Policy and Imprecise Concepts: The Case of Digital Transformation

Shirley Chen
University of Michigan, chhsiuli@umich.edu

John Leslie King
University of Michigan, jlking@umich.edu

Follow this and additional works at: https://aisel.aisnet.org/jais

Policy and Imprecise Concepts: The Case of Digital Transformation

Shirley Chen[1], John Leslie King[2]

[1]University of Michigan, USA, chhsiuli@umich.edu
[2]University of Michigan, USA, jlking@umich.edu

Abstract

The name digital transformation is widely used, even though its meaning is imprecise. This constructive ambiguity signifies the growing importance of information technology in organizational life rather than a specific thing. Most organizations can and do use the name freely. They do not need policy for digital transformation as long as they recognize the utility of "watchful waiting" and ongoing policy analysis.

Keywords: Digital Transformation, Policy, Ambiguity

1 Imprecise Concepts and Policy

The information systems (IS) field has been called "emergent," given rapid change in both the concrete and imaginary (cf. Lee, 1991; Luna-Reyes, 2005, Merali, 2006). Even imprecise emergent concepts are amenable to policy analysis (King & Kraemer, 2019). "Watchful waiting" can be better than a premature policy of emergent concepts for most organizations. This has been seen with "computerization," "automation," "reengineering," etc. Treating digital transformation as a name recognizes that the name might disappear from use before policy is made. If not, there is time for organizational policy. Premature definition can distort. It is sometimes better to wait and take advantage of the ambiguity.

This editorial is aimed at IS professionals who do research in, consult for, or work in organizations. Opinion leaders (e.g., board members, executives, managers) sometimes ask whether the organization should have a policy about digital transformation or other imprecisely defined notions. Policy formation usually requires making imprecise terms precise, but trying to figure out exactly what an imprecise name means can be a waste of time compared to viewing the name as a signifier. That can help if formal policy is created and, at the least, contributes to organizational learning.

2 The *Je Ne Sais Quoi* of Digital Transformation

Considering digital transformation a name (some organizations use it in their name) is key to this analysis. The meaning of the words in the name can enlighten, but names can go beyond words. Sometimes the original meaning of the words is forgotten but the name is still used. Similarly, names can disappear but the words in them remain in use. Imprecision is fairly common when names are coined: the name "computer science," now common and generally understood, was once imprecise (Newell et al., 1967). Digital transformation is widely used, despite imprecision.[1] The French expression, *je ne sais quoi*, "I do not know what," suggests something important but imprecise. This notion applies to digital transformation.

---

[1] A 2021 internet search for "digital transformation" (with quotes) produced more than 50 million hits.

The name, as used, often refers to established organizational objectives: expanding market share, improving profitably, increasing innovation, or strengthening backend digital infrastructure (Carey, 2017; Trapp, 2016). It has been described as a "journey."[2] When stakeholders with differing interests agree on the meaning of the name, it is often because they see what they want to see. The ability to pursue this is ancient: ineffable human experience has abided for thousands of years in English terms like "love," "holy," "beauty," etc. Imprecision is not necessarily a death sentence.

3 Perspectives on Digital Transformation

Imprecision becomes clear in sensemaking (Weick, 1995). People turn to the words in a name for clues about the name's meaning. The English noun "transformation" modified by the English adjective "digital" implies change brought about by digital means. But names can mislead. Sometimes they devolve to ridicule (e.g., intelligence has multiple meanings, making the term "military intelligence" a joke to some). Shifting emphasis between words (e.g., between noun and adjective) can help: does "digital transformation" exclude nondigital transformations? Is "digital" transitory now that most data and documents are now born digital, and most organizations are going digital (Prause, 2016). Is it all about "transformation?" If so, how does digital transformation differ from other transformation? Is transformation another term for disruption from without rather than intention from within (Kane et al. 2021)?

