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(Editorial)

October and Innovation

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Egypt celebrates the Golden Jubilee of the 6th of October war this month. The victorious crossing of the Suez Canal by the Egyptian Armed Forces is closely related to the innovative idea used to remove the sand embankment barrier which was constructed along the eastern bank of the Suez Canal. The height of the steep barrier was up to 22 meters with a total length of 170 km. During the Canal crossing operation, this barrier was breached in 81 locations by removing about 3 million cubic meters of sand in about 6 hours.

The innovative idea which made this possible was the use of high-pressure water pumps to erode the sand and rubble forming the high embankment. The person behind that idea was the late Major General Engineer Baki Zaki Youssef, who was at that time a young officer. This innovative idea was systematically developed reaching full-scale prototypes of the embankment and more than 300 tests were conducted to assess the efficiency of the technique. This ensured tremendous success in the real-life implementation of the idea.

This story forms a living ample example of the implementation of the full process of innovation which transforms ideas into products and technologies. It has a tremendous effect, not only, on economical and social development, but it can even tackle defense issues.

The innovation process consists of different stages which include:

- Ideation, Research and Development
- Field validation to prove the concept and Demonstration
- Scale up
- Commercial launch and Deployment
- Market Transformation

In the path of transforming an idea into a proven and accepted product or technology, three difficult obstacles exist. They are referred to as the valleys of death, namely the technological valley of death, the commercialization valley of death and the profitability valley of death. The hardest valley to cross

is the commercialization valley of death. Many ideas and research outcomes did not transform into products or technologies due to failure to cross this valley.

When succeeding in overcoming this difficult stage, scale-up and commercial launch of the innovation becomes possible and viable for investors to start the first commercial sale.

In addition to research work, technical notes and short communications, ERU Research Journal supports the publication of work related to innovation at any of the aforementioned stages of the process.

By analyzing the papers published in the fourth issue of ERURJ it is noticed that the ten published articles were linked to the different sustainable goals (SDGs) of the United Nation's 2030 Agenda as shown in Figure 1.

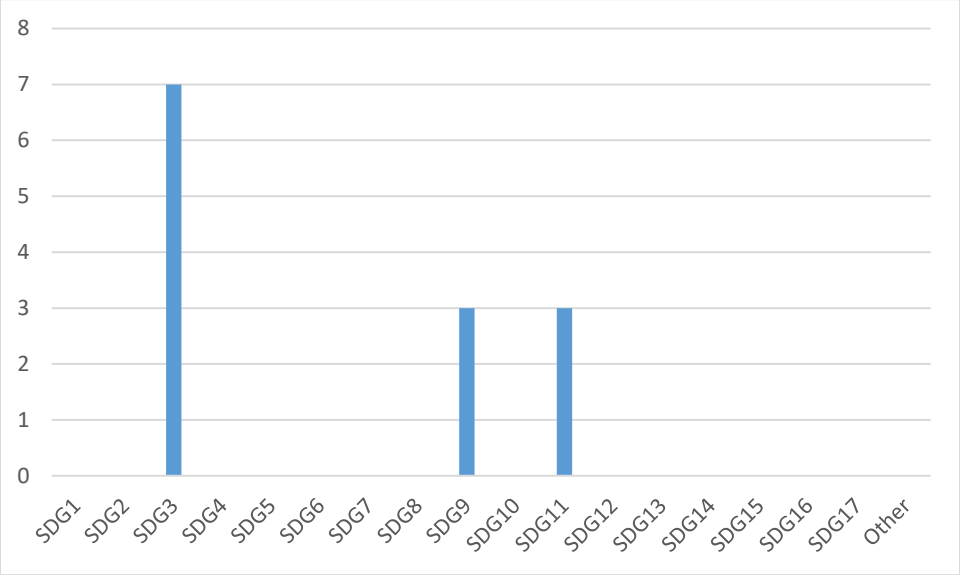

Figure 1: Articles Published in ERURJ July 2023 issue and their relation to SDGs

It is noteworthy that seven articles were linked to the third goal "Good Health and Well-Being" where two articles by Shawky et al (1) and Elish et al (2) addressed the phytochemical and biological diversity of the genera *Ludwiga* and *Ficus*, respectively. The article by Ibrahim et al (3) focused on the hepatocellular carcinoma (HCC) incidence and risk factors where HCC is ranked the third among cancers in mortality rate. As for Egypt, it is the third in Africa and the fifteenth around the world in the incidence of HCC. Besides, the article by Mikhael (4) explored a novel auditory behavioral test enhancing the response of neurotransmitters in the brain of Alzheimer's.

Moreover, the article by Younis (5) summarized recent developments in the chemical and biological activities of 4-thiazolidinones, which have proven to be extremely significant in the production of numerous compounds and, consequently, the treatment of numerous diseases. Also, the article by Zaky et al (6) portrayed out the impact of surface design and coating on the efficacy of nano-carriers as drug delivery systems where loading of drugs within nano carriers could improve the solubility of poorly-soluble drugs, prevent degradation through enzymes of GIT and enhance the passage crosswise the gel mucus layer and absorption membrane.

As for preoperative tools of multiple dental purposes, the article by Fahd and ElBeshlawy (7) revealed the wide applications of cone beam computed tomography (CBCT) as the most used advanced digital dental imaging modality.

Regarding the ninth goal “Industry, Innovation and Infrastructure” and the eleventh “Sustainable Cities and Communities”, they were linked to three articles where the article published by Mahmoud et al (8) as it focused on space syntax as a vital tool to enhance urban spaces examining the results of prior research using space syntax to understand the relationship between the spatial configurations of spaces and users' behavior, as well as its impact on improving the use of urban spaces. In addition the article by Asal et al (9) introduced a wideband magneto-electric (ME) antenna with radiation characteristics for 5G communications, whereas the article by El-Khatib and Aner (10) expressed an efficient maximum power point tracking control for a photovoltaic system artificial neural network.

Accordingly, only three SDGs have been represented out of the seventeen goal. The editors are seeking several contributions for representation of more SDGs-linked publications in ERURJ.

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Editor-in-Chief

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