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## Science Fiction and Its Use in Contemporary Industrial Product Design

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### ABSTRACTS

The goal of the research is: to shed light on science fiction and determine the role it plays when employed in contemporary industrial product designs. The research methodology, relied on the descriptive approach (content analysis), and the research population consisted of German cars (8 companies) as an industrial product. The intentional (non-probabilistic) selective method was adopted for the sample represented by the original research community, to select models that serve the research goal and are closest to achieving it, which number (3) out of a total of (8), i.e. (37.5%) of the research community. The research tool was an analysis form that was presented to the group of experts to prove its validity and reliability. Since the existence of human on Earth, human has tried to find explanations for the natural phenomena that he obscures, and when human is unable to find diverse logical reasons, human unleashes his imagination to imagine reasons for this or that phenomenon. There are no easy solutions to the problems face by the society. Result of this research is modernizing the classical aesthetic values to new values has its effects. The conclusion is when science fiction is used, which leads to progress in science and gives people a chance to hope for a better future.

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## **1. INTRODUCTION**

Since the existence of man on Earth, he has tried to find convincing explanation for the natural phenomena that encounters, and when he is unable to find logical reasons, he unleashes his imagination to imagine the reasons for the occurrence of this phenomenon. Imagination is a characteristic that distinguishes humans from other creatures, and it means transferring the tangible characteristics surrounding them to a new imagination with no-tangible characteristics. Entering the loop of imagination is “stepping out” of the present, which can have repercussions for both the present and the future (Zittoun & Gillespie, 2016). Thus, it is a tool that human use in development and progress, as it is an imagination of situations and things that did not exist previously. Imagination sits at the border between intuitive and rational thoughts and action (Asma, 2022). Science fiction is based on the progress made in science and the impact of that progress on the individual and society giving humanity a chance to hope for a better future. Due to the importance of science fiction in our lives, Ali Rashid (2015) pointed out in his book *Developing Creativity and Science Fiction*, that traditional fiction has lost its shine and brightness compared to science fiction, which dazzled everyone with its achievements.

We conclude from this, the imagination as a characteristic that distinguishes humans from other creatures, while science fiction is a vision of future life and its vocabulary based on the basis provided by science and development for that foundation. It has become extremely important for it to attract the attention of stakeholders

because it offers solutions to the problems of living reality.

It has become an important part of creativity, and to look at the definitions of science fiction, we find that the most common definitions refer to it as a type of realistic assumption linked to events with the possibility of occurring in the future, and this is based on the information provided by the past and present that is translated according to the scientific method and its implications. From the human perspective, science fiction has grown from a more or less plausible science focus in the early 20th century to adopt more sociological and cultural factors over time (Menadue & Cheer, 2017). Science fiction is narrative fiction that incorporates technology and scientific components to create situations necessary for the plot to progress (Fiala, 2023). Science fiction is also considered a literary genre or verbal composition that requires the presence of two important poles in it, which are knowledge and strangeness. This is achieved through the imagination that the designer assumes as an alternative to realistic imagination (Shaker, 2008). From this standpoint, science fiction requires the presence of four pillars: observation, hypothesis, verification, and consistency. Science fiction has elements that must be achieved in the design, which are unrealism, strangeness, and the unfamiliar. Here, the identity of science fiction is complete and its character is given to it by being different from other fiction. This is done by linking its elements to scientific knowledge and the possibility of investigation.

## **2. METHOD**

Descriptive study aims to describe a phenomenon and its characteristics (Nassaji, 2015). Qualitative research, however, is more holistic and often involves a rich collection of data from various sources to gain a deeper understanding of individual participants, including their opinions, perspectives, and attitudes (Nassaji, 2015). Descriptive research offers for greater freedom in data sources, including how they are obtained (Furida, 2023). This research was conducted in 2023. The problems were identified the shift in aesthetic values from the familiar and followed classics to values that have no connection to them has major intellectual and social impacts. In light of this, the research problem can be summarized with the following question: What is the addition that can be added to product design when employing science fiction? In which?

Significant of this research lies in the pioneering role that science fiction takes in our world and gives us a futuristic picture of what tomorrow's world will be like. It will certainly be an important source for the designers in drawing inspiration from design ideas for industrial products. Whereas shedding light on science fiction and identifying the role it plays when employed in the designs of contemporary industrial products.

