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# MEASURING SUSTAINABILITY: A CIRCULAR ECONOMY MATURITY MODEL FOR IT SERVICE PROVIDERS

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## Abstract

The IT service industry faces substantial challenges in adapting to evolving economic and environmental conditions, fostering an increased interest in Circular Economy (CE) as a viable approach to achieve economic and ecological benefits. Despite its potential, the implementation of CE within the IT services sector remains complex, as the industry lacks specific, context driven guidelines. This paper addresses this challenge by developing and presenting a CE maturity model tailored for IT service providers. By identifying key areas of action within CE and outlining associated activities, the model serves as a practical framework, offering targeted recommendations to advance the CE maturity of IT service providers, thereby supporting both sustainable and economic improvement.

The model founded on a Systematic Literature Review, detailed in a separate publication, and a focus group study conducted via an expert workshop. Findings from these methodologies and the development of the maturity model highlight five key action areas: 'Ecosystem,' 'External Influences,' 'Company Management,' 'IT & Digitalization' and 'Circular Strategy.' Using a grading system, the maturity level of an IT service provider can be assessed across these action areas, assigning a CE maturity level from 'inactive' to 'proactive'. This classification enables IT service enterprises to assess their current state in ecological and economical sustainability, facilitating improved CE implementation. Consequently, the developed CE maturity model serves as a practical tool for adopting and evaluating circular business models and processes, offering a sustainable solution to the environmental and economic pressures facing the IT service industry. Furthermore, the CE maturity model is adaptable to other sectors within the service industries and the creative economy sector.

**Keywords:** Circular Economy, IT Services, Maturity Model, Sustainability

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## Introduction

Amidst escalating environmental challenges and growing economic uncertainties, the IT service industry faces increasing pressure to adopt sustainable practices that balance ecological responsibility with economic viability (Cagno et al., 2021). Despite the evident need for sustainability, many IT service providers have yet to adopt these practices, often underestimating their long-term benefits (Lieder & Rashid, 2016). The Circular Economy (CE) has emerged as a promising framework for achieving the dual objectives of economic and ecological responsibility, emphasizing resource restoration, reuse and recycling as key pathways to sustainability (Geissdoerfer et al., 2017; Ellen MacArthur Foundation, 2012). However, the application of CE in the IT service industry remains limited due to the lack of industry-specific guidelines and operational models that address its unique challenges (Cagno et al., 2021).

Previous research has introduced a Circular Economy Maturity Model (CEMM) designed to support IT consulting firms in enhancing their clients' sustainability initiatives (Koch de Souza & Engstler, 2024). Rooted in a Systematic Literature Review (SLR) (Koch de Souza, 2023) and refined through expert insights, this model assesses CE maturity across five key action areas: 'Ecosystem', 'External Influences', 'Company Management', 'IT & Digitalization' and 'Circular Strategy' (Koch de Souza and Engstler, 2024). It provides specific recommendations and a grading system to classify organizations from ´inactive´ to ´proactive´ in their CE implementation, serving as a practical tool for enhancing sustainability. Building on this foundational work, the present research examines the effective application of the CEMM to IT service providers. While the core structure of the model remains consistent with previous research, this paper tailors the approach to address the specific challenges and opportunities faced by IT service providers. This study examines how IT service providers can leverage the CEMM to enhance their sustainability efforts, thereby extending the model's relevance and offering a scalable solution for other sectors within service industry. This approach addresses broader environmental and economic pressures, paving the way for future research.

