



IMPACT OF DIGITAL CULTURE, DIGITAL LEADERSHIP, DIGITAL COMPETENCE, AND ORGANIZATIONAL AGILITY ON DIGITAL TRANSFORMATION: AN EMPIRICAL STUDY IN VIETNAMESE SMES

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**ĐẠI HỌC QUỐC GIA THÀNH PHỐ HỒ CHÍ MINH
TRƯỜNG ĐẠI HỌC BÁCH KHOA**

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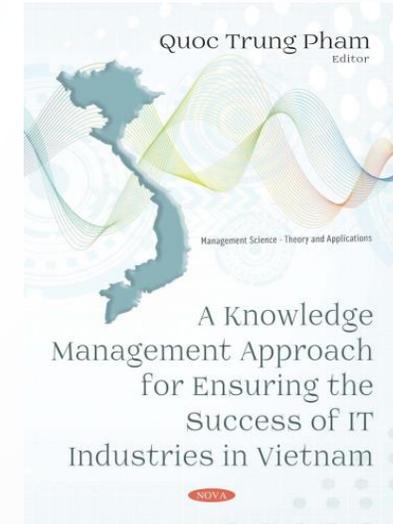


DIGITAL TRANSFORMATION

1. General information



- Full name: PHẠM QUỐC TRUNG, Assoc.Prof. of MIS Dept./ Head of Simulation Lab./ SIM-HCMUT
- MSc. in Computer Science (HCMUS-VNU, VN), Ph.D. in Economics (Kyoto University, Japan)
- Training courses:
 - Graduate-level: Knowledge Management, Decision Support & Business Intelligent System, E-business management, Leadership & Management, Strategy management in digital age, Digital transformation...
 - Under-graduate: Computer for business, Management information system, Simulation in business, Statistics for business, E-commerce, Quantitative methods, Data Science...
- Research and publications:
 - Completed 10 research projects, in which chair of 6 projects.
 - Published 52 academic papers (20+ articles in ISI/Scopus list).
 - Published 5 books and supervised 100+ post-graduate students.
- Other contributions:
 - Organizer/Keynote speaker of conferences, Editor/Reviewer of journals



2. Introduction (1)



- Digital transformation is more and more important in the digital age.
- Fast development of technology, unstable economic situation of post Covid-19 require managers to have a flexible strategy to sustain their businesses.
- SMEs play important role in all economies, especially developing countries like Vietnam.
- However, SMEs are struggling with their current business goals, lacking of knowledge and resources for digital transformation, and having no time for adapting their strategy toward digital age and e-commerce environment.

=> There is a need for exploring factors impacting on the success of digital transformation of SMEs, focusing on organizational culture, leadership, digital capability and agility.

2. Introduction (2)

- Research objectives:
 - Exploring the impact of organizational culture, leadership, digital capability, and organizational agility on digital transformation (DT) of Vietnamese SMEs.
 - Suggesting the suitable strategies and managerial implications for ensuring the success of digital transformation of Vietnamese SMEs.
- Research meanings:
 - Theoretical meanings: an empirical study on DT in a developing country
 - Practical meanings: know-how to ensure the success of DT in SMEs, helpful for SMEs' managers
- Research scope:
 - Respondents: managers of SMEs in HCMC, in the process of conducting DT
 - Time frame for data collection: 02/2023-04/2023

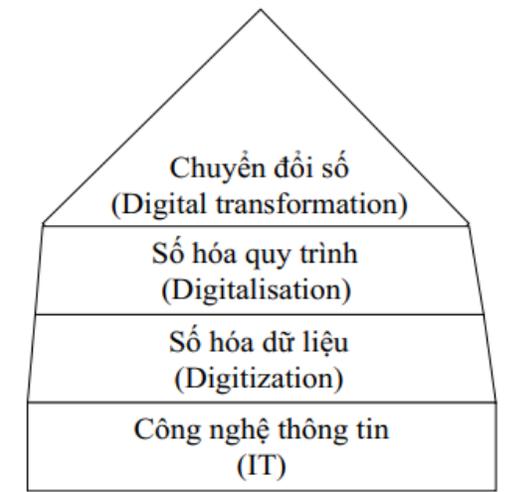
3. Research method (1)

- Main concepts

- Digital transformation : transforming business processes, cultures, and organizational aspects to meet changing market requirements brought about by digital technologies.
- Digitalization/ Digitization/ IT project (change management)
- SMEs: small and medium enterprises (<200 employees, <100 billion VND.)

