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AI Acquisition in Question: Process Improvement and Process Innovation

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Completed Research

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Abstract

We investigate the capacity of firms to acquire and assimilate artificial intelligence (AI) technology. AI has become a magic term for digital innovation in all industries worldwide. Therefore, we first focus on antecedents which foster the development of the capacity to acquire and assimilate AI. We hypothesize that strong capabilities with regard to process improvement and process innovation should help absorb AI. Second, we hypothesize a mediation relationship. We assume that the capability of a firm to innovate processes arises from the capability to improve processes and allows for a better AI absorption. With a quantitative study, we show the strength of the proposed model. Our empirical data collection reveals that process improvement has a positive impact on AI absorption, whereby process innovation capability is a mediator. We show that uncertainty avoidance matters: it directly and indirectly impacts process improvement, process innovation, and AI absorption.

Keywords

AI absorption, process improvement, process innovation, absorptive capacity, uncertainty avoidance

Introduction

Artificial intelligence (AI) that we define in a broad sense as a range of technological solutions for improved decision making, such as machine intelligence, algorithms, or intelligent systems that allow for a human-like information processing (AlSheibani et al. 2018; Russell et al. 2003) have a significant impact on business (Purdy and Daugherty 2016). Acquiring and assimilating AI is about processes and related personnel and their both flexibility and readiness to adopt the new technology (Prikshat et al. 2021). Yet, recent research focuses on the technology itself rather than antecedents of its acquisition. In this work, we focus on processes and personnel and their ability to absorb AI knowledge. In order to address the aspect of change in processes for AI acquisition and assimilation, we formulate the first research question "What are the process-related antecedents of the capacity of a firm to absorb AI technology?".

Each organizational change, be it incremental or radical, may evoke positive or negative reactions of those involved in this change. While process improvement assumes a smaller amount of change and is accompanied by a certain and assumedly positive outcome (by definition of "improvement"), process innovation may entail a hidden threat and be associated with a higher degree of uncertainty; being radical it "requires a shift in the underlying cognitive template shared in the organization, its interpretive" (Mantere et al. 2012, p. 173). For instance, Mantere et al. (2012) show that uncertainty can even lead to a cancellation of a strategic change. The personnel may develop contradictory meanings and become reluctant to address any new changes, e.g., digital innovation or, in our case, the AI absorption. Therefore, with regard to the role of people in AI absorption, we formulate our second research question: "Does uncertainty avoidance help develop the capacity of a firm to absorb AI technology?".

With this work, we contribute to the theory of absorptive capacity (Cohen and Levinthal 1990; Jansen et al. 2005; Zahra and George 2002) and to some extent to the topics of process innovation, process improvement, and organizational culture. However, primarily we contribute to the topic of AI and why

firms cannot adopt this technology at the snap of a CEO's fingers. For instance, we show that process improvement is a mediator in the relationship between process innovation and AI absorption. Moreover, we show that cultural antecedents matter: directly and indirectly uncertainty avoidance influences AI acquisition and assimilation.

Theoretical Background

AI Absorption

The notion of readiness to acquire and assimilate new knowledge by firms is not new to the fields of IS and strategic management. In particular, there exists a large body of literature with regard to the concept of absorptive capacity (Cohen and Levinthal 1990; Jansen et al. 2005; Tzokas et al. 2015; Zahra and George 2002). While developing the initial version of the concept, Cohen and Levinthal (1990) argued that it is crucial for a firm's performance to recognize the value of new external information, assimilate knowledge, and apply it to commercial ends. However, this is hard to achieve, as acquisition and assimilation is a function of prior related knowledge.

