



Workflow architecting: A new construct in the age of AI-enabled systems

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Agenda

Introduction and motivations

Workflow architecting construct

Analysis of theoretical grounding, approaches, and gaps

Discussion

Contributions and conclusion

AI adoption is widespread and rapid, but it's often unclear how to turn the investment into value

INTRODUCTION

CLEAR INVESTMENTS, UNCLEAR RETURNS...

Companies Are Pouring Billions Into A.I. It Has Yet to Pay Off.

New York Times, August 2025¹

Only 6% Of Companies Get Value From AI. Here's What They Do Differently

Forbes, September 2026²

Companies Are Spending More on AI Even as Returns Fall Short

Bain & Company, June 2026³

Your AI Budget Is Growing. Your Returns Aren't. Here's Why.

Bain & Company, June 2026⁴

Companies Struggle to Explain Their Own AI Investment Returns

Wall Street Journal, September 2026⁵



**TRUSTWORTHY
AI INITIATIVE**

Source: 1: Lohr (2025); 2: Koetsier (2026); 3: Heric (2026); 4: Heric et al. (2026); 5: Bousquette (2026); 6: Mollick (2026); 7: Anthropic (2026); 8: OpenAI (May 2026)

...BUT WHY?



Ethan Mollick
@emollick



When I talk to senior managers, increasingly hearing stories of the blurring of jobs inside organizations (we found this at our P&G study as well): coding, design, product management, all collapsing & overlapping as everyone uses AI

We need new models for organizing work, fast.

Ethan Mollick, September 2026⁶

Building a new enterprise AI services company with Blackstone, Hellman & Friedman, and Goldman Sachs

Anthropic, May 2026⁷

OpenAI launches the OpenAI Deployment Company to help businesses build around intelligence

OpenAI, May 2026⁸

trustworthyai.gwu.edu

Huffman et al. // AI4SE and SE4AI 2026

AI adoption is widespread and rapid, but it's often unclear how to turn the investment into value

INTRODUCTION



INDIVIDUALS

- AI tool integration within existing work did not provide “meaningful shifts in workers’ tasks or ... reorganize work” albeit some time efficiency gains¹
- Pairing humans and AI together does not guarantee higher performance²



ORGANIZATIONS

- Rapid adoption of AI across organizations often hasn't resulted in value³⁻⁷
- Firms seeing ROI have often embarked on simultaneous organizational transformations, reevaluating work processes, training, and infrastructure⁸⁻⁹

DISTINCT OPPORTUNITIES FOR AI INTEGRATION INTO WORK

Incorporate AI within an existing workflow by supporting a human actor or offloading some of the work to an AI tool or agent

Reconsider the work and workflow themselves given a change in the capabilities available to perform it



Allocation of work is now an explicit work-structure consideration between an individual's tasks and organizational processes; a level with no owner or name

LITERATURE REVIEW



Dividing work between humans and machines was once inferable

- Isolated capability-based matching (HABA-MABA)¹⁻²
- Routine tasks to capital, non-routine to humans (RBTC)³
- Mechanization → deterministic software → ML / narrow prediction³⁻⁵



Looking back, automation displaced and created work

- Post-hoc studies find labor displacement and reinstatement⁶⁻⁸
- New tasks, roles, and work emerge (e.g., clerical and managerial jobs with agricultural mechanization)⁶⁻⁸
- Process changes followed technology change⁹⁻¹⁰



AI breaks the delineation and entangles the work

- AI capabilities continue to expand across domains, incl. knowledge work¹¹⁻¹⁷
- AI's capabilities are “jagged” and hard to identify before use¹⁴
- Collaboration and shared decision making require work to be further broken down¹⁸⁻¹⁹

Semantic review of “workflow” finds various definitions

Scholarship	Workflow management and business process management define a workflow through specified activities and their execution sequence ¹⁻⁴
Industry	" 7á ä~i ègé^ i k q s kkäs q { ^ékäs^zã ~pék i k p k î ~äy pî ã ^ã ^ kñkgèés~ v~äsk éki ~f xkgé~py ~i Øä äki k p ki ãéká ä é ^èé~{ ^ék äk á k ééä k î ~äy ^{£b}



OUR DEFINITION

A workflow is an outcome-directed process with a beginning and end that is composed of tasks executed by actors who coordinate with one another and with supporting resources and tools

