

## AI technologies & value co-creation in a luxury goods context

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### Abstract

*The aim of the paper is to contribute to the literature on the conceptualization of technology as an operant resource and the role of Artificial Intelligence (AI) in value co-creation processes. Resource integration and interaction determine such co-creation, however the issue pivots on whether AI is effectively able to co-create value as an operant resource. With an integrated framework based on the Service Science (SS), the Viable Systems Approach (VSA) & the Variety Information Model (VIM), the Authors show how to the various kinds of AI technology corresponds a diverse level of co-creation. Our (conceptual) study, highlights how AI (e.g. chatbot) with its client profiling capacity achieves consonance in a luxury goods context, thus interpreting customer expectations. At the same time, the man-machine virtuous circuit qualifies the shift from AI (a combination of various technologies with cognitive abilities – listening, comprehending, acting, learning and at times speaking – capable of matching human intelligence) to the more potent IA Intelligence Augmentation.*

### 1. Introduction

Mobile and smart devices, robots, cloud technology, etc., are transforming business and entire economies. McKinsey estimates an economic impact ranging from \$ 14 trillion to \$ 33 trillion per annum by 2025 [1]. Benefits for consumers and brands albeit enormous, represent huge challenges for businesses. Evolving technologies imply the need for maximum competition, while the gap in internal competencies forces firms to adopt inadequate strategies and solutions thus generating a co-destruction of value [2]. AI is assuming a relevant role in improving customer relations attempting to substitute human agents in

emotive customer communication. Although organizations acknowledge the potential of such new technologies, often they do not exploit it effectively [3] and should therefore redefine the role of technology in process interaction with other actors of the system [4].

In marketing, the impact on customer and brand interaction of Intelligent tools implies natural and intuitive interaction between users and device. In other words, an opportunity for firms to connect with consumers and to improve brand loyalty [5]. At the same time, intelligent technologies not only facilitate and enhance interactions but seem to be operant resources whose knowledge and skill potentially co-create value with and for their users. Notwithstanding the high expectations on the use of AI technology, its role in an organization has to be grasped: i.e. a simple device facilitating co-creation or co-creator of value?

For Service systems theorists [6], exponents of Service Science (SS), who study dynamic configurations of people, organizations, technology and other resources with the intent to develop co-creative conditions for the diffusion of a mutual value [7], technology is a key driver for the value co-creation process [8]. However, they have not yet provided an effectively new architecture to support the integration of the “technology” resource. Nonetheless, the relationship between modern technologies and beneficiaries has evolved. AI exploits not only information from the outside but also information about itself, accumulating experiences based on its own actions and interactions and developing expectations about their consequences. Furthermore, some authors argue technology soon will improve social capability in human interaction adapting their behavior to specific conditions [9]. The role of technology, its capability to act on other resources i.e. to be operant and how it shapes the context for value co-creation has to be addressed.

Although several management studies have investigated the role of technology in organizational

change [10], the debate on “technology as an operant” has received limited attention in both theoretical and empirical terms. Moreover, discussion on how operant resources participate in the co-creation process have concerned the involvement of consumers, but not the technology itself .

Our study discusses the role of technology and analyzes its integration and interaction with other resources, clarifying essential conditions underpinning value co-creation. For demonstration purposes, the chatbox technologies in the luxury goods sector are analyzed, arguing that by applying them as operant resources, brands were not necessarily able to co-create value and improve relations with consumers. To contribute to value co-creation, these technologies should be created to act on value categories, such as Intelligence Augmentation – IA – intelligence based on collaborative or augmented interaction.

According to an integrated framework based on Service Science (SS), Viable Systems Approach (VSA) & Variety Information Model (VIM), AI through its client profiling ability achieves consonance level and interprets customer expectations by virtue of the process of accumulating historical data, gradually introduced into the intelligent system. Consequently, a virtuous circuit results between man-machine qualifying Intelligence Augmentation: i.e. a “cognitive space” of induced generation (man’s action on the machine) and accumulation (action of the machine towards man).

In the literature review, the Authors discuss the role of technology adopting the SS+VSA&VIM to clarify the conditions under which the shift from AI to IA, co-creates value. Subsequently, an exploratory study of the luxury goods industry shows how, in a specific context, AI such as chatbot however, presents, limitation in the co-creative process. Implications and future research are discussed in the final part of the study.

