

## Business Remodeling in Small Medium Enterprises in the Digital Era: Systematic Literature Review

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### Abstract

This study aims to examine changes in the business model of SMEs in Indonesia with digital transformation as a determinant variable. This research is expected to be able to answer research questions, namely what are the focus of research on business models that have been carried out, the relationship between research focuses and how the methodologies and approaches are carried out. The three research questions are expected to answer the fourth research question, namely how the business model changes in the SME sector. The research method uses a systematic literature review of journals published through Scopus. The results show that the focus of research on business models is mostly related to digitalization, business model concepts, innovation and business processes. There was a tendency to use mixed methods and quantitative methods after 2000. Previously, research on business models was mostly done using literature reviews, comprehensive journal reviews and case studies. Changes in business models in SMEs cannot be known because of the lack of research related to changes in business models in SMEs.

**Keywords:** business model, SMEs, digital, transformation

### Abstrak

*Penelitian ini bertujuan untuk mengkaji perubahan model bisnis UKM di Indonesia dengan transformasi digital sebagai variabel determinannya. Penelitian ini diharapkan dapat menjawab pertanyaan penelitian yaitu apa saja fokus penelitian terhadap model bisnis yang telah dilakukan, keterkaitan antara fokus penelitian serta bagaimana metodologi dan pendekatan yang dilakukan. Ketiga pertanyaan penelitian tersebut diharapkan dapat menjawab pertanyaan penelitian keempat yaitu bagaimana perubahan model bisnis di sektor UKM. Metode penelitian menggunakan kajian literatur sistematis terhadap jurnal yang diterbitkan melalui Scopus. Hasil penelitian menunjukkan bahwa fokus penelitian pada model bisnis sebagian besar berkaitan dengan digitalisasi, konsep model bisnis, inovasi dan proses bisnis. Ada kecenderungan penggunaan metode campuran dan metode kuantitatif setelah tahun 2000. Sebelumnya, penelitian model bisnis lebih banyak dilakukan dengan menggunakan literature review, review jurnal yang komprehensif dan studi kasus. Perubahan model bisnis pada UKM belum dapat diketahui karena kurangnya penelitian terkait perubahan model bisnis pada UKM.*

**Kata kunci:** model bisnis, UKM, digital, transformasi

## INTRODUCTION

Increasing competitiveness in industry 4.0 through digitization which includes the Internet and cellular technology with high-speed connectivity helps bring about changes in established business models (Roblek et al., 2013). Industry 4.0 is also not limited to robotics technology and

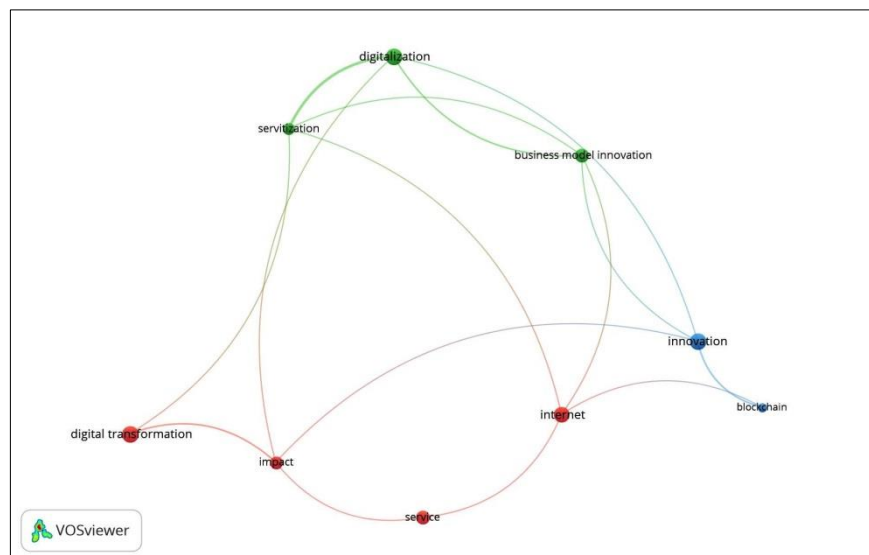
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production automation but also process digitization. as a whole, which includes the raw material procurement process to the marketing process. Industry 4.0 offers the potential for new innovative business models (Frank, 2019)). However, there are differences between large incumbent (manufacturing) industries and Small and Medium Enterprises (SMEs). Incumbent manufacturers tend to be more oriented towards increasing the efficiency of their processes through Industry 4.0 (Frank, 2019), (Müller-Stewens, 2017)) While SMEs use digital technology to transform one, or even the entire business.

