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Circular service management: toward conceptual understanding and service research priorities for a more sustainable future

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Abstract

Purpose – Service managers increasingly strive to achieve sustainability through strategies centered on circularity. With a focus on saving, extending and (re)generating resources and their enclosing service systems, circularity can contribute to environmental, social and financial gains. Yet, the notion of circularity is surprisingly understudied in service research. This article seeks to provide an initial conceptual understanding of circular service management, introducing illustrative strategies and research priorities for circular service management. This paper provides a roadmap for scholars, practitioners and policymakers to develop a deeper understanding of the opportunities from adopting circular services.

Design/methodology/approach – The authors explore the concept of circular service management by drawing upon existing literature on sustainability, circularity and service research. Strategies of circular service management and research priorities emerge on the basis of industry best practice examples and research on sustainability challenges and opportunities.

Findings – Service researchers have largely ignored the concept and role of circularity for service businesses. Extant research on the topic nearly exclusively features in non-service journals and/or does not seek to advance service theory through circularity. This article argues that circular service management enables the implementation of service thinking in the pursuit of sustainability and outlines four types of circular service management strategies.

Originality/value – The authors introduce the concept of circular service management and highlight the role of service research for designing and managing circular systems and operations. This article also offers a research agenda connecting managerial challenges and opportunities with key service research priorities for

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circular service management. This provides a roadmap for scholars, practitioners and policymakers to develop a deeper understanding of pursuing circular services, thereby contributing to a more sustainable future.

Keywords Circular service management, Circularity, Sustainability, Research priorities, Circular economy
Paper type Conceptual paper

1. Introduction

Sustainability has become a key priority for political leaders and policy makers around the world (e.g. United Nations Sustainable Development Goals). Particularly its implementation through circularity attracts increasing interest from business leaders (Elkington, 2020). Although transitioning to circular business models has been found challenging (Susur and Engwall, 2023; Sarja *et al.*, 2021), a paradigm shift is underway whereby business leaders recognize circularity as an opportunity to shape and leverage markets. Circularity initiatives emerge across industries, from physical resource-based ones to conventional service industries, to hybrid industries such as B2B solutions; and from established businesses to new service ventures. For example, Too Good To Go was founded to fight food waste, offering consumers the app-based service of buying unsold surplus food at a discounted rate (e.g. from supermarkets, restaurants, cafes, bakeries), generating more access to food, reducing waste and extending the life of food resources (toogoodtogo.com). On the other hand, FreshStart offers a complementary service solution to redistribute inedible food to recycling and/or composting rather than landfill (fswaste.co.uk). In a B2B context, ABB aims to cover at least 80% of their products and service solutions by 2030 through their "circularity approach and evaluated against a clear set of key performance indicators" (abb.com). Similarly, IKEA with their furniture design and retail services seeks to be "circular and climate positive by 2030, and to inspire and enable the many people to live a better everyday life within the boundaries of the planet" (ikea.com). This aspiration will stimulate IKEA's sourcing and service management for years to come.

Circular business with its focus on saving (e.g. using less), extending (e.g. using longer and again) and (re)generating (e.g. making clean or regrow) resource cycles (e.g. Bocken *et al.*, 2016), promises a lucrative win-win-situation: creating value for the business while minimizing ecological and social costs (e.g. Geissdoerfer *et al.*, 2017). By adopting circular strategies, service businesses benefit from lower costs, recurrent income sources, greater utility of resources and more innovative and attractive products, among other benefits (World Economic Forum, 2023). At the same time, businesses and their circular solutions may contribute to reducing socio-economic issues, for example, through rethinking food systems and food redistribution, creating new jobs in the circular economy, improving quality of life through enhanced services and overall supporting socio-economic equity (see Valencia *et al.*, 2023). This is already visible in service research addressing the base of the pyramid (BoP) contexts where resource scarcity has prompted the adoption of practices that eliminate resource waste and foster a socially-driven approach to innovation where resources are used in novel ways (see, e.g. Gebauer and Reynoso, 2013; Reynoso *et al.*, 2015a; Reynoso *et al.*, 2015b). Circularity thus emerges as a critical means to sustainability and value creation across contexts. In line with the value potential of circular business, consulting firms like McKinsey or the MacArthur Foundation and World Economic Forum estimate multi-billion circular markets to emerge (MacArthur Foundation, 2023; McKinsey, 2016; weforum.org). A circular approach to buildings, transport and food alone is estimated to be worth EUR 900 billion a year in Europe by 2030 (MacArthur Foundation, 2023).

Academic research on sustainability and circularity is currently dominated by a technological and environmental focus, providing insight into the practical and technical flows of materials but leaving the broader social changes needed to transition into a circular economy less well understood (Närvänen *et al.*, 2021). Even though service research is uniquely equipped to support such understanding, studies on sustainability and circularity are only just emerging in the service domain, albeit increasingly called for. For example,

Field *et al.* (2021, p. 464) recognize the "need for research to examine the impact of global service ecosystems on human and planet welfare", while Huang *et al.* (2021, p. 460) call for service research that focuses on "redesigning business processes to include new technologies to reduce an organization's environmental footprint and use resources more efficiently." However, aside from a few notable exceptions (e.g. De Bruyne and Verleye, 2023; Koskela-Huotari *et al.*, 2023; Verleye *et al.*, 2023), few articles with an explicit focus on circularity can be found in service journals. Research on the sharing economy, for example, does not focus on its circularity principles (see Henry *et al.*, 2021 for an overview), while many customers do not put in their best effort to maintain the shared resources (such as cars or bikes), challenging resource lifecycles. Consequently, although resources, including both natural and manufactured, are central as service-enabling mechanisms and ingredients to circular businesses, circularity remains a rather elusive topic in the service research field. We further argue that practitioners are leading marketing and service scholars in their priorities and approaches to explore circular business ideas to develop sustainable solutions.

