Herança – History, Heritage and Culture Journal
2026, 9(1), 51-69
ISSN: 2184-3090
https://revistaheranca.com
Research Article

The Successful Failure of an Architectural Speculation: Arcosanti By Paolo Soleri

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Citation: Ceylan Baba, E., Akbarnejad, K., Demiral, S., & Ustaoğlu, H.E. (2026). The successful failure of an architectural speculation: Arcosanti by Paolo Soleri. *Herança*, *9*(1), 51-69. https://doi.org/10.52152/heranca.v9i1/1177

ARTICLE INFO

Received: 09 Aug 2025
Accepted: 16 Jan 2026

ABSTRACT

This paper focuses on analyzing Arcosanti, designed by Paolo Soleri, as a bold approach towards exploring urban utopias. Arcosanti was designed with the aim of exploring innovative ways to merge architectural and ecological foundations, envisioning to create an urban laboratory, where community-centered sustainable models of urban living could be achieved. From the theoretical perspective, Arcosanti is founded on combining ideas of evolutionary radicalism, Teilhard de Chardin's concept of interconnectedness and the Gaia hypothesis. This study explores how Arcosanti maintains balance in urban density through natural environments and prioritizing individuality within the community, while overcoming daily obstacles like socioeconomic challenges, along with its influence on contemporary urban design theories. While the paper reviews the difficulties surrounding the realization of ambitious ideas through highlighting critical points on practice of sustainability, equity and resilience in experimental urban projects, it also examines how foundational principles of Arcosanti inspired modern initiatives like Telosa and Burning Man, which focus on reinterpretation of core urban ideas to address current urban challenges. This paper argues how Arcosanti, despite its imperfections, provides foundational concepts on rethinking urban living in the 21st century and presents a significant perspective for prospective utopias, through both theoretical and practical approaches.

Keywords: Paolo Soleri; Arcosanti; Urban Living; Utopias; Tríade Espacial.

INTRODUCTION

In the 20th century, North American cities were shaped by rapidly expanding suburbs and car-dependent transportation networks. This shift, driven by changing lifestyles, increasing affluence, and automobile use, created a pattern of urban sprawl that redefined the structure of cities. While this model shaped urban development, it led to interest in alternative paradigms (Dieleman & Wegener, 2004). Within this context, Paolo Soleri's Arcosanti emerges as both a critique of urban sprawl and an experimental vision of a sustainable, ecology-focused utopia (Figure 1). Established in the 1970s in the Arizona desert, Arcosanti was conceived as an "urban laboratory" by Soleri and a group of volunteers. The project sought to challenge conventional urban models by promoting compact, vertically oriented structures that reduce ecological footprints. Arcosanti aspired to house thousands of residents; however, it has remained modest in scale, never exceeding one hundred inhabitants (arcosanti.org/history). It represents the principles of complexity, miniaturization, and duration as an alternative to sprawling and industrially driven American utopia models like the Family Farm and the American Suburb (Balsas, 2020). Despite being only partially completed, Arcosanti serves as both an aspirational vision and a practical experiment for communities seeking sustainable alternatives to sprawling urban development.

Figure 1. Image of Arcosanti (Arcosanti Archives: Curated Selections, arcosanti.org/archives/)

This research was conducted to explore Soleri's life, philosophy, and work, with particular emphasis on the experimental Arcosanti project, by critically examining its theoretical foundations, practical outcomes, and potential to influence future urban paradigms.

The research examines Paolo Soleri's vision and theoretical background for Arcosanti. During the realization of the project, Soleri grounded it in scientific theory to strengthen it against criticisms of utopian idealism. From these theories, this research examines the evolutionary ideas of Teilhard de Chardin, the concretization of the Gaia hypothesis in architecture, and the concept of Arcology developed by Soleri (Figure 2). The theoretical framework of the study forms the basis of the following three main arguments.

Figure 2. Scroll Drawing of Paolo Soleri, Cosanti Bowl (Arcosanti Archives: Curated Selections, arcosanti.org/archives/)

The first argument focuses on Soleri's synthesis of seemingly opposing concepts, including individualism and community, urban density and natural integration, and visionary representation and practical limitation—framed as oscillations between connection and disconnection.

The second argument addresses the real-life challenges faced by Arcosanti, including isolation, infrastructure maintenance, and social inequalities. Despite these issues, it highlights the gradual evolution of Soleri's ideas and the gaps between vision and reality, presenting Arcosanti as a learning model for urban living

The final argument reviews Arcosanti's historical context, principles, and enduring relevance as a model for sustainable urban development. It examines how Arcosanti's vision integrates ecological responsibility, architectural innovation, and social cohesion, positioning it as both a critique of conventional urban sprawl and a blueprint for experimental, resilient futures—as exemplified by contemporary projects such as Burning Man and Telosa, which reflect similar concerns with sustainability, community, and alternative urban design.

The methodological approach includes a bibliometric network visualized using the VOSviewer application, based on a literature review conducted in the Web of Science and Scopus databases using the keywords "Soleri," "Arcosanti," and "Arcology." The analysis identified clusters such as "connection," "production," "technology," "energy consumption," "sustainable," and "tourism" in the occurrence network, while "Frank Lloyd Wright," "Le Corbusier," "New York," "design," and "environmental psychology" appeared in the co-occurrence network. In addition, an in-depth interview was conducted via virtual meeting with David Turnbull, President and CEO of the Cosanti Foundation, on December 18, 2024. Turnbull explained how the Arcosanti project revealed the transformative potential of the desert through his own experience and how it became a source of inspiration and a testing ground for sustainable living. The interview offered an opportunity to present the initial findings of the research and to receive feedback aimed at refining the objectives of the study. Turnbull also described the digital

efforts aimed at preserving Soleri's valuable archives through technological means and provided insights into community life in the unique setting of Arcosanti.

Soleri's Background

The origins of Arcosanti and the philosophical foundations behind it are closely tied to Soleri's individual experiences and educational background in architecture. Understanding his life provides insight into where his visionary ideas originated and how they were later developed and realized. Soleri was born on June 21, 1919, in Turin, Italy, and received a classical architectural education at the Polytechnic University of Turin from 1941 to 1946. His journey to the United States in 1947, aboard a passenger ship, shaped his vision of compact, self-sufficient urban forms, which later embodied his arcology concepts. At Taliesin, he worked with Frank Lloyd Wright, adopting principles of organic architecture, the use of natural materials, and the integration of architecture with the environment. Wright promoted the sprawling "Broadacre City," while Soleri proposed an "urban implosion," with compact, vertically dense spaces fostering a connection to both people and nature (cosanti.com).

