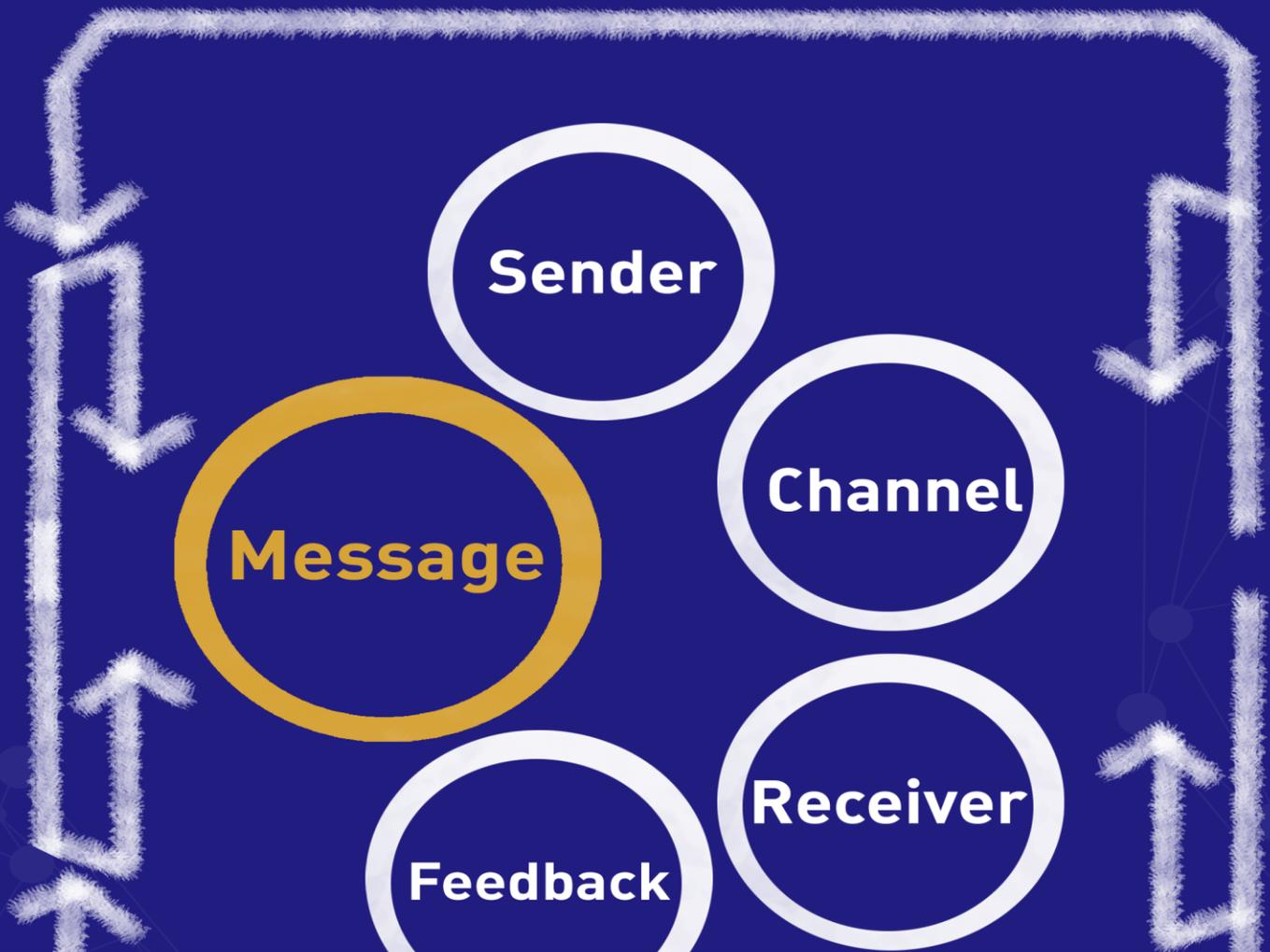


# Abdulzaher Artificial Intelligence (AI) Journalism Model of Communication



## Mohamed Abdulzaher's Artificial Intelligence Journalism Model of Communication

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# Mohamed Abdulzaher's Artificial intelligence Journalism (AI) Model of Communication (July 2020)

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## First: Definition of Artificial Intelligence Journalism:

Earlier, I have coined what was meant first by the term "**Artificial Intelligence Journalism**" in several academic articles, as well as in the my book entitled "**Artificial Intelligence Journalism**, the Fourth Industrial Revolution and Media Restructuring" in both Arabic and English languages.(1)

"**Artificial Intelligence Journalism**" as a concept denotes the new media revolution in parallel with technologies of the Fourth Industrial Revolution, where mass media shift from the old traditional methods in transferring and broadcasting of media content to the Fourth Industrial Revolutions' tools and artificial intelligence including "robot, 3D printer, high speed satellites, at no cost. As the speed of the internet crosses the line of a thousand megabytes, use of D3 imaging cameras, in a clear and more comprehensive than to be seen by the naked eye, plus thousands of robots that cover events witnessed by the most perilous places.