Cohen and Levinthal (1990, p. 136) postulate that "prior knowledge should be very closely related to the new knowledge to facilitate assimilation". However, which knowledge and capability can be considered as "closely related"? Tzokas et al. (2015, pp. 134–135) argue that "it is logical to assume that the more a firm has a clear ability to produce technologically superior products [...] while capitalizing on a deep understanding of its customer base [...], the higher will be its capacity to explore, integrate and exploit [...] external knowledge", i.e., its absorptive capacity. Put differently, the capability to innovate helps develop the absorptive capacity, e.g., with regard to AI. At the same time, there are contradicting results with regard to product innovation and exploration and exploitation of external knowledge (Afuah 2002; Tzokas et al. 2015; Zhou and Wu 2010).

In this regard, we would like to join the discussion started by Robertson et al. (2012), who emphasize the role of process innovation capability for the absorptive capacity. However, in contrast to the scholars, who see absorptive capacity as an antecedent of process innovation, we look at absorptive capacity as a process. Indeed, treating absorptive capacity as a static entity or simply "using secondary measures such as R&D spend and patent data to substitute for absorptive capacity [...] is still unsatisfying because it is not exactly clear what dynamic capabilities and firm-level processes the authors are actually looking at" (Patterson and Ambrosini 2015, pp. 79–80). In this regard, process innovation capability is an antecedent of absorptive capacity, as it might explain how organizational capabilities towards radical and incremental process change help dynamically configure the capacity of a firm to absorb AI knowledge.

Process Improvement and Process Innovation

In business, processes have to be changed constantly. The reason is the permanent competition: if several firms produce a similar service or product and the market is saturated, the only way to succeed is to optimize processes and reduce costs (Robertson et al. 2012). And as all firms try to do so, the processes have to remain in a constant flux to allow a firm's survival. There are two main approaches to the dynamism of processes: process improvement and process innovation. While the first option assumes a rather incremental change of the firm's processes, the latter option is associated with the creation of completely new or radically different processes. If a firm wants to align resources with its strategy and to adapt to environmental challenges, it requires a radical approach, called process innovation or process reengineering. For instance, firms need to apply process reengineering, if they want to achieve substantial value from information technology (Hammer and Champy 1993). Recent developments in the field of AI and data analytics indicate a high level of dynamism for firms: further digital technologies emerge, the magnitude is high, and the newness of technology speaks for irregularity of change. It is doubtful, therefore, whether a firm can approach AI technology without radical change in its processes.

Process improvement, however, might play a critical role for AI absorption too. Constant process improvement helps develop a culture of change; it helps employees increase their openness to change. Bogodistov et al. (2019, p. 199) define openness to change as a "construct incorporating social, organizational, physiological, and psychological support of employees during the transition from the current state to the aspired state" and show that it is related to the capability of an organization to cope with

process improvement and innovation. Thus, process innovation goes hand in hand with process improvement. Ettlie et al. (1984) find the radical process adoption being correlated with the incremental process adoption on a statistically significant basis. Nonetheless, process improvement might be insufficient for AI absorption. The strong impact expected by introducing AI requires a more radical change in a firm's processes, i.e., process innovation (Bogodistov, Moormann, and Beimborn 2019). Therefore, we formulate

Hypothesis 1: Process improvement has a positive indirect impact on the capacity of a firm to absorb AI knowledge.

Uncertainty Avoidance

Turning to AI requires a drastic change in organizational processes that necessitates a shift in cognitive patterns of employees and managers, i.e., their beliefs and assumptions about how their organization functions, its activities and goals (Hinings et al. 2018). For instance, the perceived uncertainty can even lead to a cancellation of strategic change initiatives (Mantere et al. 2012). The personnel may develop contradictory perceptions and become reluctant to address any new changes, e.g., digital innovation or, in our case, AI absorption. While thinking about the adoption of AI, uncertainty avoidance (i.e., acceptance of uncertain situations and ambiguity as postulated by Hofstede (2001)) comes into the foreground. This cultural aspect received wide attention with regard to IS (Cardon and Marshall 2008; Hwang 2005; Hwang and Lee 2012; Roozmand et al. 2011). Uncertainty avoidance is also the most referred dimension of Hofstede's vision of cultural differences with regard to IT use and IT adoption (Leidner and Kayworth 2006).