Soleri was commissioned by the Solimene family to design a ceramics factory on the Amalfi Coast in 1952. During this project, he became deeply involved in ceramic production, which later influenced his architectural methods. This expertise led him to create ceramic and bronze wind bells, which became a key source of income for both Arcosanti's construction and the Cosanti Foundation, established by Soleri in 1956 (Soleri & Davis, 1984). In the 1950s, Soleri developed his "earth casting" technique, initially using desert soil and riverbed silt as molds for crafting ceramic wind bells. He later adapted this method for architectural construction, using it to cast concrete directly into soil molds. This technique was used to construct six structures at Arcosanti between 1962 and 1974 and was further refined for on-site production of large-scale reinforced concrete beams. Although innovative, the technique often receives less attention than his theoretical contributions to utopian practice (Luke, 1994).

After publishing City in the Image of Man in 1969, Soleri created numerous illustrations titled Mesa City and later Arcologies. His work was exhibited at the Corcoran Gallery, earning public recognition for his futuristic and environmental ideas. Despite this popularity, he faced criticism from professional circles, who viewed him as detached from the realities of architectural practice (Busbea, 2013).

THEORIES AND DISCOURSES VISITED IN ARCOSANTI

Utopia functions as an alternative paradigm for the good life, as Goodwin argues. The utopian is a critic who seeks to construct social change with a vision of the good life. For this reason, the utopian is driven to disseminate an alternative worldview—implicitly or explicitly. However, the relationship between belief and action, between idealism and the consistency of the utopian, remains problematic (Goodwin, 1980). Utopia represents more than an image of an ideal life; it becomes a claim about what life could and should be. It transforms from a vision into a conviction that the status quo need not remain unchanged. Thus, utopia becomes not merely a dream but a vision to be pursued (Levitas, 2010).

Although many utopian ideas have been attempted throughout history, they have not been fully realized due to numerous unforeseen factors. However, despite their failure to be actualized, they have succeeded in generating radical changes in history and society (Ceylan Baba, 2020, p. 7). With their transformative visions, utopian ideas intersect with the constraints of tangible disciplines such as architecture, which seeks to reshape society through the built environment.

Within this context, Manfredo Tafuri rejects the belief that architecture can change society, arguing that this expectation is unrealistic and that the new tasks assigned to architecture within utopian frameworks lie beyond its professional and theoretical scope. Architectural utopias of the 19th and 20th centuries operated as components of the capitalist system. All utopian efforts to resolve the contradictions of capitalism ultimately fail to overcome the system's limits and are eventually absorbed into it. Though modern architectural approaches appear to seek social and political change, they ultimately reproduce the capitalist system in various ways. For this reason, Tafuri criticizes architects' use of architecture as a tool for social liberation. According to him, architecture must return to a pure, utopia-free form—a sublime uselessness. As the discipline of architecture is constrained by its tools, it cannot create real social transformation (Tafuri, 1979, p. ix). Within this perspective, Arcosanti inevitably reaches the same conclusion. Based on Tafuri's critique of architecture's limitations, Arcosanti stands at the intersection of the pursuit of an ideal life and the experience of reality. This duality remains central to ongoing debates over Arcosanti's successes and failures.

Timothy Luke argues that while the combination of high technology and ecological responsibility is among the most realistic approaches, given the industrial city's foundations, Arcosanti is often derided as a misbegotten

folly of a utopian dreamer (Luke, 1994, p. 56). Despite Arcosanti's promise, its failure to fulfill its potential raises enduring questions about its implementation since 1970.

Arcosanti offers a critical alternative to conventional approaches to urbanism but also carries contradictions within itself. The project, which Soleri developed with environmental concerns and sustainability principles, attracts attention and faces criticism due to its utopian nature. Soleri emphasizes that he is a realist, contrary to the common perception of him as a dreamer. He also states that many people come to Arcosanti expecting to find a utopia; however, they do not, as the aim of Arcosanti is not to establish a utopia (Soleri, 2002).

On the other hand, many people who have visited or participated in the project throughout Arcosanti's history have described it as utopian (Routh, 2017). It is important to note that Soleri considered Arcosanti an urban laboratory rather than a utopia (Balsas, 2020). David Grierson states that as an urban laboratory, Arcosanti should be open to criticism and commentary from physical, theological, and aesthetic perspectives, as we attempt to define and critically evaluate a working prototype that could be effective in changing today's social and environmental conditions while also aiming for an ideal and unknowable society in the distant future (Grierson, 2016).

Developing an argument on the realization of the concepts embodied in Arcosanti—focusing on both its critiques and its evaluation as an alternative urban model in the high desert of Arizona—requires a closer examination of Soleri's vision and the innovative concepts it introduced.

While Soleri defined Arcosanti as an "urban laboratory," he based the project on the concept of "arcology" (architecture + ecology). Arcology, or ecological architecture as defined by Soleri, refers to urban structures designed to be so compact that they can accommodate life, work, education, culture, recreation, and healthcare for hundreds of thousands of people within each square mile. Instrumented by science and technology, arcology is an aesthetic-compassionate phenomenon — a miniaturized metropolitan solid saturated with flux and liveliness — which should allow all its parts to evolve in parallel, functioning as a living system (Soleri, 1969). According to the theory of arcology, cities should grow vertically rather than horizontally. Cities should be complex, compact, and confined to limited space. With this concern, Soleri argues that the amount of land on the planet is finite, and therefore cities must grow upwards (Routh, 2017). Arcology mirrors the compactness, complexity, and miniaturization found in all forms of evolution—from matter to mind—where more functions are arranged to fit into smaller spaces in shorter timespans. The process from randomness to coordination and harmony is already complex in itself. Miniaturization is shown to be one of the basic principles of evolution. The construction of the super-organism that human societies require represents this miniaturization stage. Arcology is a step toward that goal in an ecologically responsible and sustainable way (Soleri, 1969).

