

Research Day 2026

What are the synergies and tensions between the digital transformation and the sustainability transformation ?

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General findings

- The **harmful effects of DT** are still less studied than its benefits
- Adverse **indirect and rebound effects** are underexplored; solutions are often focused on efficiency (Santarius & Wagner, 2023)
- Lack of **systemic thinking** (Karki & Thapa, 2021; Mouthaan *et al.*, 2023)
- Studies on **governance at the organizational level** are still few and far between (Veit & Thatcher, 2023)
- Impacts on **social and economic sustainability** are less studied than those related to the environment (Valero-Gil *et al.*, 2024; Veit & Thatcher, 2023)



Conceptual background

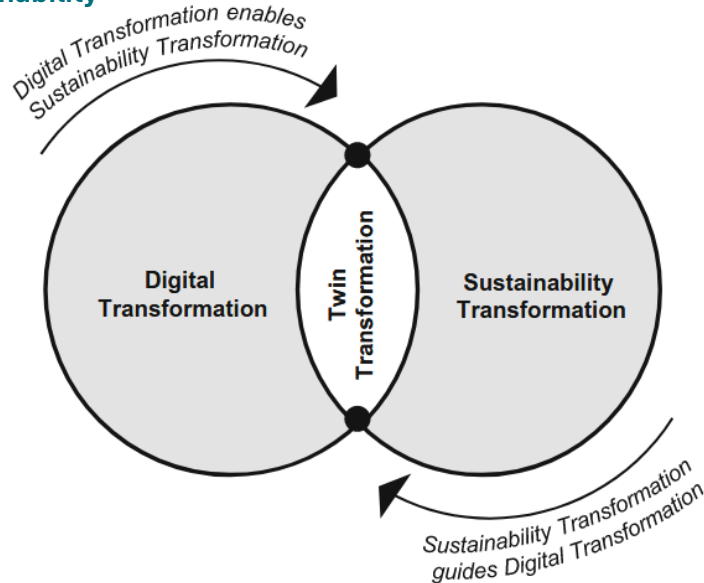
The literature remains fragmented into several research fields:

- **Green IT** : lifecycle management, electrical and electronic waste management, energy consumption management, and more.
- **Corporate Digital Responsibility** : Responsible AI, data governance, privacy, and more.
- **Digital Sustainability** : reduction of CO2 emissions, improvement of traceability, and more.
- **Twin transformation** : focused on the strategic alignment between digital and sustainable transformations.



Twin Transformation (TT)

Digital Sustainability



Green IT / IS
Sustainable IT / IS
Corporate Digital Responsibility

- Very recent concept
- Bidirectional process
- Focus on strategic implementation at the organizational level
- Focus on the synergy effects between the two transformations



State of the art – "Twin transformation"

The current literature on TT is still in its infancy, with **significant gaps both theoretically and practically**.

The research field remains characterized by fragmented terminology and a lack of conceptual coherence.

The study identifies key research gaps, including an **overly restrictive sectoral approach**, inconsistent terminology and **technological bias**.

Future research **must go beyond the exploration of how digital transformation drives sustainability transformation**. They call for empirical studies that treat sustainability strategy as an independent variable.

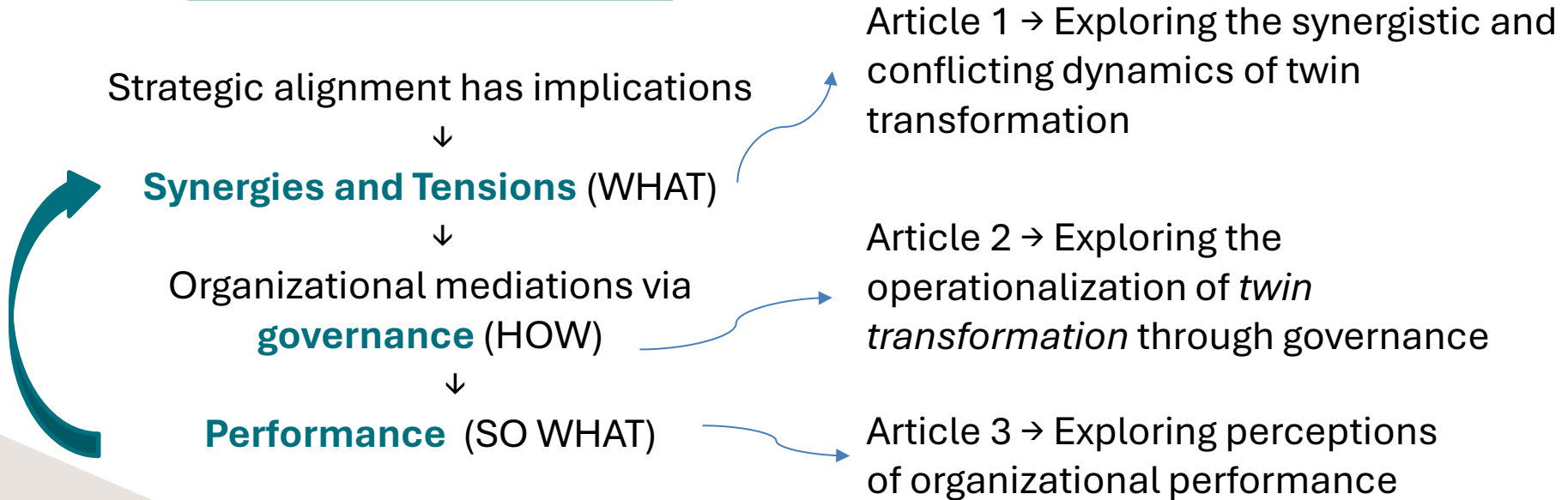
Research avenues

- Analyze the organizational reality of twin transformation (Christmann *et al.*, 2024)
- Analyze the synergistic dynamics and interdependencies between DT and ST in order to effectively implement TT (Hammerschmidt *et al.*, 2025)
- Analyze the antagonistic interactions of DT and ST within TT (Lockl *et al.*, 2025).
- Explore how different sectors prioritize and implement sustainability and digital initiatives, and their impact on organizational performance (Philp *et al.*, 2025)

➡ We still have a very limited understanding of how the *twin transformation* is governed and implemented in organizations

Articulation of the thesis

Twin Transformation (TT)



The concept of "synergies"

Synergies in the *twin transformation*

« The mutual interplay between these two transformations generates **powerful spillover effects that create a reinforcing cycle.**»

Example of "synergies"

- An IoT-based predictive maintenance system
(+) implemented primarily **to reduce operational downtime**
(+) also brings **sustainability benefits** such as reduced energy consumption and material waste

→ Sustainability outcomes provide critical motivational leverage and strategic justification, **reinforcing the value of the DT- led initiative.**

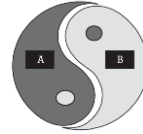
The concept of "tensions"

Organizational tensions



Dilemma

Competing choices,
each with
advantages and
disadvantages



Paradoxe

Contradictory but
interconnected elements
that coexist and persist
over time.

Examples of "tensions"

Dilemmas

- Hardware renewal → Performance and security **vs.** Planned obsolescence and e-waste
- Automation → Productivity gains **vs.** Destruction of low-skilled jobs

Paradoxes

- Dematerialization of services →
(+) 24/7 Accessibility
(+) Reduced travel
vs.
(-) Exclusion of non-digital audiences
(-) Increase in digital infrastructure (servers, data centers)

Scope

Geographical area



Industry



Type of organization



Size



Feedback? Any ideas?

Other relevant theories?

Sensemaking
Network-Actor Theory

...

Any suggestions related to the concepts of synergies or tensions?

Any areas of concern?

