Public Value Perspective on Cadastral systems

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SUMMARY

Cadastral systems are widely accepted to provide value for society; however, little research has been done on the value creation mechanisms of cadastral systems. Understanding how cadastral systems create value would benefit the systems by enabling development of the systems that improves the system and does not inadvertently decrease the potential for value creation. For example, a deeper understanding of what kind of cadastral data is of most value to the users, and how the data is utilized, is needed to purposefully improve the systems.

We suggest that such understanding could be achieved by applying the concept of public value creation to cadastral systems, as it includes value beyond simple monetary value. While a common approach in public administration literature, the public value approach has not yet been widely applied to the land administration context. In this paper, we conduct a literature review to explore the extant theories of public value creation and discuss their possible applicability to the field of land administration, and cadastral systems specifically. The results of the literature review indicate potential for public value approach to help improve evaluation of cadastral systems. More research is needed to better understand how cadastral systems and cadastral data create different types of value.

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1. INTRODUCTION

Cadastral systems are widely accepted to provide value for society. As a part of land administration systems, they enable ecologically, economically and socially sustainable land use. In this paper, we define cadastral systems as the central operational tools of land administration: the systems intended to record land related rights, and the institutional environment upholding them (see e.g. Krigsholm 2020).

However, little research has been done on the exact mechanisms of value creation within cadastral systems. Questions such as “how does cadastral data create value”, “to whom the systems create value” and “what kind of value does the cadastral system create” remain largely unanswered. One means to address such questions is through the public value approach. We suggest it would be suitable for the task, as it considers the concept of “value” widely without limiting itself to monetary value (see e.g. Jensen et al., 2024) and thus capable of recognizing the wide variety of tasks carried out by the cadastral system. The public value approach has been utilized in research on many fields, such as education (for example Salemans and Budding, 2024), healthcare (for example Gerli et al., 2021), and e-governance (for example Harrison et al., 2012).

Applying value creation theories is not an entirely novel concept around land administration related literature. Ho et al. (2018) apply the concepts of public value to 3D geoinformation systems of public mapping agencies. Their findings indicate the usefulness of the public value perspective in recognizing the potential for public management advances within public mapping agencies. However, despite this potential, there seems to be no widespread practice of applying value creation and public value theories to the domain of land administration.

In this paper, we aim to further the understanding of the value of cadastral systems by borrowing methods and approaches from the public value literature. To this end, we review literature on both public value creation, and land administration to recognize previous efforts in applying public value approach to land administration domain. We aim to recognize how similar themes to public value creation have been considered in the literature previously, to approximate the applicability of public value approaches to cadastral systems, and land administration in general.

The paper proceeds as follows: first, we discuss the public value approach, its origins and development. Then, we discuss how the public value approach could be connected to the land

administration domain, and what kind of similarities do public value approaches share with existing land administration literature. Finally, we present our concluding remarks.

2. WHAT IS PUBLIC VALUE?

The concept of public value and public value creation was presented by Moore (1995) to provide a public counterpart to the concept of shareholder value in business. As such, it widens the understanding of value to include value beyond simple monetary value. While the previous trending approach to public administration, NPM (new public management), focused on fulfilling predetermined goals as efficiently as possible, public value approach recognizes a variety of goals and the diversity of outcomes that can be considered successful (O'Flynn, 2007).

To conceptualize how public managers distribute attention and resources for successful public management and to highlight the strategic nature of their work, Moore (1995) proposes a strategic triangle, where three conditions are defined for strategies utilized in the public sector: the strategy must create value, it must be legitimate, and it must be operationally feasible. The triangle separates value from popularity – what may be considered good by the public or legislators, may not be the most optimal solution to create value, and balance should be found between the three aspects. To expand upon the idea of the strategic triangle, Moore (2013) proposes the concept of a public value account to be added in the center of the triangle: an entity that "helps mobilize and build legitimacy", "forces a definition of public value" and "helps animate and guide operational capacity."

Since Moore's publication, the public value approach has been debated, developed, and applied to various fields. A prominent example of such development is Meynhardt's work on conceptualizing public value dimensions and developing value scale for practical applications (see e.g. Meynhardt, 2009; Meynhardt and Jasinenko, 2020). By rooting basic value dimensions in basic needs of people, Meynhardt (2009) presents public value landscape, where values can be defined in a "grid" of moral-ethical, hedonistic-esthetical, political-social and utilitarian-instrumental values. As the conceptualization is based on universal basic needs of people, it is widely applicable regardless of the cultural context.

