Group Discussion Week 1-3

Initial Post:

The study "Risks of Digitalisation of Business Models" conducted by Kovaitė and Stankevičienė in 2019 focusses on Industry 4.0 and the respective risks which might evolve during the process of digitalisation.

First, the authors define the term Industry 4.0 as a "range of technological drivers" (Kovaitė & Stankevičienė, 2019) including the Internet of things and Artificial Intelligence.

Further the authors map out different risks which are connected to Industry 4.0. They define risks as "probability of a shift from the expected with a threat of damage" (Kovaitė & Stankevičienė, 2019), which does not correlate with the definition of risks by Knight. According to Rakow (2023) Knight defines risk as an expected probability, which can be measured and does not necessarily involve a negative outcome.
The following five risks are mapped out by Kovaitė and Stankevičienė:

-   Technical risks
-   Competence risks
-   Behavioural risks (by staff and by customers)
-   Data security risks
-   Financial risks

According to Ilina (2024), 25% of a study's participants lost their jobs due to Artificial Intelligence, exemplifying "competence risks" in Industry 4.0.
Another example was the Equifax Data Breach in 2017; Equifax experienced a data breach exposing 147 million people's personal information due to an unpatched software vulnerability (Federal Trade Commission, 2017).

Bresciani et al. (2018) explore organizational ambidexterity in IoT and smart city projects, highlighting risks like Kovaitė and Stankevičienė but offering a broader perspective that includes both technological and human factors.
The article agrees on the technological risks, such as cybersecurity threats and technology integration complexities, but Bresciani et al. (2018) suggest managing these risks through strategic alliances and partnerships.

Further Bresciani et al. emphasize the importance of organizational culture, leadership, and employee skills. They argue that successful digital transformation depends equally on human and organizational factors, contrasting with the more technology-centric view of Kovaitė and Stankevičienė.

In conclusion, while Kovaitė and Stankevičienė (2019) highlight technological risks, Bresciani et al. (2018) emphasize a holistic approach that includes human factors for robust risk management in digitalized business models.

Word count: 335

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Peer Response 1:

Thank you, Stephanie, for highlighting the concerns about Industry 4.0.

First, imposing an additional cognitive load on SMEs is critical, particularly as many are still struggling with digitalization. Bresciani et al. (2018) highlight that the transition requires a holistic approach, often involving complicated and costly adjustments. SMEs, with their limited resources, may view this shift as burden.

However, Industry 4.0 also offers significant value by integrating advanced technologies like IoT, AI, and automation, which can enhance efficiency and innovation. Despite the challenges, these technologies can help SMEs remain competitive if the transition is managed strategically. Frey and Osborne (2017) emphasize the importance of investment in retraining and lifelong learning to support workforce adaptation.

Yet, the effectiveness of Industry 4.0 for SMEs is not guaranteed. As Craglia et al. (2018) argue, there is a risk that the benefits of these technologies may disproportionately favour larger companys, leaving SMEs struggling to keep up. This disparity could deepen existing inequalities, making the transition more of a burden than a benefit for smaller companies.

Strategic alliances, as discussed by Bresciani et al. (2018), could mitigate these challenges by providing SMEs with access to resources and expertise. In conclusion, while Industry 4.0 presents opportunities, it also requires careful consideration of its broader implications.

Word count: 208
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Frey, C.B., & Osborne, M.A. (2017). The future of employment: How susceptible are jobs to computerization? *Technological Forecasting and Social Change*: 114, 254-280. Available at: https://doi.org/10.1016/j.techfore.2016.08.019.

Peer Response 2:

Hi Doug, Hi Tobi, thank you for your excellent points. Please let me add a few more thoughts.

The Boeing example and the incidents involving Meta and General Electric (GE) are deeply interconnected, especially regarding the management of complex technical systems and the critical role of effective risk management. Boeing's 737 Max disaster highlights the severe consequences of neglecting comprehensive risk assessment and testing of complex technologies. This mirrors the issues faced by GE's Predix platform. In both cases, the lack of adequate oversight and a failure to address technical risks resulted in significant financial and reputational damage, alongside, in Boeing's case, tragic loss of life (Browning, 2021).

The Meta incident further emphasizes the importance of adhering to regulatory and security standards. The oversight in data protection in Meta's case is analogous to Boeing's failure in safety oversight. Both cases illustrate that when organizations prioritize innovation over compliance and risk management, the consequences can be severe. This highlights the necessity to embed robust risk management frameworks within a company's organizational culture, ensuring that all aspects of technical, regulatory, and safety risks are addressed (Obermeyer et al., 2019).

Moreover, these examples illustrate the dangers of underestimating human factors in managing complex systems. Boeing's reliance on software to manage aircraft stability without adequate pilot training parallels the risks identified by Kharlamova and Kharlamov (2019), who stress the importance of developing human capital in digitalization projects. Both cases show that the human element cannot be sidelined, and effective training is crucial to manage complex technological systems.

In conclusion, these cases reveal a common thread: the failure to integrate comprehensive risk management, human factors, and regulatory compliance into the development of complex systems. Company's must learn from these failures that innovation does not come at the expense of safety, compliance, and human lives.

Word count: 299
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Summary Post

Hi Stephanie, Doug, Nelson & Mauricio, thank you for your points.

The study by Kovaitė and Stankevičienė (2019) outlines the significant risks associated with Industry 4.0, including technical, competence, behavioural, data security, and financial risks. While comprehensive, their analysis primarily centers on technological challenges, neglecting the equally critical human and organizational dimensions that can make or break digital transformation efforts.

A critical reflection on Industry 4.0 reveals a double-edged sword: while it offers opportunities for increased efficiency and innovation, it also imposes significant cognitive and financial burdens, particularly on SMEs. As highlighted by Stephanie and Doug, the transition to Industry 4.0 can overwhelm SMEs, which often lack the resources to effectively implement these new technologies.

Bresciani et al. (2018) emphasize the importance of a holistic approach that balances technological innovation with the development of organizational culture, leadership, and employee skills, warning that SMEs might otherwise struggle to benefit from digitalization.

Mauricio and Nardo et al. (2020) stress the importance of workforce capabilities and engagement for Industry 4.0 success. This aligns with Frey and Osborne's (2017) concerns about job displacement, emphasizing the need for continuous retraining to mitigate competence risks. Additionally, Nelson highlights the necessity of trust in AI systems, noting that transparency and accountability are essential for widespread adoption (Cabiddu et al., 2022).

Beyond operational challenges, the rapid pace of digitalization could worsen social inequalities, particularly through job displacement. Those without access to retraining may be left behind, deepening societal divides.

In conclusion, while Industry 4.0 holds transformative potential, it requires a critical and balanced approach that integrates technological, human, and organizational factors. Failing to address these complexities could deepen inequalities and risk the sustainability of Industry 4.0, particularly for SMEs and vulnerable workers.

Word count: 284
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