

Wat is Twin Transition en hoe kan digitalisering helpen bij het realiseren van duurzaamheid in organisaties? En wat betekent dat voor marketing onderzoek, onderwijs en werkveld?

*What is Twin Transition and how can digitalization help organisations for achieving their sustainability goals?
And what does this mean for marketing research, education and profession?*
Lunch & Learn session by **Anand Sheombar & Tara Vester**

Agenda

- Digital4Sustainability Project
- Twin Transition (aka Twin Transformation)
- Skills for TT
- Marketing and Twin Transformation?
- Going through some marketing literature concepts & examples related to digital and/or sustainable transformation
- Challenges & Green-X-ing
- Introducing three statements for discussion
- Discussion in groups
- Plenary reflections

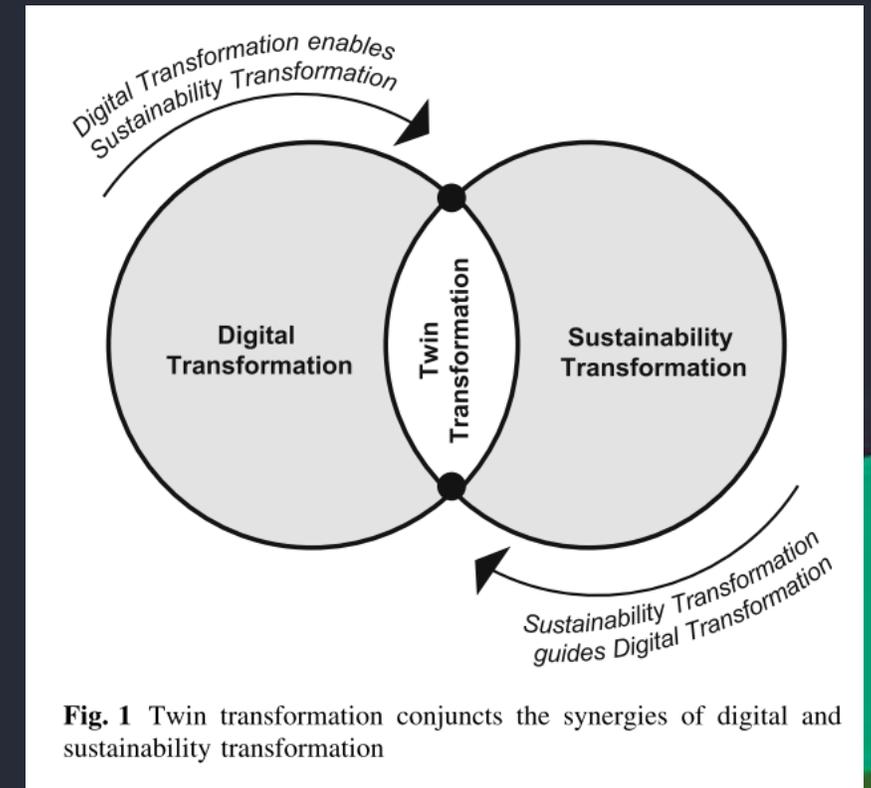
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Twin transformation

“a value-adding interplay between digital and sustainability transformation efforts that improve an organization by leveraging digital technologies for enabling sustainability and leveraging sustainability for guiding digital progress”

(Christmann et al., 2024, p. 7)



Twin transition skills - Skills gap

- Twin transition still in early stage:
 - use cases and business models are lacking
 - already a skill shortage experienced on digital and sustainability transformation skills
- Situation will worsen as demand for twin transition competences will increase
- Low-skilled labor is automatized, new jobs are more complex, need a larger variety and more diverse skills, and have a higher educational profile > **SKILLS MISMATCH**
- **Institutes for higher education need to adapt but cannot keep up with the rapid development**

Twin transition skills – Knowledge gap

- Companies are unsure what skills they need and what they have in-house
- Large number of TT skills mentioned in literature; indication that synergy between digital and sustainability skills is needed ('more than sum of parts')
- Total overview of skills > impossible to find in a single employee
- Insufficient insights to distinguish per role, region, sector, maturity level and size of company

MORE WORK NEEDED

Digital4Sustainability – Shaping the twin transition



Driving innovation
in digital & sustainability
practices to boost Europe's
skills for the twin transition