Another strategy is to ask how the name is used professionally.[3] Digital transformation's professional focus is often on technology-enabled, organization-wide changes in structures, processes, and work (KPMG, 2021). The goal can be to use technology for positive customer experience (Accenture, 2020), improve organizational performance (Sharma et al., 2020), create better business models (Gartner, 2021), integrate processes for individualized customer experiences (Bergman, 2012), attract customers, increase profitability, and stay competitive (HPE 2021). Technology use might drive costs down, accelerate productivity, increase security, and enhance customer experience through work done anywhere in the world (https://www.ibex.co/). The name can be sector specific, for example in manufacturing (Dassault Systemes, 2021). Professionally, digital transformation usually means technology in pursuit of business goals. Teaching pedagogy adopts this "master narrative" (McLean & Syed, 2016).

Executives use the name in ways similar to consultancies as technologies.[4] Executives of for-profit firms want to outcompete others and strengthen partnerships among employees, suppliers, and customers. Executives of nonprofits want to achieve missions efficiently. However, there is a wrinkle not seen in consulting: criticism of the organization's IT function as dedicated to existing IT infrastructure but not to transformation. To address this, some organizations have expanded upon the chief information officer (CIO) job with other "chiefs" (e.g., chief digital officer or chief transformation officer) who report to the CEO, have independent budgets to develop strategic initiatives, and are sometimes given responsibility for overhauling legacy systems or managing customer needs (McLaughlin, 2019, Messenböck et. al, 2019; Aradhya, 2020).

Research literature can add precision to imprecise names. Besson and Rowe (2012) note that organizational transformation (OT) became a topic in the 1980s and became coupled with information technology (IT) in the 1990s. They refer to "IS-enabled-OT," but say the concept is imprecise. They evaluate OT in light of organizational inertia (including path dependence), process, agency and performance, and identified avenues for future research, and recommend that research embrace psychological, sociocognitive, and economic inertia as key factors. Nearly a decade later, the imprecision remains. One of the co-authors of Besson and Rowe is the co-editor of a special issue that will appear in this journal on digital transformation and theory. The call for papers admits that digital transformation is difficult to define but hopes that the special issue provokes debate and theory development (Markus & Rowe, 2020; Markus & Rowe, 2021; Rowe & Markus, 2021).

Setting policy almost always includes the temptation to improve precision. Policy analysis does not require this. Focus can be on the phenomenon, an observable fact or event that implies causal explanation. It is also possible to focus on epiphenomena that occur alongside but do not have the same causal expectations. For example, the correlation between more fire trucks responding to a fire and damage done by the fire does not mean that more fire trucks cause more damage. If causality is broadened it can be seen that larger fires bring more fire trucks and cause more damage. Digital transformation might deserve ongoing

---

[2] See Forrester's 2014 article, https://go.forrester.com/blogs/14-09-03-look_beyond_traditional_service_providers_for_your_digital_transformation_journey/

[3] Provider views drawn from consultants and those who hire them were examined until no new insights were found.

[4] Most of these executives were IS-related (e.g., CIOs). No theoretical sampling frame was used. This was a convenience sample of for-profit and nonprofit executives, expanded until nothing new was heard.

attention but policy analysis is enough. It is sufficient to see that large fires, the number of fire trucks responding, and the damage done are related.

The importance and imprecision of digital transformation make it interesting (Kappelman et al., 2019). Digital transformation projects can look like IT-enabled organizational transformation projects (Wessel et al., 2020). The imprecision should not mask the importance. Analogs to aid understanding (e.g., "Je ne sais quoi," "but it's kind of like that…") are commonly evoked. Executives sometimes say that digital transformation reminds them of enterprise resource planning (ERP) from the 1990s (Sebastian et al., 2017). This reasoning by analogy is noted in research literature (Besson & Rowe, 2012). Both ERP and digital transformation claim change in the business model, effects on employees and customers, etc. Does digital transformation bring something that ERP did not? Here it is useful to consider the epiphenomenal implications of ERP and digital transformation. These might be less about information technology per se than about evolving attitudes toward information technology.

4   Constructive Ambiguity

Information technology is of increasing importance to organizations. But *je ne sais quoi* suggests that importance is not well understood. This is part of the fraught relationship between signification and understanding as seen in name games and paleonymic grafts.

