

The Application of Cybernetics as a Communication System in Advertising Design

Doaa Farouk Badawy Eldesouky*

Faculty of Mass Communication, Modern University for Technology & Information (MTI), Cairo, Egypt

Abstract

Cybernetics is a branch of science which refers to a trans-disciplinary approach used to explore regulatory systems in terms of their structure, possibilities, and constraints. Through this paper the author explores cybernetics in advertising design by defining it and discussing its application in this business field. The main objective behind this study is to evaluate how cybernetics works or is applicable in designing visual advertising models. The key focus is thus the way businesses are able to use the science of cybernetics models to influence consumers through their buying behavior. Therefore, marketing and communication would be the control facet of this paper. A study of the scientific background is included as well. It entails how the various definitions of this powerful aspect of marketing communication in the form of interactive advertising were arrived at. Having checked the historical part of cybernetics, the paper addresses the communication and marketing concept about cybernetics in advertisement design. By reflecting on all the sections in this paper, it can be clarified that the communication models identified are more focused on consumer behavior than other aspects of marketing communication. Although the fundamental concept is that the created advertisement information is only handled between the consumer and the advertiser, cybernetics plays a role in advertising design by ensuring a more interactive approach of advertising.

Keywords: Cybernetics; Communication; Advertising; Design; Marketing.

1. Introduction

Cybernetics refers to a trans-disciplinary approach used to explore regulatory systems in terms of their structure, possibilities, and constraints. It is often applicable in studying mechanical, biological, physical, cognitive, as well as social systems. It is also applicable in simulation modeling, making it important in advertising design.

* Corresponding author.

2. Objective of the Research

This research paper explores cybernetics in advertising design by defining it and discussing its application in this business field. The main objective behind this study is to evaluate how cybernetics works or is applicable in designing visual advertising models.

3. Cybernetics as a Concept

The term *cybernetics* comes from the ancient Greek word *kybernetikos* (“good at steering”), referring to the art of the helmsman. The term was used by the American mathematician Norbert Wiener when he published his book *Cybernetics* in 1948. In that book Wiener made reference to an 1868 article by the British physicist James Clerk Maxwell on governors and pointed out that the term *governor* is derived, via Latin, from the same Greek word that gives rise to *cybernetics*. The date of Wiener’s publication is generally accepted as marking the birth of cybernetics as an independent science.

Wiener defined cybernetics as “the science of control and communications in the animal and machine.” This definition relates cybernetics closely with the theory of automatic control and also with physiology, particularly the physiology of the nervous system. For instance, a “controller” might be the human brain, which might receive signals from a “monitor” (the eyes) regarding the distance between a reaching hand and an object to be picked up. The information sent by the monitor to the controller is called feedback, and on the basis of this feedback the controller might issue instructions to bring the observed behavior (the reach of the hand) closer to the desired behavior (the picking up of the object). Indeed, some of the earliest work done in cybernetics was the study of control rules by which human action takes place, with the goal of constructing artificial limbs that could be tied in with the brain [1].