In this paper, we take the position that service research is particularly relevant for advancing sustainability through circularity for multiple reasons. First, the large majority of western economies are service based (e.g. in the US 77.6%, in Europe and Australia 65.7% and Japan 69.5%; see World Bank, 2023), hence, service theory should more strongly link to circularity. Second, the volume of various types of resource purchases by public service institutions such as councils, hospitals, schools and universities is significant, offering important regulatory, policy and practice levers for change to circularity. A change toward circularity thus requires significant contributions from businesses to ensure future sustainability, not just in terms of service-enabling resources but also in the design of respective service systems. Servitization is also emerging as critical means toward extending and regenerating resource lifecycles; for example, in B2B industries, it provides opportunities for firms to process various types of resources in a way they can be fed back into the cycle, often referred to as "closed loop" or "regenerative" approaches. Service research can thus help better understand and prioritize avenues for manufactured resources to enable more circular service systems. Building on systemic understanding (e.g. Van Riel *et al.*, 2019), we view such circular service systems as combinations of resource integrating actors, relationships and technologies, where finite resources are saved, extended and/or (re) generated in order to maximize their potential value creation and enhance system well-being over the longer-term. We also argue that service research can support other disciplines toward a more human and social perspective that accounts for the rather complex and systemic nature of sustainability challenges, including social dynamics and multi-personal objectives (Koskela-Huotari *et al.*, 2023). Thus, we see a role for service research to help change human behavior that is needed for circular service systems to emerge and function (Aarikka-Stenroos *et al.*, 2021).

This paper aims to strengthen the role of service research in advancing circularity by developing a tentative concept of *circular service management*, discussing potential strategies for it and outlining an in-depth research agenda. In so doing, we intentionally focus on the level of midrange theories and theories-in-use to increase specificity and practical relevance (Jaakkola *et al.*, 2019) rather than, for example, postulating at the level of the circular economy and meta theories. To this end, we first briefly review the concepts of sustainability and circularity as they have been approached in general and in service research, particularly as the necessary conceptual foundation for circular service management. We then contribute by offering a tentative definition of circular service management and introducing four illustrative types of circularity strategies that businesses might pursue. We structure these four strategies by introducing a conceptual matrix that helps make sense of executing circular service management in practice. Building on this theoretical and managerial foundation, we then present an in-depth research agenda. This combines managerial challenges and opportunities alongside respective research priorities that service scholars need to tackle urgently. Our aspiration is that this article will serve to help close the gap between managerial and scholarly priorities around circular service management and

inspire more service research on this topic. We do this by considering extant academic and practical realities around circular service management, offering clear pathways moving forward for service scholars to advance our field toward a more sustainable future.

2. Sustainability through circularity

To advance the concept of circular service management, we will first briefly review the concepts of sustainability and circularity and how service research has addressed them. In simple terms, circularity conventionally pertains to resource cycles, while sustainability encompasses a broader scope, including people, the planet and the economy. However, circularity is increasingly linked to the economic and social aspects of sustainability (e.g. Valencia *et al.*, 2023). The concept of sustainability was introduced by German forestry scholar Hans Carl von Carlowitz in 1713 (Howarth, 1997) and gained popularity through the United Nations Brundtland Commission's (Brundtland, 1987, p. 43) definition of "meeting present needs without compromising future generations' ability to meet their own needs." Sustainability is often categorized into a triple bottom line, emphasizing social, economic and environmental sustainability (Elkington, 1997).

Sustainability science emerged as an academic discipline in the 1980s, akin to agricultural or health science, focusing on practical problem-solving. It explores the interactions between human, environmental and engineered systems to address complex challenges like climate change, biodiversity loss, pollution, land and water degradation and social inequality (Miller *et al.*, 2014; Spangenberg, 2011). This interdisciplinary field is the foundation for implementing normative, circular and sustainable development concepts and strategies. According to Kauffman (2009), sustainability science is purpose-bound, linking knowledge and action to address complex issues and promoting interdisciplinary collaboration. Sustainability science highlights three key goals (1) building and maintaining the adaptive capacity to deal with the needed, longer-term structural transformations to address the embeddedness of socio-ecological systems, (2) developing an understanding of how the environmental impact of human value creation (production and consumption) can be lowered and (3) understanding and explaining resource cycles and reusability that guide living systems, social interactions and management practices toward sustainability (Jerneck *et al.*, 2011; Spangenberg, 2011; Zijp *et al.*, 2015). One approach to pursue these goals in business is replacing the prevailing linear economy models with circular ones, where economic growth is decoupled from resources use through the reduction and recirculation of natural resources and the redesign of service operations (e.g. Elkington, 2020; Corona *et al.*, 2019), as will be discussed next.

2.1 Circularity

As for sustainability science, a circular approach takes insights from ecological and living systems and forms the basis for implementing circular business approaches grounded in sustainability science. While the differences between circularity and sustainability are often blurred, the latter is more holistic, emphasizing the crucial role of environmental and social responsibility. As indicated earlier, this gap, however is increasingly closing with stronger considerations of how circular approaches can help address socio-economic challenges (Valencia *et al.*, 2023). Yet, circularity remains a practical solution to sustainability (Corvellec *et al.*, 2022). The concept of circularity generally refers to "an economic system based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, recycling, and recovering materials in production/distribution and consumption processes" (Kirchherr *et al.*, 2017, p. 224). Both scholars and practitioners (Murray *et al.*, 2017; D'Amato *et al.*, 2017) regard a shift toward sustainability through circular systems and resource circularity as imperative. For instance, it has been linked to several of the UN's sustainable

development goals (Geng *et al.*, 2019), a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss, and a building block of the European Green Deal, EU's new agenda for sustainable growth.