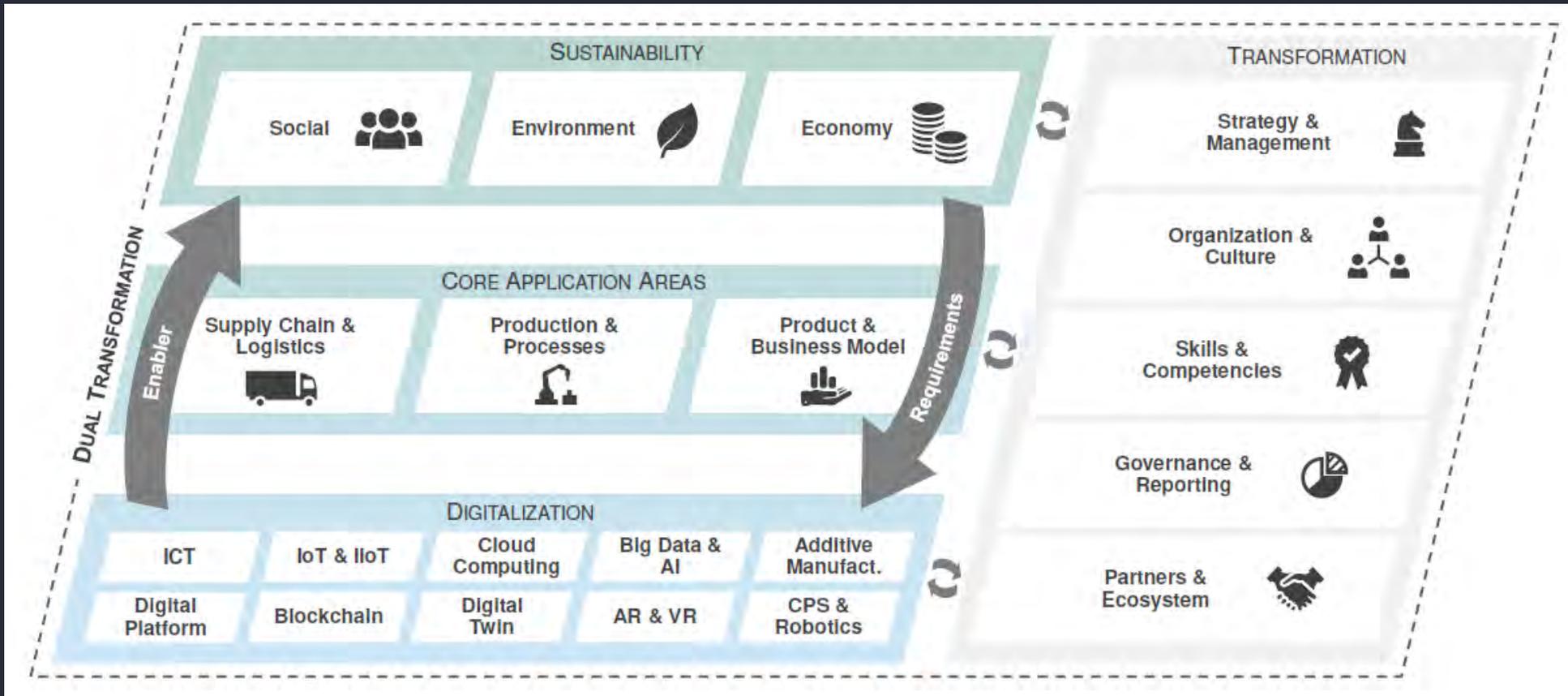


4-year EU funded project
(2024-2028)



29 members of the
Digital Large-Scale
Partnership under
the Pact for Skills
from 13 EU countries

