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## Prospects for the idea of Knowledge-Based Economy. Employing the ancient perspective for the development of the future

### Abstract

One of the most prevalent concepts describing the modern economy is the Knowledge-Based Economy (KBE). In an era of rapid scientific and technological advancement, the value of knowledge cannot be overstated; it is our most valuable resource. The aim of this paper is to examine the genesis and evolution of the KBE, as well as highlighting potential challenges and opportunities for its future. Paraphrasing F. Fukuyama's famous prediction of 'the end of history', it seems reasonable to ask whether the KBE marks the 'end of the economy' or whether new determinants may emerge to transform it. Furthermore, as new theories emerge, the question arises as to which of them, and why, should be recognised as 'knowledge' and thus developed to shape the future. Rather than analyzing modern theories, we propose a return to the foundations of our cultural and intellectual heritage. Therefore, this study employs critical literature analysis and philosophical inquiry, referencing contemporary economic thought and Aristotelian hermeneutics. The terminological debates are limited in order to focus on the cultural and historical dimensions of KBE and to suggest its potential future trajectory. Drawing on Aristotle and the metaphor of the 'ship of state', we argue that nowadays, it is no longer sufficient to collect and analyse facts; rather, there is a need to assess probabilities and discuss potential outcomes. Translating this ability into action would enable us to make our knowledge 'practical' (in Aristotelian sense), and thus assist in charting a course for the future.

**Keywords:** knowledge, economy, Aristotle, philosophy, education

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## Streszczenie

Jednym z najczęściej używanych we współczesnej nauce o gospodarce terminów jest „gospodarka oparta na wiedzy” (GOW). W dzisiejszych czasach, kiedy obserwujemy szybki rozwój nauki i technologii, znaczenie wiedzy staje się kluczowe, gdyż jest ona jednym z naszych najcenniejszych zasobów. Celem tego artykułu jest zbadanie genezy oraz ewolucji koncepcji GOW, a także omówienie wyzwań, które mogą stanąć przed nią w przyszłości. W tym kontekście warto, parafrazując słynną prognozę F. Fukuyamy o „końcu historii”, zadać pytanie, czy GOW będzie stanowić ostateczny etap rozwoju gospodarki, czy też pojawią się nowe czynniki, które zmodyfikują jej oblicze. Trzeba też się zastanowić, które z nowych teorii naukowych zasługują na miano „wiedzy” i tym samym powinny być rozwijane. Zamiast bazować na klasycznej analizie obecnych koncepcji gospodarczych, proponujemy powrót do fundamentów naszego dziedzictwa intelektualnego i kulturowego. Dlatego też niniejsze badanie wykorzystuje krytyczną analizę literatury i dociekania filozoficzne, odwołuje się do współczesnej myśli ekonomicznej i hermeneutyki Arystotelesa. Rozważania terminologiczne zostały ograniczone, by skupić się na kulturowych i historycznych wymiarach GOW i zasugerować jej potencjalne drogi rozwoju. Odwołując się do myśli Arystotelesa i antycznej metafory porównującej państwo do okrętu, twierdzimy, że dziś nie wystarczy już wiedza oparta na gromadzeniu i analizie danych, lecz konieczna jest również umiejętność uwzględniania prawdopodobieństw i przewidywania potencjalnych rezultatów. Zastosowanie tej umiejętności w działaniu umożliwi stworzenie wiedzy „praktycznej” (w sensie arystotelesowskim), a tym samym może pomóc w wyznaczaniu kursu rozwoju i działań na przyszłość.

**Słowa kluczowe:** wiedza, gospodarka, Arystoteles, filozofia, edukacja

## Introduction

The concept of a ‘Knowledge-Based Economy’ (KBE) has been a significant theme in modern economic discourse. However, defining the term presents a challenge, as KBE can be understood as:

- a new paradigm that explains the mechanisms and functioning of the modern economy that emerged primarily in the so-called new growth theories (Smith 1998) and evolutionary economic theory (Michael, Abbas 2023);
- the economic reality of socio-economically advanced countries, which are classified as such based on specific indicators (e.g. innovation and entrepreneurship indices, human capital indices, ICT indices, indicators of impact on the socio-economic environment) (Florczak 2010: 80–83);
- a political project and a recommended development pattern that states should follow if they do not want to take peripheral positions in the new architecture of the world system (e.g. the Lisbon Strategy and the Europe 2020 Strategy).