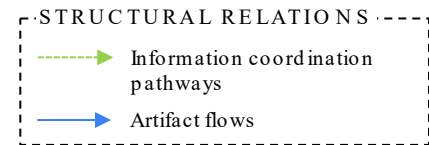
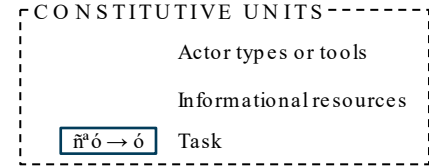
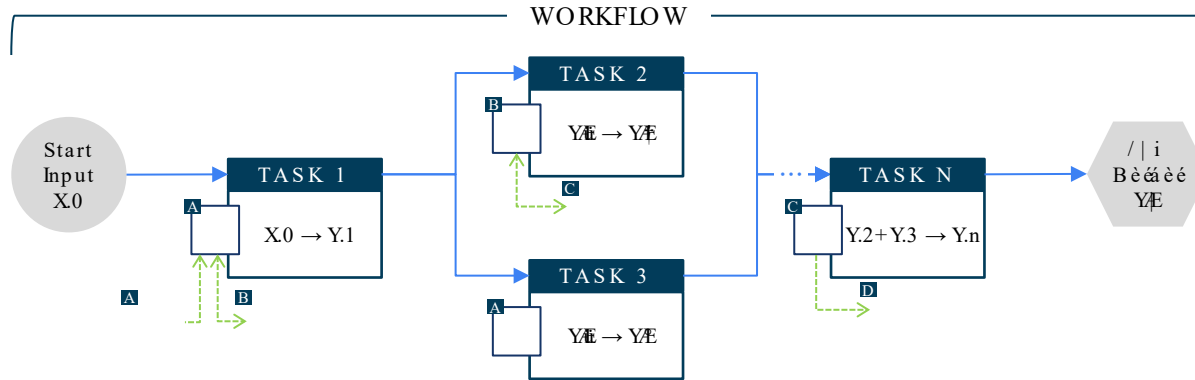
Pr k i kãsäki ~èég~{ k ~pér k î ~äy sä i k p ki Ø è éér k áá kgs p g î ~äy ^| i ér k kñkgèés~| g~| p q è ä^és~| | k g kãä^áo é á ä~i è g k sé sã ^| ~á k| i kãsq| î ^äs^f z k Ø k g kãäsé^és| q ^ äk á äk äk| é^és~| ~pér k g~| | k géki Ø~s| ézö g~| p q è äki ãéè gèè ä^z^éäsf è ék ä ~p^ î ~äy pî

We assert workflow architecting (WA) as a distinct layer in AI integration in sociotechnical processes to jointly determine the elements of a workflow

CONSTRUCT

DEFINITION

A workflow is an outcome-directed process with a beginning and end that is composed of tasks executed by actors who coordinate with one another and with supporting resources and tools

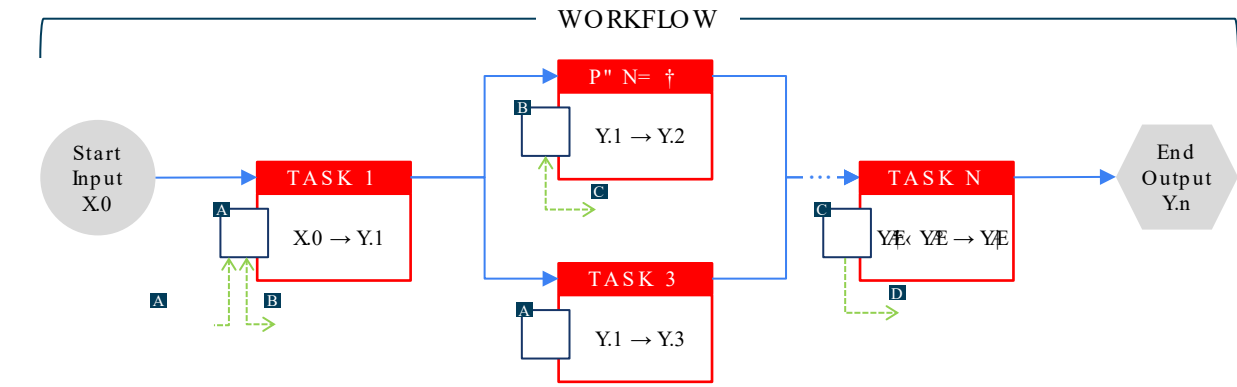


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CONSTRUCT

DEFINITION

" i ~äy ɿ i sã ^| ~èég~{ k v̄ sãk gēki áã~gkãã i sēr ^ f k q s | s q ^| i k | i ér ^é sã g~{ á~ãki ~pé^äyã kñk gēēki f ó ^g é~ãã i r~ g~ã i s̄ ^ēk i sēr ~| k ^| ~ér kã ^| i i s̄r æè á á~æ s̄ q äkã~è ägkã ^| i é~ã



Tasks

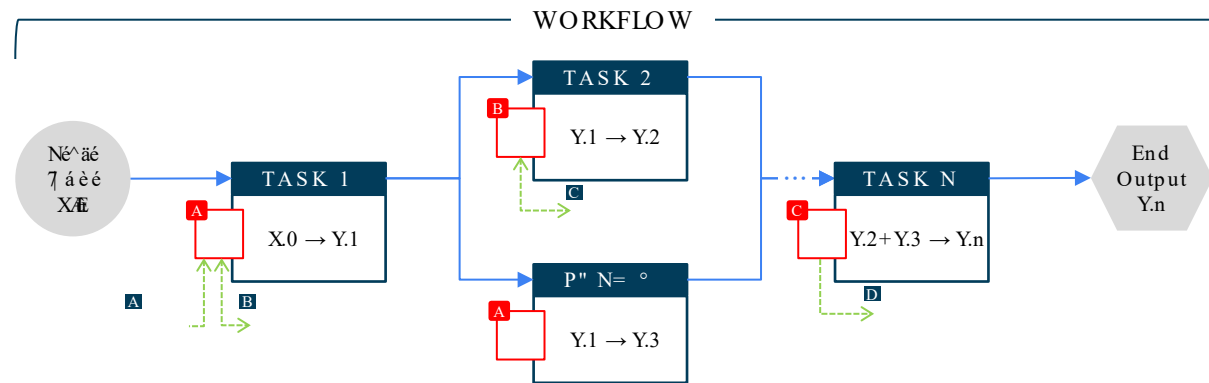
Bounded segments of work with defined inputs and outputs that can be carried out by a single assigned actor type

We assert workflow architecting (WA) as a distinct layer in AI integration in sociotechnical processes to jointly determine the elements of a workflow

