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The Intellectual Capital as a Basis for Entrepreneurial Innovation and Integration into Knowledge Economy: Case Study of Condor Electronics Company

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Abstract :

This study sheds light on the importance of intellectual capital for implementing entrepreneurial innovation and integrating into knowledge economy in the Algerian companies. In this regard, we raise the following research question, "what role does the intellectual capital have in entrepreneurial innovation and integration into the knowledge economy?". After analyzing and interpreting the questionnaire that we administered to the executives of Condor Electronics Company in Bordj Bou Arriridj, the findings showed that the company pays considerable attention to the principles of knowledge economy, mainly the intellectual capital, as it invested in research and development and sent its executives to training programs in Britain, entitled "Intellectual Capital and Leadership". Besides, the Company aims at creating a special law for entrepreneurial innovation; an important point that was not discussed in detail by the Algerian government. The necessity of applying the principles of entrepreneurial innovation is provided for by the commercial and fiscal laws, but has no traces in a clear system for entrepreneurial innovation. In the end, our study shows the efforts of Condor Electronics Company to integrate into knowledge economy.

Ke**ywords:** Intellectual capital; entrepreneurial innovation; knowledge economy.

JEL Classification Codes : M41 ; L26 ; J24.

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Introduction

Entrepreneurial innovation helps influence the managers' behavior and improve their future decision-making to satisfy all stakeholders. In this regard, an effective entrepreneurial innovation requires the use of accumulating prerequisites, which form the intellectual capital. The latter is one of the main new mechanisms the Algerian companies have recently adopted to create wealth, improve the company value, and integrate into the knowledge economy.

Problematic of the study

Based on what was said, we raise the following problematic, "what effect does the intellectual capital have in entrepreneurial innovation and integration into knowledge economy?".

From this main question, the following sub-questions arise:

- Can entrepreneurial innovation contribute to the optimal exploitation of the intellectual capital?
- What is the relationship between intellectual capital and the knowledge economy?
- Do the Algerian companies aim at integrating into knowledge economy and taking advantage of its benefit from its advantages ?

Hypotheses

We hypothesize that:

- The Algerian businesses aim at integration into knowledge economy through the adoption of entrepreneurial innovation.
- The intellectual capital is influenced by the good application of entrepreneurial innovation.
- There is an interactive relation between the intellectual capital and entrepreneurial innovation that aims at integrating businesses into knowledge economy.

Aims and Importance of the Study

This study aims at answering the problematic and sub-questions, and at showing the importance of entrepreneurial innovation in the survival of businesses under knowledge economy and the good use of the intellectual capital. Besides, the study:

- Identifies the main pillars of entrepreneurial innovation in Condor Electronics Company.
- Identifies the status-quo of the intellectual capital in Condor Electronics Company.
- Highlights the sake of the Company to integrate into knowledge economy for its good effect on the Algerian economy.

Methodology

We used the descriptive and analytical methods to discuss the different concepts related to entrepreneurial innovation and intellectual capital, and to analyze their effect and relation with intellectual economy. In addition, we used a questionnaire and interviews for data collection from the executives of Condor Electronics Company. Later, we used SPSS25 for analyzing and studying the collected information.

Axes of the paper

- Introduction and problematic.
- Conceptual frame of entrepreneurial innovation.
- The relation between the intellectual capital and knowledge economy under entrepreneurial innovation.
- Field study of the importance of the intellectual capital under entrepreneurial innovation for integration into knowledge economy in Condor Electronics Company.
- Conclusion.

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I. Conceptual Frame of Entrepreneurial Innovation

The entrepreneurial innovation is an engine for socioeconomic development, as it fosters growth, creates jobs, and improves competitiveness. This reflects the entrepreneur's ability to combine creativity and initiative spirit to create benefits to the market. Besides, entrepreneurial innovation is the process of generating new ideas and turning them into products, services, or commercial processes that create an economic value (Bruyat, 2013, P: 44). It combines innovation and entrepreneurship to achieve creativity in reality.