Formulating a research problem concerning the concept of KBE necessitates making at least two determinations. First, which of the aforementioned spheres should be the subject of discourse. Second, to determine which perspective is to be regarded as the leading one in the understanding of the concept of KBE. In light of these considerations, this paper adopts the position that the concept of KBE represents a novel paradigm in economic theory and a prominent policy initiative that has garnered the attention of an increasing number of researchers, analysts, and strategists engaged in socio-economic development. In turn, with regard to the perspective adopted, the authors intend to focus on issues related to the genesis of the concept, its intellectual heritage and the context in which it developed. Furthermore, some pitfalls related to the contemporary understanding of the notion of KBE shall be highlighted. To illustrate these, as well as some proposals to improve the current understanding of KBE, we shall refer to our ancient philosophical legacy and to the classical metaphor of a ship that can be used to illustrate those issues related to economic, political and social spheres.

In alignment with the perspective espoused by J.S. Mill, we approach the study of political economy and associated matters as an integrated, holistic endeavour (Mill 1844; Raworth 2017: 86, 206–207). Accordingly, this text will employ a method of critical literature analysis, with reference to contemporary economic thought regarding the idea of KBE. Furthermore, in light of the research goals that have been made, a philosophical analysis will be employed, drawing upon the insights of ancient thought and hermeneutics of philosophical treatises, especially those of Aristotle. In order to avoid digressions and to focus on the set goals, this text limits discussion of terminology, particularly with regard to the analysis of types of knowledge and a broader interpretation of Aristotle's thought. In this respect, our approach is grounded in the findings of earlier studies (Ceglarska, Cymbranowicz 2024: 257–296). Building on these findings, we aim to explore the potential future trajectory of KBE. This approach, which draws upon deeply embedded historical and cultural associations, will facilitate a comprehensive understanding of the problem and may indicate possible further research directions on the issue of KBE in order to ensure that the ideas of KBE may still remain valid, while preserving the ability to develop and respond adequately to contemporary needs.

## What is KBE?

The contemporary economy is often referred to as a 'Knowledge-Based Economy' (KBE). This term is used to describe an economic system in which the strategic factor determining the pace and level of socio-

economic development is the use of knowledge potential (Burke 2000: 1). The continuous creation and utilisation of knowledge serves as a source of innovation, providing novel solutions that form the foundation of the KBE (Zienkowski 2003: 15). The term KBE is used to describe the new orientation of modern economies. It refers to the concept of the post-industrial economy and society, as developed by A. Toffler and D. Bell. The rise of the KBE, or 'new economy', signals the emergence of a new phase in socio-economic development, namely the knowledge economy and society. It is the consequence of profound and irreversible transformations that have fundamentally altered the fabric of socio-economic life at the turn of the 21st century (see Table 1).

**Table 1. Agricultural, industrial and information society – comparison**

| Assessment parameters | Agricultural society | Industrial society  | Information society            |
|-----------------------|----------------------|---------------------|--------------------------------|
| wealth                | land                 | capital             | knowledge                      |
| primary product       | food                 | manufactured goods  | data, information              |
| work                  | near home            | far from home       | at home, telework              |
| transport             | river, road          | railway, highway    | information highway            |
| energy                | human, animal energy | coal, steam, petrol | nuclear electricity            |
| scale of operation    | local                | regional            | global                         |
| entertainment         | ritual, folk         | mass                | home, interactive              |
| mystery               | religious            | political           | commercial                     |
| education             | master               | school              | computer, online, telelearning |

Source: Haber 2001: 45.

Existing literature on knowledge, information and their use in the modern world identifies a number of stages that led to the emergence of the KBE (Piech 2004: 182). In this context, it is also relevant to cite the theory of three sectors, which posits that the economy progresses successively through three stages of development: pre-industrial, industrial and post-industrial. Due to a growing discourse surrounding the potential existence of a fourth sector, associated with the acquisition, storage, processing and transmission of information through advancements in computer techniques and technologies, a fourth phase of economic development, referred to as the knowledge economy era, has been proposed. This era is characterised by the dominance of knowledge as the primary driver of innovation, making it a crucial aspect of modern economic systems. The scientific literature on the transformation of the contemporary social and economic sphere is extensive. A plethora of studies and analyses fall wit

hn the realm of the KBE. Nevertheless, many researchers maintain that a satisfactory resolution of the numerous pivotal issues pertaining to the ‘new economy’ remains elusive. In the view of R.D. Atkinson and R.H. Court (1998), a comprehensive account of the ‘new economy’ can only be achieved by adopting a more expansive perspective (see Table 2).