Following, Meynhardt and Jasinenko (2020) introduce a scale to measure public value based on these four dimensions and validate the conceptualizations applicability to evaluate organizations contribution to public value. They argue that practical applications are central to public value research and by studying value from the perspective of how society is affected by public manager's actions, it can be identified how well the intentions of management and needs of the public align.

MORAL-ETHICAL Moral implications: *"The organization acts ethically correct"* *"The organization respects the*	**HEDONISTIC-AESTHETICAL** Positive and negative experiences: *"The organization enables positive experiences"* *"The organization promotes well-being"*
POLITICAL-SOCIAL Political changes and risks: *"The organization takes into account cultural customs and traditions"* *"The organization contributes to social cohesion"*	**UTILITARIAN-INSTRUMENTAL** Rational basis: *"The organization performs well in its core business"* *"The organization is economically viable"*

Figure 1: Public value dimensions (Meynhardt, 2009) and examples of statements to measure the dimension in organizations (Meynhardt and Jasinenko 2020)

Notably, while striving to create public value, it is possible to inadvertently achieve the opposite. Plé (2017) argues that speaking of value creation is inherently biased towards expecting a positive outcome, and as such, the concept of value co-destruction should accompany the theories to avoid bias. Tools have been developed to assess and address these situations. For example, Bozeman (2002) presents a criteria for recognizing when public value failure has happened, somewhat mirroring how market failure could be detected. According to Bozeman, public failure may take the form of, for example, imperfect monopolies, benefit hoarding or short time horizon.

As with public value itself, the definitions and vocabulary used when describing the general concept of failure to create value varies greatly. In their work, Parker et al. (2023) recognize multiple terms with their own nuances: public value failure, destruction, loss, and disvalue. Regardless of differences in terminology in public value literature, the consensus remains that both creation and destruction of value should be considered for a balanced understanding of public value dynamics.

3. PUBLIC VALUE IN THE CONTEXT OF CADASTRAL SYSTEMS

As demonstrated by Ho et al (2018), there is potential for the public value approach to yield interesting results when applied to land administration domain. While the public value

approach has rarely been applied to land administration directly, similar themes can be found in existing land administration literature. For example, Bennett et al. (2013) argue for the recognition of land administration as “critical, public good infrastructure”, as the systems are critical to, for example, public health and safety as well as economic security. These arguments bear similarity to the components of Meynhardt and Jasinenko’s (2020) public value scale, such as that the organization “contributes to the quality of life” and “contributes to the economic prosperity”.

The public value approach, more specifically Moore’s (1995) strategic triangle, may help to better analyze and understand situations where different interests contradict each other: where, for example, political interests and wants of the public are at odds. One such complex scenario in land administration may be the issue of conflicting interests with open data and balancing safety and openness (see for example Salzmann, 2020). The strategic triangle has also been modified in ways that could further increase its applicability. For example, to better reflect the complexities of a multi-actor landscape in public administration, Bryson et al. (2017) suggest changing Moore’s strategic triangle from its public manager-centered state to include wider variety of actors. This could make the approach more viable for evaluating how cadastral systems with prominent involvement from the private sector (for example, systems where private surveyors are common) create public value.

Cadastral systems are subjected to pressure to adapt from multiple angles. Changes in operational environments of the systems create new needs, such as adapting to increased urbanization (Stoter et al., 2013) and to increased demand for providing data for complex solutions (De Zeeuw and Salzmann, 2011). Budget restriction and reduced funding also affect the systems: while there is need for new features, simultaneously, there is need for cutting costs (see e.g. Riekkinen et al., 2016). By better understanding how and what kind of value the systems create, systems can be renewed efficiently, and functions prioritized more intentionally.

Additionally, it is noteworthy that the public value approach is not limited to examining how systems or organizations succeed. Public value failure (or public value destruction) is also possible and examined in the public value literature (as demonstrated by for example Bozeman, 2002; Parker et al., 2023). This critical approach could also be beneficial in adapting to financial pressure to avoid the adaptation from preventing the system from fulfilling its purpose.

4. CONCLUSIONS

The results of this literature review indicate that there is potential in this approach to benefit the land administration field. Similarities in themes between land administration and public value literature indicate that the public value approach could fit well into the land administration domain, and that there is interest for questions inherent to public value creation

in the LA field. The public value approach offers a variety of tools to further the understanding of the value provided by cadastral systems and land administration in general.

More research is warranted to adapt the approach to land administration and cadastral systems, and to discover, what can be learned from the public value approach. To comprehensively understand, how cadastral systems create value, the uses of cadastral data and the needs of the users should be studied.

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