The current research is determined by the following limitations:

- The objective limit: science fiction as an unrealistic method and its use in the designs of German flying cars.

- Spatial limit: The search is limited to the proposed designs available on international websites

### 3. RESULTS AND DISCUSSION

Types of science fiction: Science fiction has types that depend on the idea and appearance of the character inspired by imagination, and can be summarized as follows:

1. Space or time travel, which is a type of science fiction that depicts a person in a time other than the present time, and the matter is the same whether this time is from the past or the future.
2. Futuristic setting or alternate history, which refers to changing the settings of the future, and thus alternative dates are found through it, and it is close to the first type.
3. Advanced technology: Through this type, advanced technology is used to achieve what cannot be achieved with current technology.
4. Discovering societal conditions and applying them to the current miserable society

It is the type that has always pointed out that society, no matter how developed it is, has defects lurking in it, so science fiction exploits those defects to show its nature and its inability to confront situations, phenomena, and disasters. Ayed (2017), a researcher at the University of Tunisia, adds the following points to them in her research, "Science Fiction Literature: Its Definition and Styles".

1. Aliens are creatures shown in science fiction stories and films, and they have more advanced capabilities than humans and have different goals, some of which indicate

kindness and exploration, and some of which aim to destroy, kill, and seize the Earth.

2. Cyberpunk hacking techniques, which is an advanced communications technology that can penetrate and manipulate computer systems.

From the above, we can say that the types of science fiction are divided into six sections that enter different areas of life, and upon seeing them, they emit in the recipient a feeling that extends from contentment, elation, and love to caution and apprehension. Konstantinidis (2024) mention through the exploration of imagined futures, alternate realities, and fantastical realms, science fiction genres offer insights into pressing societal concerns, cultural anxieties, and utopian dreams. There are two categories of science fiction:

- A. Soft science fiction: This is fiction that sheds light on aspects related to the social sciences, such as psychology and sociology, economics, political science and anthropology. There are those who link works that belong to the type of ideal world (utopia) (or dystopia), the opposite world (dystopia), with science fiction, and present this type of fantasy in literature, such as films and stories (Shaker, 2022).
- B. Strict science fiction: It is characterized by careful treatment of information available in applied sciences, which in turn is based on advanced and sophisticated technology. It is worth noting that many speculations for future solutions have started from strict science fiction (which is what the current research focuses on), such as predictions. Concerning satellite

communications systems, missiles, submarines, etc. (Shaker, 2008, p. 262).

There are many future designs for industrial products that were developed in advance and became a living reality later, and many examples of this include robots, spaceships, flying cars, self-driving cars, nanotechnology, and other industrial products. Perhaps the research will not bring anything new if it points out that some science fiction films may Many of these products, proposed technologies, or ideas that paved the way for these products were demonstrated or created and then presented themselves forcefully in the world of living reality. Among these products are:

1. The mobile phone: The communication device appeared in Star Trek for the first time in 1966, Figure (1), which was very similar to a mobile phone.



**Fig. 1. The mobile in Star Trek film.**

Source: <https://www.startrek.com/en-un/news/first-mobile-phone-call-made-41-years-ago-today>

Although engineers were developing this technology in the 1960s, it took Motorola until 1973 to make the world's first mobile phone. Motorola cell phones dominated the market ten years later in 1983. The devices were large, heavy, and expensive, but Motorola continued to make improvements over the next few years. The company's first mobile phone was released in 1989 and was similar to

the device that appeared in Star Trek, as we can see in Figure (2).



**Fig. 2. Motorola MicroTAC 9800X (1989).**

Source: <https://www.pcmag.com/news/the-golden-age-of-motorola-cell-phones>

In recent years, Wand has created a modern version of the communications device. Debuting in 2015, it's made of aluminum and has a magnetic holder for wireless charging. It also has a Bluetooth feature and is capable of holding some audio recordings from Star Trek episodes.

