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Ethical Leadership: A New Frontier for Design

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INNOVATION IN INTEGRATD PUBLIC SERVICES: A PILOT PROJECT WITH GSI S.r.l. USING SYSTEMIC DESIGN, BLOCKCHAIN AND AI.

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ABSTRACT | Addressing the challenges in integrated public services requires innovation that promotes sustainability, efficiency, and transparency. This pilot project, in collaboration with GSI S.r.l., explores how the integration of systemic design, blockchain technology, and artificial intelligence (AI) can revolutionize facility management, setting new standards for ethical and responsible governance.
GSI S.r.l., active in sectors such as sanitation, social healthcare, and catering, manages complex services that demand sophisticated coordination. The systemic design approach at GSI leverages advanced AI models, such as Large Language Models (LLMs), to dynamically and adaptively map and analyze interactions across services. AI automatically identifies inefficiencies and suggests solutions to optimize user experience, increase operational sustainability, and reduce costs.
Simultaneously, blockchain ensures data integrity and traceability. Within the project, blockchain technology validates sanitation certifications, tracks personnel credentials, and secures sensitive information related to healthcare services. This technology guarantees data remains secure and immutable, strengthening stakeholder trust. Furthermore, AI employs General Linear Models (GLM) to analyze large datasets, offering detailed insights and supporting evidence-based decision-making. The synergistic integration of systemic design, blockchain, and AI not only enhances efficiency and transparency but also creates a new governance paradigm rooted in care. This approach allows for the customization of services to meet user needs and promotes proactive resource management, ultimately improving overall service quality. The pilot project with GSI S.r.l. serves as a replicable example for other public organizations, demonstrating that adopting advanced technologies and holistic design strategies can transform public action into a more ethical, efficient, and community-focused direction.

KEYWORDS | Systemic Design, Blockchain, Artificial Intelligence, Public Integrated Services, Sustainability

1. Introduction: Why Rethinking Public Services Matters Today

In the contemporary context, public services and the organizations operating within them are at the forefront of a new revolution, one that sees technology working in parallel with human labor. On the one hand, citizens' expectations are rising: they demand more efficient, personalized, transparent, and responsive services capable of addressing continuously evolving needs (Schmidt & Rüther, 2018). On the other hand, public administrations face structural constraints, limited resources, organizational complexity, and environmental challenges that render traditional management models obsolete. In addition, demographic ageing and emerging social vulnerabilities necessitate a radical rethinking of how services are delivered (Osterwalder & Pigneur, 2010). Within this scenario, innovation can no longer be understood as mere technological upgrading or incremental efficiency. What is needed is a paradigm shift, one that places at its core the complexity of systems, interconnection among stakeholders, public ethics, and long-term sustainability. This is the foundational premise of the pilot project developed in collaboration with the facility management company Gestione Servizi Integrati S.r.l. (GSI), based in the province of Turin but operating across Italy in key sectors such as facility management, social and healthcare services, and collective catering (GSI, 2025). Over the course of three years, the project aims to experimentally explore how systemic design, artificial intelligence (AI), and blockchain technologies can be integrated to radically transform the ways services are planned, managed, and experienced. The objective is not merely to improve performance and processes, but to rebuild trust, ensure transparency, and foster a more ethical, responsive, and human-centered approach to public management. GSI S.r.l. provides an ideal experimental ground: it manages highly complex, interconnected services requiring constant coordination between operators, public entities, regulatory standards, and citizen expectations across various public procurement contexts throughout Italy. In this framework, the adoption of intelligent and traceable tools allows for proactive management of issues that would otherwise remain invisible or poorly handled. This initiative aspires to become a replicable model for reimagining public action as a living, adaptive system based on care. The present article reconstructs its rationale, employed technologies, and ethical implications, illustrating how the synergy between technological innovation and systemic thinking can represent a turning point in envisioning the public services of the future.

2. Systemic Integration: Design, AI, and Blockchain as an Ecosystem

Addressing the complexity of public services requires an approach capable of discerning the connections among diverse elements: people, processes, data, regulations, and needs, while simultaneously designing systems that are both flexible and sustainable. It is in this sense that systemic design serves as the methodological cornerstone of the project (Bistagnino, 2009). Systemic design is not merely a design technique but a structural vision that enables the mapping of relationships among services, stakeholders, and resources (Jones, 2014). Within this framework, digital technologies do not operate in silos but are integrated as components of a unified system (Sevaldson, 2013). AI, blockchain, and organizational processes are interconnected through a continuous codesign logic, in which each component functions in service of the equilibrium of the overall system (Jones & Van Ael, 2022).

This integration is not only technical but also cultural and organizational: it requires a

redefinition of roles, responsibilities, and interactions between personnel and technology. The focus shifts from merely managing operational issues within public tenders to designing sustainable relationships among all involved actors. Within this framework, innovation becomes truly transformative, capable of generating long-term public value.

2.1 AI Applied to Public and Facility Services

In the GSI S.r.l. project, AI is not conceived as a mere tool for automation, but as an adaptive engine capable of supporting complex decision-making in dynamic operational environments (Susskind, 2020). By leveraging advanced models such as Large Language Models (LLMs) and General Linear Models (GLMs), AI can analyze vast and heterogeneous datasets, detect hidden patterns, propose customized solutions, and generate reliable forecasts (Brown et al., 2020). In practical terms, LLMs can learn organizational activities and dynamics from limited data, enabling real-time optimization of staff scheduling based on workload and specific operator needs. AI also facilitates rapid assessments of food supply volumes and waste levels at cooking points, thereby improving waste reduction strategies. Thus, AI becomes an invisible ally, enhancing service quality without overburdening human staff.