The more radical the change, the higher the level of uncertainty. While incremental improvement in processes may not question extant roles but may clarify roles within the firm (Spreitzer et al. 1999), radical change of processes may threaten these roles and may even require new structures (Ettlie et al. 1984). Madon (1992, p. 251) notes that "the stable forces operating within an organization may be so firmly embedded into a social system that they become perceived as an institutional property and become difficult to change". By contrast, process improvement aims at the same level of (role) security with lower workload (Harrington 1994). Consequently, those who feel less comfortable with uncertainty may advocate process improvement and oppose process innovation. Therefore, we state

Hypothesis 2: Uncertainty avoidance has (a) a positive impact on process improvement but (b) a negative impact on process innovation.

We depicted our hypotheses in Figure 1.

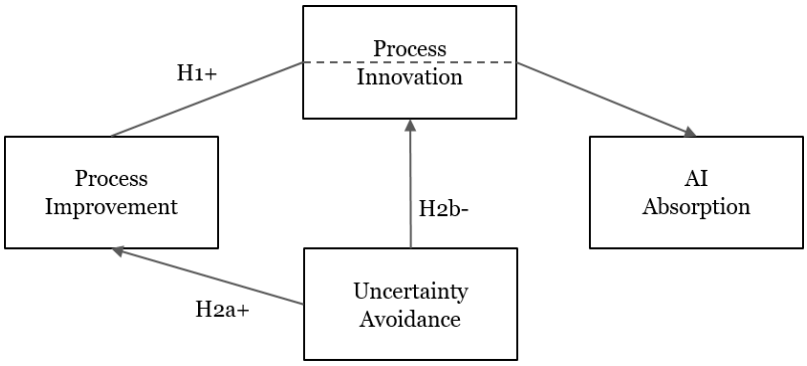

Figure 1. Research Model

Methodology

We performed our study using a survey, which was based on Likert-scale questions, and the subsequent structural equation modeling. We ran two studies to accomplish our goal. With Study 1, we attempted to develop and legitimize our questionnaire. For this purpose, we developed a questionnaire and pretested it

on a sample of German firms active in process improvement, process innovation, and usage of AI. To avoid single measurement criticism, we replicated this investigation in Study 2. However, we did not only replicate our findings in Germany but also showed that they also hold for a non-German sample. In addition, the cross-cultural comparison allowed us to test our hypotheses on uncertainty avoidance.

Study 1. Development of Measures and First Tests

When we came across the domain of AI absorption, we looked for a good opportunity to empirically test our ideas. Fortunately, a big local conference with the topic "From Digital to Smart Processes: Analytics, Robotics, and Artificial Intelligence" was announced and we convinced the organizers to allow us to distribute our questionnaire among IS practitioners. We distributed the paper and pencil version of the questionnaire and proposed a small incentive for completion. We decided to test a simplified model with Process Improvement as our independent variable, AI Absorption as dependent variable, and with Process Innovation as a mediator.

Sample

By using the above mentioned questionnaire, we collected 64 completed responses from about 150 registered participants, which corresponds to a response rate of 42%. A number of 46 participants were male, 17 were female, and one did not indicate his/her gender. Five participants were active in a firm's executive board, 22 were managing directors or heads of a department or a division, 13 were medium-level managers, 17 did not have managerial responsibilities. The rest of the participants did not indicate their position. The mean age was 41.7 years (*SD* = 10.7).

Measures

With regard to process improvement we built on definitions of process improvement, process optimization, and incremental innovation given in literature; for process innovation we used definitions of process innovation, process transformation, and radical innovation (Dumas et al. 2013; Harrington 1994). For AI absorption we adopted the notion of potential absorptive capacity by Zahra and George (2002). We adapted a questionnaire developed by Jansen et al. (2005), whereby we focused on the readiness of a firm to absorb AI.