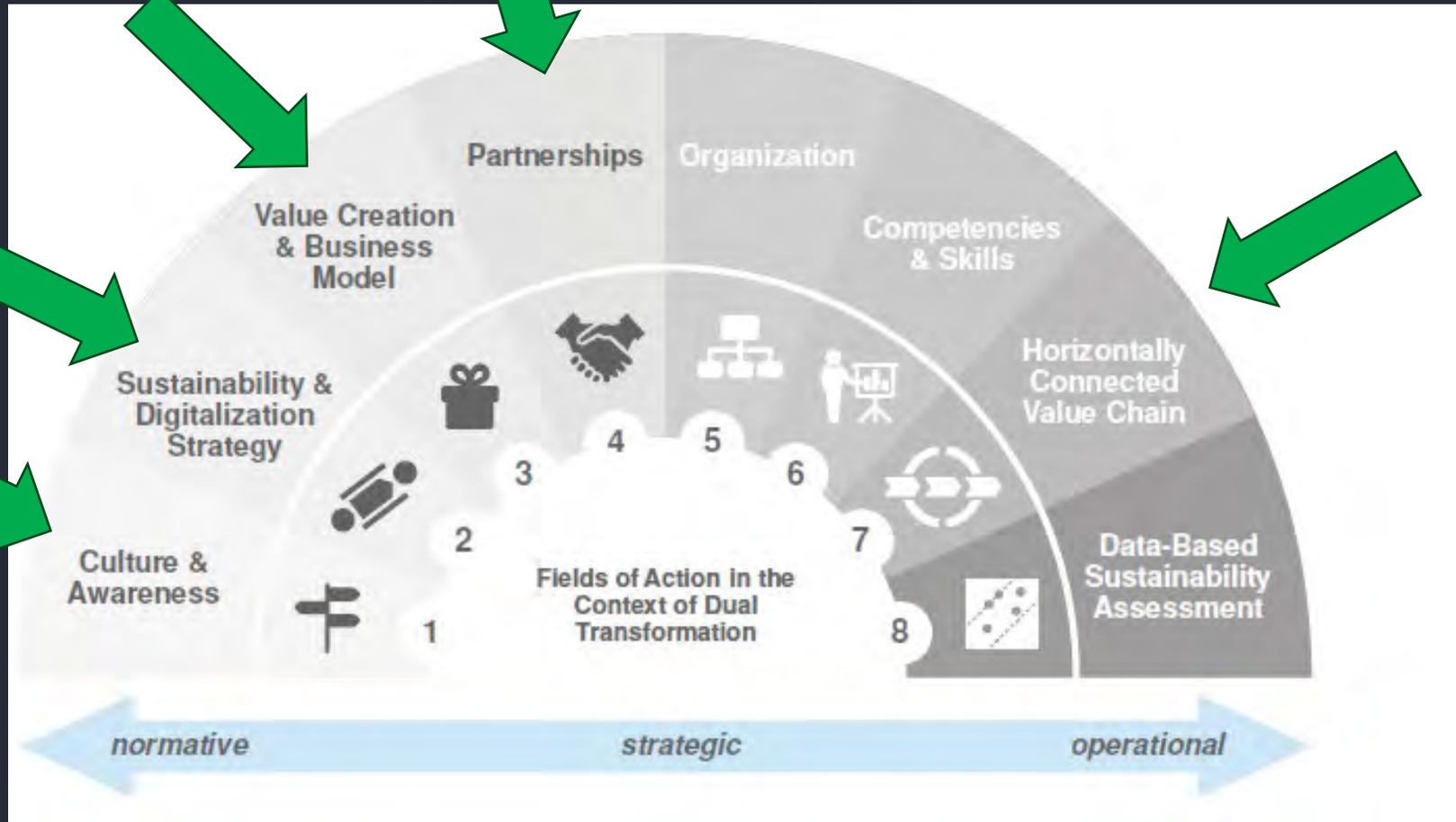
A Framework for Dual (Digital & Sustainability) Transformation



Framework for Dual Transformation

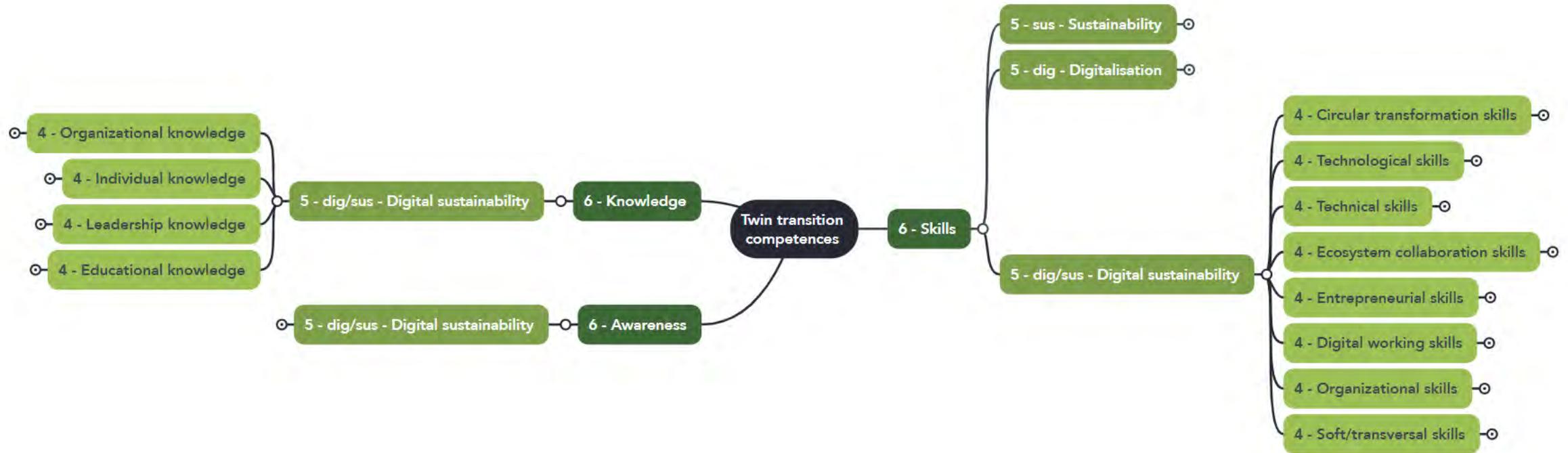
Source: Kürpick, C., Kühn, A., Olszewski, L., & Dumitrescu, R. (2023, April). Framework for Dual Transformation: A Systematic Literature Review on the Interplays between Digitalization and Sustainability