Furthermore, (Zilber, 2012); (Safar et al., 2018)) further emphasizes that the obstacle for SMEs in adopting technology is the absorption of SMEs in new knowledge, innovation strategies, and business model innovations related to Industry 4.0. This study, found that technology becomes a medium for vertical (across functional departments) and horizontal (across supply chains) interconnection through digital means in real time, so that process optimization can be carried out to new business models (Kagermann et al., 2010), (Oesterreich & Teuteberg, 2016). However, to succeed requires organizational absorption, innovation strategy and innovative business model design planning. Safar et.all (2018) using the Architectural Model RAMI 4.0 and Own Elaboration Model (Henkel et al., 2014)) formulate a new business model for SMEs in the digital era and recommend further research because technological readiness in different countries can different business models.

The research conducted a mapping of 200 scientific articles from reputable journals through Scopus which show research related to business and digital models. The mapping uses the Perish for Publish and Vos Viewer applications and maps 42 selected journals that are relevant to the research title. The results of the mapping using the vos viewer application can be seen in the image below:



**Figure 1.** Journal Mapping Results from Scopus

The vos viewer application is also used to identify variables in research on business and digital models including Innovation, Business Performance, Digitalization, Entrepreneurship, Value, Information Technology, Business Model Innovation, Sustainability. There are four articles that specifically discuss changes in business models in SMEs due to information technology. However, research shows that change occurs at different stages of the business cycle and certain functions within the business cycle, not in the business model. The business model does not change as a whole but only innovates at certain parts or stages.

In Small and Medium Scale Enterprises (SMEs), one of the main challenges faced in developing a business in the 4.0 era is the low internal capacity of organizations to implement

technology in all aspects of business. The low penetration of SMEs to digital is marked by their unpreparedness in using technology in every aspect of business. Research by Safar et.al (2018) shows that several factors for the failure of SMEs in adopting internet technology include a lack of skills in mastering IT such as how to use smartphones, the inability to carry out site management including making attractive site designs and content (Matarazzo, 2021)

Furthermore, the difficulties of SMEs in implementing technology industry 4.0 are caused by a lack of manpower, as well as barriers to entry into new products and development and refusal to allow new technology investments (Matarazzo, 2021). This shows that there is a gap in business practices, considering that business readiness for Industry 4.0 is a good way to find ways to develop business areas while competence in using technology is low.

Previous studies have shown that there is a research gap regarding changes in business models due to information technology. Mapped research shows the relationship between technology and changes in business functions (Caputo, 2021); R.B. Bouncken, (2021); F. Li (2021); Matarazzo (2021) and Nadkarni & Prüggl, (2021). Meanwhile, as a companion for SMEs, the researcher found a change in the business model run by SMEs, including using the canvas business model. Management of SMEs begins to consider all aspects, both internal, including the resources owned and the external environment. The facts found have not been reflected in research on business models so that researchers consider the topic of business models feasible to do.

Based on the above background, the researcher intends to conduct research on changes in business models in SMEs in Indonesia with digital transformation as a determinant variable. This research is expected to be able to answer research questions, namely what are the focus of research on business models that have been carried out, the relationship between research focuses and how the methodologies and approaches are carried out. The three research questions are expected to answer the fourth research question, namely how the business model changes in the SME sector.

## **THEORETICAL REVIEW**

### **Business Model**

A business model is a representation of all the activities carried out in a business to generate revenue. The concept of business models in the modern era was introduced by many experts including (Zott, 2013); (Lima & Baudier, 2017), (Teece, 2018); and (Baden-Fuller, 2010), who see the concept of business models in the industrial era 4.0 cannot be separated from technology and that innovation in the development of business models that can combine technology will produce a competitive advantage. Business models can be redesigned for efficiency and novelty. The new business model is expected to lead to value creation, value offering, value capture, and/or to the relationship between these elements (Foss, 2018).