In order to legitimize our questionnaire, we ran a confirmatory factor analysis using SPSS AMOS. The constructs, items, their factor loadings from a principal component analysis and maximum likelihood algorithm can be found in Table 1. Table 2 shows reliability and validity statistics. Our tests indicated a very good model fit: χ^2/df (217.007, 101) = 2.149, CFI = .961, TLI = 963, Standardized RMR = .0836).

Construct	Item[†]	Loadings ML	Loadings PCA
AI Absorption	Our department frequently exchanges information with other organizational units of our company to get informed about AI.	.586	.824
	We permanently seek opportunities to apply AI in our company.	.559	.790
	Employees in our department communicate with other departments to find out about their readiness to AI usage.	.615	.838
	We collect information about AI from our industry sector, also through informal means (e.g. lunch with industry colleagues, talks with customers).	.877	.852

	We collect information about AI from other sectors, both formally and informally.	.922	.846
	We look at how AI is applied in other sectors.	.946	.868
Process Innovation	We welcome changes which go beyond the existing processes of our company.	.714	.806
	We invent new processes.	.837	.893
	We experiment with new processes in our company.	.922	.907
	We adopt processes from other sectors, even if these processes are completely new for our company.	.780	.821
	We often use new technologies in our new processes.	.734	.787
Process Improvement	We improve the continuous supervision of existing processes.	.837	.872
	We introduce improvements of already existing processes in other departments of our company.	.713	.820
	We are continuously engaged in the improvement of existing processes.	.914	.925
	Wherever possible, we increase the economies of scale in our existing processes.	.815	.857
	We continue to refine existing processes.	.957	.921

Note: ML stands for maximum likelihood, PCA stands for principal component analysis.
† This is the translated version of the items which were originally formulated in German.

Table 1. Constructs, items, and factor loadings

	α	CR	AVE	MSV	MaxR(H)	AI Abs-n	Process Innov-n	Process Improv-t
AI Abs-n	.914	.892	.591	.263	.969	.769†		
Process Innov-n	.901	.899	.642	.280	.922	.513	.801†	
Process Improv-t	.924	.929	.725	.280	.981	.328	.529	.851†

Note: α stands for Cronbach's alpha, CR - composite reliability, AVE - average variance extracted, MSV - maximum shared variance, MaxR(H) - maximum reliability, and † indicates average factor loading.

Table 2. Reliability and validity statistics

Results

We analyzed our model using SPSS AMOS. We ran a mediation model and looked for direct and indirect results, whereby Process Improvement was our independent variable, the capacity to absorb AI our dependent variable, and Process Innovation our mediator. The R^2 for Process Innovation was .279 and for AI Absorption was .268, i.e., with the independent variables we managed to explain about 29% of the variance in the variable Process Innovation and about 28% in the variable AI Absorption. The results can be found in Table 3.

Relationship			*B*	*β*	*p*
Process Improv-t	→	Process Innov-n	.481	.529	<.001
Process Improv-t	→	AI Abs-n	.077	.079	.573
Process Innov-n	→	AI Abs-n	.510	.472	.007
Process Improv-t	⇝	AI Abs-n†	.278	.250	.012

Note: → stands for a direct effect, ⇝ stands for an indirect effect, † indicates that for the indirect effect we ran the model without modification indices due to technical limitations of SPSS AMOS. The model fit for this model worsened, whereby the R^2 and the previously observed relationships changed to a very small extent.

Table 3. Results of Study 1

The observed results confirm our Hypothesis 1: Process Improvement has a positive indirect effect on the capacity of a firm to absorb AI knowledge. As the direct effect appears to be insignificant, one could assume full mediation. For this reason, we re-ran our model without the mediator. Indeed, although the model fit decreased (χ^2/df (129.437, 43) = 3.010), the relationship between Process Improvement and AI Absorption became significant: B = .381, β = .346, p = .014. Thus, we conclude that we do have a mediation relationship in our model. Yet, the sample size of Study 1 had a low explanatory power. Thus, in our Study 2 we increased the sample size to reassure that our findings hold.

