



NEW MARKETING SOLUTIONS FOR IoT MARKET

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Abstract *The Internet of Things (IoT) marks a new stage of evolution of the information society and affects not only the business environment, but also the way of configuring human civilization. IoT opens, beyond technological approaches, vision changes on urban megastructures, market mechanisms, consumption sustainability, and communication between human intelligence (HI) and artificial intelligence (AI). At the same time, IoT can be seen as a stimulating factor for a new industry that can operate globally and which uses and potentiates new marketing tools.*

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IoT,
Artificial Intelligence
(AI), big data,
cloud computing,
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sustainability,
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1. INTRODUCTION

Digital technology does not only allow functional business remodeling, but it also identifies solutions to the problems that humanity faces today. Reducing the consumption of natural resources and pollution, building new urban structures capable to answer to the needs of an increasing population, reducing social disparities and combating poverty, improving the population`s health while reducing spending, optimizing adaptation to frequent climate change can find solutions through the global promotion of *IoT*.

If, initially, it was a digital network that contacted people, the Internet is now becoming the connection

and communication network between objects, building an extremely complex digital infrastructure that opens new communication directions: between people, between people and objects and between objects. More and more of the industrial or household objects begin to have a functional dimension in the digital space, they are loaded with artificial intelligence and become smart. Practically, we are contemporary with two phenomena specific to the information society that are running concurrently and synergistically: *Internet for All (IfA)* and *Internet of Things (IoT)*.

Over the last two decades, we have witnessed a significant increase in the number of

Internet users at the global level, so at present nearly half of the planet's population is connected to the Internet and *Internet for All (IfA)* is in a continuous process of expansion, supported by ambitious programs (www.internetlivestats.com/internet-users).

The Internet of Things (IoT) describes a new type of digital connectivity that targets physical objects (industrial and household) and has a very rapid dynamic. It is estimated that, at the present, half of the consumers owns at least an object connected to the internet (<http://reports.weforum.org/digital-transformation/the-internet-of-things-and-connected-devices-making-the-world-smarter>).

Both *IfA* and *IoT* need a highly performing digital infrastructure, centers and platforms capable of working with big data. It can be anticipated that, in the near future, new concepts will be created to explain the complexity of the phenomena specific to the informational society and their dynamics.

2. SOME CHARACTERISTICS OF IOT GLOBAL MARKET

IoT has become a reality of everyday life, both for urban structures and for domestic and industrial consumers. It is estimated that by 2020 there will be more than 50 billion Internet-connected objects (Digital transformation-The Internet of Things and connected devices: making the world smarter) and over one trillion of sensors (www.electronicsspecifier.com) will be used. Only these figures can indicate the enormous potential of a new market and the reconfiguration of profitable

industrial areas. In this context, it is estimated that in 2030 the *IoT* industry will have a \$ 14 billion contribution to the global economy (Digital transformation-The Internet of Things and connected devices: making the world smarter, Report). This quantitative approach opens a new perspective of an analysis of changes in vision and structure of industry evolution. Practically, the fourth industrial revolution is indissolubly linked to the interaction between human intelligence (*HI*) and artificial intelligence (*AI*).

First of all, we can talk about a repositioning of the telecommunications industry. The dialogue between connected to the Internet objects, but also between them and people, must be managed with the help of an extremely powerful digital infrastructure that needs considerable investment.

The interconnectivity of things is a step towards the interconnectivity of the industries. Energy, automotive, construction, tourism, education, health, and insurance industries will need to implement solutions that involve digital communication, both between objects and between objects and people. For example, an intelligent house manages lighting and heating systems with motion sensors that indicate the presence or absence of its inhabitants, and cars can communicate with the connected home when its inhabitants are approaching to start the heating system at the desired parameters (Digital transformation-The Internet of Things and connected devices: making the world smarter, Report).

Also, an intelligent car can relate not only to traffic conditions but can implement solutions according to its users lifestyle and needs. For example, if an intelligent car is digitally connected with a bracelet that monitors the heart rate of its user can optimize the climate condition according to them. Moreover, if the car is connected with the refrigerator from the user's home, it can be known if a favorite product is exhausted and can communicate with the nearest store that can make an advantageous offer. It is obvious that will be profound changes in consumer lifestyle in the context that it is estimated that 90% of the sold cars will be connected to the internet by 2020, (Digital transformation-The Internet of Things and connected devices: making the world smarter,

Report). Basically, is initiated a fascinating dialogue between intelligent devices and a reassessment of communication between human (*HI*) and artificial intelligence (*AI*) is required.

Beyond the *IoT* approaches from the economic perspective, we can also talk about the solutions they can provide to solve the most acute and dramatic issues that affect the contemporary world. It is estimated that CO₂ emissions will be reduced by 26 million tons in the next decade due to the use of *IoT* solutions in the automotive industry, in the management of energy consumption by households and other related areas (The Internet of Things and connected devices: making the world smarter, Report).