- Research process:

- Literature review
- Propose the research model
- Adapt the measurement scales
- Collect data from Vietnamese SMEs
- Analyze data and test model: statistics, Cronbach alpha, EFA, SEM/AMOS...
- Conclusion and recommendations



(1) Vấn đề nghiên cứu và mục tiêu của đề tài

(2) Cơ sở lý thuyết

- Bối cảnh nghiên cứu
- Các định nghĩa về: Chuyển đổi số, DNVVN
- Các lý thuyết liên quan khác
- Các nghiên cứu đi trước liên quan đến trường phái nghiên cứu chính

(3) Mô hình nghiên cứu đề xuất và thang đo kế thừa

(4) Hiệu chỉnh mô hình nghiên cứu đề xuất và thang đo

- Nghiên cứu định tính sơ bộ: phỏng vấn chuyên gia
- Nghiên cứu định lượng sơ bộ: khảo sát thử

(5) Nghiên cứu chính thức: khảo sát các quản lý cấp trung, cấp cao đang làm việc tại DNVVN

(6) Xử lý và phân tích dữ liệu: Thống kê mô tả, đánh giá độ tin cậy của thang đo, phân tích EFA, phân tích SEM/AMOS, phân tích phương sai

(7) Kết luận và kiến nghị

3. Research method (2)

- Related researches

Authors	School of study	Main goals	Advantages	Disadvantages
AlNuaimi et al. (2022)	NIT - New institutional theory	Organizations have to adapt with their social environment, including digital technology. Digital transformation requires the change not only in technology but also in practices, habits, and organizational culture.	Applied widely in various fields and research topics, including digital transformation.	Lack of some other aspects, such as: digital capability, knowledge...
Zhang, Xu & Ma (2022)	TOE - Technology, Organization, Environment	Extend the scope of management toward the optimization of internal and external resources of an organization.	Applied widely and popular in digital transformation research. It's applied mostly in Vietnam.	Lack of some important factors, such as: technology innovation, digital capability, organizational agility, organizational climate...
Ntandoyethu et al. (2019)	IT application	Focus on IT application project in an organization. Besides, this study emphasizes the different between IT-experienced and non IT-experienced leader on the final outcome of digital transformation project.	Optimize the technology aspect in an organization.	Only focusing on technology aspect and ignoring other aspects, such as: leadership, culture, capability...

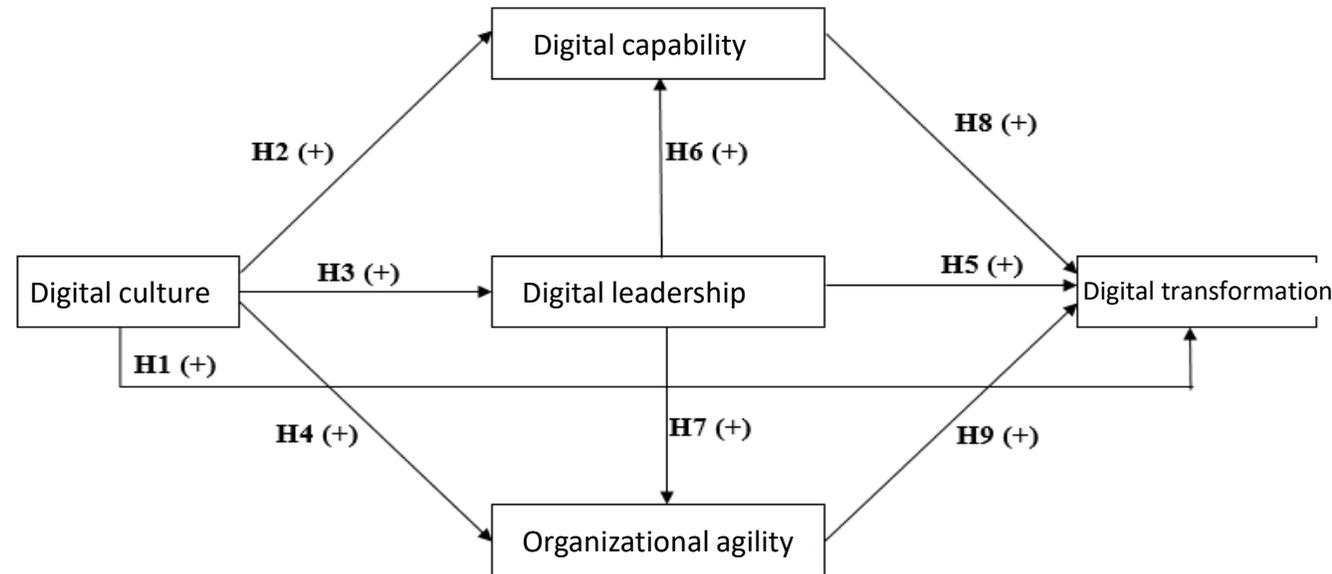
3. Research method (3)