## **2. The role of technology as an operant resource**

In 1958 Woodward [11] defined technology as a series of machines and equipment used in production. In the 1970s, the concept was extended to service companies to indicate all hardware elements supporting human endeavor in production activities. Already Mitzemberg in 1979 [12] had considered such vision superficial, impeding in-depth analysis of the impact on the functioning of an organization. Alt Notwithstanding technologies of the period were not equipped with special intelligence, studying man-machine interaction of machines and assessing the

consequences had become imperative [13]. However, even though various researchers envisaged a new change in perspective, Orlikowski and Scott [10] showed how in management studies other researchers were still adopting a non-technological driven view, ignoring the role of technology and the significance of technological artifacts in the organization. However, inspired by Giddens [14], in 1992 Wanda J. Orlikowski proposed a structural framework model of technology to explore the role of technology in a social context [13], analyzing its impact on human agents and the institutional properties of organizations. The model evidenced the dual role of technology as:

- a product of human action;
- a medium of human action.

In the first conception, technology is ineffectual; of importance if used by humans; its role is passive and requires action to create value. In the second, technology acts as a mediator of human activities, capable of acting on other resources, conditioning social practice.

Years later, Orlikowski's model prompted Service-Dominant Logic (SD-Logic) theorists to define the role of technology as an operant resource in service systems [8]. S-D Logic represents a contemporary theory [15, 16, 17] according to which service, not goods, is the fundamental basis of exchange expressed by operant resources, capable of creating value. The difference between operand or operant resource manifested by Constantin and Lusch [18] and Vargo and Lusch [15] was very similar to the concept behind the duality of technology. In SD-Logic studies, to classify type of resource (people, technologies, information, organizations) and their contribution to co-creation of value: "*operand resources [are] resources on which an operation or act is performed to produce an effect, while [...] operant resources [...] are employed to act on operand resources (and other operant resources)*" [15].

Operand resources are physical such as facilities, raw materials, land, etc. [15]; operant resources are intangibles such as competences, organizational processes, skills, relationships with competitors, suppliers, and customers [19]. Specifically, operant resources are fundamental in creating superior value for customers. In the first instance, technology seemed to have attributes of operand resources. Previous studies on SS, the multi-disciplinary science that studies the design and the improvement of the configuration of people, technology, organization and information - service system- defined technology as a physical resource improving performance in order to access the value proposition [20]. Some authors recognized its crucial function in the co-creation of

value [6], but had not yet investigated the capacity of technology to act on other resources or systems.

In 2014 Akaka and Vargo considered the assumption "technology as an operant resource" [8]. The authors integrated Olikowsky's model with the economist Brian Arthur's thesis - technology as a combination of practices, processes and symbols - concluding that technology is able to act on institution and practices contributing to the creation of an innovation process [21]. However, the effectiveness of technology, as an operant resource on the innovation and co-creation process stems from:

- the context of use: the value of technology depends on a variety of contextual factor - time, place, social and cultural influence- [8];
- the level of analysis: individuals or organizations might use technology differently [8]. In other words.

That means:

- 1) not all technologies are operant;
- 2) an operant technology could trigger co-destruction of value if not properly integrated with other resources;
- 3) technology used at a certain level of analysis could be considered operant while considered operand at another level.

The new conceptualization of technology gives an innovative contribution to the field of service innovation and co-creation of value, provoking the revision of existing service systems and the reconsideration of the capacity of technology in the co-creative process [8]. In short, the degree of interaction of technology with other resources is crucial to interpreting new co-creation process in the service system.

## 2.1 AI as an operant resource

Emergent technologies such as AI are starting to spread in organizations, provoking changes on ways to interact with people and systems. AI is clearly equipped with knowledge and competencies and has a surprising capability to interact with other entities. This implementation of intelligent behavior in technological artifacts is calling into question the view of technology as the production of human action given that it appears to have its own ability to deliberate [22]. However, technologies, compared to the other actors of a system, have not yet sufficient cognitive capabilities to be considered responsible for their actions [23]. Effectively, progress in digitalization and AI are supporting the creation of automated, technical systems that act as autonomous agents with other service systems, but such technical systems interact with environmental and social systems by a configuration of

digital resources and technologies (data/information/knowledge, software, computing hardware, computer networks, devices, sensors, and electromechanica actuators) to "technologically" enhance value co-creation [24]. Albeit progress in technology, the role of AI as an operant resource is not a foregone conclusion, Rao and Verweij classify AI in 4 categories [25]:

- AI as assisted intelligence helps people to perform tasks faster and better;
- AI as automated intelligence makes manual/cognitive and routine/non-routine tasks possible;
- AI as augmented intelligence supports people in making better decisions;
- AI as autonomous intelligence acts without human intervention in decision making.