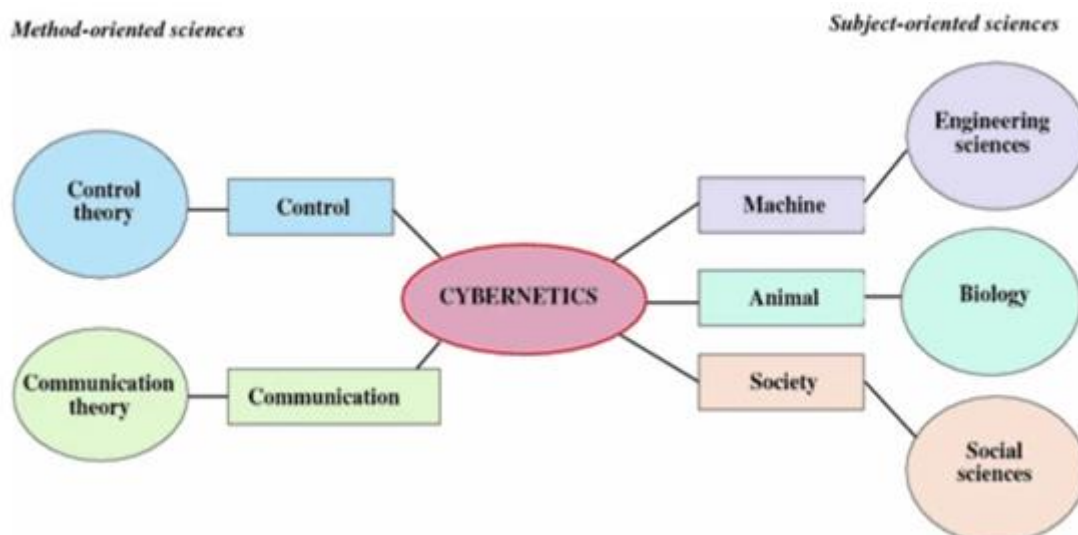


Figure 1: The phylogenesis of Wiener’s cybernetics.

Source: https://link.springer.com/chapter/10.1007/978-3-319-27397-6_1

The cybernetics of advertising design has been in application for relatively a long time. Nevertheless, it is today finding increasing favor among modern creative businesses. As such, the use of cybernetics in advertising is gradually replacing other traditional models of advertisement. Traditionally, advertising scholars have understood the advertising process as a linear relationship between brand, message, media, audience, effects and feedback), and interactions among these elements. In decades, advertising models have evolved to reflect a more nuanced understanding of the complicated, multidimensional process leading to multilevel and multicomponent models such as the association model and the revised communication model for advertising [6]. While the traditional advertisement design is only meant to simply send the advertising message to the target audience, the cybernetic model provides interactive exchange of messages with the audience [3].

Cybernetics in advertising designs also makes it possible for the audience to participate in various aspects of an advertising campaign. Instances of the most interactive forms of the advertisement make use of user-generated content in the expansion of the fundamental idea in a given campaign. The advent of technology including the increasing developments in modern technologies like smart devices, the internet, as well as social networking has made it easier for companies and their various brands to generate interactive messages with their customers as the targeted audience [5].

A typical instance of companies that have made use of cybernetics in the designing of interactive advertising messages is the Coca-Cola Company. The company attempted the same technology to promote one of its brands, Coke Zero. The company achieved its advertisement goals of promoting the product in collaboration with the sponsoring of a James Bond film known as “Skyfall”. In this regard, the advertising campaign design entailed a highly interactive vending machine that challenged participants to “Unlock the 007 in You.”



Figure 2: A snapshot of “Unlock the 007 in You” interactive advertising model.

Source: <https://www.youtube.com/watch?v=LMLSMxi99xk>

4. Cybernetics in Advertising Design: Scientific Background

Cybernetics in advertising is purely based on cybernetics and design. Norbert Wiener originally coined the term 'cybernetics' in 1948 towards the end of the World War II. During this time, some new phenomena had emerged in the field of design and they appeared complex, autonomous, and adaptive. In addition, the emerged phenomena were characterized by a common circular form of organization [4]. Typically, the cybernetics of design started even way before the nineteenth century. For instance, during a distant past about 400 BC, the Alex Andria Herod discovered an odd mechanism, which kept oil lamp flames stable. Later during the industrial revolution, a steam engine designed and made by James Watt depicted the same structural mechanism. The structure of the Watt's engine then managed to facilitate the fueling of the industrial revolution. With regard to this discovery, although cybernetics had not been identified as a science, the idea facilitated the introduction of servomechanism in industries, designing of target-seeking missiles within the military sector, as well as in solving various problems regarding the coordination of war efforts [6]. These aspects and the emergence of computation mechanisms required better words to figure them out. The pressure behind the need for scientific terminologies made Wiener define cybernetics as a science as he taught at the Massachusetts Institute of Technology (MIT). As such, cybernetics came to be defined as the science of communication and control.

