

# Customizing Customer Experience: A Systematic Review of Digital Personality in Telecommunications

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## Abstract

Hyper-personalization is increasingly vital for enhancing customer satisfaction, notably in the telecommunications sector, which employs artificial intelligence to correlate customers' digital behavior with that customer's digital personality. Customer interactions with telecommunication products and services, such as search queries, purchases, wish-list, etc. are useful to predict and recommend products for purchase. This paper illustrates a metacognitive approach of the systematic literature review on consumer digital behavior, which can yield a comprehensive analysis of digital personal demography. Beginning with database identification with PRISMA methodology, relevant journal articles were selected through Boolean search. These articles were thoroughly examined to extract attributes for predicting user preferences in hyper-personalization. Constant comparison within thematic analysis ensured that attributes identified were crucial for an artificial intelligence model aiming to predict user purchasing behavior accurately.

## Keywords

Systematic Literature Review, Boolean Search, Hyper-Personalization, Thematic Analysis, Digital Personality, Telecommunications Industry

## 1. Introduction

### 1.1. Research Problem and Context

Telecommunications companies (telcos) have long been confronted with many challenges in digital connectivity. Traditionally, voice services and messaging services have been highly successful in connecting people around the globe. With the development of technology, customers are aware of many services they could expect from

the telcos. Voice and message services are no longer sufficient (Kaplan & Haenlein, 2010). Customers now expect personalized services for diverse experiences.

It has become paramount to search for means that can increase the profitability and mitigate the severity of losses due to the repercussions of communications technology on the Internet. The digital media and economy have experienced explosive growth due to the demands of users and the compulsion of providers to meet user demands (Jiang & Fu, 2018). This has led to a significant shift in how the Internet and communications are controlled and managed. As a result, telcos must now provide the enhanced services, and themselves also benefit from the new services provided.

The enhanced services implied here are almost certainly the need for hyper-personalization which is no longer a choice but an imperative strategic need. Hyper-personalization represents the response to the changing advancement in telecommunications and digital connectivity. As telcos migrate towards the inevitable application of artificial intelligence to fulfill customer needs, the importance of identifying and understanding the digital personality attributes of each customer becomes imperative. However, this migration to hyper-personalization is not only a matter of survival; it is also an opportunity for telcos to co-create a mutually beneficial system with their customers, fostering stronger relationships and long-term profitability (Medrala, 2022).

Hyper-personalization is the core of customer attributes that are needed for artificial intelligence in identifying the individual needs of customers. Telcos need to engage customers with their unique individualized preferences. Artificial intelligence applications need the hyper-personalization data to analyze and discern intricate patterns of customer behavior, preferences, and interactions. This distinct and individualized digital personality is the fundamental digital personality needed to define “customer needs” where mere demographics and segmentation are no longer sufficient to provide truly individualized offerings. Artificial intelligence techniques are essential for identifying market targets that are positioned in real-time analytics throughout the customer’s purchasing journey that is characterized by dynamic changes in the customers’ needs and information exposure. Thus, for business to continue their leadership, they must leverage on the power of artificial intelligence to capitalize on hyper-personalization (Desai, 2022).

## 1.2. Problem Statement

Telcos are always eager to retain their customers. The challenge of customer retention lies in their ability to adapt to the real-time, ever-evolving needs of Telco customers. Telcos accumulate much customer data. However, this data is not used in devising customer retention strategies. Merely collecting customer data for historical analysis using traditional statistical methods that are meant to provide generalized customer segmentation rather than personalizing each customer as a unique individual is not sufficient for customer retention. Inevitably, customer retention remains a persistent challenge for telcos. Therefore, it is necessary to

migrate towards hyper-personalization of telecommunication services using artificial intelligence (Azeem et al., 2017).

### 1.3. Rationale for the Review

The rationale for this review is based on the ever-changing customer expectations and the survival needs of the telecommunications industry for customer retention strategies. Customers are exposed to personalization in many applications on the internet. Customers are often happy to see personalization related to their preferences in one application applied to the same personalization in another application. Customers increasingly demand personalized experiences befitting their unique needs and preferences, particularly when interacting with the telecommunication companies. While such a personalization can be implemented using the vast amounts of customer data available to telecommunication companies, there is little attempt to use such data for personalization (Kietzmann et al., 2018). The transformation to enable personalization using customer data requires that the data collected is suitable for analysis by artificial intelligence applications. This study aims to assess the existing body of digital personality attributes that can drive hyper-personalization using artificial intelligence. By identifying these attributes, this paper aims to enable telcos to identify real-time hyper-personalization of individualized customer needs.

