

Dobrowolski, Zbysław; Drozdowski, Grzegorz; Ledzianowski, Józef

## Article

# The competency niche: An exploratory study

Risks

### Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

*Suggested Citation:* Dobrowolski, Zbysław; Drozdowski, Grzegorz; Ledzianowski, Józef (2021) : The competency niche: An exploratory study, *Risks*, ISSN 2227-9091, MDPI, Basel, Vol. 9, Iss. 11, pp. 1-11,  
<https://doi.org/10.3390/risks9110187>

This Version is available at:

<https://hdl.handle.net/10419/258271>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

# The Competency Niche: An Exploratory Study

Zbysław Dobrowolski <sup>1,\*</sup>, Grzegorz Drozdowski <sup>2</sup> and Józef Ledzianowski <sup>3</sup>

<sup>1</sup> Institute of Public Affairs, Jagiellonian University, 30-348 Kraków, Poland

<sup>2</sup> Department of Economics and Finance, Jan Kochanowski University in Kielce, 25-369 Kielce, Poland; grzegorz.drozdowski@ujk.edu.pl

<sup>3</sup> Management Faculty, Military University of Land Forces, 51-147 Wrocław, Poland; jozef.ledzianowski@awl.edu.pl

\* Correspondence: zbyslaw.dobrowolski@uj.edu.pl

**Abstract:** In the era of a turbulent and less-predictable business environment, as confirmed by the COVID-19 pandemic, the ability to efficiently use human resources has become particularly important. There is a need to reduce employees' competency niche, and competency mismatches have become noticeable in the European Union. We performed qualitative interviews (n = 282) to determine the competency niche of employees from private firms in Poland. Results show that employees were passive in identifying their competence needs. Moreover, firms did not use the weak signals methodology to eliminate the competency niche. This novel study found that firms should be more active in identifying employee competency niches by analyzing early signs to be ready for any changes without delays. The findings create a basis for proposing preventive measures, and we point out avenues for future research.

**Keywords:** competencies; weak signals; foresight; agile; business and management

**JEL Classification:** L2; O3; P5; M10



**Citation:** Dobrowolski, Zbysław, Grzegorz Drozdowski, and Józef Ledzianowski. 2021. The Competency Niche: An Exploratory Study. *Risks* 9: 187. <https://doi.org/10.3390/risks9110187>

Academic Editor: Mogens Steffensen

Received: 10 September 2021

Accepted: 19 October 2021

Published: 21 October 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Despite the many domestic and international programs implemented in recent years, business failures have increased in different countries, particularly during the crisis in 2008. Firms need to be ready for different obstacles, and they have to match the best management practices with their business operations. Continuing business efforts towards an “open mind” strategy, which the authors of this article define as the ongoing process of identifying a competency niche, require multifaceted organizational processes.

The COVID-19 pandemic has exposed the utter unpreparedness of many governments and companies to operate under conditions of uncertainty. In trying to adapt to the new requirements due to the COVID-19 pandemic, many companies worldwide have made extensive changes, which entail the need to verify the existing approach to human capital management. The Internet of Things and big data generate business risk (Dobrowolski 2021a). Companies must ensure accountability, which is a requirement of the modern capital market, and some companies may additionally perform public tasks (Dobrowolski 2021b; Dobrowolski and Sułkowski 2020; Sułkowski and Dobrowolski 2021). Therefore, there is a need for business agility, which refers to the ability of an organization to rapidly adapt to changing conditions in the modern environment (Armstrong 2013; Delcourt et al. 2013; Bal and Lange 2015). Business agility is not the only Agile Manifesto to be initially defined for the IT environment. It is necessary to take advantage of weak signals in order to use an agile approach under conditions of uncertainty (Karabasevic et al. 2018; Dobrowolski 2020a, 2020b, 2021c).

Despite the many studies on competencies (see e.g., Woodruffe 1993; Martin and Rubin 1995; Hoffmann 1999; Athey and Orth 1999; Rothwell and Lindholm 1999; Chung-Herrera et al. 2003; Shavelson 2010; Taborsky and Oliveira 2012; Yin 2019; Dobrowolski 2020c;

Dobrowolski et al. 2021a; Drozdowski et al. 2021; Brundiens et al. 2021; Ferreras-Garcia et al. 2021; González-López et al. 2021; Kipper et al. 2021), there remains a need to deepen the research on the effective identification of employees' competencies under conditions of uncertainty. We understand the expression "effective" to mean the degree of achievement of assumed goals and the speed at which the necessary competencies are identified and the changes in firms are introduced. We define 'competency niche' as the gap between the expected and required competencies and the competencies possessed by employees. Moreover, the term 'employee' refers to all persons employed in companies that do not own them.

We believe that the lack of employees' competencies necessary to achieving a competitive advantage generates risk for any business. We are not alone in this belief. Research from the European perspective has revealed a serious problem. Around half of the European population is affected by a competency mismatch ([European Working Conditions Survey 2020](#)). Therefore, this study aimed to determine the competence gap of employees and whether firms use the weak signals methodology to identify the future competencies necessary to achieve a competitive advantage. We formulated the following research hypothesis: the increasing complexity of the environment and the growth dynamics of the changes require agile competencies. This means the rapid and systematic modification of behavior in changing situations characteristic of current and future changes in the business environment. During a literature review, we found little information about Poland's competency niche from such a perspective as proposed in this study. The empirical study of employees' competencies involved 282 persons from firms located in western Poland. We conducted the study in 2019–2020. The findings show that employees of the analyzed companies were not ready to apply the agile approach and were not familiar with the weak signals methodology.

