

Systematic Literature Analysis (Section 4.2) - excluded papers

Authors	Title	Year	Source title	Volume	Issue	Page start	Page end	DOI	Reason for exclusion
Storey, V.C.; Parsons, J.; Bueso, A.C.; Chiarini Tremblay, M.C.; Lukyanenko, R.; Castillo, A.; Maass, W.	Corrigendum to "Large Language Models for Conceptual Modeling: Assessment and Application Potential" [Knowledge and Data Engineering Volume 160, November 2025, 102480] (Data & Knowledge Engineering	2025	Data and Knowledge Engineering	160				10.1016/j.datak.2025.102499	Corrigendum to paper already classified as relevant
Pardo Gutierrez, S.; Alrabie, L.; Di Fede, G.; Vitali, M.; Andolina, S.	A Direct Manipulation Interface for LLM-based Process Modeling	2025	ACM DL					10.1145/3750069.3755960	HCI topic with specific application in biochemistry
Wahab, M.B.A.; Mazen, S.A.; Helal, I.M.A.	Utilizing Large Language Models in Business Process Management: Applications and Challenges	2025	Journal of Computer Science	21	8	1921	1932	10.3844/jcssp.2025.1921.1932	Application focus; no relevant technical contribution
Woo, T.; Kim, S.; Tariq, S.; Heo, S.; Yoo, C.	Leveraging Generative AI and Large Language Model for Process Systems Engineering: A State-of-the-Art Review	2025	Korean Journal of Chemical Engineering	42	12	2787	2808	10.1007/s11814-025-00524-3	Specific application in chemical engineering
Tebourbi, H.; Nouzri, S.; Mualla, Y.; El Fatimi, M.; Najjar, A.; Abbas-Turki, A.; Dridi, M.	BPMN-Based Design of Multi-Agent Systems: Personalized Language Learning Workflow Automation with RAG-Enhanced Knowledge Access †	2025	Information (Switzerland)	16	9			10.3390/info16090809	focus on BPMN and multi-agent systems
Javidrooz, V.; Tawil, A.-R.; Azad, R.M.A.; Bishop, B.; Elmitwally, N.S.	AI-Enabled Customised Workflows for Smarter Supply Chain Optimisation: A Feasibility Study	2025	Applied Sciences (Switzerland)	15	17			10.3390/app15179402	Specific application in chemical engineering
Özdemir, P.; Yıldırım, R.	ML@ChemE: Past, Present, and Future of Machine Learning in Chemical	2025	ChemBioEng Reviews	12	4			10.1002/cben.70012	Specific application in chemical engineering
Nivon, Q.; Salaün, G.; Lang, F.	GIVUP: Automated Generation and Verification of Textual Process Descriptions	2025	Proceedings of the ACM SIGSOFT Symposium on the Foundations of Software Engineering			1119	1123	10.1145/3696630.3728593	Focus on model to text
Osyodlo, G.V.; Kominko, L.V.; Vovkodav, A.M.	DEVELOPMENT OF THE ETHICAL CODE CONCEPT FOR USING OF ARTIFICIAL INTELLIGENCE IN MILITARY MEDICAL EDUCATION: THE UKRAINIAN MILITARY	2025	Ukrains'kij Zhurnal Vsijskovoï Medicini	6	2	14	23	10.46847/ujmm.2025.2(6)-01	Specific application in medical education
Liu, R.; Liu, X.; Zhao, W.; Zhu, C.	Automatic business process modeling method based on large language models; 基于大语言模型的业务流程自动建模方法	2025	Jisuanji Jicheng Zhizao Xitong/Computer Integrated Manufacturing Systems, CIMS	31	6	2001	2014	10.13196/j.cims.2024.0399	Focus on generating models from data in processes
Hoseini, S.; Herrmann, V.; Quix, C.	End-To-End ML with LLMs and Semantic Data Management: Experiences from Chemistry 4.0	2025	ACM DL					10.1145/3735654.3735942	Specific application in chemical engineering
Park, H.; Oh, H.; Gao, F.; Kwon, O.	Enhancing Analytic Hierarchy Process Modelling Under Uncertainty With Fine-Tuning LLM	2025	Expert Systems	42	6			10.1111/exsy.70051	addresses conceptual model outside the scope (hierarchy process models)
Cohen, G.	The next decade of industrial process modeling	2025	Control	38	3	12	13		overview paper; no substantial technical contribution to our scope