Different fields of action



Fields of Action in the Context of Dual Transformation, source: Kürpick et al. (2023)

Skills for Twin Transformation



Attitudes represent a We adopted the European Commission's definition of competences. Where competences are described as an integrated set of knowledge, skills and attitudes :

- Knowledge consists of established theories, concepts, facts and figures contributing to understanding a given subject.
- Skills comprise manual and cognitive abilities to put acquired knowledge into practice.
- mindset or tendency to behave or react in a particular way in a particular context

Linking Strategic Marketing (profession) to Twin Transformation

- **Strategic Marketing as a Catalyst for Twin Transformation** (Aagaard & Vanhaverbeke, 2024):
 - Driving Sustainable Value Propositions
 - Leveraging Digital Tools
 - Adapting to Regulatory and Market Demands
- **Sustainable Marketing:** Aligning Business Practices with Environmental Goals
- **Social Marketing:** Driving Behavioural Change for Twin Transition
- **Digital and Sustainable Transformation Skills** for Marketing Professionals
- **Role of Policy and Organisational Support** (Veit et al., 2024)
 - Marketing professionals can use their expertise to influence policymakers and promote regulations that support sustainable digital transformation
 - Marketing teams can lead internal campaigns to foster a culture of sustainability and digital innovation.

Definitions overview

- In the literature we find definitions on the following terms:
 - Green advertising
 - Green marketing
 - Sustainability/sustainable marketing
 - Digital marketing
 - Digital green marketing
 - Social marketing
 - Smart sustainable marketing
 - Critical marketing

Definitions list (1 of 4)

- **Green advertising**

- The advertising efforts and techniques focused on creating these shifts toward the consumption of green products are referred to as green advertising (Alkhatib et al. 2023).

- **Green marketing**

- Green marketing means **minimizing a product's environmental impact** through product redesign, sustainable manufacturing, and integrated marketing campaigns. The main objective of green marketing is to position environmentally friendly products in the market and appeal to environmentally conscious consumers (Alkhatib et al. 2023).
- Green marketing aims to develop sustainable products and services with behaviors such as reduced packaging and efficient energy consumption by placing sustainability at the center of marketing and business processes in organizations (Gordon et al. 2011; Aydin et al. 2023).
- According to Polonsky and Rosenberger (2001), Green marketing may be described as a comprehensive and integrated strategy that involves ongoing assessment of how businesses can attain their corporate objectives and fulfill customer demands, all while **avoiding potential ecological damage in the long run** (Aydin et al. 2023).
- Green marketing is the marketing application of environmentally conscious business (Gigauri et al. 2023).

Definitions list (2 of 4)

- **Digital green marketing**

- Digital green marketing (Alkhatib et al. 2023).

- **Smart sustainable marketing**

- Smart sustainable marketing (Kalogiannidis et al. 2023).

- **Social marketing**

- A marketing model that not only pleases the consumers, but also tries to product solutions **according to the demands of the society**. According to Kotler, in the social marketing model, businesses will satisfy the desires and needs of their customers more effectively than their competitors, while not neglecting the benefits of the society (Gigauri et al. 2023).
- The American Marketing Association defines social marketing as the discipline that aligns with organizational activities the creation, communication, distribution and exchange of value propositions from customers to meet market needs, thus emphasizing the important role of the consumer/citizen and equating and enhancing it with an organizational role in this behavior change procedure (Rothschild, 2000; Gigauri et al. 2023).