The concept of **Artificial Intelligence Journalism** counts on the extent of prevalence and use of all technologies of the Fourth Industrial Revolution in all media process stages, starting from content preparation and reviewing, passing by broadcasting of media messages, and ending by reviewing impact and feedback.

"Robot Journalism" is a part of Artificial Intelligence Journalism, which is broader and more inclusive than to be limited to the tasks that are performed by robots to assist humans.

It can be said that there are many tools that the Fourth Industrial Revolution will provide that plays an essential role in formulating the concept of Artificial Intelligence Journalism that does not rely on the "robot" only, but rather, it is considered as a material part of such different tools.

1-Dr. Mohamed Abdulzاهر, Artificial Intelligence Journalism: The 4IR and Media Restructuring, Dubai, UAE, Artificial Intelligence Journalism for Research and Forecasting (AIJRF), first edition, September 2019.

However, there are many other technologies that the Fourth Industrial Revolution will provide such as: (Internet of Things' platforms, high-resolution mobiles, location detection technology, advanced human-machine interaction, documentation and cheat detection, 3D printing. As well as smart sensors, big data analysis, advanced algorithms, multi-level interaction with customers, information collection methods, augmented reality/wearables, Blockchain Technology), and each of these technologies has great roles in pushing AI Journalism forward.

In short, there is a big difference between the concept of artificial intelligence, robot and data journalism.

There is no point that any study could present the concept without providing the right tools within mass media to which any kind of scientific studies applied. The concept of Artificial Intelligence Journalism is not applied in any media organization, without counting on one of the Fourth Industrial Revolution's technologies in its pursuit to obtain the content of the messages presented to the targeted audience, transfer or broadcast the content by any means of Fourth Industrial Revolution's technologies.

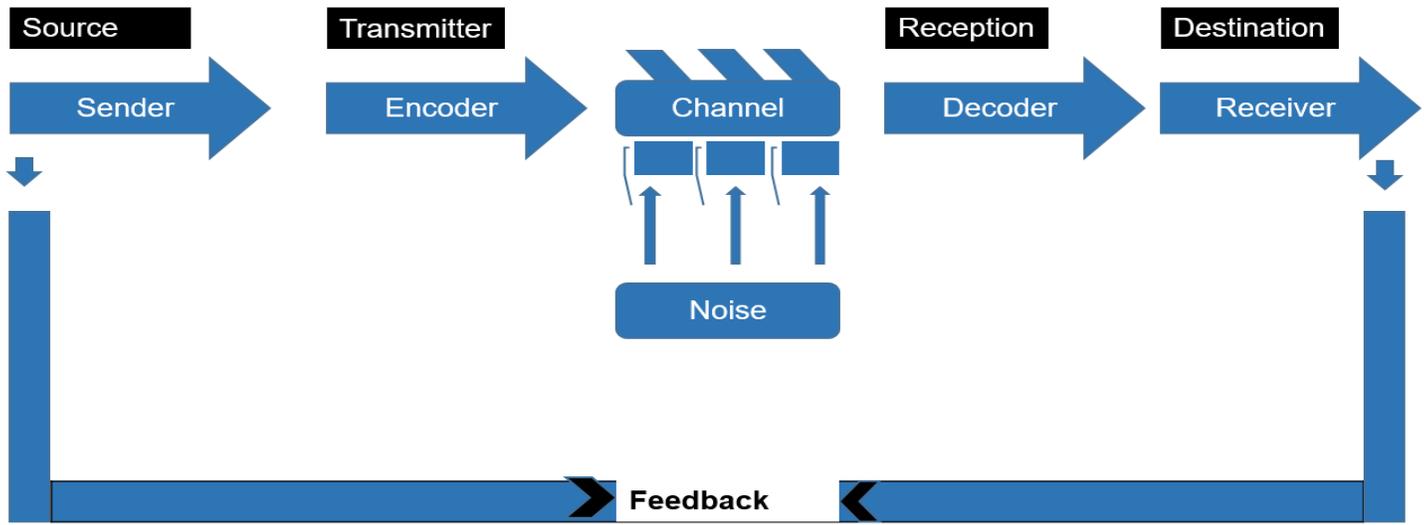
To learn more about the concept of Artificial Intelligence Journalism and its new tools, kindly see the book:” Artificial Intelligence Journalism, the Fourth Industrial Revolution and Media Restructuring.”

## **Second: How Artificial Intelligence Journalism impacts the elements of media or communication process:**

The elements of media and communication science in traditional media are “(sender), mass media, message (content), the public and finally feedback or comment as well as the impact of such messages.”(2)

According to the traditional model developed by Claude Shannon and Warren Weaver over than 50 years ago, the communication process is carried out in a horizontal form from the sender via the channel to the receiver, from which an effect or reaction may emerge as shown below:

2- Shannon and Weaver Model of Communication, Communication Theory  
[/https://www.communicationtheory.org/shannon-and-weaver-model-of-communication](https://www.communicationtheory.org/shannon-and-weaver-model-of-communication)



Shannon- Waver's Model of Communication

Shannon's model also rests on successive steps in communication that begin with a "source of information" or the "sender" who produces a message or a series of communication messages. Then, it moves to the second step, i.e. the method of transmitting the communication message by signals to broadcasters or senders, in a manner that makes it adequate and eligible to reach the third step i.e., from the channel to the receiver, then the message is transmitted to the "receiver" eventually.