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DEFINITION

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Actor types

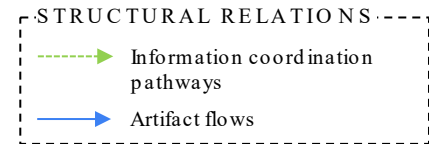
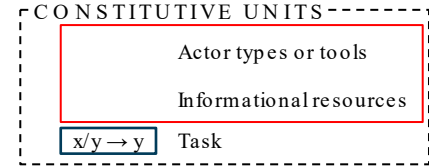
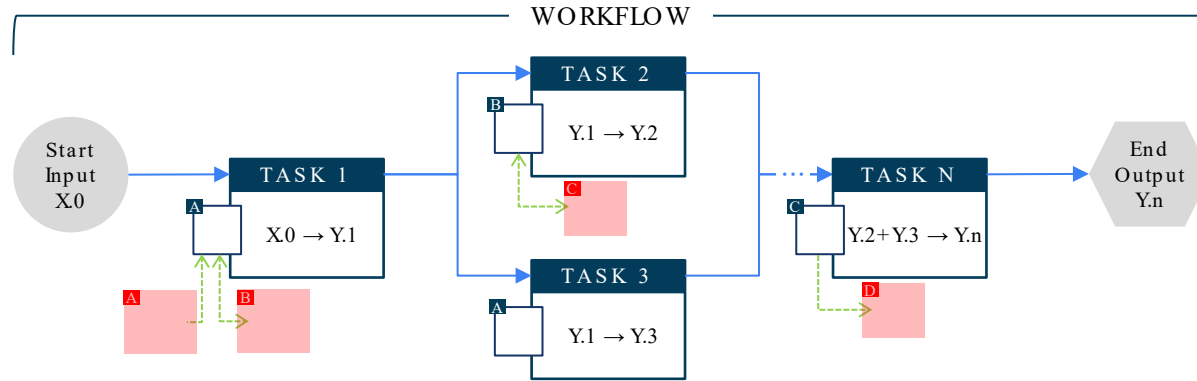
A category of performer, such as humans, software tools, and AI agents, that can be assigned responsibility for processing work and has respective skills and expertise capabilities

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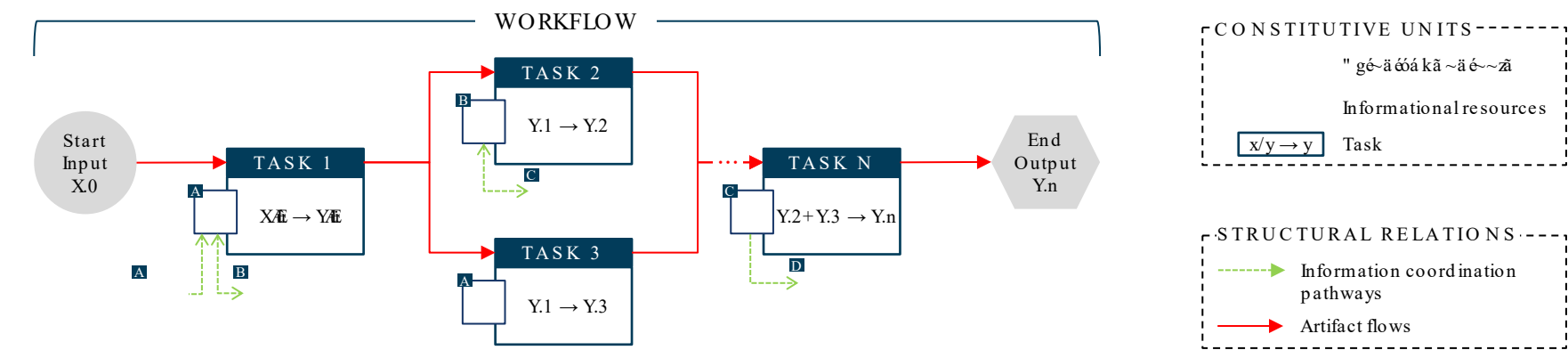
7 p-ä{ ^és~| ^zé~zã
^| i äkã~èägkã

Informational or functional objects that actors can access as they carry out assigned tasks: resources are reference information sets; tools are functional objects

Wk ^ããkæi ~äy ¶~i ^ägr sêk gés| q ΩW" æ^ã ^ i sãés| géz^ókä s| " 7s| êkqä^és~| s|
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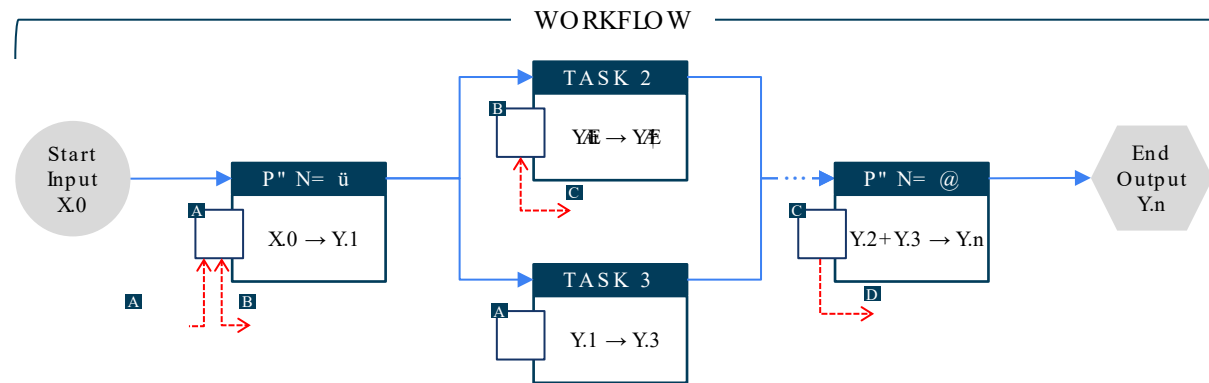
" äësp^gé ¶~i ã
The flow of work artifacts, the collective transformation of inputs into outputs, between tasks