## 2. Literature Review

The analysis of competencies through the prism of employees' behaviour has led researchers and practitioners to determine the reasons for the failure to adapt employees' competencies to the environment's needs. It was found that around half of the European population is affected by the mismatch, and that the extent of this mismatch is growing ([European Working Conditions Survey 2020](#)). There is no need to convince anyone that the competencies gap is a severe organizational problem in an ageing European society that maintains a relatively high standard of living and is accustomed to the welfare state. Globalization has intensified the competition and those organizations that are good at identifying and closing competency gaps will win. Therefore, among other things, competencies have become the subject of scholars' particular attention (see e.g., [Martin and Staines 1994](#); [Nordhaug and Grønhaug 1994](#); [Hager and Gonczi 1996](#); [Greene et al. 1989](#); [Denzin 2009](#); [Evetts 2011](#); [Mills et al. 2003](#); [Casper and Whitley 2004](#); [Le Deist and Winter-ton 2005](#); [Wittmann et al. 2009](#); [Hays 2020](#); [Foss et al. 2021](#)). Many firms want to increase their strategic position, which many scholars have pointed out (see e.g., [Olhager 2003](#); [Skaggs and Youndt 2004](#); [Thite 2004](#); [Drozdowski 2017](#); [Berber and Lekovic 2018](#); [Chen and Hu 2021](#)). However, without competent people, any company may have difficulty with achieving properly defined goals and carrying out planned tasks, or firms may pursue the wrong targets ([Scholes and Endacott 2003](#); [Kuk et al. 2007](#); [Ten Cate and Scheele 2007](#); [Kaur and Kumar 2013](#); [Chuang et al. 2020](#)).

Many researchers present the notion of foresight and underline the fact that the essence of foresight might be summarized as the process that looks into the future but simultaneously enables the usage of solutions for present activities ([Martin 1995](#); [Barker and Smith 1995](#); [Cuhls 2003, 2019](#); [Iden et al. 2017](#)). This concept is linked to weak signals, which can be understood as early signs of future events ([Hiltunen 2008](#); [Saritas and Smith 2011](#); [Hauptman et al. 2015](#); [Dobrowolski 2020a, 2020b, 2021](#)). The weak signals methodology can identify future needs, including desired competencies, and enable firms to gain a competitive advantage in the business environment. The use of the weak signals

methodology is linked to the concept of agility as presented in the literature (see e.g., Boehm 2002; Hodgson and Briand 2013; Wells 2014; Moe et al. 2009; Wells 2014; Potdar et al. 2017; Dobrowolski et al. 2021b, 2021c). The concept of agility implies minimizing formal requirements for processes, and flexibility manifests in the ability to respond to environmental needs immediately (Cockburn and Highsmith 2001; Williams and Cockburn 2003; Agarwal et al. 2006; Lyytinen and Rose 2006; Conboy 2009). The internal need to prioritize the flexibility of competencies among employees shapes the right way of thinking about foresight. The readiness of human capital to changes is a condition of the high degree of flexibility of pro-development behaviors (Jones 2017; Hines et al. 2017; Way et al. 2018; Sabuhari et al. 2020; Foss et al. 2021). The limited flexibility of competencies under conditions of permanent variability, complexity, and turbulence in the environment is a condition that threatens a business's stability. From this perspective, employees' competence capital must be regularly updated according to the needs imposed by a rapidly changing environment. Each employee should build sensitivity to a high degree of flexibility individually and use it as an essential element of their competitive potential and the effort to ensure workplace development. The competence niche model describes this phenomenon, which is a component of a broader problem, namely the adjustment gap at the enterprise level expressed by the difference between the desired and the existing state. The adjustment gap arises due to dynamic changes in the business environment. This research model was created based on an analysis of the literature on the subject and our own research.

The competence assessment of human capital, which is the basis for flexible adaptation to changing operating conditions, is based on the existing relationship between employees and external conditions. The relationship between employees' behavior and the environment is dynamic and bilateral. Human capital adapts its activities to its environment. At the same time, employees influence individual components of the environment through their competence potential.

Although the characteristics of the labor market have been presented in many studies (see e.g., Prahalad and Hamel 1997; Mills et al. 2003; Alniacik et al. 2013; Kaur and Kumar 2013; Apriana et al. 2019; Drozdowski 2020), there remains a need to explore the competency niche problem among employees, particularly after the publication of the European Working Conditions [European Working Conditions Survey \(2020\)](#), which revealed the severe problem with competencies versus business needs.

### 3. Materials and Methods

This study aims to determine the competence gap of the examined employees and their efforts to eliminate this gap. Therefore, firstly, the factors determining the competence of employees were identified. Secondly, a self-assessment of competencies was conducted, making it possible to present employees' participation in shifts. Thirdly, a range of competencies was defined to establish employees' degree of determination expressed by the need to supplement their competence potential by adapting to the existing requirements and using the weak signals methodology to determine future needs. The following research assumption was formulated: the increasing complexity of the environment and the growth dynamics of the changes require agile competencies. The empirical study of employees' competencies involved 282 persons from firms located in western Poland (see Table 1). A purposive sample was used in the study, which means that it is not a statistical sample. We chose Poland because one of the members of our research team started their research in this country, and we could explore our topic on the competency niche in Polish firms based on an earlier analysis of the problem of employees' competency gap in a European context. The research was carried out in 2019–2020 (the research was conducted in the period between late 2019 and early 2020). Surveys were mailed to subjects during November and December 2019. Participants in the study included individuals with a college degree (74%) and a high school education (26%). The surveys were returned to the researchers in February–March 2020.