4.1   Name Games: "I Know It When I See It:"

A 1964 opinion on a legal case regarding the State of Ohio's efforts to ban a film on grounds of obscenity produced a famous quote. At the time, the US Constitution protected all expression except hard-core pornography; thus, the US Supreme Court justices wondered whether the film in question was hard-core pornography. Justice Potter Stewart wrote, "I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description [meaning hard-core pornography]; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it, and the motion picture involved in this case is not that." (Jacobellis v. Ohio, 1964, 197). Names can have meaning but still not have a precise definition.

Stewart touched on a question that philosophers (e.g., Alfred Tarski, Bertrand Russell, Ludwig Wittgenstein, and others) have long wondered about: How does one statement logically follow from others? Natural language requires interpretation, which leads to name games, especially regarding proper names. Names sometimes mean what the words in them mean; sometimes they do not. Does "digital transformation" mean more than the words "digital"

and "transformation?" Making the words in names more precise does not always make the name as used more precise.

4.2   Paleonymic Grafts

Jacques Derrida's (1997) paleonymic graft claims that paleonyms (old names) can be grafted or added on to, creating new meaning. Paleonymic grafts in deconstruction reverse the hierarchy of opposition (e.g., fact over fiction, truth over opinion) to reveal assumptions that might otherwise be hidden (Culler, 1982, p. 140). With paleonymic grafts, the status of a name can be altered using the same words.

Modifying Derrida's paleonymic graft, digital transformation might be the latest in a succession of names, tied to the context of their time, signifying the increasing importance of information technology. In the early 19th century, Charles Babbage's difference and analytical engines leveraged the popular transformative power of the steam engine. Engine was replaced by the machine metaphor, as in Jacquard's weaving machine, Hollerith's tabulating machine (his company became International Business Machines), Alan Turing's Turing Machine, and in the founding of the Association for Computing Machinery. The machine metaphor eventually gave way (IBM and ACM both tried to find substitutes for "machine" before going with their acronyms). "Calculators" succeeded machines for military applications (Edwards, 1996). "Computer" has proven stickier. One metaphor became system (Churchman, 1968; Yates, 1989, 2007). Information systems was born of office automation, decision support, management information systems (MIS), and other interests. Today there is data science, information science, informatics, and plain information that have joined "computer."

Metaphors come and go: engine, machine, electro-mechanical, electronic, computer, systems. etc. Function names evolve: automatic data processing (ADP), electronic data processing (EDP), information systems (IS). Titles evolve: data processing manager, chief information officer, and (maybe) chief transformation officer. The signifier "digital," even if transitory and imprecise, alludes to a phenomenon that people care about. Information joins capital and labor as factors of production. New meanings are grafted onto old names. Sometimes the names change. But through it all, the status of information technology rises in the organization. One name for this rise is digital transformation. The ideas are not always new: "work at home" (WAH) has been studied by IS researchers as telecommunication-transportation substitution. "Shop at home" (SAH) has been studied by IS researchers as business-to-consumer electronic commerce. Imprecise concepts create an opportunity to explore. For example, although "data" is increasingly salient (e.g., data science, data analytics),

data can be a stumbling block (Borgman, 2015). Imprecise concepts allude to what *might prove to be important,* helping people get ready for needs that *might* arise.

5   Conclusion

Even if it is a transitory name, digital transformation should be taken seriously. Modest change on one dimension (e.g., vehicle speed) can produce radical change on another (e.g., control of the vehicle). Such tipping points—the straw that breaks the camel's back, the drop that makes the cup overflow—have been discussed in the research (Markus, 1997; Gladwell, 2000). Information technology might be indispensable, but has long been relegated to cost control, reporting to a role once titled "cost controller." Digital transformation signifies IT's strategic importance to organizational welfare. It might be a greater tipping point than enterprise resource planning.[5]

The pandemic stimulated executive discourse on digital transformation. Organizational activities moved online, which proved more reliable and effective than feared. This is now being followed by apparently permanent changes in commuting patterns, real estate uses and prices, WFH and SFH, daily routines, recruiting, team dynamics, etc. New workplace tools are within organizational reach. The genie will not go back in the bottle.

