CONTEMPORARY MARKETING PERSONALIZATION THROUGH CLUSTERING APPROACH

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Abstract. Marketing personalization is attracting a growing interest from researchers and practitioners alike because customers demand tailored and resonating products, services, and communications. Marketing Personalization is utilizing knowledge about customers to build long-lasting relationships by matching their needs and preferences with relevant content and offers. Modern technology advancements enable customer data collection, analysis, and modeling in a way that allows for treating every customer as a segment of one, increasing their satisfaction and loyalty. This study aims to provide a comprehensive overview of Marketing Personalization definitions, clusters, and keywords. Based on the literature review and bibliometric analysis, an extensive analysis of the critical clusters that indicate promising areas for future research is offered.

Keywords: marketing personalization, one-to-one marketing, relationship marketing, personalized marketing, clustering approach.

JEL Classification: O3.

1. Introduction

Companies that serve their customers better than competition tend to perform better financially and grow faster. Customer acquisition and retention become the cornerstone of long-term profitability. One of the elements that can help companies create and sustain customer engagement and loyalty is Marketing personalization (Schubert & Koch, 2002; Vesanen, 2007; Galal et al., 2016; Nikolajeva & Teilans, 2021).

Marketing personalization began when companies could send letters and catalogs to their customers (Vesanen, 2007). However, what indeed enabled this phenomenon to expand and evolve was the technological boom of 2000. Technology enables companies to collect, store, and analyze customer data, preferences, and history and tailor their marketing proposition in a more relevant, timely, and resonating with customers manner (Fan & Poole, 2003; Arora et al., 2008; Aksoy et al., 2021; Chandra et al., 2022).

Another significant development that led to the popularity of Marketing Personalization is a gradual switch from the mass production of goods and its accompanying mass marketing methods.

Towards the "Experience Economy" (Pine & Gilmore, 1998) and a customer-centric approach.

Creating value and building long-term sustainable customer relationships became the "holy grail" for companies focusing on customer retention and loyalty.

Therefore, it is unsurprising that practitioners such as McKinsey and Company, Accenture, Gartner, Boston Consulting Group, and others are leading the stage on marketing personalization. For example, the latest McKinsey article (McKinsey & Company, 2023) states: "Personalization marketing can reduce customer acquisition costs by as much as fifty percent, lift revenues by five to fifteen percent, and increase marketing ROI by ten to thirty percent."

This is supported by the customer perspective where the following statistics have been collected (McKinsey & Company, 2022): "Seventy-one percent of consumers expect companies to deliver personalized interactions. And seventy-six percent get frustrated when this doesn't happen."

Marketing personalization is highly multidisciplinary as it covers business and economics, technology and information systems, customer psychology, and social sciences.

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Numerous scholars and researchers have offered their views on what this construct means, how it is defined, what it includes, and what it exhibits.

However, those views and definitions are vastly and distinctly different because Marketing personalization is a complex construct with many variables. There is much debate about what is personalized (products or services, content, or advertising, etc.), how and what channels are used for personalization, who are the involved parties and what kind of roles they are playing (active vs passive), what is the difference and overlay of personalization vs customization, etc. This complexity calls for a high-level overview of the constituent parts of the phenomenon through a Clustering Approach.

The **research question** of this paper is: How is marketing personalization defined by scholars, and what kind of key clusters and keywords does it include?

This research aims to review various definitions of Marketing personalization and highlight its essential elements and clusters.

Research object: Marketing personalization.

Research subject: Essential clusters of Marketing personalization.

2. Study design

This research involved two key stages: a high-level view (Chapter 2) and a more detailed view (Chapter 3). A high-level view offered a glimpse into the researcher's interest in the domain of Marketing personalization. A bibliometric mapping has been conducted, and literature publications have been selected for further study. Chapter 3 provides a deep dive into the ambiguous space of Marketing personalization definitions, followed by an analysis of key clusters.
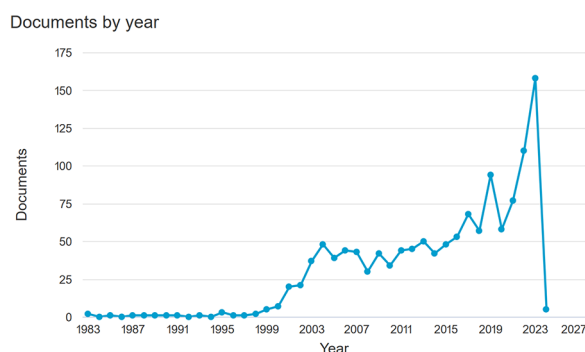

