CoreTrust as a Civic Learning Tool: Community Capital for Inclusive Digital Governance

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Civic Learning | Community Capital Compass | Digital Governance

This paper explores CoreTrust as a civic learning tool that helps practitioners and educators make sense of complex community data through a community capital lens. The study examines how CoreTrust can turn existing data into a shared basis for discussion and decision-making. We drew on an ongoing pilot in Casa Grande, Arizona, using a qualitative design informed by participatory action research. Data includes planning documents, platform artifacts, and feedback from practitioners and educators. Findings indicate that CoreTrust supports a shift from vague notions of community "needs" to spatially grounded reasoning about trade-offs across sustainability assets. The pilot also shows how practitioner feedback shapes design iterations and prepares the platform's deliberative components for future citizen use.

Introduction

In recent decades, governments have redefined their relationships with citizens and moved towards smart governance by employing new digital technologies (Vigoda-Gadot & Mizrahi, 2024). Scholars highlight that accessible data is essential for stakeholder engagement and public trust (Mirzapour et al., 2023), yet city microdata often remains difficult to access and of uneven quality (Howe et al., 2022). Limited attention has been paid to how small and mid-sized cities (SMCs) can adopt them or how local practitioners and educators learn to interpret complex indicators. These gaps point to the need for learning-oriented, data-driven tools that support shared understanding of community data among stakeholders. Drawing on Learning Engineering (LE), an evidence-based, human-centered approach that iteratively designs, tests, and improves learning-supporting solutions in authentic contexts (Baker et al., 2022; Goodell et al., 2023), this paper examines CoreTrust as a data-driven civic learning tool for inclusive digital governance. We focus on CoreTrust, a platform grounded in the Community Capital Compass, a current articulation of the community capital framework in Toward Sustainable Communities (Roseland, Stout, & Spiliotopoulou, 2024). CoreTrust combines dashboards, digital twins, and deliberative components to support shared reasoning about community trade-offs and can be iteratively refined based on usage data and user feedback. To this end, this research aims to answer the following questions: (1) How can CoreTrust, as a data-driven civic learning tool, help educators and local practitioners interpret complex community data and understand sustainability trade-offs? (2) How can practitioner feedback from CoreTrust pilots inform iterative design improvements and support future citizen participation?

Methods

This study employs a qualitative design informed by participatory action research, tracing the iterative design and early implementation of the Community Capital Compass within CoreTrust and examines how this process functions as a civic learning environment for educators and local practitioners. To make the Learning Engineering connection explicit, we treat the workshop as a nested design–enactment–feedback cycle informing revisions (Totino & Kessler, 2024). The empirical focus is a pilot deployment of CoreTrust in Casa Grande, AZ, a SMC. The project is part of the Arizona Research Center for Housing and Economic Solutions (ARCHES), funded by the US Department of Housing and Urban Development (HUD). The pilot is developed through a collaboration between Arizona State University's Community Capital Lab (CCL) and the City of Casa Grande, with university-based educators and local practitioners engaging in workshop settings. Data for this study draw on three sources: (1) planning and policy documents, like city's general plan; (2) public data such as census data, embedded in the dashboard and digital twin with baseline measures of social, economic, and environmental assets at the block group level; and (3) design and feedback artifacts, including successive prototypes, internal design notes, and structured feedback from local practitioners on visualization of differences and trade-offs. Figure 1 illustrates the CoreTrust dashboard and 3D twin used in the Casa Grande pilot. Analysis proceeded through a qualitative, thematic review of project documentation, platform artifacts, and practitioner feedback to understand how educators and local practitioners used CoreTrust to interpret complex community data and trade-offs, and how actionable feedback and early usage patterns informed design changes to the dashboard, digital twin, and deliberative features.

Figure 1.

CoreTrust for the City of Casa Grande - Community Capital Overview dashboard (left). CG Downtown Twin used for 3D exploration of scenarios (right).

Results

CoreTrust helped planning commissioners move from abstract notions of community capital to a spatial understanding of city status. In scenario work, commissioners used the mapped indicators to identify where specific capitals were weak or strong, rather than discussing needs in the abstract. Participants compared the three sustainability assets across areas to articulate trade-offs while discussing development scenarios. In the CCL, students also worked with the pilot as part of their civic data learning. Moreover, Feedback from local practitioners led to design changes in CoreTrust. A key change was shifting data to the block-group level after planning commission members indicated that finer-grained geographies were more meaningful.

This change enabled more actionable, neighborhood-scale diagnosis during scenario discussions. Guided by the Community Capital Compass, the team first implemented affordable housing as an illustrative use case and then expanded the dashboard to additional assets, encouraging a multi-capital view of community conditions. Practitioners also requested street labels and clearer controls for indicator layers. For the deliberative technology, the citizen-facing layer, they noted that asking for precise addresses would discourage participation and recommended using ZIP code instead, informing the design of this component for future citizen participation.

Discussion

The findings from this pilot suggest that CoreTrust is beginning to function as a civic learning environment for both local practitioners and educators in a SMC context. For planning commission members, organizing existing indicators into community capital categories and visualizing them on a dashboard made the distribution of strengths and vulnerabilities across Casa Grande more legible. They moved from a general sense of "needs" to a more precise understanding of where each form of capital was weak or strong, and used the language of community capital when discussing trade-offs across social, economic, and environmental assets. From a learning-oriented design perspective, the pilot illustrates how feedback from local practitioners can guide iterative refinements to a digital data-driven tool without changing its underlying framework. Learning objectives vary by user group: supporting professional planning sensemaking for practitioners, civic data literacy for educators, and a future pathway for resident participation through the deliberative layer. These refinements surface design principles for scalable and inclusive civic tools: framing indicators through the Community Capital Compass, supporting users' learning processes through clear language and guided interactions, and translating practice-based feedback into structured capitals that can be reused and compared over time. These results address the gaps discussed in the introduction. They demonstrate how a scalable and inclusive tool like CoreTrust can help SMCs move beyond static open-data portals toward learning-oriented, data-driven platforms that support shared sense-making. At the same time, this work remains at an early stage, focused on a single case and pre-citizen deployment. Future research will need to examine how residents use CoreTrust.

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