Digital transformation is a wake-up call that signifies the growing organizational importance of information technology. For most organizations, digital transformation policy is premature. Policy analysis about digital transformation is not. "Watchful waiting" is reasonable as long as the watching is serious. An online column says that digital transformation sounds like marketing but represents a "generational shift" as big as smartphones, irrespective of what it's called (Evans, 2021). Time might pass before profound effects are understood, as happened with the combined effects of supply-chain management, vendor-managed inventory, web-based advertising and order entry, inbound/outbound logistics, etc., that resulted in the retailing revolution. Digital transformation might be imprecise about the spirit of the times, but the zeitgeist is real. The challenge is *how* to think about digital transformation rather than what to think.

6   Acknowledgments

---

[5] Enterprise resource planning might remain an instructive story. People still discuss it: the string with quotes yields over 7 million hits in an internet search engine. As the first large-scale enterprise system concept, it led the way for discussion of digital transformation two decades later.

References

Accenture (2020). *Transforming Accenture into a digital enterprise.* https://www.accenture.com/us-en/success-ambitious-agenda-digital-enterprise.

Aradhya, P. (2020). *Council post: How to set up a chief digital officer for success.* Forbes. https://www.forbes.com/sites/forbesbusinesscouncil/2020/03/12/how-to-set-up-a-chief-digital-officer-for-success/

Berman, S. J. (2012). Digital transformation: Opportunities to create new business models. *Strategy & Leadership, 40*(2), 16-24.

Besson, P., & Rowe, F. (2012). Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *Journal of Strategic Information Systems, 21*, 103-124.

Borgman, C. (2015). *Big data, little data, no data: Scholarship in the networked world.* MIT Press.

Carey, S. (2017) *Why 9 out of 10 digital transformation projects fail.* Computerworld. https://www.computerworld.com/article/3427477/why-9-out-of-10-digital-transformation-projects-fail.html.

Churchman, C. W. (1968). *The systems approach.* Delacorte Press.

Culler, J. (1982). *On deconstruction: Theory and criticism after structuralism.* Cornell University Press.

Dassault Systemes (2021). *Transformation journey research note series.* https://discover.3ds.com/transformation-journey-research-note-series?utm_medium=email&utm_source=promotional&utm_campaign=202105-nam-digital-drip-delmia-mom_OP65098&utm_content=202105-whitepaper-digitaltransformationforglobalmanufacturing-05-delmia-nam-en-est_DM1059692

Derrida, J. (1997). *Of grammatology* (trans. G. C. Spivak). Johns Hopkins University Press.

Edwards, P. (1996*). The closed world: Computers and the politics of discourse in Cold War America.* MIT Press.

Evans, B (2021). *Mainframes, ML and digital transformation.* https://www.ben-evans.com/benedictevans/2021/8/31/mainframes-machine-learning-and-digital-transformation

Gartner (2021). *Digital transformation.* https://www.gartner.com/en/information-technology/glossary/digital-transformation

Gladwell, M. (2000). *The tipping point: How little things can make a big difference.* Little Brown.

HPE (2021). The digital transformation imperative for SMBs [Audio podcast episode]. In *Hewlett Packard Enterprise Podcast.* https://share.transistor.fm/s/d2902105?jumpid=em_wd3i16yzgj_aid-520020302&utm_source=EM&utm_medium=NL&utm_content=Podcast&asset=EM_BTN_S10&elqEV=html&nuggetID=14381&elq_mid=30277&elq_cid=65351666&elq2=76556fd9c43547518853c48e1f6e3118&elqcst=272&elqcsid=54163.

Jacobellis v. Ohio. (1964). US Supreme court case Jacobellis v. Ohio 378 US 184, 1964.

Kane, G., Nanda, R., Ahn, N. P., & Copulsky, J. (2021). *The transformation myth: leading your organization through uncertain times.* MIT Press. [As elaborated in podcast episode: The Art and Science of a Digitally Resilient Organization, with Professor Gerald Kane, Co-author of The *Transformation Myth.* In *Unpacking the Digital Self.* Digitalshelf Institute https://www.digitalshelfinstitute.org/art-science-digitally-resilient-organization]

Kappelman, L., Johnson, V., Torres, R. Maurer, C., & McLean, E. (2019). A study of information systems issues, practices, and leadership in Europe. *European Journal of Information Systems, 28*(1), pp. 26-42.

King, J. L., & Kraemer, K. L. (2019). Policy: An information systems frontier. *Journal of the Association for Information Systems*, *20*(6), 842-847.