Several models of communication process have also been developed, including:

- Lasweus Model of Communication 1946
- Ross Model 1965 .
- David Berlo's Model of Communication 1960.

Notwithstanding, the matter differs in "AI Journalism" or what we might call the model of communication associated with Artificial Intelligence (AI).

• **Types of Communication Model**

There are three general types of communication models in which all other communication models are mostly categorized.(3)

3- Models of Communication," in *Businessstopia*, February 4, 2018, <https://www.businessstopia.net/communication>

## 1- Linear Model of Communication

Linear model of communication is a simple one way communication model. The message flows in a straight line from sender to the receiver. There is no concept of feedback. The only task that a receiver does here is to receive the message. Different models that follow linear model of communication are:.

- Lasswell's Model
- Aristotle's Model
- Shannon Weaver Model
- Berlo's S-M-C-R Model

## 2- Transactional Model of Communication

In transactional model, senders and receivers both are known as communicators and both play equally important role in communication. Transactional model relates communication with social reality, cultural up-bringing and relational context (relationships). Non-verbal feedback like gestures, body language, is also considered as feedback in this model. Different models that follow transactional model of communication are:

- Barnlund's Transactional Model
- Helical Model
- Becker's Mosaic Model

## 3- Interactive Model of Communication

Interactive model or convergence model is similar to transactional model as they are both two way communication model. But, interactive model is mostly used for new media like internet. Here, people can respond to any mass communications like videos, news, etc. People can exchange their views and ideas. Different models that follow interactive model of communication is:

- Schramm's Interactive Model

### Third: Mass Communication Concept and Debates

The term 'mass communication' came into use in the late 1930s, but its essential features were already well known and have not really changed since, even if the media themselves have in some ways become less massive. Early mass media were quite diverse in their scale and conditions of operation. For instance, popular films could be seen in village tents as well as metropolitan picture palaces. The newspaper press ranged from popular city dailies to small local weeklies.(4)

The most obvious feature of the mass media is that they are designed to reach the many. Potential audiences are viewed as large aggregates of more or less anonymous consumers, and the relationship between sender and receiver is affected accordingly.

It is important to note that such large aggregates of people as audiences for the messages of mass media do not preclude social or otherwise meaningful connections and experiences (Freidson, 1953). The 'sender' is often the organization itself or a professional communicator (journalist, presenter, producer, entertainer, etc.) whom it employs. If not this, it is another voice of society given or sold access to media channels (advertiser, politician, preacher, advocate of a cause, etc.). A fascinating feature of the contemporary media environment is how the term 'mass' can refer is a social as well as a physical distance between sender and receiver. The former usually has more authority, prestige or expertise than the latter. (5)

One should not mistake all this mass self-communication, by which the receiver becomes the sender, to mean that control has shifted towards the audience. Indeed, as Terranova (2000) noted early on, the contributions people make to social (and other online) media primarily amount to 'free labour' in the service of the corporations that run such platforms.

The relationship is not only asymmetrical, it is often calculative or manipulative in intention. It is essentially non-moral, based on a service promised or asked for in some unwritten contract with no mutual obligation. Online, such contracts take the form of End-User Licensing Agreements that we all have to electronically sign (sometimes over and over again) when using any kind of online service, software or platform.(6)

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4- Denis McQuail and Mark Deuze, McQuail's Media and Mass Communication Theory, P 96, 7th Edition, SAGE, 2020.

5- Op. cit, P 97.

6- 3- Op. cit, P 97.

## Old Debates

According to Denis McQuail the original definition of mass communication as a process depended on objective features of mass production, reproduction and distribution which were shared by several different media. It was very much a technologically and organizationally based definition, subordinating human considerations.

Its validity has long been social and technological change. We have to consider alternative, though not necessarily inconsistent, models (representations) of the process of public communication. At least four such models can be distinguished in the history of media and mass communication theory and research.

The discussion of these different models shows the inadequacy of any single concept or definition of mass communication that relies too heavily on what seem to be intrinsic characteristics or biases of the technology of multiple reproduction and dissemination. The human uses of technology are much more diverse and more determinant than was once assumed, and the technologies themselves are equally varied and complex.

Of the four models summarized in comparative terms, the transmission model is largely taken from older institutional contexts – education, religion, government – and is really appropriate only to media activities that are instructional, strictly (one-way) informational or propagandist in purpose.(7)

Denis McQuail and Mark Deuze have summarized four models of communication, as flowing :(8)

- 1- A transmission model
- 2- A ritual or expressive model
- 3- Encoding and decoding of media discourse: a reception model
- 4- Communication as display and attention: a publicity model

**The transmission model** is largely taken from older institutional contexts – education, religion, government – and is really appropriate only to media activities that are instructional, strictly (one-way) informational or propagandist in purpose.

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7-Op. cit, P 126.

8-Op. cit, P 127

The discussion of these different models shows the inadequacy of any single concept or definition of mass communication that relies too heavily on what seem to be intrinsic characteristics or biases of the technology of multiple reproduction and dissemination. The human uses of technology are much more diverse and more determinant than was once assumed, and the technologies themselves are equally varied and complex.