Typically, the definition of cybernetics was directed at developing various theories as well as scientific laws that could help in explaining it. Essentially, the Macy Conferences further promoted cybernetics as a science of communication. As such, companies have increasingly used the science and theories of cybernetics to influence consumer behavior. Some authors have even claimed that the heart of cybernetics is circularity [10]. The aspect of 'circularity' in cybernetics concerns function or process - i.e., the descriptions and explanations applied in analyzing a systemic entity's dynamics, history, and evolution. This aspect provided the discursive focus for the early cybernetics meetings. More specifically, the earliest cybernetics discussions addressed the way in which the behavior of a systemic entity was best explained in terms of how the effects of its actions (i.e., 'outputs') circled back (i.e., as 'inputs') to influence that entity's state and its subsequent actions. It was this 'circular causality' which would come to be called 'feedback' - the cybernetics group's original self-ascribed topic and the single concept most frequently cited as illustrative of cybernetics thinking [6]. Besides, circularity is also the heart of modern business especially when it comes to marketing and consumer behavior. In this regard, cybernetics has come to be defined in simple terms as machine and human interactions. The definition of cybernetics by Wiener, however, was quite detained with the first-order cybernetics being defined as the cybernetics of the observed systems. He further defined the second-order cybernetics as that of observing systems. While the first-order cybernetics focuses much on the visual objects with which people have to interact, the second-order cybernetics is based on the theoretical concepts of social systems as well as the theory of interaction between the society and organization. The core ideology underlying cybernetics is thus it culminates the way people think about messages passed using interactive visuals as compared to the conventional messages. Although Wiener's ideas about cybernetics, initially, focused on science and engineering he later incorporated social systems to his ideas. This notion constitutes to the reason why cybernetics gained the basic definition of "the science of communication and control in machines, animals, and the human social systems [10]. It is undoubtedly that the use of cybernetics in design incorporates all aspects of life including technology according to the basic definition of Wiener (1954). Today cybernetics in advertising

design has grown tremendously. The growth of complex advertisement is depicted to have been growing as is even projected to grow further in 2017 and 2018 as depicted in the following statistical graph.

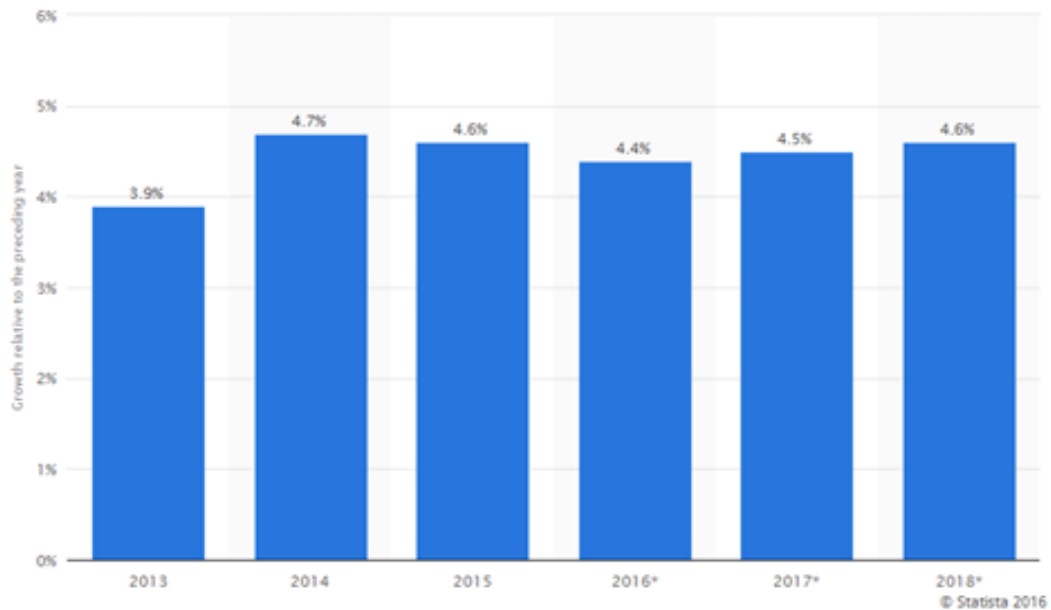


Figure 3: The growth of Cybernetics advertisement since 2013.

