Zrównoważone zarządzanie organizacją
I Międzynarodowa Konferencja Naukowa
Instytutu Zarządzania UEP

Sustainable Organization Management
1st International Scientific Conference
of the PUEB Institute of Management

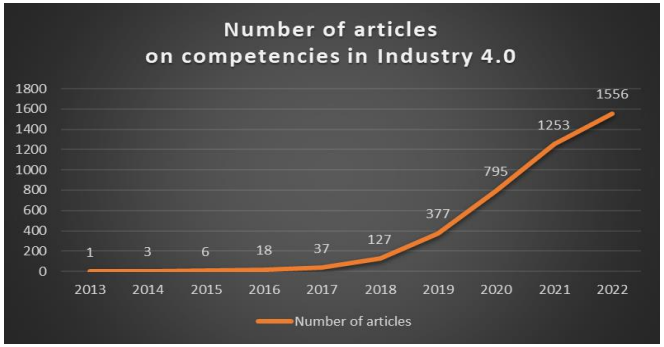
25-26 października/October 2022

Competency models in Industry 4.0

Anna Ziętek, MA
PUEB

Purpose: The purpose of the article is to review the contemporary research on competency models in Industry 4.0 and present the outline of competencies required from employees to support the technical revolution.

Design/methodology/approach: The paper reviews selected literature covering the period from 2013 up to the present from the Scopus database using the following keywords: "competencies", "competences", "competency" or "competence" in cooccurrence with "Industry 4.0" In the result of search 6971 documents were found. In the first stage, 4178 studies were selected after applying restriction to articles, of which 1743 were in subject area "business, management and accounting". In the second stage, the search was limited to those articles that include phrase "competency/ competence model" or "competency/ competence profile", which gave the result of 88 articles. Then, a detailed analysis of abstracts was carried out to focus only on the research concerning general competency models. The primary question was: "Does the article develop or transform a competency model or profile for Industry 4.0?"



Competency model - a valid, observable, and measurable list of knowledge, skills, and attributes demonstrated through behaviour that results in expected performance in a particular work context (Singh Chouhan and Srivastava, 2014). A competency model, which is a set of all competencies required from employees of a given organization, grouped into appropriate profiles for individual positions or organizational roles, is the basis for the use of competencies in human resource management (Sienkiewicz and Trawińska - Konador, 2013).

Industry 4.0 – the automation of manufacturing and industrial processes achieved using state-of-the-art technologies and tools (Shet and Pereira, 2021).
Industry 4.0 concerns the strict integration of human in the manufacturing process so as to have continuous improvement and focus on value adding activities and avoiding wastes (Vaidya et al. 2018).

Y. Kazancglu and Y.D. Ozkan-Ozen (2017)	L.M. Kipper et al. (2021)	S.V. Shet and V. Pereira (2021)
Ability of dealing with complexity and **problem solving**	Knowledge in:	Agility
Thinking in overlapping process	**Information and communication technology (ICT)**	Business acumen
Flexibility to adapt new works and environment	Software development and **security**	Disruptive leadership
Continual **interdisciplinarity learning and cooperation**	**Sustainable development** techniques	**Problem solving** & decision making
Organisational and processual understanding	**Data analysis**	Connected technology architecture
Trust in new technologies	General systems theory	Project leadership
Ability of fault and error recovery	Skills in:	Digital intelligence & modelling
Combining know-how related to a specific job or process	Leadership, Strategic view of knowledge, Self-organisation, Give and receive feedback, Pro-activity, Creativity, **Problem solving, Interdisciplinarity,** Team work, **Collaborative work**, Initiative, Communication, Innovation, **Adaptability, Flexibility**, Self-management	Entrepreneurial intelligence
Ability to interact with modern interfaces		Design thinking
Awareness of **IT security and data protection**		**Collaborative mindset**
Knowledge on IT and production technologies		Research orientation
		Data analytics
		Robotic process automation
		Sustainability

Ministerstwo Edukacji i Nauki
Projekt Ekonomia w obliczu Nowej Gospodarki finansowany w ramach programu Ministra Nauki i Szkolnictwa Wyższego pod nazwą „Regionalna Inicjatywa Doskonałości" w latach 2019 - 2023 nr projektu 004/RID/2018/19 kwota finansowania 3.000.000 zł

Ministry of Education and Science
The project Economics in the face of the New Economy financed within the Regional Initiative for Excellence programme of the Minister of Education and Science of Poland, years 2019-2023, grant no. 004/RID/2018/19, financing 3,000,000 PLN