We assert workflow architecting (WA) as a distinct layer in AI integration in sociotechnical processes to jointly determine the elements of a workflow

CONSTRUCT

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CONSTITUTIVE UNITS

Actor types or tools

Informational resources

$x/y \rightarrow y$

$P \wedge y$

STRUCTURAL RELATIONS

Information coordination pathways

Artifact flows

Information coordination pathways

The flow of coordination information among actor types, informational resources, and tools to manage dependencies

Workflow architecting enables representation of multiple architectural configurations

CONSTRUCT

/ ILLUSTRATIVE

Overview

Conditions held constant

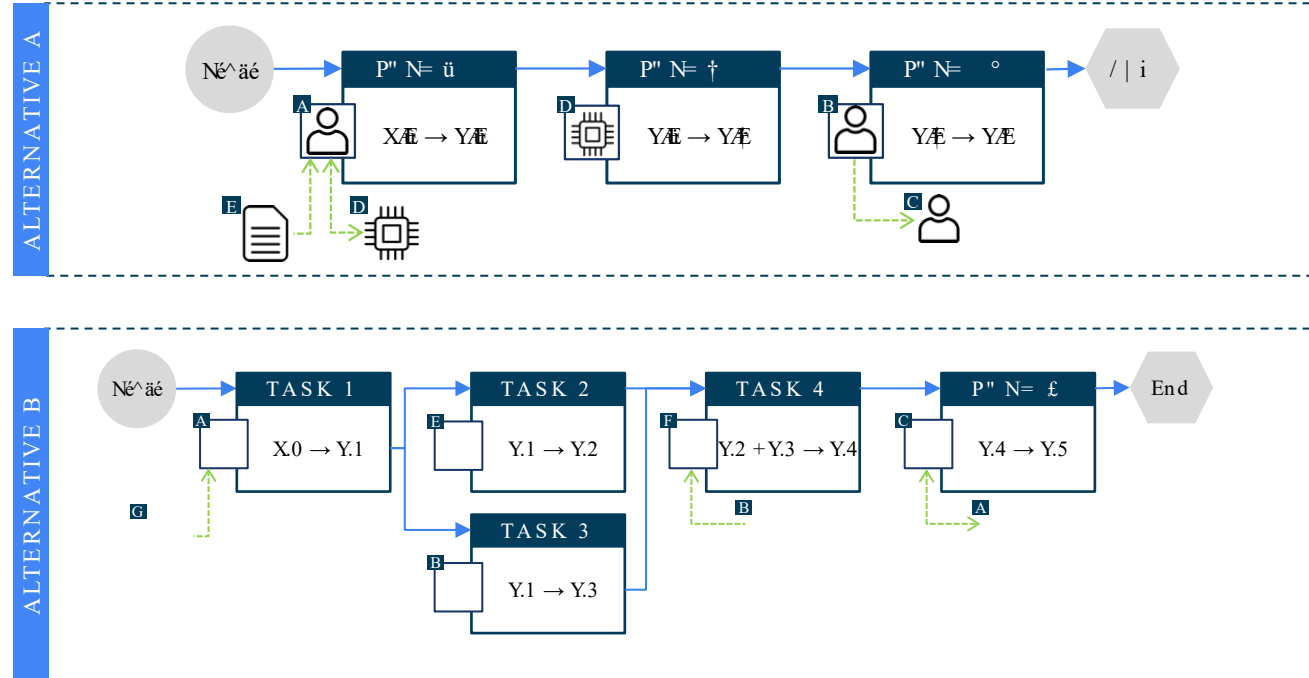
- Workflow's beginning, end, desired outcome, and its level of abstraction

Enumeration

- Number of potential architectures is very large (e.g., each decomposition provides a new option for assignment and relations)

Trade-offs

- Achieving the specified workflow outcome does not make their performance equivalent¹⁻³



Our purposive review finds that no single tradition views all elements of workflow architecting together or with the same level of representation

SYNTHESIS

/ OVERVIEW

Key grounding in the reviewed literature

Scholarly perspective	Tasks	Actor types	Resources and tools	Artifact flows	Info. coord. pathways
Process-based task economics	●	●	-	-	-
Human factors and cognitive systems eng.	-	●	●	-	●
Hierarchical task analysis	●	-	-	-	-
Coordination theory	○	○	●	●	●
Business process redesign	●	-	●	●	●
Workflow management systems	○	●	●	●	●
Enterprise architecture	●	-	●	-	-
Systems architecting	●	●	●	●	●

KEY

● DIRECT

Direct mapping of the element to the construct

● PARTIAL

Similar concept to the construct element; however, its definition, scope, granularity, or analytical role differs

○ IMPLICIT

Acknowledged or assumed but fixed, predefined, or backgrounded; relates to construct, but not specifically engaged

- OUTSIDE CORE FOCUS

Not directly engaged within the perspective's analytical lens

Tasks | WA defines a task as a bounded unit that results from decomposition that is carried out by a single assigned actor type

