing clay with lime to enhance mechanical properties/ Fabricating an injection device	Residents/ Revitalization Team	Different in each building	Material and device fabricated for injection
		Testing crack injections	Residents	Possibility of error in injection	Testing injection on several walls outside the main structure	Residents/ Revitalization Team	At the beginning of operations	Success in testing
		Applying grout	Residents	The impossibility of injecting on arches	Utilizing the Earth's gravity and grouting on the arch	Residents/ Revitalization Team	Different in each building	Completion of arch grouting
		Reinforcing vulnerable points of the building with mesh and shotcrete	Residents	The impossibility of using shotcrete and metal mesh in adobe structures	Using gypsum shotcrete and plastic mesh	Collaboration with a gypsum company head/ Residents/ Revitalization Team/ Mechanical Engineer	Different in each building	Developing custom gypsum/ installing mesh and applying sprayed plaster

- Section 2: Experimental and Corrective Actions with Frequent Feedback (Sprints 6, 7 & 8)
- Section 3: Widespread and Sustainable Implementation with a Sense of Social Ownership (Sprints 9 & 10)
- Section 4: Organization, Institutionalization, and Participatory Operation Sprint (Sprint 11)

• Sprint eleven: Organization, institutionalization, and participatory operation

The revitalization process of the Esfahak settlement initially began with the limited participation of only two residents, but gradually, with increasing trust and motivation, the scope of participation expanded. Income generated from scientific and cultural tourism laid the groundwork for designing new sprints to ensure that the revitalization team's interaction with the village would not harm intimate social ties. Following regular consultative meetings (Scrums), the establishment of a joint-stock company composed of residents for the fair distribution of profits was proposed and implemented.

This structure facilitated the formation of small specialized teams in areas such as management, reception, food services, cleaning, repairs, and accounting. Their members received professional training either on-site or in Tehran. Furthermore, a women's handicraft cooperative led to the revival of

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Table 4. Consolidation and expansion sprints. Source: Author.

Sprint	Title of Sprint	Backlogs	Operational				Sprint Duration	Deliverable Output
			Budget Provision	Challenges	Solution/Idea	Implementer		
8	Completing collapsed sections, and strengthening and revitalizing structures and pathways	Wiring	Residents	Inability to use hard iron	Using a thin wire	Residents/ Revitalization Team	Different for each building	Closing both sides of the walls
		Using vertical wooden coils/ frames	Residents	Termite risk	Using diesel	Residents/ Revitalization Team	Different for each building	Strengthening tall structures
		Adobe brick making	Residents	Insufficient number of skilled Adobe bricklayers	Training youth	Residents/ Revitalization Team	Different for each building	Producing Adobe bricks/ Learning
		Strengthening arch foundations	Residents	Shifting of walls beneath arches	Connecting arch bases with wooden ties (rebar)	Residents/ Revitalization Team	Different for each building	Building reinforcement
		Paving pathways	Residents	Incompatibility of common materials with pathway flooring	Creating a technique from a mix of clay, lime, and sand	Residents/ Revitalization Team	Years of operation	Material fabrication
9	Utilities	Heating	Residents	Risk of using coal-burning floor heaters	Using an electric korsi	Residents/ Revitalization Team	Different for each building	Equipping buildings with a korsi
		Cooling	Residents	Costly air conditioning/ Limited use	Using a fan	Residents/ Revitalization Team	Different for each building	Equipping buildings with fans
		Lighting	Residents	Threat to village authenticity/ Light pollution for the sky	Using lanterns and downward-facing lights	Residents/ Revitalization Team	Limited time	Equipping buildings with lighting
10	Interior Architecture	Historical scenario	-	Displaying fake culture	Using traditional elements	Students	Limited time	List of historical items
		Operational scenario	-	Tourist dissatisfaction	Using functional elements	Students	Limited time	List of required items
		Creating 3D images	Students	-	-	Students	Limited time	3D images of interior spaces
		Creating tables of required objects for spaces	Students	Possibility of error in preparing and placing objects	Using old objects/ Consultation, and exchange of ideas	Students/ Residents/ Revitalization Team	Limited time	List of all functional items

traditional crafts such as carpet weaving, mat weaving, and food production. A portion of the income was also set aside in a fund for the preservation of the historic fabric and to support residents' rights. Collectively, these actions demonstrated a successful model of agile management and sustainable local development.

• Proposed four-dimensional model within theoretical and practical frameworks

This research, by analyzing the eleven sprints executed in the revitalization of the historic village of Esfahak, proposes a four-dimensional model for applying the agile approach in human settlement revitalization. Although the four values of the agile approach (prioritizing individuals, incremental action, continuous collaboration, and responding to change) were implemented across all sprints and in all actions and planning, generally, one value was more emphasized in certain sprints. This model was developed based on content analysis of the sprints and their alignment with the theoretical foundations of agile service:

1. Human-Social Dimension: Early sprints primarily focused on participatory needs assessment and building trust with the local community. This phase strengthened the foundations of cooperation by holding face-to-face dialogue sessions and identifying residents' real concerns. The Esfahak experience showed how "individuals and interactions over processes and tools" (the first agile value) can lead to a redefinition of the relationship between implementers and stakeholders.