## Classification of Circular Economy for IT Service Providers

In prior research, CE has been defined through seven key characteristics: circular production flows, regeneration by design, systemic thinking, integration of economic, ecological and social aspects, innovation in circular business models, strategies for slowing/closing/narrowing resource loops and the introduction of R-strategies (Koch de Souza & Engstler, 2024). Among these, the integration of economic, ecological, and social impacts are often emphasized as the overarching goal (Upadhyay et al., 2021; Rosa et al., 2019). CE's main advantage lies in its regenerative approach, minimizing resource waste and reducing emissions (Mhatre et al., 2021), which leads to significant reductions in overconsumption, waste and emissions (Kulkarni & Pathak, 2023; Fogarassy & Finger, 2020; Ellen MacArthur Foundation, 2019). CE also enhances resilience against environmental risks, lowers energy costs, reduces dependency on suppliers and decreases environmental taxes, offering economic benefits (Antikainen et al., 2018; Korhonen et al., 2018). However, a major challenge in implementing CE is the lack of awareness among businesses about its relevance (Koch de Souza & Engstler, 2024). The dynamic and temporary nature of the regenerative and environmental aspects of CE requires a willingness to embrace social change and adaptation (Korhonen et al., 2018). External factors, including regulatory barriers, present significant challenges to the implementation of CE practices (Khan et al., 2021).

The IT service industry, in particular, faces unique challenges in adapting to these economic and environmental changes, making the application of CE principles both promising and complex. The IT service sector encompasses activities within the Information and Communication Technology industry, including services such as software development, IT consulting, data management and cloud services (Daum, 2016). Unlike traditional products, IT services are intangible, consumed simultaneously with their production, and often involve customized solutions, making them difficult to standardize (Meffert & Bruhn, 2009). These types of services within the industry, however, can serve as unique enablers for CE by leveraging technologies that, for example, promote data transparency, connectivity, and automation – all crucial for managing circular production processes (Uçar et al., 2020; Antikainen et al., 2018). Digital technologies such as blockchain, artificial intelligence (AI), cloud computing, and the Internet

of Things (IoT) are potential drivers to the implementation of CE strategies within IT services, all uniquely positioned within this sector (Koch de Souza, 2023).

In addition to technological advancements, broader organizational and structural changes are necessary to implement CE strategies within the industry. A key factor is the shift toward circular business models, such as Product-as-a-Service, where value is derived from extended service offerings rather than product ownership. This model emphasizes lifecycle management and resource efficiency, promoting reuse, refurbishing and recycling – fundamental components of a CE (Ellen MacArthur Foundation, 2019; Antikainen et al., 2018). These changes are particularly relevant to the IT services industry, which relies heavily on digital infrastructure and has significant potential to reduce environmental impacts through better resource use and service-based models. Furthermore, collaboration across an IT service provider's value chain is equally important. Companies must engage with suppliers, customers, and other stakeholders to close resource loops and align sustainability goals across the supply chain. Transparent data sharing and cooperative partnerships are essential for optimizing resource use and ensuring effective implementation of circular practices (Khan et al., 2022; Rajput & Singh, 2019).

Despite these opportunities, the implementation of CE in the IT services industry has been limited, primarily due to the absence of specific industry guidelines and operational models that address the unique challenges of this sector (Lieder & Rashid, 2016). Establishing such standards is crucial for the successful adoption of CE principles, ensuring that IT service providers can operate sustainably while navigating the complexities of modern business environments (Rosa et al., 2019; Korhonen et al., 2018). On the contrary, the IT service industry currently contributes significantly to environmental impacts due to energy-intensive data centers and electronic waste generated from hardware, highlighting the need for a sustainable approach (Bocken et al., 2023; Figge & Thorpe, 2023; Ruda & Pukas, 2022). Adopting CE practices is crucial not only for mitigating these impacts but also for ensuring long-term economic sustainability. This paper acknowledges this need and builds on the developed CEMM by Koch de Souza & Engstler (2024), offering IT service providers a structured approach to enhance sustainability efforts and contribute to a more resilient digital economy within the industry.

## Methods

This research is based on the methodological framework developed in previous studies by Koch de Souza and Engstler (2024), wherein the CEMM was initially developed and examined within the context of IT consulting. This paper refines and expands this model to address the specific challenges of implementing CE principles in the IT services sector. The methodology of the research consisted of three phases: a **SLR**, an **expert focus group validation** and an **iterative maturity model development**, all designed to respond to the research question of how IT service providers can measure and enhance their maturity in implementing Circular Economy principles (see fig. 1).