### **Business Model Transformation**

Digital transformation occurs because of changes driven by technological developments in organizations and the environment. Changes that occur are related to business process adjustments, including changes between companies and employees and companies with customers, as well as changes that occur in current market conditions ((Nadkarni & Prüggl, 2021). Digital transformation and business innovation change customer expectations and behavior, suppress traditional enterprises and market disruption. Changes in customer needs and behavior are also forcing companies and general administration to excel in digital transformation, so many business sectors need change and digital transformation is a process carried out by organizations or companies. Existing businesses and will start the process Digital takes time to work.

The transformation is carried out from conventional business operations to digital systems. This transformation process by (Gead, 2021). will affect various things in the business process.

First, the business model can have a strong or weak influence on the market. A strong business model can directly affect the market, for example how Google's dominance in Europe and the world can change customers to be more digitally focused. The influence of the business model on the market can be seen in the changes. competition, market globalization, customer behavior (legal and illegal behavior). Second, what happens in the market (market effect) in the first part can affect the company's performance, both financial performance and non-financial performance. Financial performance talks about ROI, Profit and Profit. Non-financial performance talks about building relationships with customers, building networking and opening new distribution channels, Third, for companies that are established/established and have been doing business processes in a conventional way or more conventionally than digitally, they must carry out a transformation process. The transformation process is carried out at the strategy level up to the execution/executive level. especially in marketing, company capability and capacity. How the company is transformed will affect the effect it has on the market and affect the company's performance.

Zilch and Schalla (2015) use a maturity model to show internal business processes in increasing the company's added value. Maturity model consists of six levels of maturity / maturity of the company with the main levels related to data and process analysis. Each level in this model uses the assumption that the company is able to implement information technology even though at different levels of maturity. Safar et. all (2018) uses the Architectural Model for Industrie RAMI 4.0 in designing the business model. The RAMI 4.0 (Reference Architectural Model Industrie 4.0) model uses three dimensions, namely the product life cycle or the flow of added value in the production process in the industry accompanied by the application of digitalization, a company organization consisting of market/business aspects, functions, information, communication and viewpoints regarding the integration capabilities of components (company assets), and production systems ranging from products, equipment on the production floor to the enterprise level and the outside world. Alexander Osterwalder and Yves Pigneur developed the Business Model Canvas (BMC) in 2005, which divides the elements that make up the business model into 9 parts, namely Customer Segment, Value proposition, Channels, Customer Relationship, Revenue streams, Key Activities, Key Resources, Key Partnership and Cost. Structure.

Bouwman (2008; 2012) developed the Service-Technology-Organization\_Finance (STOF) model. This model describes four important dimensions that define a company's business model. This model is simpler than BMC and can be used in small business types. There are still several other business models including; Magic Triangle (Gassman, 2015) is a business model consisting of four dimensions, namely customer, value proposition, value chain and profit mechanism and Integrated Business Model (Wirtz, 2001) and e3-Value Model (Gordijn, 2008)

## RESEARCH METHODS

The design of this research is a literature review. Data collection uses Systematic literature review through the help of the application publish for perish and vos viewer. Data Systematic literature review is a way to identify, evaluate and interpret all available research that is relevant to a particular research question, or topic area, or phenomenon of interest.

At the stage of the Systematic Literature Review, the population in this study were all international journals that discussed business models. According to the population, the samples in the Systematic Literature Review stage are international journals published from year 2000 Scopus until 2022.

The journals used in this study come from main sources namely Scopus. The process of selecting articles on Scopus is determined based on the keywords "Business Model" and "SME's" and "Digitalization", from year 2000 to 2022. Rrticle are screened by issuing publications that do not include scientific articles, namely e-books, newspaper articles,

proceedings, working papers, proceedings, and the substance of the articles according to the topic being studied.

In ensuring that the quality of the articles obtained are articles that have sufficient quality, the limitations of the articles used are Scopus indexed articles in Q1 until Q4. As well as ensuring that the substance of the articles is relevant to the research topic. The synthesis process is carried out by reading the articles that are selected to ensure the relevance of the substance, concept, definition and methodology used so that a comprehensive conclusion is obtained.

