The Impact of Emerging Technology for "Industry 4.0" in Egyptian Packaging Industry

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Abstract

As a new industrial revolution, the term Industry 4.0 is one of the most popular topics among industry and academia in the world.

Emerging Technologies are realized by the combination with adaptive robotics, augmented reality, cloud computing, artificial intelligence, additive manufacturing, and the Internet of Things   (IOT).

In these papers I will discuss and analyze the global packaging trends in light of "Industry 4.0" and the impact and use of the Egyptian market for these emerging technologies. The research problem is summarized in answering how to benefit from the techniques of the fourth industrial revolution in the Egyptian packaging market? And to identify the role of artificial intelligence in implementing the tasks of designing structural and creative packaging. The research aims to shed light on modern technologies of the fourth industrial revolution and their impact on the workflow of packaging design and determine the limits and capabilities of industrial intelligence during the various stages of work in packaging design. The researcher used the descriptive analytical approach to Global packaging trends in light of the fourth industrial revolution, and the experimental approach to the impact of artificial intelligence as one of the tools of the fourth industrial revolution on the packaging designer and a special questionnaire on the extent to which Egyptian packaging institutions use the techniques of the industrial revolution Fourth.

Results

1- Non-Integrated Use of Industry 4 Technologies in the Field of Packaging in the Egyptian Market.

2- The Use of Artificial Intelligence and Computer-Aided Design is One of the Most Used Techniques for the Fourth Industrial Revolution in Egyptian Packaging Institutions.

3- Industry 4.0 Technologies Improve, Empower, and Expand One Another, It Is a Central Reconfiguration of Work in the Digital Era.

4- The Augmented Reality Packaging Serves as a Marketing Tool for Brands and Allows Them to Include a Virtual Element to Their Packaging.

5- AI's Power Lies in Its Speed to Rapidly Analyze Large Amounts of Data and Output Alternative Designs, These Can Then Be Reviewed by Designers to Select and Improve the Generated Images, This Increases Speed, Reduces Costs, Improves Efficiency and Creates Multiple Designs.

6- Machines Have the Ability to Think but Whether Machines Are Not Creative as People, Creativity Requires Both Originality and Effectiveness, So That Each Designer Has Unique Solutions to Design Problems but Artificial Agent Able to Create Design but It Must Conform to a Set of Constraints.

Key words:

(Artificial Intelligence- Augmented Reality- Internet of Things (IOT)- Smart Packaging – Industry 4.0 - PackML).