- Proposed research model

- Hypothesis statement

- H1:** Digital culture has a positive impact on digital transformation
- H2:** Digital culture has a positive impact on digital capability of SME
- H3:** Digital culture has a positive impact on digital leadership of SME.
- H4:** Digital culture has a positive impact on organizational agility of SME.
- H5:** Digital leadership has a positive impact on digital transformation of SME.
- H6:** Digital leadership has a positive impact on digital capability of SME.
- H7:** Digital leadership has a positive impact on organizational agility of SME.
- H8:** Digital capability has a positive impact on digital transformation of SME.
- H9:** Organizational agility has a positive impact on digital transformation of SME.

- Measurement scales: derived from previous studies of AlNuaimi et al. (2022), Rossmann (2018), Gurbaxani & Dunkle (2019), and Bartolome et al. (2018).



4. Analysis results (1)

- Descriptive statistics of sample

Category	Value	Frequency	Percentage
Job position	Founder/ Owner	47	18.8
	Director/Deputy Director	161	64.4
	Manager	42	16.8
Gender	Nam	169	67.6
	Nữ	81	32.4
Age	Under 30 years old	87	34.8
	31 – 40 years old	92	36.8
	41 – 45 years old	34	13.6
	46 – 50 years old	29	11.6
	Above 50 years old	8	3.2
Educational level	Under-graduates	228	91.2
	Post-graduates	22	8.8
Business function	Office	182	72.8
	IT related	19	7.6
	Others	49	19.6
Experience	Under 2 years	23	9.2
	From 2 – 5 years	157	62.8
	From 5 – 10 years	64	25.6
	Over 10 years	6	2.4

4. Analysis results (2)

- Descriptive statistics of main factors

Factor	Min	Max	Avg.	Stdev.
Digital culture	1.80	5.00	3.6660	.71209
Digital leadership	1.50	5.00	3.5533	.73832
Organizational agility	1.50	5.00	3.5587	.63152
Digital capability	1.57	4.86	3.6669	.58275
Digital transformation	1.60	5.00	3.9160	.55202

