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Abstract

The rapid technological growth has led to increased demand from technology-savvy citizens for their local government (LG) to offer efficient and effective digital services. Many Australian LGs are either considering taking or have taken the first step towards digitally transforming their LGs. A systematic literature review was conducted to identify and analyse current digital transformation (DT) knowledge, focusing on LGs. Evidence of a gap in the literature about the lack of LGs' understanding of DT and the approaches they take to transform digitally. The literature review indicated that customer expectations, outdated technology, and strategic directions are key drivers of DT in LGs. LGs also face challenges in adopting DT, related to lack of management support, insufficient resources, and absence of transformed LGs to benchmark against. Based on the review, a holistic picture of what DT means to LGs, challenges to achieve such transformation, and areas for further research were identified.

Keywords Digital transformation, local government, council, drivers, challenges, barriers

1 Introduction

The term' digital transformation' refers to a comprehensive revision process to digitalise the services an organisation offers (Mergel et al. 2019). A full review of current policies and processes and strong transformational leadership is needed for the transformation to improve the experience of staff and external customers (Janssens 2019). For local governments (LGs), also referred to as Councils in Australia, this means a significant change in how they operate, requiring a dedicated group of resources to support the transformation journey.

LGs in Australia provide more than 150 services, such as water, sewerage and maintenance of roads and parks. As more people become technology-savvy, their preference to communicate online with their LG has increased, and they expect more services to be offered digitally (Morakanyane et al. 2020). LGs that provide services to their community in this digital age must provide digital services to reach out to their customers faster and more efficiently. People find it more convenient to contact their Councils through emails or to use the 'live' chat function on the Council website rather than visiting the physical office. To accommodate the digital demands, LGs need to transform their services and develop their human resources to provide improved digital services (Sullivan 2021).

According to Mitroulis and Kitsios (2019), although there is a need for digital transformation (DT) in LG, there is a lack of knowledge and understanding about what DT is in the Australian LG context. Hence, this paper provides a systematic review of the literature on DT, focusing on the drivers and challenges in the Australian LG. The paper is divided into four sections. Firstly, the aims and context of the research are introduced, followed by the description of the search method. The results are presented, and the final section provides a conclusion and considerations for further research.

2 Literature Review Methodology

This paper applies Okoli's (2015) four phases of the systematic literature review process. Firstly, in the planning phase, a search strategy was created to select keywords closely related to the research question, namely 'what are the key drivers and challenges that Australian LGs face when undertaking digital transformation?' In the second phase, namely selection of articles, specific inclusion and exclusion criteria to filter and select articles that are most relevant to this research were developed. Thirdly, in the data extraction phase, a careful selection of recent articles containing data that matches most keywords was validated. In the final execution phase, the selected articles were analysed and reported in section 3 of this paper.

During the planning phase, keyword combinations were defined and searched, such as *'digital transformation'*, *'digital transformation in LG'*, *'digital transformation in Australian LGs'*, *'digital strategy'* and *'government transformation'*. Published articles and documents from 2015 to 2022 were purposefully identified to understand the recent development related to DT. The search method used in this study applies the two primary Boolean operators (AND, OR), where appropriate (Okoli 2015). The initial selection criteria included papers from other research fields to cast a wider net. Since this paper aims to deliver a comprehensive overview of issues concerning DT contexts and their impact, we refined the search results according to some quality measures.

The initial search found 350 articles that were downloaded for further processing (Table 1). The relevant articles were selected based on the predetermined inclusion and exclusion criteria. The extraction process applied the following filters: (1) articles in English were considered relevant for accurate interpretation; (2) the selected articles or conference papers were limited to indexed scientific articles to ensure credibility and the most updated research; and (3) to achieve greater research focus, the findings focused on, but not limited to, articles and newsletters published by LG such as publications related to strategy, vision statements, annual reports. Another inclusion criterion was the consideration to include technological advancements articles published by subject matter experts through vendor websites, government news, and interviews with LG staff.

The articles' abstracts were read, and another round of filtering was done. The list was further checked to avoid repetition, and duplicate articles were removed. After the exclusion process, 80 papers were selected from the database for the execution phase. Table 2 illustrates that the number of articles related to DT has steadily increased over recent years, reflecting an increased appetite for knowledge on this subject. Reliability is ensured by documenting the selected databases, publications, time period and keywords used for the literature search so that the same process can be replicated. The databases were examined for keywords in either the title, abstract or full text, which led to the selection of articles related to this paper's purpose.

