Re: Initial Post

by Ruben Marques - Sunday, 25 January 2026, 9:51 AM

Hi Tahmeed,

Interesting read. I think the distinction between lack of knowledge and high cognitive load is a really fine line to walk. Your example of the Mars Climate Orbiter does a good job illustrating a specific technical error (unit conversion) can have such catastrophic systemic consequences.

I found your point about high cognitive loads particularly relevant. Recent research by Arnold et al. (2023) supports your stance, noting that excessive information directly leads to significant performance losses and increased error rates in decision-making.

To build on your discussion of Agrawal's taxonomy, I looked for some other perspectives on why these failures occur:

While Agrawal focuses on the internal design stage, others argue that technological and market uncertainty are equally critical. For instance, Zhu (2025) suggests that software projects often fail because teams cannot accurately predict the "novelty" of a product or the behavior of emerging technologies, which goes beyond just designer cognitive load.

Regarding your third point, recent findings emphasize that it's not just issues like workflows, but the underlying culture inside a company that has the power to determine if a project can survive setbacks (Muneer et al., 2022).

References

Arnold, M., Goldschmitt, M., & Rigotti, T. (2023) 'Dealing with information overload: a comprehensive review', Frontiers in Psychology, 14. Available at: https://doi.org/10.3389/fpsyg.2023.1122200.

Muneer, M. et al. (2022) 'A Quantitative Study of the Impact of Organizational Culture, Communication Management, and Clarity in Project Scope on Project Success', Buildings, 12(11), p. 1856. Available at: https://doi.org/10.3390/buildings12111856.

Zhu, H.N. et al. (2025) 'From Bugs to Benchmarks: A Comprehensive Survey of Software Defect Datasets', arXiv. Available at: https://doi.org/10.48550/arxiv.2504.17977.

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