The search method used is the systematic literature review (SLR). The SLR methodology is supported by an evidence-based knowledge that targets a specific subject and employs not only a traceable but reproducible methodology to conduct an exhaustive status quo of the subject (Kitchenham et al., 2007). The SLR methodology assess the literature about a specific topic made available by a large number of bibliographic studies. Thus, information from several researchers can be collated to produce an overall conclusion (Briner & Denyer, 2012).

In this paper, the SLR methodology is based on the guidance by (Kitchenham et al., 2007). Kitchenham's SLR methodology is characterized by 1) a clear set of research questions, 2) clearly stated objectives, 3) search methods that have an eligibility criterion, 4) assesses the quality/validity of the selected studies, 5) systematic synthesis of the data, and 6) making the study findings available for scientific purposes (Mengist et al., 2020). These characteristics are included and applied in this research as outlined in the paragraph Structure of the Paper.

### 1.4. Aims and Objectives of the Study

The aim of this paper is to identify customer digital attributes necessary to synthesize the variables for hyper-personalization for the use of telcos.

The objectives of this paper are to undertake an SLR of the existing personality attributes in the telecommunications industry and to compile a list of customer digital attributes that can be the basis for hyper-personalization using artificial intelligence.

The specific research objectives of this paper are to elucidate the attributes that are important for hyper-personalization based on the Kitchenham model of SLR.

## 1.5. Structure of the Paper

The structure of the research conducted for this paper is outlined in the following phases as suggested by (Kitchenham et al., 2007).

### 1) Planning

The planning phase identifies the need for this SLR and established the research questions and the question structure.

### 2) Conducting the Review

This phase identifies the aims and objectives of the study. The study defines the sources of studies and the generation of the search strategy. The selection criteria and the study selection and screening method are established. The inclusion and exclusion criteria are explained. The use of electronic data collection format using a Microsoft Excel form is explained. The search method shows the PRISMA flow chart. The study quality assessment is also included.

### 3) Data Collection and Analysis

This phase explains the selection of study articles. Data extraction method is described together with the data collection procedure. Data coding is explained to clarify the data synthesis procedure. The risk of bias in included/excluded studies is considered carefully together with the reporting biases.

### 4) Results and Finding

This phase reports the results of the study, the data attribute classification and the key themes and categories from the thematic study.

### 5) Conclusion

This phase presents the conclusion of the study and elaborated with a discussion. Several aspects of the study are considered under implications of findings, implications of practice and policy, and implications for research. The limitation of the study is explained together with the potential biases in the review process itself.

### 6) Future Research Directions

Lastly, future research directions are suggested on the long-term effects of the study with regards to hyper-personalization.

## 2. Research Methodology

### 2.1. Planning Phase

The planning phase describes planning of the SLR, formulation of research questions, scope definition, and development of inclusion and exclusion criteria as recommended by Kitchenham's methodology (Kitchenham et al., 2007).

### 2.2. Need for SLR

The identification of attributes for hyper-personalization is necessary for telcos to understand what products and services would benefit most to the customers. This paper searches for attributes discussed in bibliographic journal articles that describe customer preferences. The search method itself is based on an SLR guideline (Kitchenham et al., 2007). The guidelines ensure that the SLR is conducted

carefully so that all information related to a subject is duly considered.

### 2.3. Research Question

The specific research questions are:

- 1) What are the primary digital personality attributes that have been identified in existing literature?
- 2) What digital personality attributes relevant for hyper-personalization in telecommunications be developed through a SLR process?
- 3) How can a thematic analysis of the reviews be conducted to identify themes within the digital personality attributes amenable for hyper-personalization in the telecommunications industry?

To address Research Question 1, several databases were used to determine full text articles that had some bearing on the attributes pertinent to personalization or hyper-personalization. To address Research Question 2, the scope of the articles pertinent to the telecommunications industry was considered and only those related to the telecommunications were advocated. With respect to Research Question 3, a simple numerical “groundedness” was used to evaluate the frequency of occurrence of the attribute. This frequency of occurrence would give an indication of the importance of the attribute (Keele, 2007).