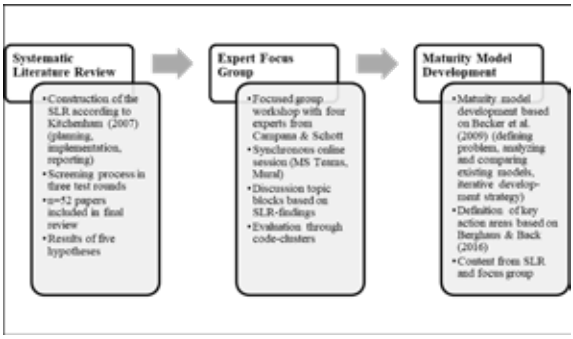


*Figure 1. Research Methods Overview*

The foundation of the CEMM was established through a **SLR**, as described by Koch de Souza (2023), focusing on measuring sustainability in IT service providers through CE. The SLR systematically reviewed existing research on CE and its relevance to IT services, ensuring transparency and replicability in accordance with Kitchenham's (2007) guidelines. The review aimed to address three key questions: (1) how CE is defined in the literature, (2) how CE is currently applied in IT services, and (3) the requirements and barriers to CE implementation (Koch de Souza, 2023). The literature search, conducted using databases such as Scopus, ScienceDirect, and SpringerLink, focused on articles published after 2015 to ensure the inclusion of recent developments. A rigorous inclusion and exclusion process filtered articles based on their relevance and methodological rigor. This screening process identified key factors for advancing

CE maturity in IT service providers, including strong change management and leadership commitment, financial and risk management, alignment of IT with CE strategies,external collaboration with stakeholders, and incremental implementation of CE practices (Koch de Souza, 2023).

To validate these theoretical findings, a **focus group study** was conducted, as further described in the developmental research of the CEMM for IT consulting (Koch de Souza & Engstler, 2024). The focus group method was chosen for its ability to generate in-depth insights through collective discussion, providing diverse perspectives from industry professionals (Bell et al., 2019). The focus group, conducted in collaboration with the IT consulting company *Campana & Schott*, included experts in IT sustainability, IT project management, and IT strategy consulting (Koch de Souza & Engstler, 2024). The discussions followed the structure outlined by Creswell and Creswell (2022) and Bell et al. (2019), focusing on the integration of digital technologies, the influence of external regulations, and challenges in CE strategy implementation. The sessions were recorded, transcribed, and analyzed using a consistent thematic coding framework, similar to the one applied in the SLR, to ensure consistency in interpretation. The focus group validated the key themes from the SLR, aligning them with real- world experiences and reinforcing the practical relevance of the action areas for enhancing CE in IT services (Koch de Souza & Engstler, 2024). Combining these industry perspectives with the theoretical foundations of the SLR strengthened the model's practical application, ensuring it addressed both academic and industry needs (Flick, 2018).

The third phase of the research involved the development of the **CEMM** maturity model. A maturity model is a framework that assesses the maturity level of an organization or process, charting developmental progress from an initial stage to full maturity (Becker et al., 2009). The primary objective of the CEMM is to evaluate the current state of CE implementation in IT service providers, identify areas for improvement and provide guidance for continuous enhancement. The development process followed the methodical approach by Becker et al. (2009), combined with the Digital Maturity Model (DMM) by Berghaus and Back (2016), adapted specifically for IT services. The iterative process resulted in the selection of five key action areas for the CEMM: *Ecosystem, External Influences, Company Management, IT & Digitalization,* and *Circular Strategy* (Koch de Souza & Engstler, 2024). These areas represent the critical factors that IT service

providers must address in order to enhance their circular economy practices. Additionally, the model defines five maturity dimensions (*Inactive, Reactive, Active, Established* and *Proactive*), describing the progression from basic awareness and ad-hoc practices ('inactive') to full strategic integration of CE principles ('proactive') (Koch de Souza & Engstler, 2024). The evaluation process is based on a Likert scale, allowing IT service providers to assess their maturity level across each key action area using a simple questionnaire form (Koch de Souza & Engstler, 2024). This assessment not only allows organizations to evaluate their sustainability maturity but also provides actionable recommendations for enhancing their CE maturity, positioning the CEMM as both a diagnostic and prescriptive tool (Koch de Souza & Engstler, 2024). The next chapter, presents the results regarding both the content and structure of the CEMM, along with an analysis of its practical implications for IT service providers.

