

---

**THE KNOWLEDGE SOCIETY: SOME EVIDENCES FROM ITALY AND SERBIA**

---

**Rossana Piccolo**Università degli studi della Campania - Luigi Vanvitelli, Italy, [rossana.piccolo@unicampania.it](mailto:rossana.piccolo@unicampania.it)**Sinisa Zaric**University of Belgrade, Belgrade, Serbia, [sinisha.zaric@gmail.com](mailto:sinisha.zaric@gmail.com)

**Abstract:** Knowledge, over time, has assumed a central role in society. Today, in fact, it represents one of the main resources that can determine the competitive success of companies, facilitating the identification of a lasting "competitive advantage" (Calabi et al. 2015). First of all, it is necessary to make some clarifications, specifying what is meant by knowledge and then to understand what reality is. Knowledge and reality are linked and therefore cannot be separated. In fact, in order to know what reality is, we must know it and, therefore, know what knowledge is; moreover, individuals only want to know what is real (Lundvall, 2016). Consumer knowledge is and has been studied in a wide range of areas, in fact providing a synthetic definition of knowledge is not at all simple. The importance of knowledge in modern economies has found expression in the term "Knowledge Economy" (Tronti, 2015). The definition of Knowledge has taken on various interpretations. According to Davenport, knowledge *"is a fluid combination of experience, values, contextual information and specialist expertise that provides a framework for the evaluation and assimilation of new experience and information. It originates and is applied through the connoisseurs. In organisations, knowledge is linked not only to documents, but also to organisational procedures and processes, practices and standards"* (Davenport, Prusak, 2000, pp. 6-7). Knowledge is born from the interaction of more information between them and from the comparison with knowledge already acquired. Therefore, they are data organized and presented within a context. Depending on the degree of accessibility, knowledge can be divided into: Tacit and Explicit Knowledge (Fontana, Lorenzoni, 2004). The first typology can be explicit, defined as tacit because of the lack of incentives, while the second cannot be explicit, because it is tacit by nature (Cowan et al. 2000). Specifically, 'tacit knowledge' means all the knowledge that the human mind possesses and uses to guide actions and behaviours, but that it is not able to express, or can express with great effort, on particular occasions, and in any case in a nebulous and partial way (Marradi, 2003). It develops within the minds of individuals, in fact it is personal and as such is difficult to formalize and communicate. Explicit Knowledge, on the other hand, is objective and rational, in the sense that it is "codified", and can be expressed through a systematic language. The most important study on this difference was conducted by Polanyi, according to whom individuals know much more than they can relate and articulate. Knowledge, which can be expressed in words and numbers, represents only "the tip of the iceberg of the overall body of knowledge" (Polanyi, 1979). So if the tip of the iceberg is explicit knowledge, the body of the iceberg is tacit knowledge.

**Keywords:** Knowledge economy, Education, Modern Economy, Innovation-driven economies

**1. INTRODUCTION**

Knowledge, over time, has assumed a central role in society. Today, in fact, it represents one of the main resources that can determine the competitive success of companies, facilitating the identification of a lasting "competitive advantage". Knowledge is a process that begins with the birth and ends with the end of our lives. Considering the various changes in society, from the globalization of the economy to the sudden technological change, this phenomenon has aroused more and more interest also for companies. First of all, it is necessary to make some clarifications, specifying what is meant by knowledge and then to understand what reality is. Knowledge and reality are linked and therefore cannot be separated. In fact, in order to know what reality is, we must know it and, therefore, know what knowledge is; moreover, individual only want to know what is real. Consumer knowledge is and has been studied in a wide range of areas, in fact providing a synthetic definition of knowledge is not at all simple. Knowledge theory, also called gnoseology, is the branch of philosophy that studies the nature of knowledge, as the relationship between an acquaintance and a known object.