This study uses various tools in the analysis process, namely, Vos Viewer and Perish For Publish to map literature and previous research and find the attributes used in research on business models. The search process uses the keywords business model, digital transformation, Small Medium enterprise (SME).

## RESULTS AND DISCUSSION

The search process must be carried out as accurately as possible, the accuracy is indicated by selecting the mapping data source, creating the right search string, and determining the inclusion exclusion criteria. In this process, all steps have results and a systematic map. Researchers conducted a search on electronic databases indexed by Scopus.

The first research question is how the focus of research on business models is carried out. The search stage in Scopus using the vos viewer application using the keywords "Business Model" and "SME's" and "Digitalization" only found four journals. The use of the keyword Business Model recorded 200 articles, but with a filtering process according to predetermined criteria, 46 articles were obtained.

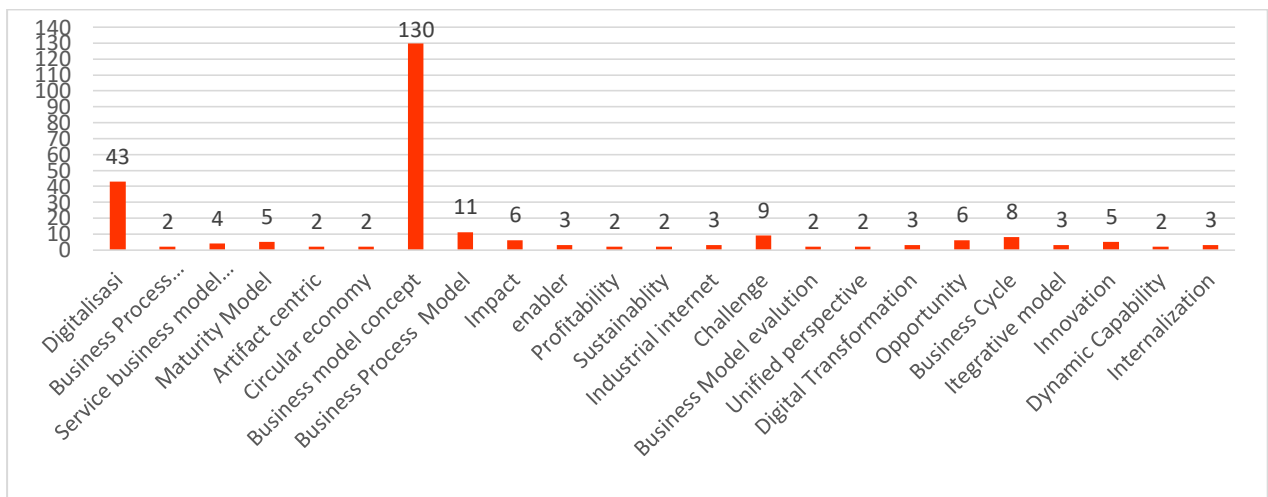
**Table 1.** Journal Mapping Result from Scopus

Keywords	Journal Analyzed	Determinant Variabel	Metodologi
"Business Model" and "SME's" and "Digitalization"	4	Digital transformation, value creation, and capability perspective, Exploitation Innovation Strategy, Exploration innovation strategy, business model	Multi case study, Kuantitative SEM, Mixed metode (survey and interview) Sisyematic Literature Review, fuzzy-set qualitative comparative analysis (fsQCA)
"Business Model"	42	Internet, Sustainability, Circular Economy, New Business Model, Opportunity, Morfology Analysis,	Explanatory Case study, Sistematic Literature review, Conceptual Review, Meta data analysis, Thoretical background analysis, Phenomena case study, Quantitative (SEM, Survey), Clustering Analysis, Qualitative analysis (BMC, DSS, Dynamic modeling, Maturity Modleing)