1. Types of Entrepreneurial Innovation

It can be divided into many types, as follows:

- Method innovation: developing new products or improving existing ones.
- Innovating services: improving or creating new services.
- Innovating operations: adding improvements to the production or management methods (léna, 2011, P: 154).
- Innovating the economic model: redesigning methods to achieve value and gain.
- Social innovation: innovating solutions to social or environmental problems.

2. The Factors Affecting the Entrepreneurial Innovation

The degree of entrepreneurial innovation is affected by:

- The human capital: this includes the competencies, education, and training.
- The intellectual capital: this includes knowledge, experience, and ideas.
- The institutional and regulatory environment: this includes laws and governmental support. (Recham, 2025, P: 101).
- The technological infrastructure: this includes the availability of digital tools.
- The entrepreneurial culture: this includes the degree of encouraging risk-taking and innovation.

3. The Phases of Entrepreneurial Innovation

The entrepreneurial innovation goes through different connected phases, namely:

- The generation of ideas and looking for new solutions.
- The feasibility analysis and the study of market and its potentials.
- The execution to turn an idea into a product or project (Alain, 2025, P: 24).
- The marketing and growth to launch the product in the market.
- The evaluation and improvement to continuously develop the idea.

4. The Obstacles of Entrepreneurial Innovation

The main obstacles include:

- Low funding (verstreate, 2021, P: 87).
- Lack of legislative incentives.
- Resistance to change inside the companies.
- Lack of competencies.
- Low innovative culture.

II. The Relation between the Intellectual Capital and Knowledge Economy under Entrepreneurial Innovation

Before discussing the importance of the intellectual capital for the entrepreneurial innovation and its principles, we have to discuss the relation between the intellectual capital and the entrepreneurial innovation.

1. Definition of Knowledge Management

It is a new system for development based on changing the economic system. It witnesses a rapid rhythm of innovation through a collective production of knowledge thanks to the important developments in telecommunication systems (Tatiana, 2014, P: 197). Besides, it is defined as the shift from reliance on raw materials and capitalist tools to focus on the information, knowledge, and scientific research and education centers (Nonaka, 2016, PP: 203-208). These definitions show that knowledge economy is based on intangible points, as it is usually digital, virtual, and relies on technology and new markets.

1.1. The Items of Knowledge Economy

It includes:

- Information and communication technology: The adoption of the new economic thought requires a technological infrastructure based on investment in information and economy technologies, such as software industry and computer sciences. Such industries rely on the human action and thought.
- Education: Classical theories considered spending on education a governmental act. However, it is, now, seen as a national investment in the human capital, as many theories focus on it. Besides, it is one of the necessary points for economic competitiveness and productivity.
- Information and communication-based infrastructure: It facilitates spreading, preparing, and adjusting information with the local needs to boost the economic activity and encourage businesses to create benefits.
- Good governance: It is based on strong economic bases that can provide all the legal and political frames that aim at increasing productivity and growth.
- Research and development: Some entities must produce knowledge needed for the communities.
- The intellectual capital: Investment in the human capital aims at getting more revenues than costs. It is the knowledge, skills, experiences, and capacities that allow for increasing work productivity in the company.

2. The Intellectual Capital

Many scholars pointed that the main assets for organizations operating in high technology fields are not material; rather, they are the employees' skills and knowledge that make the intellectual capital. The latter is defined as the knowledge that can be turned into gains (Ronald, 2008, P: 104), and as the value resulting from the ideas that manifests in individuals, actions, and stakeholders (Jay, 2012, P: 06). In the same regard, T. Stewart defines it as the intellectual material, information, intellectual property, and experience used for creating wealth. Besides, Ayn Rand states that wealth is the outcome of the individual's ability to think. Thus, the intellectual capital is the amalgam of knows, skills, talents, and experiences that can be used by the organization to create wealth and value added. (Lindsay, 2018, P: 05).