In the first two cases, AI does not emerge as an operant resource: it is a tool requiring action to make it valuable. It empowers machines or users to execute actions, i.e. calculators or software applications, improving operational efficiency. In the latter two cases, technology plays an active and operant role as it applies specialized knowledge and skills for the benefit of other actors. Mainly, augmented intelligent acts on and with other resources; it is the result of a collaborative and co-creative relationship between users and technology; instead autonomous intelligence acts directly on resources without human involvement, implying even a technological agency [24]. AI as a resource is increasingly used by organizations for customer service, marketing activities, decision-making process, however, the issue is whether AI is able to co-create value as an operant resource

## 3. The integrated framework: SS+VSA&VIM

The Viable Systems Approach (VSA) represents the methodological framework of reference [26, 27]. It is an interpretative paradigm able to support decision making in complex contexts [28]. VSA analyzes viable systems (individuals, institutions, enterprises or networks of organizations), investigating the capability of such interactive entities to create an harmonic relational context favoring the co-creation of value [29]. Specifically, it is useful to interpret interactions that systems or operant resources reciprocally develops, in our case, those AI develop with other resources. Interaction is a key element of the co-creation process, through it actors understand how to create synergy in order to co-create value [30, 31]. To put it another way, the VSA thoroughly examines the AI capability to be deployed in the co-creation process, analyzing the level of interaction with beneficiaries.

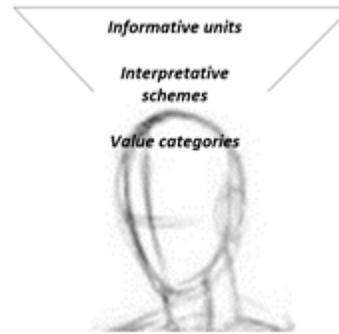
Specifically, it underlines the need for a wiser AI that leads to co-creative processes and introduces the concept IA, an intelligence able to support people in solving complex problems in specific circumstances.

S-D logic attributes importance to the value-creating processes involving customers as co-creators of value [32], but very few studies have investigated the role of technology as a co-creator of value. Integration and interaction between actors and resources represent a necessary condition to achieve a high level of co-creation [33]. To co-create, AI technology should be in continuous dialog with other resources, applying their knowledge and competencies in order to develop successful co-creation opportunities. In current service systems, the ability of technologies to apply knowledge and skills to the benefit of other system entities is not always sufficient to co-create value. Knowledge application differs from knowledge integration which derives from the interaction of resources or actors, each influencing and elevating the other. Thus, the capability of technology to co-create is evaluated on the degree of interaction and integration with their beneficiaries. VSA, which analyzes the viability of systems in complex environments, provides a significant contribution to interpreting the role of AI technology as co-creator of value, investigating the process of interaction between technologies and users, intended as a knowledge-based process [34].

According to VSA, harmonic and co-creative interaction depends on the cognitive distance between interactive parts [35]. The closer the distance the more they co-create. To assess cognitive distance, interaction dynamics and knowledge exchange, authors use the Variety Information Model (VIM), (Figure 1), [27, 28], whereby the object of interaction: data, information or knowledge is evaluated. The component elements of the model are [26]:

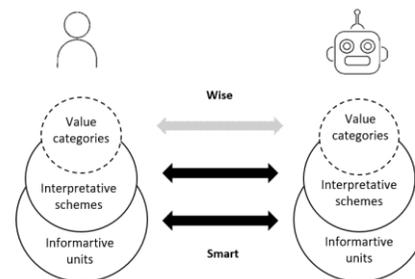
- Informative units that represent the "structural" composition of knowledge: data and what can be perceived and elaborated.
- Interpretative schemes that represent patterns of knowledge and refer to the way information is organized, perceived and elaborated: how generic information is transformed into specific [36].
- Value categories that represent the most relevant dimension: values and strong beliefs of the viable systems, synthesize the knowledge.

A greater level of interaction and integration derives from shared value categories providing a semantic interpretation of data and information [37] and introduce to the concept of consonance. Consonance defines the condition for effective interaction [29] rendering entities and resources aware of being a member of the same context with mutual goals.