Source: <https://www.statista.com/statistics/272443/growth-of-advertising-spending-worldwide/>

In addition, the use of internet especially ads has also been growing significantly since 2013 as shown in figure 4.

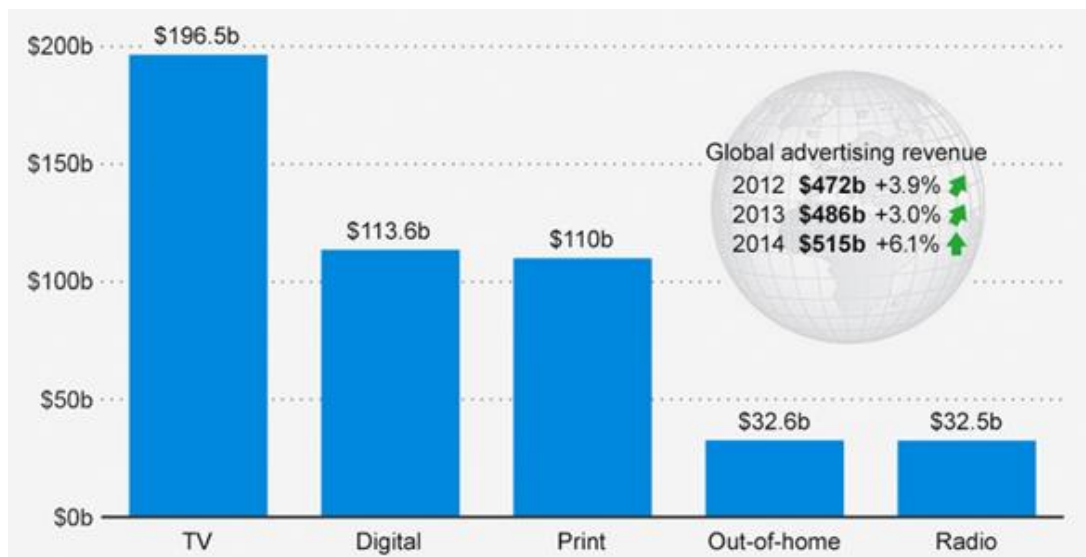


Figure 4: Revenues attributed to various advertisement media in 2013.

Source: <https://www.statista.com/chart/1188/global-advertising-forecast/>

The statistics from figure 4 above depicts that television advertisement channel is still leading in revenue and mostly because of the use of cybernetics to design the advertisement videos and commercials. Digital media such as the internet has overshadowed other media like radio and print thereby depicting the power of cybernetics.

5. Communication Concept of Cybernetics in Adverting Design

The communication aspect of cybernetics in advertising design is for companies to get the right feedback by understanding the role of consumer behavior models marketing communication. Typically, feedbacks from consumers play a key role in understanding the buying behavior as well as complaints from customers of a particular product. Wiener (1954) has given an advice to businesses that the quantity of information that organizations send to their target audience does not matter as much as the information quantity that ultimately penetrates in the communication channel and any storage apparatus when it comes to triggering an action. When designing an advertisement, the marketers are mostly concerned with the consumer behaviors rather than only what the consumers say about their willingness or intention to buy or even how strong the consumers may seem to like the advertisement. In this regard, Wiener seems to urge that the effectiveness of design of a given advertisement message can only be established by analyzing how the consumers react to the advisement.

The insight of language is highly crucial in emphasizing on consumer behaviors. A deeper level of communication is thus crucial in creating the maximum level of influence to consumer buying behaviors [9]. The level of communication in this regard should be able to show good transition in part from a semantic level and in part from any previous phonetic level of communication. Once an advertiser considers these levels of communication, he or she would be incorporating the consumer's experience consciously or unconsciously. The advertisement model would thus ensure that realistic actions depicted in the visual message can be observed externally, which happens due to the behavior level of language [10]. The Frankfort School model is the best model to explain this advertising design as an outcome of cybernetics.