## 2. Holograms (three-dimensional images)

3D images have been appearing in science fiction stories for decades. In 2017, an Australian company claimed to have been able to produce a table of holograms that resembled the futuristic holograms in the original Star Wars movie. Loki Skywalker's aide Princess Leia in Star Wars called for the use of a holographic message in 1977. Since then, scientists have worked to make this technology a reality. Euclidean, an Australian company, says it has manufactured the world's first 3D table. Up to four people can interact with the 3D image at a time using motion-tracking glasses. Although Euclidean's invention was met with some skepticism, New Atlas reported in November 2018 that the company was

moving forward with bringing 3D imaging technology to the market.

## 3. External metal structure

Iron Man's figure 3 suit has become legendary since its first appearance in Marvel comics. Of course, we won't soon be seeing people flying while wearing them, which has inspired designers in the US military to develop high-tech suits that will reflect some of Iron Man's abilities. The military's Talos program - short for Lightweight Tactical Operators Suit - aims to enhance a soldier's defensive capabilities.



**Fig. 3. Iron Man Armor Suit.**

Source:

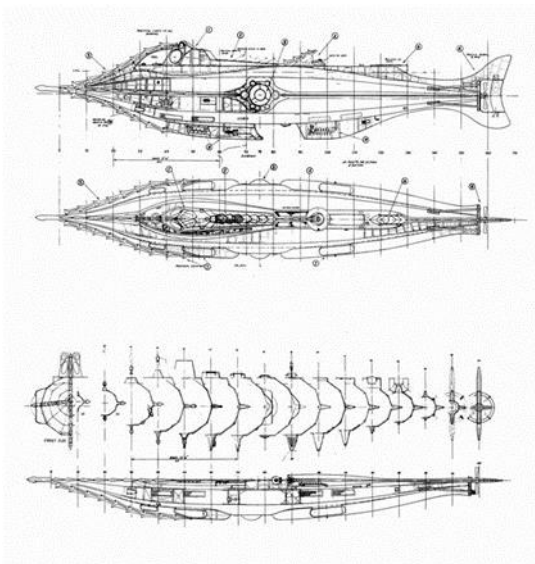
[https://marvel.fandom.com/wiki/Iron\\_Man\\_Armor?file=Iron\\_Man\\_Armor\\_Model\\_1\\_from\\_All-New\\_Iron\\_Manual\\_Vol\\_1\\_1\\_001.jpg](https://marvel.fandom.com/wiki/Iron_Man_Armor?file=Iron_Man_Armor_Model_1_from_All-New_Iron_Manual_Vol_1_1_001.jpg)

According to a military news report by The Times: "The Talos program will be equipped with massive amounts of data from drones, marine sensors and reconnaissance aircraft to better inform soldiers. The suit is expected to be lightweight and equipped with life support systems that will track vitality." "It will also help the soldiers, and the 3D audio capture built into the soldiers' suit will help them know where fire and

vehicle sounds are coming from.” According to The Times Military News, the United States could begin testing the high-tech suit as early as the summer of 2019.

#### 4. Electric Submarines

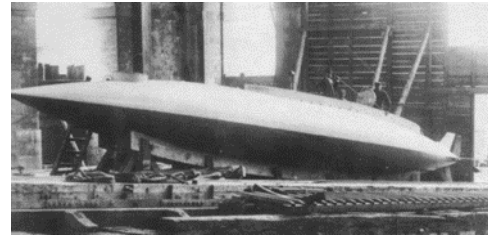
In 1870, the novel “Twenty Thousand Leagues Under the Sea” was published, in which the submarine “Nautilus Verne” appeared to operate entirely on electrical power (Figure 4), at a time when submarines were only powered by mechanical power. In 1888, the French submarine “Gymnote” (Figure 5) was built, which was powered by electricity, and which was very similar to the submarine Nautilus Verne in the novel. Rosalind Williams, a historian of technology at MIT, told National Geographic that the Nautilus is not much different from modern submarines, such as a ship dating back to the 1960s called the Alvin, which ran on lead-acid batteries.