**Figure 1.** The variety information model (VIM)

AI and users interact in terms of data and information, exchanging informative units and interpretative schemes, however, they do not share value categories. Figure 2 shows an adaptation of VIM illustrating levels of interaction between human and machines.



**Figure 2.** Information variety between AI and human

During the communication process between human and machine, information represents only a flow of messages. Knowledge emerges from this stream if whoever receives the message knows and interprets value categories [36]. The result of interaction based on value categories gives wiser output, extending the machine ability to the interpretation of human values [4]. By contrast, interactions at the level of informative units or interpretative schema are smarter ensuring only the efficiency of the interaction. Therefore, at the basis of the relational level represented in figure 2, interaction is smart, at the top wise. Knowledge management is a critical issue [38], as people and organizations can trigger the process of co-creation of knowledge and value by exploiting the potential of technologies.

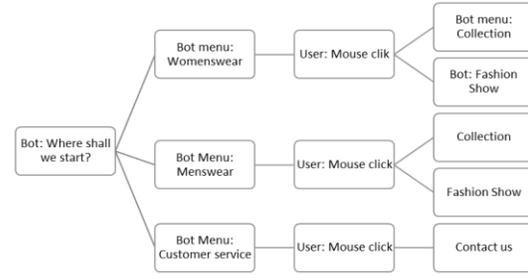
#### 4. An AI application: chatbot

One of the most diffused AI applications in customer service or social media communication are

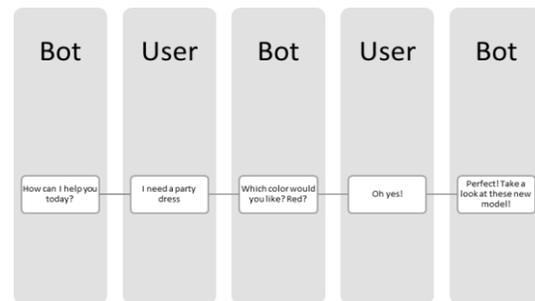
chatbots, conversational agents with automation capabilities for assisting humans during their online experience. Chatbots can be defined as software agents that converse through a chat interface [39]. They are able to have a conversation, which provides some kind of value to the end-user. The user interacts with chatbot by videotyping, or simply vocally, depending on the type of chatbot provided. The software system mimics interaction with real people [40] and represents: for brands a new way to communicate directly with individual consumers establishing an intimate relationship; for consumers an opportunity to interact with brands as if they were their friends. Riikkinen et al., have divided chatbot into two types [41]:

- Retrieval-based chatbot that uses Artificial Intelligence Markup Language (AIML) that receives natural language (NL) input; then it links users' words or phrases with topic categories identified by the service platform and replies with a response based on the extracted information from existing data. It is a primary form of chatbot with an interface to reply in NL.
- Generative chatbot that employs advances in machine learning processes, as deep neural networks, adapting responses to the context, interpreting intentions or diversity between users and elaborating new information independently. An advanced model of chatbot that processes natural language in conjunction with learning systems, increasing efficiency in use.

Chatbot affects the level of interaction between users, providers and technology itself, depending on the technology behind. Chatbots are not always AI-powered. In the first case the chatbot exchanges data, but cannot learn; the interface is command based with a menu that drives the navigation. Users click on options (Figure 3) and brands collect customer data (preferences, interests, etc.). Basic chatbots memorize rather than learn, they have a predetermined list of responses based on what keywords appear in the customer's question but do not have the ability to handle repetitive queries [42]. More complex chatbots act at interpretative schema level. They answer more ambiguous questions, creating replies from scratch and are able to learn. Usually, they have a conversational interface; users converse with words they want, phrasing their request (Figure 4).



**Figure 3.** Examples of the bot with menu navigation



**Figure 4.** Example of the bot with a conversational interface

Chatbots offer a great opportunity for brands: providing customized experience and establishing intimate relations with customers. Differently from the communities in which the brand interact with more consumers, through chatbot they communicate with every single customer, reserving some exclusive content to their real consumer. Often these e-service agents [43] are supported by a social network such as Facebook Messenger, that offers customizable bots. Exploiting the platform, brands reach a large number of users providing them with a personal assistant, able to help people to explore new products and catalog, to receive assistance or providing entertainment. At the same time, most evolved chatbots learn consumer preferences from the interaction, trying to adapt the conversation according to the user profile. Researchers [43] have shown service assistance tools can help build positive customer relationships even though e-service agents do not fully communicate with customers. However, brands cannot overlook some limitation in the interaction process [38]. Consumer trust derives from the empathy of vendor and salespersons who listen to customer concerns, chatbots lack in humanity. Intelligent assistants need to integrate user information with the circumstance of conversation (context, aim, culture, level of formality) to capture the degree of customer's emotional state [44].