2.1. The Importance of the Intellectual Capital

It is the most valuable asset under knowledge economy, as it is the scientific and intellectual power that can make the necessary adjustments for advance and development. In addition, it is a strong weapon today because the intellectual assets are a hidden power that ensures the company's survival. For instance, Nike Company makes researches, designs, and marketing, and provides intellectual services. Thus, it managed to make 334000 USD per employee compared to 248000 USD in other rich companies. Moreover, it is a competitive advantages, as Jerome Adanes, Shell's CEO, confirms their commitment to becoming a learning organization because the competitive advantage lies within the employees' ability to learn fast (Bontis, 2018, P: 63).

2.2. The Items of the Intellectual Capital

It includes many intangible items, namely:

- Relationships capital that reflects the nature of relationships between the company, customers, and suppliers.
- The human assets, mainly knowledge, skills, and experiences.
- The intellectual assets, mainly information, memoranda, and publications.
- Intellectual property, including patents, copy rights, and brands.

- Structural assets, mainly the regulatory culture, models, procedures, and distribution channels.

The intellectual capital is the knowledge that can turn into gains if efficiently managed. Thus, the efficient management of the intellectual capital is the new aspect of knowledge economy.

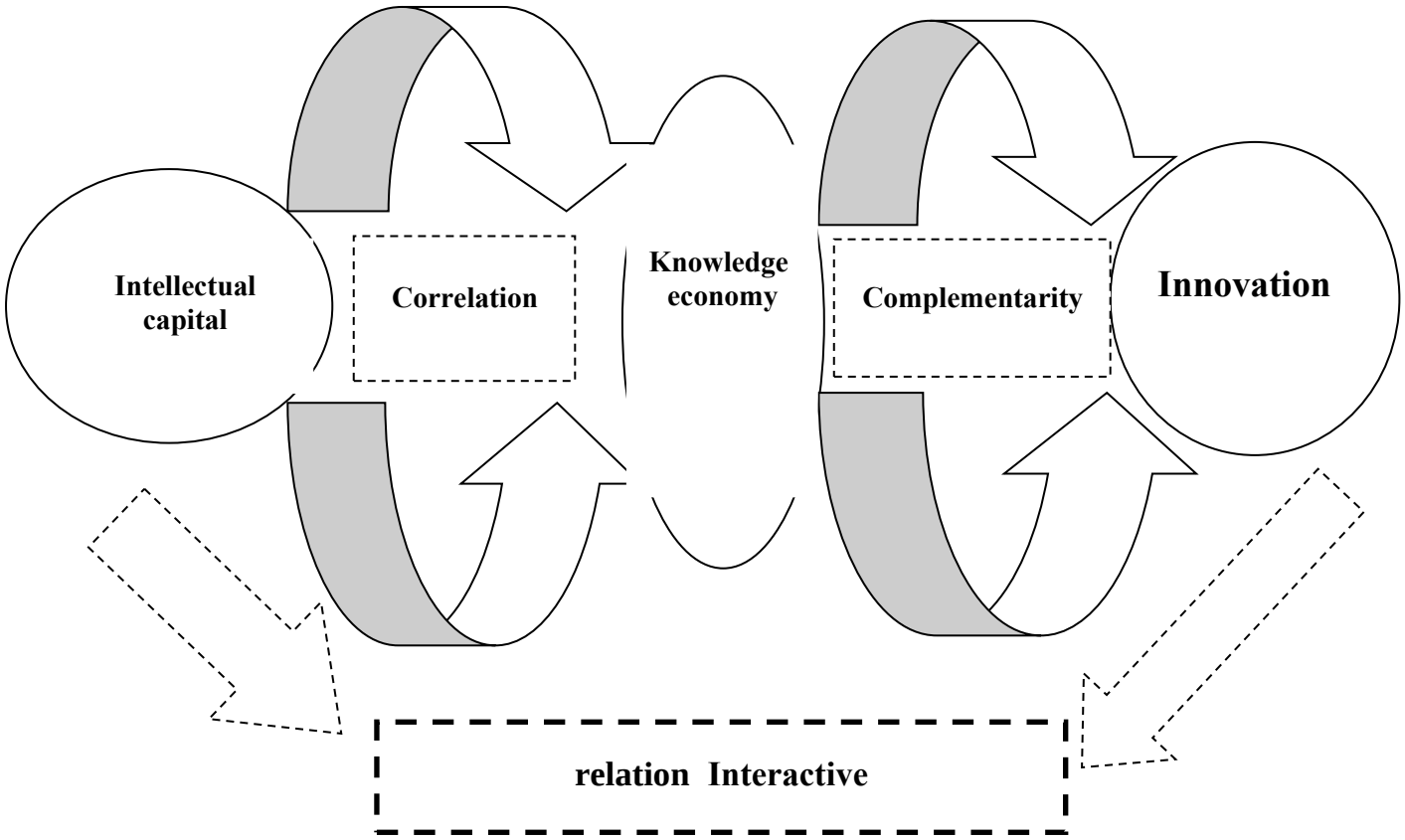
2.3. The Requirements of Building an Intellectual Capital