## Results

The CEMM is a practical tool for IT service providers to assess and improve their implementation of CE principles. This chapter presents the outcomes of the model's application, offering insights into its structure, key action areas, and maturity levels, along with the practical recommendations generated for IT service providers. The results are presented based on the refinement of the five action areas (*Ecosystem, External Influences, Company Management, IT & Digitalization,* and *Circular Strategy*), and their alignment with the maturity dimensions. The model's utility lies in its ability to provide both a comprehensive assessment framework and actionable guidance for companies to improve their CE maturity.


*Figure 2. Overview of the Key Action Areas in the CE Maturity Model (Koch de Souza & Engstler, 2024)*

The iterative development process led to the finalization of five key action areas (s. fig. 2). These areas reflect both the internal capabilities of IT service providers and the external pressures they face in adopting CE principles. In this context, the following summarizes the role of each key action area in measuring and managing CE for IT service providers.

The **Ecosystem** action area highlights the critical importance of collaboration across the value chain. In the context of IT services, this involves working closely with stakeholders such as suppliers, customers, and partners to develop sustainable practices across the entire service value creation processes. The goal is to create circular ecosystems that facilitate the sharing of resources, knowledge, and innovation, fostering long-term relationships that enhance sustainability efforts (Koch de Souza & Engstler, 2024). IT service providers are encouraged to engage in partnerships that support the exchange of best practices, promote resource efficiency and contribute to closing material loops. In practical terms, this can involve participating in collaborative platforms, co-creating solutions with clients, and leveraging shared infrastructures like cloud computing to reduce resource waste. While comprehensive ecosystem collaboration is vital for long-term CE implementation, companies in earlier stages are encouraged to initiate partnership-based practices as a foundation, with further ecosystem alignment reserved for later development phases.

The **External Influences** action area is divided into two distinct components: *market- based influences* and *formal influences*. This dual structure reflects the diverse pressures IT service providers face from both market dynamics and regulatory environments. *Market-based influences* focus on

the expectations and demands from clients, competitors, and industry trends. IT service providers are increasingly confronted with customer demands for more sustainable IT solutions, driven by growing environmental awareness and corporate responsibility. Companies that respond proactively to these market signals can differentiate themselves (Koch de Souza & Engstler, 2024). Additionally, market-based influences include competitive pressures, where industry leaders set benchmarks for circularity that others must follow to stay relevant. *Formal influences* refer to the regulatory and legal frameworks that govern environmental performance. IT service providers, particularly within the research field of the European Union, must navigate complex regulations that dictate waste management, energy efficiency, and resource conservation. Formal influences include both national regulations and international sustainability standards such as the European Sustainability Reporting Goals (ESRS), which set clear guidelines for compliance (Koch de Souza & Engstler, 2024).

**Company Management** is a pivotal action area within the CEMM, emphasizing the need for robust internal structures to support CE integration. This area evaluates how well IT service providers incorporate CE principles through the well-established practices in *change management, financial management,* and *risk management*. Key aspects include the commitment of top management to sustainability goals, the inclusion of CE objectives in strategic planning, and the ability to drive organizational change (Koch de Souza & Engstler, 2024). Effective company management involves establishing a clear circularity vision aligned with the company's long-term goals and ensuring that all departments are engaged in its implementation. Furthermore, the involvement of employees at all levels through training and awareness programs is crucial for embedding CE practices across the organization. Companies that demonstrate strong internal leadership and established change, risk and financial management are more likely to achieve higher levels of CE maturity, where circularity becomes an integral part of the corporate identity and a high level of internal adaptability to change is essential.