#### 4.1 Methodology: a live comparative test on luxury chatbots

The study uses a qualitative approach, trying to bring out by observation on a real-life event, limitations deriving from the use of a common AI technology: the chatbot. The Authors' intentions are not to reproduce a standard case study (i.e Yin's method) but to evidence a contemporary scenario. The Authors compare, through the live test, two chatbots simulating user's conversation with the bots. To analyze the human-machine communication, the authors have identified five attributes used to test the humanity and co-creative potential of the bot:

- Appropriateness to unexpected input: answering appropriately to a user's unscheduled question;
- Accurate replies to user requests: responding accurately answer, when it occurs, avoiding approximations provided only as indications;
- Ability to maintain discussed themes [45]: showing comprehension of requests without providing inappropriate answers (preferable to declare the incapability to fulfill the request);
- Conversational cue [45]: replying with kind and polite words, or appreciations;
- Accurate responses to human moods: perceiving the feeling of users, adapting replies to their state of anxiety, happiness, or irritation.

For each attribute, authors have formulated a specific question and created an explicit circumstance: gift ideas for a female (Tab.1).

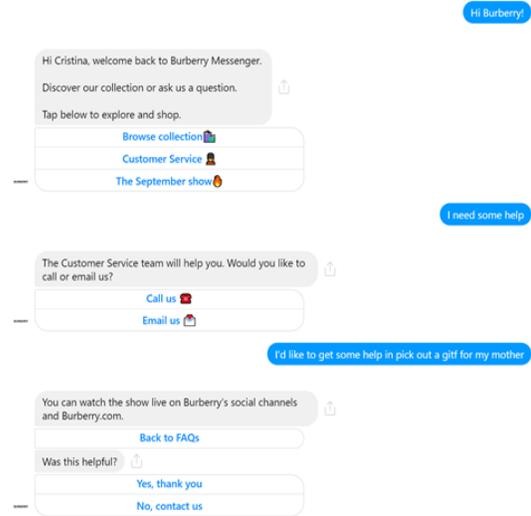
**Table 1:** Attribute-question/circumstance

Attribute	Question/circumstance
Appropriateness to unexpected input	<i>I'd like some help in picking out a gift for my mother</i>
Accurate replies to the user requests	Gift for woman
Ability to maintain discussed themes	Advice for a gift
Conversational cue	<i>I need some help</i>
Accurate responses to human moods	User's concern

The Authors selected two well-known luxury brands, Burberry and Louis Vuitton, since in the luxury goods context customer support is a crucial activity and the process of co-creation is more complicated than with other consumer goods. User expectations are high and based on the effectiveness of the service, kindness and emotional connection. Co-creation requires the better understanding of customer value.

After simulating conversation, the authors coded data manually, since the data set was very small [46].

Conversational analysis was performed taking into account identified attributes, submitting intentionally critical questions to the bot. In figure 5 a conversation with a Burberry chatbot is simulated.



**Figure 5.** Burberry, extracts of a conversation

The bot presents a mixed model, a menu and a natural language interface. Greetings are used to introduce itself to establish a friendly relationship with the user ("Hi Cristina"). At the input "I need some help" the bot lacks the conversational cue giving a sign of comprehension to the interlocutor such as "what kind of help?" or "what is this about? I'm here to help you" or other expressions to understand the human mood of the user (concern, complaint, curiosity). The second phrase typed in "I'd like some help in picking out a gift for my mother" is probably unexpected input. The response is inappropriate and inaccurate, creating a disservice to the customer.

The Louis Vuitton bot has the same architecture as that of Burberry: a menu and a natural language interface. The bot acts only in three countries the USA, France and U.K. The test is made on the USA digital assistant. The Louis Vuitton bot presents appropriateness to unexpected input: at the question "I need a gift for my mother" the response seems pertinent, but not accurate making a semantic interpretation of the message (Figure 6). The chat contains some conversational cues such as "Excellent" or "Got it." There are no accurate responses to human mood preferring to address requests to a human Client Advisor.