Definitions list (3 of 4)

• Sustainability/sustainable marketing

- Sustainability marketing takes a broader perspective than green marketing, and involves the inclusion of the entire community, including its social objectives and efforts toward environmental preservation. It necessitates the active participation of both national and local governments, organizations, and the general population, along with essential resources such as human expertise, financial backing, and infrastructure (Alkhatib et al. 2023).
- Sustainable marketing is the implementation of all reasonable efforts to produce, price, distribute, consume, and reclaim products in a manner to achieve ecological, economic, and social objectives (Mateev & Nightingale, 2020, p. 285).
- Sustainable marketing involves integrating sustainability principles into all aspects of marketing, from product design and packaging to advertising and distribution, aiming to minimize negative environmental impacts while maximizing positive social and economic benefits (Fisher, 2019). (Fatimi 2024).
- Three kinds of sustainable marketing (Nozari et al. 2021):
 - **Green marketing (ecological)**: developing and promoting environmental sustainability in marketing and company strategy, as well as tactical and operational layers of management (e.g. business processes).
 - **Social marketing (social)**: using marketing tools, communication channels, etc., to encourage sustainable behavior, e.g., green lifestyle, no-waste lifestyle, or to build loyal customer groups identifying with a sustainable development idea, sustainable lifestyle, or sustainable consumerism ethos.
 - **Critical marketing (economical)**: achieving business goals while managing resources effectively, e.g., closed-loop supply chain, circular economy idea, green (but profitable) innovations, and adjusting the marketing strategy and toolset to this approach.



Definitions list (4 of 4)

- **Digital marketing**

- Digital marketing is simply using electronic devices and the means of digital communication (mainly the internet or text messages) to reach potential clients, connect with them, and convince them to purchase the product "source" (Alkhatib et al. 2023).
- Digital marketing, operating within a digital environment, utilizes the internet and electronic devices through online platforms and channels to promote, sell, and deliver products and services. It encompasses various strategies and methods, including advertising, promotion, social media marketing, email marketing etc., with the aim of attracting and engaging target audiences and achieving brand promotion and sales growth (Amiri et al., 2023; Khare et al., 2023; Shankar et al., 2022). Uit Jin et al. 2024.
- Digital marketing in the era of sustainability is an approach aimed at aligning online marketing practices with the principles and objectives of environmental, social, and economic sustainability. In this context, companies seek to utilize digital tools and strategies to promote sustainable initiatives, reduce their environmental impact, engage consumers in responsible actions, and build a brand image aligned with sustainable values (Moleiro & Meireles 2023).

Why do sustainable digital marketing?

Alkhatib et al. 2023:

- By adoption environmentally conscious actions, companies can effectively capture the attention and loyalty of critical target demographics, such as Generation Z, **in order to align with their values to enhance brand reputation and foster long-term brand loyalty.**
- Digital marketing has become a powerful tool for reaching the customer and researching the market and understanding the customers, their needs, their demographics variables, and the connection of these variables with the desirable products. This is all done automatically using modern digital media, **increasing the efficiency of market research and significantly reducing the costs**, which is beneficial to both the producer and the consumer.
- Digital green marketing **change people's behavior towards sustainability and the consumption of green products.**
- Consumers are **willing to pay a premium price for eco-friendly goods and intention to purchase at higher price.**
- Having a green image and offering high-quality green products contribute significantly to **customer satisfaction.**

Aydin et al. 2023:

- AI is reshaping the technical landscape of enterprises and will change how people interact with information, technology, brands and services. How companies run their businesses evolves to **be more responsive, productive and competitive.**

Uses of (sustainable) digital marketing

In marketing

Fatimi 2024:

Digital twins to understand consumer behavior, optimize product development, and enhance customer experience in a virtual environment (Thompson & Singh, 2019).

- This allows marketers to test and refine strategies in a cost-effective and risk-free manner, leading to more efficient and impactful marketing initiatives (Lee & Kim, 2021)
- This level of insight enables marketers to tailor experiences and messages more precisely to individual consumer preferences and behaviors, thereby enhancing personalization and customer engagement (Patel & Smith, 2020).
- Assess the **environmental impact of their products** and marketing practices virtually (Anderson & Johansson, 2021).
- Not only improve environmental footprint of their strategies, but also to communicate these efforts authentically and effectively to consumers, fostering greater trust and loyalty (Sullivan & Patel, 2022).
- IoT enables tracking and monitoring products throughout their lifecycle, providing valuable data that can be used to improve product design, reduce waste, and optimize resource use (Lin & Morales, 2020).
- AI and big data analytics help understand customer preferences for sustainable products and services (Jensen & Kapoor, 2021).
- Digital platforms can be leveraged to engage with consumers on sustainability issues, build brand loyalty, and promote sustainable consumption patterns (Harper & Singh, 2021).