Figure 1. Scopus Number of Publications for the Keyword "Marketing Personalization" (Scopus, 1983–2023)

2.1. General overview

The research field of Marketing personalization began in 1983, according to the Scopus database search results. However, only starting in 2000, a considerable spike in publications can be observed, which can be explained by the rise of technology and the widespread use of the Internet. A digital environment offers unlimited possibilities for customer experience as well as customer engagement improvement through the practice of personalization.

With a total of 1,295 publications in Scopus and 1,691 publications in Web of Science databases (December 2023), an interest in the topic of "Marketing personalization" continues to grow, with 2022 and 2023 being the highest peak of published articles, research, and conference papers as illustrated by the Figures 1 and 2 below. This peak can be explained by the interest in Artificial Intelligence and how it can take Marketing personalization to the next level.

Looking at the multidisciplinary nature of Marketing personalization, the following science fields are at
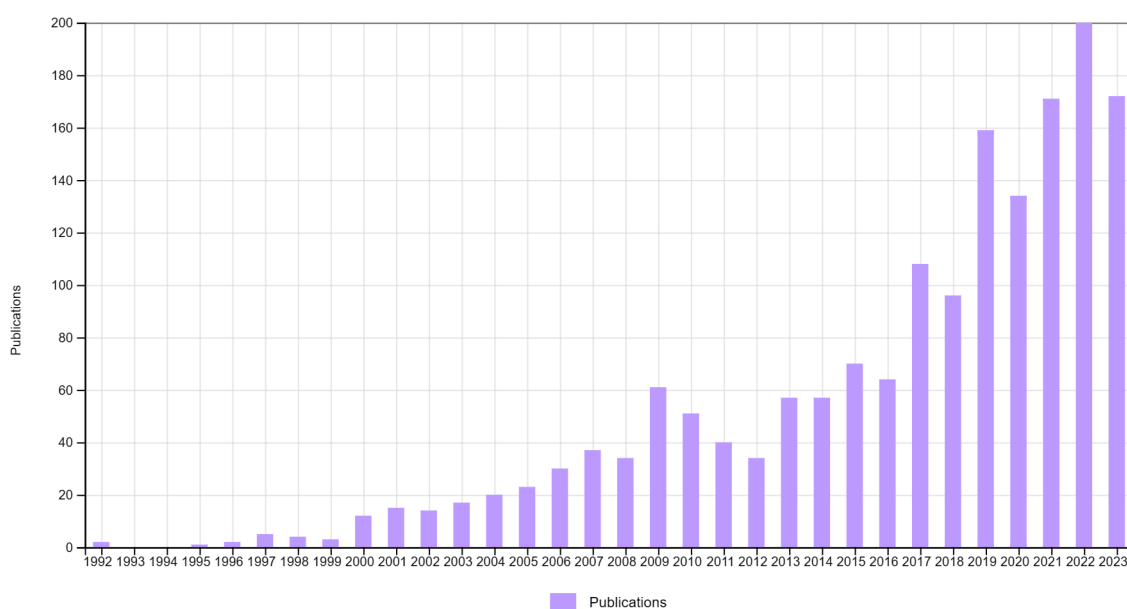

Figure 2. WoS Number of Publications for the Keyword "Marketing Personalization." (Web of Science, 1992–2023)

the forefront of expanding our view on the construct: 1) Computer Science / Information Systems; 2) Business, Management, and Accounting; and 3) Engineering (see Figures 3 and 4). Considering that technology is one of the vital personalization enablers, such a split is logical and reinforces a strong link between the conceptual study of the marketing personalization process and its subsequent implementation, where hindering factors and bottlenecks are researched along with success factors.
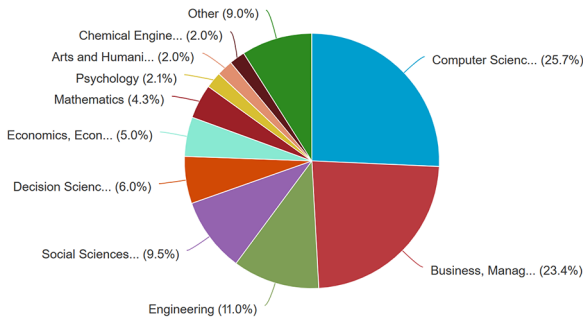