**2. KNOWLEDGE SOCIETY AND MODERN ECONOMIES**

The importance of knowledge in modern economies has found expression in the term "Knowledge Economy" (Lundvall, 2016). The definition of knowledge has taken on various interpretations. According to Davenport, knowledge *"is a fluid combination of experience, values, contextual information and specialist expertise that provides a framework for the evaluation and assimilation of new experience and information. It originates and is applied through the connoisseurs. In organisations, knowledge is linked not only to documents, but also to*

*organisational procedures and processes, practices and standards"* (Davenport, Prusak, 2000, pp. 6-7). Knowledge is born from the interaction of more information between them and from the comparison with knowledge already acquired. Some synonyms are often used to express the concept of Knowledge, including Data and Information. Data represents a set of objective facts, referred to an event or situation, but without giving any interpretation. In fact, they have no meaning of their own. Information, on the other hand, represents data processing through its connection. Therefore, they are data organized and presented within a context. Depending on the degree of accessibility, knowledge can be divided into: Tacit and Explicit Knowledge (Fontana, Lorenzoni, 2004). Two Japanese scholars, *Ikujiro Nonaka and Hirotaka Takeuchi*, around the mid-1990s, deepened this difference. The first typology can be explicit, defined as tacit because of the lack of incentives, while the second cannot be explicit, because it is tacit by nature (Cowan et al. 2000). Specifically, 'tacit knowledge' means all the knowledge that the human mind possesses and uses to guide actions and behaviours, but that it is not able to express, or can express with great effort, on particular occasions, and in any case in a nebulous and partial way (Marradi, 2003). It develops within the minds of individuals, in fact it is personal and as such is difficult to formalize and communicate. Explicit Knowledge, on the other hand, is objective and rational, in the sense that it is "codified", and can be expressed through a systematic language. The most important study on this difference was conducted by Polanyi, according to whom individuals know much more than they can relate and articulate. Knowledge, which can be expressed in words and numbers, represents only "the tip of the iceberg of the overall body of knowledge" (Polanyi, 1979). So if the tip of the iceberg is explicit knowledge, the body of the iceberg is tacit knowledge.

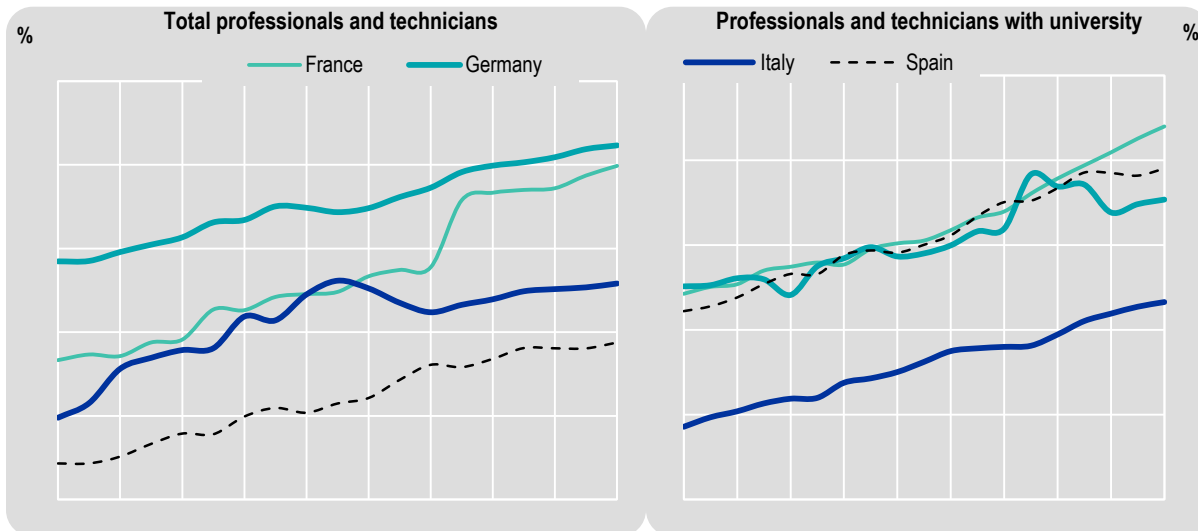
**Figure 1: Tacit and Explicit Knowledge**