**Table 2. Key characteristics of the old/traditional economy and the new/KBE**

| Issue                                | Old Economy                              | New Economy                                   |
|--------------------------------------|--|---|
| <b>Economy-Wide Characteristics:</b> |  |   |
| Markets                              | Stable                                   | Dynamic                                       |
| Scope of Competition                 | National                                 | Global  |
| Organizational Form                  | Hierarchical, Bureaucratic               | Networked                                     |
| <b>Industry:</b>                     |  |   |
| Organization of Production           | Mass Production                          | Flexible Production                           |
| Key Drivers of Growth                | Capital/Labor                            | Innovation/Knowledge                          |
| Key Technology Driver                | Mechanization                            | Digitization                                  |
| Source of Competitive Advantage      | Lowering cost through Economies of Scale | Innovation, Quality, Time-To-Market, and Cost |
| Importance of Research/Innovation    | Low-Moderate                             | High  |
| Relations With Other Firms           | Do It Alone                              | Alliances and Collaboration                   |
| <b>Workforce:</b>                    |  |   |
| Policy Goal                          | Full Employment                          | Higher Real Wages and Incomes                 |
| Skills                               | Job-Specific Skills                      | Broad Skills and Cross-Training               |
| Requisite Education                  | A Skill or Degree                        | Lifelong Learning                             |
| Labor-Management Relations           | Adversarial                              | Collaborative                                 |
| Nature of Employment                 | Stable                                   | Marked by Risk and Opportunity                |
| <b>Government:</b>                   |  |   |
| Business-Government Relations        | Impose Requirements                      | Encourage Growth Opportunities                |
| Regulation                           | Command and Control                      | Market Tool, Flexibility                      |

Source: Atkinson, Court 1998: 7.

The term ‘knowledge-based economy’ has recently begun to appear in world literature. The first academic study to define the KBE as an economy ‘directly based on the production, distribution and use of knowledge and information’ was a research report produced by the OECD in 1996, entitled *The Knowledge-Based Economy* (p. 7; Burke 2000: 3–10). Subsequently, however, there has been no universally accepted definition of KBE. Nevertheless, a common feature of most of them is the reference to a system composed of three components: knowledge, the economy and the interactions between them (Chojnicki 2001: 80). A review of the literature on KBE reveals that information, knowledge and intellectual capital are of significant importance in the contemporary socio-economic landscape. Therefore, the majority of definitions of the KBE are based on an attempt to identify its defining characteristics (Marcinkowski 2010: 20), and all emphasise the importance of knowledge, whereby it is not so much the possession of knowledge that is important, but the ability to use it in economic practice. The combination of theoretical and practical knowledge is in accordance with one of the fundamental assumptions of the long-term socio-economic development strategies of the European Union, namely the promotion of entrepreneurship and related innovation with a view to establishing a knowledge-based economy and an educated society that is adaptable to change (Wojnicka 2003: 45).

Naturally, it would be erroneous to suggest that the appreciation of knowledge, information and intellectual capital is a phenomenon exclusive to the modern, ‘new economy’. The usability of knowledge, historically linked to the even more difficult question of ‘what is knowledge?’, has been a topic of consideration since (at least) the time of ancient Greek philosophy and an important determinant and factor of development in the past (Ceglarska, Cymbranowicz 2024: 269–270). The practice of professional ‘selling’ of knowledge was already practised by the sophists, thus earning the critique of Plato. In ancient Rome, legal terminology such as ‘property’ and ‘theft’ was also applied to knowledge (Burke 2000: 150), and subsequently merged into contemporary copyright law. However, the most significant innovation associated with KBE is the recognition of information, knowledge and intellectual capital as the primary endogenous factor influencing socio-economic development (Drucker 1993: 5; Collinge, Staines 2009: 166).