KPMG. (2021). *Digital transformation.* https://advisory.kpmg.us/services/digital-transformation.html

Lee, A. S. (1991). Architecture as a reference discipline for MIS. In H.-E. Nisen, H. K. Klein, & R. A. Hirschheim (Eds.), *Information systems research: Contemporary approaches and emergent traditions* (pp. 573-592). North-Holland.

Luna-Reyes, L. F., Zhang, J., Gil-García, J. R., & Cresswell, A. M. (2005). Information systems development as emergent socio-technical change: A practice approach. *European Journal of Information Systems, 14*(1), 93-105.

Markus, M. L. (1987). Toward a "critical mass" theory of interactive media: Universal access, interdependence, and diffusion. *Communications Research, 14*(5), 491-511.

Markus, M. L., & Rowe, F. (2020). Call for papers—Envisioning digital transformation: Advancing

theoretical diversity. *Journal of the Association for Information Systems* https://aisel.aisnet.org/jais/CallforPapersJAISAdvancing.pdf

Markus, M. L., & Rowe, F. (2021). Guest editorial—Theories of digital transformation: A progress report. *Journal of the Association for Information Systems*, *22*(2), 273-280.

McLaughlin, L. (2019). *CIO role 2020: Everything you need to know about today's chief information officers.* The Enterprisers' Project. https://enterprisersproject.com/article/2019/9/cio-chief-information-officer-role-explained

McLean, K., & Syed, M. (2016). Personal, master, and alternative narratives: An integrative framework for understanding identity development in context. *Human Development, 58*(6), 318-349.

Merali, J. (2006). Complexity and information systems: The emergent domain. *Journal of Information Technology, 21*(4), 216-228.

Messenböck, R., Eddington Roderick, I., Grice, A., McCabe, G., & Lutz, M. (2019). *The four traits of successful chief transformation officers.* BCG. https://www.bcg.com/en-us/capabilities/change-management/four-traits-successful-chief-transformation-officers.aspx

Newell, A., Perlis, A., & Simon, H. (1967). Computer science, *Science*, *157*(3795), 1373-1374.

Prause, Jacqueline (2016). *Digitization vs. digitalization: Wordplay or world view?* SAP News Center. https://news.sap.com/2016/05/digitization-vs-digitalization-wordplay-or-world-view/

Rowe, F., & Markus, M. L. (2021). Theoretical diversity in IS research: A causal structure. In N. R. Hassan & L. P. Willcocks (Eds.), *Advancing information systems theories, technology, work and globalization* (pp. 75-130).

Sebastian, I. M., Ross, J. W., Beath, C., Mocker, M., Moloney, K. G., & Fonstad, N. O. (2017). How big old companies navigate digital transformation. *MIS Quarterly Executive 16*(3), 197-213

Sharma, D., Gill, J., & Kwan, A. (2020). Customer-centric digital transformation. https://www2.deloitte.com/us/en/insights/focus/industry-4-0/customer-centric-digital-transformation.html.

Trapp, R. (2016). *Digital transformation drives business for social media managers.* Forbes. https://www.forbes.com/sites/rogertrapp/2016/10/12/digital-transformation-drives-business-for-social-media-managers/#6f04b1fa3547

Weick, K. (1995). *Sensemaking in organisations.* SAGE.

Wessel, L., Ologeanu-Taddei, R., Baiyere, A., & Cha, J. (2020). Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for Information Systems 22*(1), 102-129

Yates, J. (1989). *Control through communication: The rise of system in American management.* Johns Hopkins University Press.

Yates, J. (2007). *Structuring the information age: Life insurance and technology in the twentieth century*. Johns Hopkins University Press.

About the Authors

Shirley Chen received her master's of science in information from the University of Michigan School of Information. She currently works helping tax and accounting firms with digital transformation at SafeSend, an SaaS company headquartered in Ann Arbor, Michigan. She worked for 20 years in strategy development, go-to-market planning, and alliance building in Taipei, Shanghai, Silicon Valley, Seoul, and Geneva.

John Leslie King is an emeritus professor of information at the University of Michigan School of Information. His research is on the relationship between technical change and social change.