Source: Polanyi, 1979

Tacit knowledge, Polanyi argues, is therefore a knowledge that exists but that is not easily visible and expressible. It can be deduced through observation of behaviour, through group discussions, interviews and investigations. From the interaction between tacit and explicit knowledge we get to obtain a continuous and dynamic process of knowledge creation. There are four ways of conversion in which the process of knowledge is articulated: the first consists in socialization: transition from a tacit knowledge to another tacit knowledge; Exteriorization: transition from a tacit knowledge to an explicit one; Combination: transition from an explicit knowledge to another explicit one and finally Interiorization: transition from an explicit knowledge to a tacit one.

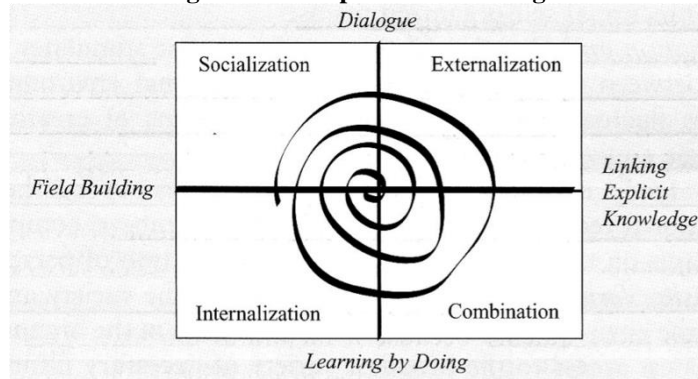
**Figure 2: Impact of professionals and technicians on employment in major economies**



Source: *Rapporto sulla conoscenza, ISTAT, 2018*

In recent decades, the basis for creating new knowledge has expanded considerably, thanks to the spread of higher education, now also in the large emerging economies. Employment and therefore the incidence of professionals and technicians in economies is certainly a fact that has to do with knowledge. Figure 2 shows how Italy, despite being a high-income industrial economy, is a little anomalous, because it is characterized, compared to the other major European economies, by modest levels of education and skills, albeit increasing. The public sector, according to the author Mazzucato, is the main source of innovation in advanced industrial economies. In fact, this sector represents the leading figure in the knowledge economy, an economy driven by progress both from the technical point of view and from the production and diffusion of knowledge. All this thanks to the different evolutions of the market, just think of the development of nuclear energy, computers, the Internet, etc.. So the public sector, and not private companies, says Mazzucato, develops the engine of growth thanks to its willingness to take risks in areas where the private sector is reluctant to venture (Mazzucato, 2018). The aspiration to know is rooted in human nature. To understand what knowledge is is to become aware of one's own identity (Vassallo, 2015). The passage of Knowledge from one type to another is called Conversion. Each conversion creates new knowledge. The combination of different mental models (tacit knowledge) is called socialization and results in the exteriorization of explicit knowledge (products, services or innovative solutions) from which to draw new experience, i.e. new tacit knowledge. At this point the cycle starts again and the result of these transformations is the innovation contained in the new products and the push towards the creation of further knowledge. From the interaction between tacit and explicit knowledge we get to obtain a continuous and dynamic process of knowledge creation. There are four ways of conversion in which the process of knowledge is articulated: the first consists in socialization: transition from a tacit knowledge to another tacit knowledge; Exteriorization: transition from a tacit knowledge to an explicit one; Combination: transition from an explicit knowledge to another explicit one and finally Interiorization: transition from an explicit knowledge to a tacit one.