### 2.4. Question Structure

The research questions above are based on three viewpoints:

- 1) The population, that is pertinent to the intervention, *i.e.*, the telecommunications users.
- 2) The intervention, that is the transition from personalization to hyper-personalization.
- 3) The outcome, of hyper-personalization factors that will be used to compare the intervention.

The population referred to here is the group of telecommunications users comprising all levels of digital products and services. The intervention pertinent in the search documents would be associated with the changes from a group customization to individual customization. The outcomes represent the factors that improve a utility function such as reduced cost, reduced time-to-market, or higher customer satisfaction.

### 2.5. Conducting the Review

#### 2.5.1. Sources of Studies

The search strategy was aimed at identifying available literature since the required documents are distributed across many databases, it is important to search in multiple database (Rethlefsen et al., 2021). The search process was a manual search of four databases: Scholar, Science Direct, Springer-Link and Wiley. It is recommended that a minimum of two to three databases is used (MacMillan et al., 2019). The database web links are given in **Table 1**. The databases were searched one by

one over a period of 3 days from 10 October 2023 to 12 October 2023.

### 2.5.2. Generating the Search Strategy

The approach to derive the search strategy was developed from the research questions which were divided into three parts, namely Topic, Issue, and Scope as shown in **Table 2**.

**Table 1.** Databases used in the SLR study.

Database	Web link
Google Scholar	<a href="https://scholar.google.com/">https://scholar.google.com/</a>
Science Direct	<a href="https://www.sciencedirect.com/">https://www.sciencedirect.com/</a>
Springer-Link	<a href="https://link.springer.com/">https://link.springer.com/</a>
Wiley	<a href="https://onlinelibrary.wiley.com/">https://onlinelibrary.wiley.com/</a>

**Table 2.** Topic, Issue, Scope in keyword search string synthesis.

Topic	Issue	Scope
Digital personality attributes	hyper-personalization	telecommunications industry

Such a method utilized the idea of Topic to represent an independent variable (IV), Issue to represent the dependent variable (DV), with the Scope to represent a scope variable (SV). For example, a keyword search string was synthesized as shown in **Table 3**.

**Table 3.** Keyword synonyms.

Topic	Issue	Scope
determining attributes	<i>hyper-personalization</i>	<i>in telecommunications</i>
artificial intelligence	digital demography	for customer satisfaction
<i>identifying predictive attributes</i>	customer centric	from: 2023
identifying	using artificial intelligence	
<i>digital demography attributes</i>		

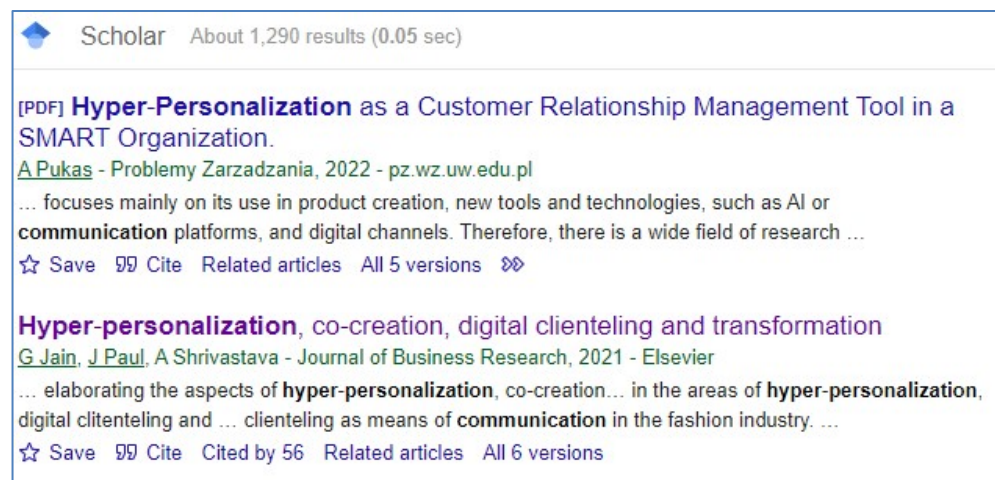
This method of keyword building provided a highly reproducible search algorithm that could be quickly adapted and adopted to search a large number of keyword search string/phrase using synonyms of the base keywords. The list of words was drawn using synonyms, alternative spelling, and other variations. The search terms were started with the keywords “hyper-personalization” concatenated with “in telecommunications”. The literature was selected for having the keyword phrase “hyper-personalization in telecommunications”. The search phrase synthesis method was further adapted to add pre-text phrases, or post-text phrases that would qualify the search phrase more precisely. This method suggested by the author ensures that the sample frame of documents in the search foci is highly

repeatable and reproducible. The Boolean synthesis of search phrase is shown in **Table 4**.