However, implementing AI in public services raises significant ethical concerns. It is essential to ensure that automated decisions are fair, transparent, and explainable, and that algorithms do not replicate or exacerbate existing inequalities (Floridi et al., 2018; Mittelstadt et al., 2016). These considerations are not sidestepped but are integral to the project's systemic design. All models are transparently validated, with documented sources, logic, and limitations (Burrell, 2016). The principle of algorithmic accountability is applied, ensuring AI decisions can be explained and contested (Diakopoulos, 2016). Moreover, AI is designed to collaborate with, not replace, human operators, preserving human agency in final decision, making processes (Wang et al., 2021). This promotes a form of augmented intelligence, where technology amplifies human care, attention, and responsibility (Shneiderman, 2020).

2.2 Blockchain and Public Trust: Traceability, Integrity, and Privacy

Originating in the world of cryptocurrencies, blockchain technology is emerging as a critical tool for ensuring integrity, traceability, and decentralization in public service contexts (Zhang & Huang, 2020). Its potential extends far beyond digital currencies: in complex systems such as those managed by GSI S.r.l., blockchain enables the transparent and tamper-resistant certification of actions and data through notarization (Gipp, Meuschke, & Gernandt, 2015). In the pilot project, blockchain is used to notarize operational certifications. For example, sanitation activities in healthcare or educational settings can be verifiably recorded and made accessible only to authorized individuals (De Meijer, 2018). Similarly, training certificates, health authorizations, and professional accreditations can be securely archived and shared in digital form, reducing processing time and manipulation risks, resulting in a "digest" or verification certificate. In the social and healthcare domains, blockchain safeguards the confidentiality of sensitive data while ensuring secure, compliant traceability (Esposito et al., 2018). Nevertheless, blockchain implementation in public contexts raises ethical and environmental concerns. The permanence of recorded data and access management require careful oversight by both the company and public contractors (de Filippi & Wright, 2018).

Ethically, blockchain is employed to ensure process transparency and trust, avoiding centralization and opacity (Tapscott & Tapscott, 2016). The system adopts a permissioned architecture that ensures regulated and documented access while protecting sensitive information. Interfaces are designed for clarity and accessibility, and data management adheres to the principle of minimization: only essential data is stored, in full

compliance with the General Data Protection Regulation (GDPR) (European Union, 2016; Finck, 2018). From an environmental standpoint, the project utilizes low-energy blockchain technologies, avoiding high-consumption models like proof-of-work, known for their substantial ecological footprint (Truby, 2018). The chosen infrastructure is lightweight and scalable, aligned with principles of energy efficiency and technological sustainability (Sedlmeir et al., 2020). In this light, blockchain is not merely a technical instrument but part of a broader design ecosystem that integrates social justice, environmental sustainability, and institutional accountability.

3. Transversality and Replicability of the Model

The pilot project implemented with GSI S.r.l. represents not only a virtuous case of technological innovation in public services, but above all a transformative model that integrates efficiency, ethics, and sustainability. At the heart of this model lies a concept often absent in discussions of technological innovation: the ethics of care. To care, in the public domain, means to recognize human vulnerability and the complexity of needs, and to design services that are empathetic, responsive, and personalized. This does not entail rejecting technology but rather using it to enhance relational capacities rather than replace them. A concrete example is the adaptation of social and healthcare services based on feedback from users and staff. Data, analyzed through interpretive as well as statistical methods, make it possible to listen to the most marginalized voices, often excluded from traditional decision-making processes. In this context, AI does not act as a filter but as an amplifier of listening. Similarly, blockchain's traceability returns power and transparency to those historically deprived of it. This "governance of care" values the human and relational dimensions of public service and demonstrates how technology can be designed to strengthen trust, inclusion, and accountability. The goal is not simply to do better, but to do differently: to build services that learn, adapt, and care (Bason, 2014).

4. Conclusions and Future Developments

Although still in progress, the research yields promising signs: greater process transparency, reduced operational inefficiencies, improved perceived service quality, and increased accountability among operators and institutions. More importantly, it signals the emergence of a new cultural paradigm in which innovation is measured not only by performance, but by the value it generates for the community.
Can this approach be replicated? While the answer is still under investigation, it is essential to understand from the outset that this is not a "technological package to be installed," but a continuous process of learning and co-design. Every context has its own specificity, yet core principles, transparency, adaptability, and ethics of care, can guide any public or private organization in its evolution. Challenges remain: from system interoperability to workforce training, from data protection to fostering a culture of people-centered innovation. Nevertheless, the experience gained thus far at GSI shows that it is possible to activate collaborative ecosystems in which institutions, companies, citizens, and technologies work together to build more just, intelligent, and resilient public services (Mazzucato, 2018). Looking ahead, we can envision a regenerative public administration, one that not only delivers services but nurtures territories, relationships, and trust. A public sector that not only reacts to emergencies but anticipates, listens, and adapts. In this future, technology is not an end in itself but a means of empowerment, equity, and democratic regeneration. True innovation today is that which unites efficiency with meaning, impact with dignity, and design with the common good. The GSI pilot project offers one possible path, yet it is up to us to choose whether to follow it.

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