- Reliability test and Exploratory factor analysis results

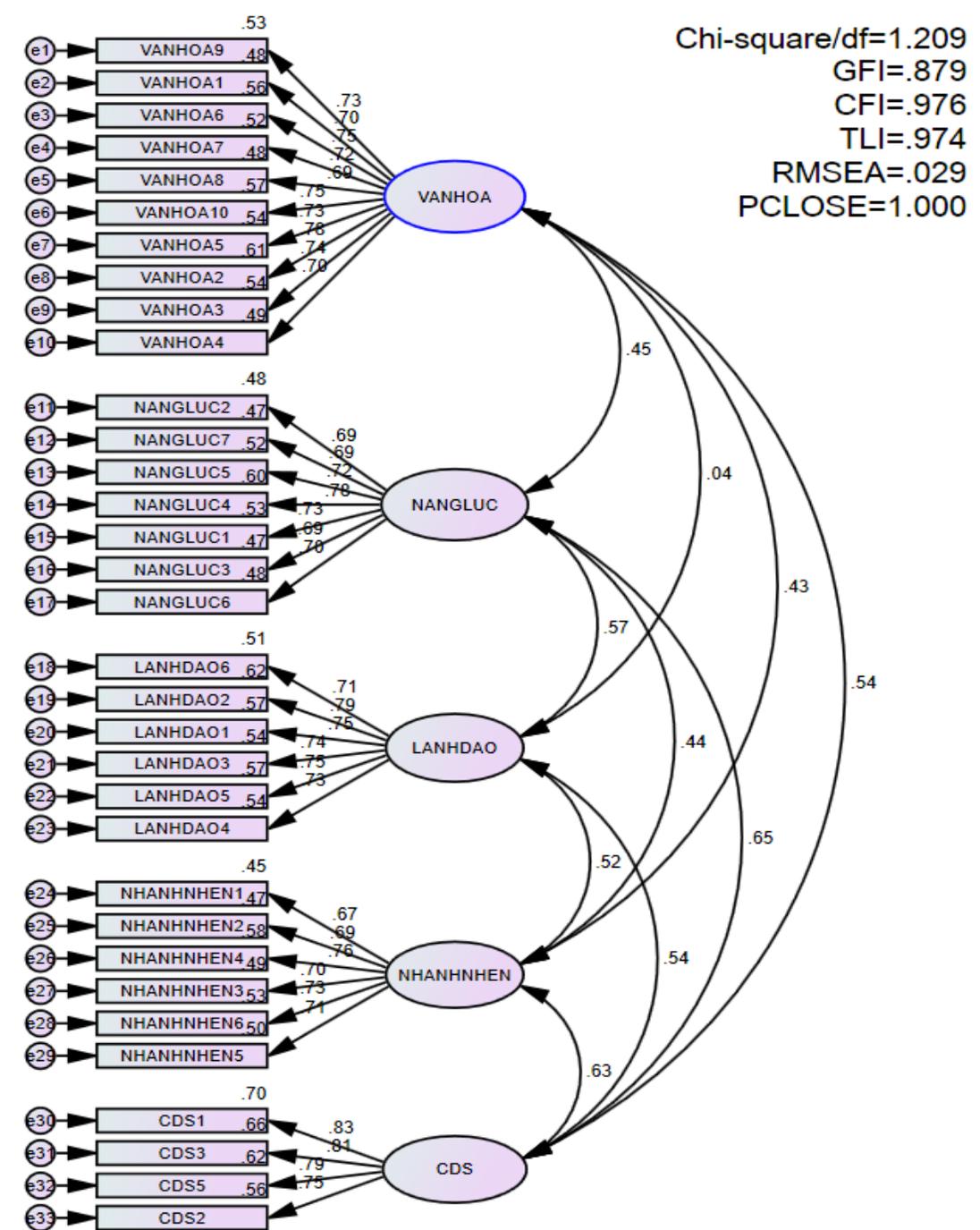
Factor	Cronbach alpha	Item-total cor.	Items removed	EFA factor loading
Digital culture	0.918	0.660 – 0.734	0/10	0.650 – 0.833
Digital leadership	0.881	0.678 – 0.720	0/6	0.749 – 0.820
Organizational agility	0.858	0.634 – 0.685	0/6	0.700 – 0.848
Digital capability	0.878	0.636 – 0.722	0/7	0.693 – 0.799
Digital transformation	0.870	0.660 – 0.789	1/5	0.568 – 0.904

- KMO = 0.932 (>0.5), Sig. = 0.00 (<0.05), Variance Extraction = 61.9 % (>50%) => satisfied