The search process was a manual search of peer reviewed journal papers and conference proceedings since 2023. Each paper and proceeding were reviewed for the presence of the keyword. Literature that was related to the keywords was identified as potentially relevant. Using the search syntax Row 1, **Table 4** in the search results are shown in **Figure 1**.

**Table 4.** Boolean synthesis of search phrase.

No.	Topic	Issue	Scope	Search syntax	Search String
1		<i>hyper-personalization</i>	<i>in telecommunications</i>	<i>hyper-personalization in telecommunications</i>	hyper-personalization...
2	<i>identifying predictive attributes</i>			identifying predictive attributes for hyper-personalization in telecommunications	identifying predictive attributes & ~
3		<i>using artificial intelligence</i>		identifying predictive attributes for hyper-personalization in telecommunications using artificial intelligence	& ~using artificial intelligence
4			<i>for customer satisfaction</i>	identifying predictive attributes for hyper-personalization in telecommunications using artificial intelligence for customer satisfaction	& ~for customer satisfaction
5		<i>digital demography</i>		identifying predictive attributes for digital demography of hyper-personalization in telecommunications using artificial intelligence for customer satisfaction	... & digital demography &...
6			<i>from:2023</i>	identifying predictive attributes for digital demography of hyper-personalization in telecommunications using artificial intelligence for customer satisfaction from: 2023	... & from: 2023



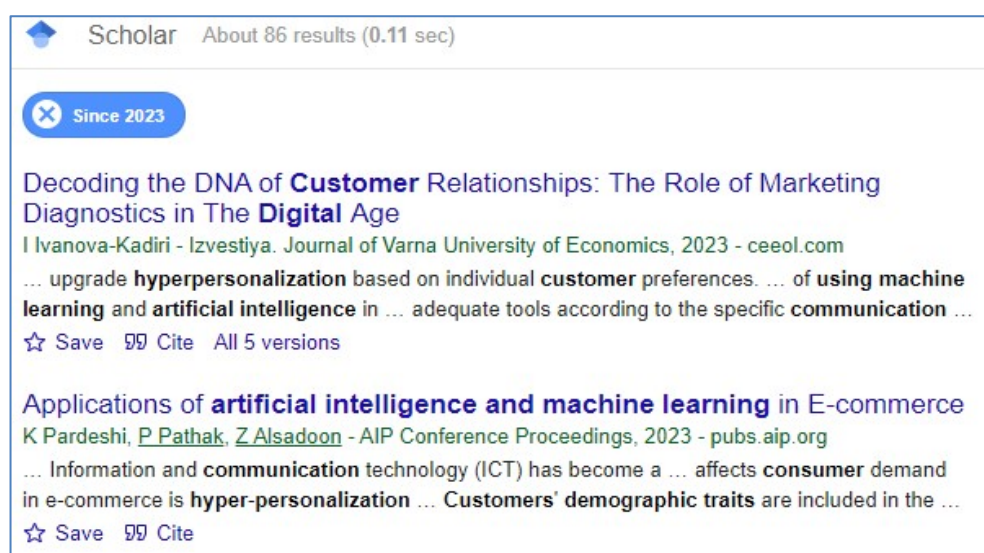
**Figure 1.** Output of search initial phrase.

Using the search syntax of Row 6, **Table 4** the search results are reduced to 86 as shown in **Figure 2**. The search syntax when used in this way provided a very effective method of identifying documents highly relevant to the study.

By continuously restricting the search syntax, the number of documents was reduced as shown in **Table 5**.

**Table 6** shows a sample of output counts for the final search string “identifying predictive digital demography attributes for hyper-personalization in telecommunications using artificial intelligence for customer satisfaction from: 2023”.

