

## Chapter 8

# Social Psychology and Artificial Intelligence Improvement of the Relationship Customer–Digital Commercial Environment: Challenges of Choosing the Best Approaches

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### ABSTRACT

*The combination of artificial intelligence with social psychology in the analysis of behavior (feelings) of web users, towards a commercial offer, is very important to be able to deeply touch the different axes of this subject. This chapter is a contribution to the efforts made on this theme and aims exactly to show, in an educationally simplified way, how to use advanced approaches, from the field of artificial intelligence, to carry out this type of study, to choose the best approach to adopt, and to select the best results obtained.*

### INTRODUCTION

Visitor behavior changes radically from Real Commercial Environments (RCE) to Virtual Commercial Environments (VCE). Inside a real world, the customer finds himself in a lively space facing people and/or objects capable of strongly exciting and influencing him, which pushes him to make purchasing decisions, and therefore, become a buyer on the spot and a consumer or loyal customer thereafter.

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However, in the virtual world, the emotional characteristics and psychological effects relating to the environment change, distance takes the place of face-to-face and the sense of touch becomes useless (anesthesia), which requires considerable efforts, based on new technologies, to:

- Bring and maintain visitors as close as possible to the realities of the real world.
- Establish mutual and permanent trust between customers and the VCEs.

To do this, the concerned enterprises are called upon to mobilize themselves technologically and technically (hardware and software approaches). This involves investing in sophisticated platforms that guarantee high-level competition while satisfying the customer as best as possible.

In fact, within the framework of management sciences (management, finance, logistics, and marketing, etc.), basic activities always need complementary activities (control, management, diagnosis, and audit, etc.) to ensure its performance and sustainability.

In this sense, customer management in VCE requires complementary activities and efforts at several levels (technical, technological, human, and financial, etc.) in order to maintain a place in digital markets, monitor permanently performance of the used platforms, understand and supervise changes in consumer behavior from a time to time and from a geographic area to another, etc.

In this chapter, we aim to mobilize two pillars of the customer-ECV relationship; namely the social psychology which determines human behavior and the Artificial Intelligence (AI) to be able to anticipate and predict future changes that human behavior can cause periodically on an ECV.

More precisely, we intend to first present an overview of the fundamentals of social psychology to allow the reader to understand in a simple educational way the basic concepts of this psychology and we will also present an improved version of one of its important models. . Then, we will illustrate how AI and the python programming tool make it possible to analyze the behavior of forum users towards a commercial offer. In addition, we will also aim to compare several AI algorithms, through the testing of their parameters, to choose, with better scientific justification, the best approach to adopt in such a study.

To conclude, we recall that in reality this research work is positioned within the framework of “Innovation in customer-digital enterprise relationship”, which is a research project that is being in progress by our research team. This chapter will be exactly a developed extension (with radical and fundamental additions) of a work presented and published among the set of research works of an International IEEE Congress (Fath El Khair et al., 2023).

## **Social Psychology and Determination of Human Behavior**

The study of consumer/customer behavior in virtual environments uses social psychology. Social psychology is mainly interested in the different relationships that could be found between human attitude and behavior during human action in any environment characterized by its own cultural, social, societal specificities, etc. Given the importance of this discipline, significant efforts of researchers and specialties were made in this context and also bore fruit over the years. Thus, important theories and models which explain and illustrate key concepts in this field (human attitude, behavior and action in society, etc.) have emerged.

For example, Fishbein and Ajzen developed the Theory of Reasoned Action (TRA) in 1967 (Fishbein & Ajzen, 1974) which allows the prediction of individuals' behavior based on their pre-existing attitudes and behavioral intentions. In 1985, Ajzen was able to develop on his own, based on TRA, another theory

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