

## **Disruptive technology and its role in product development: the entrance to renewable energy**

**Prof. Rajab Hilal Abdel Gawad**

**Professor and Head of the Industrial Design Department (formerly) - Faculty of Applied Arts - Helwan University, Egypt.**

**Prof. Osama Youssef Mohammad**

**Professor, Department of Industrial Design - Faculty of Applied Arts - Helwan University, Egypt.**

**Researcher. Ahmed Ahmed Salah El Din Metwally**

**Freelance Designer - Industrial Design Department - Faculty of Applied Arts - Helwan University, Egypt**

[A7medmetwaly@gmail.com](mailto:A7medmetwaly@gmail.com)

### **Abstract:**

Replacement technology and its use in the industrial design process. The concept of substitution technology does not simply refer to a new, better quality technology but rather to technology that dissolves or replaces existing technology, and for this it makes things more difficult for many industrial organizations. From here, the research tackled the topic of substitution technology, trying to employ it and working to link it to the process of designing industrial products through the use of renewable energies as an alternative source of nutrition, and studying the impact of this on their functional and engineering performance. Hiring and working on linking it to the process of designing industrial products through the use of renewable energies as an alternative source of nutrition, and studying the impact of this on their functional and engineering performance. In addition to addressing renewable energy sources of all kinds as a form of substitution technology and studying ways to harness these energies to move the engineering design process to another level to keep pace with the rapid development of these energies and try to reach the maximum engineering benefit based on what we reached after the extensive study of many renewable energy sources. The importance of research is to confirm the importance of incorporating modern energy sources into the design process and during the product development process, and to study the extent of this impact on several factors such as product and similarity in addition to aesthetic factors and others. The research reached the imperative of the process of replacing traditional energy sources with other sustainable sources, pushing the products to the necessity of accompanying that process to give better job performance and to preserve the environment, and thus push the design process to advanced and necessary stages to go hand in hand with the rapid development of energy sources.

### **Keywords:**

Disruptive Technology - Innovation - Industrial Design- Renewable energy