**The expressive or ritual model**, while originating in the study of art, drama and entertainment and the many symbolic uses of communication, is particularly useful when interpreting the phatic communication culture of the Internet. It also applies to the many new audience participant and ‘reality’ media formats.

**The publicity or display–attention model** reflects the central media goals of attracting audiences (high ratings and wide reach) for purposes of prestige or income. It covers that large sector of media activity that is engaged in advertising or public relations, directly or indirectly. It also applies to activities of news management and media ‘spin’ carried out by governments and other political actors in their own self-interest.

The reception model reminds us that the seeming power of the media to mould, express or capture is partly illusory since the audience in the end disposes.

**The publicity and reception models** can be seen as specifications of the transmission and ritual models of communication, in that they acknowledge some key dynamics of the media industry and the way institutions use (and think about) mass media. As shown in the table below:

Model	Orientation of	
	Sender	Receiver
Transmission model	Transfer of meaning	Cognitive processing
Ritual or Expressive Model	Performance	Consummation / shared experiences
Publicity Model	Compleitive Display	Attention-giving spectatorship
Reception model	Preferential encoding	Differential decoding / construction of meaning

## Recent Trends and Debates

### 1- Technological Innovations

That new media studies has earned a place as a branch of communication theory also rests on claims that traditional media environments have been challenged not simply by technological innovations, but at an ecological level, consisting of substantial, qualitative changes rather than incremental developments to media environments. From Medium Theory to the Second Media Age One of the first such claims about substantial change due to media was made by Marshall McLuhan, inventor of the term media, in *Electronic Revolution: Electronic Effects of New Media*, an address to members of the American Association for Higher Education in Chicago (and later reprinted in his book, *Electronic Revolution*).<sup>(9)</sup>

McLuhan argued that the effects of the electronic revolution in 1950s America were so great as to make educators displaced persons living in a world that has little to do with the one in which they grew up. For McLuhan, this revolution produced classrooms without walls as telecommunications and television brought a simultaneous information structure to electronic society. McLuhan's formulations in the 1950s were to become prophetic for Internet Utopians in the 1990s, who proclaimed that McLuhan's time had finally arrived with the inception of instantaneous information provided by the Internet. The editors of *Wired* magazine went so far as to say that McLuhan was wired long before the editors of *Wired* magazine were born. However, despite attempts to reclaim McLuhan for Internet studies (Paul Levinson's work is an example), there is little in McLuhan's work that deals with the kind of revolution in electronic media that is claimed by new media theorists today, a revolution which is the shift from broadcast to networked forms of electronic media.

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9- Mark Poster, *The Second Media Age*, Wiley, 1995..

## 2- Media Theories and Major Issues

Jack Lule (10) has discussed some of the debates over media theories and models, where he has lighted some major issues such as:

### **Problems With Methodology and Theory**

Although the use of advanced methodologies can resolve many of the questions raised about various theories, the fact remains that the use of these theories in public debate generally follows a broader understanding.

For example, if a hypothetical study found that convicted violent offenders had aggressive feelings after playing the video game Doom, many would take this as proof that video games cause violent acts without considering other possible explanations. Often, the nuances of these studies are lost when they enter the public arena.

### **Active versus Passive Audience**

A significant division among media studies theorists is the belief that audiences are passive or active.

**A passive audience**, in the most extreme statement of this position, passively accepts the messages that media send it.

**An active audience**, on the other hand, is fully aware of media messages and makes informed decisions about how to process and interact with media.

Newer trends in media studies have attempted to develop a more complex view of media audiences than the active versus passive debate affords, but in the public sphere, this opposition frames many of the debates about media influence (Heath & Bryant, 2000).

### **Arguments against Agenda-Setting Theory**

A number of criticisms have dogged agenda-setting theory. Chief among these is that agenda-setting studies are unable to prove cause and effect; essentially, no one has truly shown that the media agenda sets the public agenda and not the other way around. An agenda-setting study could connect the prevalence of a topic in the media with later changes in public policy and may conclude that the media set this agenda. However, policy makers and lobbyists often conduct public relations efforts to encourage the creation of certain policies

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10- Jack Lule ,Understanding Media and Culture: An Introduction to Mass Communication, University of Minnesota Libraries publishing edition 2016., p 80-81.

In addition, public concern over issues generates media coverage as well, making it difficult to tell if the media is responding to public desire for coverage of an issue or if it is pushing an issue on its own agenda (Kwansah-Aidoo, 2005).

### **Arguments Against Uses and Gratifications Theory**

The general presuppositions of the uses and gratifications theory have drawn criticism. By assuming that media fulfill a functional purpose in an individual's life, the uses and gratifications theory implicitly justifies and reaffirms the place of media in the public sphere. Furthermore, because it focuses on personal, psychological aspects of media, the theory cannot question whether media is artificially imposed on an individual.

### **Arguments Against Spiral of Silence Theory**

Although many regard the spiral of silence theory as useful when applying its broadest principles, it is weak when dealing with specifics. For example, the phenomenon of the spiral of silence is most visible in individuals who are fearful of social isolation. Those who are less fearful are less likely to be silent if public opinion turns against them. Nonconformists contradict the claims of the spiral of silence theory.