The search process using the same or similar keywords was extended to the remaining databases. Although the databases had different search templates, the goal was to retrieve relevant documents. The total number of documents retrieved for the different databases is compared in **Table 7** and shown graphically in **Figure 3**. It is notable that Google Scholar extracted the largest number of documents for



**Figure 2.** Output of search final phrase.

**Table 5.** Search string refinement for zooming into relevant documents.

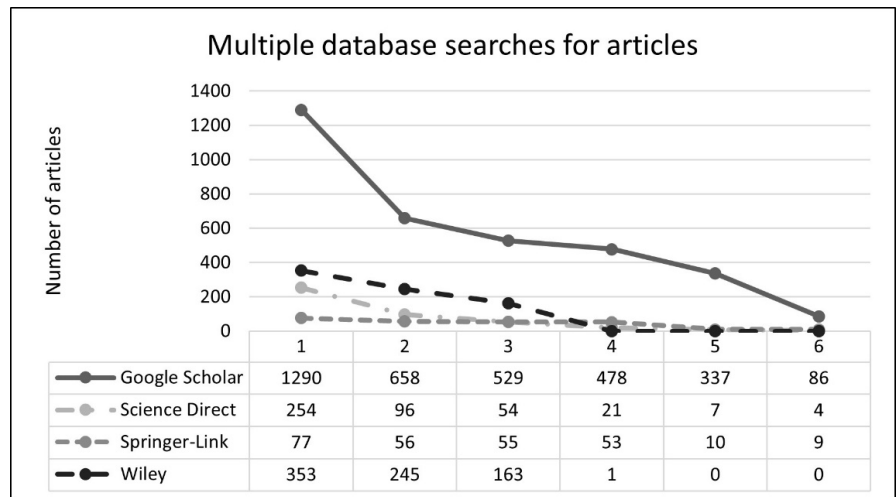
Search Date	Database	Number	Results	Search String
2023-11-02	Scholar	1	1290	hyper-personalization in telecommunications
2023-11-02	Scholar	2	658	identifying predictive attributes for hyper-personalization in telecommunications
2023-11-02	Scholar	3	529	identifying predictive attributes for hyper-personalization in telecommunications using artificial intelligence
2023-11-02	Scholar	4	478	identifying predictive attributes for hyper-personalization in telecommunications using artificial intelligence for customer satisfaction
2023-11-02	Scholar	5	337	identifying predictive attributes for digital demography of hyper-personalization in telecommunications using artificial intelligence for customer satisfaction
2023-11-02	Scholar	6	86	identifying predictive attributes for digital demography of hyper-personalization in telecommunications using artificial intelligence for customer satisfaction from: 2023

**Table 6.** SLR documents retrieved from database.

Database	Retrieved	Excluded	Included
Google Scholar	1290	1204	86
Science Direct	254	250	4
Springer-Link	77	68	9
Wiley	353	353	0
Total documents	1974	1877	99

**Table 7.** SLR documents retrieved from database.

Step	Google Scholar	Science Direct	Springer-Link	Wiley	Search String
1	1290	254	77	353	hyper-personalization...
2	658	96	56	245	identifying predictive attributes & ~
3	529	54	55	163	& ~using artificial intelligence
4	478	21	53	1	& ~for customer satisfaction
5	337	7	10	0	... & digital demography &...
6	86	4	9	0	... & from: 2023



**Figure 3.** Multiple database searches for articles.

a given search string.

**2.5.3. Inclusion and Exclusion Criteria**

The output from the keyword search was then subjected to the following inclusion and exclusion criteria. The inclusion criteria required that the document had a complete research process with defined research questions, data collection, data analysis and conclusion. The exclusion criteria are that the document had no defined research objective, unclear research process, or abstract. In this format, the inclusion and exclusion criteria could be easily added, edited, or deleted. as shown in **Table 8.**