Circularity can be divided into three overarching circular loops. The first and shortest loop focuses on the useful application of materials (recycle and recover). The second loop focuses on extending the lifespan of products and their parts (reuse, repair, refurbish, remanufacturing and repurpose); and the third and longest loop focuses on smarter product use and manufacturing (refuse, rethink and reduce) (Bocken *et al.*, 2016; Kirchherr *et al.*, 2017). Often the aim is described as maximizing use (e.g. extending lifecycles) and minimizing waste across businesses and product-service solutions.

To achieve these loops, circular services are needed for sustainable business development (Geissdoerfer *et al.*, 2017). Such services are based on circular rather than linear business logics (De Bruyne and Verleye, 2023) by offering innovative loops within each use phase. One way of moving from linear to circular services revolves around reconsidering the service-enabling resources and systems that actors engage with during their use processes. Sarja *et al.* (2021), in their review of the transition to circularity in business organizations, focus on barriers and enablers of business practice. They argue for the need to transform multiple system elements and even multiple systems *per se* to support circularity. Scheepens *et al.* (2016) highlight the importance of infrastructure and system support for circularity and sustainable solutions to reach their full potential. If systemic support is lacking, circularity will not positively affect sustainability.

2.2 Circularity in service research

Sustainability has recently been identified as a research priority in service research (Field *et al.*, 2021; Huang *et al.*, 2021). However, the understanding of circularity in service is still underdeveloped. After reviewing five leading service journals (*Journal of Service Research, Journal of Service Management, Service Industries Journal, Journal of Services Marketing and Journal of Service Theory and Practice*) in May 2023, with the search terms (in the title, abstract or keywords), "sustainable", "circular" and "service", only three articles appeared. We, therefore, broadened the search to academic marketing and business journals that often contain service-related topics (*Journal of Marketing*, *Journal of Business Research*, *Journal of Product Innovation Management and Industrial Marketing Management*), but only two more articles appeared. When broadening the search further to journals that focus on sustainability and circularity, as well as on service or services more broadly, we identified 27 articles that met our criteria in *Journal of Cleaner Production*.

Thus, it is apparent that a majority of the articles on sustainable, circular services currently appear outside service journals and leading academic marketing or business journals. After reading these articles, we may conclude that although service is included, service research or a service lens does not necessarily inform the papers. Combined with the managerial urgency of circularity, this status quo suggests the need for service scholars to prioritize research in the area. However, it should be noted that the service research community is beginning to take up this challenge; for example through forthcoming special issues in service and marketing journals: Aksoy *et al.* (2021) call for "sustainable service" in the *Journal of Service Research,* Alexander, Conduit and Azer (2023) focus on sustainability and "reshaping the world through customer and actor engagement" in the *Journal of Service Theory and Practice,* while Tronvoll *et al.* (2023) seek to advance "theories of sustainability" in *AMS Review*.

When examining the identified articles in the *Journal of Cleaner Production*, we find that one paper analyzes catering services on a sector level, with a focus on food and their specific challenges related to circular distribution and logistics solutions (e.g. Greer *et al.*, 2020). Other articles focus on particular challenges or products, such as plastics (Paletta *et al.*, 2019) or waste management (e.g. Brydges, 2021). Some papers explore circular business models or product-service-systems (see, e.g. Konietzko *et al.*, 2020; Rosa *et al.*, 2019; Ståhl and Corvellec, 2018), with

emphasis on material or physical resources, including metal circulation (e.g. Wang *et al.*, 2018). This category of articles covers a wide range of topics such as industrial packaging (e.g. Silva and Pålsson, 2022), water circulation performance (e.g. Li *et al.*, 2020), transportation and car sharing (e.g. Esfandabadi *et al.*, 2022) or bioenergy (e.g. Spagnolo *et al.*, 2020). Design for circularity is another topic focused on, often related to system(s) or product design (e.g. Bakırlıoğlu and McMahon, 2021) and vehicle battery change (e.g. Gong *et al.*, 2022).

More recently in business research, Fehrer and Wieland (2021) discuss social and circular business models to improve humanity's well-being by selecting an institutional perspective. They argue that all business practices are part of larger societal and ecological systems. This understanding is needed for a transition toward sustainability and implies collaborative institutional alignment processes by balancing social mission, environmental stewardship and economic growth. In line with this, Koskela-Huotari *et al.* (2023) offer a systemic conceptualization of sustainability in service that considers a focal organization's ability to support the multiple environments it is embedded in. On the other hand, Ranta *et al.* (2020) show how B2B firms can change their customer value propositions to offer solutions that address circular economy needs, based on a more systemic logic and addressing various beneficiaries. We believe that this systemic and collaborative approach has the potential to form a basis for sustainable, circular service management, as many of these complex challenges require the support of multiple actors. Furthermore, De Bruyne and Verleye (2023), in the *Journal of Service Management*, provide a systematic literature review of sharing economy business models and discuss how to engage customers with different levels of sustainability orientation. The authors argue that sharing businesses can realize their economic and circular potential by engaging customers. This is further discussed in an article in the *Journal of Service Research* by Verleye *et al.* (2023), zooming in on circular business models and actors (customers, firms, public service providers and governmental bodies) being reluctant to join the transition to circularity. The authors theorize about how to achieve "circular economy engagement" and highlight motivation-related, opportunity-related and ability-related practices. Thus, we may argue that engaging customers and other actors in circular and sustainable management initiatives has potential, focusing on circular service management theorizing or empirical studies, while digital platforms and social communities may support this.