Voelter, M.; Hadian, R.; Kampik, T.; Breitmayer, M.; Reichert, M.	Leveraging Generative Vision Models for Extracting Process Models from Documents	2025	Lecture Notes in Business Information Processing	534 LNBP		271	282	10.1007/978-3-031-78666-2	addresses conceptual model outside the scope (vision models)
Greif, L.; Elstermann, M.	The Role of Large Language Models in Evolving Digital Landscapes: A Subject-Oriented Analysis	2025	Smart Innovation, Systems and Technologies	414		111	124	10.1007/978-981-97-8598-8	does not address conceptual modeling
Wenger, S.; Spahic-Bogdanovic, M.; Martin, A.	Large Language Models for Democratizing Business Process Modeling: BPMN Model Generation and Style Guide Adherence	2025	Communications in Computer and Information Science	2326 CCIS		372	389	10.1007/978-3-031-78255-8	focus on specific aspects of LLM use in process modeling: democratizing + style guide
Maamar, Z.; Benna, A.; Burégio, V.; Lopes, W.; Hafsi, A.; Ben Nijma, C.; Guégan, C.G.	Data- and Activity-Centric Business Process Modeling: An Approach Based on Business Units	2025	Lecture Notes in Computer Science	15436 LNCS		337	351	10.1007/978-981-96-0579-8	No LLM focus; address alternative BPM approach
Nouzri, S.; El Fatimi, M.; Guerin, T.; Othmane, M.; Najjar, A.	Beyond Chatbots: Enhancing Luxembourgish Language Learning Through Multi-agent Systems and Large Language Model	2025	Lecture Notes in Computer Science	15395 LNAI		385	401	10.1007/978-3-031-77367-9	specific focus on Luxembourgish; relevant contributions of authors already represented in other paper
Prokop, D.; Stenclak, Š.; Škoda, P.; Klímek, J.; Nečáský, M.	Enhancing Domain Modeling with Pre-trained Large Language Models: An Automated Assistant for Domain Modelers	2025	Lecture Notes in Computer Science	15238 LNCS		235	253	10.1007/978-3-031-75872-0	addresses conceptual model outside the scope (domain model)
Ali, S.J.; Reinhart-Berger, I.; Bork, D.	How are LLMs Used for Conceptual Modeling? An Exploratory Study on Interaction Behavior and User Perception	2025	Lecture Notes in Computer Science	15238 LNCS		257	275	10.1007/978-3-031-75872-0	focus on specific aspects of LLM use in modeling: user interaction
Piller, C.	Meta-prompt Engineering in ChatGPT-4 for AI-Generated BPM Reference Models	2025	Communications in Computer and Information Science	2206 CCIS		315	331	10.1007/978-3-031-72041-3	focus on specific aspects of LLM use in process modeling: meta-prompts
Lee, S.-Y.; Law, M.; Hoffman, G.	When and How to Use AI in the Design Process? Implications for Human-AI Design Collaboration	2025	International Journal of Human-Computer Interaction	41	2	1569	1584	10.1080/10447318.2024.235	Human - AI interaction, no modeling

Lin, L.; Jin, Y.; Zhou, Y.; Chen, W.; Qian, C.	MAO: A Framework for Process Model Generation With Multi-Agent Orchestration	2025	IEEE Transactions on Services Computing	18	6	3987	4000	10.1109/TSC.2025.3611816	focus on BPMN and agent orchestration
Saeedizade, M.J.	Large Language Models as Assistants for Ontology Engineering	2025	CEUR Workshop Proceedings	4085					focus on LLM and ontology engineering
Filep, R.M.; Molnár, B.	Artificial intelligence in business process modelling: A structured overview of trends, challenges and future research direction	2025	IEEE Xplore			295	300	10.1109/SISY67000.2025.112	overview paper; no substantial technical contribution to our scope