4. Analysis results (3)

- Confirmatory factor analysis (CFA) results

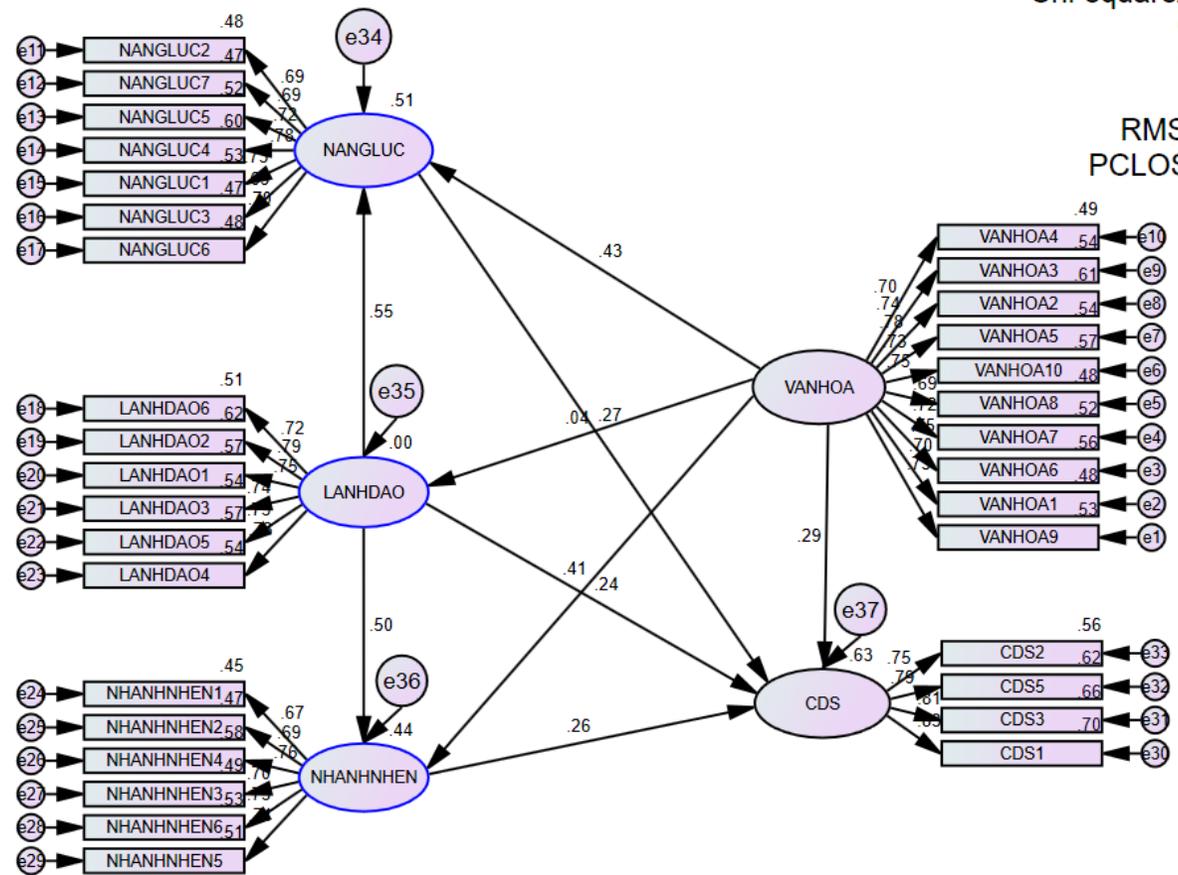
Criteria	Value	Standard	Evaluation
Chi-Square (CMIN)/df	1.209	≤ 3	Good
GFI	0.879	> 0.8	Good
CFI	0.976	≥ 0.9	Good
TLI	0.974	≥ 0.9	Good
RMSEA	0.029	≤ 0.08	Good
PCLOSE	1.000	≥ 0.05	Good



4. Analysis results (4)

- Structural Equation Model (SEM) analysis results

Criteria	Value	Standard	Evaluation
Chi-square/df	1.207	> 0.05	Good
GFI	0.879	≥ 0.8	Good
CFI	0.976	≥ 0.9	Good
TLI	0.974	≥ 0.9	Good
RMSEA	0.029	≤ 0.08	Good