**Table 1.** Organizational profiles of participants.

Industry	Number of Employees	Number of Respondents
Accounting company	94	34
Power engineering	>250	88
Food manufacturing	>250	54
Transport company	68	17
Food wholesaler	58	12
Industrial wholesaler	96	16
Delivery company	81	42
Consulting company	<50	19

Source: Own study.

The results were prepared for the whole set of surveyed persons without division into subsets (for example, women and men, younger and older). Questionnaires and a literature study were used for the research. As the people participating in the study asked to remain anonymous, we have not provided the names of companies or other data that could identify the respondents. We also compared research results from different sources, which may reduce the interpretive uncertainty (Greene et al. 1989; Martin and Staines 1994).

During the analyses of the obtained research results, it was assumed that the probability of answering the given questions is equal for each of the options. Adopting an arbitrary value for the number of expected answers made it possible to verify the hypothesis of the significance of the obtained results. The results obtained were subjected to a Chi-square test for observed versus expected values using TIBCO software 2017 and Statistica version 13 (<http://statistica.io>, accessed on 1 June 2021).

The chi-square test was performed to examine the relationship between two nominal variables. The test involves comparing observed values (obtained in the survey) and theoretical values (calculated under the assumption that there is no relationship between the variables). Significant differences indicate the existence of a relationship between the variables.

Tables 2–5 present the values of the Chi-square test together with the number of degrees of freedom (df) and the significance level. In all tested cases, the probability of making a mistake of the first kind was very low—much less than  $p = 0.0001$ . The tests carried out indicate significant differences between the tested population groups. Thus, it can be concluded that the assumptions made for the study are correct.

**Table 2.** Determinants affecting employees' competencies.

Which Factors Most Influence Employees' Competencies?	Respondents	
	N	%
indoor environment	51	18%
outdoor environment	231	82%
Total	282	100%
Test	Chi square = 1,148,936; df = 1; $p = 0.000000$ .	

The outdoor environment is an external organizational environment that includes legal, political, economic, and demographic elements (Hatch 2018). The indoor environment refers to the workplace's conditions. The respondents were informed in the questionnaire about the components of the internal and external environment. We followed Hatch to distinguish elements of the organizational environment.

**Table 3.** The influence of the environment on the shaping of employees' competencies.

How Does the Environment Affect Employees' Competencies?	Respondents	
	N	%
exacts change	180	64%
supports change	79	28%
hinders change	23	8%
Total	282	100%
Test	Chi square = 1,347,021; df = 2; p = 0.000000.	

**Table 4.** Involvement of employees in changes to competencies.

How Do Employees Engage in Changes to Their Competencies?	Respondents	
	N	%
active counteracting of changes	9	3%
lack of involvement	39	14%
supporting changes	161	57%
Inspiration	73	26%
Total	282	100%
Test	Chi square = 1,839,858; df = 3; p = 0.000000.	

**Table 5.** Employees' competencies in the context of the requirements of the environment.

How Are Competencies Assessed with respect to the Requirements of the Environment?	Respondents	
	N	%
Very high	68	24%
Appropriate	163	58%
Insufficient	51	18%
Total	282	100%
Test	Chi square = 7,751,064; df = 2; p = 0.000000.	

It was assumed that our research, which was focused on employees' competencies, did not have to be reflected in the formalized language of mathematical logic and did not have lead to the construction of unchanging theories, but would only result in socially and historically limited generalizations. However, regardless of the formulated generalizations, the created concepts must be based on commonly shared cognitive assumptions referred to as the paradigm. We used the Burrell and Morgan classification of paradigms to consider which paradigm fit our study best (Burrell and Morgan 1979). We decided to choose the strategy of epistemological pluralism, which allows for the combination of approaches drawn from different paradigms to obtain precise cognitive results. Therefore, one may use functionalist concepts (verification and falsification) and interpretative concepts (meaning and interpretation). Thus, we chose different methods to obtain a broader view of the studied issues (Campbell and Fiske 1959; Greene et al. 1989).

#### 4. Results and Discussion

The results show (see also the Chi-square test) that the external environment is the main factor determining employees' competence (82 per cent) given the identified competence determinants. The results indicate that the importance of factors having their source in the company's internal area is minor (Table 2).

These findings support those of Nonaka (1994), Prahalad and Hamel (1997), Clarke and Clegg (2000), Mintzberg et al. (2009), Ansoff (2019), and Ganguly et al. (2019). The outdoor environment significantly impacts the formation of employees' competencies, as it provides guidelines for the development of their potential (Drozdowski 2020). One may state that the dynamically changing outdoor environment requires employees to adapt their competencies to respond appropriately to external signals.

The problem is the following. Do employees actively fit their competencies to new outdoor requirements or discover them when they occur and then change their competencies? We believe that the latter is worse because it creates a dual risk. First, the gap between required and achieved competencies may not be eliminated due to bounded rationality and incomplete information. Secondly, it may create a competency gap that exists for a long time before employees identify and eliminate it. Our study found that the external environment forces changes in employees' competencies (64 per cent). Considering the situation that has arisen, it can be concluded that the employees during the period considered were faced with the need to take adjustment measures (Table 3).