In the IT services sector, digital technologies are fundamental enablers of CE. The **IT & Digitalization** action area focuses on how IT service providers can leverage digital tools to optimize resource use, track sustainability metrics, and enhance the circularity of their offerings. Technologies such as AI, blockchain, IoT, and cloud computing play a crucial

role in improving efficiency and reducing waste (Koch de Souza, 2023). IT service providers that integrate these technologies into their operations can significantly reduce their environmental footprint and offer more sustainable solutions to clients (Koch de Souza & Engstler, 2024). The CEMM guides organizations through the adoption of these technologies, emphasizing the importance of digitalization not only as a tool for operational efficiency but also as a driver of circular business models. While the *Adoption of New Technology* is particularly relevant within the IT services sector, the foundational establishment of a stable *IT & Infrastructure Standardization* as well as effective *Data Management*, should not to be underestimated. Both are crucial for analyzing value chain information that enables a company to implement CE and are necessary steps before experimenting with new technologies for CE-driven business approaches (Koch de Souza & Engstler, 2024). The CEMM, therefore, guides companies through the staged adoption of these technologies, suggesting basic digital infrastructure and data management in the early stages, while advanced digital tools are integrated at higher maturity levels to enhance tracking, transparency, and CE-driven business models.

The **Circular Strategy** action area evaluates how well IT service providers align their business models with CE principles. In the context of IT services, circularity can be implemented through service models that prioritize the reuse and refurbishment of IT equipment, offering clients solutions that reduce the need for constant hardware replacement. For example, service providers can offer IT leasing models or subscription-based services, where clients pay for the functionality of the service rather than owning the hardware itself. This not only extends the lifecycle of IT products but also reduces e-waste, contributing to overall sustainability goals (Koch de Souza, 2023). The CEMM encourages IT service providers to innovate their business strategies and assist them in the transition from linear service models to those that embrace circularity.

### *Maturity Model Dimensions*

In addition to the CEMM action areas, an evaluation form was developed to capture both desired and actual CE states across these areas, consisting of 40 Likert-scale items that assess a company's level of CE maturity proportionally across the key action areas mentioned above (Koch de Souza

& Engstler, 2024). By completing this form, an organization's CE maturity level is determined based on maturity model development theories (Glanze et al., 2021; Schaltegger et al., 2012). The scoring system assigns companies to one of five maturity stages: *Inactive*, *Reactive*, *Active*, *Established,* and *Proactive*, allowing companies to self-assess without the need for external consultants. As these maturity dimensions align with the previous research on IT consulting firms (Koch de Souza & Engstler, 2024), the following will focusses on enabling IT service providers to conduct the assessment independently and manage the CE implementation process themselves, without the need for external consultancy. The prioritization of different qualifying criteria for each maturity dimension along with the corresponding activities to be prioritized and their respective owners, is summarized in Table 1.

*Table 1. Implementation of maturity model dimensions of the CEMM*

| Maturity dimension | Qualification criteria (based on Koch de Souza & Engstler, 2024) | Prioritized activities for achieving qualification criteria of next dimension | Activity owner |
|---|---|---|---|
| Inactive (0-20%) | No strategic interest in CE<br>Linear business model and processes | - Conduct initial CE awareness sessions and build foundational support for CE principles. | Top management |
| Reactive (21-40%) | - Occasional, circular activities in response to impulses | Develop basic CE practices and establish minimal compliance structures that align with client and regulatory expectations.<br>Document these basic CE-practices. | Mid-level management of customer relations |
| Active (41-60%) | Circular potentials identified<br>Application of CE strategies<br>Circular processes depicted in the business model | Initiate cross-departmental collaboration to implement CE-compatible technologies.<br>Align CE initiatives and organizational goals. | Department heads (executive level) |

| | | | |
|---|---|---|---|
| Established (61-80%) | Monitored CE goals and public reporting of results<br>Fully circular processes and business model orientation (CE frameworks) | Begin implementing advanced tracking and transparency tools to monitor CE performance metrics.<br>Expand engagement with external partners across the ecosystem, including clients, suppliers and regulators.<br>Set-up continuous alignment and improvement as part of CE-strategy. | Cross-functional team leads in collaboration with external stakeholders |
| Proactive (81-100%) | Proactive engagement across the ecosystem<br>Continuous alignment and improvement of CE-strategy | Focus on establishing best practices and actively leading CE advancements within the industry.<br>Continue alignment and improvement. | Senior leadership |

In the ***Inactive*** level, organizations are just beginning to explore CE principles. This initial phase primarily involves top management, who recognize the potential benefits of CE and allocate minimal resources toward basic awareness and preliminary CE assessments. The primary activities to qualify for the *'Reactive'* maturity dimension involve conducting basic CE awareness sessions aimed at securing foundational buy-in from leadership. Major structural or operational changes are not expected – the emphasis remains on recognizing the potential relevance of circular approaches for long-term organizational goals. At this stage, structured CE activities or external partnerships are not prioritized.