Businesses need employees who have much knowledge and skills to innovate. Thus, it is necessary to rely on the intellectual assets, which facilitate lifting up organizations. In this regard, building up an intellectual capital requires some conditions and circumstances, including industrial poles by friendly unions with some private businesses to increase the financial and human capacities in creating and taking advantage of knowledge, and to establish an intellectual frame based on information technology and suiTabluar laws (Steve Pike, 2012, P: 07).

3. The Mutual Relationship between the Intellectual Capital and Knowledge Economy under the Entrepreneurial Innovation

Many developed and developing states aim at adopting knowledge economy for the economic diversity and avoidance of crises, leading to search for efficient methods that help companies integrate into knowledge economy. In this regard, the exploitation of the intellectual capital aims at coping with the global technological developments and using the available resources to build up a strong economy. Besides, most companies aim at implementing entrepreneurial innovation and rationalizing the stakeholders' decisions, mainly those on integration into knowledge economy. Based on what was said, figure 01 summarizes the relation between the intellectual capital and knowledge economy under the entrepreneurial innovation.

Figure 01: The relation between the intellectual capital and knowledge economy under the entrepreneurial innovation.



Source: By the author based on Mostefa Hassan Bassiouli (2017)

The figure shows that the entrepreneurial innovation and intellectual capital aim at integrating most companies into knowledge economy, as the intellectual capital is the main tool for businesses today and the main principle of knowledge economy (Account 203 according to the financial accounting system). In addition, it helps survival, development, domination of the market, and achievement of an economic power. Then, we find the entrepreneurial innovation as the 03rd principle of knowledge economy. It helps control the businesses' activities and rationalize the operational and strategic decisions to facilitate integration into knowledge economy.

III. Field Study of the Importance of the Intellectual Capital under Entrepreneurial Innovation for Integration within Knowledge Economy in Condor Electronics Company

The field study aims at showing the importance of using the intellectual capital for implementing the entrepreneurial innovation to integrate into knowledge economy in Condor Electronics Company in Bordj Bou Arriridj, and at identifying the main strengths and weaknesses in exploiting the intellectual capital.

1. General Information of the Company

Condor Electronics Company in Bordj Bou Arriridj is a limited liability company that is subject to the Algerian commercial laws. It got the commercial register on 09 February 2002 and started its activity on 23 November 2003. Its headquarter extends to 80104 m^2 and its capital is estimated at 2.450.000.000 AD. Besides, its investment size is 541.000.000.00 AD and turnover is 6.600.000.00 AD. It is one of the companies of Ben Hammadi Group, all along with Argilor for bricks, Gerbior for wheat, Polyben for plastic bags, and Gemac for ceramics and construction materials. The study Company includes these units:

- Refrigerators and TV unit. Air conditioner and white materials unit, such as washing machines, DVD players, etc.
- Satellite receivers unit for production of computer parts.
- Plastic injection and polystyrene unit.