Study 2. Uncertainty Avoidance and the Capacity of a Firm to Absorb AI Knowledge

Although supporting Hypothesis 1, Study 1 had several shortcomings. First, the tests were performed in Germany, thus in one country only. Second, the domain was very specific (financial services industry). Third, Study 1 did not allow us to test our hypotheses on uncertainty avoidance and its impact on capabilities of process improvement and process innovation, as well as on the capacity of a firm to absorb AI knowledge. For this reason, we decided to repeat our study in a different domain and region. First, we wanted to address a broader IS audience. Second, we looked for countries known for their different propensity towards uncertainty avoidance. Third, we wanted to replicate our initial model and increase the reliability of our questionnaire and the generalizability of our theory.

Sample

We developed an online version of our questionnaire. We posted the link to the questionnaire in AI- and Process Management-related LinkedIn and Xing groups for German speaking countries and India. We repeated our request in these groups after three weeks. In total, we collected 314 responses of which the responses from Germany were 156. India was represented by 151 participants. Seven responses came from other German-speaking countries. The average age of the respondents was 32.9 years (SD = 9.89); 116 participants were female, 198 were male. 13 participants were from executive boards, 28 were heads of a division or a department, 65 were middle-level managers, 167 did not have managerial responsibilities. The remaining participants did not indicate their position.

Measures

While we relied on the scales of Study 1 for Process Improvement (α = .901, CR = .904), Process Innovation (α = .874, CR = .874), and AI Absorption (α = .882, CR = .862), we needed to reassure that our independent variable is Uncertainty Avoidance. Therefore we decided to not only look at the country the data came from, but also to introduce two additional latent constructs: Uncertainty Avoidance in the participant's firm and Uncertainty Avoidance in the participant's country. Asking our participants to explicitly distinguish between Uncertainty Avoidance with regard to their country and their firm should help our participants avoid conflicts of different sets of values (Leidner and Kayworth 2006). For this purpose, we adopted and combined established items (House et al. 2002; Srite and Karahanna 2006). These constructs showed a high level of internal consistency (Uncertainty Avoidance at firm-level: α = .744, CR = .746; Uncertainty Avoidance at country-level: α = .752, CR = .758). The items with the respective factor loadings can be found in Table 4.

Construct	**Item**[†]	**Loadings PCA (Country)**	**Loadings PCA (Firm)**
Uncertainty Avoidance	*In the country I live in… / In my company…*		
	we do not use (new) technology when we are unsure of its quality.	.669	.657
	we are reluctant to use (new) technology if the security of operations is compromised in any way.	.764	.663
	rules and regulations are important because they inform people what is expected from them.	.754	.795
	it is important to have requirements and instructions spelled out in detail so that people always know what they are expected to do.	.745	.752
	orderliness and consistency are stressed over experimentation and innovation.	.620	.680
Note: PCA stands for principal component analysis.			

Table 4. Constructs, items, and factor loadings

Results

We built a model in SPSS AMOS, where we introduced three groups: all data, German data, and Indian data. Our model was a replication of the model used in Study 1, whereby we added Uncertainty Avoidance in the firm as the independent variable for Process Improvement, Process Innovation, and AI Absorption. We also ran a group moderation analysis, comparing the two biggest sub-samples, Germany and India. Our tests indicated a very good model fit: χ^2/df (853.870, 480) = 1.779, CFI = .947, TLI = .931, and Standardized RMR = .0494. The output of our test can be found in Table 5. The R^2 were: Process Improvement = 11%, Process Innovation = 63%, AI Absorption = 41%.