**Fig. 4. Nautilus Submarine by Jules Verne.**

Source:  
<https://drawingdatabase.com/wp->

[content/uploads/2018/01/Disney\\_Nautilus\\_submarine.gif](content/uploads/2018/01/Disney_Nautilus_submarine.gif)



**Fig. 5. French submarine Gymnote Q1.**

Source: <https://alchetron.com/French-submarine-Gymnote-%28Q1%29>

#### 5. Employing scientific imagination in designing industrial product

When discussing the issue of employing science fiction in the design of industrial products, we must know the reasons for this employment. In order to attract consumer attention to an industrial product, companies search for values of aesthetic appeal. The concept of visual attraction for a design form indicates that an attractive form is a form that contains elements Visual stimuli that can influence the customer’s beliefs about the design. Shapes contain latent energy in them, depending on the strength of the visual tension. The stronger the visual tension in them means that the energy of the design is high, and vice versa (Al Tuwairqi, 1999).

The concept of visual attraction depends on the elements of attractiveness, and this is done by employing vocabulary that is characterized by strangeness and uniqueness. Gravity as a verb is linked to sensory perceptions through visual characteristics that work to draw the customer’s attention. Highly attractive shapes impose a relationship between the customer and the product, which

establishes the building of a relationship of interaction and attraction. between two sides (Al-Husseini, 2008).

When a design is called creativity, this means that there are original elements that have been preserved, but in ways that go beyond unconventional logical solutions. The design was distinguished by the fact that it contained the original flexible thought linked to the content of the forms and sensory perceptions, as creativity seeks to redefine things and organize them in new ways and methods that give them meanings and differ from what is common and agreed upon among people, and this comes through combining novelty, uniqueness and originality (Razouki, 1996). Creativity is the *raison d'être* of design, nonetheless, disciplinary research on the phenomenon of creativity and discussions of the concept are limited (Askland, Oswald, & Williams, 2010). In other words, an unconventional artwork is a creative work that is distinguished by its visual appeal to the recipient and contains novelty, uniqueness, and originality.

In order to win the consumer's satisfaction, the producing companies compete with each other to provide all possible designs that contain strangeness and uniqueness, which makes them the focus of his interest and excitement. The consumer is always looking for products with high aesthetic values that reach the point of luxury. This is what Henry Petroski confirmed in his book: "The Evolution of Useful Things," when he says: "Necessity is not the mother of invention, but luxury has become the mother of invention, and that the current consumer expects the product to contain aesthetic values that are commensurate with the social, cultural, and economic situation of the consumer of the 21th

century. Otherwise, it prejudices the failure of the product. The first step in judging a product is its appearance and aesthetic appearance, which the consumer derives from the pleasure he derives from viewing the product, regardless of its function. Thus, achieving these aesthetic values stems from the consumer's desire for well-being and pleasure. (Bhil, 2009).

We conclude from this that the process of visual tension is considered a process of visual stimulation by drawing human attention by creating an unconventional (innovative) relationship between the various parts of the interior space, in addition to its indicative and functional role in the nature of movement and performance, in addition to the importance and value within the space. The designer always turns to strange shapes that are far from the ordinary to capture the consumer's attention through visual appeal and creating an interactive relationship between the consumer and the product. In addition, the consumer is now looking for pleasure and luxury more than he needs functionality.

From here, the designer has begun searching for those shapes that achieve strangeness and distinction, so he gave free rein to his imagination. Of course, science fiction had a great impact on this, as he derived from it shapes and forms different from what we see in our daily lives, including:

- i) Dmitry Grigoriev & Alexey Zudin designed the lighting unit shown in Figure (6), which they called Alien Torcher. It is a design inspired by science fiction, where the shape is that of an alien creature standing on Earth, and the shape of this product is unusual, as the three legs are exaggerated in length. Its shape is



similar to a gelatinous liquid that can be transformed into any other shape. As for the blue inlays that top the design, they are like a means of communication with the mother base. The lighting that is fixed to the head from the inside reflects down to achieve the function for which the product was designed, and at the same time gives ambiguity to the upper part of the design. Well-polished wood material was used and painted in a single color to emphasize the shape and its unity and not disperse it, as if it was coming to fulfill a specific and targeted function, and this is completely consistent with the tasks given to alien creatures, which have long been depicted.



**Fig. 6. Cyborg Table Light by Karim Rachid**

**Source:**

<https://id.pinterest.com/pin/37541731894190532>

- ii) Figure 7, which depicts an orange juicer by designer Philippe Starck in 1990 AD, which he called Juicy Salif. It is a significant example of employing science fiction in product design. It captured the attention and preference of viewers as it was

displayed in several museums and galleries, including the Museum of Modern Art and the Museum of Modern Art. The Metropolitan Museum of Art in New York City, the Albert Museum in London, and the Museum of Fine Arts in Houston.