Ghavanati, S.; Ki-Aries, D.; Lee, S.-W.; Salnitri, M.	Welcome to the Twelfth International Workshop on Evolving Security and Privacy Requirements Engineering (ESPRe'25)	2025	IEEE Xplore			208		10.1109/REW66121.2025.00	Preface / Welcome note
Chernigovskaya, M.; Walia, D.S.; Neumann, K.; Hardt, A.; Nahhas, A.; Turowski, K.	Towards a Standardized Business Process Model for LLMOps	2025	International Conference on Enterprise Information Systems, ICEIS - Proceedings	1		856	866	10.5220/0013377700003929	Focus on modeling LLMOps
Dolha, D.-N.; Osman, C.-C.; Chis, A.	KM4ESG: BPMN and AI-powered knowledge management platform for ESG analysis and reporting	2025	CEUR Workshop Proceedings	4050					Specific application in economics / sustainability
Safan, A.; Köpke, J.	BPMN-Chatbot+: LLM-Based Modeling of Collaboration Diagrams with Data	2025	CEUR Workshop Proceedings	4032		296	303		specific focus on collaboration diagrams; relevant contributions of authors already represented in other paper
Gavric, A.; Bork, D.; Proper, H.A.	Surgery AI: Multimodal Process Mining and Mixed Reality for Real-time Surgical Conformance Checking and Guidance	2025	CEUR Workshop Proceedings	4030		48	55		application focus on medical area; technical focus on process mining
Li, S.; Liu, Z.; Liu, X.; Chen, G.; Zhang, Y.; Ling, H.; Huang, X.	Structured Extraction and BPMN Generation From Chinese Procedural Texts via Hybrid Attention-Based Domain Language Models	2025	IEEE Access	13		166241	166253	10.1109/ACCESS.2025.36118	Specific application and generation task (chinese language)
Chemingui, H.	Reimagining Business Processes with Large Language Models	2025	IEEE Xplore			1291	1296	10.1109/COMP5AC65507.20	Focus on integration of unstructured data sources and BPM models
Berezovsky, V.; Sluzova, N.; Vahrushev, A.; Gubkin, D.; Potyomin, V.	Intelligent Support and Modeling of Organizational Structure Redesign for Micro and Small Businesses based on Large Language Models and Fuzzy	2025	Lecture Notes in Networks and Systems	1529 LNNS		535	543	10.1007/978-3-031-97992-7	Specific application in economics / conceptual model out of scope
Fang, Y.; Fan, Z.	Complex Flowchart Text Generation Based on Large Language Models	2025	IEEE Xplore			737	742	10.1109/NNICE64954.2025.1	addresses conceptual model outside the scope (flow charts)
Siebers, P.-O.	Exploring the Potential of Conversational AI Support for Agent-Based Social Simulation Model Design	2025	JASSS	28	3			10.18564/JASSS.5681	Simulation modeling
Koutsopoulos, G.; Kniby, N.; Wiman, P.; Karina-Berzina, I.; Stirna, J.	CLAIM: A Tool for Analyzing Legal Documents	2025	CEUR Workshop Proceedings	3996		11	19		Specific application in judiciary sciences
Reinhartz-Berger, I.; Ali, S.J.; Bork, D.	Leveraging LLMs for Domain Modeling: The Impact of Granularity and Strategy on Quality	2025	Lecture Notes in Computer Science	15701 LNCS		3	19	10.1007/978-3-031-94569-4	investigating quality improvement in domain modeling
Schlösser, T.; Forell, M.; Schüler, S.; Fritsch, A.	Human-AI Collaboration for Business Process Modeling with Petri Nets	2025	Lecture Notes in Business Information Processing	558 LNBIP		55	70	10.1007/978-3-031-95397-2	focus on specific aspects of LLM use in process modeling: human-AI interaction
Samarasekara, I.; Bandara, M.; Rabhi, F.; Benatallah, B.	Benchmarking LLMs for Business Architecture Modelling with Hierarchical Capability Maps	2025	Lecture Notes in Computer Science	15701 LNCS		37	53	10.1007/978-3-031-94569-4	focus on benchmarking of conceptual modeling out of scope for our work