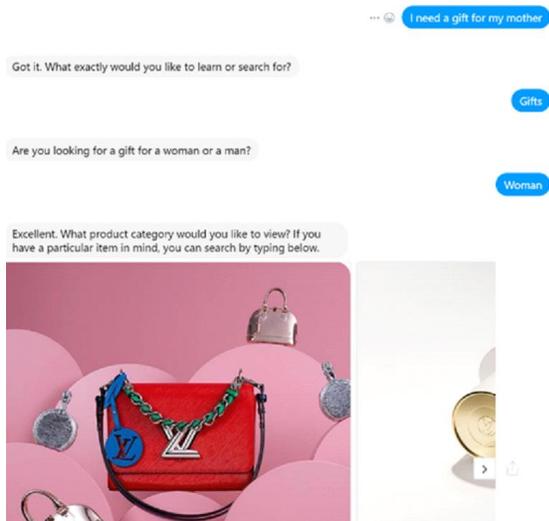


Figure 6. Louis Vuitton, extracts of a conversation

## 5. Results

The analyzed conversations are basically command-driven interface combined with natural language navigation. The user has a limited number of options to choose through choice boxes or pull-down menu, deciding to type questions if the options are not useful. However, the interaction appears rigid, not intimate or emotive. In some phases, bots do not transpose some input manifesting real incomprehension and preferring to divert responses to a human assistant. Analyzed chatbots seem to be a conversational interface to support customer value creation providing additional information on the brand customer service or giving online entertainment (photos, backstage, etc.).

Considering the high expectation of the luxury consumer, there is a need for attributes that maintain the level of interaction high in the online space such as accurate responses, conversational cues and grasping human moods. Otherwise it would not be reasonable to replace a human with a bot. Furthermore, having in-depth conversations with consumers enables brands to collect data and know their customers better. The live comparative test as though reveals that chatbots do not co-create value, they are a facilitator of the creation of value. They are rather co-distractor of value if user expectation on an alternative customer service have not been met. Customers might be irritated and frustrated when the bot does not understand their request or give repetitive and non-relevant answers. Although AI techniques such as machine learning (ML) and natural language processing (NLP) have made significant progress towards imitating human conversations, to

date it is difficult to substitute the attention and the empathy of a humans sales assistant.

## 6. Discussion

Until now, chatbot seems to operate as a tool able to facilitate the access to a web site or the catalog through social media, but using a conversational interface. The result is only in terms of the efficiency of the interaction, not the effectiveness, therefore reaching a growth in interaction but not in development. It is the development of the interaction that leads to an increase in value, shifting the subject of the exchange from data to knowledge to wisdom [47]. Many of AI technology operates at the level of informative units. However, to analyze the contribution of technology in the co-creation process it is useful to consider not only the context of use and the level of analysis (provider side or user side) but also the variety of information. Automated and Assisted intelligence are Mechanical or Analytical Intelligence, they operate at the first two levels of information variety being data- and information-intensive, but they do not understand the environment and cannot adapt automatically to it [48]. There is no value co-creation in these circumstances. Augmented or Autonomous intelligence, potentially, can co-create value when it acts on value categories (Figure 7). These intelligences match with that Huang and Rust define intuitive or empathic intelligence [48], able to think creatively, adjust effectively to novel situations or recognize and understand other peoples' emotions, respond appropriately emotionally, influencing others' emotions [49]. This introduces the shift from AI to IA. The concept of IA is not synonymous of augmented intelligence introduced by Huang and Rust: rather it is an extension and it is the broadest concept. IA is an intelligence equipped with cognition, commonsense reasoning, context comprehension and knowledge based.

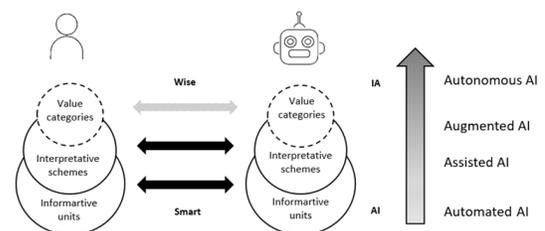


Figure 7. The variety of information: from AI to IA

AI comprehends autonomous and augmented intelligence able to interact and exchange more than data, sharing values and acting at the deep level of the