**Figure 3: The Spiral of Knowledge**



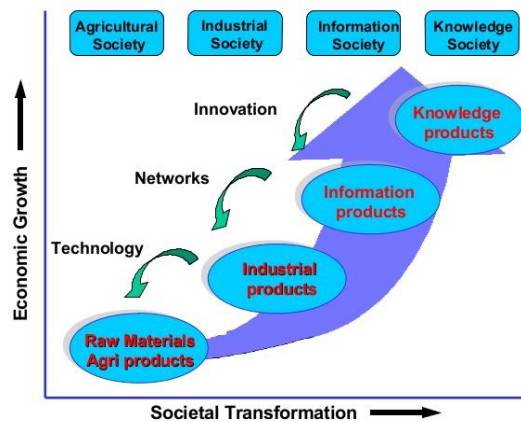
Source: Nonaka e Takeuchi, 1995

Finally, a final distinction must be made between Objective Knowledge and Subjective Knowledge. Researchers use Objective Knowledge (OK) to refer to accurate information stored while Subjective Knowledge (SK) to refer to personal beliefs about their own knowledge. Objective knowledge depends on ability or competence; subjective knowledge is based on competence, as is experience and other factors (Alba and Hutchinson 1987). Thus, objective knowledge reflects what we know, subjective knowledge reflects what we think we know, and (wrong) calibration reflects the absolute difference between objective and subjective knowledge. We define the knowledge economy as production and services based on knowledge-intensive activities that help to accelerate technical and scientific progress and rapid obsolescence. The key component of a knowledge-based economy is a greater dependence on intellectual capacity rather than physical inputs or natural resources (Carlson et al., 2008). The public sector, according to the author Mazzucato, is the main source of innovation in advanced industrial economies. In fact, this sector represents the leading figure in the knowledge economy, an economy driven by progress both from the technical point of view and from the production and diffusion of knowledge. All this thanks to the different evolutions of the market, just think of the development of nuclear energy, computers, the Internet, etc.. So the public sector, and not private companies, says Mazzucato, develops the engine of growth thanks to its willingness to take risks in areas where the private sector is reluctant to venture (Mazzucato, 2018).

**3. REMARKS ON KNOWLEDGE ECONOMY OF ITALY AND SERBIA**

In the knowledge based economies, capital, in its physical and financial sense, is mainly understand as knowledge. Knowledge is becoming a vital resource for maintaining the competitiveness of the country, region or a city. Information technologies provide a platforms for management (Turban et al, 2018) in the companies, but also for a wider participation of citizens contributing the progress. So , the economic growth is related and interconnected with the societal development (see Figure 4 ), that has been underlined in the knowledge societies.

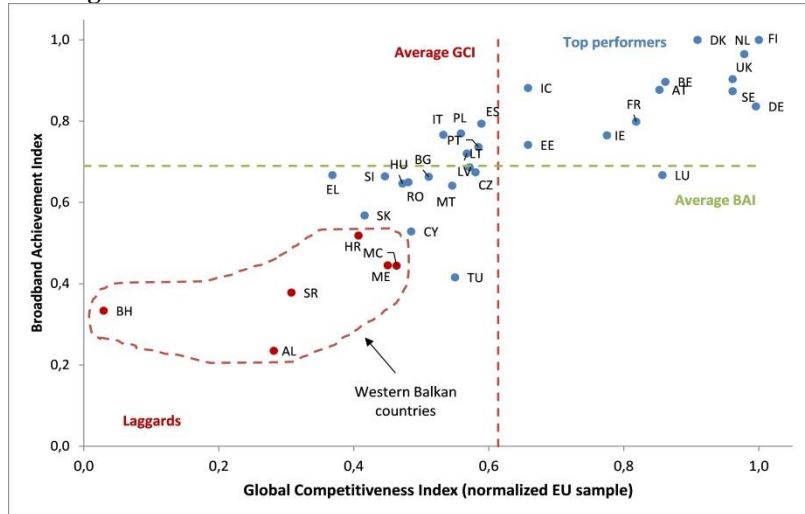
**Figure 4: Relation between the economic growth and societal development**



Source: <https://blogvaleriecom.files.wordpress.com/2018/03/science-and-technology-capacity-and-the-knowledge-society-3-638.jpg>

In order to look at the current position of Italy and Serbia ( the situation in Serbia could serve as an illustration of the state of art in other western Balkans countries, we have to look at the foundations for developing , what Ross (Ross, 2016) calls ” the industries of the future” , we have to analyze the achieved development of the foundations for digital society and digital platforms. In a characteristic cross-country methodology, Mitrovic (Mitrovic, 2015) offers a very good framework for understanding the relations between the technological preconditions and digital divide on one side, and comp[etitivnes of the countries on the other one.