To conclude, although some of the articles in our preliminary review focus on the sharing or circular economy (see, e.g. Gue *et al.*, 2022), it is apparent that service research has not yet sufficiently addressed sustainability through circularity. Despite many studies on various aspects of circular economy, circular business models (e.g. Brax *et al.*, 2018), sharing economy platforms (e.g. Wirtz *et al.*, 2019) and sustainable consumption (e.g. Bruel *et al.*, 2016; Murray *et al.*, 2017), we still lack a theoretical and actionable understanding of how service management can help advance the circular economy. The few articles focusing on sustainability through circularity have a rather macro or meta-level orientation, rather than a specific circular service management lens, elaborated next.

3. Definition and strategies for circular service management

3.1 Toward a definition for circular service management

As argued by Huang *et al.* (2021), a sustainable future requires managing circular service businesses enabled by value creation through circular service approaches. However, service research has not reached its full potential in this endeavor. As discussed above, current research on sustainability and circularity provides the goals to strive for saving, extending and (re) generating resources and their use across many collaborating actors in the circular service systems. Service research as a broad and interdisciplinary domain can, in turn, contribute knowledge to develop value creation systems with increased regenerative focus and reduced use of natural resources.

However, the limited research on circular service businesses hampers the understanding of circular service management practice. We argue that this reflects the status quo whereby service scholars trail service managers in terms of circularity dialog, maturity and priorities. So what does circular service management potentially look like in practice? How can we make sense of it? Without a more concrete and tangible illustration of such circular strategies, the risk persists that the service research perspective on circularity remains rather abstract and theoretical, without pervasive practical understanding. In our view, to help service researchers embrace circularity and its potential, it is important to help generate an understanding of *circular service management*.

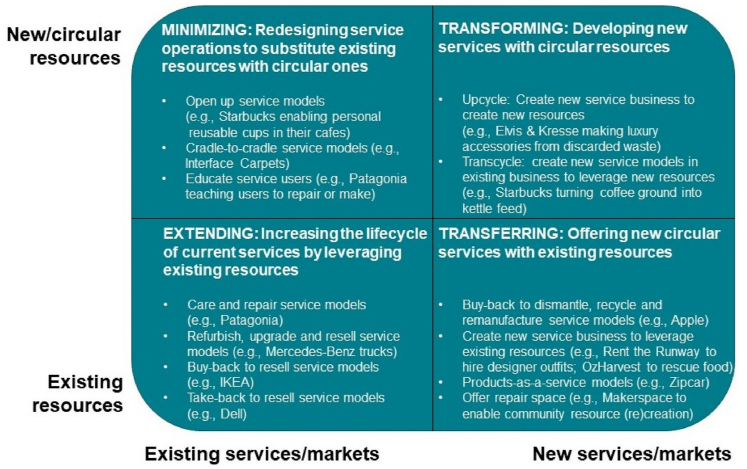
In simple terms, "service" is the mechanism through which value cocreation unfolds (Lusch and Vargo, 2014), and "service management" is how service providers intentionally design and put that mechanism into practice. Formal definitions of service management are limited (cf., Tronvoll and Edvardsson, 2022), and we build on Kleinaltenkamp (2022, p. 59), who refers to service management as "the coordination of service-related activities and their actors". Specifically, we propose that circular service management *refers to the intentional design and coordination of service activities and processes that preserve, extend and (re)generate resources and related service systems*. Beneficiaries here include humans, organizations and natural entities such as animals, trees, rivers and planet Earth. A service lifecycle mirrors the understanding of product lifecycles, including all "stages to be passed/followed/performed . . . from "its cradle to its grave" (Terzi *et al.*, 2010, p. 364). This highlights that service activities, for example, have a beginning, middle and end in which resources and resource lifecycles can be saved, extended or (re)generated. It also points to the need for coordination across the circular service system.

Circular service management thus enables the implementation of service thinking in the pursuit of sustainability. Importantly, existing sustainability research often focuses on circularity models for natural or manufactured resources. Circular service management, however, recognizes the need to apply circularity principles to any type of resource (natural or manufactured), service operations and service systems. Service research can thus offer an important perspective on how circular systems and operations can be designed and managed to facilitate human behavior supporting material circulation.

3.2 A framework for circular service management strategies

To advance the practical usability of the circular service management concept, we next develop an illustrative framework that outlines four types of strategies through which circular service helps save, extend and (re)generate resources and service systems. The circular service management matrix shown in Figure 1 builds on extensive research (e.g. Bocken *et al.*, 2016) as well as a broad range of state-of-the-art practical examples.

The proposed circular service management matrix examines circularity in service businesses along two axes: the horizontal axis describes whether circularity is leveraged within the existing service offering or is fundamental to establishing a new service offering. Managers thus seek to increase sustainability by embedding greater circularity within their established business models and markets or creating novel business models and markets to achieve circularity. The vertical axis, on the other hand, distinguishes whether service businesses focus on enhancing the circularity of existing resources and accompanying service operations (e.g. processes and workflows, human resource management, training) or whether they substitute these resources for resources that are more circular and modify service operations as necessary, to offer their existing services. Managers thus focus on either increasing circularity by using existing resources differently (e.g. reusing or extending their lifecycles), or by innovating their services to include new resources and/or new service operations to minimize waste at the end of life. This, in combination, leads to four illustrative circularity strategies: increasing the lifecycle of current service by leveraging existing resources ("extending"), redesigning service operations to substitute existing resources with



Source(s): Figure by the authors

Figure 1. Illustrative types of circular service management strategies

circular ones within existing services ("minimizing"), offering new circular services with existing resources ("transferring") and developing new services with circular resources ("transforming"). The four strategies combine with a more systemic consideration of how managers seek to develop more circular service solutions across different possible avenues. Naturally, versatile service management topics pertaining to, for example, service culture, human resource management, service operations and technology, are relevant for implementing each strategy, but may play out differently across strategies.