Zampino, F.; Longo, A.	Exploring Business Process Model Similarity with LLMs: Challenges and Potentials	2025	Lecture Notes in Business Information Processing	556 LNBIP		249	256	10.1007/978-3-031-94931-9	focus on specific aspects of LLM use in process modeling: similarity of models
Cobo-Ariza, J.L.; Arregui, J.; Quintero, A.M.R.; Varela-Vaca, Á.J.; Gómez-López, M.T.	Explaining the Compliance of Security Policies for GDPR in Business Processes	2025	Lecture Notes in Business Information Processing	556 LNBIP		355	367	10.1007/978-3-031-94931-9	focus on specific aspects of process modeling: security
Calamo, M.; Mecella, M.; Snoeck, M.	Assessing the Suitability of Large Language Models in Generating UML Class Diagrams as Conceptual Models	2025	Lecture Notes in Business Information Processing	558 LNBIP		211	226	10.1007/978-3-031-95397-2	addresses conceptual model outside the scope (UML class diagrams)
Zdovkovic, J.; Stirna, J.; Tsai, C.H.	Pondering on Capability Brokering with LLM	2025	Lecture Notes in Business Information Processing	557 LNBIP		161	169	10.1007/978-3-031-94590-8	No focus on modeling / capability oriented paper
Ayad, S.; Alsayoud, F.	Dynamic Prompt-Based Framework for Pragmatic Quality Improvement in Business Process Models	2025	IEEE Access	13		107764	107782	10.1109/ACCESS.2025.35806	Focus on quality improvement, not model generation
Möller, M.	Towards the Comprehensibility of Manually, Automatically, and Semi-automatically Created Process Models: A Conceptual Framework	2025	Lecture Notes in Business Information Processing	557 LNBIP		294	301	10.1007/978-3-031-94590-8	focus on specific aspect of LLM use: comprehensibility
Chis, A.	A Modeling Method for Work Systems Knowledge Capture and Traceability	2025	Lecture Notes in Business Information Processing	557 LNBIP		239	246	10.1007/978-3-031-94590-8	focus on specific aspect of LLM use: work systems
Toxtli, C.; Li, W.	Automating Automation: Using LLMs to Generate BPMN Workflows for Robotic Process Automation	2025	Communications in Computer and Information Science	2252 CCIS		221	229	10.1007/978-3-031-86623-4	focus on specific aspects of process modeling: RPA
Tang, C.; Huang, D.; Dong, W.; Xu, R.; Zhang, H.	FoundationGrasp: Generalizable Task-Oriented Grasping With Foundation Models	2025	IEEE Transactions on Automation Science and Engineering	22		12418	12435	10.1109/TASE.2025.3542418	Focus on Foundation models, not on their usage in modeling

Klievtsova, N.; Benzin, J.-V.; Mangler, J.; Kampik, T.; Rinderle-Ma, S.	Process Modeler vs. Chatbot: Is Generative AI Taking over Process Modeling?	2025	Lecture Notes in Business Information Processing	533		637	649	10.1007/978-3-031-82225-4	overview/discussion paper; relevant contributions of others already
Gao, S.; Liu, W.; Zhu, J.; Dong, X.; Dong, J.	Business Process Modeling Notation-Large Language Model: Transforming Business Processing Modeling Notation Models Into Smart Contracts Using	2025	IEEE Software	42	4	50	57	10.1109/MS.2025.3553293	Specific application in judiciary sciences
Ayad, S.; Alsayoud, F.	Prompt engineering techniques for semantic enhancement in business process models	2024	Business Process Management Journal	30	7	2611	2641	10.1108/BPMJ-02-2024-0108	Focus on enhancement of models
Kogler, P.; Chen, W.; Falkner, A.; Haselböck, A.; Wallner, S.	Modelling Engineering Processes in Natural Language: A Case Study	2024	ACM DL			170	178	10.1145/3646548.3672584	Specific application in engineering sciences
Maletzki, C.; Rietzke, E.; Bergmann, R.	Empowering Large Language Models in Hybrid Intelligence Systems through Data-Centric Process Models	2024	AAAI 2024 Proceedings	3	1	167	174	10.1609/aaais.v3i1.31196	No focus on conceptual modeling but on hybrid AI