In the Frankfort School model, the advertiser perceives consumers as considerably passive recipients of the advertising information. The model is even facilitated by the feedback to the companies from the various consumers receiving the message. Circularity has been considered in this paper as the heart of cybernetics. In this case, the Frankfort School model, if applied in the cybernetics design of the advertisement would ensure circularity. Nevertheless, cybernetics application in designing an advertisement ensures that the advertisement message is mainly directed to the consumer from the organization. To enrich its applicability, inclusion of the Gratification Theory has also been included in designing advertisements using cybernetics technologies. Gratification in this regard facilitates a higher level of consumer interaction with the advertising medium. The internet provides one of the best examples of the use of Gratification Theory technics to enrich the cybernetics design of advertisements. Other cases involved have the advertisement message well visualized on the machines that the consumers are using to obtain the products. Vending machines like the case of the Coca-Cola Company products provides the best example in this case. The vender machine makes consumers have a good experience, which the consumers have already gained experience through visual advertisement especially from mass media or online videos from various online social sites like Facebook and YouTube among others [5].

Although the internet provides a reliable platform form cybernetics designed advertisement, the message is always centered to the entire advertisement process. Essentially, the marketing is centered on the advertisement message. The key considerations thus include an understanding of what the advertisement designed has to include and the description to make about the product or service being advertised by the marketer. As well, it should include a clear knowledge on how best the words describing the product should be sent to increase the possibility of convincing consumers that they need the product or service [4]. The implication in this section is that the communication is one of the aspects of consideration when designing an advertisement using the science/ technology of cybernetics. The communication is crucial because provides the best way forwards convincing the consumer to buy or like a product or service.

6. The Marketing Concept

Cybernetics in marketing facilitates feedback from consumers as well as circularity. Wiener’s concept of marketing and cybernetics in designing advertisements insists on circularity the central focus of cybernetics in general even in his concepts of controlling systems through reinserting the past performance results of the systems into the current systems. The baseline in the marketing concept of cybernetics in advertising design is that cybernetics is the basis of marketing models [5]. The concept has been in use for over a century even before the advent of today’s sophisticated visual and communication technologies, which every company is increasingly adapting to boost market competitiveness. The marketing aspect of cybernetics in advertising design is not vastly different from the communication concept because the basic aspect is passing influential information from a company to its consumers. An example is the ‘One Copy Song’ cybernetic advertisement design in figure 5 below:



Figure 5: ‘One Copy Song’ cybernetic advertisement.

A cybernetic advertisement was designed by Adam Tensta to promote his latest singles. The same is depicted in the following advertisement in which there seems to be a direct interaction between the user and the graphics in the ad.



Figure 6: Depiction of 3D under interaction in an advertisement.

From figure 5 and figure 6 above, user interaction seems to have been enhanced by the advertisement design. Nevertheless, knowing the needs of every consumer requires the organization to pass the right information between the consumer and the company.

Although advertisement focuses on reaching the consumers to inform them about the existence of a product or service and its features, the company should also seek to understand the needs and experience of the consumers. As such, information should also be drawn from the consumers using an effective communication channel. Besides, the organization also needs to keep the right track of information from the consumers to establish which products are selling and which are hardly selling as expected.

The decision-making process is now a circular journey with four phases: initial consideration; active evaluation, or the process of researching potential purchases; closure, when consumers buy brands; and post-purchase, when consumers experience them [2].