Relationship			***B***	***β***	***p***
Uncertainty Avoidance (Firm)	→	Process Improv-t	.341	.332	<.001

Uncertainty Avoidance (Firm)	→	Process Innov-n	-.145	-.150	.007
Uncertainty Avoidance (Firm)	→	AI Abs-n	.183	.153	.029
Process Improv-t	→	Process Innov-n	.779	.828	<.001
Process Improv-t	→	AI Abs-n	.014	.012	.919
Process Innov-n	→	AI Abs-n	.735	.593	<.001
Uncertainty Avoidance (Firm)	⇝	Process Innov-n†	.357	.302	.004
Uncertainty Avoidance (Firm)	⇝	AI Abs-n†	.214	.127	.004
Process Improv-t	⇝	AI Abs-n†	.494	.371	.006

Note: → stands for a direct effect, ⇝ stands for an indirect effect, † indicates that for the indirect effect we ran the model without modification indices due to technical limitations of SPSS AMOS. The model fit for this model worsened, whereby the R2 and the previously observed relationships changed to a very small extent.

Table 5. Results of Study 2

In a further step, we compared our model between Germany and India. We found only two significantly different relationships: the impact of Uncertainty Avoidance on Process Improvement (z-score = 1.655, p < .1; Germany: B = .0174, p = .157, India: B = .430, p < .001) and the impact of Process Innovation on AI Absorption (z-score = -2.344, p <.05; Germany: B = .974, p < .001, India: B = .265, p = .029). We will refer to these findings in the Discussion section.

We found that our model was replicated. Moreover, adding multinational data did not change the main relationship. Again, Hypothesis 1 was confirmed. Uncertainty Avoidance positively impacted Process Improvement, but negatively impacted Process Innovation. Thus, Hypotheses 2a and 2b were supported. Uncertainty Avoidance showed a positive impact on the capacity of a firm to absorb AI technology.

Uncertainty Avoidance had an indirect effect on Process Innovation. The indirect effect is positive; that is why we assume an inconsistent mediation (MacKinnon et al. 2007). Indeed, a deletion of the Process Improvement construct made the relationship between Uncertainty Avoidance and Process Innovation positive and significant. Finally, we also deleted the Process Innovation construct. The relationship between Uncertainty Avoidance and AI Absorption became strongly significant (B = .357, p = .004). As the initial model (with mediators) had a significant relationship between Uncertainty Avoidance and AI Absorption (p = .029), we conclude the existence of a partial mediation (Baron and Kenny 1986).

Discussion and Conclusion

We started this investigation with two research questions in mind. The first research question referred to capability development. We assumed that the capabilities of a firm to perform process improvement and process innovation relate to the capacity of this firm to absorb AI. As a result, our two studies showed a strong significant relationship between process improvement, process innovation, and AI absorption. We found a full mediation, i.e., the capability to perform process innovation relies on the capability towards process improvement and explains why some firms are more successful with regard to the acquisition and assimilation of AI technology than others.

In our second research question, we focused on uncertainty avoidance as a predictor of our initial model. We showed that uncertainty avoidance matters: it directly and indirectly impacts process improvement, process innovation, and AI absorption. We do not want to repeat the rationale behind our hypotheses and

would instead like to focus on unsupported and explorative findings. First, we found only a partial mediation between uncertainty avoidance and AI absorption. This indicates that other dimensions of cultural distance may play a more important role, such as power distance (Matusitz and Musambira 2013). Also, there might be other explanatory variables regarding the relationship between uncertainty avoidance and process improvement. For instance, the Affective Events Theory (Cropanzano et al. 2017) proposes to look at affective states accompanying the investigated process and the resulting job satisfaction. A different perspective is suggested by the Job Demands-Resources Model (Bakker and Demerouti 2007) which is well applicable in the domain of process change (Bogodistov et al. 2018; Bogodistov, Moormann, and Sibbel 2019).

We were surprised by the fact that there is a positive direct and indirect relationship between uncertainty avoidance and AI absorption. We assumed that AI is a radically new type of technology which might make firms feel uncomfortable with it. This should especially be expected in the case of firms with cultures advocating uncertainty avoidance. Notwithstanding, those firms developed a strong capacity to absorb AI technology. We see two possible explanations: First, firms might see AI as a technology to improve their processes which, hence, leads to an incremental process change (Brown 2005). Second, one has to bear in mind that a capacity towards AI absorption reflects a potential but not the action itself. If one looks at the questions we used for AI absorption, one will notice that the questions reflect capacity and potential. The realized absorptive capacity as postulated by Zahra and George (2002) might show divergent results. Therefore, further research of this finding is needed.