Critics have also pointed out that the spiral of silence theory relies heavily on the values of various cultural groups.

### **Arguments Against Cultivation Analysis Theory**

Critics have faulted cultivation analysis theory for relying too heavily on a broad definition of violence.

Detractors argue that because violence means different things to different subgroups and individuals, any claim that a clear message of violence could be understood in the same way by an entire culture is false.

This critique would necessarily extend to other studies involving cultivation analysis. Different people understand media messages in varying ways, so broad claims can be problematic. Cultivation analysis is still an important part of media studies, but critics have questioned its unqualified validity as a theory (Shanahan & Morgan, 1999).

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10- Jack Lule ,Understanding Media and Culture: An Introduction to Mass Communication, University of Minnesota Libraries publishing edition 2016., p 80-81.

## Fourth: Mohamed Abdulzاهر Artificial Intelligence Journalism Model of Communication (AIJMC) - (Figure No.1)

- The main assumptions in "Artificial Intelligence Journalism Model of Communication "(AIJMC):

**1- Artificial Intelligence's communication model relies on application of a continuous, interactive, circular and reciprocal technique to the message (the content) in which each element of the communication process, otherwise the message, carries out other elements' tasks equally in message transmitting.**

All elements of the communication process in the Artificial Intelligence Journalism Model of Communication are performing a continuous, direct, circular and interactive role, whether in presence of humans or otherwise and can be replaced by one of technologies of artificial intelligence journalism and Fourth Industrial Revolution.

**For example**, the sender sometimes performs the role of the channel, which sometimes performs role of the receiver that may perform the role of the sender as well (in a tight reciprocal form).

**For example:**

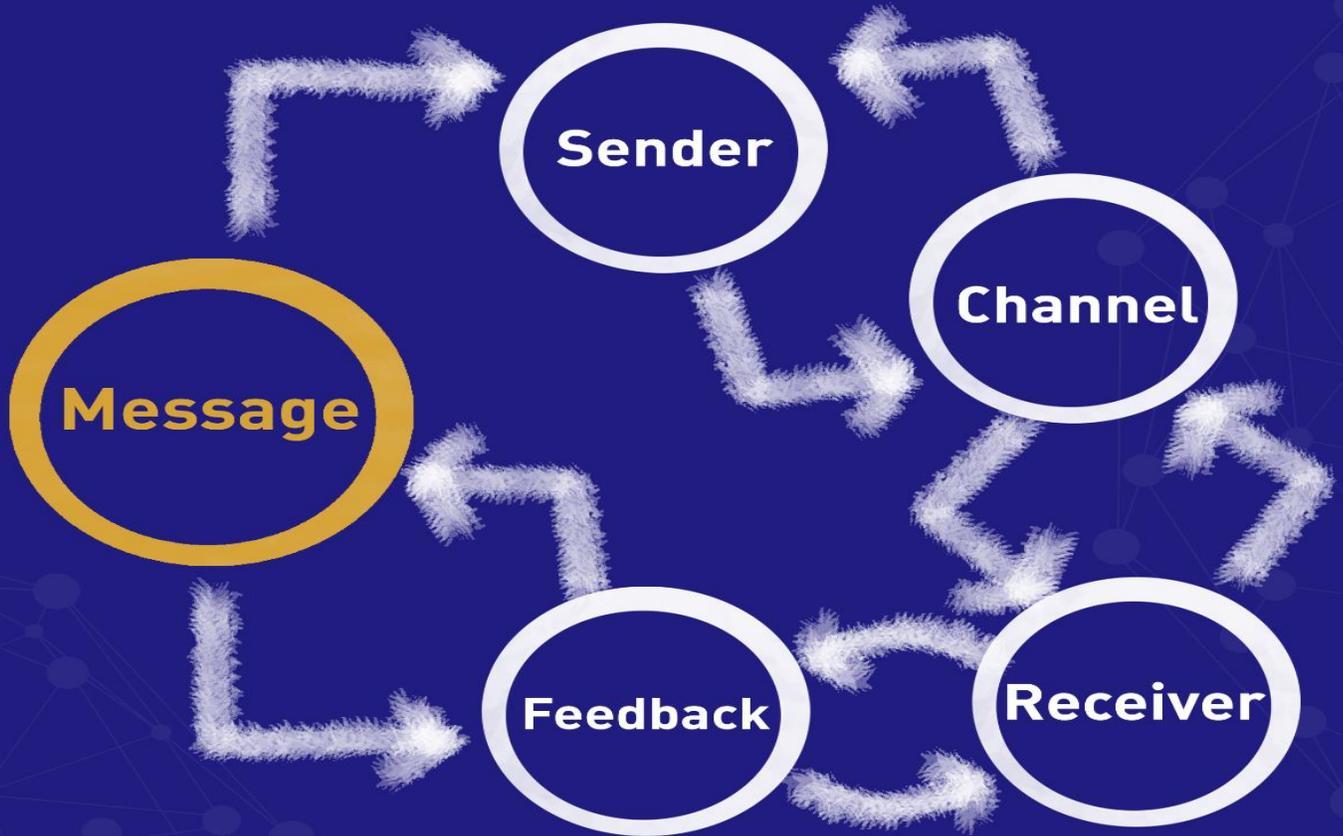
The robot programmed to deliver a specific message (news or advertisement) is considered a sender and at the same time a means of communication to the public, which may turn into a "recipient" that should be updated and programmed with new media messages and content.

