Year	OVERALL PPC	SPECIFIC PPC TASK OR INDUSTRY
2020	Socio-cyber-physical perspective on Manufacturing Networks (Frazzon et al. 2020); ML Applied in PPC in I4.0 (Cadavid et al. 2020)	Securing IT/OT Links for Low Power IIoT Devices in I4.0 (Mantravadi et al. 2020); ML in Additive Manufacturing (Wang et al. 2020); Production Scheduling in I4.0 (Parente et al. 2020); Nesting and Scheduling Problems for Additive Manufacturing (Oh et al. 2020); Scheduling in Cloud Manufacturing Systems (Halty et al. 2020)
2021	Key Factor of Operational Performance in Manufacturing Systems (Battesini et al. 2021)	Production Planning and Scheduling in Multi-Factory Production (Lohmer et al. 2021); RL Based Intelligent Optimization for Manufacturing Scheduling (Wang et al. 2021); Relating Big Data Analytics to Supply Chain Planning (Xu et al. 2021); Decision-Making Framework for Dynamic Scheduling of CPS base DT (Villalonga et al. 2021)
2022	Towards Smart PPC (Rahmani et al. 2022); PPC Approaches under I4.0 (Herrmann et al. 2022)	Production Scheduling in I4.0 (Prashar et al. 2022); ML for Zero-Touch Management in Heterogeneous Industrial Networks (Friesen et al. 2022); Deep RL in Production Systems (Panzer et al. 2022); Scheduling Challenges Towards Smart Manufacturing (Workneh et al. 2022); Reliability of RL Production Scheduling Systems (Waubert de Puiseau et al. 2022); Knowledge Mapping of DT and Physical Internet in SCM (Nguyen et al. 2022); Organizational tensions in I4.0 Implementation (Dieste et al. 2022)
2023	Production Planning in I4.0 (Luo et al. 2023); I4.0 and Smart Manufacturing (Hassan et al. 2023); PPC in I4.0 Environments (Prashar et al. 2023)	AI Applications through Lifecycle of Industrial Equipment (Elahi et al. 2023); Perspective Survey Industrial Knowledge Graphs (Shang et al. 2023); Intelligent Scheduling in MES for I4.0 (Shakeri et al. 2023); DT in Complex Operation (Ghanbarifard et al. 2023); Decentralized Pharmaceutical Supply Chain (Patel et al. 2023); RL applied to PPC (Esteso et al. 2023); Digital Human Models in Assembly Process Planning (Yin et al. 2023); ML und DL in Semiconductor Industry (Huang et al. 2023); Barrier Management 4.0 on Indian Pharmaceutical Supply Chain (Agrawal et al. 2023); Human Factors and Ergonomics Between I4.0 and Operational Excellence (Virmani et al. 2023); Enabling I4.0 Technology for Lean Manufacturing by Fuzzy-AHP (Chaudhary et al. 2023); Digital Technology for Sustainability (Abdulghani et al. 2023)
2024	Computer-based PPC (Nwasuka et al. 2024); Advanced Manufacturing through AI (Rakholia et al. 2024)	Simulation Optimization Production Scheduling in I4.0 (Ghasemi et al. 2024); Predictive Analytics for Efficiency in Garment Industry in Sri Lanka (Ahamed et al. 2024); Business Process Automation in SMEs (Moreira et al. 2024); Scientific Workflow Scheduling (Vivas et al. 2024); NLP and LLM for PPC of SMEs in I4.0 (Mathieu et al. 2024); Time-Series Forecasting for Industrial Manufacturing Systems (Fatima et al. 2024); Work-in-Process Prediction with NN in Semiconductor Packaging (Wu et al. 2024); AI for Supply Chain for Sustainable Production (Patalas-Maliszewska et al. 2024); AI in SCM (Culot et al. 2024); DRL for Dynamic Scheduling for Resilient and Sustainable Manufacturing (Zhang et al. 2024); Logistics 4.0 (Roshid et al. 2024)
2025		RL for JSSP (Zhang et al. 2025); ML in Additive Manufacturing (Inayathullah et al. 2025)

Fig. A.1. Overview of the 51 reviews on Production Planning and Control in the Context of Industry 4.0 and at least minor focus on accompanying challenges of the past 5 years.

Appendix B. TABLE OF IDENTIFIED CHALLENGES WITH REFERENCES