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ORIGINAL ARTICLE

Artificial intelligence in local governments: perceptions of city managers on prospects, constraints and choices

Tan Yigitcanlar[1] · **Duzgun Agdas**[2] · **Kenan Degirmenci**[3]

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Abstract
Highly sophisticated capabilities of artificial intelligence (AI) have skyrocketed its popularity across many industry sectors globally. The public sector is one of these. Many cities around the world are trying to position themselves as leaders of urban innovation through the development and deployment of AI systems. Likewise, increasing numbers of local government agencies are attempting to utilise AI technologies in their operations to deliver policy and generate efficiencies in highly uncertain and complex urban environments. While the popularity of AI is on the rise in urban policy circles, there is limited understanding and lack of empirical studies on the city manager perceptions concerning urban AI systems. Bridging this gap is the rationale of this study. The methodological approach adopted in this study is twofold. First, the study collects data through semi-structured interviews with city managers from Australia and the US. Then, the study analyses the data using the summative content analysis technique with two data analysis software. The analysis identifies the following themes and generates insights into local government services: AI adoption areas, cautionary areas, challenges, effects, impacts, knowledge basis, plans, preparedness, roadblocks, technologies, deployment timeframes, and usefulness. The study findings inform city managers in their efforts to deploy AI in their local government operations, and offer directions for prospective research.

Keywords Artificial intelligence (AI) · Urban AI · Local government AI · Technology adoption · Technology perception · Local government · City manager

1 Introduction and background

Rapid technological advancements, particularly recent developments in disruptive urban technologies, have provided novel opportunities for tackling increasing complexities and associated problems of our cities (Batty 2020; D'Amico et al. 2020; Regona et al. 2022a). Artificial intelligence (AI) is a disruptive technology of our time with significant implications on cities and how local government services are planned and delivered (Margetts and Dorobantu 2019; Mikalef et al. 2019). In simple terms, AI is a collection of interrelated technologies and systems that impersonate the cognitive functions of the human mind for solving problems, performing tasks, making recommendations and decisions without any or with limited explicit guidance from humans (Cugurullo 2020; Yigitcanlar and Cugurullo 2020; Xiang et al. 2021).

Recently, many nations have started to implement AI throughout all levels of governments (Androutsopoulou et al. 2019; De Sousa et al. 2019; Wu et al. 2020). For instance, in the US and UK, federal, state and local government agencies have begun to adopt a variety of AI solutions to enhance service delivery (Mikhaylov et al. 2018; Desouza et al. 2020a, b; Vogl et al. 2020). Similarly in Australia, the three-tier government use of AI ranges from border security to public safety, from predicting and managing traffic congestion to

✉ Tan Yigitcanlar
tan.yigitcanlar@qut.edu.au

Duzgun Agdas
duzgun.agdas@qut.edu.au

Kenan Degirmenci
kenan.degirmenci@qut.edu.au

[1] Faculty of Engineering, School of Architecture and Built Environment, Queensland University of Technology, 2 George Street, Brisbane, QLD 4000, Australia

[2] Faculty of Engineering, School of Civil and Environmental Engineering, Queensland University of Technology, 2 George Street, Brisbane, QLD 4000, Australia

[3] Faculty of Science, School of Information Systems, Queensland University of Technology, 2 George Street, Brisbane, QLD 4000, Australia