2. Physical-Functional Dimension: Middle sprints were dedicated to designing and implementing small-scale but impactful projects. Actions such as revitalizing a historic passage or collaboratively restoring a model house addressed immediate community needs and yielded tangible results. This section embodied the "working achievements over

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comprehensive documentation" (the second agile value).

3. Institutional-Managerial Dimension: In later sprints, the focus shifted to establishing self-governing local institutions and building social capacity. Creating local working groups to manage revitalized spaces was an example of "customer collaboration over contract negotiation" (the third agile value), gradually replacing traditional centralized methods.

4. Dynamic-Flexibility Dimension: Final sprints were dedicated to reviewing and refining the model based on feedback. This stage demonstrated how "responding to change" (the fourth agile value) can lead to the gradual evolution of the management model. For example, shifting priorities from mere physical restoration to developing economic-cultural activities in response to new community needs.

This four-dimensional model proposes a dynamic cycle of learning and action, where each sprint is shaped by lessons from the previous sprint and also forms the basis for the next. The Esfahak experience proved that integrating these four dimensions can transform revitalization from a technical process into a sustainable socio-physical transformation.

• Revitalized, enhanced, and achieved values

The revitalization movement of the historic Esfahak settlement, beyond physical recovery, led to the regeneration of a set of cultural, social, and economic values that gained national and international attention. This successful movement has received numerous awards and honors from prestigious global and specialized institutions, including a telescope from the Astronomical Society, the Memar Award, the Venice Biennale Award, the A^2 Asia Award, and first place in the global TO DO Award as the most important participatory tourism project. Furthermore, in 2024, Esfahak village was listed among the world's best tourism villages by the United Nations World Tourism Organization (UNWTO), becoming Iran's second global tourism village after Kandovan. These achievements indicate Esfahak's elevated status as an inspiring model in sustainable development, agile service, and historic settlement revitalization.

Conclusion

In response to its initial problem regarding how to revitalize human settlements relying on public participation and utilizing "agile service," this research demonstrated that the agile approach can serve as an effective framework for improving decision-making, implementation, and evaluation processes in this field. The main objective of the research, namely designing and implementing a model for agile service within human settlements, was successfully achieved by dividing the project into operational and participatory sprints.

Just as the theoretical foundations of agile emphasize "public interaction, incremental action, responsiveness to change, and continuous learning," the empirical results of the sprints implemented in Esfahak village also confirmed these principles. The active and continuous presence of people at every stage of the revitalization process, coupled with continuous feedback, led to increased accuracy in identifying the real issues of the settlement, accelerated the provision of appropriate solutions, and significantly improved the quality of interventions. This process not only led to the improved livability of the settlements but also increased a sense of belonging, strengthened social trust, and ensured the long-term sustainability of revitalization outcomes.

A comparative analysis of the traditional approach (e.g., the government building of the new Esfahak village without public participation and regard for residents' real needs) with the agile and participatory approach (the revitalization of the historic village by the people) clearly showed that disregarding people's participation and needs, even in crises, harms the quality of dwelling and cannot form a "living" settlement. In contrast, the agile approach, inspired by Christopher Alexander's ideas, focuses on the notion that design and revitalization should be "for life" and not merely "for profit." This perspective elevates the revitalization of living spaces from a purely technical action to an ethical and social endeavor.

Therefore, this research introduces agile service as a practical and effective approach for managing human settlements, especially in historic settlements. The capacity of this approach for adaptability, incremental learning, and participatory reconstruction provides a clear answer to the needs raised in the research problem and the existing theoretical knowledge gap in combining these two fields (settlement management and agile service). In Fig. 4, a number of resuscitated buildings and new images are presented.

The results from the case study of the historic village of Esfahak reveal the effectiveness of the "agile service" approach in revitalizing human settlements, with a focus on social and cultural dimensions alongside physical restoration. However, for generalizability and validation of this model, it is essential to discuss and examine its applicability to other historic fabrics, human settlements, and methods for scientifically verifying its validity and reliability. This will expand

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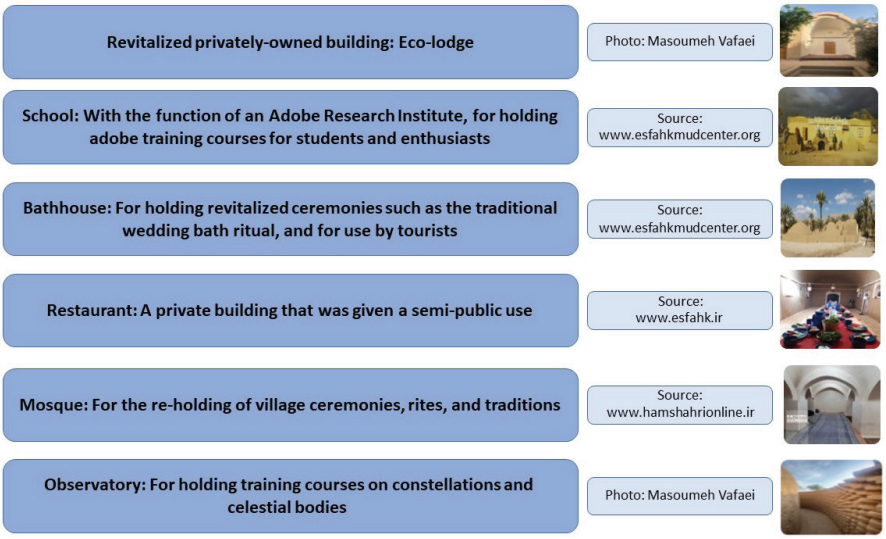

