UNIT 3 – COLLABORATIVE DISCUSSION 1 – SUMMARY

My initial post summarised Kovaitė and Stankevičienė's (2019) definition of Industry 4.0, identified real-world cases and examples, and contrasted their FARE mapping approach with Li's (2024) fuzzy MCDM prioritisation method.

I agree with [redacted] (2025) emphasis on Ghobakhloo's (2020) risk amplification effect. While Kovaitė and Stankevičienė (2019) treat risks as six discrete categories mapped to business model components. However, systems theory (Levison, 2011) views them as interconnected nodes, where a failure in one can cascade into others. For example, a data privacy risk may seem isolated from a financial risk, but systems theory shows it can trigger the latter (e.g. through regulatory fines) — and given Industry 4.0's high interconnectivity, these effects are harder to contain.

I also support the argument made by [redacted] (2025) and Raj et al. (2020) that risk assessment in Industry 4.0 must be dynamic and iterative. Kovaitė and Stankevičienė (2019) mapping and Li's (2024) approach provide valuable prioritisation but remain snapshots. This aligns with the continuous monitoring and review stages in ISO 31000 (ISO, 2018) and the PDCA cycle as discussed in the course, both stressing ongoing reassessments. From a threat modelling perspective, frameworks such as PASTA also combine early assessment with continuous revision as systems evolve.

Indeed, [redacted] (2025) argument on the relevance of regulatory frameworks as a risk factor is well-founded, and ISO 31000 explicitly lists "legal and regulatory change" as a source (ISO, 2018). Non-compliance can cause operational disruption and penalties, as shown by GDPR's impact (EU, 2016).

The relevance of peer's insights, supported by course concepts lies in recognising that Industry 4.0 technologies evolve rapidly, with shifting threats, vulnerabilities, regulations, and market conditions. This demands a dynamic approach, while both frameworks from the initial contribution offer valuable, structured risk identification and prioritisation, they provide only a snapshot. Without continuous reassessment, their value declines as the environment changes.

References

EU (2016) *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)*. Official Journal of the European Union, L119, pp. 1–88.

Ghobakhloo, M. (2020) ‘Industry 4.0, digitization, and opportunities for sustainability’, *Journal of Cleaner Production*, 252, 119869. Available at: https://doi.org/10.1016/j.jclepro.2019.119869 (Accessed: 12 August 2025).

ISO - International Organization for Standardization (2018) *ISO 31000:2018 Risk management – Guidelines*. Geneva: ISO.

Kovaitė, K. and Stankevičienė, J. (2019) ‘Risks of digitalisation of business models’, *Proceedings of 6th International Scientific Conference Contemporary Issues in Business, Management and Economics Engineering 2019*. Available at: https://doi.org/10.3846/cibmee.2019.039 (Accessed: 30 July 2025).
Leveson, N. (2011) *Engineering a safer world: Systems thinking applied to safety*. Cambridge, MA: MIT Press.

Li, X. (2024) ‘Navigating digital transformation: a risk-based approach for Industry 4.0 innovation’, *Journal of Enterprise Information Management*, 37(5), pp. 1271–1293. Available at: https://doi.org/10.1108/JEIM-07-2023-0325 (Accessed: 30 July 2025).

[redacted]. (2025) ‘Peer Response to [redacted] [Discussion post], *Collaborative Learning Discussion 1 Forum* (Private forum), 12 August 2025.

[redacted]. (2025) ‘Peer Response to [redacted] [Discussion post], *Collaborative Learning Discussion 1 Forum* (Private forum), 11 August 2025.

Raj, A., Dwivedi, G., Sharma, A., Lopes de Sousa Jabbour, A.B. and Rajak, S. (2020) ‘Barriers to the adoption of industry 4.0 technologies in the manufacturing sector: An inter-country comparative perspective’, *International Journal of Production Economics*, 224, 107546. Available at: https://doi.org/10.1016/j.ijpe.2019.107546 (Accessed: 12 August 2025).

Tutor response

Very good summary.