## The visions for the future of KBE

Nevertheless, it seems implausible that the KBE represents the final stage of economic growth. In most cases, each proclaimed ‘end’ has proven to be merely another stage of development. The concept of the

‘end of history’ was articulated by G.W.H. Hegel and subsequently developed by K. Marx to explain the historical development of socio-economic formations and predict their next stages. F. Fukuyama, in his essay, *The End of History?* (1989, 1992), posited that history would culminate with the establishment of liberal democracy. None of these had come to pass. It seems implausible that the acknowledgement of the significance of knowledge and the prioritisation of its advancement and accumulation will represent the concluding phase of economic growth. Indeed, new theoretical frameworks are continually being developed to more effectively address the contemporary challenges associated with technological advancement, artificial intelligence, global migration, climate change, and other evolving phenomena. In 1960, W. Rostow (p. 4) published, within a book of the same title, a model of ‘stages of economic growth’, believing it is possible to position all societies within one of these categories:

1. the traditional society,
2. the preconditions for take-off,
3. the take-off,
4. the drive to maturity,
5. the age of high mass-consumption.

As K. Raworth (2017: 205) correctly asserts, the terms ‘take-off’, ‘start’, and ‘drive’ evoke images of aircraft flight. Thus, the historical development of economic thought can be seen as a type of a journey. However, Rostow does not provide an elaboration on its ultimate future. ‘Beyond, it is impossible to predict’ (Rostow 1960: 16), he states, suggesting only that the increase in real income may eventually become a less appealing prospect.

It would appear that we have now reached this stage. Furthermore, it is evident that this journey is not unfolding on well-trodden ground with a clear destination. At the same time, it seems that this ‘destination point’ is of primary importance. Some of the traditional theories continue to focus on GDP growth, while others, moving away from traditional thinking, emphasise sustainable growth, knowledge or climate issues. K. Raworth put forth a novel ‘doughnut economy’ model, postulating that transformation necessitates the development of an alternative model and a revised paradigm of thought. Moreover, she asserts that images have a profound impact on human thinking: ‘If we want to rewrite economics, we need to redraw its pictures too, because we stand little chance of telling a new story if we stick to the old illustrations.’ (Raworth 2017: 17)

As a result, she presents her concept in the form of a doughnut. The objective pursued here differs somewhat from that of the aforementioned approach, as it is not to provide a visual representation of a predetermined destination; rather, it is to examine the process of journey itself, identifying the issues associated with it, the required knowledge and the possible results, in order to consider the ways for ensuring an effective response to change.

As previously stated, for KBE it is crucial to possess the ability not only to collect, but more, to use knowledge in economic practice, while also demonstrating the capacity to adapt to changes. It is therefore essential to be able to 'act' in a way that may (but does not have to!) lead to the desired outcome. In light of Raworth's assertion that images resonate more profoundly with the imagination than words, we will employ a metaphor that, in our estimation, most effectively illustrates the processes of 'travel' and 'adjustment'; the metaphor of a ship. It should be noted that this visualisation is not an innovative approach, as its roots can be traced back to ancient times. Nevertheless, we believe this metaphor has three main advantages:

- Primarily, it is widely applicable as it is easily understood by a broad audience. It is not only highly visual and based on familiar symbols, but it also references well-known phenomena. Consequently, the metaphor retains its relevance and applicability across a range of contexts.
- Secondly, the ship spends the majority of its time sailing on the sea, a volatile and unstable environment in which some events can be predicted, while others are constantly surprising. Therefore, this visualisation reflects the variability of the modern world and the need for the previously mentioned ability to adapt.
- Thirdly, the metaphor refers to social relations. These are factors that are particularly challenging to define and predict, due to the significant element of uncertainty involved.

For these reasons, although in its original form and in the most common contemporary use the metaphor refers primarily to the state, we recognize that the image of the ship can also be applied to the economy. The economic, state and political spheres are areas of human activity, characterised by certain rules but also high variability, and the dynamics of relationships and cooperation.

It could be argued that the principles of ancient economics have little relevance to modern theories and the role of the state (more see: Burke 2000: 200). It is important to note, however, that the metaphor itself is not intended to present a set of technical and economic solu-



tions or theories that are ready for direct application. Instead, the metaphor's purpose is to prompt reflection on the challenges and opportunities that humanity will face in the future and to encourage the development of strategies to cope with the inevitable economic turbulence that lies ahead. And so we do not see the metaphor of the ship as a compendium of 'knowledge' about acting in a state of uncertainty and change; rather, it indicates possible ways of proceeding, leaving the final decision in the hands of those who act. This allows us to consider potential future developments, as well as the challenges and opportunities facing KBE.