Table 3 refers to the external environment that the respondents considered most relevant from the point of view of competence. The research results (including those of the Chi-square test) allow us to state that the signals that reached the surveyed employees from the external environment took the form of impulses that forced changes in competence. Given the situation that has arisen, it can be concluded that the employees were faced with the need to take adaptation measures. They should therefore demonstrate a high degree of competence flexibility. Similar conclusions were reached in [Kalleberg \(2001\)](#), [Rönmmar \(2004\)](#), and [Knox and Walsh \(2005\)](#).

In sum, we found that employees were not interested in participating in change until their environment forced them to do so. Meanwhile, the readiness of employees to adapt to change is a condition of a high degree of flexibility of pro-development behaviors (see e.g., [Jones 2017](#); [Hines et al. 2017](#); [Way et al. 2018](#); [Sabuhari et al. 2020](#); [Foss et al. 2021](#)). Our findings support those of other researchers ([Swales 2004](#); [Foster 2010](#); [Kalleberg 2001](#); [Berger and Berger 2004](#); [Alniacik et al. 2013](#); [Schad et al. 2016](#); [Apriana et al. 2019](#)). Our findings are presented in Table 4. One may state that inspiring changes was an important, although not dominant, type of employee action (26 per cent of respondents). Only a small number of respondents stated that they were actively counteracting changes (3 per cent), which means they were trying to identify competencies that fit the new requirements of the external environment. The Chi-square test results obtained confirm the high significance of the differences in the respondents' answers.

The analysis (including that of the Chi-square test results) confirmed a dysfunction of competence that reflects the mismatch between human capital's fundamental competencies and new competence patterns formulated by the environment. Most employees rated their competencies as appropriate (58 per cent) or very high (24 per cent) with respect to the requirements of their environment (Table 5). It can be concluded that the surveyed employees considered the state of their competence to be at a level appropriate for the requirements directed by the environment. This manifests a positive self-assessment of one's competencies and testifies to an excessively optimistic image of one's competence profile. This picture is a manifestation of the subjective assessment that testifies to the low strength of the internal motivation for raising competencies in the direction of developmental activity, which allows one to adapt to the increasing demands of the changing environment. Thus, if staff perceive their competencies to be at a satisfactory level, they may not perceive or appreciate the new situational demands created by the external environment. Such behavior contributes to the phenomenon of a disjunction (a competence gap) between the needs of the environment and one's competence potential. Hence, the lack of a critical view of the need to flexibly adapt one's competencies in the face of situational conditions resulting from rapid and unexpected changes may manifest in the form of behaviors that determine unfavorable phenomena in enterprise management.

To sum up, the value of self-assessment of competencies was very positive, which in the case of radical changes in a turbulent environment may be a factor that disturbs the process of employees' perception of signals sent to them by the environment containing new competence requirements, which at the same time indicates the direction of appropriate development activity. A similar view is held by [Pralhad and Hamel \(1997\)](#) and [Drucker \(2007\)](#), who pointed out that successful employees are aware of their limitations and know which areas of their competence they need to develop. One may argue that employees who

were unable to learn from their mistakes and failures were much less likely to admit their faults and were unable to do anything to change.

Most of the surveyed employees stated that human resource development in their firms is formalized, and that often their training needs were not promptly realized by employers. They believed (82%) that their firms were not ready to immediately respond to environmental signals. Their belief in adequate competencies (58%) leads to the following generalisation. The employees' positive opinion, expressing the compatibility of their possessed competencies with the environment's requirements and uncritical confidence in their abilities, suggests a negative phenomenon showing a lack of a need for changes in the structure of the possessed competencies that would correspond to the situational demand. Based on the analysis of the employees' responses, one may state that none of the examined employees was familiar with the weak signals methodology. The surveyed employees indicated that their firms had never used such methods to identify competency niches.

## 5. Conclusions

As one may rightly point out, there is much research on competencies, but in our opinion the research topic of this article remains little studied both theoretically and practically. Our study allowed us to identify the factors determining the competencies of the surveyed employees. Moreover, the research allowed us to establish the relationship between the environment and competencies. Furthermore, we have identified how the surveyed personnel evaluated their competencies against the requirements of the environment. Employees who are focused on practical problem solving are aware of their limitations, so they know what areas of their competence they need to develop. Employees who have not learned from their mistakes and failures are much less likely to admit their faults and cannot do much to change. We found that many employees lacked an understanding of their limitations.

The empirical material collected during the study allowed us to draw the following conclusions:

- the most crucial factor determining the competence of employees is the company's environment, which at the same time sets specific requirements;
- employees showed no interest in participating in changes until external factors force them to do so; and
- employees were not familiar with the weak signal methodology. However, identification of early signs of upcoming events is crucial to the rapid elimination of competency niches. Rapid identification of upcoming threats or opportunities enables a company to move ahead of other companies, adapt to new requirements, and gain a competitive advantage. It is also crucial to the well-known (to theorists and practitioners) agile approach. Employees must, therefore, actively participate in the process of identifying weak signals in their companies. We found that firms knew little about how to use the weak signals methodology to reduce the competency niche both in theory and practice.