**Fig. 7. Juicy Salif by Philippe Starck (1990)**

**Source:**

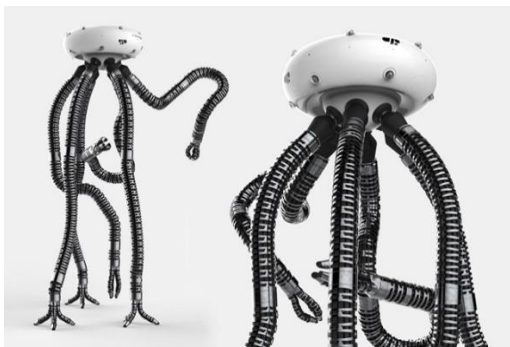
<https://id.pinterest.com/pin/14636767534473143>

The use of cast and polished aluminum was limited to manufacturing this product without adding any other material or paint. It was painted in one color, which is the color of the original material. The diameter of the product is 14 cm and its height is 29 cm. This design contains some errors and defects, whether in terms of design or implementation, as the aluminum material from which the design is made is susceptible to corrosion and thus the formation of a substance with a bitter taste, and the design is not easy to use. There are also sharp, unsafe points that can scratch and injure the user, and it cannot be washed in the dishwasher. It seems that the designer did not take into account all these defects, as his focus was on the formal aspect and the use of science fiction in it. The shape derived from alien creatures contains a conical



head with a sharp lower end, from which emerge three legs on which the product rests while standing. Serious, clear lines were used in the design.

iii) The Australian designer Chris Koch designed a multi-purpose robot used for harvesting fruits and vegetables, as well as cleaning beaches and forests through capture operations, which he called Hexapod Pro (Figure 8). Despite the nice function of this robot, it seems terrifying to many people. This robot consists of a head and six flexible arms. It has three flexible fingers on each arm to move smoothly even in difficult terrain. It also contains a camera and a sensor to enable you to pick up objects, including a pair of soft robotic grippers that are ideal for picking fruits tightly without damaging them.



**Fig. 8. Hexapod Prod by Chris Koch.**

**Source:**

<https://id.pinterest.com/pin/9851692928943061/>

From here we can say that the designer has invested his scientific imagination in designing products inspired by alien creatures, which have capabilities and powers advanced beyond what humans possess, as they are devoid of devices and processes of a physiological nature that are present in humans, such as the heart, lungs, digestive system...etc. The designer invests in these creatures some

of what design tools, elements, and principles provide him in order to convey the idea and the feeling he wants to arouse in the consumer. The reduction of materials, straight lines, one color, or a few attractive colors impresses in the consumer that this creature was created to carry out a specific task. Sometimes, making of these creatures are closely linked to the central and sometimes have freedom of movement

### **3.1. Indicators of the theoretical framework**

Based on the theoretical study, a group of indicators can be diagnosed that can be considered indicators of the theoretical framework.

1. Imagination is a characteristic that distinguishes humans from other creatures, while science fiction is a vision of future life and its vocabulary based on what science and development provide as a basis for that foundation. It has become extremely important for it to attract the attention of stakeholders because it offers solutions to the problems of living reality.
2. The designer uses science fiction with its two poles of knowledge and strangeness, and with its four conditions, which are observation, hypothesis, verification, and consistency.
3. The designer's investment in types of science fiction in the design of industrial products provokes different reactions that range from satisfaction, elation, and love to caution and apprehension.
4. The designer always turns to strange shapes that are far from the ordinary to capture the attention of the

consumer looking for pleasure and luxury more than functional requirements.