Figure 3. Scopus Subject Areas related to the Keyword "Marketing Personalization" (Scopus, 1983–2023)

2.2. Bibliometric analysis

Bibliometric analysis provides solid visual help regarding a thematic analysis of a researched paradigm (see Figure 5). The keywords "Marketing personalization" have been used, and 1,691 publications were returned to the Web of Science database. The following limitations were applied: 1) Publication years 2020–2023; 2) Languages: English. After using additional criteria, 665 publications were identified. Upon comparison, Web of Science returned more qualitative results than Scopus, with a higher match and alignment with the general marketing field.

The density map of the above visualization shows that the following concepts have been gaining traction in recent years: Artificial Intelligence and Machine Learning, privacy and privacy concerns, digital marketing and recommender systems, customer engagement, social media, targeting, and others. Looking at the chronological development, the following keywords rank the highest in
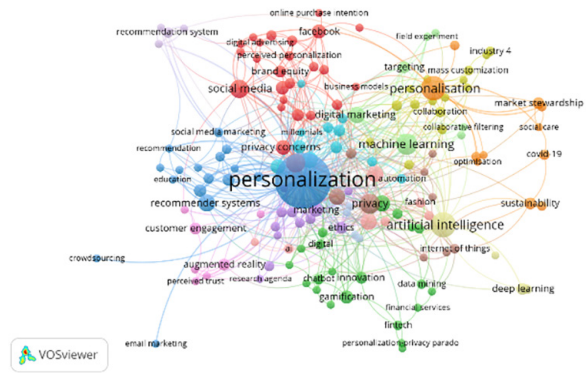

Figure 5. Bibliometric Co-occurrence Map for "Marketing Personalization" (Web of Science, 2020–2023)

2022–2023: innovation, AI, research agenda, recommendation system, fintech, online marketplace, relationship, and YouTube. These keywords offer a glimpse into where the research domain might be moving.

2.3. Literature selection methodology

After a high-level view of the domain of marketing personalization was taken, specific literature was selected for further study. Keywords "Marketing personalization" have been used, which returned 1,295 in Scopus and 1,691 publications in the Web of Science (WoS) databases. Three specific filters were applied to refine the search as described in the Table 1 below:

Table 1. Literature search protocol, refinement filters (Scopus, Web of Science, 1983–2023)

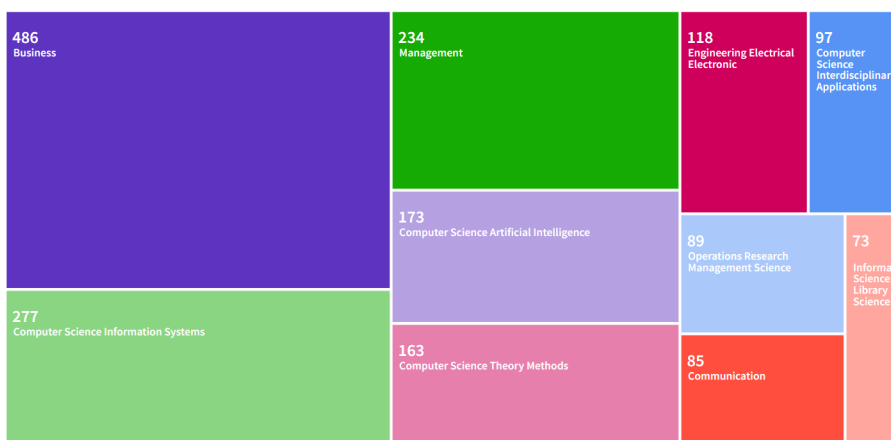| Filters	Scopus	Web of Science
1. Document Type	Articles, Conference papers	Articles, Proceeding papers
2. Language	English	English
3. Subject Area	Business, Management, and Accounting; Engineering; Social Sciences	Business; Computer Science; Management; Computer Science AI; Communication