Voelz, A.; Kiesenhofer, D.; Karagiannis, D.	Decreasing the Design Complexity of Cyber-Physical Systems through Conceptual Modeling: The Robot Abstraction Method	2024	IEEE Xplore					10.1109/WF-IoT62078.2024	Specific application focus on cyber-physical systems
Ayad, S.; Alsayoud, F.	Improving BPMN XOR Gateway Labels through Dynamic Prompt Engineering	2024	Proceedings of the International Conference on Microelectronics, ICM					10.1109/ICM63406.2024.108	investigating quality improvement in BPMN
Coutinho, M.L.	Leveraging LLMs in text-based ontology-driven conceptual modeling	2024	CEUR Workshop Proceedings	3882					focus on LLM and ontologies in conceptual modeling
Hull, R.; Bishop, M.; Gendreau, J.; Levitt, K.; Sadoghi, M.; Lange, M.	Conceptual modeling to advance agrifood cybersecurity ontologies	2024	CEUR Workshop Proceedings	3882					Specific application in agriculture and security
Koteczki, R.; Balassa, B.E.; Csikor, D.	Optimizing Human Resources for Efficiency and Sustainability through Business Process Modelling with Large Language Models	2024	Chemical Engineering Transactions	114		499	504	10.3303/CET24114084	Specific application in chemical engineering
Jung, J.; Wienke, P.	Generating Business Capability Maps using GenAI: A Case Study	2024	CEUR Workshop Proceedings	3855					addresses conceptual model outside the scope (capability maps)
Daclin, N.; Mallek-Daclin, S.; Zacharewicz, G.	Generative AI for Business Model Generation (GAI4BM): from Textual Description to Business Process Model	2024	Proceedings of the International Food Operations and Processing Simulation Workshop, FOODOPS		2024-September			10.46354/i3m.2024.foodops	Focus limited to application in food industry
Nagel, S.; Wolters, A.; Riehle, D.M.; Delfmann, P.	EduClare – An Intelligent Tutoring Chatbot for Teaching Declarative Process Modeling	2024	CEUR Workshop Proceedings	3783					Specific application in education
Iga, V.-I.-R.	Integrating LLMs with Knowledge Graphs-enhanced Task-Oriented Dialogue Systems	2024	CEUR Workshop Proceedings	3767		40	51		Technical focus on LLM and knowledge graphs, not on modeling
Köpke, J.; Safan, A.	Introducing the BPMN-Chatbot for Efficient LLM-Based Process Modeling	2024	CEUR Workshop Proceedings	3758		86	90		early version of later published paper; relevant contributions of authors already represented in other paper
Sandkuhl, K.	LLM-Assistance for Quality Control of LLM Output	2024	Lecture Notes in Business Information Processing	529 LNBIP		36	50	10.1007/978-3-031-71333-0	focus on quality control of LLM
Ziche, C.; Apruzzese, G.	LLM4PM: A Case Study on Using Large Language Models for Process Modeling in Enterprise Organizations	2024	Lecture Notes in Business Information Processing	527 LNBIP		472	483	10.1007/978-3-031-70445-1	Focus on case study and guidelines
Lopes, R.; Araújo, J.; da Silva, D.S.; Sardinha, A.	A Systematic Approach to Derive Conceptual Models from BPMN Models	2024	Lecture Notes in Business Information Processing	523 LNBIP		83	96	10.1007/978-3-031-64073-5	Focus on BPMN to conceptual models
Kourani, H.; Berti, A.; Schuster, D.; van der Aalst, W.M.P.	ProMoAI: Process Modeling with Generative AI	2024	IJCAI International Joint Conference on Artificial Intelligence			8708	8712		overview/discussion paper; relevant contributions of authors already represented in other paper