5. Designing creative products are unconventional products that have caught the attention of the recipient and combine originality, novelty and uniqueness.
6. The design of industrial products inspired by alien creatures was based on stripping them of devices and processes of a physiological nature.
7. The designer deliberately showed alien creatures in his designs as having capabilities and capabilities advanced beyond those possessed by humans, investing in that what the design tools, elements, and principles provided to him.
8. In his design of the alien creatures, the designer focused on stripping them of their senses and feelings to create the feeling that these creatures were created to carry out a specific mission/s without caring about anything else. Therefore, its design principles were as follows:
  - a. Reducing materials in the design, and sometimes the design is limited to one material
  - b. Reducing colors in the design, and sometimes the design is limited to one color
  - c. The lines are clear and bold
  - d. Close connection to the center or base and submission to its orders

**3.2. Research Community**

The researcher has chosen German cars as a community to this study as industrial product. After studying the community, he found that the cars continuing

production in the year 2023 consist of eight types, as shown in Table No. (3-1), next to which the age of the beginning of manufacturing is shown.

**Table 1. German cars continuing in production.**

No. Sequences	Name of company	Manufacturing age Company
1	Mercedes Benz	From 1886 until now
2	Opel	From 1898 until now
3	Audi	From 1910 to 1939, then back from 1965 until now
4	Maybach	From 1921 to 1941, then back from 2002 until now
5	BMW	From 1928 until now
6	Volkswagen	From 1936 until now
7	Porsche	From 1948 until now
8	Skoda	From 1997 until now

Source:  
[https://ar.wikipedia.org/wiki/germney\\_cars](https://ar.wikipedia.org/wiki/germney_cars)

**3.3. Research Sample**

The selective (non-probabilistic) method was adopted for the sample represented by the original research community, to select models that serve the goal of the study and are closest to achieving it, which are (3) out of a total of (8), meaning

(37.5%) of the research community, which were chosen according to the conditions. The following reasons:

1. It must be continuing in manufacturing at the present time
2. With a global and local reputation (Iraq)
3. It has futuristic designs inspired by science fiction
4. The researcher was able to obtain pictures of those proposed designs

Thus, the following models were chosen

1. Audi car
2. BMW car
3. Volkswagen car

### **3.4. Search Tool**

An analysis form in Appendix (1) was designed as a research tool to obtain the desired results. This form was based on the indicators that resulted from the theoretical framework, which represent a summary of the theories and topics that emerged from the theoretical framework related to the subject of the research study.

### **3.5. Validity of the Tool**

For the purpose of confirming the validity and comprehensiveness of the research study tool (analysis form), its validity was verified after presenting it to a group of experts\* to state their opinions on the validity of its paragraphs (valid, modified, invalid). The paragraphs were modified according to the experts' comments, and then returned to them. Again, the result is that its items are valid.

Thus, the questionnaire gained its apparent validity for the purposes of applying the analysis in this research study.

### **3.6. Tool Stability**

The stability of the tool is a basic condition for achieving the principle of confidence and objectivity in the study. Accordingly, external analysts were selected\*\*, and a method of consistency was followed among the analysts (by training them on how to apply the questionnaire paragraphs to one model, then comparing the percentages for each analyst separately with the percentages extracted by the researcher, then comparing the results of the analysts among themselves, Then, we apply the Cooper equation to determine the percentages of agreement and disagreement in the results, and this is done by calculating the reliability coefficient. The stability results were as follows:

\* Reliability rate between the first analyst and the researcher: - 88%.

\* Reliability rate between the second analyst and the researcher: - 86%.

\* Reliability rate between the first and second analyst: - 87%

Thus, the reliability coefficient between the first and second analysts and the researcher was 87%, which is a very good percentage that can be relied upon for using the tool. Table (3-2) shows the stability rates.

**Table 2. The Stability Rates.**

The reliability rate between the first analyst and the researcher	The reliability rate between the second analyst and the researcher	The reliability rate between the first and second analyst	Stability ratio rate
88%	86%	87%	87%

\*The expert committee included:

1. Dr. Jassim Ahmed Zidan / Industrial Design, College of Fine Arts / University of Baghdad
2. M. Dr. Ahmed Sultan / Industrial Design / College of Applied Arts / Middle Technical University

1. M. Dr. Hisham Zamel Hamdan / Industrial Design / College of Applied Arts / Central Technical University
2. M. Dr. Wissam Saleh Al-Moussawi/ Interior Design/ College of Applied Arts/ Central Technical University

\*\* The committee of external analysts included:

**Table 3. The Analysis Form.**

S	The headline subtitle	The subtitles		The brunches	The models		
					Model 1	Model 2	Model 3
1	Employing science fiction in the design of industrial products	The designer's investment in the types of science fiction in product design is matched by the recipient's reaction to the design	The recipient's reaction to the design				
				Love	x	✓	x
				Bliss	✓	x	x
				Satisfaction	x	✓	x
				Caution	✓	x	✓
		Apprehension	x	x	✓		
		Strange shapes attract the attention of the consumer looking for pleasure and luxury more than functional requirements.	Focus on function rather than form	x	✓	✓	
			Focus on form rather than function	✓	x	x	
		Creative design and originality	Originality	✓	✓	✓	
			Novelty	✓	✓	✓	

S	The headline subtitle	The subtitles	The brunches	The models		
			Uniqueness	✓	✓	✓
	Design anchors		Reducing colors	✗	✓	✓
			Reducing materials	✗	✓	✓
			Bold line	✗	✓	✓
			Contact with center	✗	✗	✗
	Designer had imploded the abstraction in products design		Abstract from the physiological	✓	✓	✓
			Abstract from feelings	✓	✓	✓

From this perspective we can see inclination of view towards product design:

1. The first model: a proposed BMW car

BMW is one of the leading companies in the automobile industry. The company designed this achievement with the optimism of launching it as a usable model in 2024, and experiments are now taking place on the ground and in the sky. In addition to BMW, a model developed by Boston-based Terrafugia is the TF-X. This car is built for urban environments and does not require a runway. This two-seater car is a flying car with foldable wings. Its speed is 300 miles on the ground and 500 miles in the air, as seen in Figure (9).



**Fig. 9. Terrafugia TF-X**

(<https://id.pinterest.com/pin/816136763738166493/>)

2. The second model: Volkswagen’s car proposed

Figure (10) shows the design of a flying car called a Hover Car designed by Volkswagen. This model was chosen out of 119,000 ideas that were submitted. It is a two-seater, emissions-free car that travels on electromagnetic road networks. And fly over the ground.



**Fig. 10. Hover Car Volkswagen**

(<https://id.pinterest.com/pin/5066618305366515/>)

3. The third model: Audi car proposed:

Audi describes its design as one that will permanently change urban life. Audi's flying car could "permanently change urban life" - the automaker is making a passenger drone. This design can also travel on the road and fly, but what distinguishes it when flying is the possibility of flying without a pilot. It has a 49-inch screen and can be interacted with using face and eye recognition functions, Figure (11).



**Fig. 11. Audi and Airbus taxi prototypes**

(<https://www.carscoops.com/2018/06/audi-allowed-test-flying-car-prototypes-ingolstadt-airspace/#lg=1&slide=1>)

Based on applying the analysis form to the research sample models, it was found that:

1. The recipient's reactions upon seeing a science fiction design were as follows:
  - a. The recipient's love for the design appeared in the second model only
  - b. Happiness was in the first model and only in proportion
  - c. Satisfaction appeared in the second model only
  - d. Caution: It turned out that caution was more present, as it appeared in the first and third models.
2. It was found that interest in form rather than function appeared in the second and third models, while interest in function rather than form appeared in the first model.
3. When discussing creativity in design, it was found that:
  - a. All models contain originality.
  - b. All models contain novelty.
  - c. Likewise, all models are characterized by uniqueness.
4. Regarding the design principles, it is clear that:
  - a. Reducing the time appeared in the second and third models
  - b. The reduction of raw materials also appeared in the second and third models
  - c. Likewise, the clear, bold lines are evident in the second and third models
  - d. As for the connection to the center, no indication of it appeared in the models
5. It turned out that all the models were stripped of their physiological functions by the designer.
6. It also became clear that all models were based on sensation and feelings.

#### 4. CONCLUSION

The designer's investment in science fiction genres and their use in product design was not matched by a clear reaction from the recipient towards those designs. From the above results, we



conclude that the recipient is more interested in pleasure and luxury than functionality in the case of employing strange shapes in the design of industrial products. Designs that originate from science fiction are considered creative designs because they contain the conditions for creative design. We conclude that industrial product designs based on practical imagination have their own foundations. Abstraction is the most

important characteristic of industrial product designs that originate from science fiction, as these products are designed to perform a specific task without paying attention to anything else.

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