Nozari et al 2021:

- encourages customers by partnering with them and cooperating with other partners
- advertising solutions

Uses of (sustainable) digital marketing

In marketing

- **Aydin et al 2023:**
 - Virtualization: augmented reality and metaverse to spread production and consumption activities on online platforms.
 - **Simulation and prediction:** e.g. predictions about power needs with algorithms based on AI, and using digital simulation to obtain information about all life cycles of a product.
- **Moleiro & Meireles 2023:**
 - Communication and awareness
 - Promotion of sustainable products and services
 - Engagement and public involvement
 - Sustainable partnership and collaborations
- **Jin et al. 2024:**
 - More precise target marketing
 - Enhancing (sustainable) image
 - Meet customer demands for sense of social responsibility
 - Resource optimization
 - Dissemination of social responsibility
 - Customer relationship management
 - Enhancing visibility and reputation
 - Better customer group segmentation
 - Real environment simulation

Uses of (sustainable) digital marketing

In adjacent fields

Technology/Engineering

Big data analytics to (Jin et al. 2024):

- predictive maintenance
- reducing downtime
- improving production efficiency
- optimize quality control
- optimize production

AI (Aydin et al. 2023):

- to increase production efficiency

Supply chain

Big data (Davies & Chambers, 2021 in Fatimi 2024):

- optimizes demand forecasting and inventory management, reducing costs and enhancing delivery efficiency

Digital Twins (Davies & Chambers, 2021 in Fatimi 2024):

- by enabling a detailed virtual representation of a product or service and its lifecycle, digital twins can offer insights into reducing waste, optimizing resource use, and improving overall environmental performance

Monitoring and tracking (Aydin et al. 2023):

- create e.g Digital product passports

AI and data analysis (Aydin et al. 2023):

- better informed decision making

Strategic management

Sustainable digital marketing to

Jin et al. 2024:

- strengthen departmental ties
- control service costs
- create new business models and management strategies to adapt to and lead trends
- intelligent decision support to formulate more strategic and informed plans

Nozari et al. 2021:

- adjust the mission of the organization with long-term goals
- long-term plans of developing the operation
- develop dissemination strategies

Case study (Fatimi 2024)

A consumer electronics company utilized Distributed **Digital Twins** (DDTs) to simulate the market launch of their new eco-friendly product line.

By integrating IoT data from product prototypes and AI-driven market analysis, the company was able to predict consumer responses and environmental impacts.

The DDT helped optimize the product design for **minimal environmental impact** while ensuring consumer satisfaction.

- (1) **Benefits:**
- Improved product sustainability and market fit.
 - Enhanced consumer engagement through targeted, sustainable marketing messages.

- (2) **Challenges:**
- Complexity in integrating and analyzing diverse data sets.
 - Ensuring data privacy and security throughout the process.
 - Case Study 2: Sustainable Supply Chain Optimization

A fashion retailer deployed DDTs to optimize their supply chain for sustainability. By simulating various supply chain configurations, the retailer identified opportunities to reduce waste, lower emissions, and improve efficiency. The insights gained from the DDT informed decisions on supplier selection, material sourcing, and logistics, significantly reducing the environmental footprint of the retailer's operations.

- (3) **Benefits:**
- Reduction in carbon emissions and waste.
 - Cost savings through improved supply chain efficiency.

- (4) **Challenges:**
- Managing the complexity of global supply chain simulations.
 - Balancing supply chain optimization with the need for agility and responsiveness to market changes.

b) Case Study 2: Digital Marketing Campaign Analysis

A food and beverage company used DDTs to analyze the effectiveness and sustainability of different digital marketing campaigns. By simulating consumer behavior in response to various campaign strategies, the company was able to tailor their digital marketing efforts to maximize engagement while minimizing the digital carbon footprint associated with online advertising.

- (1) **Benefits:**
- Increased campaign effectiveness through targeted, data-driven strategies.
 - Reduced environmental impact of digital marketing activities.

- (2) **Challenges:**
- Interpreting complex consumer behavior simulations to inform marketing decisions.
 - Aligning marketing strategies with rapidly changing consumer preferences and sustainability standards.
- These case studies demonstrate the versatility and potential of DDTs in enhancing the sustainability and effectiveness of marketing efforts. By leveraging real-time data, predictive analytics, and simulation capabilities, companies can make informed decisions that benefit the environment, consumers, and their bottom line.



Foster **interdisciplinary collaboration** through cross-functional teams to **bridge the gap** between **technical challenges** and **marketing objectives**

Source: Fatimi 2024



Examples of companies utilizing sustainable digital marketing

- **Moleiro & Meireles 2023:**

- 1) Patagonia: Promote green marketing through practices such as using recycled materials in their products, supporting environmental organizations, and encouraging consumer to repair and extend the lifespan of their clothing.
- 2) Tesla: Mission to accelerate the global transition to sustainable energy through green marketing. The communicate the environmental benefits of their electric vehicle and solar panels, promoting the adoption of clean energy solutions.
- 3) IKEA: They use materials from renewable sources, encourage product recycling, and implement energy efficiency initiatives in their stores. Additionally, IKEA raises awareness about sustainability through marketing campaigns.