**2. Communication process depends on AI technologies solely, without human intervention, and sometimes caused by human intervention when it comes to communication process objectives' preparation, but it does not require human intervention to be completed in all stages.**

For example: In case a specific communication process that relies on analysis of "big data" on a certain topic is approved, for example: "the number of coronavirus infections, causes, and health care globally". As the media relies on artificial intelligence technologies in analyzing that big data for several days, here results show up, and the mechanism, can be broadcasted automatically via open data platforms or cameras and methods of transmission use AI technologies directly.

Communication process is performed entirely, without human intervention, otherwise when it comes to setting of primary goals only.

# Abdulzaher Artificial Intelligence (AI) Journalism Model of Communication



**Artificial intelligence (AI) Model of Communication**  
The message is in the central of the model  
and the communication processes are in in continuous  
interactive and circular ways  
All roles are flexible and changeable

**(Figure No.1)**

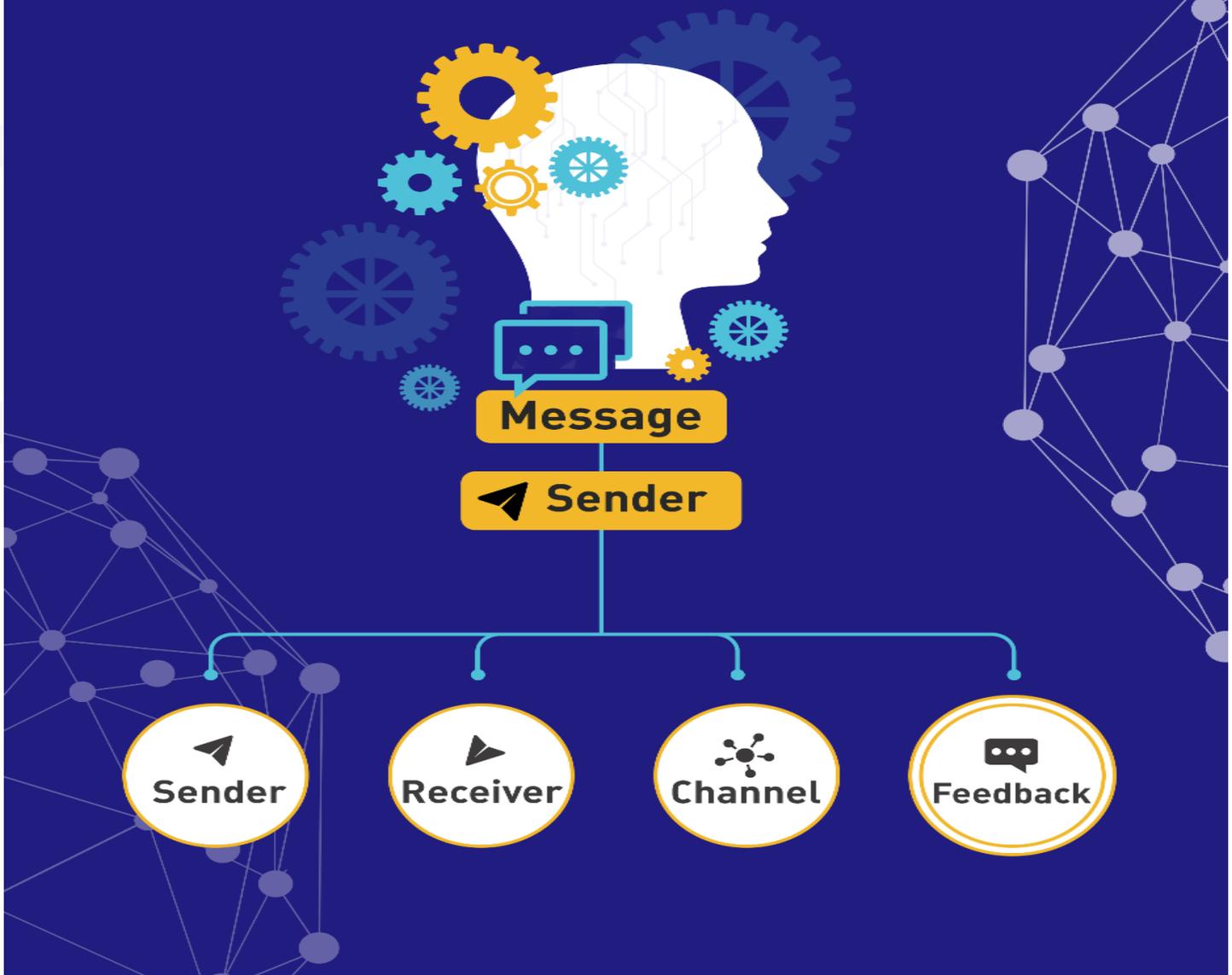
## **Fifth:: Roles of all elements involved in the communication process in the Artificial Intelligence Journalism model of Communication”**