Therefore, we may state that the study confirmed that firms should be more active in identifying employee competency niches by analyzing early signs if they want to be ready for changes without delays.

These results are preliminary, and, therefore, we did not develop a detailed model of competencies. The obtained results form the basis for preparing the next stage of our research, which aims to formulate theses on models of changes in employees' competencies and estimate the statistical sensitivity of the obtained results. In the case of a comprehensive database, we believe that it will be necessary to use more advanced statistical tools, which allow for a deeper analysis of the dependency structure. We believe that there is a need for continuous attempts to establish the reasons for the failure to adapt employees' competencies to the environment's needs. From a broader perspective and considering that around half of the European population is affected by the competency mismatch



([European Working Conditions Survey 2020](#)), one may argue that this study is a starting point for further analysis of competency niches in other countries.

Traditional theories of human resource management, including studies on motivation methods, are based on predictable environments. In other words, one may evaluate the risk of occurrence of different factors that affect employees. Under conditions of uncertainty, the situation is different. Uncertainty is not the same as risk. Therefore, for example, the weak signals methodology is helpful. The COVID-19 pandemic produced a completely different situation than existed before. It is the first such pandemic to occur in so many countries and the European Union. It is commonly known that firms and governments were not ready for the COVID-19 pandemic.

We believe that future research should aim to determine: (1) whether firms use the weak signals methodology to identify competency niches; (2) whether firms respond promptly to employee's training needs; (3) how firms distinguish their actual training needs from the training needs of employees, as the needs do not always coincide; and (4) how the elimination of competency niches affects risk management in companies.

**Author Contributions:** Conceptualization, Z.D., G.D. and J.L.; methodology, Z.D., G.D. and J.L.; software, Z.D.; validation, Z.D., G.D. and J.L.; formal analysis, Z.D.; investigation, Z.D., G.D. and J.L.; resources, G.D.; data curation, J.L.; writing—original draft preparation, Z.D. and G.D.; writing—review and editing, Z.D., G.D. and J.L.; visualization, Z.D., G.D. and J.L.; supervision, Z.D., G.D. and J.L.; project administration, Z.D.; funding acquisition, J.L. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

- Agarwal, Ashish, Ravi Shankar, and Manoy Kumar Tiwari. 2006. Modelling the metrics of lean, agile and legible supply chain: An ANP-based approach. *European Journal of Operational Research* 173: 211–25. [[CrossRef](#)]
- Alniacik, Esra, Ümit Alniacik, and Serhat Eratand Kultigin Akçin. 2013. Does Person-organization Fit Moderate the Effects of Affective Commitment and Job Satisfaction on Turnover Intentions? *Procedia—Social and Behavioral Sciences* 99: 274–81. [[CrossRef](#)]
- Ansoff, Igor H. 2019. *Implanting Strategic Management*. Berlin and Heidelberg: Springer.
- Apriana, Dina, Muhammad Kristiawan, and Deesy Wardiah. 2019. Headmaster's Competency In Preparing Vocational School Students For Entrepreneurship. *International Journal of Scientific & Technology Research* 8: 1316–330.
- Armstrong, Craig E. 2013. Competence or Flexibility? Survival and Growth Implications of Competitive Strategy Preferences Among Small US Businesses. *Journal of Strategy and Management* 6: 377–98. [[CrossRef](#)]
- Athey, Timothy R., and Michael S. Orth. 1999. Emerging competency methods for the future. *Human Resource Management* 38: 215–225. [[CrossRef](#)]
- Bal, P. Matthijs, and Annet H. De Lange. 2015. From flexibility human resource management to employee engagement and perceived job performance across the lifespan: A multisample study. *Journal of Occupational and Organizational Psychology* 88: 126–54. [[CrossRef](#)]
- Barker, Derek, and David J. H. Smith. 1995. Technology foresight using roadmaps. *Long Range Planning* 28: 21–28. [[CrossRef](#)]
- Berber, Nemanja, and Bojan Lekovic. 2018. The impact of HR development on innovative performances in central and eastern European countries. *Employee Relations* 40: 762–86. [[CrossRef](#)]
- Berger, Lance A., and Dorothy R. Berger. 2004. *The Talent Management Handbook: Creating Organizational Excellence by Identifying, Developing and Promoting Your Best People*. New York: The McGraw-Hill Companies.
- Boehm, Barry W. 2002. Get ready for agile methods with care. *IEEE Computer* 35: 64–69. [[CrossRef](#)]
- Brundiers, Katja, Matthias Barth, Gisela Cebrián, Matthew Cohen, Liliana Diaz, Sonya Doucette-Remington, Weston Dripps, Geoffrey Habron, Niki Harré, Meghann Jarchow, and et al. 2021. Key competencies in sustainability in higher education—Toward an agreed-upon reference framework. *Sustainability Science* 16: 13–29. [[CrossRef](#)]
- Burrell, Gibson, and Gareth Morgan. 1979. *Sociological Paradigms and Organisational Analysis*. Elements of the Sociology of Corporate Life. London: Routledge.
- Campbell, Donald T., and Donald W. Fiske. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin* 56: 81–105. [[CrossRef](#)] [[PubMed](#)]
- Casper, Steven, and Richard Whitley. 2004. Managing competences in entrepreneurial technology firms: A comparative institutional analysis of Germany, Sweden and the UK. *Research Policy* 33: 89–106. [[CrossRef](#)]
- Chen, Jie, and Mingzhi Hu. 2021. City-level hukou-based labor market discrimination and migrant entrepreneurship in China. *Technological and Economic Development of Economy* 27: 1095–118. [[CrossRef](#)]