**Table 8.** Selection criteria.

Criteria	Stage	Coded	Decision
The keywords represent the topic	0	Kword OK	Inclusion
The title is related to the topic		Title OK	Inclusion
The abstract summarizes key points of the study		Abs OK	Inclusion
The full text describes the study details		Fulltext OK	Inclusion
Keyword is not matching	1	Keyword mismatch	Exclusion
Title not matching objectives	2	Title mismatch	Exclusion
Duplicate article		Duplicate	Exclusion
Published before 2023		Outdated	Exclusion
Summary is not concise	3	Summary vague	Exclusion
No relevant methodology		No methodology	Exclusion
Not in English		Not English	Exclusion
Duplicate article		Duplicate	Exclusion
Different context		Diff context	Exclusion
Full-text article not available	4	Unavailable	Exclusion
Not a scientific study		Not scientific	Exclusion
Not primary or original research		Not original	Exclusion

#### 2.5.4. Selection Criteria

The selection criteria are an important aspect of conducting an SLR to ensure that articles are selected according to a set criterion (Kitchenham et al., 2007). When the search outputs were available, the articles were:

- 1) Noted for the search database used. The search databases are listed **Table 6**.
- 2) Keyword search was conducted. All articles were checked to ensure that the keywords were related to the topic with only two options available as shown in **Table 8**.
- 3) The title was deliberated to ensure that it was related to the topic. The role of the correct search sentence was important to return a relevant list of articles. Title mismatch, duplicate titles, or outdated articles were excluded. Articles could be excluded for one of the reasons possible as shown in **Table 8**.
- 4) The abstract was read carefully to ensure that the article was closely related to the intent of the SLR being conducted. Articles could be excluded for one of the several reasons possible as shown in **Table 8**.
- 5) The full text was reviewed in detail to ensure that the detailed contents of the article were pertinent to the topic of SLR being conducted. Articles could be excluded for one of the several reasons possible as shown in **Table 8**.

The selection process identified the articles necessary for the SLR of the topic

as shown in **Table 11**. In the author's opinion, based on this progression of keyword, title, abstract, and full text selections, the excerpts selection must be considered as a continuation to the next level of selection.

### 2.5.5. Study Selection and Screening

The study selection was a 5-stage process as shown in **Table 9**. Where studies could be easily associated with the inclusion criteria, the study was selected objectively.

1) In Stage 1, articles with matching keywords were included. The initial keywords were broad-based that returned a large number of articles.

2) In Stage 2, titles were easily scanned for context and irrelevant documents were excluded. For example, a search on hyper-personalization could result in some articles on disease prevention. Only articles closely related to hyper-personalization for telecommunications were accepted.

3) In Stage 3, the abstracts were studied to understand the contents for matching with the requirements described in the objectives.

4) In Stage 4, the full texts of the documents were studied and sufficient comprehension was necessary for selection. The full text articles were selected on the various aspects of hyper-personalization discussed with the presence of attributes sought in the objectives of the research.

5) In Stage 5, the document was searched for attributes that were sought as the ultimate requirements of the SLR. The article was read thoroughly to extract excerpts related to hyper-personalization.

**Table 9.** Stages of activity.

Activity	Description	Activity
Stage 1	Keyword matching	Keyword matching; initial screening
Stage 2	Title matching	Title matching; initial screening
Stage 3	Abstract matching	Read and review; rigorous
Stage 4	Full text matching	Read, review, and comprehend; rigorous
Stage 5	Excerpts matching	Search for attribute; critical assessment

Of the 86 Google Scholar articles retrieved from the search phrase, only 19 articles met the inclusion criteria for Title as shown in **Table 10**.

Similarly, the initial search phrases resulted in Science Direct articles (4), Springer-Link articles (7), and Wiley article (1) as shown in **Table 11**.

### 2.5.6. Electronic Forms

An electronic data extraction form using Microsoft Excel was created for data collection following the SLR guidelines (Kitchenham, 2004). The form was necessary to ensure accurate recording of the documents obtained from the search. The data extracted from each article was: the source of the article, the author information, year of publication, keywords, title, abstract, and the pdf (portable