**Figure 5. BAI and GCI for EU and Western Balkan countries**

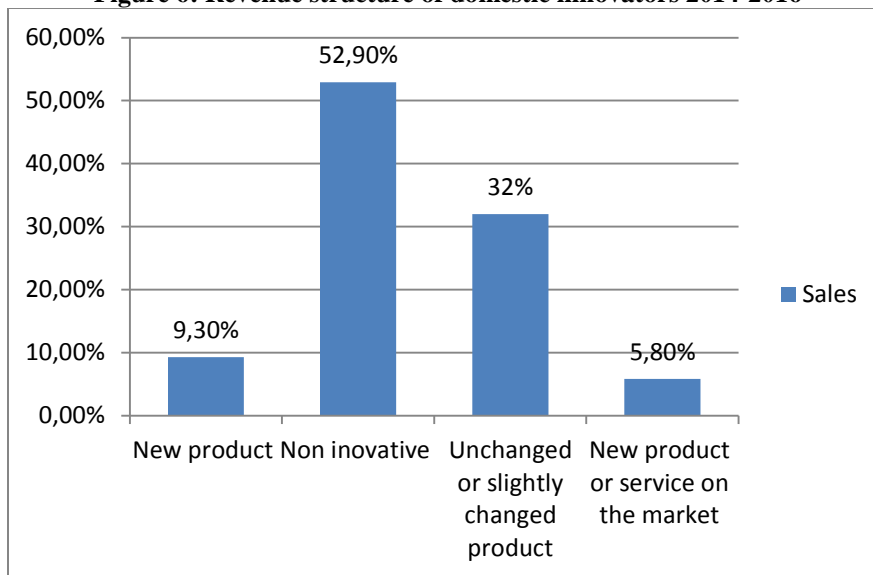


source : Mitrović, 2015

The Figure 5 shows the position of the countries via their broadband adoption (BAI) and ranking in the global economic arena. What concerns european countries, the position of Western Balkan countries (together with Turkey and Cyprus ) is indicative and correlates with their modest global competitiveness. Italy belongs to a group of Average GCI , also nor riching the higher values of the Broadband Achievement Index.

In order to illustrate the objective obstacles for faster transformation of the italian society into a knowledge society, it has been already learned from the Figure 2 that Italy is far behind Germany, France and even Spain concerning the number of employed professionals and technicians with university diploma. But, a very good indicator of the level of technical advancement and innovative spirit in the economy , could be the revenue structure of domestic innovators. here are the data for Serbia.

**Figure 6: Revenue structure of domestic innovators 2014-2016**



Source: Statistical yearbook of Serbia (2018)

Figure 6 , but Figure 7 as well, illustrate the low speed of producing innovative products.the sales are still based on conservative approach, digital technology and platform management is used accidentally.

**Figure 7: Structure of innovation according to the participation of individual innovation activities**



Source: Statistical yearbook of Serbia (2018)

Without making a stronger move toward knowledge economy , neither Italy , nor Serbia (or Western Balkans countries) could achieve a better competitiveness .

#### 4. CONCLUSION

The modern societies are tend to be innovation driven. Almost all the economies of Europe passed the stage of being factor-driven economies. But , all the Western Balkans economies remained, according to the GCR 2018 and studies of the Institute for Strategy and Competitiveness , characterized with the efficiency-driven stage of development.