## The Ship of Economy

The comparison of the state to a ship was a recurring theme in ancient philosophical discourse, as well as in various forms of literary expression, including tragedies, songs, and speeches. The concept can be traced back to at least the 6th century BC, to the poems of Alkaios (fr. 6, 208a, 338). It then appears in Plato's *Republic* (Rep. VI, 488a–488e) and Polybius' *Histories* (VI, 44)<sup>3</sup>. In the following centuries, a rather apocalyptic portrayal of the state as a vessel tossed about by storms was most frequent. The popularity of this metaphor is based on its visual impact: it presents a community in a limited territory that is besieged by internal conflicts but strives to attain common goals. It is, however, possible to consider this metaphor in a more expansive manner, extending it to encompass any sphere of human life that necessitates cooperation and is oriented towards some goal. In most cases, this goal is the improvement or guarantee of a peaceful existence, which also encompasses the economic sphere. In an era of accelerated development, computerisation, and rapid socio-economic and climatic changes, we find ourselves on a ship traversing a turbulent sea (Oakeshott 1962: 127). In recent years, there have been numerous instances of unforeseen variables that have altered the global landscape: the migration crisis, the COVID pandemic, and, most recently, the outbreak of war in Ukraine.

It may be assumed that all problems can be solved with the arrival at the port. However, this assumption has been shown to be deceptive. First, the final destination may differ from that initially anticipated. Second, the proximity of the port may prove misleading. While it means the end of the voyage and a promise of tranquillity, it encour-

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<sup>3</sup> These are only the most developed uses. See: Ceglarska 2023: 31–43.

ages complacency and the pursuit of particular, individual interests (Polybius: VI, 44). Finally, the fundamental nature of a ship is to remain in motion. The port is merely a stop before another journey and challenges of the restless sea.

Therefore, the fundamental issues and inquiries exemplified by this metaphor remain valid. These include the identification of the essential characteristics of the individuals needed, the formulation of strategies for charting a new course and making informed decisions, and the understanding of the potential challenges that may arise in the process. It is crucial to determine whether the selected route is aligned with the intended destination and to have a comprehensive grasp of the latter. When contemplating the prospective trajectory of KBE, this question should be regarded as the most pivotal.

In Plato's use of the metaphor, the ship's crew comprises a captain, a navigator (helmsman) and sailors. The captain is a figure of authority, while the navigator is a specialist in the field of nautical knowledge. The sailors, on the other hand, are a collective of individuals who contribute to the operation of the ship, but lack the expertise to navigate it, and who are unable to adopt a perspective and think strategically about future outcomes. The only individual with the requisite knowledge to navigate the ship is the helmsman, but he is disregarded by the others as 'a stargazer, an idle babbler, a useless fellow' (Plato: Rep. VI, 488e–489a). According to Plato, in the political community, the role of helmsman is played by a true philosopher, the one in possession of scientific knowledge, which is the sum of all other kinds of knowledge (Hayek 1945: 519). Others not only lack this knowledge, but even perceive no need for it, as they believe their strength lies in numbers.

However, on a ship, there are no individuals completely devoid of the ability to sail. An analogous situation can be observed in the context of economic issues. As F. von Hayek stated, knowledge 'never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess.' (Hayek 1945: 519). Similarly, on a ship, each sailor possesses some competence or skill that makes them useful, even if they are not fully aware of it. Thus, looking at the metaphor in this way, the sailors would rather possess so-called 'tacit' knowledge. Hayek's implied existence of tacit knowledge is reflected in later theories (Polanyi 2009; Alavi, Leidner 2001: 107–136; Hayes, Walsham 2003: 54–77) that divide knowledge into two types: explicit and tacit.

Table 3. Explicit and tacit knowledge

|                         | Explicit (objective) knowledge  | Tacit (subjective) knowledge   |
|-------------------------|---|--|
| Character               | expressed in words and numbers; formal, easily processed and codified | not easily visible and expressible; personal, hard to formalise                          |
| Types                   | codified and systematised information                                 | informal, hard-to-pin-down skills or crafts  |
| Disclosure and transfer | through gathering of information taught and passed on                 | through insights, intuitions, hunches trial and error; difficult to communicate or share |
| Location                | documents, databases, charts, etc.                                    | rooted in individual's action and experience   |

Authors' elaboration based on: Nonaka, Takeuchi 1995: 8–11.