REFERENCES

Afuah, A. 2002. "Mapping Technological Capabilities into Product Markets and Competitive Advantage: The Case of Cholesterol Drugs," *Strategic Management Journal* (23:2), pp. 171–179.

AlSheibani, S., Cheung, Y., and Messom, C. 2018. "Artificial Intelligence Adoption: AI-Readiness at Firm-Level," in *PACIS*, research.monash.edu, p. 37.

Bakker, A. B., and Demerouti, E. 2007. "The Job Demands-Resources Model: State of the Art," *Journal of Managerial Psychology* (22:3), pp. 309–328.

Baron, R. M., and Kenny, D. A. 1986. "The Moderator–mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology* (51:6), p. 1173.

Bogodistov, Y., Moormann, J., and Beimborn, D. 2019. "Künstliche Intelligenz: Es Wird Viel Gesprochen, Aber Wenig Getan," *Geldinstitute* (1), pp. 36–37.

Bogodistov, Y., Moormann, J., and Sibbel, R. 2018. "Beyond Health Care Reform: How Process Management Can Alter Patients' Experience," in *Academy of Management Proceedings* (Vol. 2018), 1, p. 12544.

Bogodistov, Y., Moormann, J., and Sibbel, R. 2019. "From Openness to Change to Patients' Satisfaction: A Business Process Management Approach," in *Business Process Management Forum*, Springer International Publishing, pp. 195–210.

Brown, D. C. 2005. "Artificial Intelligence for Design Process Improvement," in *Design Process Improvement: A Review of Current Practice*, J. Clarkson and C. Eckert (eds.), London: Springer London, pp. 158–173.

Cardon, P. W., and Marshall, B. A. 2008. "National Culture and Technology Acceptance: The Impact of Uncertainty Avoidance," *Issues in Information Systems* (9:2), pp. 103–110.

Cohen, W. M., and Levinthal, D. A. 1990. "Absorptive Capacity: A New Perspective on Learning and Innovation," *Administrative Science Quarterly* (35:1), pp. 128–152.

Cropanzano, R., Dasborough, M. T., and Weiss, H. M. 2017. "Affective Events and the Development of Leader-Member Exchange," *Academy of Management Review* (42:2), pp. 233–258.

Dumas, M., La Rosa, M., Mendling, J., and Reijers, H. A. 2013. *Fundamentals of Business Process Management*, Heidelberg: Springer.

Ettlie, J. E., Bridges, W. P., and O'Keefe, R. D. 1984. "Organization Strategy and Structural Differences for Radical Versus Incremental Innovation," *Management Science* (30:6), pp. 682–695.

Hammer, M., and Champy, J. 1993. *Reengineering the Corporation*, New York, NY: Harper Collins.

Harrington, H. J. 1994. *Business Process Improvement*, New York, NY: McGraw Hill.

Hinings, B., Gegenhuber, T., and Greenwood, R. 2018. "Digital Innovation and Transformation: An Institutional Perspective," *Information and Organization* (28:1), pp. 52–61.