At the ***Reactive*** level, companies begin to address CE in response to external pressures, often driven by specific client demands or compliance requirements. These early-stage CE practices, often confined to limited departments like customer relations, are overseen by mid- level management, to ensure alignment with minimal regulatory and client expectations. To progress, companies must establish and document basic CE practices and compliance structures, laying the foundation for more systematic CE approaches.

The ***Active*** level emphasizes a broader and more structured CE approach within the organization, where key action areas such as IT & Digitalization and Company Management begin to interact closely. Circular potentials are identified on a more strategic, rather than *reactive*, basis, and

singular circular processes are even depicted in the business model of the IT service provider. For this, cross-functional collaboration with executive oversight becomes increasingly critical to ensure that CE initiatives align with organizational goals and are cohesively implemented across departments. For companies at this stage, coordination and alignment across departments are essential, with CE processes now more explicitly integrated into business models. While partnerships with external entities may enhance CE activities, they remain optional at this level of maturity.

The ***Established*** level represents a mature phase where organizations have fully integrated CE goals and processes across all functional areas. CE practices are monitored, with transparent public reporting of their results. Cross-functional team leaders, working closely with external stakeholders, are beginning to employ advanced tracking and transparency tools to monitor and optimize CE performance metrics. Now, collaboration across the ecosystem, including clients, suppliers and regulators, enhances circularity efforts and is, thus, relevant for qualifying for the last CEMM dimension. However, the focus for becoming a CE-proactive IT service provider is on maintaining alignment and continuous improvement within established CE frameworks.

Finally, the ***Proactive*** level represents the full integration of CE principles within the organization and extends beyond to driving CE within the broader ecosystem. IT service providers in this dimension have positioned themselves as leaders in CE practices. Senior leadership actively promotes best practices, adapts to new CE advancements, and engages frequently with clients, suppliers, and regulatory bodies. This dimension emphasizes continuous alignment and improvement, with a focus on driving industry-wide CE progress and maintaining the organization's leadership role in circularity initiatives. Collaboration across the economic, environmental, and social domains strengthens the company's CE impact within the industry.

## Discussion

This research builds on previous work by broadening the scope of the CEMM to directly include IT service providers, rather than focusing on how IT consulting firms can support these companies in their CE

implementation (Koch de Souza & Engstler, 2024). The objective of this research was to develop a framework for measuring and enhancing sustainability through CE maturity within the IT services industry, addressing both economic and environmental challenges. The CEMM, based on a mixed-methods approach (SLR and focus group), serves as a tool for companies to assess their CE progress, identify areas for improvement, and implement sustainability strategies.

However, while the CEMM provides a structured framework tailored for IT service providers, certain limitations and challenges emerge when applying CE principles within this industry, which must be addressed. Although the CEMM enables maturity assessment across certain identified areas, translating the full scope of CE into standardized metrics remains challenging. External influences, such as regulatory changes and resource availability, often lie beyond a provider's control, posing difficulties for accurate quantification within the CEMM. These factors suggest that, while the CEMM provides a structured path, it may not fully account for uncontrollable variables, which can significantly impact a company's ability to achieve and sustain CE objectives.

The challenge of providing linear action steps within the maturity model should be considered a potential limitation in applying the CEMM (Berghaus & Back, 2016). Improvements in one action area may not lead to overall CE maturity, as progress is often non- linear across the five fields. Furthermore, the CEMM's highest maturity level, labeled 'Proactive', may not be a realistic or necessary goal for all IT service providers. For smaller companies or those in emerging markets, the 'Established' level may provide an effective balance and is a more realistic goal, as it emphasizes efficient CE practices without the extensive resource commitments demanded at the Proactive level. Further validation and testing of the CEMM are needed to help determine a sufficient maturity level that aligns impact with resource allocation, particularly in cases where additional CE investments yield minimal incremental benefits. A recommended avenue for future research would be to identify and benchmark a maturity level that effectively aligns CE goals with a company's business objectives and stakeholder expectations, without necessitating maximum maturity.