Arcosanti's aim for individuals and communities to live together consciously and in harmony with the environment is based on the spirituality of Pierre Teilhard de Chardin's vision of individuals and society as part of a universal whole. Teilhard, while evaluating human history and evolution from a cosmic perspective, emphasizes a process of conscious unity and development. According to him, the universe is not a homogeneous structure but rather a heterogeneous and dynamic one in which interchangeable elements are evenly distributed. Higher levels of self-awareness are possible through the atomic organization of a center composed of a series of separate identities. Soleri was deeply influenced by Teilhard. Mind and matter were no longer two opposite ends of a philosophical polarity but formed an intertwined, deeply interactive organization. Everything from rocks to animals was conscious, and the human mind stood at the height of organizational complexity. This complexity found expression through evolution. For Teilhard, and later for Soleri, evolution was the spiritual effort to bring material structures to a higher state of organizational complexity and consciousness (Busbea, 2013, p. 797).

Soleri created the heterogeneous and dynamic structure he envisioned by supporting organizational complexity and consciousness with a search for ecology and natural balance. By combining architecture with ecology, he encouraged efficient energy and material flow within the urban system, allowing communities to reintegrate into the ecosystem. This combination offered the city a chance to become part of nature rather than be imposed upon it (Grierson, 2016). Arcosanti is a living space where individuals in a community can maintain balance within a shared ecosystem while preserving nature. This pursuit of natural balance aligns with the Gaia Hypothesis. James Lovelock's Gaia Hypothesis views the Earth as a self-sustaining and self-regulating system influenced by humans but ultimately beyond their control (Grierson, 2016). The Gaia Hypothesis presents the Earth's biosphere, atmosphere, hydrosphere, and soil layers as an interconnected system that evolves and self-regulates when optimal physical and chemical conditions are present (Xie, 2024). In this context, Arcosanti embodies the Gaia Hypothesis in an urban structure. Its approach to the self-regulation of natural systems and goal of achieving sustainable balance overlap with core principles of sustainability.

A way of life that is in balance with existing renewable resources of the ecosystem and biosphere is defined as "sustainability." It represents a movement from the current unsustainable condition toward a process of

improvement and increased quality (Grierson, 2016). Arcosanti's construction incorporates elements of the sustainability movement. While this movement is often associated with energy conservation or reducing food and water waste, it encompasses broader issues related to daily urban life (Mero, 2012, p. 71). The fact that only a small part of the project has been realized (Yüksel, 2012) raises questions about the scope and feasibility of urban sustainability.

Since Soleri's death in 2013, the project has undergone various changes. Arcosanti has become more of a cultural center with touristic features than a self-sustaining settlement. While environmentally friendly food production, recreation, and natural life activities continue, its economic sustainability now relies on individual and corporate donations and cultural and artistic events (Ceylan Baba, 2020). Arcosanti's current reality reflects both the successes and limitations of its deeper ambitions. As a model that is sensitive to natural systems and seeks sustainable organization of human life, Arcosanti faces the challenge of fulfilling the practical requirements of sustainability.

The first practical challenge is the idea that Arcosanti can provide sustainability while being located far from dense urban areas. A conceptual dilemma arises from its disconnection from cities and its connection to the surrounding topography.
The second challenge involves physical needs and problems, revealing the tension between vision and reality. Socio-economic issues and difficulties in daily life are the main reasons the project has not achieved full self-sufficiency.

Despite its dilemmas and the fact that it has not fully realized its goals, Arcosanti has become a vision to pursue- more a paradigm shift than a dream to be entertained. It serves as an experimental environment that informs contemporary projects, pointing to the third reality: a strong indicator of possible success alongside Arcosanti's failures.

SWINGING FROM CONNECTIONS TO DISCONNECTEDNESS

Paolo Soleri's life was marked by fluctuations between seeking spiritual connection and detachment from urban life, which can be seen in both his personal and professional journey. His work on arcology is one area where this tension between connection and disconnection is most evident. Soleri describes arcology—which stands for architectural design guided by ecological awareness—as "...not Utopia and/or revolution but evolutionary radicalism." In this respect, arcology's initial concern is congruence, and it can only exist when consistent with a larger system (Soleri, 1971). Furthermore, Soleri likens the self-containment of a city to a sophisticated bodily system that still maintains communication with the outside world (Grierson, 2001). Thus, in a spiritual and integrative manner, he identifies the city as a vessel for "connection" with the outside, and self-containment as "disconnectedness" from its surroundings. As noted earlier, Soleri was born in Italy and relocated to the United States in 1947 to study under Frank Lloyd Wright. During his brief apprenticeship at Taliesin West, Arizona, Wright influenced Soleri's architectural approach through a focus on integrated design. However, the two architects diverged sharply in their visions of the ideal American city. Wright promoted "Broadacre City," a sprawling model encouraging isolation and decentralization, while Soleri advocated spiritual connection through detachment from the city via arcology. In this context, this section of the research aims to explore Soleri's visions of "connection" and "disconnectedness" by tracing his journey from Italy to Arizona and examining the personal and spiritual transformations that occurred along the way. First, it investigates how Soleri establishes "connections," and how those connections give rise to "disconnectedness" through spirituality. It then discusses his relationship to topography and architectural vision, and how Soleri "reconnects" through the act of "disconnecting."

Connections

Soleri was spiritually influenced by Teilhard, who stated that matter is linked with mind, and organization with consciousness, as previously explained. In the 1960s, Soleri developed Teilhard's concept of expansion within contraction and incorporated these ideas into his work, creating the "Complexity-Miniaturization-Duration" theory (Busbea, 2013, pp. 797–98). Essentially, for Soleri, a city would contain more functions in a single structure, accommodating complex interactions to allow inward growth and the expansion of consciousness (Busbea, 2013, p. 799). According to Soleri, architecture was the counterforce to the entropy of urban life that threatened humanity and had a sacred role in transforming society into a perfect state. For this purpose, Soleri proposed arcology as a way for people to gather, connect, and remain self-contained in the city in order to expand consciousness, while remaining detached from the environment (Soleri, 1981; Meyer, 2016). Thus, Soleri expressed his view that while architecture is a means to physically create space through matter in "real life," through arcology, it becomes a way to fulfill a spiritual purpose for the evolution of human consciousness.

Disconnectedness

While Soleri studied under Wright, he was initially influenced by Wright's advocacy of the "Broadacre City," which promoted isolation and decentralization. However, in contrast, Soleri proposed "urban implosion," emphasizing compact, vertical structures with enhanced environmental integration, a vision rooted in his spiritual views inspired by Teilhard. His disagreement with Wright became personal, prompting Soleri to end his apprenticeship at Taliesin West (Meyer, 2016). Around this time, Soleri received one of only two commissions in his career—to design a private residence—which led to his departure from Wright and marked the beginning of his journey dedicated to Arcosanti (Cosanti Originals).