The results of research on scientific articles that have been successfully filtered include; digital contributes to business model innovation as well as creating new distribution channels and new ways to create and deliver value to customer segments (Mattarazo, 2021; Verhoef et. all, 2021; Caputo, 2021 ; R.B. Bouncken, 2021; F.Li, 2021 ; Nadkarni & Prügl, 2021). the acquisition, assimilation, transformation, and exploitation of knowledge from the environment enables companies to engage in exploratory and exploitative innovation strategies. There is a

role for exploratory and exploitative innovation strategies in the design of efficiency-centered and novelty-centered business models. (Muller, 2021; P.M Bican, 2020). SMEs adopt different digital levels of transformation in 3 tracks, i.e. companies with high digital maturity levels accelerate towards digital companies, SMEs with liquidation difficulties with low digital maturity only digitize sales functions and SMEs with limited digital literacy but high social capital look for partners who have good digital skills, (Priyono, 2020). Innovation in business models has a positive effect on overall company performance. This effect is mediated by BM experimental practices and company innovation. there is equifinality that affects the overall performance of the company as a whole (Bouwman, 2018; 2019; Koen, 2008).

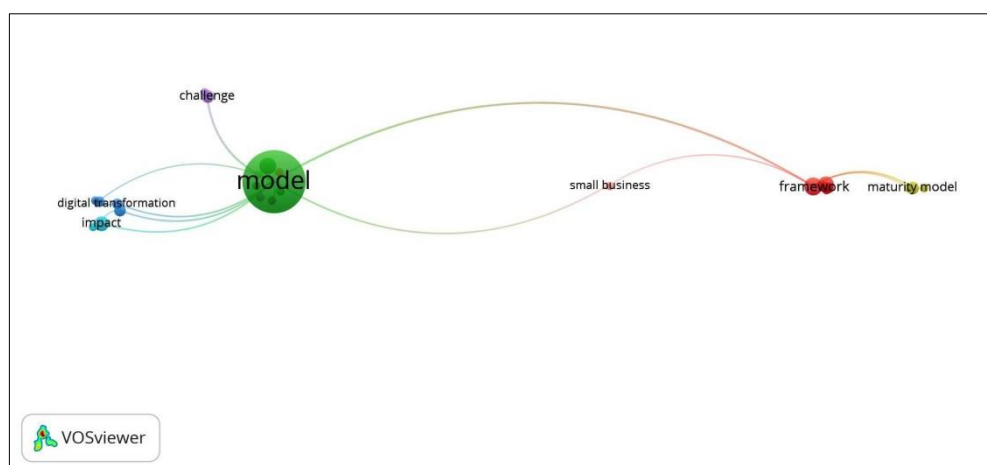
From the article, the research focus and concepts related to business models, digitalization and SMEs were obtained, as presented in the table below:



**Figure 2.** Research Focus Using Scopus

In the picture above, it can be seen that the three biggest research focuses are related to the concept of business models, digitization and business processes. The research focus on the concept of business models includes comparisons between business models, development of business models and a conceptual review of business models. The methodologies that are widely used in the focus of research are qualitative research and literature research.

The next research question, wants to answer the relationship between the research focuses. This is done with the vos viewer. In the data taken from Scopus through the keyword business model, the linkages between the research focuses can be seen in the image below:



**Figure 3.** Interconnect variables using Scopus

The picture above shows that previous research proves that the Business Model is directly correlated with Challenge, Digital Transformation, SME'S and the basic concept or framework. The business model is not directly correlated with the maturity model.

The mapping results show that the focus of research on business models is mostly related to digitalization, business model concepts, innovation and business processes. Information technology is a determinant variable which previous research can prove to be closely related to the company's business model as well as innovation. Meanwhile, according to previous research, business processes have a causal relationship with business models, business processes can affect business models, business models can also affect business processes. Previous research still discusses a lot about the concept of business models using a literature review to find out the extent to which the business model has changed.

In the research methodology used, there was a tendency to use mixed methods and quantitative methods after 2000. Previously, research on business models was mostly done using literature reviews, comprehensive journal reviews and case studies. After the 2000s, the use of big data using meta analysis and statistical tools began to be widely used.