Hofstede, G. 2001. *Culture's Consequences: International Differences in Work-Related Values*, (Abridged ed., [18. print.].), Cross-Cultural Research and Methodology Series, Newbury Park, Calif.: Sage Publ.
House, R., Javidan, M., Hanges, P., and Dorfman, P. 2002. "Understanding Cultures and Implicit Leadership Theories across the Globe: An Introduction to Project GLOBE," *Journal of World Business* (37:1), pp. 3–10.
Hwang, Y. 2005. "Investigating Enterprise Systems Adoption: Uncertainty Avoidance, Intrinsic Motivation, and the Technology Acceptance Model," *European Journal of Information Systems* (14:2), pp. 150–161.
Hwang, Y., and Lee, K. C. 2012. "Investigating the Moderating Role of Uncertainty Avoidance Cultural Values on Multidimensional Online Trust," *Information & Management* (49:3), pp. 171–176.
Jansen, J. J. P., Van Den Bosch, F. A. J., and Volberda, H. W. 2005. "Managing Potential and Realized Absorptive Capacity: How Do Organizational Antecedents Matter?," *Academy of Management Journal* (48:6), pp. 999–1015.
Leidner, D. E., and Kayworth, T. 2006. "Review: A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict," *MIS Quarterly* (30:2), pp. 357–399.
MacKinnon, D. P., Fairchild, A. J., and Fritz, M. S. 2007. "Mediation Analysis," *Annual Review of Psychology* (58), pp. 593–614.
Madon, S. 1992. "Computer-Based Information Systems for Development Planning: The Significance of Cultural Factors," *The Journal of Strategic Information Systems* (1:5), pp. 250–257.
Mantere, S., Schildt, H. A., and Sillince, J. A. A. 2012. "Reversal of Strategic Change," *Academy of Management Journal* (55:1), pp. 172–196.
Matusitz, J., and Musambira, G. 2013. "Power Distance, Uncertainty Avoidance, and Technology: Analyzing Hofstede's Dimensions and Human Development Indicators," *Journal of Technology in Human Services* (31:1), pp. 42–60.
Patterson, W., and Ambrosini, V. 2015. "Configuring Absorptive Capacity as a Key Process for Research Intensive Firms," *Technovation* (36-37), pp. 77–89.
Prikshat, V., Malik, A., and Budhwar, P. 2021. "AI-Augmented HRM: Antecedents, Assimilation and Multilevel Consequences," *Human Resource Management Review*, p. 100860.
Purdy, M., and Daugherty, P. 2016. "Why Artificial Intelligence Is the Future of Growth," *Remarks at AI Now: The Social and Economic Implications of Artificial Intelligence Technologies in the near Term*, pp. 1–72.
Robertson, P. L., Casali, G. L., and Jacobson, D. 2012. "Managing Open Incremental Process Innovation: Absorptive Capacity and Distributed Learning," *Research Policy* (41:5), pp. 822–832.
Roozmand, O., Ghasem-Aghaee, N., Nematbakhsh, M. A., Baraani, A., and Hofstede, G. J. 2011. "Computational Modeling of Uncertainty Avoidance in Consumer Behavior," *International Journal of Research and Reviews in Computer Science*, Kohat University of Science and Technology (KUST), p. 18.
Russell, S. J., Norvig, P., Canny, J. F., Malik, J. M., and Edwards, D. D. 2003. "Artificial Intelligence: A Modern Approach. Vol. 2 Prentice Hall," *Upper Saddle River*.
Spreitzer, G. M., Noble, D. S., Mishra, A. K., and Cooke, W. N. 1999. "Predicting Process Improvement Team Performance in an Automotive Firm: Explicating the Roles of Trust and Empowerment," in *Research on Managing Groups and Teams: Groups in Context* (Vol. 2), R. Wageman (ed.), Elsevier Science/JAI Press, pp. 71–92.
Srite, M., and Karahanna, E. 2006. "The Role of Espoused National Cultural Values in Technology Acceptance," *MIS Quarterly* (30:3), Management Information Systems Research Center, University of Minnesota, pp. 679–704.
Tzokas, N., Kim, Y. A., Akbar, H., and Al-Dajani, H. 2015. "Absorptive Capacity and Performance: The Role of Customer Relationship and Technological Capabilities in High-Tech SMEs," *Industrial Marketing Management* (47), pp. 134–142.
Zahra, S. A., and George, G. 2002. "Absorptive Capacity: A Review, Reconceptualization, and Extension," *Academy of Management Review* (27:2), pp. 185–203.
Zhou, K. Z., and Wu, F. 2010. "Technological Capability, Strategic Flexibility, and Product Innovation," *Strategic Management Journal* (31:5), pp. 547–561.