Fig. 1. : The UN 17 Sustainable Development Goals

Source: <http://www3.weforum.org/docs/loTGuidelinesforSustainability.pdf>

*IoT*s implemented at the global level could generate 400,000 new jobs in the telecommunications industry over the next 10 years (Digital transformation-The Internet of Things and connected devices: making the world smarter,

Report), but it should be estimated and how many jobs will disappear thanks to new digital solutions. In the health sector, it is estimated that the widespread use of portable digital devices will bring about \$ 50 billion saving in US health care by the

end of 2018, and the number of these devices will reach at 125 million by 2019 (The Internet of Things and connected devices: making the world smarter, Report).

2.1. Smart city as a relevant market for IoT

The demographic growth foreseen for the upcoming decades urges the implementation of a new large-scale urban development concept. It is estimated (www.romaniasmartcities.ro) that, in 2050, the planet's population will reach 9,3 billion people, and approximately 70% of these, respectively 6,3 billion people, will dwell in cities.

IoT is able to provide digital solutions to facilitate the energy consumption management, the public transport and street illumination usage, to enhance the citizens' safety, as well as to measure the pollution levels. At the same time, problems regarding the management of digital data basis, cybernetic security and respecting the privacy of the citizens become pressing concerns that should be taken in consideration when implementing IoT.

As the time passes, in Europe, SUA and Asia, a growing number of digital solutions for urban organisation are taking shape. New York, Singapore, Amsterdam and Barcelona are just a few cities that can be, nowadays, identified as *smart cities*.

The implementation of digital solutions entails converting local entities into key tools for promoting innovative digital solutions. The development of the IoT market signifies a new type of interaction between local organisations and the business environment.

Local entities have to generate a new visions upon future urban developments that will incorporate digital solutions. Secondly, seeking and establishing finance resources for implementing these digital strategies becomes essential. The third step requires identifying the right suppliers for the chosen strategy.

At an urban scale, for an efficient performance of IoT, the existence of a costly infrastructure that would assure the circulation and management of *big data* is necessary. Moreover, purchasing the right type of equipment is important as well as identifying the most performant and transparent available suppliers.

3. DIGITAL PLATFORMS AND NEW MARKETING SOLUTIONS TO PROMOTE IOT

To acquire IoT solutions, local administrators need to access a large database from the industry and to use transparent procurement methods, especially as funding is made from public resources. Digital platforms are one of the most practical solutions to avoid some of the risks:

- a. Fragmented offers do not allow a correct evaluation of the available technological and cost options.
- b. Bureaucracy reduction makes necessary the adoption of new solutions that allow a rapid comparison between bids.
- c. Different bidding standards make it difficult to evaluate and compare them.

- d. Spending public funds involves responsibilities that require the adoption of transparent and verifiable solutions.

The digital platform has the advantage of allowing a direct access to the market for *IoT* solutions providers as quickly as possible. It is estimated that there are currently over 400 digital platforms of *IoT* ([IoTGuidelinesforSustainability.pdf](#)) technology providers, which has the advantage of allowing open competition on the market and a possible disadvantage of an excessive supply fragmentation.

On a digital platform of *IoT* solutions, the industry can put forward thousands of smart technology offerings (www.marketplace.city) from which smart city authorities can choose and compare. They can also evaluate past performance of *IoT* solutions and get in touch with previous recipients.

Another direction of digital platforms evolution for the *IoT* market is the possibility of local administrations cohesion (several cities can use the same digital platform), simultaneously with the identification of as many *IoT* providers as possible. Practically, digital platforms can contribute to the *IoT* market growing up.

Consequently, a digital platform creates a direct communication channel between local administrations and the *IoT* industry which directs marketing tools towards an offer optimization, based on the evaluation criteria. Therefore, further discussions lead to the evolution of persuasion in the digital environment.

4. CONCLUSIONS

The *IoT* industry is emerging as one of the most expansive and profitable industries in the next decade, also leading to a restructuring of the existing industrial branches. The development of digital technology can bring solutions to many of the problems of the contemporary world, primarily for sustainable development and the implementation of circular economy principles.

Smart cities are one of the most important markets for the *IoT* industry, and the evolution of this market involves a new type of interaction between local administrations and industry. Practically, local administrations become promoters of innovative technologies. In this context, it is also necessary to identify a new mechanism to attract funding sources for *IoT* solutions development, especially since the implementation of digital infrastructure has not only benefits, but also high costs. On the real market are many delays due to the lack of sufficient financing the digital technology projects.

The implementation of *IoT* solutions also involves addressing privacy and data security issues, both at a legal and technological level.

The evolution of the *IoT* market also involves the promotion of new marketing solutions. Digital platforms became one of the ways to promote global *IoT* solutions, and persuasion in commercial communication reshapes with a new type of interaction between Human Intelligence (*HI*) and Artificial Intelligence (*AI*).

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