- Chuang, Yen-Ching, Sh-Kung Hu, James J. J. Liou, and Gwo-Hshiung Tzeng. 2020. A data-driven MADM model for personnel selection and improvement. *Technological and Economic Development of Economy* 26: 751–84. [CrossRef]
- Chung-Herrera, Beth G., Cathy A. Enz, and Melenie J. Lankau. 2003. Grooming future hospitality leaders: A competencies model. *The Cornell Hotel and Restaurant Administration Quarterly* 44: 17–25. [CrossRef]
- Clarke, Tomas, and Stewart Clegg. 2000. Management Paradigm for the New Millennium. *International Journal for Management Reviews* 2: 45–64. [CrossRef]
- Cockburn, Alistar, and Jim Highsmith. 2001. Agile Software Development: The People Factor. *IEEE Computer* 34: 131–33. [CrossRef]
- Conboy, Kieran. 2009. Agility from first principles: Reconstructing the concept of agility in information systems development. *Information Systems Research* 20: 329–54. [CrossRef]
- Cuhls, Kerstin E. 2003. From forecasting to foresight processes—New participative foresight activities in Germany. *Journal of Forecasting* 22: 93–111. [CrossRef]
- Cuhls, Kerstin E. 2019. Horizon Scanning in Foresight—Why Horizon Scanning is only a part of the game. *Futures & Foresight Science* 2: 1–21.
- Delcourt, Cécile, Dwayne D. Gremler, Allard C. R. van Riel, and Marcel van Birgelen. 2013. Effects of perceived employee emotional competence on customer satisfaction and loyalty: The mediating role of rapport. *Journal of Service Management* 24: 5–24. [CrossRef]
- Denzin, Norman K. 2009. *The Research Act: Theoretical Introduction to Sociological Methods*. New Brunswick and London: Aldine Transactions.
- Dobrowolski, Zbysław. 2020a. The Supreme Audit Institutions Readiness to Uncertainty. *Entrepreneurship and Sustainability Issues* 8: 513–525. [CrossRef]
- Dobrowolski, Zbysław. 2020b. Forensic Auditing and Weak Signals: A Cognitive Approach and Practical Tips. *European Research Studies Journal* 13: 247–259. [CrossRef]
- Dobrowolski, Zbysław. 2020c. After Covid-19. Reorientation of Crisis Management in Crisis. *Entrepreneurship and Sustainability Issue* 8: 799–810. [CrossRef]
- Dobrowolski, Zbysław. 2021a. Internet of Things and Other E-Solutions in Supply Chain Management May Generate Threats in the Energy Sector—The Quest for Preventive Measures. *Energies* 14: 5381. [CrossRef]
- Dobrowolski, Zbysław. 2021b. Energy and Local Safety: How the Administration Limits Energy Security. *Energies* 14: 4841. [CrossRef]
- Dobrowolski, Zbysław. 2021c. Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures. *European Research Studies Journal* 14: 52–62. [CrossRef]
- Dobrowolski, Zbysław, and Łukasz Sułkowski. 2020. Implementing a Sustainable Model for Anti-Money Laundering in the United Nations Development Goals. *Sustainability* 12: 244. [CrossRef]
- Dobrowolski, Zbysław, Grzegorz Drozdowski, and Agnieszka Gawlik. 2021a. Managerial Effectiveness in the Perspective of Competencies Towards Uniformity in Family Business. *European Research Studies Journal* 14: 227–37. [CrossRef]
- Dobrowolski, Zbysław, Józef Ledzianowski, and Monika Dobrowolska. 2021b. Towards to Agile Management Control Systems at the University: Preliminary Research. *European Research Studies Journal* 14: 1220–229. [CrossRef]
- Dobrowolski, Zbysław, Grzegorz Drozdowski, Monika Dobrowolska, Janusz Soboń, and Dariusz Soboń. 2021c. Economic Calculus and Weak Signals: Prevention Against Foggy Bottom. *European Research Studies Journal* 14: 165–74. [CrossRef]
- Drozdowski, Grzegorz. 2017. Emotional components of competence among executives: An empirical study. *Economic Annals-XXI* 162: 89–92. [CrossRef]
- Drozdowski, Grzegorz. 2020. *Kompetencje Kadry Kierowniczej w Kształtowaniu Kapitału Ludzkiego Przedsiębiorstwa*. Kielce: Wydawnictwo Uniwersytetu Jana Kochanowskiego w Kielcach, [Competencies of the Managerial Staff in Shaping the Human Capital of an Enterprise. Kielce: Publishing House. Jan Kochanowski University].
- Drozdowski, Grzegorz, Joanna Rogozińska-Mitrut, and Jacek Stasiak. 2021. The Empirical Analysis of the Core Competencies of the Company's Resource Management Risk. Preliminary Study. *Risks* 9: 107. [CrossRef]
- Drucker, Peter F. 2007. *Management Challenges for the 21st Century*. Oxford and London: Butterworth Heinemann.
- European Working Conditions Survey. 2020. Available online: [www.eurofound.europa.eu/surveys/smt/ewcs/results.htm](http://www.eurofound.europa.eu/surveys/smt/ewcs/results.htm) (accessed on 22 May 2021).
- Evetts, Julia. 2011. A new professionalism? *Challenges and opportunities*. *Current Sociology* 59: 406–22.
- Ferreras-Garcia, Raquel, Jordi Sales-Zaguirre, and Enric Serradell-López. 2021. Developing entrepreneurial competencies in higher education: A structural model approach. *Education + Training* 63: 720–43. [CrossRef]
- Foss, Nicolai J., Peter G. Klein, Lasse B. Lien, Thomas Zellweger, and Todd Zenger. 2021. Ownership competence. *Strategic Management Journal* 42: 302–28. [CrossRef]
- Foster, Rex D. 2010. Resistance, justice, and commitment to change. *Human Resource Development Quarterly* 21: 3–39. [CrossRef]
- Ganguly, Anirban, Asim Talukdar, and Debdeeb Chatterjee. 2019. Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization. *Journal of Knowledge Management* 23: 1105–35. [CrossRef]
- González-López, María José, María Carmen Pérez-López, and Lázaro Rodríguez-Ariza. 2021. From potential to early nascent entrepreneurship: the role of entrepreneurial competencies. *International Entrepreneurship and Management Journal* 17: 1387–417. [CrossRef]

