



Benha University  
Faculty of Commerce

# **The role of intellectual capital in applying open innovation**

## **An empirical study on the National Research Center (NRC) in Cairo.**

A thesis Proposed to achieve the requirement needed to fulfill a M.SC in  
Administration

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## **Research summary**

This study **seeks to** discover and define the role of the intellectual capital (human capital, structural capital, relationships capital) in applying open innovation processes both inbound and outbound in national research center in Cairo NCR.

The study followed the **analytic descriptive approach** and is attached by a survey of three sections (general data, intellectual capital, open innovation processes) which were formed in 46 statements. The stability and honesty coefficient of the survey as a whole were measured and results were as follow: Alfa stability coefficient (0,957) and honesty coefficient sqrt the stability coefficient (0,978). These results asserted that there is a reasonable strong internal harmony within the survey. The respond of heads of sections and heads of scientific departments in the national research center was 76% within (75) analytically and statistically valid forms. Whereas, the respond of researchers in NCR was 79% within (280) analytically and statistically valid forms.

The study was based mainly on two hypotheses as follows:

**The first main hypothesis:** "there is a substantial effect with statistical significance between intellectual capital dimensions (human capital, structural capital, relationships capital) and the application of open innovation processes both inbound and outbound in the National Research Center in Cairo.

**The second main hypothesis:** "there are substantial differences with statistical significance between the sector of heads and the sector of researchers in the intellectual capital effect in applying open innovation processes."

The sincerity of the two hypotheses was **proved** and the study came out with these **results**:

1- There is a moderate extrusive relationship between intellectual capital and the application of open innovation processes in the organizations. That means, the more interest is given to define, measure and develop intellectual capital abilities – through its three dimensions, the human, structural and relationship – the more ability in the application of inbound open innovation processes will be achieved in the organizations. this will be achieved by cooperation and integration among the internal parties in order to achieve the external knowledge discovery .That will lead to manipulate the external knowledge by purchasing intellectual property or licenses, the outbound open innovation processes including , sales and marketing products , innovative services or purchasing new knowledge and ideas through licenses and intellectual property , and finally to direct the scientific and cognitive contributions and innovations to serve the society .

2- There are cardinal differences between the Top management – the sector heads of sections and scientific in the NRC in Cairo – and the workers – the researchers – in the organizations. These differences were found in the effect of intellectual capital role in applying open innovation processes.

Hence, the study **contributed** in enriching the Arabic library in the open innovation field as it is one of the lead Arabic studies to handle this topic. the study also subscribed in the practical field by providing (IC/OI) matrix to define the organizational abilities recommended by organizations , especially in the Egyptian business environment in order to activate intellectual capital role in applying open innovation processes . It also provides a suggested model for the application of open innovation processes in the National Research Center in Cairo within the Egyptian environment.

The study was **ended by** introducing some recommendations that can be used for scientific research purposes in Egypt, the academic field and in the Egyptian organizations generally. This is due to the need for constant improvement, technological development and applying modern innovation models. Finally, the study was concluded by some recommended and suggested issues for further researches related to the topic of the study especially in the Egyptian business environment.