The first strategy—extending—focuses on increasing the lifecycle of the current service and embedded resources. This ensures that the value of service lifecycles is optimized from reusing resources already in circulation, thereby extending the service enabled through these resources. For example, Patagonia, in its B2C operations, provides a "care and repair' service model, whereby Patagonia offers repair services of their products (garments, equipment) free-of-charge, including covered return shipping costs (Patagonia, 2023). Such initiatives help keep existing resources for longer in use and hence increase the value enabled from original resources, whereby in this case, the service-rendering resource remains with its owner after repair. In contrast, Dell encourages customers to use their refurbishment program called "Dell Reconnect" to minimize e-waste. This service program enables customers, both B2C and B2B, to donate (free) their used products to be refurbished or upgraded and resold, for example, on their Dell Outlet platform. Dell takes over, for instance, the professional cleaning and upgrading of devices from any personal data or damage while generating new revenues in existing markets (Dell, 2023). IKEA, on the other hand, also offers customers the opportunity to extend the life of their product-enabled service by buying back and offering up to 50% of an item's original value (based on condition) to be repaired, refurbished and resold; "from pre-loved to re-loved" (IKEA, 2023). In B2B markets, Mercedes-Benz has established an equal win-win model for its truck customers, whereby Daimler offers a guaranteed buy-back service of Mercedes-Benz trucks at the end of their customers' term (Mercedes-Benz, 2023). Customers can trade, retain or return their truck, while the truck, in the latter case, can be refurbished and resold by Daimler. In all of these cases of "extending", resource and service lifecycles are significantly extended by circular design.

The second strategy—minimizing—focuses on redesigning service operations to substitute existing resources with circular ones within existing services. For example, Starbucks, with their "environmental stewardship' program (Starbucks, 2023), along with many independent cafes in

B2C markets, have opened up their operating models to enable the integration of more circular resources. Specifically, many cafes enable customers to bring in their reusable coffee cups to maximize the resource usage of circular resources while minimizing or potentially eliminating the deployment of single-use cups. Customers might even benefit from discounts when bringing their reusable cups, while many cafes change their remaining disposable cups to compostable solutions or even sell some version of KeepCups (one of the leading brands in this area). Minimizing resource extraction or consumption might also go hand in hand with sufficiency thinking, which encourages actors to avoid unnecessary consumption or overconsumption, and thus "consuming better and less" (Niessen and Bocken, 2021, p. 1091). In B2B markets, large companies such as RACV are collaborating with circular solution providers to change their internal food and beverage services by seeking to replace existing resources (e.g. internal coffee and food containers) and models with more circular ones. In another example, companies like Interface Carpets (2023), over time, have exclusively used recycled or bio-based materials while offering recycling and reuse opportunities for service-rendering products. In a different version of this strategy, Patagonia also offers education programs within their existing business to teach customers how to fix and innovate their clothing and gear. Many conventional service businesses in beauty industries (e.g. hairdressers), medical industries (e.g. dentists), educational industries (e.g. universities), installation industries (e.g. window installers) and others have switched their operations to embed more circular solutions. The same is evident in transportation and e-commerce services. In all of these cases of "minimizing", the service operations and deployed resources change to design out waste as much as possible.

The third strategy—transferring—centers on offering new circular service with existing resources. For example, Apple deploys recycling robots as an internal service to disassemble old products such as iPhones to separate components (e.g. aluminum, copper), which then can be recycled and redeployed in new service solutions and/or new markets (Forbes, 2023). This material recovery and recyclability are central to reducing mining and resource extraction for the purpose of enabling and innovating new services, while customers can either trade in products or donate to recycling. While Apple seeks to leverage these existing resources for entirely new service solutions within their portfolio, other companies have been newly founded on the premise of creating novel services and markets by leveraging existing resources. For instance, Rent the Runway (2023) has created a new service platform where customers can rent designer clothes. While establishing a new business with a sustainability purpose, the circular model contributes to designer clothing getting increased wear while extending life cycles. Similarly, OzHarvest (2023) was founded specifically to create new food service solutions by "rescuing" surplus food and redistributing this to people in need. In a different model, Zipcar (2023) emerged by creating a new market with existing resources offering the largest car sharing service platform, products(cars)-as-a-service, thereby seeking to increase usage of the same resource rather than spreading usage across and ownership of many more (unnecessary) resources. This in turn increases the potential for saving and extending service lifecycles and embedded resources. On the other hand, Makerspace was recently founded to offer customers a new service solution to upgrade their existing products: by way of a "repair café". Indeed, the purposeful facilities offer various technology (e.g. 3D printing), crafting (e.g. sewing) and workshop (e.g. woodworking) possibilities to increase the possibility for the community to repair, update and innovate their existing solutions. In a final example, Cataki in Brazil has become a successful app service that brings individual people who collect waste (waste-pickers) together with people who want their waste to be recycled. While helping to increase Brazil's share of recycled materials, the app also supports waste pickers in accessing markets and potential compensation for their work, while addressing societal stigma by turning waste-picking into a more valuable profession (The Economist, 2017). In all of these cases of "transferring', businesses or initiatives leverage existing yet circularity-oriented resources in new services and/or markets.