Article Source	Initial Raw Search	Final Articles Chosen
Science Direct	72	24
IEEE	49	12
ResearchGate	48	11
Google Scholar	90	19
Extended Web Search	91	14
Total Sources	**350**	**80**

Table 1. Shortlisted articles by database types

3 Digital Transformation in Local Government

Local Government in Australia

All LGs provide similar services in Australia, yet each is still unique in terms of how they operate to cater to the needs of their community (Uppal and Dunphy 2019). According to ALGA (2019), 80% of revenue for Councils come from the rates they collect from their residents. LGs in the city collect more rates due to the higher population, while regional LGs are often financially weaker (Tran and Dollery 2019) because of their sparse population. Hence, for LGs located in regional areas, the affordability of undergoing a complete digital transformation can be a challenge. As a result, rural and urban LGs' approaches to DT are different, and the one size fits all rule is not applicable. According to Teichert (2019), organisations must be responsive to address the rapid technology change. LGs must quickly adapt to the new technological advancement, leveraging digital technology to improve their day-to-day operations. The enhancements must connect the different dimensions, such as the IT infrastructure, business processes, and digital culture. The DT process is an ongoing course of action to actively change the digital landscape to meet the digital expectations of customers, staff and partners (Teichert 2019).

What Drives DT in LG?

Through an in-depth analysis of the literature, three main categories of drivers of DT were identified: (1) 'customer expectations'; (2) 'inadequate technology'; and (3) 'strategic direction'. Further analyses were conducted to gather more insights into these drivers (Refer to Table 3). These drivers are described below.

A survey by the Australian Local Government Association (ALGA 2018) suggests that customers' expectations about the provision of digital services have increased over the past decade. The number of digitally savvy customers who want to pay rates, apply for permits, book their rubbish collection and request other services via an online system has been increasing (Sullivan 2021). The demand for online services was evident during the pandemic as LGs limited face-to-face interactions with customers. With the advancement in mobile technology and internet availability through 4G, LGs are under pressure to advance their communication strategy and to consider how DT can expedite the move.

Categories of DT Drivers	Examples of Drivers	Relevant articles
Customer expectations	• Tech-savvy customers • Ease of access at anytime • Faster processing	(Alshumrani et al. 2018; Barrutia and Echebarria 2021; Jedynak et al. 2021; Kontić and Vidicki 2018; Kutnjak 2021; Mergel et al. 2019; Sullivan 2021; Ulaş 2020; Yigitcanlar et al. 2022)
Inadequate technology/ software	• Technology changes and performance issues • Pressure from vendors to move to software as a service • Expensive to manage older software	(Beatty and Mitchell 2017; Bughin et al. 2021; Correani et al. 2020; Jafari-Sadeghi et al. 2021; Jones and McIntosh 2019; Kaur and Lodhia 2019; Kraus et al. 2021; Morakanyane et al. 2020; Pittaway and Montazemi 2020; Sullivan 2021; Unley 2019)
Strategic directions	• Strategic vision of LGs • Smart city initiatives • State and federal government strategic vision and alignment	(AlNuaimi et al. 2022; Attaran et al. 2020; Danoesastro et al. 2017; Datta and Nwankpa 2021; Gimpel et al. 2018; Gurkan et al. 2020; Marchesani et al. 2022; Mashau et al. 2021; Ramesh and Delen 2021; Schallmo and Williams 2021)

Table 2. Drivers of digital transformation

Buncsi's (2021) research found that **low-performing IT systems** and slow legacy processes are the main drivers of council transformation. According to Eom and Lee (2022), when the Covid-19 pandemic

started, there was a sudden impetus to connect staff and customers via online platforms. Working from home requires good connectivity as meetings are conducted online. Hence, there was an urgency to plan and execute how best LGs' services could be transformed digitally. Baslyman (2022) and Kraus et al. (2021) reiterate the same survey findings where they highlight how outdated technology and the urgent need to move towards e-services were the drivers for DT.

The Australian federal government has set a minimum digital requirements standard (for example Digital Service Standards) as a benchmark for LGs to measure against and document progress when driving their DT journey (Sullivan 2021). LGs with a clear strategic direction and a business case for DT align them with their long-term aspirations, vision, and goals. For this to occur, a top-down, policy-driven approach is often considered a useful strategy (Gong et al. 2020).

