This article was downloaded by: [216.73.216.11] On: 14 September 2026, At: 11:23
Publisher: Institute for Operations Research and the Management Sciences (INFORMS)
INFORMS is located in Maryland, USA

Service Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

Introduction to the Service Science Special Issue on the Impact of AI on Service Design and Delivery

Maxime C. Cohen, Tinglong Dai, Beibei Li

To cite this article:
Maxime C. Cohen, Tinglong Dai, Beibei Li (2026) Introduction to the Service Science Special Issue on the Impact of AI on Service Design and Delivery. Service Science 18(3):155-156. https://doi.org/10.1287/serv.2026.intro.v18.n3

Full terms and conditions of use: https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

Copyright © 2026, INFORMS

Please scroll down for article—it is on subsequent pages

With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes.
For more information on INFORMS, its publications, membership, or meetings visit http://www.informs.org

informs
https://pubsonline.informs.org/journal/serv
SERVICE SCIENCE
Vol. 18, No. 3, September 2026, pp. 155–156
ISSN 2164-3962 (print), ISSN 2164-3970 (online)

Downloaded from informs.org by [216.73.216.11] on 14 September 2026, at 11:23 . For personal use only, all rights reserved.

Introduction to the *Service Science* Special Issue on the Impact of AI on Service Design and Delivery

Maxime C. Cohen,[a] Tinglong Dai,[b,*] Beibei Li[c]

[a] McGill Desautels Faculty of Management, McGill University, Montreal, Quebec H3A 1G5, Canada; [b] Carey Business School, Johns Hopkins University, Baltimore, Maryland 21202; [c] Heinz College of Information Systems and Public Policy, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213

*Corresponding author

Contact: maxime.cohen@mcgill.ca, https://orcid.org/0000-0002-0888-9030 (MCC); dai@jhu.edu, https://orcid.org/0000-0001-9248-5153 (TD); beibeili@andrew.cmu.edu, https://orcid.org/0000-0001-5466-7925 (BL)

https://doi.org/10.1287/serv.2026.intro.v18.n3

Copyright: © 2026 INFORMS

Artificial intelligence (AI), in both its predictive and generative forms, is changing how services are conceived, delivered, and experienced. When we issued the call for papers for this special issue (Cohen et al. 2024), our goal was to invite work that examines this transformation across sectors, with attention to operational design, ethical considerations, and methodological advances. The four papers selected through peer review cover a strategic perspective on data-driven leadership in the age of AI, analytical modeling of human-AI collaboration in diagnostic queues, clinical risk prediction with explainable design, and generative AI–based decision automation in inventory operations. We next briefly discuss these four papers and their main contributions.

Bapna and Ghose (2026) offer a leadership-focused perspective on why so much of the promised value of AI in services remains unrealized. They argue that, despite the rapid growth of corporate data, less than 3% of it is used for decision making, and that the gap is sustained by what they call the “Three Is”: inertia, ignorance, and a failure of imagination. Building on their House of AI framework, which organizes descriptive, predictive, causal, and prescriptive AI under a governance layer, the authors argue that generative AI can democratize traditional AI by serving as a context-aware analytical assistant, whereas agentic AI sits above the framework as an orchestration layer that turns recommendations into governed workflows. They conclude with a call for business schools and executive education programs to treat AI literacy as a leadership competency and not a technical specialty and to address the AI talent imbalance as an important education problem.

Cai and Zychlinski (2026) study an AI-assisted radiology department. The authors model the department as a multiserver, multiclass queue in which an AI triage system classifies imaging cases as suspected positive or suspected negative, after which radiologists confirm or revise each initial diagnosis. Using a fluid approximation, the authors derive an index-based scheduling policy (a generalization of the classical $c\mu/\theta$ priority rule from queuing theory) that incorporates AI sensitivity and specificity along with the anchoring effect, whereby radiologists spend more time correcting AI misclassifications than confirming correct ones. They show that the anchoring effect can alter prioritization, and that under certain conditions a hospital may be better off without AI triage at all. The paper offers practical guidance for integrating AI into diagnostic workflows under realistic service-level constraints.