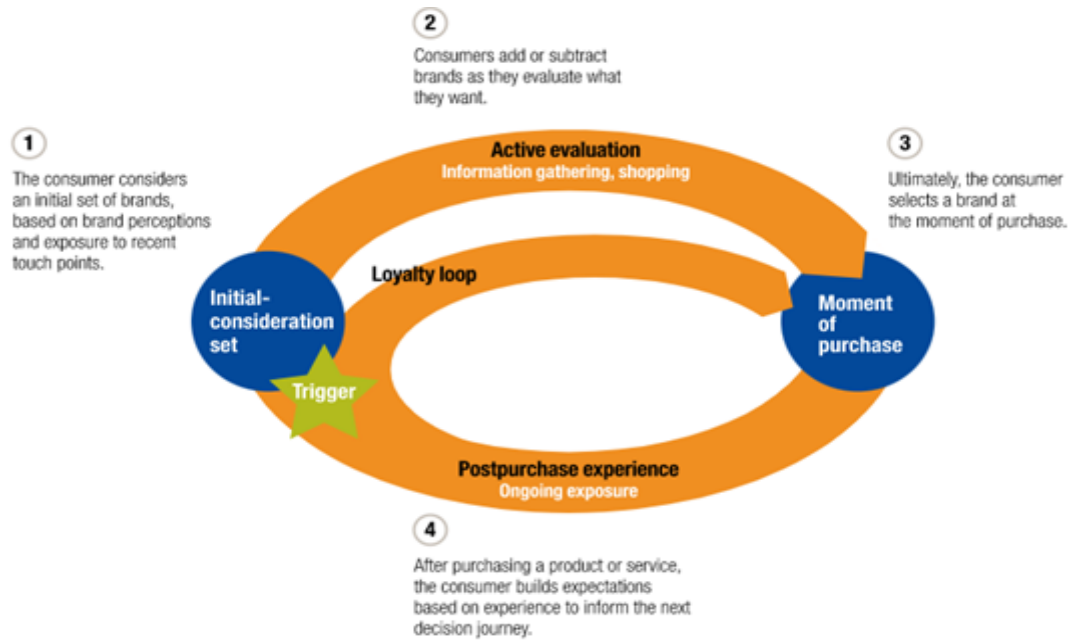


Figure 7: The decision Making Process.

Source:<https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/the-consumer-decision-journey>

This aspect is depicted in the cybernetics advertisement designed by Gillette Company to promote its products. Other than creating an appealing advertisement, it allows consumers to share their experiences via Facebook. The design makes it possible for the organization to get a rough estimate of consumers who viewed the advertisements and shared their experiences.



Figure 8: Cybernetics advertisement design by Gillette.

Another example using cybernetics in advertising design is the Nike's Led Running Track in figure 9, which was designed by Nike, as the sick activation is part of Nike's latest shoe launch. Even non-runners will be into this track that lets you compete against yourself. A totally interactive experience created by Nike that promotes its products and highlights its collaboration in the consumers' social life.



Figure 9: Nike's Led Running Track.

The last example is directly linked to the internet in which internet users can click on website templates to create easy websites at a fee as shown in figure 10.

From this advertisement, users find it appealing because having a similar site in appearance would be highly impressive to visitors. Instructions on how to customize it are also provided including user feedback and sharing (circulatory) options through social media platforms.



Figure 10: Website template showing an instance of cybernetics in advertising design.

Source: <http://www.os-templates.com/premium-website-templates/transform>

The need for feedback from customers is even more crucial whenever it comes to the production and sale of new products in the existing market or in a new market.

Typically, successful advertising efforts may not be linked directly to the volume of sales. Nonetheless, firms always opt to disregard this perception and focus more on effective advertising techniques that could trigger increased sales volumes. Such form of advertisement designs is typically the one that give room for communication circularity as well as feedback from consumers.

The reason behind the choice of an advertising model that ensures consumer feedback and circularity by many companies is to ensure marketing efforts and strategies that are highly predictable.

Cybernetics has come as the way forward towards achieving this marketing goal because it allows advertisement designers design an advertisement message that allows interactive communication through feedback exchanges between an organization and its product consumers [5].