Meanwhile, Soleri continued developing his theories on arcology, in which transportation played a central role. While Soleri was not against the technology of motor vehicles, he opposed the car-centric ideology of Wright's Broadacre City, having seen the negative effects of automobiles on European cities. At Arcosanti, cars were allowed only on the periphery and for inter-community travel (Grierson, 2001). This restriction became a foundational principle for arcologies and contributed to their disconnection from broader society.

Another source of this disconnectedness was Soleri's refusal to collaborate with existing institutions. Although he proposed solutions to urban problems, he avoided partnerships that might have integrated his ideas into existing systems (Sanders, 2008, p. 19). Rather than working to heal existing cities and minimize ecological footprints, Soleri chose to create an entirely new city, disconnected from the urban fabric.

In addition to proving Wright wrong, Soleri also sought validation from the architectural establishment of his time. His exhibitions attracted attention, and his urban forms were compared to those of Doxiadis and Le Corbusier (Meyer, 2016). However, he was not recognized as a scholar, and his ideas remained outside the academic mainstream. Reviews of his exhibitions were hesitant, struggling to reconcile their extraordinary content with practical goals such as efficiency and sustainability. His structures were perceived as authoritarian, and residents of arcologies were seen as deprived of authenticity. Soleri was not even considered an "urban intellectual" but was instead labeled a "quixotic madman." These failures pushed him to the margins of the profession, reinforcing his identity as an outsider (Meyer, 2016). His lack of academic recognition and failure to secure institutional support explain his "disconnected" stance and his decision to embark on Arcosanti as a self-funded initiative. For Soleri, this was a price he was willing to pay to pursue the higher consciousness he saw as the reward for walking his spiritual path.

Topology, Arcology, and Megastructures

With arcology, Soleri focused on building habitats, cities, and infrastructure on barren land (Sanders, 2008, p. 20). He designed compact urban forms to reduce travel distances, lower fuel emissions, and preserve agricultural land, supporting the autonomy of local areas (Grierson, 2001). For Soleri, arcology was grounded in topography, surroundings, and the environment (Soleri, 1969). Architecture, therefore, could not be completely disconnected from the topos and could not be practiced as entirely self-contained.

At the same time, Soleri's arcology aimed to support human and social evolution while maintaining a balanced relationship between land and built form. This was exemplified in the terraced greenhouses built on Arcosanti's south slope (Grierson, 2016). Arcologies were envisioned as megastructures—entire cities housed within a single building—designed to accommodate millions of people at high density (Soleri, 1969). These were "three-dimensional" constructions of the city folded in on itself, spreading in all directions and enabling new forms of social, organizational, and environmental relationships (Busbea, 2013).

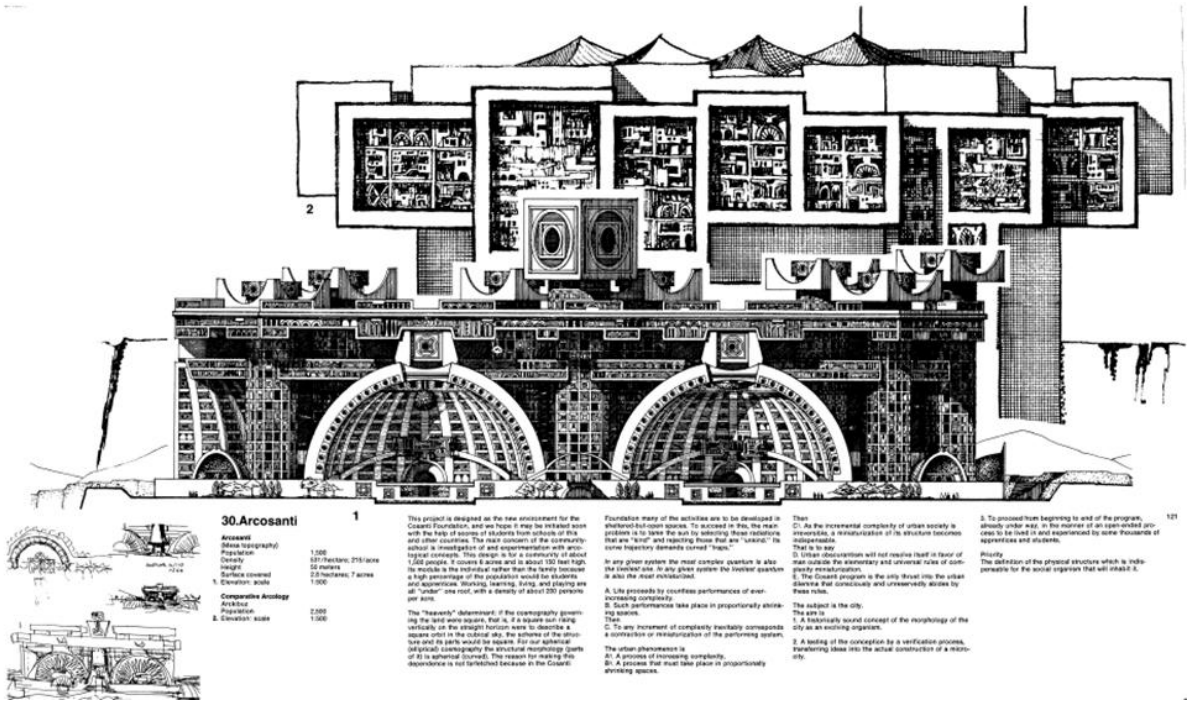

Figure 3. A sketch of Arcosanti (Soleri, 1969, p. 121).

Arcologies and passenger ships share similarities in their compactness and boundary definition (Figure 3). Arcology designs such as Novanoah I and Babelnoah resemble spaceships ready to rise into space (Luke, 1994). Soleri referred to the inhabitants of his arcologies as "Arconauts," evoking both the mythological "Argonauts" and the modern "Astronauts," where "Arcosanti becomes the vessel through which brave individuals hurdle through space and time" (Routh, 2017). Given that Soleri emigrated from Italy to America on a passenger ship, the spiritual symbolism of disconnection from mainstream society becomes even more significant in his work.