Figure 4. WoS Subject Areas related to the Keyword "Marketing Personalization" (Web of Science, 1992–2023)
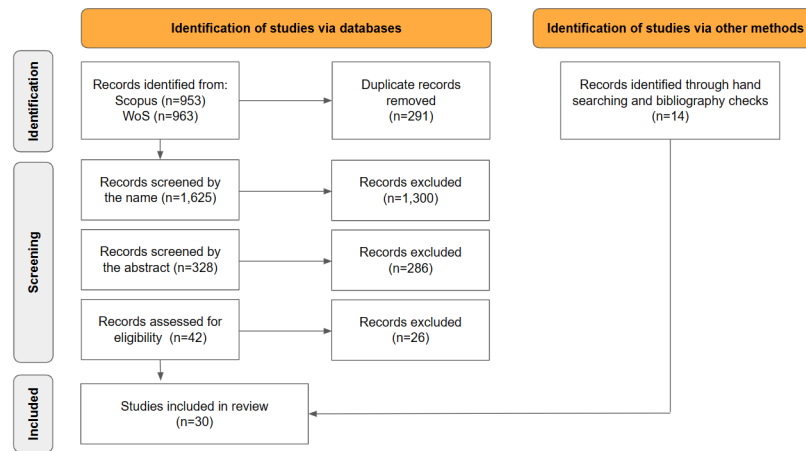
Figure 6. Literature search protocol, Prisma Flow Diagram (Scopus, Web of Science, 1983–2023)

After filters were applied, the search protocol was followed in line with three stages: 1) Identification, 2) Screening, and 3) Included publications, as illustrated in Figure 6.

3. Marketing personalization analysis

During the literature selection process, 30 publications have been selected for further in-depth study. Despite the robustness of the Marketing personalization concept, the authors focused on the papers that could explain the phenomenon: its definitions and parameters, classifications, maps, variables, and elements. The more interest this domain attracts, the more multifaceted its definitions become, as discussed in Chapter 3.1. Further findings related to the key clusters are provided in Chapter 3.2.

3.1. Analysis of definitions

When researchers begin to study a construct, they are more likely to start with the definitions and explanations of what this construct is, what it consists of, and how it interacts with the environment. In the case of Marketing personalization, this can provide a particular challenge because the views and opinions of scholars and practitioners alike differ considerably. The authors have collected definitions of Marketing personalization from 17 publications listed below in chronological order (see Table 2).

Although 30 papers have been analysed, not all authors define the construct, assuming it is already known to the audience (Adomavicius & Tuzhilin, 2001; Bleier & Eisenbeiss, 2015; Chen et al., 2023; Gorgoglione et al., 2006; Gorgoglione et al., 2019; Fakhfakh et al., 2016;

Table 2. Definitions of marketing personalization (created by the authors)

Year	Author/s	Definition
1999	Yu	"Personalization provides the merchants and publishers the ability to tailor the website or advertisement and product promotion to each customer based on his past behaviour and inference from other like-minded customers. The objective of personalization is to tailor the promotion and advertisement to match each viewer's interest."
2002	Schubert and Koch	"Personalization is about selecting or filtering information objects or products for an individual by using information about the individual (his customer profile) where the information or products are only customized for one single individual. We speak of individualization as a special form of personalization. Personalization based on transaction and preference profiles enables a customer specific selection from the wide range of options."
2003	Fan and Poole	"Personalization is a process that changes the functionality, interface, information access and content, or distinctiveness of a system to increase its personal relevance to an individual or a category of individuals."
2004	Schubert and Leimstoll	"Personalization – as we understand it – starts AFTER THE LOGIN. Personalization is context sensitive (regarding output for a certain user) and requires learning (by the system)."
2005	Personalization Consortium / referenced by Vesanen, 2007	"Personalization is the use of technology and customer information to tailor electronic commerce interactions between a business and each individual customer. Using information either previously obtained, or provided in real-time about the customer, the exchange between the parties is altered to fit that customer's stated needs as well as needs perceived by the business based on the available customer information."
2006	Riegger et al.	"Personalization refers to a targeted marketing strategy at an individual level, in which the consumer takes a passive role, meaning that all personalization efforts are initiated by the company."