The results of the mapping show the role of digital in changing business models. Digitizing business models is a complex subject. there is a balanced situation between disruptive innovation and business models and in some cases, disruptive innovation causes business models and companies to close. Companies can apply digital technology to improve internal and external processes and integrate into new business models. Digital transformation requires a variety of external knowledge in implementing business model innovation (Caputo, 2021); R.B. Bouncken, (2021); F.Li (2021) Digital contributes to business model innovation as well as creating new distribution channels and new ways to create and deliver value to customer segments (Matarazzo, 2021). Digitalization is changing business models and shaping decisions across their enterprise boundaries across organizational boundaries in ecosystems. (M.Kohtamanki, 2019), digital technology helps overcome the weaknesses of business models that focus on adopting a circular economy (G.Bremelli. 2018).

One of the variables that exist in all of the above business models is the presence of technology as a determinant variable. Information technology drives digital transformation of organizations and environments. Changes that occur are related to business process adjustments, including changes between companies and employees and companies with customers, as well as changes that occur in current market conditions (Nadkarni & Prügl, 2021).

In previous research that has been mapped, SMEs have not been the focus of research in business models. Locus of research is still carried out on business in general and on certain business units whose company scale is already large. Therefore, researchers recommend conducting more in-depth research on SMEs in Indonesia.

## **CONCLUSION**

Based on the analysis and discussion, it can be concluded that the focus of research on business models is mostly related to digitalization, business model concepts, innovation and business processes. There is a change in the trend of using research methodologies from literature review and case studies to mixed methods and quantitative methods. Changes in the business model in SMEs cannot be answered because SMEs have not been the focus of research in business models. Locus of research is still carried out on business in general and in certain business units whose company scale is already large.

The update offered in this research is the mapping of articles that conduct research on a small and medium scale industry which was rarely done before. Most of the previous studies conducted research on business models in established companies and industries.

The limitation in this study is the use of a single method, which is systematic literature review so that the mapping provides limited results because there has not been much discussion of remodelling business models in SMEs. Thus, it is suggested for future research to use qualitative methods with interviews as a complement to the systematic literature review

## REFERENCES

- Amit, R. (2012). Creating value through business model innovation. In *MIT Sloan Management Review* (Vol. 53, Issue 3, pp. 41–49). [https://api.elsevier.com/content/abstract/scopus\\_id/84860491094](https://api.elsevier.com/content/abstract/scopus_id/84860491094)
- Astuti, U. T., Baga, L. M., & Indrawan, D. (n.d.). Thinking of Blue Ocean-Strategy of Gondorukem Business Model Transformation in Perhutani Regional Division of Central Java. In *academia.edu*. <https://www.academia.edu/download/64617856/IJRR0037.pdf>
- Baden-Fuller, C. (2010). Business models as models. *Long Range Planning*, 43(2), 156–171. <https://doi.org/10.1016/j.lrp.2010.02.005>
- Bouwman, H., Nikou, S., Molina-Castillo, F. J., & de Reuver, M. (2018). The impact of digitalization on business models. *Digital Policy, Regulation and Governance*, 20(2), 105–124. <https://doi.org/10.1108/DPRG-07-2017-0039>
- Easton, G. (2010). Critical realism in case study research. *Industrial Marketing Management*, 39(1), 118–128. <https://doi.org/10.1016/j.indmarman.2008.06.004>
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing Digital Technology: A New Strategic Imperative | Capgemini Consulting Worldwide. *MIT Sloan Management Review*, 55(1), 1–13. <https://www.capgemini-consulting.com/SMR>
- Foss, N. J. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning*, 51(1), 9–21. <https://doi.org/10.1016/j.lrp.2017.07.006>
- Frank, A. (2019). Servitization and Industry 4.0 convergence in the digital transformation of product firms: A business model innovation perspective. *Technological Forecasting and Social Change*, 141, 341–351. <https://doi.org/10.1016/j.techfore.2019.01.014>
- Frankenberger, K. (2013). The 4I-framework of business model innovation: A structured view on process phases and challenges. *International Journal of Product Development*, 18(3), 249–273. <https://doi.org/10.1504/IJPD.2013.055012>
- Gordijn, J. (2001). Designing and Evaluating E-Business Models. *IEEE Intelligent Systems*, 16(4), 11–17. <https://doi.org/10.1109/5254.941353>
- Kagermann, H., Österle, H., & Jordan, J. M. (2010). *Business model innovation and IT: global lessons in transformation*. Wiley.
- Kotler, P., & Armstrong, Gary. (2018). *Principles of Marketing*.
- Matarazzo, M., Penco, L., & Profumo, G. (2020). *Business Models and Internationalisation in*. 89–107.
- McDonald Mark, P., & Rowsell-Jones, A. (2012). *The Digital Edge. Exploiting Information and Technology for Business Advantage*
- Müller-Stewens, G. (2017). *Netflix: The master of business model transformation*. alexandria.unisg.ch. <https://www.alexandria.unisg.ch/publications/256863>
- Müller, J. (2018). Fortune favors the prepared: How SMEs approach business model innovations in Industry 4.0. *Technological Forecasting and Social Change*, 132, 2–17. <https://doi.org/10.1016/j.techfore.2017.12.019>
- Müller, J. M., Buliga, O., & Voigt, K. I. (2021). The role of absorptive capacity and innovation strategy in the design of industry 4.0 business Models - A comparison between SMEs and large enterprises. *European Management Journal*, 39(3). <https://doi.org/10.1016/j.emj.2020.01.002>
- Nadkarni, S., & Prügl, R. (2021). Digital transformation: a review, synthesis and opportunities