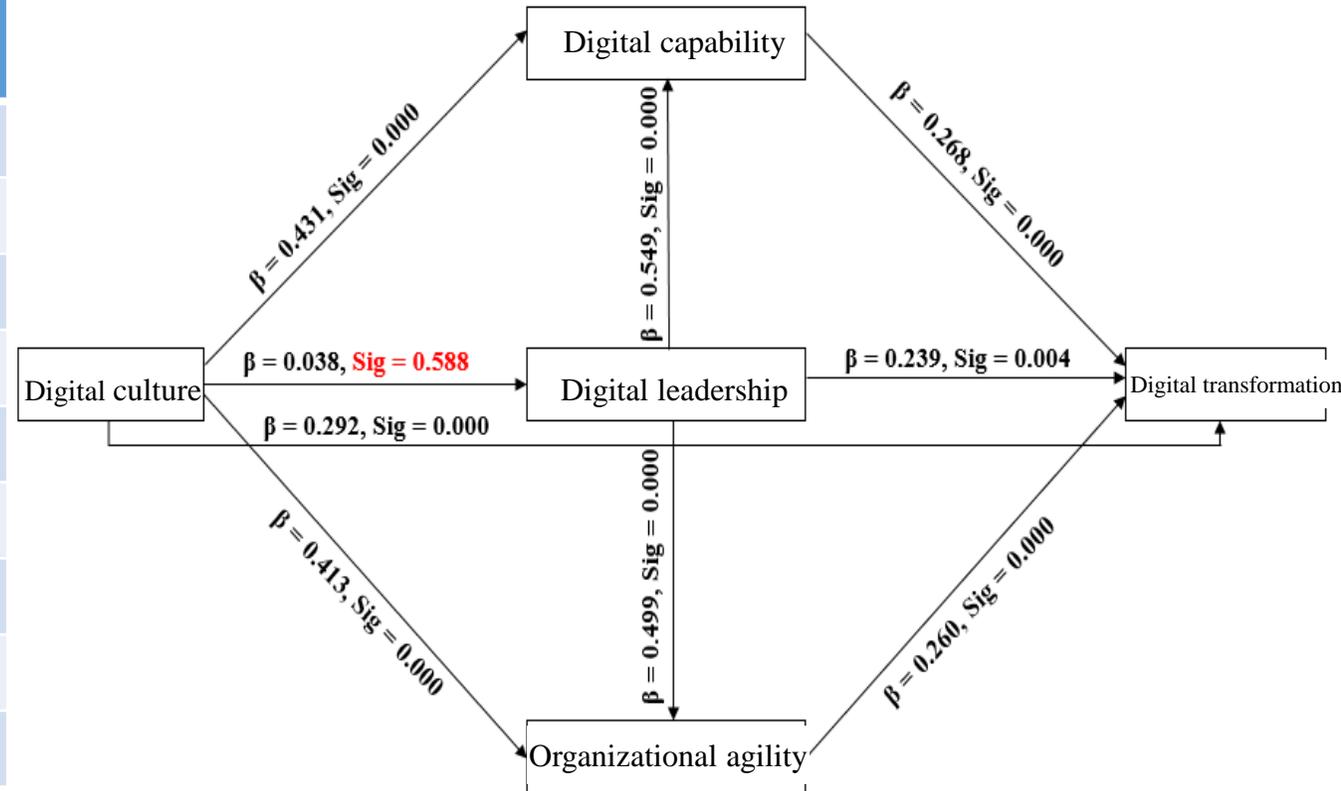


Chi-square/df=1.207
 GFI=.879
 CFI=.976
 TLI=.974
 RMSEA=.029
 PCLOSE=1.000

4. Analysis results (5)

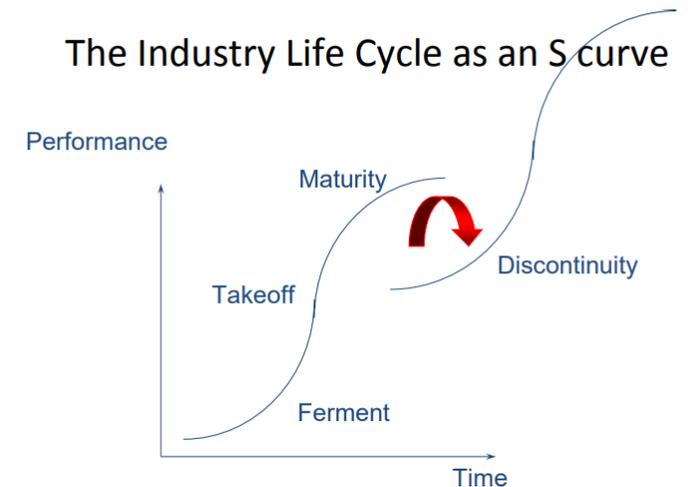
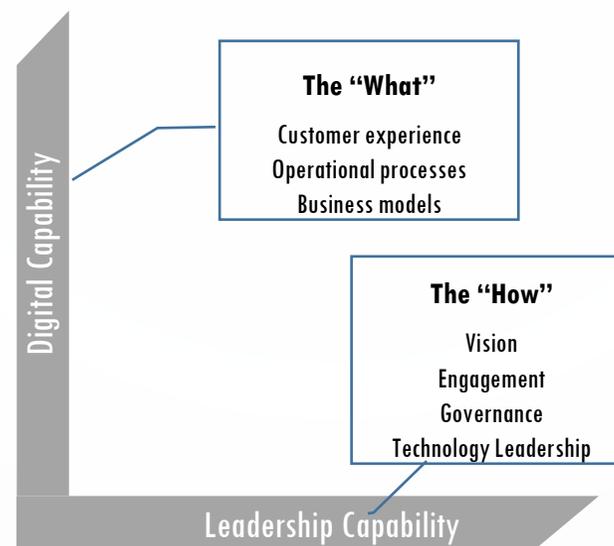
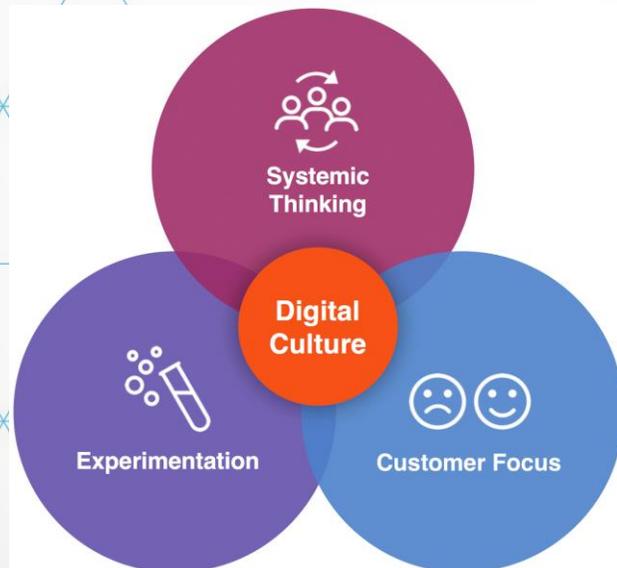
- Hypothesis testing results

ID	Hypothesis statement	Unstandardized beta	Standardized beta	P-value	Conclusion
H1	Digital culture => Digital transformation	0.259	0.292	***	Supported
H2	Digital culture => Digital capability	0.343	0.431	***	Supported
H3	Digital culture => Digital leadership	0.037	0.038	0.588	Rejected
H4	Digital culture => organizational agility	0.333	0.413	***	Supported
H5	Digital leadership => Digital transformation	0.216	0.239	0.004	Supported
H6	Digital leadership => Digital capability	0.445	0.549	***	Supported
H7	Digital leadership => Organizational agility	0.411	0.499	***	Supported
H8	Digital capability => Digital transformation	0.299	0.268	***	Supported