Year	Author/s	Definition
2006	Vesanen and Raulas	"The process of personalization contains the gathering and analyses of customer information from internal and external sources and customer interactions, customizing the marketing mix elements based on a customer profile, and targeting of marketing activities."
	Risch et al.	"Personalization is about the interaction between a company and a customer on a one-to-on basis in order to match user needs. As a result, personalization is intended to maximize the customer value (for the vendor) and the benefit (for the customer) at the same time."
2008	Arora et al.	"The tailoring of a firm's marketing mix to the individual customer is the essence of one-to-one marketing. Personalization occurs when the firm decides what marketing mix is suitable for the individual. It is usually based on previously collected customer data. Customization occurs when the customer proactively specifies one or more elements of his or her marketing mix."
2016	Galal et al.	"Personalization is the ability to provide items, services or actions that are tailored to individuals" needs at the right time. Based on analysis of knowledge about their preferences and past behaviour, a personalization technique uses information generated to predict customers" next activity or to build an intelligent decision support system."
2018	Kaneko et al.	"We here recognize personalization as "to give characteristics that correspond to a person to an object"."
2020	Pearson	"'Personalisation' is the process of utilising geo-location, mobile app, Wi-Fi and over-the-top (OTT) technology to tailor messages or experiences to the individual interacting with them."
2021	Aksoy et al.	"The concept of 'personalisation', that is, presenting and using personal-level information in the interactions and transactions with customers to individualise customer experience and enhance marketing effectiveness."
	Nikolajeva and Teilans	"Personalization is the process of adjusting the website to individual users' characteristics or preferences. Use to strengthen customer service and e-commerce sales."
2022	Chandra et al.	"In marketing, personalization is the action of designing and producing in ways that resonate with customer preferences. Content and products that are personalized according to customer preferences. Personalization is a strategy to gain a competitive advantage, encompassing learning, matching, and delivering products and services to customers."
2023	Nobile and Cantoni	"Personalization is defined as "a dynamic process in which an object is changed for an individual in order to provide added value for the individual herself/himself. Such a process, which takes place in a given context, can be user- or firm-driven. The object, either tangible or intangible, is changed in dimensions at a number of states. The individual either provides information about her/himself, or the information is inferred by the change maker."
2023	Aksoy et al.	"We define personalization as an essential activity of the marketing strategy that plays a vital role in today's data-driven business world and that aims to provide value based on personal information obtained from the first contact with customers."

Harnisch, 2013; Puglisi et al., 2016; Rust, 2020; Shen, 2014). It can be seen in the table below that multiple perspectives and ideas are blended, describing Marketing personalization as a process, an activity, an ability, a marketing mix, a marketing strategy, an action, an interaction, as well as tailoring, using, collecting, selecting, filtering, analysing and communicating something to someone.

Furthermore, there needs to be an agreement or clear distinction between personalization, customization, individualization, and other similar terms. Mostly, defining marketing personalization depends on the authors' preferences and fields of interest. For example, authors who are researching the process, implementation, and innovation of Marketing personalization (Schubert & Koch, 2022; Schubert & Leimstoll, 2004; Vesanen, 2007; Pearson, 2020; Nikolajeva & Teilans, 2021) are more likely to focus on the technological variable of the construct.

Other critical dimensions include the importance of customer data and preferences, active vs. passive collection of customer data and information, and matching customers with highly relevant offers, content, and communication through various media channels, which can also be tailored, adjusted, and personalized. Finally, customer experience and marketing effectiveness are also included in some definitions.

3.2. Clustering approach

Marketing personalization has many faces. It's a multi-disciplinary and multi-layered phenomenon that continues to grow and evolve as the application of technology continues to evolve. Therefore, it can be helpful to break down the construct into its constituent parts or so-called "clusters" for better representation and clarity.

Based on a thorough analysis of 30 scientific publications, six subdomains have been identified (Concept of personalization, Process of personalization, Customer perspective, Personalization and privacy, Personalized Marketing, and Innovation in Personalization), and specific keywords that are integral parts of each cluster have been listed.

Cluster 1: Concept of Personalization

Keywords/Components: Definitions; Dimensions; Types, levels, and degrees; Strategies; Perspectives; Classifications; Frameworks and maps; Characteristics; Effects and motives; Elements; Objects and variables; Environments.