**Table 1: The global competitiveness index**

Country	Rank	Stages of development
Italy	31	Innovation-driven
Bulgaria	51	Efficiency-driven, 1
Serbia	65	Efficiency-driven
Greece	57	Innovation-driven2
Albania	75	Efficiency-driven
Macedonia	84	Efficiency-driven

Source: Global Competitiveness Report 2018

Many analyses the pre-requisites of technological nature , such as access to broad band technologies, state support for further adoption of information and communication technology and other achievements , are not enough for creating successful knowledge economy with its societal dimension. Platform enterprises (Evans and Gawer,2016) , the use of the wisdom of the crowd and citizens, creation of crowdpreneurship platforms and general move from traditional to digital , is an on-going process in which many countries take part in order to become more competitive.

1 Efficiency-driven economies are increasingly competitive, with more-efficient production processes and increased product quality.

2 Innovation-driven economies are the most developed. In this phase, businesses are more knowledge-intensive, and the service sector expands.

---

**REFERENCES**

- Alba, J. W. & Wesley J. H. (1987). Dimensions of Consumer Expertise. *Journal of Consumer Research*, 411-54.
- Calabi, C., Coliva, A., Sereni, A., & Volpe, G. (2015). *Teorie della conoscenza*. Cortina Raffaello.
- Carlson, J. P., Vincent, L. H., Hardesty, D. M., & Bearden, W. O. (2008). Objective and subjective knowledge relationships: A quantitative analysis of consumer research findings. *Journal of Consumer Research*, 35(5), 864-876.
- Cowan, R., David, P. A., & Foray, D. (2000). The explicit economics of knowledge codification and tacitness. *Industrial and corporate change*, 9(2), 211-253.
- Davenport, T.H., & Prusak L. (2000). *Il sapere a lavoro*, Etas, Milano, pp. 6-7.
- Evans, P., and Gawer, A. (2016), *The Rise of the Platform Enterprise: A Global Survey*, The Emerging Platform Economy Series No. 1, The Center for Global Enterprise.
- Fontana F., & Lorenzoni G. (2004). *Il Knowledge Management*, Luiss University Press, Roma.
- Goethe, J. W. (2013). *Massime e riflessioni*. Rizzoli.
- Institute for strategy and competitiveness, <https://www.isc.hbs.edu/Pages/default.aspx>
- Lundvall, B. Å. (2016). *The learning economy and the economics of hope*. Anthem Press.
- Marradi, A. (2003). *Il ruolo della conoscenza tacita nella vita quotidiana e nella scienza*. Francesco Lazzari e Alberto Merler (curr.). *La sociologia delle solidarietà*. Scritti in onore di Giuliano Giorio.
- Mazzucato, M. (2018). *Lo stato innovatore*. Gius. Laterza & Figli Spa.
- Mitrović, Đ. (2015). Broadband adoption, digital divide, and the global economic competitiveness of Western Balkan countries. *Ekonomski anali*, 60(207). 95-115
- Polanyi M. (1979). *La conoscenza inespresa*, Armando Editore, Roma.
- Ross, A. (2016) *The Industries of the Future*, Simon and Shuster, New York.
- Statistical yearbook of Serbia (2018), <http://publikacije.stat.gov.rs/G2018/Pdf/G20182051.pdf>. Global Competitiveness Report 2018, [http://www.cdi.org.pe/pdf/IGC/2018/The\\_Global\\_Competitiveness\\_Report\\_2018.pdf](http://www.cdi.org.pe/pdf/IGC/2018/The_Global_Competitiveness_Report_2018.pdf)
- Tronti, L. (2015). Economia della conoscenza, innovazione organizzativa e partecipazione cognitiva: un nuovo modo di lavorare. *Economia & lavoro*, 49(3), 7-20.
- Turban, E., Pollar, C., and Wood, G., (2018). *Information Technology for Management: On Demand Strategies for Performance, Growth and Sustainability*, John Wiley and Sons.
- Vassallo, N. (2015). *Teoria della conoscenza*. Gius. Laterza & Figli Spa.  
<https://blogvaleriecom.files.wordpress.com/2018/03/science-and-technology-capacity-and-the-knowledge-society-3-638.jpg>