DEEP DIVE

/ SAMPLE

Overview

DEFINITION

Bounded segments of work with defined inputs and outputs that can be carried out by a single assigned actor type

ARCHITECTING DECISION Decomposition

The act of segmenting work within a workflow into tasks with defined inputs and outputs

Key grounding in the reviewed scholarship

● Systems architecting

- Q| sēā ~pī ~āy ^āk { ~i èkā pī~ {
i kg~{ á~āsē~| Ø r sgr r ^ā { è zēā zē
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- Jākpkāki i kg~{ á~āsē~| î ^āskā ī sē
ér k g^ā^f sēkā ~pér k ā~ā kāā ^î^s^f z[°]

○ Coordination theory

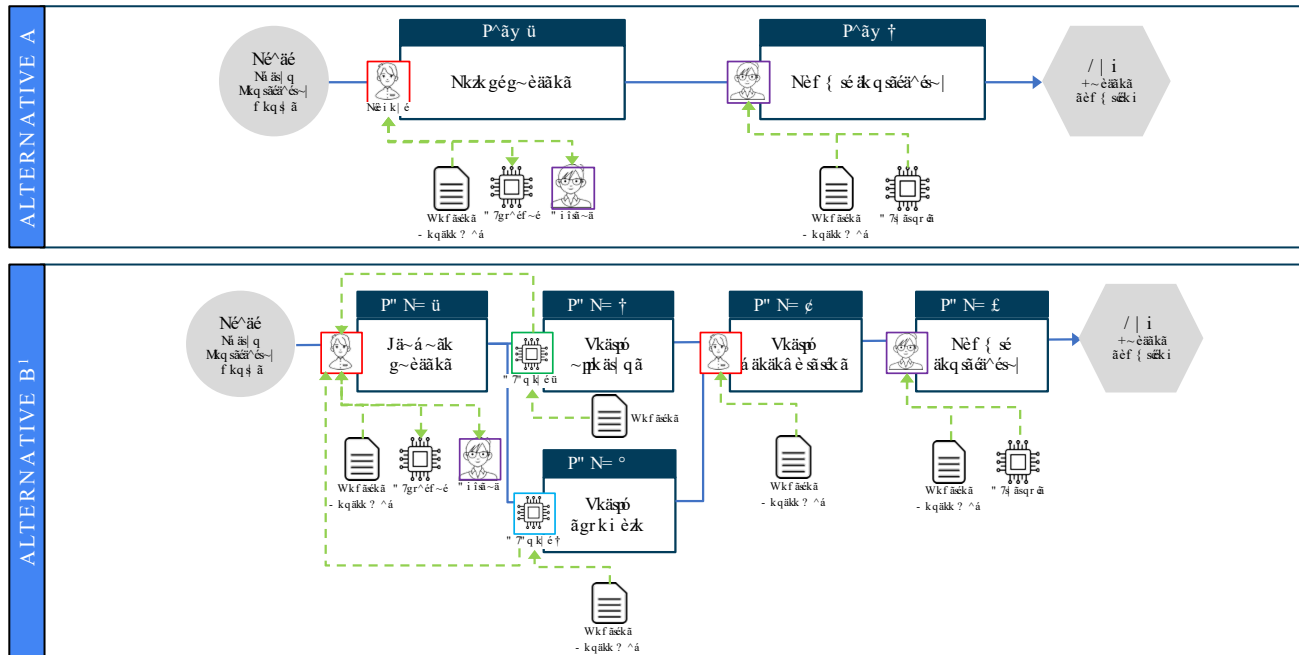
- Activities are bounded units that exist prior to analysis; also referred to as tasks⁵⁻⁶
- Activities are further broken down when required as a mechanism for managing task-subtask dependencies⁶

Systems architecting varies the decomposition at a module level while coordination theory takes the activities as given and only breaks them down to manage a dependency

Without re-evaluating the tasks within a workflow, alternatives would only differ in assignment rather than across the joint work structure

DISCUSSION

Workflow architecting example: Course registration



Limitations



- Purposive, non-exhaustive review of each tradition
- Construct is conceptual and not yet illustrated with an empirical case
- A framework for operationalizing the construct is not yet specified

Conclusion and next steps

Key
Contribution

W~äy ƿ~ī ^ägr sēkgés| q i k ƿ ki ^ā ^ i sāés| géz^ókäi sér sēā kzk { k| ēā ^ā ^| ş ēkqā^ēki ākƿkāk| gk
~f ƿgér ^î ş q ār ^āki î~g^f èz^áo é~ k| ^f ƿk ^| ^zōāsā ^| i gè { èz^ēi k ér k~áo f èsi ş q

CONCLUSIONS

- 1 Structuring work between humans and AI together is an active decision
- 2 No single reviewed tradition holds all five elements under one lens
- 3 Naming workflow architecting makes alternative structures for the same workflow representable and comparable

FUTURE WORK

- Establish a framework for operationalizing the workflow architecting construct, explicitly defining the architecting processes
- Illustrate the construct via empirical studies of real-world sociotechnical workflow architecting
- Theoretical or empirical studies identifying performance trade-offs across architectures

References (1/2)