Re-connecting to Disconnect

Soleri was also aware of the marketing required to realize his designs (Routh, 2017). To achieve his goal of spiritual fulfillment, he had to reconnect his vision of evolutionary radicalism and self-contained congruence—the disconnected city—with broader society through representation. He created drawings for public exhibitions, which helped him gain recognition (Soleri, 1969). Moreover, Soleri understood the rhetorical power of language and used wordplay extensively. He coined complex terms like "Arcosanti" and "Cosanti" (Cosanti Originals), "Aesthetogenesis" (Busbea, 2013), and "Esthequity" (Routh, 2017, p. 28) to express layered concepts. Soleri's writings also promoted experiential learning and hands-on construction, encouraging people to contribute to Arcosanti's development (Routh, 2017, p. 27). Today, the population includes both permanent and temporary residents. The permanent residents are mostly staff, while the temporary population includes volunteers, students in workshops (Balsas, 2020, p. 423), and tourists. Due to Soleri's representational efforts and media exposure, thousands have worked at Arcosanti, and millions have visited since its inception (Cosanti Originals).

Soleri likened arcologies to pianos on which any kind of music could be played, consistent with his spiritual and holistic vision. However, he did not plan in detail how his arcologies would be managed. As a result, Arcosanti deviated from his original intentions (Luke, 1994). Luke emphasizes that Arcosanti has not adapted to contemporary realities. It remains monastic in structure and reflects the aesthetics of 1960s counterculture communes (Luke, 1994). Luke further argues that Soleri, through Arcosanti, chose to fight a battle he could not win while ignoring others he might have succeeded in (Luke, 1994). Balsas similarly concludes that in Arcosanti, "utopianism permeates both radical and reformist environmentalism" (Balsas, 2020). Soleri's creation of a utopia occurred in his attempt to realize "evolutionary radicalism," though this aim remains open to debate. To understand Soleri, one must examine both how he was shaped by the idea of "connection" and what he chose to disconnect from. It is also clear that Soleri's ultimate goal was to connect matter and spirituality, as reflected in the title of his 1973 book, [T]he Bridge Between Matter and Spirit Is Matter Becoming Spirit: The Arcology of Paolo Soleri. In this sense, his architectural bridge designs also served as metaphors for his visionary ideals (Balsas, 2020) (Figure 4).

Figure 4. The Beast Bridge designed by Paolo Soleri in 1947–1948 for the book "The Architecture of Bridges" by Elizabeth Mock, published by the Museum of Modern Art of New York, 1948 (© Cosanti Foundation).

At this point, it is worth recalling George Simmel's observation in his well-known essay:

"...the human being is the connecting creature who must always separate and cannot connect without separating—that is why we must first conceive intellectually of the merely indifferent existence of two riverbanks as something separated to connect them using a bridge." (Simmel, 1999)

Like Simmel, Soleri recognized the significance of both "connection" and "disconnectedness" and sought to create bridges between the material world and spiritual transformation.

While the "connections" and "disconnectedness" emerging from Soleri's spirituality may be meaningful to visitors, Arcosanti is still perceived as a utopia that has failed to adapt to present-day realities, as argued by both Luke and Balsas. As such, "real life" remains an unresolved concern that must be addressed in Arcosanti.

REAL - LIFE GAPS

Arcosanti was designed to be a self-sufficient settlement, where residents would ideally live free from significant difficulties (Figure 5). However, in practice, Arcosanti faces many challenges, including isolation, disconnectedness, emergency management issues, technical failures, infrastructure limitations, and social dynamics (Evans, Schliwa, & Luke, 2016, p. 18). These challenges have prevented Arcosanti from adapting to real-life conditions, causing Arcosanti to often fall short of fully aligning with Paolo Soleri's original vision. Soleri himself, however, argued that Arcosanti was never intended to represent a flawless utopia or a complete revolution (Soleri & Wright, 1971). In his seminal article "Utopia and/or Revolution," as previously mentioned, Soleri introduces the concept of "evolutionary radicalism," a philosophy aimed at merging bold, transformative ideas with a pragmatic recognition of the need for gradual adaptation to societal and environmental realities. This philosophy emphasizes that for Arcosanti to thrive, it must continuously evolve in harmony with its broader socio-environmental context.

"Evolutionary radicalism," as envisioned by Soleri, challenges traditional notions of abrupt societal or structural revolutions, bridging the gap between visionary ideals and real-world constraints advocates progressive and iterative transformation. Soleri believed that through this gradual process, Arcosanti could embody a pioneering urban model that integrates ecological principles with practical considerations. But it has been argued that while Arcosanti's incremental construction is in harmony with Soleri's principles, slow project development along with operational concerns have been raised in regards to balancing ambition with practicability (Routh, 2017, pp. 27–39).

Furthermore, "evolutionary radicalism" underlines Arcosanti's iterative and fluid nature as a project and its capacity to innovate and transform in modes of handling obstacles such as those of sustainability, resource allocation, and community building (Moore, 2015). Even as this approach has maintained Arcosanti in sustainable urbanism futures discussions, its implemented realization has had a tendency of unveiling gaps between theory and reality, stoking successive debates on its potential as a future cities prototype (Evans et al.,

2016).

Figure 5. Image of Arcosanti (Arcosanti.org).

By design, Arcosanti embodies a continuous learning process rather than adhering to a fixed or static ideal. However, the extent to which it fulfills Soleri's vision remains subject to debate, as it continues to navigate the complexities and contradictions between its ambitious goals and the realities of day-to-day living in a resource-constrained, experimental environment (Evans et al., 2016).

Radical Ideas of Arcosanti

Arcosanti represents an alternative way of thinking about sustainable city planning, designed to integrate architecture with nature and create a small, self-sufficient community. The goal was to counteract urban sprawl by bringing living, working, and farming spaces into closer proximity (Figure 6). One of Arcosanti's most distinctive features is its design without cars—a concept intended to reshape how people move and interact in cities. These ideas have inspired some architects and environmental thinkers; however, the project has also faced persistent problems and has not fully realized its goals (Balsas, 2020).

A major critique of Arcosanti is its difficulty in balancing ambitious ideals with real-world needs. For instance, the car-free design reflects Soleri's commitment to reducing environmental impact; however, it presents serious challenges during emergencies. Without accessible roads for emergency vehicles, responding to medical crises or fires is especially difficult given Arcosanti's remote location. Critics argue that prioritizing utopian principles over essential infrastructure compromises the safety and functionality of the community (Evans et al., 2016).