### **1- The Role performed by the Sender (Figure No.2)**

The sender in AI Journalism is assigned to carry out the following:

- 1- Creating an appropriate communication environment compatible with the targeted audience and the content that is to be delivered.
- 2 - Managing the peak of the communication process in terms of controlling content nature and electing the media used, or relying on itself to deliver the message "if the sender is a robot."
- 3- Receipt, exchange and analyze information and big data received from various technological means and tools; and this is for the purpose of understanding nature of the targeted audience, as well as translating them into media messages that are appropriate for each medium.
- 4- The sender performs the role of information receiver and assumes the role of the channel in transmission, the role of the person who provides feedback and comments, according to the figure shown below:

# Abdulzaher Artificial Intelligence (AI) Journalism Model of Communication (Roles of the sender)



(Figure No.2)

## **2- The Role performed by the Receiver: (Figure No.3)**

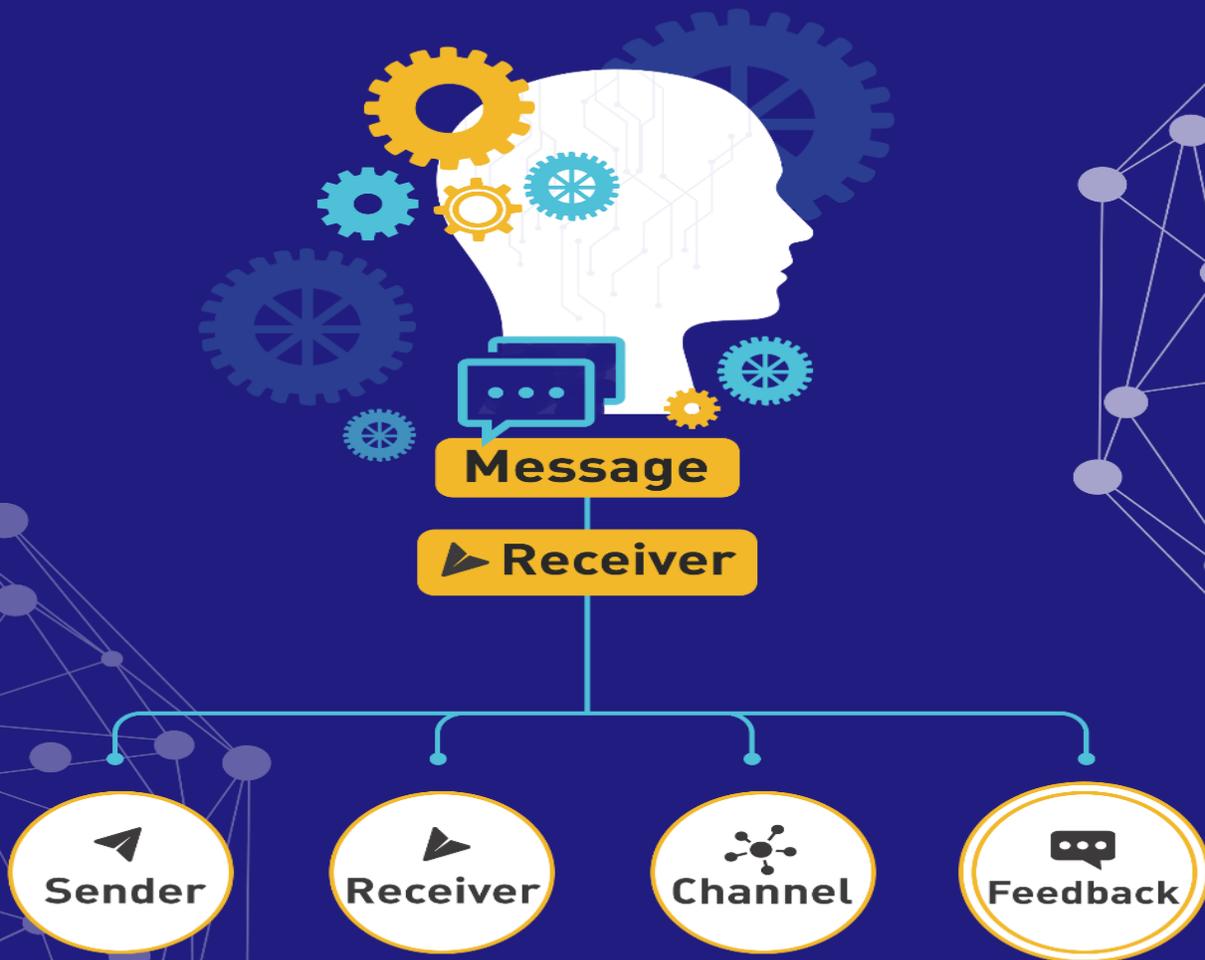
### **What is meant by the receiver in Artificial Intelligence Journalism model of Communication :**

- Normal audience.
- The robot.
- Artificial intelligence database.
- A series of rules associated with Blockchain.
- 3D printers.
- Artificial intelligence -based recording and broadcasting cameras.
- Smart Phones
- Drones
- Technologies of augmented, virtual and mixed reality.
- Other technologies that receive media messages and broadcast them directly without human intervention.