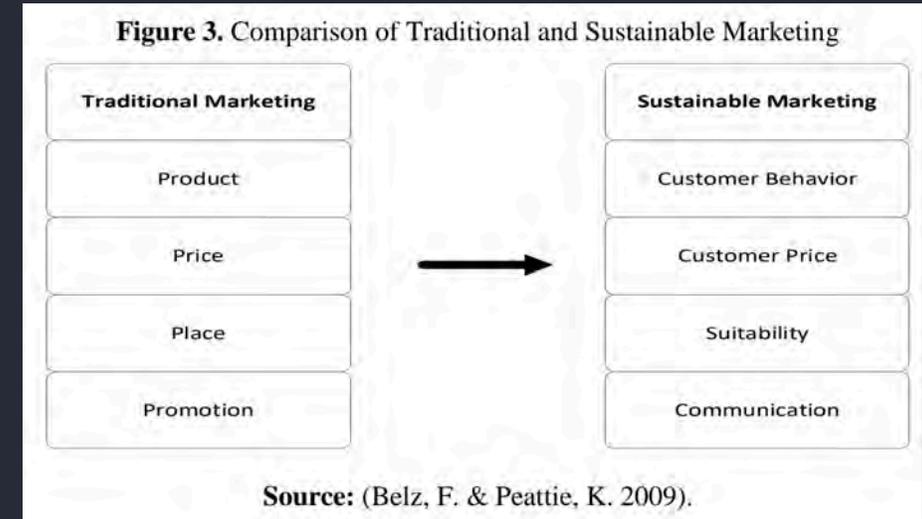
- **Own experience of researchers:**

Koppert Cress: A Dutch horticultural company leverages big data and machine learning to map customers and predict sales across Europe. Start-ups innovate with technologies to optimize and make production processes more sustainable. Digital tools analyze supply chain changes, such as packaging, transport, or new greenhouses, predicting CO2 impact and guiding impactful decisions. Insights are shared with stakeholders through digital marketing technologies.

Traditional marketing vs. sustainable marketing

Aydin et al. 2023:

- **Traditional marketing** has been perceived as a process that identifies and meets needs. **Sustainable marketing includes cooperation, communication, and innovation** that can be shaped according to customer behaviors (Trivedi et al. 2018).
- Today's marketing is called **Marketing 5.0**: the period when consumers interact with artificial intelligence (Zozul'ov & Tsarova 2020). Today's and future marketing understanding **aims to provide the highest level of opportunities to consumers and to create personal interaction environments with them.**
- The function of sales and marketing is significant within the life cycle initiative since it facilitates the effective exchange of information between the consumer and the organization. **To address customers' needs for environmentally friendly goods, it is imperative for the company to possess a comprehensive understanding of the environmental implications associated with a product throughout its entire lifecycle.**



From: Aydin et al. 2023

Challenges of green digital marketing

- **Alkhatib et al. 2023:**
 - **One of the biggest issues is "greenwashing"**
 - Customer centricity and behavior, competitiveness, supply chains, and competencies are all factors to consider
- **Aydin et al. 2023:**
 - Insufficient infrastructure
 - Difficulties in keeping up with new developments
 - Not being able to adapt to technologies
 - High costs
- **Fatimi 2024 (for the adoption of digital twins specifically):**
 - Data complexity and volume
 - Integration of heterogenous systems
 - Real-time data synchronization
 - Scalability and flexibility
 - AI and machine learning model accuracy
 - Privacy and security
 - Complexity in modeling marketing's environmental impact



Beware of Greenwashing, greenhushing and greenwishing...

- **Greenwashing** is a practice used by businesses to represent themselves as more sustainable than they truly are.
- **Greenhushing** refers to a company's refusal to publicize ESG information. The company may fear pushback from stakeholders who would find its sustainability efforts lacking or from investors who believe ESG undermines returns
- **Greenwishing**, or unintentional greenwashing, describes a practice where a company hopes to meet certain sustainability commitments but simply does not have the wherewithal to do so.

(KPMG 2023)

Statement 1: Marketing professionals are not yet prepared for Twin Transition, upskilling, deskilling, and reskilling needed.