1. Acemoglu D, Autor D. Skills, tasks and technologies: Implications for employment and earnings. In: Handbook of Labor Economics. Vol4. Elsevier; 2011:1043-1171. doi:10.1016/S0169-7218(11)02410-5
2. Acemoglu D, Restrepo P. The race between man and machine: Implications of technology for growth, factor shares, and employment. *Am Econ Rev*. 2018;108(6):1488-1542. doi:10.1257/aer.20160696
3. Acemoglu D, Restrepo P. Automation and new tasks: How technology displaces and reinstates labor. *J Econ Perspect*. 2019;33(2):3-30. doi:10.1257/jep.33.2.3
4. Agrawal A, Gans JS, Goldfarb A. Artificial intelligence: The ambiguous labor market impact of automating prediction. *J Econ Perspect*. 2019;33(2):31-50. doi:10.1257/jep.33.2.31
5. Ales L, Combemale C, Fuchs ERH, Whitefoot KS. How it's made: A general theory of the labor implications of technology change. SSRN. Preprint posted online April 5, 2024. doi:10.2139/ssrn.4615324
6. Anthropix. Building a new enterprise AI services company. May 4, 2026. Accessed September 16, 2026. <https://www.anthropix.com/news/enterprise-ai-services-company>
7. Anthropix. Building effective AI agents. December 19, 2024. Accessed August 31, 2026. <https://www.anthropix.com/engineering/building-effective-agents>
8. Autor DH. Why are there still so many jobs? The history and future of workplace automation. *J Econ Perspect*. 2015;29(3):3-30. doi:10.1257/jep.29.3.3
9. Autor DH, Levy F, Murnane RJ. The skill content of recent technological change: An empirical exploration. *Q J Econ*. 2003;118(4):1279-1333. doi:10.1162/003355503322552801
10. Autor D, Chin C, Salomons A, Seegmiller B. New frontiers: The origins and content of new work, 1940-2018. *Q J Econ*. 2024;139(3):1399-1465. doi:10.1093/qje/qjae008
11. Beauchene V, Duranton S, Martin D, Lyon V, Walters J. AI at work: Strategy matters more than tools. BCG Global. June 3, 2026. Accessed September 11, 2026. <https://www.bcg.com/publications/2026/ai-at-work-why-strategy-matters-more-than-tools>
12. Bengio Y, Clare S, Prunkl C, et al. International AI Safety Report 2026. arXiv. Preprint posted online February 24, 2026. doi:10.48550/arXiv.2602.21012
13. Bousquette I. Companies struggle to explain their own AI investment returns. *Wall Street Journal*. September 16, 2026. Accessed September 16, 2026. <https://www.wsj.com/cio-journal/companies-struggle-to-explain-their-own-ai-investment-returns-0d95c3fe>
14. Boussiou L, Lane JN, Zhang M, Jacimovic V, Lakhani KR. The crowdless future? Generative AI and creative problem-solving. *Organ Sci*. 2024;35(5):1589-1607. doi:10.1287/orsc.2023.18430
15. Browning TR. Applying the design structure matrix to system decomposition and integration problems: A review and new directions. *IEEE Trans Eng Manage*. 2001;48(3):292-306. doi:10.1109/17.946528
16. Christoffersen K, Woods D. How to make automated systems team players. In: *Advances in Human Performance and Cognitive Engineering Research*. Vol2. Elsevier; 2002:1-12. doi:10.1016/S1479-3601(02)02003-9
17. Combemale C, Whitefoot KS, Ales L, Fuchs ER. Not all technological change is equal: Disentangling labor demand effects of automation and parts consolidation. SSRN Journal. Published online 2020. doi:10.2139/ssrn.3291686
18. Cranshaw J, Elwany E, Newman T, et al. Calendar.help: Designing a workflow-based scheduling agent with humans in the loop. In: *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. ACM; 2017:2382-2393. doi:10.1145/3025453.3025780
19. Crowston K. A coordination theory approach to organizational process design. *Organ Sci*. 1997;8(2):157-175. doi:10.1287/orsc.8.2.157
20. Daniels J, Werner PW, Bahill AT. Quantitative methods for tradeoff analyses. *Syst Eng*. 2001;4(3):190-212. doi:10.1002/sys.1016
21. Davenport TH, Short JE. The new industrial engineering: Information technology and business process redesign. *Sloan Manage Rev*. 1990;31(4):11-27. <https://hdl.handle.net/1721.1/48613>
22. Dell'Acqua F, McFowland E, Mollick E, et al. Navigating the jagged technological frontier: Field experimental evidence of the effects of artificial intelligence on knowledge worker productivity and quality. *Organ Sci*. 2026;37(2):403-423. doi:10.1287/orsc.2025.21838
23. Dillon E, Jaffe S, Immorlica N, Stanton C. Shifting Work Patterns with Generative AI. National Bureau of Economic Research; 2025:w33795. doi:10.3386/w33795
24. Eppinger SD, Browning TR. *Design Structure Matrix Methods and Applications*. The MIT Press; 2012. doi:10.7551/mitpress/8896.001.0001
25. Fitts PM, Viteles MS, Barr NL, et al. Human Engineering for an Effective Air-Navigation and Traffic-Control System, and Appendixes 1 through 3. National Research Council, Division of Anthropology and Psychology, Committee on Aviation Psychology; 1951.
26. Georgakopoulos D, Hornick M, Sheth A. An overview of workflow management: From process modeling to workflow automation infrastructure. *Distrib Parallel Databases*. 1995;3(2):119-153. doi:10.1007/BF01277643
27. Graetz G, Michaels G. Robots at work. *Rev Econ Stat*. 2018;100(5):753-768. doi:10.1162/rest_a_00754
28. Grefen PWPJ, Remmets de Vries R. A reference architecture for workflow management systems. *Data Knowl Eng*. 1998;27(1):31-57. doi:10.1016/S0169-023X(97)00057-8
29. Hammer M. Reengineering work: Don't automate, obliterate. *Harv Bus Rev*. 1990;68(4):104-112. Accessed September 17, 2026. <https://hbr.org/1990/07/reengineering-work-dont-automate-obliterate>
30. Heric M. Companies are spending more on AI even as returns fall short. *Bain & Company*. June 10, 2026. Accessed September 17, 2026. <https://www.bain.com/insights/companies-are-betting-bigger-on-ai-even-as-returns-fall-short-video/>
31. Heric M, Doddapaneni P, Debarre A. Your AI budget is growing. Your returns aren't. Here's why. *Bain & Company*. June 1, 2026. Accessed August 30, 2026. <https://www.bain.com/insights/your-ai-budget-is-growing-your-returns-arent-heres-why/>
32. Hoque F, Davenport T, Seade P. AI transformation requires redesigning work, not cutting roles. *Harv Bus Rev*. Published online August 28, 2026. Accessed September 11, 2026. <https://hbr.org/2026/08/ai-transformation-requires-redesigning-work-not-cutting-roles>
33. Huffman B, Starr S, Szajnfarber Z, Grady C. Beyond time and efficiency: How Human-AI architecture shapes system behavior. In: *Proceedings of the 2026 Conference on Systems Engineering Research*. International Council on Systems Engineering; 2026:In press.
34. Kim YK. Announcing the latest AI capabilities in Google Workspace with Gemini. Google Workspace Blog. April 9, 2025. Accessed August 31, 2026. <https://workspace.google.com/blog/product-announcements/new-ai-drives-business-results>
35. Klein G, Woods DD, Bradshaw JM, Hoffman RR, Feltoch PJ. Ten challenges for making automation a "team player" in joint human-agent activity. *IEEE Intell Syst*. 2004;19(6):91-95. doi:10.1109/MIS.2004.74
36. Koetsier J. Only 6% of companies get value from AI. Here's what they do differently. *Forbes*. September 16, 2026. Accessed September 16, 2026. <https://www.forbes.com/sites/johnkoetsier/2026/09/16/only-6-of-companies-get-value-from-ai-heres-what-they-do-differently/>
37. Kwa T, West B, Becker J, et al. Measuring AI ability to complete long software tasks. arXiv. Preprint posted online July 10, 2026. doi:10.48550/ARXIV.2503.14499