H9	Organizational agility => Digital transformation	0.286	0.260	***	Supported



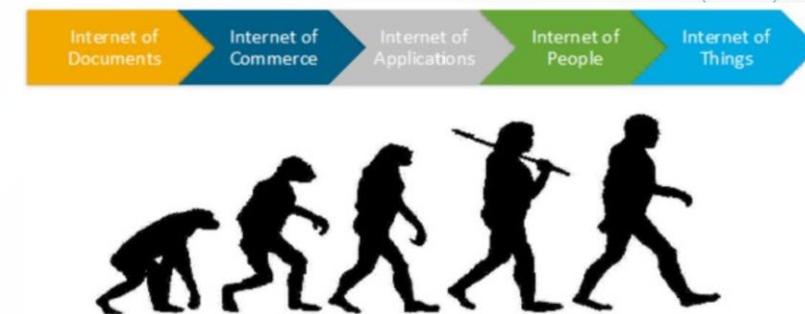
5. Managerial implications (1)

- Based on analysis results, some recommendations for SMEs could be made as follows:
 - Developing a strong **digital culture**: digital culture has the strongest impact on DT of SMEs (beta=0.292). Some solutions: encouraging an open culture, willing to learn new things, taking advantages of new technology for nurturing a digital mindset, such as: data mining, data-based decision making, DSS and business intelligence tools in predicting, evaluating risks and solving problems.
 - Improving **digital leadership**: digital leadership has both direct and indirect impact on DT. It is considered the key for success of DT. Some suggestions: establishing a shared DT vision, facilitating the new ideas and solutions for implementing DT, building a mechanism for collaboration and team work, redesigning the KPIs for evaluating the performance to support DT.