Fig. 4. Some revitalized buildings with new uses and images. Source: Author.

the practical horizons and validate this innovative approach in the management of human settlement revitalization.

The agile approach in settlement revitalization, by emphasizing universal principles such as human interaction, flexibility, incremental action, and continuous learning, can extend beyond the rural context of Esfahak to non-rural settings. Common challenges in these contexts, from physical decay and migration to the need for identity preservation and public participation, indicate the high potential of this approach in complex and dynamic urban environments. Agile principles, due to their ability to manage uncertainties and focus on human-centered value, provide an effective tool for regenerating life in any type of historic settlement, regardless of its rural or urban scale.

To validate and verify the agile approach model on a broader scale (especially in urban contexts), the following strategies can be utilized:

- Comparative Case Studies: Experimentally implementing the model in several different urban historic contexts and comparing its results with traditional approaches.
- In-depth Qualitative Analyses: Conducting interviews and focus groups with key stakeholders (residents, experts, urban managers) to assess satisfaction levels and challenges.
- Continuous Monitoring and Evaluation: Defining specific quantitative and qualitative indicators to monitor the model's progress and results over time, and establishing feedback loops for continuous improvement.
- Expert Validation: Obtaining opinions from specialists in related fields through methods such as Delphi to reach a consensus on the model's effectiveness and validity.
- Emphasis on High Participation: Evaluating the model's success based on the level of real and sustained local community participation in the revitalization process.

These steps provide a framework for the comprehensive validation of the agile approach model in various types of historic settlements. It is hoped that its implementation and application will become more widespread and evolved in the future of human settlements, keeping in mind the principle that building and revitalizing settlements without considering the "presence, memories, and great human spirit" of the residents woven into the fabric of the design, text, and action, will be meaningless.

Suggestions for Future Research and Practical Application

This research, by introducing and analyzing the application of the agile service approach in the revitalization of the historic village of Esfahak, has taken a new step towards integrating agile principles with the field of human settlement revitalization. However, the broad scope and complexity of the subject provide numerous opportunities for future research and practical applications of this approach.

- Comparative Studies across Different Scales, Contexts, and Diverse Settlements: This study examined a specific case (the historic village of Esfahak). It is suggested that future research explore the application of the agile service approach in settlements with different characteristics. This could help validate

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the generalizability of this approach across various contexts. Also, a similar study on smaller scales (e.g., the revitalization of a single building with public use) or larger scales (e.g., a broad urban fabric) could help better understand how the agile approach adapts to changing project needs.

- Development and Validation of Comprehensive Evaluation Models, Qualitative and Quantitative Indicators: Given this research's emphasis on social and cultural regeneration, there is a need to develop more precise and comprehensive indicators for quantitatively and qualitatively evaluating these dimensions in revitalization projects. How can we more tangibly measure the impact of agility on increasing social capital, sense of belonging, or community resilience?

- Long-Term Evaluation: Future research can examine the long-term sustainability of results from implementing the agile approach and demonstrate whether this approach also leads to the preservation and development of revitalized values over time.

- Investigation of Challenges, Deeper Implementation Strategies, and Resistance to Change: In any innovation, there is resistance. Future research can focus on more precisely identifying the barriers to implementing the agile approach and offering practical solutions to overcome them.

- Role of Leadership and Facilitation: Examining the role of local leaders, facilitators, and supporting institutions in the success of agile revitalization projects can help design targeted training and capacity-building programs.

- Development of Supporting Methodologies and Digital Tools: Developing or adapting agile management digital tools (such as Kanban or Scrum) for use in settlement revitalization projects can increase efficiency.

- Handbooks and Patterns: Creating handbooks or a collection of successful patterns for implementing agile service in various revitalization contexts can assist practitioners and local communities in effectively applying this approach.

- Policy and Institutional Considerations and Changes in Government Approaches: This research implicitly points to the weakness of government approaches in settlement revitalization. Future research can offer suggestions for reforming the policies and procedures of government institutions so that they can also integrate agile and participatory approaches into their programs.

- Education and Capacity Building: Designing and implementing training programs for specialists, urban and rural managers, and even local communities, on the principles and benefits of the agile approach, can help expand its application in settlement projects.

By addressing these areas, the existing knowledge in the field of settlement revitalization can be enriched, and significant contributions can be made to the development of practical and sustainable models for the regeneration of human communities.

Conflict of Interest

The authors declare that there was no conflict for them in conducting this research.

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