The fourth strategy—transforming—seeks to develop new service with circular resources. For example, Elvis and Kresse (2023) is transforming waste materials into lifestyle accessories such as luxury handbags or purses, thereby upcycling resources into new service-rendering solutions. Similarly, Starbucks, through collaborations, has been trialing opportunities to turn coffee grounds into new service solutions such as cattle feed. The use of residuals for creating new services and/or markets, as well as new circular resource solutions, is particularly exemplary for this strategy. However, this approach also offers an additional sustainability component: regeneration of resources as part of the circular solutions. While many circular approaches manage to reduce waste and extend resource lifecycles, few can generate new sources of income simultaneously. In this case, the residual coffee ground as a feeding resource can help with the growth of natural resources in the form of subsequent fertilizer. In a B2B context, Returnr (2023) was founded as a new service business to offer circular workplace food and beverage solutions so that businesses can eliminate single-use waste and offer novel resource solutions to enable better service. Vestre (2023) is a Norwegian manufacturer of urban furniture dedicated to creating social gathering spaces for people for over 75 years. The organization sought to create new markets by making long-term sustainability a fundamental principle across all its operations, for example, through its manufacturing process by utilizing renewable and recyclable materials, such as sustainably sourced wood and recycled plastics, to drive circularity. Similarly, Planet Protector Packaging (2023), an Australian packaging service company, specifically developed an innovative service solution called Woolpack. With the aim to create sustainable packaging solutions, the organization repurposes wool as an alternative to traditional and often harmful packaging materials like polystyrene foam. The biodegradable, compostable and renewable wool is made from sheep waste wool, highlighting its circular nature while offering high thermal qualities for demanding packaging service (e.g. considering heat, humidity and odors). The organization collaborated with Australian wool growers to create new packaging markets and standards that do not harm the planet, while this service generates economic, environmental and social benefits (e.g. smaller footprint, new jobs, cultural meanings of wool, etc.). In all of these "transforming' strategy cases, businesses manage to advance new service/markets and new circular solutions. This matrix quadrant often represents the most innovative of the four circular service management strategies.

While service managers might pursue one of the four circular service management strategies, which in this case focus more explicitly on economic and environmental considerations (rather than social), often these can be combined based on the aspiration and readiness of the focal service provider to embed circular solutions. For example, public institutions responsible for significant procurement decisions increasingly seek to turn their purchase power into circular power by combining multiple circularity strategies (Sönnichsen and Clement, 2020). The City of Stockholm, for instance, with a procurement budget of 35 billion Swedish Kronor per year or the Belgian City of Leuven, are seeking to both become circular service systems (e.g. Stockholm.se). Such cities may implement "circularity requirements in public procurement to promote sustainable and circular consumption patterns" (European Union, 2017). This might include tender bidders or suppliers needing to use recycled and recyclable materials (e.g. in construction, office supplies), encouraging them offer take-back/buy-back schemes or resource sharing platforms and developing alternative uses for "waste as material" and creating closed loops with city partners (Vanhuyse *et al.*, 2021). Overall, the four strategies offer a rather systemic potential for organizations to address circularity. To make these strategies meaningful in context, circular service management thus requires both an open mindset toward and a careful consideration of the various circularity strategies. For each business, specific configurations of circular strategies at different points in time seems likely. However, this also highlights the need for a

continuous process of actively managing for circularity in service contexts while opening up an entire research agenda that needs to be pursued to help businesses on their journey toward circularity.

4. A research agenda for circular service management: connecting managerial challenges/opportunities and service research priorities

The circular service management matrix illustrates that service managers have come a long way in terms of translating circular understanding into strategies and action. However, at this point, the managerial journey of circular service management often represents one of trial and error. While many well-established service businesses set ambitious circularity targets and new businesses recently emerged that focus entirely on circular solutions, many of these organizations need to determine the best circular strategy or combination thereof through testing and revising, as scholarly guidance is largely missing. Indeed, while the focus of circular service management revolves around saving, extending and (re)generating resource and service systems, service scholars currently offer limited managerial advice toward these ends. Such guidance, however, is critical to render collective efforts toward a more sustainable future.

We thus now propose an in-depth service research agenda that combines managerial challenges/opportunities and future research priorities. Ample managerial challenges or opportunities have been identified in previous sustainability research (e.g. Oghazi and Mostaghel, 2018) and by influential institutions/reports (e.g. World Economic Forum, 2023). For example, Oghazi and Mostaghel (2018) provide an overview of challenges to circular business in terms of "organizational barriers, cultural barriers, technological barriers, product category barriers, regulatory barriers and economic barriers" among others. On the other hand, the World Economic Forum (2023) proposes a set of advantages related to circular business, including "more attractive products, recurrent income sources, greater customer intimacy, more extensive use of products and components" among others. To address such challenges and opportunities in a meaningful way, we here cluster several higher-order themes that combine a concrete managerial and academic perspective. These themes center on: (1) Circular service transitions, (2) Circular service design, (3) Platformization and digitalization for circular service and (4) Circular service operations and systems. These themes also support research beyond circular strategies, helping to more broadly understand success factors and barriers for circular service management.

Service managers, for example, struggle with deciding on how to go about circular strategies, where to start and which (combination) to pursue. Similarly, service managers grapple with adequate performance measures for circularity, given that conventional success measures will not capture or sufficiently reflect circularity. Related to this, service managers need to find a balance between circularity and financial viability, yet research is in its infancy to understand powerful possibilities to achieve both. This further highlights the challenge of how to best transition into a more circular organizational set-up that enables the discussed circular service management strategies. In the following, we now present such managerial challenges/opportunities and connect these to research priorities, summarized in Tables 1–4. For service management scholars, the topics and questions outlined in the tables highlight the role of distinct service management constructs relevant for addressing the identified challenges and opportunities, pointing at future research needs in understanding the role of, for example, service culture, human resource management, organizational structure and technology, in advancing circular service management strategies.