References (2/2)

38. Mansar S, Reijers HA. Best practices in business process redesign: Use and impact. *Bus Process Manag J*. 2007;13(2):193-213. doi:10.1108/14637150710740455
39. Lohr S. Companies are pouring billions into A.I. It has yet to pay off. *The New York Times*. August 13, 2025. Accessed September 17, 2026. <https://www.nytimes.com/2025/08/13/business/ai-business-payoff-lags.html>
40. Malik AA, Masood T, Brem A. Intelligent humanoid robots in manufacturing. In: *Companion of the 2024 ACM/IEEE International Conference on Human-Robot Interaction*. ACM; 2024:20-27. doi:10.1145/3610978.3640765
41. Malone TW, Crowston K. The interdisciplinary study of coordination. *ACM Comput Surv*. 1994;26(1):87-119. doi:10.1145/174666.174668
42. Metcalfe JS, Perelman BS, Booth DL, McDowell K. Systemic oversimplification limits the potential for human-AI partnership. *IEEE Access*. 2021;9:70242-70260. doi:10.1109/ACCESS.2021.3078298
43. Microsoft. 2026 Work Trend Index report: Agents, human agency, and opportunity. May 5, 2026. Accessed September 9, 2026. <https://www.microsoft.com/en-us/worklab/work-trend-index/agents-human-agency-and-the-opportunity-for-every-organization>
44. Mollick E [@emollick]. When I talk to senior managers, increasingly hearing stories of the blurring of jobs inside organizations (we found this at our P&G study as well): coding, design, product management, all collapsing & overlapping as everyone uses AI... We need new models for organizing work, fast. X. September 16, 2026. Accessed September 16, 2026. <https://x.com/emollick/status/2100246695766307171>
45. Montard A, Diedrich D, Catlin T. AI productivity gains and the performance paradox. McKinsey & Company. April 29, 2026. Accessed September 9, 2026. <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/where-ai-will-create-value-and-where-it-wont>
46. Mykityshyn MG, Rouse WB. Supporting strategic enterprise processes: An analysis of various architectural frameworks. *Inf Knowl Syst Manag*. 2007;6(1-2):145-175. doi:10.3233/IKS-2007-00094
47. Noy S, Zhang W. Experimental evidence on the productivity effects of generative artificial intelligence. *Science*. 2023;381(6654):187-192. doi:10.1126/science.adh2586
48. O'Brien K, Downie A, Hayes M. What is AI workflow automation? IBM Think. November 11, 2024. Accessed August 31, 2026. <https://www.ibm.com/think/topics/ai-workflow>
49. OpenAI. A practical guide to building agents. OpenAI. May 11, 2026. Accessed August 31, 2026. <https://openai.com/business/guides-and-resources/a-practical-guide-to-building-ai-agents/>
50. Parasuraman R, Sheridan TB, Wickens CD. A model for types and levels of human interaction with automation. *IEEE Trans Syst Man Cybern A Syst Hum*. 2000;30(3):286-297. doi:10.1109/3468.844354
51. Parnas DL. On the criteria to be used in decomposing systems into modules. *Commun ACM*. 1972;15(12):1053-1058. doi:10.1145/361598.361623
52. Rasmussen J. Skills, rules, and knowledge; signals, signs, and symbols, and other distinctions in human performance models. *IEEE Trans Syst Man Cybern*. 1983;SMC-13(3):257-266. doi:10.1109/TSMC.1983.6313160
53. Reijers HA, Limam Mansar S. Best practices in business process redesign: An overview and qualitative evaluation of successful redesign heuristics. *Omega*. 2005;33(4):283-306. doi:10.1016/j.omega.2004.04.012
54. Rood MA. Enterprise architecture: Definition, content, and utility. In: *Proceedings of 3rd IEEE Workshop on Enabling Technologies: Infrastructure for Collaborative Enterprises*. IEEE Comput. Soc. Press; 1994:106-111. doi:10.1109/ENABL.1994.330494
55. Rouse WB. A theory of enterprise transformation. *Syst Eng*. 2005;8(4):279-295. doi:10.1002/sys.20035
56. Rummel JL, Walter Z, Dewan R, Seidmann A. Activity consolidation to improve responsiveness. *Eur J Oper Res*. 2005;161(3):683-703. doi:10.1016/j.ejor.2003.07.015