Minor, M.; Kaucher, E.	Retrieval Augmented Generation with LLMs for Explaining Business Process Models	2024	Lecture Notes in Computer Science	14775 LNAI		175	190	10.1007/978-3-031-63646-2	focus on technical feature of LLM (RAG)
Kato, S.; Kano, M.	Prototype of Automated Physical Model Builder: Challenges and Opportunities	2024	Computer Aided Chemical Engineering	53		2839	2844	10.1016/B978-0-443-28824-1	Specific application in chemical engineering
Merunka, V.; Wijekoon, H.; Beránek, P.	Conceptual Data Normalisation from the Practical View of Using Graph Databases	2024	Lecture Notes in Business Information Processing	521		241	252	10.1007/978-3-031-61003-5	No LLM focus and no modeling focus
Bertetto, L.; Bettinelli, F.; Buda, A.; da Mommio, M.; Di Bari, S.; Savelli, C.; Baralis, E.; Bernasconi, A.; Cagliero, L.; Ceri, S.; Pierri, F.	Towards an Explorable Conceptual Map of Large Language Models	2024	Lecture Notes in Business Information Processing	520 LNBIP		82	90	10.1007/978-3-031-61000-4	Uses conceptual map to structure LLM properties
Ayad, S.; Alsayoud, F.	Exploring ChatGPT Prompt Engineering for Business Process Models Semantic Quality Improvement	2024	Lecture Notes in Networks and Systems	987 LNNS		412	422	10.1007/978-3-031-60221-4	investigating quality improvement for BPM

Christ, P.; Munkelt, T.; Haake, J.M.	Generalized Automatic Item Generation for Graphical Conceptual Modeling Tasks	2024	International Conference on Computer Supported Education, CSEDU - Proceedings	1	807	818	10.5220/0012753200003693	addresses conceptual model outside the scope (hierarchy process models)
Kudryavtsev, D.	AI-driven Digital Business Design Assistant: A Prototype Demo	2024	CEUR Workshop Proceedings	3621				Demo paper; focus on business design, not modeling
Sitapure, N.; Kwon, J.S.-I.	Exploring the potential of time-series transformers for process modeling and control in chemical systems: An inevitable paradigm shift?	2023	Chemical Engineering Research and Design	194	461	477	10.1016/j.cherd.2023.04.028	Specific application in chemical engineering
Herdy, J.R.	ChatGPT Artificial Intelligence Responses via Exercises for Extremely Divergent Subjects such as the Process Management Tool Vdot and Neutrinos from Black Holes	2023	AIAA / ARC				10.2514/6.2023-4739	Specific application in physics
Köseoğlu, M.C.; Yercan, H.F.	Conceptual Modelling of the Use of Artificial Intelligence in Maritime Education and Training: An Exploratory Approach	2023	Proceedings of the International Association of Maritime Universities Conference	2023-October				Specific application in education
Lins, L.F.; Nascimento, N.; Alencar, P.; Oliveira, T.; Cowan, D.	Comparing Generative Chatbots Based on Process Requirements: A Case Study	2023			4664	4673	10.1109/BigData59044.2023	Focus on comparing chatbots
Simon, C.; Haag, S.; Zakfeld, L.	Experiments on GPT-3 Assisted Process Model Development	2023	Proceedings - European Council for Modelling and Simulation, ECMS	2023-June	270	276	10.7148/2023-0270	Experience report for GPT-3; no relevant technical contribution
Lebedevas, S.; Daukšys, V.; Jonika, L.	Adapting a One-Dimensional Mathematical Model to the Dual Fuel Engine In-Cylinder Processes Modelling	2020	Lecture Notes in Intelligent Transportation and Infrastructure	Part F1380	407	414	10.1007/978-3-030-38666-5	Specific application in mechanical engineering
Nour Eldin, A.; Assy, N.; Anesini, O.; Dalmas, B.; Gaaloul, W.	Nala2BPMN: Automating BPMN Model Generation with Large Language Models	2025	Lecture Notes in Computer Science	15506 LNCS	398	404	10.1007/978-3-031-81375-7	short paper; relevant contributions of authors contained in full paper