interaction, appreciating the relativism of values and priority of a specific system. Nowadays, data collected and processed by machine, help luxury brands to profile customers accurately. While it might be a satisfactory solution for fashion brands since profiling customers accurately means low marketing or production costs, it might co-distruct value for other luxury brands. Some nuances related to customer dreams will not be taken into account by an AI; customers are searching for extraordinary products and services that represent the creativity of the designer, not the prediction of a machine. In fact, the stylist's ability and the brand's capacity consists in stimulating consumer without predicting their choices, rather than surprising them. This is a limitation for augmented intelligence, since it supports human decisions, but alone it is not so relevant for the co-creation of value. IA ensures appropriate decisions, considering the context, values and beliefs of people with which it interacts. It means making wiser decisions, not only smarter [4]. Consequently, luxury brands realize high level of consonance aligning the value proposition of the brand with consumers' expectations [34].

### **6.1 The future of AI in luxury context**

The use of AI technology is changing in the luxury goods context, especially in online customer service and online retail. AI solutions (machine learning, voice recognition, image recognition) represent an opportunity in circumstances that require a low level of interaction: monitoring individual shopper's profile, browsing history, purchases and returns. Otherwise, as they are a threat when the level of interaction is high: claims, advice for shopping. In such cases, brands might gradually adopt AI solutions, integrating virtual assistants with human employees, so that machine learn from human knowledge rather than from data and information. A chatbot employed in customer service or a shopping assistant in online retail should:

- learn how to approach a luxury client (i.e using conversational cues);
- understand rapidly natural language;
- interpret value categories.

These elements could elevate the AI tool to a co-creator of value enhancing the online customer experience shifting into IA. As previously mentioned, according to our integrated framework, the new logics of value co-creation in the digital age is strictly connected to the concept of IA as the potential to realize projects in terms of capacities and skills and not in terms of competencies [34].

In the luxury goods context this implies that IA is an enhancement of customer satisfaction. Imagine taking part in a gala or work or charity evening. Your

presence must be "appreciated" by those who are there. In this sense, the IA allows you to analyze the participants based on their purpose and to be read in the most appropriate way in relation to the context.

## **7. Conclusion**

Technology isn't only a process or a product able to resolve the human issue [21], in certain circumstances, it is a key resource, or rather an operant resource [8]. AI makes huge progress; algorithms are rapidly improving, managing massive amount of data, however, it still is not knowledge-driven technology: it technologically enhances value co-creation [24], but isn't a co-creator of value. Co-creation is a process by which actors exchange knowledge and co-produce experiences [50], but the process of co-creation of value can also be destructive. The value of co-destruction is an interactional process that involves a reduction in the viability of the system [2]; it may be caused by an inability of the organization to integrate resources or to enhance interaction. Often the co-destruction of value between consumer and brand derives from inappropriate use of technology. In the luxury goods context, the incapacity to provide immediate access to support services, high levels of care and respect, customized service, causes dashed consumer expectations. Actually, AI is failing to meet these kinds of expectation, still having limits for recognizing emotions and extracting knowledge from the context. On the other hand, brands are in the investment and adoption phase of intelligent technologies, consequently consumer behavior and marketing practices have not yet synchronized with technology [38, 51]. Experts suggest that AI will be fully aware in the coming decades, will have a sense of self and will be able to engage in self-expression [52] using information to make decisions that could reshape AI as an active member of a social environment. Practitioners should test methods to extract emotion from natural languages, implementing these algorithms in a conversational or robotic interface. Academics should investigate the ability of AI to co-create in a high level of informative interaction, progressively with technology advances. To date, the smartness of AI technologies does not necessarily lead to an increase in value, while the development and the wisdom, belonging to augmented and autonomous intelligence, take care of the values of the entire system (users, providers and technology), [47]. Brands, encouraged to know what kind of a role they wish AI plays in value co-creation process, should understand the real capacity of AI and deploying these technologies properly. Particularly brands in luxury or industries

such as healthcare, in which the relationship with the consumer is very intimate, should avoid conditions of co-destruction of value. Organizations have a large number of intelligent technology to interact actively with their customers; the challenge consists in identifying adequate tools that satisfy consumer and brand expectations [38].

The paper has conceptual nature and presents some limitations. It considers the consumer perspective in the luxury context, not the effect of AI inability on brand reputation and how it differs with non-luxury fashion or other kinds of brand. Future researchers could investigate these aspects, looking further into the concept of IA.

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