- Greene, Jennifer C., Valerie J. Caracelli, and Wendy F. Graham. 1989. Toward a Conceptual Framework for Mixed-Method Evaluation Designs. *Educational Evaluation and Policy Analysis* 11: 255–74. [CrossRef]
- Hager, Paul, and Andrew Gonczi. 1996. What is competence? *Medical Teacher* 18: 15–18. [CrossRef]
- Hatch, Mary Jo. 2018. *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 4th ed. Oxford: Oxford University Press.
- Hauptman, Aharon, Merja Hoppe, and Yoel Raban. 2015. Wild cards in transport. *European Journal of Futures Research* 3: 1–24. [CrossRef]
- Hays, Danica G. 2020. Multicultural and social justice counseling competency research: Opportunities for innovation. *Journal of Counseling & Development* 98: 331–44.
- Hiltunen, Elina. 2008. Good sources of weak signals: A global study of where futurists look for weak signals. *Journal of Futures Studies* 2: 21–44.
- Hines, Andy, Jay Gary, Cornelia Daheim, and Luke van der Laan. 2017. Building Foresight Capacity: Toward a Foresight Competency Model. *World Futures Review* 9: 123–41. [CrossRef]
- Hodgson, Damian, and Louise Briand. 2013. Controlling the uncontrollable: „Agile“ teams and illusions of autonomy in creative work. *Work, Employment and Society* 27: 308–25. [CrossRef]
- Hoffmann, Terrence. 1999. The meanings of competency. *Journal of European Industrial Training* 23: 275–86. [CrossRef]
- Iden, Jon, Leif B. Methlie, and Gunnar E. Christensen. 2017. The nature of strategic foresight research: A systematic literature review. *Technological Forecasting and Social Change* 116: 87–97. [CrossRef]
- Jones, Peter. 2017. The futures of Canadian governance: Foresight competencies for public administration in the digital era. *Canadian Public Administration* 60: 657–81. [CrossRef]
- Kalleberg, Arne L. 2001. Organizing flexibility: The flexible firm in a new century. *British Journal of Industrial Relations* 39: 479–504. [CrossRef]
- Karabasevic, Darian, Edmundas K. Zavadskas, Dragisa Stanujkic, Gabrijela Popovic, and Miodrag Brzakovic. 2018. An approach to personnel selection in the it industry based on the edas method. *Transformations in Business & Economics* 17: 54–65.
- Kaur, Jaideep, and Vikas Kumar. 2013. Competency mapping: A gap Analysis. *International Journal of Education and Research* 1: 1–9.
- Kipper, Liane Mahlmann, Sandra Lepsen, Ana Julia Dal Forno, Rejane Frozza, Leonardo Furstenau, Jéssica Agnes, and Danielli Cossul. 2021. Scientific mapping to identify competencies required by industry 4.0. *Technology in Society* 64: 101454. [CrossRef]
- Knox, Angela, and Janet Walsh. 2005. Organisational flexibility and HRM in the hotel industry: Evidence from Australia. *Human Resource Management Journal* 15: 57–75. [CrossRef]
- Kuk, Linda, Brian Cobb, and Cynthia S. Forrest. 2007. Perceptions of competencies of entry-level practitioners in student affairs. *Journal of Student Affairs Research and Practice* 44: 664–91.
- Le Deist, Françoise Delamare, and Jonathan Winterton. 2005. What Is Competence? *Human Resource Development International* 8: 27–46. [CrossRef]
- Lyytinen, Kalle, and Gregory M. Rose. 2006. Information system development agility as organizational learning. *European Journal of Information Systems* 15: 183–99. [CrossRef]
- Martin, Ben R. 1995. Foresight in science and technology. *Technology Analysis & Strategic Management* 7: 139–68.
- Martin, Graeme, and Harry Staines. 1994. Managerial Competences in Small Firms. *Journal of Management Development* 13: 23–34. [CrossRef]
- Martin, Matthew M., and Rebecca B. Rubin. 1995. A new measure of cognitive flexibility. *Psychological Reports* 76: 623–26. [CrossRef]
- Mills, J., Ken Platts, and Mike Bourne. 2003. Competence and resource architectures. *International Journal of Operations & Production Management* 23: 977–94.
- Mintzberg, Henry, Bruce Ahlstrand, and Joseph Lampel. 2009. *Strategy Safari. Your Complete Guide through the Wilds of Strategic Management*. New York: Prentice-Hall, Harlow.
- Moe, Nils, Torgeir Dingsøy Brede, and Tore Dybå. 2009. Overcoming barriers to self-management in software teams. *IEEE Software* 26: 20–26. [CrossRef]
- Nonaka, Ikujiro. 1994. A Dynamic Theory of Organizational Knowledge Creation. *Organization Science* 5: 14–37. [CrossRef]
- Nordhaug, Odd, and Kjell Grønhaug. 1994. Competences as resources in firms. *The International Journal of Human Resource Management* 5: 89–106. [CrossRef]
- Olhager, Jan. 2003. Strategic positioning of the order penetration point. *International Journal of Production Economics* 85: 319–29. [CrossRef]
- Potdar, Pavan, Srikanta Routroy Kumar, and Astajyoti Behera. 2017. Agile manufacturing: A systematic review of literature and implications for future research. *Benchmarking: An International Journal* 24: 2022–48. [CrossRef]
- Prahalad, Coimbatore K., and Gary Hamel. 1997. The Core Competence of the Corporation. *Harvard Business Review*. Available online: <https://treeofideas.files.wordpress.com/2010/01/articles-the-core-competencies-of-the-corporation.pdf> (accessed on 10 September 2021).
- Rönmar, Mia. 2004. The managerial prerogative and the employee’s duty to work: A comparative study of functional flexibility in working life. *The International Journal of Human Resource Management* 15: 451–58. [CrossRef]
- Rothwell, William J., and John E. Lindholm. 1999. Competency identification, modelling and assessment in the USA. *International Journal of Training and Development* 3: 90–105. [CrossRef]