Lai et al. (2026) develop an AI risk-stratification framework that identifies, among patients with metabolic dysfunction–associated steatotic liver disease, those at sufficiently high risk of colorectal adenomas to warrant colonoscopy, an invasive examination that is costly at the patient level and capacity constrained at the system level. Their model is a guided cross-attention long short-term memory network in which clinical priors derived from medical guidelines are injected as a “guide vector” into the network’s attention weights. The authors then use Shapley additive explanation values in an iterative clinician-in-the-loop step to refine those priors. The paper’s main contribution is socio-technical: It ties predicted probabilities to net clinical benefit through decision-curve analysis under institutional capacity constraints, builds interpretability into the screening workflow rather than treating it as an afterthought, and outlines a staged validation pathway from single-institution deployment to multisite adoption.

Finally, Liu et al. (2026) apply generative AI to a classical operations problem. They introduce Inventory-GPT, a decision system built on the GPT-2 (generative

Downloaded from informs.org by [216.73.216.11] on 14 September 2026, at 11:23 . For personal use only, all rights reserved.

pretrained transformer 2) architecture that jointly determines order timing and order quantity for e-commerce inventory management under random demand and random vendor lead times. Rather than following the standard predict-then-optimize pipeline, the authors use imitation learning: The transformer is fine-tuned to imitate ex post optimal decisions computed from historical data while careful design of the input and output structures preserves interpretability. Using data from JD.com, they show that InventoryGPT outperforms a variety of benchmarks, including traditional inventory policies, deep learning–based predict-then-optimize approaches, and recent end-to-end methods, achieving higher service levels and lower total costs. The paper shows how a large language model architecture can be repurposed for large-scale operational decisions while still supporting theoretical interpretation and performance bounds under specified conditions.

Together, the four papers illustrate the range of questions that AI raises for service design and delivery: how to build the organizational capacity needed to capture AI's value, how to schedule and incentivize human review of AI predictions, how to govern AI-driven risk scores in clinical workflows, and how to repurpose generative models for operational decisions.

This special issue has also helped inspire a broader community effort, particularly among supply chain scholars, to rethink how management science principles and AI capabilities should be coupled rather than treated as separate domains. Two recent outgrowths of that effort are an OM Forum vision statement from the operations management community (Cohen et al. 2026) and an edited volume on AI in supply chains (Cohen and Dai 2025), both of which build on themes raised in this issue.

We thank the authors, associate editors, and referees for their contributions, and editor-in-chief Guillaume Roels and managing editor Machelle Zellers for their guidance. We hope that these papers offer a useful entry point for the service science community's continued engagement with AI.

References

Bapna R, Ghose A (2026) Generative AI can (finally) unlock potential of data-driven leadership. *Service Sci.* 18(3):157–160.

Cai J, Zychlinski N (2026) When AI is not enough: Reducing diagnostic errors with radiologist oversight. *Service Sci.* 18(3): 161–176.

Cohen MC, Dai T, eds. (2025) *AI in Supply Chains: Perspectives from Global Thought Leaders*, Springer Series in Supply Chain Management (Springer, Cham, Switzerland).

Cohen M, Dai T, Li B (2024) Call for papers: *Service Science* special issue on the impact of AI on service design and delivery. *Service Sci.* 16(2):142.

Cohen MC, Dai T, Perakis G, Agrawal N, Allon G, Boute RN, Cachon GP, et al. (2026) OM Forum—Supply chain management in the AI era: A vision statement from the operations management community. *Manufacturing Service Oper. Management* 28(3):687–705.

Lai C-Y, Yu J, Lee C, Wang G-Y, Perdana SA, Chen T-H, Yeh T-S (2026) Shall you get an invasion examination? An AI-driven risk stratification model for individuals with suboptimal health status. *Service Sci.* 18(3):177–195.

Liu M, Bai Y, Qi M, Shen Z-J(M) (2026) Inventory management with Transformer: Automated decision making for order timing and quantity. *Service Sci.* 18(3):196–211.