It can be seen that when these divisions are translated into an ancient metaphor, a particular issue emerges: neither the captain nor the helmsman possesses explicit knowledge. As mentioned, the captain is mainly able to give orders and enforce obedience, while the helmsman is disregarded by the sailors, as his knowledge is not ‘easily communicated’ or put into digestible data. But the helmsman alone will not get the ship anywhere. There is a need for all other crew members as well, and each of them possesses some particular knowledge regarding their specific role. Therefore, the types of knowledge needed to successfully navigate the ship, multiply. C. Collinge and A. Staines (2009: 166) state that ‘the neglect of other types of knowledge among proponents of the KBE thesis has produced a very one-sided picture’, so they devote their text to other types of knowledge that should be developed within the KBE. In doing so, they actually increase the potential resource, the quantity of products or ‘the plurality of knowledges’ (Burke 2000: 13–17). On the ship we would have the knowledge of the oarsman, the cook, the soldiers and so on. The problem we see in this otherwise valid analysis concerns one aspect – delving into particularities, which tend to multiply, does not provide a comprehensive understanding of the situation and may impede decision-making. The proliferation of specialists in increasingly narrow fields is a consequence of the assumption that deeper knowledge will enable them to solve problems related to their field. However, this approach overlooks the fact that a certain amount of universality is needed in undertaking holistic activities and such universality is not simply the sum of particularities.

Moreover, Aristotle, Plato's successor, draws attention to an important fact – no matter how many types of knowledge we separate out, and what value we place on them, they cannot by themselves change the future – human action is required to do so. The philosopher employs the example of a physician as a figure who possesses knowledge. Yet, this physician is, in fact, anyone who is confronted with a decision (the navigator or an actor in the economic sphere). Aristotle (*Met.* 1.981a.) places considerable emphasis on the necessity of possessing specific knowledge pertaining to particular cases. An individual who knows the universal but lacks comprehension of the specific elements may be unsuccessful in their actions. However, an excessively narrow specialisation will impede the practitioner's ability to fully comprehend the complexity of the problem. Moreover, the resolution of one issue may give rise to the emergence of another. This is what differentiates this practitioner from a 'good' one, who can 'best treat a particular person if he has a general knowledge of what is good for everybody, or for other people of the same kind' (*Arist. Nic. Eth.* 10.9). This appears to be the primary challenge associated with the contemporary interdisciplinary approach in the sciences. In theory, such research generates a 'broad' type of knowledge, as it necessitates the integration of diverse disciplines and fields of knowledge. However, it is primarily based on the accumulation of knowledge, with each member holding position within their respective domain.

Aristotle posited that mere accumulation is inadequate; rather, there is a need to evaluate, rank and ultimately act upon that knowledge. A physician must prescribe a treatment, a navigator – choose a course. Otherwise, their knowledge is merely theoretical and has no practical impact. Such action is inherently risky, as it is based on probability rather than certainty. Furthermore, the risk cannot be entirely mitigated by acquiring more knowledge, as it is not possible for any individual to possess all the necessary information, and external, independent factors also have a significant impact. Yet, these actions are not entirely contingent on chance. What is required is the ability to make an accurate assessment of what can happen 'either probably or necessarily' (*Arist. Poet.* 1451b). This, for Aristotle, enables the proper evaluation of particular facts and formulation of general truths. Therefore, it can be reasonably argued that a Platonic philosopher is not suited to the role of a navigator, at least not in the context of the real world, since it has to be someone who understands that:

- there are different types of knowledge and they interact by complementing each other;
- no one possesses the whole 'certain' (platonic) knowledge and so
- even his knowledge is incomplete, since an individual 'has knowledge of the concrete circumstances of time and place' (Hayek 1945: 521).

And so the knowledge needed is a knowledge of what is probable or necessary, that includes:

- theoretical knowledge of facts,
- understanding the variability of reality and sudden changes that impede decision-making,
- ability to judge: to choose the most adequate solution for a time being.

The necessity to be able to consider probabilities results, most of all, from the lack of complete data. Rarely anyone has access to all of it, as it includes not only economic data, but also social relations, characters of people involved, their goals, opinions, and even emotions. As Hayek observed (Hayek 1945: 519), mathematical attempts (that is, based on ‘certain’, epistemic Platonic-philosophical type of knowledge) to refine economic theories, obscure the picture rather than solve the problem. In order for them to be effective, it would be necessary to, at least:

- have all the relevant information,
- take as a starting point one given system of preferences,
- have full knowledge of the available means,  
conditions that are hard, if not impossible to meet.