In addition to being a commercial and industrial company, it imports some Chinese goods to resale them. It started with 90 workers, and employs now 1544 ones.

2. The Study Tools

We used the questionnaire for collecting data from the Company executives, and interviews with the CEO and some executives to find out more about their opinions on the adoption of the entrepreneurial innovation and the use of the intellectual capital for integration into knowledge economy.

Tabluar 01: The questionnaire items and axes

Number	Axes	questions	items
1	Through the adoption of entrepreneurial innovation, the Algerian businesses aim at integration into knowledge economy	**Q1 to Q6**	6
2	The intellectual capital is affected by the good application of entrepreneurial innovation in Algeria	**Q7 to Q12**	9
3	The interactive relation between the intellectual capital and entrepreneurial innovation aims at integrating businesses into knowledge economy	**Q13 to Q18**	6
Total			**21**

Source: by the author

3. Validity and Consistency of the Tool

To check consistency, we used the split-half coefficient (r/1+r2), where r is the correlation coefficient. Besides, we used Cronbach's Alpha for confirmation. Usually, Cronbach's Alpha is between 0 and 1. We found out a value of 81%, which is good and reflects the internal consistency of the tool, as shown in Tabluar 02:

Tabluar 02: Cronbach's Alpha values

Number	Axes	Items	Cronbach's Alpha
1	Through the adoption of entrepreneurial innovation, the Algerian businesses aim at integration into knowledge economy	**6**	,7210
2	The intellectual capital is affected by the good application of entrepreneurial innovation in Algeria	**9**	,6270
3	The interactive relation between the intellectual capital and entrepreneurial innovation aims at integrating businesses into knowledge economy	**6**	,7710
Total		**18**	**0.81**

Source: by the author based on the outputs of SPSS25

4. Analysis of the Study Results

We tested each hypothesis separately to get results and give recommendations.

4.1. Testing hypothesis 01

It states, "The Algerian businesses aim at integration into knowledge economy through the adoption of entrepreneurial innovation".

Null hypothesis: There is no statistically significant effect between the adoption of entrepreneurial innovation and integration into knowledge economy. H0: X<3

Alternative hypothesis: There is a statistically significant effect between the adoption of entrepreneurial innovation and integration into knowledge economy. H1: X≥3

Tabluar 03: T test and arithmetic mean of hypothesis 01

One-Sample Statistics				
Hypothesis 01	N	Mean	Std. Deviation	Std. Error Mean
The Algerian businesses aim at integration into knowledge economy through the adoption of entrepreneurial innovation.	33	3,8111	,55559	,08441

	One-Sample Test					
	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The Algerian businesses aim at integration into knowledge economy through the adoption of entrepreneurial innovation	5,5561	32,00	,0000	3,8111	,3144	,6001

Source: by the author based on the outputs of SPSS25

The Tabluar shows that calculated T is 5.5561 and is more than Tabluar T (1.660) and significance level (0.000). However, it is less than standard significance level (0.05). Thus, we refuse the null hypothesis and accept the alternative, as the answers' mean is 3.8111, and confirm our hypothesis. In addition, the Algerian businesses, mainly the study Company, aim at adopting a clear system for entrepreneurial innovation to efficiently apply its principles, facilitate integration into knowledge economy, and provide high quality information that reflects the status-quo of their activities to attract foreign investments.

4.2. Testing hypothesis 02

It states, "The intellectual capital is influenced by the good application of entrepreneurial innovation".