- for future research. *Management Review Quarterly*, 71(2). <https://doi.org/10.1007/s11301-020-00185-7>
- Najmaei, A., & Sadeghinejad, Z. (2022). Green and sustainable business models: historical roots, growth trajectory, conceptual architecture and an agenda for future research—A bibliometric review of green and sustainable business models. In *Scientometrics* (Issue 0123456789). Springer International Publishing. <https://doi.org/10.1007/s11192-022-04577-2>
- Oesterreich, T. D., & Teuteberg, F. (2016). Understanding the implications of digitisation and automation in the context of Industry 4.0: A triangulation approach and elements of a research agenda for the construction industry. *Computers in Industry*, 83(December), 121–139. <https://doi.org/10.1016/j.compind.2016.09.006>
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a handbook for visionaries, game changers, and challengers* (Vol. 1). John Wiley & Sons
- Roblek, V., Bach, M. P., Meško, M., & Bertonec, A. (2013). The impact of social media to value added in knowledge-based industries. *Kybernetes*, 42(4), 554–568. <https://doi.org/10.1108/K-01-2013-0014>
- Rodrigues, A. M., Bowersox, D. J., & Calantone, R. J. (2005). Estimation of global and national logistics expenditures: 2002 data update. *Journal of business logistics*, 26(2), 1-16
- Safar, L., Sopko, J., Bednar, S., & Poklemba, R. (2018). Concept of SME business model for industry 4.0 environment. *TEM Journal*, 7(3), 626–637. <https://doi.org/10.18421/TEM73-20>
- Stolterman, E., & Fors, A. C. (2004). Information technology and the good life. *IFIP Advances in Information and Communication Technology*, 143(January), 687–692. [https://doi.org/10.1007/1-4020-8095-6\\_45](https://doi.org/10.1007/1-4020-8095-6_45)
- Teece, D. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2), 172–194. <https://doi.org/10.1016/j.lrp.2009.07.003>
- This, R., Attribution-noncommercial, C. C., By-nc, C. C., If, T., & Rose, W. (2019). *Fo re*.
- Westerman, G., Calmèjane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). Digital Transformation: A roadmap for billion-dollar organizations. *MIT Center for digital business and capgemini consulting*, 1, 1-68
- Wirtz, B. W. (2016). Business Models: Origin, Development and Future Research Perspectives. *Long Range Planning*, 49(1), 36–54. <https://doi.org/10.1016/j.lrp.2015.04.001>
- Zilber, S. N. (2012). Small companies innovations in emerging countries: E-business adoption and its business model. *Journal of Technology Management and Innovation*, 7(2), 102–116. <https://doi.org/10.4067/s0718-27242012000200009>
- Zott, C. (2013). The business model: A theoretically anchored robust construct for strategic analysis. *Strategic Organization*, 11(4), 403–411. <https://doi.org/10.1177/1476127013510466>