Furthermore, in the context of increasing integration and globalisation, it is important to consider that no community exists as an isolated entity, but rather operates in a collaborative manner, akin to a convoy sailing together in formation. This is how the ancient metaphor was updated by B. Crick (1962: 113). His use of the term ‘convoy’ once again draws attention to the issue of relationships, not just within a single community, but communities between themselves. While cooperation is necessary, it is no longer confined to a single ship, but rather requires the collaboration of numerous vessels, their navigators, captains, and sailors. A change of course by one ship may effectively influence all of the others. Consequently, economics, like politics, can be defined as the art of cooperation.

## Conclusions

It is commonly held among researchers that KBE as a conceptual category is a product of the European perception of socio-economic development, articulated as early as the 19th century in response to the social and economic consequences of the Industrial Revolution, which underpinned transformations in Europe and later the whole world. The overwhelming majority of socio-economic concepts that emerged at that time were in alignment with reflections on the processes responsible for the rapid and profound changes observed in the surrounding reality. In

light of the aforementioned, it can be posited that the KBE, in response to the evolving needs and aspirations of modern societies, aspires to the role of a 21st-century leading socio-economic development strategy. However, it is not a universal model, as the conditions for ‘entering’ the path of development associated with the KBE are demanding and not all (although they may desire to do so) are able to fulfil them (Kukuła 2013: 573).

The transformation of paradigms of thought is contingent upon action. Such action was undertaken by K. Raworth, resulting in the formulation of the ‘doughnut economy’ concept. She lists seven changes that need to take place in our thinking about economics in order for it to adapt to modern requirements (Raworth 2017: 28):

1. Change the Goal,
2. See the Big Picture,
3. Nurture Human Nature,
4. Get Savvy with Systems,
5. Design to Distribute,
6. Create to Regenerate,
7. Be Agnostic about Growth.

It is noteworthy that the majority of these concepts can be realised if we think of ourselves as sailors on the ship. Maybe indeed we are aiming (or should be) for the Raworth’s proposed Doughnut-port, however, in the event of necessity (2) – unexpected dangers, changes in weather, attacks and so forth – it is imperative to be prepared to alter the destination (1), since pursuing it unreflectively at all costs can result in disaster (7) and without a comprehensive understanding of the ship’s mechanics (4) as well as the ability to work together within it (3, 5), any progress will be impeded or even halted and our ship may drown.

It is essential to understand the operational dynamics of the ship of economy as a unified system in order to implement any corrective measures. An additional element that is indispensable for the evolution of the KBE can be identified once more by referring to the work of Aristotle. It is insufficient to possess only particular, individual knowledge. It can be used to describe specific facts, but not to predict or explore probabilities. Stagirite attributes this function to poetry, indicating that it is of a philosophical nature (Arist. Poet. 1451b). Rather than presenting particular, factual data, poetry guides readers in contemplating probabilities and predictions requiring deeper thought. This is how it facilitates the evolution of knowledge: by providing a generalised representation of individual experiences. Similarly, the creation of knowledge requires a certain degree of generalisation. It is inadequate for the navigator to

rely exclusively on instinct or tacit knowledge; they must also possess explicit, theoretical knowledge in order to make optimal decisions and act on them effectively in rapidly changing conditions. Yet, in order to shape reality and map the paths of development, it is not sufficient to possess knowledge alone, whether the explicit or tacit one. The necessity for the latter, as well as for the interdisciplinarity, is consequently emphasised. However, it remains deeply enrooted in the traditional paradigm of thinking, despite the desire to create specialists with a broad range of knowledge and expertise, rather than those trained in a narrow field of study. We believe that adopting the Aristotelian approach may prove beneficial for the development of KBE. As the metaphor of the ship illustrated, there is a need not only to develop different types of knowledge, but also to be able to draw some universal conclusions, and, most of all, to understand the fluid and variable nature of current reality. In this reality, it may not be possible to define goals with certainty and finality, whether they be detailed and long-term economic plans or an unambiguously plotted route to a specific port. Individual actions, which can serve as an excellent model of behaviour, must therefore be considered within the context of social interactions. This allows for the teaching and universalisation of the very qualities that can become a further motive for development.

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