Another defining aspect of Arcosanti is its evolutionary approach to development. Rather than being a fully realized city from inception, it was designed to evolve gradually. Soleri saw Arcosanti as a "living laboratory" where new ideas could be tested and adapted over time (Evans et al., 2016). This iterative model is one of Arcosanti's strengths, allowing space for experimentation and refinement. But it also means that problems that won't go away, like keeping infrastructure up to date or fixing social divisions, take a long time to fix. The community depends a lot on temporary volunteers and the sale of handmade wind bells, which makes it hard for it to become a stable, fully functioning settlement (Routh, 2017).

Arcosanti's ideas go against what most people think about urban planning, but there is a big difference between what it wants to be and what it actually is. The evolutionary model gives people hope for progress, but for Arcosanti to work, it needs to find a better balance between its visionary ideas and its real-world needs. To make it a livable and viable community, we need to deal with problems like being ready for emergencies, having a stable economy, and being open to everyone.

Figure 6. Farming in Arcosanti (Arcosanti.org)

Challenges in Arcosanti

Evans et al. (2016) argue Arcosanti, as a sustainable cities experiment, is subject to some intimidating criticisms. These extend to maintaining infrastructure, achieving economic viability, as well as building a socially equitable place. In each of those criticisms is a tension between Arcosanti's grand goals and harsh realities of how challenging it is to achieve those goals in daily life.

Socio-economic Challenges

Arcosanti was designed as an egalitarian, cooperative, self-sufficient society. However, its social and economic structures reveal perennial issues of attaining those goals because Arcosanti has had problems of unintended social hierarchies. Individuals who live there long-term have more power in decision-making processes, whereas those who volunteer there in the short term as "workshoppers" do most of the manual labor with minimal voice in decision-making processes (Routh, 2017; Luke, 1994). This imbalance undermines the sense of shared ownership and mutual respect crucial for a sustainable community. Feelings of exclusion among newer or temporary members weaken social cohesion and challenge the project's founding principles.

Although Arcosanti promotes ideals of community and equality, a clear social hierarchy is evident. Volunteers and short-term workers tend to be responsible for construction, maintenance, and kitchen duties, while permanent staff manage planning, logistics, and major decisions. In an interview conducted on December 18, 2024, as part of this research, David Turnbull, CEO of the Soleri Archives, acknowledged the existence of this hierarchy, and noted that while the community is aware of these issues, efforts are ongoing to make the system more equitable and inclusive.

Economically, Arcosanti faces significant hurdles in achieving self-sufficiency. While income from handcrafted ceramics and bronze wind bells provides support, tourism remains the primary revenue source. Visitors are attracted by the site's architectural and ecological innovations, with guided tours and workshops playing a central role in sustaining operations (Grierson, 2003) (Figure 7). However, this revenue stream is insufficient for major upgrades or infrastructure development. Moreover, reliance on tourism creates social pressures on residents, who must juggle the dual roles of community members and public hosts. This tension disrupts daily life and adds strain as residents feel compelled to present Arcosanti as a functional and appealing model (Evans et al., 2016). The overlap between private life and public expectation adds another layer of complexity to sustaining Arcosanti's economic and social systems.

Figure 7. Tourists (Arcosanti.org)

Addressing these challenges will require restructuring both the community's social dynamics and economic model. Reducing dependence on tourism and fostering a more inclusive governance system are necessary steps toward realizing Arcosanti's founding values.

Daily Life Challenges

Daily life in Arcosanti is shaped by its experimental ethos, limited resources, and distinctive urban design. One of the most persistent issues is infrastructure maintenance. Constructed in the 1970s with minimal financial support, many of the structures now require regular repairs (Figure 8). While the community relies on volunteer labor to uphold its communal ideals, this often results in inconsistent upkeep, as volunteers may lack the skills for complex repairs or may only be present temporarily (Evans et al., 2016).

Figure 8. Arcosanti (Arcosanti.org)

Superficiality and Reality

Arcosanti connects visionary concepts with everyday challenges (Meyer, 2016). Its foundational goals—such as integrating architecture with nature and eliminating cars to protect the environment—have influenced architects and urban theorists globally. Nevertheless, translating these ideas into practical systems has proven difficult, particularly in areas like emergency preparedness, economic resilience, and social integration (Evans et al., 2016).

It is important to acknowledge both the achievements and shortcomings of Arcosanti. Innovative design and commitment to sustainability make Arcosanti a symbol of progressive urban planning. Yet, unresolved practical issues raise valid questions about its long-term viability. The continued reliance on volunteer labor and the aging of experimental materials highlights the difficulty of converting visionary designs into functional, lasting settlements (Meyer, 2016).

Despite these challenges, the power of radical ideas at Arcosanti should not be underestimated. The project represents more than an architectural experiment; it signals a paradigm shift in urban design—one that centers ecology and community. Soleri's concept of "evolutionary radicalism" suggests that Arcosanti's value lies not in perfect realization but in its capacity to evolve and adapt. Even if it never fully fulfills its original ambitions, Arcosanti remains a living prototype that invites continued reflection on the future of urban life (Soleri & Wright, 1971).

Arcosanti is nonconventional in its planning of cities through innovative concepts of how man can live with his earth. It is not perfection, yet it is one step in designing cities with creativity as well as sustainably. This contradiction of shallowness of appearance along with significant substance is what transforms Arcosanti into one thought-provoking test as well as a learning of problems in implementing innovative ideas into working solutions.

The problems of maintenance, fiscal limits, and human interactions reveal the complexity of maintaining Arcosanti's grand ideal. While such an ideal is tempting, its execution demonstrates a need to temper idealism with realistic solutions in order to maintain it in the long run.

VISIONS CREATED

Arcosanti has built up on a vision that blends architecture, ecology, and community into a compact and sustainable urban form. Paolo Soleri's "arcology" concept reflects a radical departure from the sprawling, car-dependent urban models of the mid-20th century, on the contrary offering a compact, self-sustaining urban experiment by providing an "urban laboratory" model (Grierson, 2001). By challenging the demand for suburban sprawl, Soleri envisioned a new paradigm in which urban living harmonizes with natural systems. This vision both critiques the environmental and social fragmentation caused by mainstream urbanism and also proposes an alternative way of living integrating human activity with ecological awareness. Soleri criticized suburban development for harming the environment and isolating people from each other. In response, he envisioned Arcosanti as an experimental urban environment—an "urban laboratory"—where sustainable practices and community-focused living are tested and refined. As Routh expresses, "Arcosanti was established as a site of architectural and societal experimentation, reconfiguring how cities are constructed and how humans interact with their surroundings" (Routh, 2017). Arcosanti serves as a real-world example, or "urban laboratory," where Soleri's vision of ecological harmony and communal integration can be practically tested and demonstrated, providing a unique exploration of previously mentioned ideas and transcending its era to remain relevant in contemporary debates on sustainable urban design.