Null hypothesis: There is no statistically significant effect between the intellectual capital and the good application of entrepreneurial innovation. H0: X<3

Alternative hypothesis: There is a statistically significant effect between the intellectual capital and the good application of entrepreneurial innovation. H1: X≥3

Tabluar 4: T test and arithmetic mean of hypothesis 02

One-Sample Statistics				
Hypothesis 02	N	Mean	Std. Deviation	Std. Error Mean
The intellectual capital is influenced by the good application of entrepreneurial innovation	33	3.6227	0.60041	0.06874

	One-Sample Test					
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The intellectual capital is influenced by the good application of entrepreneurial innovation	10,008	32,00	0,000	3,6227	2,6504	3,441

Source: by the author based on the outputs of SPSS25

The Tabluar shows that calculated T is 10.008 and is more than Tabluar T (1.660) and significance level (0.000). However, it is less than standard significance level (0.05). Thus, we refuse the null hypothesis and accept the alternative, as the answers' mean is 7.6227, and confirm our hypothesis. The intellectual capital and the good entrepreneurial innovation are two principles of integration into knowledge economy. Therefore, the mutual relation helps the Company integrate into the knowledge economy.

4.3. Testing hypothesis 03

It states, "There is an interactive relation between the intellectual capital and entrepreneurial innovation that aims at integrating businesses into knowledge economy".

Null hypothesis: There is no statistically significant effect between the intellectual capital and the entrepreneurial innovation under knowledge economy. H0: X<3

Alternative hypothesis: There is a statistically significant effect between the intellectual capital and the entrepreneurial innovation under knowledge economy. H1: X≥3

Tabluar 5: T test and arithmetic mean of hypothesis 03

One-Sample Statistics				
Hypothesis 03	N	Mean	Std. Deviation	Std. Error Mean
There is an interactive relation between the intellectual capital and entrepreneurial innovation that aims at integrating businesses into knowledge economy.	33	3,1722	,4311	,4457

	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
There is an interactive relation between the intellectual capital and entrepreneurial innovation that aims at integrating businesses into knowledge economy	6,5004	32,00	,0000	3,1722	,7550	,6708

Source: by the author based on the outputs of SPSS25

The Tabluar shows that calculated T is 6.5004 and is more than Tabluar T (1.660) and significance level (0.000). However, it is less than standard significance level (0.05). Thus, we refuse the null hypothesis and accept the alternative, as the answers' mean is 6.1722, and confirm our hypothesis. Besides, the Tabluar confirms the information in figure 01, which shows the interactive relation between the intellectual capital and the entrepreneurial culture that aims at integrating companies into knowledge economy.

IV. Conclusion

This paper shows many outcomes and benefits of using the intellectual capital for the implementation of the entrepreneurial culture under knowledge economy. In the practical chapter, we confirmed the hypotheses using a questionnaire and showed the relation between some theoretical concepts of the intellectual capital and knowledge economy under the entrepreneurial thought. In the end, our findings show that:

- The entrepreneurial innovation is the best tool to judge the professional commitment of administrations, and an index of the good management, transparency, and fair policies to protect the shareholders.
- The entrepreneurial innovation is a regularized administrative tool that fosters good performance if well-used based on fair treatment of all shareholders. It preserves interests and is based on trust and social responsibility.
- There is an interactive relation between the entrepreneurial innovation and the optimal exploitation of the intellectual capital that aims at integration into knowledge economy.
- The development of the intellectual capital and the motivation of the administrative staff are the main challenges that face managers in integration into knowledge economy.
- The intellectual capital is the accumulation of prerequisites on human resources, and is one of the modern issues that scholars aim at regularizing and measuring because it is intangible.
- Knowledge management is important for the management and use of knowledge based on the integration of the technological, regulatory, and human dimensions to develop Condor Electronics Company, integrate it into knowledge economy, and develop the national economy.

Upon our study, we recommend

- Raising companies' awareness about the importance of the intellectual capital for the economic development.
- Spending more on research and development, such as training sessions and meetings on the relation between intellectual capital and knowledge economy.
- Providing for an independent system that regulates the entrepreneurial innovation and governs all financial organizations.
- Establishing departments in each company to invest in the intellectual capital and use it for integration into knowledge economy.

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