Linking Managerial Challenges / Opportunities with Future Research Priorities for Circular Service Management

Illustrative managerial challenges/opportunities	Illustrative service research questions
● Switching to circular service models is often perceived as risky; hence, a better understanding of how to facilitate the transition and avoid associated pitfalls is needed	● What are the enablers and barriers to transition from a linear to circular service business? To what extent are these factors specific to industries or economic contexts (e.g. developing countries or BoP)?
● Managers need abilities to scrutinize their existing business and service models to identify circularity options and opportunities	● How can firms optimize reusability within their supply chains or service systems to minimize waste generation and maximize resource efficiency? What strategies are used in different industries such as hospitality, energy and entertainment?
● Implementing circular strategies might come with financial compromises; so managers need guidance in the profitable set-up of circular service models	● How can circular business models leverage reusability as a competitive advantage to improve long-term profitability and market positioning?
● Managers might feel challenged by the identification of relevant and selection of meaningful performance indicators regarding circular service systems	● What are the environmental, social and economic outcomes and impacts of circular business models and how can this be measured and evaluated? What KPIs are relevant for different industries, such as airlines, energy service providers and telecom service providers?
● Circular service systems often require a collective effort. Managers might struggle to engage their partner network and set up the more systemic and interdependent conditions for effective circularity	● How do inter-organizational collaborations and networks influence the development and implementation of circular service models?
● Managers may need guidance on how to go about the transition process as implementing circular service models is often complex	● What are the key considerations when implementing circular solutions? Under which circumstances should organizations adopt circular solutions as a fully committed effort, or test certain solutions first before scaling?
● Customers need to be engaged for purposes of circularity, to ensure collective buy-in for circular initiatives (e.g. Kleinaltenkamp *et al.*, 2019; Verleye *et al.*, 2023)	● How can circular business models effectively integrate value proposition strategies to enhance customer engagement while minimizing environmental impacts?
● Managers need to understand how to get consumers to consider circular initiatives at scale to ensure financially viability	● What are institutional facilitators for large-scale adoption of circular principles? How can organizations and governments encourage change of consumer behavior, particularly in resource-constrained contexts such as BoP?
● Consumers are often not sufficiently informed and can be skeptical of organizational efforts to be more circular and sustainable	● How best to communicate circularity initiatives and priorities to consumers in a meaningful and transparent way?
● Transitioning to offering circular services might pose challenges to workforce skills and expertise	● How can businesses support and assess needed skills toward circular services?

Source(s): Table by the authors

Table 1.
Service research priority: circular service transitions

5. Conclusion

Circular services and circular service systems offer important avenues to foster sustainability. Yet, the limited research consideration in service journals and the lagging behind of service theory concerning managerial ambition and strategies points to an important question: How seriously are we, as service scholars taking sustainability and particularly circularity to advance our field and help businesses and the planet to thrive? In

Illustrative managerial challenges/opportunities	Illustrative service research questions
● Circularity requires the concurrent management of competing interests. Managers might struggle with finding the "right" balance across priorities	● How can circular service design effectively incorporate environmentally friendly offerings to meet customer needs while minimizing ecological impacts?
● Managers might struggle in generating effective resource and activity maps to identify circular opportunities and need guidance on how to generate an effective systemic understanding	● How can systems thinking and service design be integrated to create holistic, interconnected solutions addressing social, environmental and economic dimensions?
● Service design focused in the past on decision criteria such as viability, feasibility and desirability. Yet aspects of sustainability and circularity have traditionally been less integrated (Baldassarre *et al.*, 2020)	● How can service design models and methods better account for decision criteria that go beyond conventional understanding and include circularity? What are the potential benefits and trade-offs of adopting circular service design?
● While service design is becoming more systemic in its orientation (e.g. Koskela-Huotari *et al.*, 2021), organizations lack design methods and tools to support circular service management	● How can design methods and tools help foster circularity in complex service systems?
● The need for customer engagement for circular living (and use of service models) is critical. However, service managers may struggle to create individual and collective engagement through service design (Kleinaltenkamp *et al.*, 2019)	● How can service design approaches be used to enhance customer and employee engagement to encourage behavioral changes toward circular service adoption?
● Smart sensing technologies provide new managerial challenges and opportunities to redesign service processes (e.g. Mele *et al.*, 2023) to support managing circularity	● How can smart sensing technologies be introduced or used in service systems and processes to support users' (employees and customers) value creation toward circularity? What strategies are used in elderly care, ecotourism, telecoms and finance?

Source(s): Table by the authors

Table 2.
Service research priority: circular service design

addition, how meaningfully are we currently leveraging cross- and interdisciplinary research to find answers to important sustainability and circularity questions? Moreover, the current situation also triggers an important warning to learn from past mistakes when service quality was treated as a separate topic of research for years: The need to avoid sustainability and circularity to become separate streams or subfields in service research. In contrast, we argue that sustainability and circularity considerations should permeate all service research and become a default aspect of any subsumed research topic. The aim of achieving sustainable and circular business is too important to just feature as an afterthought or side thought. This also means that service researchers and managers need decision criteria and performance measures that do not centrally rely on financial impact but more broadly consider environmental and social impact through circularity. For instance, while the concept of ESG (environmental, societal and governance) permeates finance and management journals (e.g. Gillan *et al.*, 2021; Van Duuren, Plantinga and Scholtens, 2016), there is further opportunity to leverage this in service research.