Arcosanti as a Paradigm Shift

According to Thomas Kuhn, a paradigm shift refers to a fundamental change in the basic concepts and experimental practices of a scientific discipline. Kuhn (1962) argues that scientific progress does not occur through a linear accumulation of knowledge but through revolutionary transformations in understanding. In these transformations, a scientific approach first operates within an existing framework or "paradigm," which defines the accepted theories, methods, and practices of a scientific community. When anomalies—observations that cannot be explained by the existing paradigm—accumulate, they begin to challenge the adequacy of the current framework. To continue progressing, a new paradigm must emerge, fundamentally reorienting the field. Since old and new paradigms rely on different premises, they are often incommensurable. Eventually, the new paradigm is adopted, redefining the questions asked, the methods used, and the interpretation of data.

Based on this framework, and the way Soleri constructed his ideas, Arcosanti represents a paradigm shift in urban planning —moving from conventional, resource-intensive cities to integrated, ecologically sustainable urban centers. The existing paradigm is the traditional urban model: sprawling, automobile-dependent, and

driven by economic expansion with limited ecological consideration. Issues such as urban sprawl, environmental degradation, and resource inefficiency challenge the sustainability of this model. In response, Arcosanti introduced a compact, sustainable model that integrates architecture and ecology—arcology. The physical compression of Arcosanti replaces the flat expansiveness of traditional cities, prioritizing vertical stratification over horizontal spread.

Therefore, Arcosanti represents a critical paradigm shift in the discourse on urban planning and sustainability. Soleri's "urban implosion" model, which emphasizes dense, compact urban forms, directly counters the sprawling, decentralized cities that characterized the mid-20th century. His integration of ecological urbanism into architectural design precedes contemporary sustainability movements, positioning Arcosanti as a forerunner in addressing environmental crises. Luke (1990) argues that this shift challenges both the physical and philosophical foundations of urbanism, emphasizing stability, community cohesion, and reduced ecological impact. By merging architecture with environmental ethics, Arcosanti bridges the gap between idealism and practical urban solutions, offering a prototype for the cities of tomorrow.

Arcosanti as Being Beyond Mainstream and its Otherness

To understand why Arcosanti diverged from mainstream practice, it is important to consider what "mainstream" urban planning and development meant in the mid-20th century. The rise of automobile ownership at the beginning of the 20th century enabled suburban commuting. After World War II, car use symbolized freedom and prosperity in the United States, leading to massive infrastructure projects such as the Interstate Highway System, launched in 1956. These changes were driven by rapid population growth, industrialization, and technological advancement, ultimately influencing a shift toward consumerism and car-centric culture. Urban planning trends of the time promoted zoning laws that separated residential, commercial, and industrial areas. Projects such as Le Corbusier's Radiant City emphasized efficiency and functional segregation. Modernist ideals prioritized infrastructure and economic progress over community well-being, leading cities to become shaped by consumer economies centered on shopping malls, chain stores, and mass housing.

Arcosanti's philosophy embodies a retro approach, blending pre-industrial communal ideals with futuristic ecological design. Its compact, self-sustaining model recalls village structures of pre-industrial societies while addressing the challenges of contemporary urban life (Sanders, 2008). This synthesis allows Arcosanti to critique the alienation and ecological harm of modern urbanism while advocating a return to community-centered living. The integration of historical wisdom and future-facing innovation positions Arcosanti as a unique example of how past practices can inform future urban solutions.

Initially conceived as a temporary urban laboratory, Arcosanti has evolved into a semi-permanent settlement that continues to experiment with sustainable living, as mentioned previously. Its persistence over decades reflects both its successes and its limitations as a prototype for ecological urbanism (Oropallo, 2017). Through its transformation into a lasting community, Soleri's vision has demonstrated a degree of viability, despite limited expansion and external pressures. Arcosanti's longevity highlights its resilience and adaptability, offering lessons for other experimental projects seeking to transition from temporary interventions to enduring models.

Arcosanti's Possible Relations with 21st Century

Originally conceived by architect Paolo Soleri in the 1970s, Arcosanti's core ideas continue to align strongly with modern global priorities such as sustainability, climate resilience, and innovative urban living, making Arcosanti particularly relevant today, rather than merely reflecting the era in which it was created. Furthermore, Soleri's "arcology" concept—merging architecture with ecology—remains particularly timely with its principles connecting with contemporary ideas like minimalism, systems thinking, and community-oriented urban design, emphasizing efficiency and multifunctional spaces, and reduced consumption. Its shared resources and collective spaces reflect a commitment to ecological responsibility, advocating smaller environmental footprints. One significant aspect of Arcosanti's design is its focus on community and collective living. Its layout encourages social interaction, shared activities, and cooperative lifestyles, providing valuable insights into how design can strengthen social bonds in an era marked by urban loneliness and fragmentation. Arcosanti thus exemplifies how urban spaces can be structured to foster social cohesion and resilience. Furthermore, Arcosanti's architecture is specifically tailored to the arid climate of Arizona's desert, employing strategies such as passive solar design, thermal mass, and landscape integration. These practices demonstrate effective solutions for creating comfortable, sustainable habitats in extreme climates—a growing necessity as cities worldwide confront climate change and increased urban populations. In essence, Arcosanti addresses numerous contemporary urban challenges—sustainability, resilience, minimalism, and systems thinking—by serving as both a practical example and a source of inspiration. Its enduring importance is not just in its physical form but in its ability to challenge traditional urban practices and provoke new thinking about the relationship between people and their environment. As urban areas worldwide search for balanced approaches to growth and ecological preservation, Arcosanti offers

valuable perspectives and innovative principles for envisioning sustainable urban futures.

Contemporary Echo: Burning Man and Telosa

Arcosanti may have influenced contemporary examples such as Burning Man, a temporary community in the Nevada desert (Figure 9) and BIG's Telosa project, a "15-minute city" where all essential services are nearby (Figure 10), which revive aspects of Arcosanti's experimental approach, however, contrasting Arcosanti's main aspirations such as permanence and self-funding. The Cosanti Foundation's self-sustaining operations further highlight its rejection of conventional power structures (Cosanti). As Grierson (2001) states, Arcosanti's car-free, ecologically focused model inherently critiques infrastructures that perpetuate sprawl and environmental harm. In this context, Arcosanti stands as both alternative and challenge to mainstream urban governance.