DT challenges in LG

A survey conducted by KPMG with Australian LGs revealed that even though LGs intend to embark on the DT journey, only 3% progressed to the actual transformation stage (Jones and McIntosh 2019). Several challenges hinder LGs from successfully planning and executing the adopted transformation strategies. This paper categorises the three main challenges as (1) inconsistent benchmarking process; (2) lack of management support; and (3) inadequate resources (See Table 4). These categories are described here.

In their report, Beatty & Mitchell (2017) found that nobody clearly understands what a transformed LG looks like and how digital services should be offered. Until now, consistent benchmarking is not possible for Australian LGs as most of the LG are in their initial stages of DT (Jones and McIntosh 2019). The federal government has introduced the 'digital services standard'; however, there is no clear indicator to identify how many LGs have used the standard to meet the requirements and what the current baseline is (Yigitcanlar et al. 2022; Beatty and Mitchell 2017).

Danoesastro et al. (2017) state that the success of DT relies on the organisation's leaders. Another study by Ramesh and Delen (2021) also agrees that organisations similar to the LGs' structures that attempted to move towards digitalisation failed due to a lack of management support. LGs usually fail to adopt and adapt to new business models because of the management's inability to recognise new technological opportunities (Lindgren et al. 2021). Jones and McIntosh (2019) further stress that the influence of the LG's elected members plays a critical role in determining the success of the LG transformation.

DT challenges	Types of DT challenges	Relevant articles
Insufficient benchmarking	• No model LG to compare against • No DT self-assessment guide • No DT framework for LG use	(Beatty and Mitchell 2017; Konopik et al. 2022; Korachi and Bounabat 2020; Yigitcanlar et al. 2022)
Lack of management support	• No clear directions from management • Lack of knowledge of technology adoption • Absence of a digital strategy	(Bughin et al. 2021; Correani et al. 2020; Danoesastro et al. 2017; Jones and McIntosh 2019; Majdalawieh and Khan 2022; Ramesh and Delen 2021; Williams and Lodhia 2021)
Inadequate resources	• Insufficient funds/grants • Lack of skilled human resources • Lack of stable internet like NBN in rural areas	(Deiser 2018; Ferreira et al. 2019; Jones and McIntosh 2019; Li et al. 2018; Pittaway and Montazemi 2020; Schallmo et al. 2017; Sullivan 2021; Williams and Lodhia 2021)

Table 3. DT Challenges in Local Government

The success of DT depends on the availability and deployment of resources. The lack of skilled human resources to action the DT strategies has been identified as a significant challenge for LGs who want to start their DT journey (Sullivan 2021). The insufficient experience in change management know-how, particularly in terms of what and how to replace the current system, has been entrenched in the LGs' day-to-day legacy adds another layer of challenges to DT (Pittaway and Montazemi 2020). Also, LGs are non-profit organisations that operate on a tight budget. The lack of financial resources to undertake major changes has been highlighted as a potential challenge (De Mello 2019). A recent study by Correani et al. (2020) suggests that due to the inability to allocate more financial resources to DT, new skilled staff who specialises in DT cannot be employed as the primary force to drive DT—as a result, actioning the DT processes are not the priority.

4 Conclusions, Limitations and Future Direction

This ongoing academic research aims to understand DT in the context of Australian LGs and how it might differ from other organisations. This paper highlights the drivers and challenges LGs face when embarking on the DT journey. Based on the literature analysis, there is little research on the study of DT in the Australian LG context. The groundwork done through this literature review helps narrow down what literature has to offer for DT in LGs to identify the research gap in scientific journals and white papers.

The ongoing technological advancements result in digital citizens who demand more digital services from their LGs. Hence, this driver puts pressure on LGs to digitally transform. However, LGs' lack of resources, such as funds and skilled staff, impede how successfully the transformation can be carried out. As DT in LG is still in initial stages, examples of successful transformations do not exist for LGs to benchmark their DT maturity. This also makes it harder for the LG management to create a digital strategy for their transformation.

To understand DT in LGs both holistically and comprehensively, a qualitative case study will be conducted through semi-structured interviews with South Australian LGs to assess their current state, drivers and challenges for DT. A DT framework will then be developed, based on the findings of the systematic literature review and the empirical data, to assist LGs across Australia to transform themselves for the digital age successfully.

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