- Sabuhari, Rahmat, Achmad Sudiro, Dodi W. Irawanto, and Mintarti Rahayu. 2020. The effects of human resource flexibility, employee competency, organizational culture adaptation and job satisfaction on employee performance. *Management Science Letters* 10: 1777–86. [[CrossRef](#)]
- Saritas, Ozcanm, and Jack E. Smith. 2011. The Big Picture—Trends, drivers, wild cards, discontinuities and weak signals. *Futures* 43: 292–312. [[CrossRef](#)]
- Schad, Jonathan, Marianne W. Lewis, Sebastian Raisch, and Wendy K. Smith. 2016. Paradox Research in Management Science. Looking Back to Move Forward. *The Academy of Management Annals* 10: 5–64. [[CrossRef](#)]
- Scholes, Julie, and Ruth Endacott. 2003. The practice competency gap: Challenges that impede the introduction of national core competencies. *Nursing in Critical Care* 8: 68–77. [[CrossRef](#)] [[PubMed](#)]
- Shavelson, Richard J. 2010. On the measurement of competency. *Empirical Research in Vocational Education and Training* 2: 41–63. [[CrossRef](#)]
- Skaggs, Bruce C., and Mark Youndt. 2004. Strategic positioning, human capital, and performance in service organizations: A customer inter-action approach. *Strategic Management Journal* 25: 85–99. [[CrossRef](#)]
- Sułkowski, Łukasz, and Zbysław Dobrowolski. 2021. The role of supreme audit institutions in energy accountability in EU countries. *Energy Policy* 156: 112413. [[CrossRef](#)]
- Swales, Stephen. 2004. Commitment to change: Profiles of commitment and in-role performance. *Personnel Review* 33: 187–204. [[CrossRef](#)]
- Taborsky, Barbara, and Rui F. Oliveira. 2012. Social competence: An evolutionary approach. *Trends in Ecology & Evolution* 27: 679–88.
- Ten Cate, Olle, and Fedde Scheele. 2007. Viewpoint: Competency-Based Postgraduate Training: Can We Bridge the Gap between Theory and Clinical Practice? *Academic Medicine* 82: 542–47. [[CrossRef](#)]
- Thite, Mohan. 2004. Strategic positioning of HRM in knowledge-based organizations. *The Learning Organization* 11: 28–44. [[CrossRef](#)]
- Way, Sean, Patrick M. Wright, J. Bruce Tracey, and Jeremy F. Isnard. 2018. HR flexibility: Precursors and the contingent impact on firm financial performance. *Human Resource Management* 57: 567–82. [[CrossRef](#)]
- Wells, Andrew. 2014. Agile management: Strategies for success in rapidly changing times—An Australian University Library perspective. *IFLA Journal* 40: 30–34. [[CrossRef](#)]
- Williams, Laurie, and Alistar Cockburn. 2003. Agile software development: It is about feedback and change. *Computer* 36: 39–43. [[CrossRef](#)]
- Wittmann, Michael C., Shelby D. Hunt, and Dennis B. Arnett. 2009. Explaining alliance success: Competences, resources, relational factors, and resource-advantage theory. *Industrial Marketing Management* 38: 743–56. [[CrossRef](#)]
- Woodruffe, Charles. 1993. What Is Meant by a Competency? *Leadership & Organization Development Journal* 14: 29–36.
- Yin, Jieli, Jian Guo. 2019. An extended TODIM method for project manager's competency evaluation. *Journal of Civil Engineering and Management* 25: 67–86. [[CrossRef](#)]