7. Conclusion & Discussion

Cybernetics has increasingly become a fundamental designing tool for advertisements as organizations today use the concepts of cybernetics in modeling the most effective communication messages to foster advertisements that could generate the highest level of influence possible to consumer behavior. The use of cybernetics in advertising design has made many companies achieve success even in the most complex marketing situations through effective decision-making processes, communication, and collaborations between organizations and their consumers. All these achievements are realized through the application of models of cybernetics because they have proven to be powerful tool for aiding marketers understand the design processes of even the most complex advertisement visual or communications.

Models of cybernetics ensure effective communication models through excellent advertising visuals and platforms that not only influence the buying behavior of consumers or their perception towards a particular product or service but also ensure close communication exchange between consumers and the advertisers. For instance, the internet has currently been adopted by most companies as the most effective platforms through which to make products and services known to consumers. Besides, these organizations also receive adequate feedbacks from consumers, which enable the companies to understand the various needs of its consumers.

The use of cybernetics in designing advertisements also ensures that advertisements and the presented messages through a particular media platform convey a mixture of user experiences and the correct information about the products. An advertisement that creates a direct consumer involvement makes it easier for the audience to understand the message better as compared to a case where the conventional modes of communication are used.

Reflecting on all the previous sections in this paper, it can be clarified that the communication models identified are more focused on consumer behavior than other aspects of marketing communication. Although the fundamental concept is that the created advertisement information is only handled between the consumer and the advertiser, cybernetics plays a role in advertising design by ensuring a more interactive approach of advertising. In this regard, companies strive to create highly appealing advertisement visual messages, which make consumers feel a part of the message because their general experiences have been incorporated. In simple terms, the advertisement design makes the message conveyed appear real to most of the audience.

Although making it real is the primary goal of utilizing cybernetics to design advertisement messages and visuals, successful organization makes some steps further to know their consumers' experiences. The implication in this case is that companies should not only relax after taking the advantage of cybernet applications to design excellently appealing adverts. They should also make use of the best communication channels to direct the advertisement message to the largest number of targeted audience possible. Conventional channels like the use of mass media (i.e. television) still prove to be effective ways of passing such messages. However, it might be difficult for the company to utilize the cybernetics concept of feedbacks and circularity.

As such, better channels of communication characterized by interactive communication are more suited to organizations that want to achieve the full benefits of cybernetics. The internet provides various communication

platforms including live streaming and social networking on which consumers can communicate back about their user experiences and, if possible, recommend on viable changes to a product or service they have consumed previously.

References

- [1] Britannica, Internet: <https://www.britannica.com/science/cybernetics>. Dec. 30, 2022, [Jan. 26, 2023]
- [2] Court D. & Others, The Consumer Decision Journey, Mckensey & Company 1996-2023, <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/the-consumer-decision-journey>, June 9, 2009 [Jan. 25, 2023]
- [3] Dupuy, J.-P. (1986), The Autonomy of Social Reality: on the contribution of systems theory to the theory of society, In E. L. Khalil, & K. E. eds., Evolution, Order and Complexity. Abingdon-on-Thames: Routledge.
- [4] Krippendorff, K. (2007). The Cybernetics of Design and the Design of Cybernetics, *Kybernetes*, 36(9/10), 1381-1392.
- [5] Miles, C. (2007). A Cybernetic Communication Model for Advertising, *Journal of Marketing Theory*, 7(4), 307-334.
- [6] Stern, B. (2013), A Revised Communication Model for Advertising: Multiple Dimensions of the Source, the Message, and the Recipient, *Journal of Advertising* 23(2), 5-15.
- [7] The Gaze, Cybernetic Advertising, from Quietly Disruptive: <https://quietlydisruptive.wordpress.com/2013/02/21/cybernetic-advertising/>, Feb. 21, 2013 [October 10, 2016]
- [8] Whitaker R., Foundations, The Subject of Cybernetics, <https://asc-cybernetics.org/foundations/history/prehistory7.htm>, March 2003, [Jan. 25 2023]
- [9] Wiener, N. (1948), *Cybernetics or Control and Communication in the Animal and the Machine*, MIT Press.
- [10] Wiener, N. (1954), *The Human Use of Human Beings: Cybernetics and Society*, New York: Capo Press.