57. Saenz H, O'Keefe D, Allen J, Kishore BN. The 2026 CEO agenda: Where ambition outpaces execution. Bain & Company. June 1, 2026. Accessed August 3, 2026. <https://www.bain.com/insights/the-2026-ceo-agenda-where-ambition-outpaces-execution/>
58. Sajadeh S, Fattorini L, Perrault R, et al. Artificial Intelligence Index Report 2026. arXiv. Preprint posted online June 2026. doi:10.48550/arXiv.2606.15708
59. Sanchez R, Mahoney JT. Modularity, flexibility, and knowledge management in product and organization design. *Strateg Manag J*. 1996;17(S2):63-76. doi:10.1002/smj.4250171107
60. Singh A, Szajnarfar Z. Architecting human-AI systems for effective collaboration and oversight: Making sense of human/AI in/on/over/under/along-the-loop. *Syst Eng*. 2026;29(2):337-353. doi:10.1002/sys.70024
61. Stanton NA. Hierarchical task analysis: Developments, applications, and extensions. *Appl Ergon*. 2006;37(1):55-79. doi:10.1016/j.apergo.2005.06.003
62. Starr S, Szajnarfar Z. Designing meaningful oversight of agentic AI systems: Experimental effects on oversight coupling on appropriate reliance. In: *Proceedings of the 2027 Conference on Systems Engineering Research*. International Council on Systems Engineering; 2027:Forthcoming.
63. Szajnarfar Z, Topcu TG, Lifshitz-Assaf H. Towards a solver-aware systems architecting framework: Leveraging experts, specialists and the crowd to design innovative complex systems. *Des Sci*. 2022;8:e10. doi:10.1017/dsj.2022.7
64. Tinkoff D, Van der Veken L, Chui M. The state of AI in 2026: On the road to ROI. McKinsey & Company; 2026. Accessed September 10, 2026. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai/#download%2F%2Fmedia%2Fmckinsey%2Fbusiness%20functions%2Fquantumblack%2Ffour%20insights%2Fthe%20state%20of%20ai%2Fthe-state-of-ai-in-2026-on-the-road-to-roi-aug-2026.pdf>
65. Topcu TG, Mukherjee S, Hennig AI, Szajnarfar Z. The dark side of modularity: How decomposing problems can increase system complexity. *J Mech Des*. 2022;144. doi:10.1115/1.4052391
66. Ulrich K. The role of product architecture in the manufacturing firm. *Res Policy*. 1995;24(3):419-440. doi:10.1016/0048-7333(94)00775-3
67. Vaccaro M, Almaatouq A, Malone T. When combinations of humans and AI are useful: A systematic review and meta-analysis. *Nat Hum Behav*. 2024;8(12):2293-2303. doi:10.1038/s41562-024-02024-1
68. van der Aalst WMP. Business process management: A comprehensive survey. *ISRN Softw Eng*. 2013;2013:1-37. doi:10.1155/2013/507984
69. van der Aalst WMP, ter Hofstede AHM, Kiepuszewski B, Barros AP. Workflow patterns. *Distrib Parallel Databases*. 2003;14(1):5-51. doi:10.1023/A:1022883727209
70. Workflow Management Coalition. Terminology & Glossary. Issue 3.0. Workflow Management Coalition; 1999. Accessed September 17, 2026. https://wfmc.org/wp-content/uploads/2022/09/TC-1011_term_glossary_v3.pdf
71. CAISI Evaluation of DeepSeek V4 Pro. NIST. May 1, 2026. Accessed August 24, 2026. <https://www.nist.gov/news-events/news/2026/05/caisi-evaluation-deepseek-v4-pro>
72. Using skills. OpenAI. July 14, 2026. Accessed August 31, 2026. <https://openai.com/academy/skills/>
73. OpenAI launches the OpenAI Deployment Company to help businesses build around intelligence. OpenAI. May 11, 2026. Accessed September 16, 2026. <https://openai.com/index/openai-launches-the-deployment-company/>
74. How do companies create value with AI? Bain & Company. June 15, 2026. Accessed September 9, 2026. <https://www.bain.com/insights/how-do-companies-create-value-with-ai/>

Thank you!

CONCLUSIONS

- 1 Structuring work between humans and AI together is an active decision
- 2 No single reviewed tradition holds all five elements under one lens
- Naming workflow architecting makes alternative structures for the same workflow representable and comparable