Arcosanti's philosophy continues to resonate with contemporary projects, each interpreting its principles through distinct visions. From this perspective, parallels emerge between Burning Man's self-sustaining community and Telosa's ambitious, high-tech urbanism. Both reflect core Arcosanti themes—sustainability, community, and innovative design—while differing in scale, duration, and execution.

Burning Man, held annually in Nevada, exemplifies temporary community-building, resourcefulness, and environmental minimalism. Participants co-create a city operating on a gift economy, leaving no trace after the event. Like Arcosanti, it fosters collaboration, shared resources, and creative expression. Its "Leave No Trace" ethos mirrors Arcosanti's ecological vision, though its impermanence contrasts with Arcosanti's long-term goals (Burning Man Journal).

While Burning Man functions as a temporary experiment, Arcosanti aims to provide a lasting, sustainable model for urban life. Burning Man demonstrates the feasibility of shared, resourceful communities but lacks the permanence and structural integration central to Soleri's arcology.

Figure 9. Photo by: Julian Walter Year: 2024 Burning Man.

Telosa, proposed by Bjarke Ingels Group (BIG), envisions a "15-minute city". Its densified, walkable layout and focus on renewable energy, water recycling, and ecological efficiency echo Arcosanti's goals. Yet Telosa's reliance on corporate investment contrasts sharply with Arcosanti's self-funded model. Soleri's handcrafted wind bells not only financed construction but critiqued profit-driven urbanism. Telosa's scale and technological ambition illustrate the global potential of Arcosanti's principles—but its dependence on external capital raises questions about autonomy and community control.

Figure 10. Vision for Telosa. Retrieved from https://telosa.com.

Arcosanti's grassroots funding remains central to its critique of mainstream urbanism. By rejecting subsidies and corporate sponsorship, it demonstrates the viability of autonomous, community-based urban environments. As Grierson (2001, p. 68) notes, its compact, pedestrian-friendly layout challenges sprawling, car-centric urban forms that dominate contemporary planning.

While Burning Man explores ephemeral community and Telosa advances corporate-backed innovation, Arcosanti's integrated, grassroots approach stands as both inspiration and critique. Its enduring principles—sustainability, community, minimalism—continue to inform and challenge urban practice.

Visionary Outputs

By synthesizing contextual analysis and contemporary parallels, Arcosanti's legacy points toward future possibilities (Figure 11). It offers a foundation for rethinking urban development through ecological responsibility, social cohesion, and architectural innovation. Arcosanti functions both as a historical artifact and a forward-looking model, urging architects and planners to embrace speculative yet grounded visions of future living.

Its integration of architecture and ecology suggests a transformative urban paradigm where built environments harmonize with natural systems. Future cities inspired by Arcosanti may adopt closed-loop systems for energy, water, and waste, echoing Soleri's arcology. Incorporating agriculture within urban designs, as Arcosanti does, reduces reliance on external food systems and promotes self-sufficiency (Cosanti Foundation). Its compact design exemplifies how urbanism can minimize ecological impact while maximizing social and functional connections.

Expanding this framework, future developments could serve as experimental hubs for ecological technologies, participatory governance, and sustainable design. Arcosanti's workshops and immersive programs offer a model for engaging communities in urban sustainability. The Cosanti Foundation continues to host programs in sustainable architecture, attracting students and professionals worldwide (Arcosanti Foundation). These efforts position urban projects as platforms for education and innovation. Arcosanti's speculative nature encourages architects to move beyond conventional frameworks and imagine cities with near-zero ecological footprints through renewable energy, permaculture, and advanced recycling. Shifting urban focus to include non-human ecosystems affirms the interconnectedness of all life.

Arcosanti's ability to transcend its time and project its principles forward underscore its relevance to emerging urban theories. Merging its insights with contemporary technologies, Arcosanti offers a basis for creating ecologically responsible, socially cohesive, and architecturally forward-thinking cities.

Figure 11. View of Arcosanti. Retrieved from https://arcosanti.org

CONCLUSION

Paolo Soleri's Arcosanti is both a foundational exploration of possibilities in urban design, challenging conventional beliefs while merging architecture and ecological awareness. It proposes a compact and community-driven model of living as an alternative to postwar suburban sprawl. Soleri, heavily influenced by evolutionary radicalism, foundations of the Gaia hypothesis and the concept of interconnectedness from Teilhard de Chardin, envisioned cities as operational ecosystems, which consisted of an integration of humans and nature, providing a resource efficient and communal future.

This research focuses on three main aspects of Arcosanti and its features. The first one is based on Soleri's idea of "connection through disconnectedness," where he proposes to reconcile opposite concepts like urban density and nature, individuality and community. For Soleri's vision of sustainable urbanism, it's central to provide balance through creation of spaces which encourage interaction while respecting individual and ecological boundaries.

The second one is based on real-life challenges such as practical limitations Soleri faced against his theoretical proposals. In Arcosanti, relying on tourism and artisanal goods for economic stability turned into a vulnerability in the long run. Internal social dynamics also deviated from the expected direction, overrunning egalitarian ideals of the initial concept. Furthermore, problems occurring due to the aging infrastructure formed through experimental techniques, coupled with the struggles of surviving in harsh desert climate and environmental conditions, caused further complications for Soleri's initial vision.

The third and final aspect is how Arcosanti became a visionary inspiration. Even though, throughout the years, Arcosanti struggled with many environmental problems and limitations, it continues to inspire many projects like Telosa and Burning Man. Both projects reinterpret Soleri's ideas and their relevance within the current urban discourse, while sharing same values with Arcosanti, such sustainability, innovation, importance of

community and their adaptation to new contexts.

Arcosanti is considered both an achievement and a reminder of utopian ideas. It successfully provoked limits of experimental design and provided a perspective on its complexities. While Arcosanti was not successful in realizing its initial utopian ideals, its concept helped shaping architectural and urban planning discourse, while integrating design and communal ethos relevant in the process.

Many refer to Arcosanti as an unfinished project, but it also symbolizes how the unimaginable becomes reality once a society is encouraged to reimagine living and building. Today, despite all ongoing criticism, Arcosanti still continues to challenge the relationship between people, architecture and the environment, while offering innovative insights for future lifestyles and helping evolve the notion of urban utopias through radical thinking.

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ETHICAL DECLARATION

Conflict of interest: No declaration required. **Financing:** No reporting required. **Peer review:** Double anonymous peer review.