5. Managerial implications (2)

- Based on analysis results, some recommendations for SMEs could be made as follows:
 - Investing on **digital capability**: digital capability is the second strongest factor impacting on DT of SMEs (beta=0.268). Some solutions: choosing the most suitable technology rather than the newest one, training employees for using the new tools and techniques, trying the free open source solutions for DT projects, partnering with some outside partners for solving problems of DT.
 - Increasing the **organizational agility**: this factor is very important for SMEs in the digital age because of their dynamic and easy-to-change nature. Some suggestions: encouraging the new ideas and innovative solutions to deal with the change of the market and technology, giving supports for innovation, collaborating with outside partners for learning new trends in doing business, such as: AI, robotic...



6. Conclusion & future directions

- In summary, this study explored the impact of 4 factors (Digital culture, Digital leadership, Digital capability, and Organizational agility) on the DT in Vietnamese SMEs.
- The data sample includes 250 valid questionnaires collected from Vietnamese SMEs.
- Analysis results show that all factors have significant impacts on DT of Vietnamese SMEs. In which, digital culture has the strongest impact on DT ($\beta = 0.292$).
- From these results, some managerial implications for increase the success of DT in Vietnamese SMEs have been suggested, such as:
 - Nurturing a digital mindset (digital culture)
 - Establishing a shared DT vision (digital leadership)
 - Investing on the suitable technology (digital capability)
 - Encouraging the new ideas and innovative solutions (organizational agility)
- Limitation and future directions:
 - Limited sample size and scope: increase the size and extend the scope to other areas in Vietnam
 - Lack of deep analysis of problems in DT of SMEs: combine quantitative and qualitative research

Thanks for listening!

- Question & Answer!



References

- AlNuaimi, B. K., Singh, S. K., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Journal of Business Research*, 145, 636-648.
- Bartolomé, J., de Soria, I. M., Jakobson, M., Fernández, A., Ruseva, G., Koutoudis, P. & Vaquero, M. (2018). Developing a digital competence assessment and accreditation platform for digital profiles. In L. Gómez Chova, A. López Martínez, & I. Candel Torres (Eds.), *Proceedings of the 12th International Technology, Education and Development Conference (INTED)*, 4552–4559.
- Gurbaxani, V., & Dunkle, D. (2019). Gearing Up For Successful Digital Transformation. *MIS Quarterly Executive*, 18 (3).
- Kimiz, D. (2011). *Knowledge management in theory and practice*. MIT Press, USA.
- Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-Creating Company*, Oxford University, USA.
- Ntandoyethu, M., Jeff, SM., Chen, YJ., & Alkema, P. (2019). The underlying factors of a successful organisational digital transformation. *South African Journal of Information Management* 21.1 (2019): 1-10.
- Pham, QT., & Le, MH. (2018). The impact of knowledge management on innovation performance of small & medium enterprises: An empirical study in Lam Dong, *Journal of Science HCMC Open University*, 8 (3)
- Rogers, D.L. (2016). *The Digital Transformation Playbook: Rethink Your Business for the Digital Age*, Columbia Business School Publishing.
- Rossmann, A. (2019). Digital Maturity: Conceptualization and Measurement Model. The 39th International Conference on Information Systems (ICIS 2018), San Francisco, California, USA.
- Westerman, G., Bonnet, D., McAfee, A. (2014). *Leading Digital: Turning Technology into Business Transformation*, Harvard Business Review Press
- Wiraeus, D. & Creelman, J. (2019). *Agile Strategy - Management in the Digital Age: How Dynamic Balanced Scorecards Transform Decision Making, Speed and Effectiveness*, Palgrave MacMillan.
- Zhang, X., Xu, Y., & Ma, L. (2022). Research on successful factors and influencing mechanism of the digital transformation in SMEs. *Sustainability*, 14(5), 2549.