Cluster 2: Process of Personalization

Keywords/Components: Design methods; Procedures; Functions and applications; Architecture; Constraints; Systems; Interactions; Operations; Context; Modeling; Mining; Segmentation.

Cluster 3: Customer Perspective

Keywords/Components: Experience; Expectations; (Dis) satisfaction; Engagement; Relationship; Perception; Relevance; Commitment; Loyalty; Journey and lifecycle; Preference; Feedback.

Cluster 4: Personalization and Privacy

Keywords/Components: Personalization-privacy paradox; Customer data; Ethics and trust; User profile modeling; Privacy concerns; Disclosure; Co-ownership; Vulnerability; Privacy cynicism.

Cluster 5: Personalized Marketing

Keywords/Components: Personalized marketing; One-to-one marketing; Targeted marketing; Personalized advertising; Segment of one; Segmented marketing; Recommendation systems; Personalized content; Effectiveness and measurement.

Cluster 6: Innovation in Personalization

Keywords/Components: AI-enabled personalization; AI-powered personalization; AI-driven personalization; Real-time personalization; AI and ML algorithms; Adaptive personalization systems; Smart technologies; Personalized technologies; IoT.

This overview can provide a helpful summary of the extant research on personalization for any scholar or practitioner.

Anyone interested in the Marketing Personalization field can use this grouping as a roadmap for any further research or actual implementation.

4. Discussion

The results of this research highlight the importance of breaking down a very complex construct of Marketing Personalization for existing and future generations of researchers and Marketing professionals alike.

The world is quickly moving from rules-based personalization towards so-called AIP or AI-powered personalization (Christian et al., 2023; Gao & Liu, 2023). This technological transition brings both opportunities and pitfalls with its utilisation (De Bruyn et al., 2020).

The six clusters proposed by the authors can serve as a springboard for any aspiring researchers who need

to identify the right keywords for their future research. Another important implication of the study is that the clusters can serve as a safety checklist for those who are experimenting with the AIP technical implementation. For instance, while Cluster 2 might consume the most attention of a researcher or a data analyst, Clusters 3 and 4 will be instrumental to consider before actual launch of the AI-powered personalization.

5. Conclusions

With the speed of technological advancement and an instant gratification culture, marketing personalization is on an upward trajectory. This is an ever-evolving phenomenon that companies of all sizes are willing to master to gain and maintain competitive advantage. Which in turn offers academic scholars' ample room for study and research.

As a result of this research, it can be concluded that Marketing personalization is an act, activity, process, strategy, or ability of an organization to collect and process customer information such as interests, preferences, and behaviour to tailor and customize the content and communications, offers and promotions that are relevant to a segment of or every individual customer. This practice is meant to establish and maintain long-lasting relationships with customers, strengthening their engagement, creating a state-of-the-art customer experience, and making their shopping process easier.

It has also been concluded that the contemporary Marketing Personalization domain covers six different clusters: Concept of personalization, Process of personalization, Customer perspective, Personalization and privacy, Personalized Marketing, and Innovation in Personalization. It is expected that the progress in the latter cluster – Innovation in Personalization – will unlock new perspectives and research angles in the upcoming years.

The authors would like to propose an additional clarification of the "Marketing personalization" term that covers the most essential components and enablers: "Marketing personalization is a practice of utilizing the knowledge about customers to build long-lasting relationships with them through matching their needs and preferences with relevant content and offering with the help of technology".

Limitations and implications for further research

There are several limitations to this research. First, the number and scope of reviewed articles. It is possible that some important publications have been omitted and hence the final grouping could have included additional clusters or keywords within the given clusters. Second, hand searching can be described as biased and subjective. To minimize this bias, the bibliographic sources of initially selected articles have been used in most cases of hand search publication selection.

When it comes to further research, two views can be suggested. First, the gap in the current literature is linked to a need for more technological foundation and

implementation of the concept. Organizations interested in improving their personalization practices can learn about numerous dimensions of this construct but rarely answer the question "How."

Second, future research will inevitably be linked to the potential innovations within the field. Machine Learning and Artificial Intelligence are opening new doors for implementing Marketing personalization, especially on an individual level (segment of one). With these advancements, questions of privacy and ethics, vulnerability, and control of information will come to the forefront, and respective research will be used as a basis for future legislation and policymaking.

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