To this end, we introduce an initial understanding of the concept of circular service management to intentionally influence the development of circular service systems. This includes a set of activities and processes that enable and coordinate value creation through service, whereby the entire service lifecycle is intentionally designed to save, extend and (re)generate resources as well as the service systems they are used in. In so doing, we advance both the conceptual understanding of circularity in service research

Illustrative managerial challenges/opportunities	Illustrative service research questions
● Managers need guidance on the many opportunities provided by new technological solutions to enable circular service systems; e.g. blockchain to control and trace circularity, AI to develop circular strategies, or using platformization to structure circular service offerings.	● How can platformization and digitalization leverage circularity and foster collaboration among diverse actors to address challenges effectively? What is the role of different technologies in combination, such as AI, blockchain, IoT, etc. in enabling circular service models?
● Companies are increasingly employing platforms as servitization strategies, but may struggle in translating these into successful circular strategies	● What key factors contribute to successfully implementing circular platformization strategies? How can learning and knowledge-sharing on circular practices and solutions be facilitated?
● Many companies are experienced in applying transaction or innovation platforms, but struggle in developing platforms for resource sharing or reuse in their traditional operations	● How can platformization enable the efficient sharing of resources, skills and assets to foster circularity in novel application areas?
● Managers might seek to more intentionally leverage circular service models to enable, e.g. consumers from disadvantaged backgrounds to benefit from wasting and redistributing resources and services; or managers might be challenged, however, in terms of how to combine economic with social and ecological needs	● What are the social and economic implications of platformization in creating inclusive and equitable opportunities for participation, learning and sharing within ecosystems, and how can potential drawbacks be mitigated?
● While identifying meaningful circularity performance measures is a general challenge, this becomes particularly interesting in the context of digital systems that allow for tracking and tracing, offering greater transparency; but how to set up these digital data systems so they support circular service models requires more guidance	● How can circularity be measured using digital platforms in different ecosystems such as food production, energy, transportation, retail and tourism?
● Managers develop new forms of collaboration with ongoing partners but are also in need of collaboration support from partners with access to new resources and competences	● How are platforms used to support and enable collaboration with new partners and how can such collaboration be facilitated and governed by digital platforms?

Source(s): Table by the authors

Table 3. Service research priority: platformization and digitalization for circular service

while providing a foundation for further midrange theories and theories-in-use. Naturally, our proposal for the concept of circular service management is only tentative, and it should be understood as a call rather than the final answer. Service management hosts a broad set of topics and functions, impossible to capture in one study. We thus urge service researchers to ponder on what circular service management would entail in their respective research context and how each service concept can inform the development of circular service management. The four illustrative circular service strategies suggested provide a starting point that can inspire further research exploring such strategies, developing empirically grounded typologies, and consider these in view of other management aspects such as business culture and structure. In doing this we suggest also partnering up with scholars outside the service field to further develop circular service strategies and service theory.

The primary aspiration of this paper is to direct attention to the importance of infusing the circularity perspective in service research more broadly than what has been done thus far. This article takes a step toward closing the gap between managerial and scholarly priorities

Illustrative managerial challenges/opportunities	Illustrative service research questions
● Managers are challenged to think beyond "just" circular resources; rather the entire service model can be set up to support such initiatives yet comes with its own challenges and requires greater managerial guidance	● How can circular operations optimize packaging strategies to reduce waste generation and environmental impact while maintaining product integrity and customer satisfaction?
● Even if managers are seeking to dematerialize and increase circular service systems, this will often require the "opening up" of existing systems to allow for alternative solutions to be employed, which comes with new challenges	● What are the key drivers and barriers for the dematerialization of products and services in sustainable operations, and how can firms effectively transition towards more resource-efficient alternatives?
● Often circular solutions might be implemented in local "test beds' first; however, managers are often challenged the task of scaling such solutions into broader relevance and applicability	● How to scale up circular service models to increase reach and impact? In addition, how to do this in an authentic and meaningful way to avoid equivalent tendencies such as "green washing", etc.?
● What kind of industry-specific challenges and opportunities are associated with transforming service operations toward higher sustainability?	● What are the key challenges and opportunities in adopting sustainable practices within, for example, the healthcare industry to minimize environmental impacts while maintaining high-quality patient care?
● Circularity requires alignment across the value chain/service system. It is likely a difficult task to ensure all partners are on board and committed, while potentially requiring the opening up their processes and databases	● What is the role of various actors in facilitating and enhancing the implementation of circular solutions? To what degree are knowledge sharing or collaborative governance possible to enable circular solutions?
● Public procurement represents a significant share of service systems and resources. Yet, city councils, schools or universities, hospitals, etc. can feel overwhelmed in changing their systems toward circular solutions	● How can public institutions reconsider their procurement approaches to enable circular solutions? What is the right balance between imposing requirements on suppliers versus incentivizing suppliers? How can they support a change in public service consumptions among citizens?
● To date, governments have led the push toward more circular systems (e.g. banning single use plastics), however, there is an expectation that organizations will start to lead the charge (Ponte, 2019)	● What is the impact of regulatory and policy landscapes on circular service management and how do service managers navigate this best?
● Scaling up of new and "better" solutions in service systems is a major management challenge (Di Pietro *et al.*, 2017). Circular solutions might not scale up due to inhibiting rules and regulations	● What are major inhibitors and enablers for circular operations practices to scale up? What role do dynamic contracts play? What constitutes best practice?
● Culture and other institutional factors might act as barriers or facilitators for service operations	● Which values, norms, symbols, language or other artefacts support the implementation of circular services?

Source(s): Table by the authors

Table 4.
Service research priority: circular service operations and systems

around circular service management; this is done by considering extant academic and practical realities around circular service management and providing pathways for service scholars to advance our field toward a more sustainablefuture. We encourage service scholars to both further develop collaborative research with businesses and public and governmental organizations but also form new constellations within the service research community.

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