### **The Role of the Receiver in Artificial Intelligence Journalism model of Communication is as follows:**

- 1- Select the appropriate method to receive its messages, ranging from hundreds of methods, whether traditional, modern, and an automated “robot”.
- 2- Control the nature of the content and choose the appropriate channel to re-send the appropriate content as well.
- 3- Receipt, exchange and analysis of information and big data received from various technological means and tools; and this is for the purpose of understanding the nature of the targeted audience, as well as translating them into media messages that are appropriate for each medium.
- 4- The receiver also performs the role of the communicator in sending information, data and giving feedback, in accordance with the figure shown below:

# Abdulzaher Artificial Intelligence (AI) Journalism Model of Communication (Roles of the receiver)



**(Figure No.3**

### **3. The Role of the Channel (Figure No.4)**

In Artificial Intelligence Journalism model of Communication, the channel's role is completely different, as it differs and varies unlike the traditional methods of previous communication models. The channel here may be a "smartphone", a "robot" or a "high-resolution camera with 3D imaging" or a traditional channel of "radio & television" and social media.

Every single channel has its own features according to the novelty of the technological techniques and as per availability.

#### **Who performs the role of communication channel in Artificial Intelligence Journalism model of Communication:**

- 3D printers.
- Robots
- Artificial intelligence -based recording and broadcasting cameras.
- Smart Phones
- Drones
- Technologies of augmented, virtual and mixed reality.
  
- Other technologies that receive media messages and broadcast them directly without human intervention.

# Abdulzaher Artificial Intelligence (AI) Journalism Model of Communication (Roles of the channel)



Figure No.4

#### **4- The Role of Feedback (Figure No.5)**

The role of feedback as part of In Artificial Intelligence Journalism model of Communication is performed by all other elements. The media, media content, or sender, all of them can exchange such roles and provide a specific feedback.

#### **Who performs feedback's role in AI Journalism's model ?**

- They are the same tools and persons performing the sender's role to complete communication process in an interactive, continuous, circular and uninterrupted model.
- The Feedback returned at the end to feed the message with all the results of the communication process, where the message will start again cyclical process, based on some of the flowing Feedback during the communication process.

# Abdulzaher Artificial Intelligence (AI) Journalism Model of Communication (Feedback Process)



Figure No.5

## Sixthly: Basic Concepts in Artificial Intelligence Journalism Model of Communication (AIJMC)

### 1- The Communication Process

The concept of communication came within the definitions provided by communication pointers, such as:

Peter Little, Newman and Summer Jr and Keith Davis. Also, some Arab media professors such as Gehan Rachty in her book: "The Scientific Bases of Media Theories", Mohamed Abdel Hamid, Aly Agwa, and many others.

Where all the previous media models and theories focused on the concept as "human interaction, human and social communication and the transmission of messages between individuals, whether orally or in writing, and required a human elemental presence in all stages of communication."

In Artificial Intelligence Journalism, the concept of communication refers to:

"A process by which a message or content is moving- verbally or written - from a party to another - without the need for a human presence - where artificial intelligence techniques and modern technological solutions such as:" Robots, Drones , Self-Monitoring Cameras , Big Data analysis, Blockchain tools, and other techniques of the Fourth Industrial Revolution " can be relied upon, as an essential component of the communication process, acting as the a Sender, Receiver, Chennal, or even a tool of the Feedback process "

### 2- Advance Directive

It is one of the most important elements of the Artificial Intelligence Journalism Model of Communication, relying on the human or mechanical component as well, it indicates:

"The process where we can previously define the goals of communication, which has been managed by manpower or artificial intelligence technologies in general. Moreover, where those technologies automatically implement every stage of the communication process - with Advance Directive - and each of the elements achieve its advanced planned roles, to ensure the continuity of the communication process with no interruption, in a cycle, continuous, and interactive ways. "

### **3- Impact "Measuring Effective the Content or the Message"**

Usually the impact of a success message to the target audience is measured by the audience's feedback and reactions - negatively or positively - in the communication models and theories of traditional media.

For instance: When it comes to measure the effects of the traditional communication process on marketing campaigns of a product, there are three main indicators that determine the quality of this effect:

1-A positive impact on the content or advertising messages by "Buying the product, nominating to another person, positively evaluating, or promoting, or even sharing the post or commenting on the content on social media, and other positive reactions."

2- A negative impact on the content through: Reluctance to buy, Give a criticism, negative comments on the message or the content.

3- Only receiving the message with no negative nor positive reactions, which is one of negative influences in the communication process.

But the concept of Impact "Measuring Effective the Content or the Message" on the Artificial Intelligence Journalism Model of Communication is working according to the previous three indicators, in addition to a Fourth indicator which is:

- The Advance influence, that is fully compatible with the Advance Directive component of the communication process.

This concept refers to: "The existence of artificial intelligence technologies that dominate the communication process, and they perform several diverse roles, which it is easy to identify thousands of reactions and feedback - Mechanical or Automatic- in advance of messages and content.

That will adversely affect the transparency and objectivity of the communication process, especially in sending or broadcasting stereotypical reactions and feedback for the same message to a target audience, and might direct public opinion toward a particular direction.

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