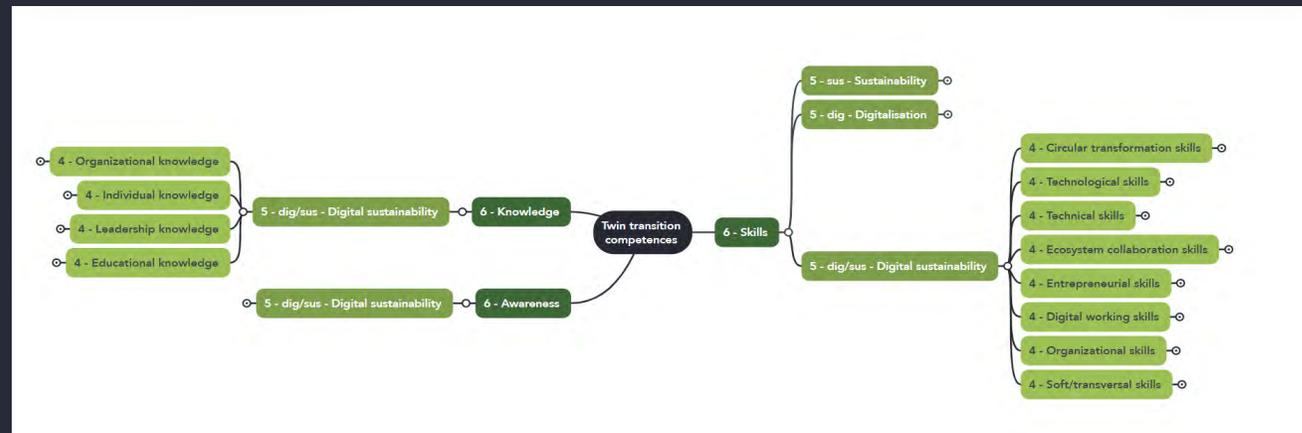


- Open the mind map with skills via the QR-code.
- Is today's marketing professional ready; which skills does a marketer need for the Twin Transformation?



- **This skill is needed, and have it covered**
- **This is needed, and could do better**
- **This skill is needed, and it is not covered**
- **This skill is needed, no clue if it is covered**

- What skills are needed in the curriculum of the marketing study to prepare students for Twin Transition?



Thought-provoking Statement 2

How can strategic marketing ensure not to fall into the trap of **Twin Transition Washing**?

For example, firms exaggerating their Green IT efforts (greenwashing) or AI-washing their business (while the use of digital technologies falls behind)



Thought-provoking Statement 3

- What role does marketing play in selecting or parting ways with suppliers and collaboration partners to advance the Twin Transformation?



Discussion about Twin Transformation >>>

3 Questions for discussion

Q1: Marketing students & professionals are not yet prepared for Twin Transition, upskilling, deskilling, and reskilling needed. Which skills?

Q2: How can strategic marketing ensure not to fall into the trap of Twin Transition Washing?

Q3: What role does strategic marketing play in selecting or parting ways with suppliers and collaboration partners to advance the Twin Transformation?

1. Choose one of the above statements to discuss with the other participants.
2. If the group has more than 4 people, divide into smaller groups.
3. At the end of the session, we will ask you to share your insights.

Digital and Sustainable Transformation Skills for Marketing Education (& Research and Profession)? – For discussion – this is not a definitive list ;-)

- 1. Digital Skills?** Examples: Data Analytics and AI, digital content creation...
- 2. Sustainability Skills?** Examples: Circular Economy Knowledge, Environmental Impact Assessment...
- 3. Integrated Skills for Twin Transition?** Examples: Dynamic Capabilities, Systems thinking, Green digital skills...
- 4. Soft Skills and Competencies?** Examples: Critical Thinking and Problem-Solving, Adaptability and Resilience...
- 5. Policy and Regulatory Awareness?** Examples: Sustainability Regulations, Digital Policy Frameworks...
- 6. Practical Application and Experiential Learning?** Examples: Case Studies and Real-World Projects, Simulations and Gamification:

Further Reading - 1

- Aagaard, A., & Vanhaverbeke, W. (2024). The Twin Advantage: Leveraging Digital for Sustainability in Business Models. In A. Aagaard (Ed.), *Business Model Innovation: Game Changers and Contemporary Issues* (pp. 227–262). Springer International Publishing. https://doi.org/10.1007/978-3-031-57511-2_8
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- Gordon, R., Carrigan, M., & Hastings, G. (2011). A framework for sustainable marketing. *Marketing theory*, 11(2), 143–163.
- Kürpick, C., Kühn, A., Olszewski, L., & Dumitrescu, R. (2023, April). Framework for Dual Transformation: A Systematic Literature Review on the Interplays between Digitalization and Sustainability

Further Reading - 2

- Alkhatib, S., Kecskés, P., & Keller, V. (2023). Green marketing in the digital age: A systematic literature review. *Sustainability*, 15(16), 12369.