## Conclusion

In conclusion, the CEMM provides a valuable and actionable framework for IT service providers to integrate CE principles into their operations, facilitating the transition from linear to sustainable, circular business models. By identifying five critical action areas – *Ecosystem, External Influences, Company Management, IT & Digitalization, and Circular Strategy* – the model provides a scalable maturity framework to guide the adoption of CE principles. Implementing this CEMM allows IT service providers to enhance resource efficiency, meet regulatory demands and improve sustainability without sacrificing profitability, ultimately enabling them to drive circular transformations. Furthermore, by refining the CEMM's dimension criteria into qualification criteria and specifying priority activities for achieving these qualifications, the model empowers IT service providers to lead their own circular transformations.

However, a key limitation of this study lies in its reliance on theoretical models and a limited set of experts within the focus group, all from a single company background, which may not fully capture the diverse operational realities of IT service providers across different markets. Therefore, future research should aim to validate the CEMM through empirical studies involving a broader range of companies. Additionally, the CEMM's application should be explored across various sectors to further validate and enhance its effectiveness in different service industries, making it more applicable to the broader (IT) service industry. Nonetheless, the CEMM not only provides IT service providers with a strategic tool to measure sustainability and navigate CE challenges, but also empowers them to achieve lasting economic and environmental benefits – positioning them for long-term success in an evolving market.

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# MJERENJE ODRŽIVOSTI: MODEL ZRELOSTI KRUŽNE EKONOMIJE ZA PRUŽATELJE IT USLUGA



## Sažetak

Industrija IT usluga suočava se sa značajnim izazovima u prilagodbi promjenjivim ekonomskim i ekološkim uvjetima, što je potaknulo povećan interes za kružnu ekonomiju (KE) kao održiv pristup koji može donijeti ekonomske i ekološke koristi. Unatoč njenom potencijalu, implementacija KE u sektoru IT usluga ostaje složena, budući da industriji nedostaju konkretne, kontekstualno prilagođene smjernice. Ovaj rad odgovara na taj izazov razvijanjem i predstavljanjem modela zrelosti kružne ekonomije prilagođenog pružateljima IT usluga. Identificiranjem ključnih područja djelovanja unutar KE i definiranjem pripadajućih aktivnosti, model služi kao praktičan okvir, nudeći ciljane preporuke za unapređenje zrelosti KE unutar IT sektora, čime se podupiru i ekonomska i održiva poboljšanja.

Model je temeljen na sustavnom pregledu literature, koji je detaljno opisan u zasebnoj publikaciji, te na fokusnoj grupi provednoj putem radionice sa stručnjacima. Rezultati ovih metoda i razvoj modela zrelosti KE ističu pet ključnih područja djelovanja: „Ekosustav“,

„Vanjski utjecaji“, „Upravljanje poduzećem“, „IT i digitalizacija“ te „Kružna strategija“. Koristeći sustav ocjenjivanja, razina zrelosti KE kod pružatelja IT usluga može se procijeniti u ovim područjima, dodjeljujući stupanj zrelosti od „neaktivan“ do „proaktivan“. Ova klasifikacija omogućuje IT poduzećima procjenu svog trenutnog stanja u pogledu ekološke i ekonomske održivosti te olakšava poboljšanu implementaciju KE.

Razvijeni model zrelosti KE tako služi kao praktičan alat za usvajanje i evaluaciju kružnih poslovnih modela i procesa, nudeći održivo rješenje za ekološke i ekonomske izazove s kojima se suočava industrija IT usluga. Nadalje, model zrelosti KE može se prilagoditi i drugim sektorima uslužne industrije i kreativne ekonomije.

**Ključne riječi:** kružna ekonomija, IT usluge, model zrelosti, održivost