**Table 10.** Partial output of articles from Google Scholar search.

No.	Authors	Title	Journal	Volume	Issues	Pages	Year
1	Ivanova-Kadiri,	Decoding the DN	Izvestiya. Jour	67	2	101-109	2023
2	Pardeshi, Karan	Applications of	AIP Conference	2736	1		2023
3	Davenport, Thom	Hyper-Personali	Management and	3	1		2023
4	Motinho, Luiz;	Impact of Artif	Philosophy of A			358-376	2023
5	Auttri, Bibhash	Digital Transfo	European Econom	13	3	1140-1149	2023
6	Choudhury, Raja	Artificial Inte	European Econom	13	4	921-936	2023
7	Gurram, Rama Kr	Critical Review	Rivista Italian	14	1	186-193	2023
8	Manoharan, Geet	Artificial Inte	Artificial Inte			40-70	2024
9	Patnaik, Priyad	Personalized Pr	Advanced Resear			102-128	2023
10	Ifekanandu, Chr	Influence Of Ar	Journal of Data	38	3	1936	2023
11	Priyanka, B; Ra	Analysis Role o	Journal of Surv	10	3S	996-1006	2023
12	Desai, Darshana	Predictive Mode	AI, IoT, Big Da			289-302	2023
13	Srivastava, Muk	Electronic word	Electronic Comm			1-69	2023
14	Arachchi, HA Di	Intention to Ad	International J			44941	2023
15	Ali, Sitara;	Impact of Artif					2023
16	Chauhan, Vikas;	Understanding i	Journal of Fina			44946	2023
17	Toutain, Olivi	Artificial inte	Management inte	27	2	119-132	2023
18	Choi, Hyeri; Pa	To govern or be	Science and Pub			scad045	2023
19	Wang, May Ying;	Decoding Busine					2023

document format) document or the doi (digital object identifier, when only the online version was available).

Next, the list of 33 articles was checked for the Title. If the title was acceptable, the article was retained and marked Title OK, else, the reason for exclusion was noted, as Title mismatch, Duplicate, or Outdated as indicated in **Table 8**. Excluded articles were removed from further consideration. Subsequently, the Abstract and Full Text were searched with the available criteria as indicated in **Table 8**. Additionally, the pdf documents or the web-link were recorded to easily allow retrieval of document.

The data extraction form was piloted on a sample of preliminary articles to assess both the technical issues (e.g., completeness of the form, usability) and the sequence of information collected. Since only the researcher used the form for recording, the pilot study was assessed by the researcher. The form was then used during the data collection phase. Note that in **Table 11**, the objective was to identify all document from the internet that met the selection criteria. Only a short part of the title was reported for clarity.

**Table 11.** Documents selected for determining hyper-personalization attributes.

Article	Database	Title	Keyword	Title	Abstract	Fulltext
1	Google Scholar	Decoding the DN	Kword OK	Title OK	Abs OK	Unavailable
2	Google Scholar	Applications of	Kword OK	Title OK	Abs OK	Unavailable
3	Google Scholar	Hyper-Personali	Kword OK	Title OK	Abs OK	Fulltext OK
4	Google Scholar	Impact of Artif	Kword OK	Title mismatch		
5	Google Scholar	Digital Transfo	Kword OK	Title OK	Abs OK	Fulltext OK
6	Google Scholar	Artificial Inte	Kword OK	Title OK	Abs OK	Fulltext OK
7	Google Scholar	Critical Review	Kword OK	Title OK	Abs OK	Fulltext OK
8	Google Scholar	Artificial Inte	Kword OK	Title OK	Diff context	
9	Google Scholar	Personalized Pr	Kword OK	Title OK	Abs OK	Unavailable
10	Google Scholar	INFLUENCE OF AR	Kword OK	Title OK	Diff context	
11	Google Scholar	Analysis Role o	Kword OK	Title OK	Abs OK	Fulltext OK
12	Google Scholar	Predictive Mode	Kword OK	Title OK	Abs OK	Unavailable
13	Google Scholar	Electronic word	Kword OK	Title OK	Diff context	
14	Google Scholar	Intention to Ad	Kword OK	Title OK	Abs OK	Unavailable
15	Google Scholar	Impact of Artif	Kword OK	Title OK	Abs OK	Fulltext OK
16	Google Scholar	Understanding i	Kword OK	Title OK	Abs OK	Unavailable
17	Google Scholar	Artificial inte	Kword OK	Title mismatch		
18	Google Scholar	To govern or be	Kword OK	Title mismatch		
19	Google Scholar	Decoding Busine	Kword OK	Title OK	Abs OK	Fulltext OK
20	Science Direct	Merging anomalo	Kword OK	Title OK	Abs OK	Fulltext OK
21	Science Direct	Campaign partic	Kword OK	Title OK	Abs OK	Fulltext OK
22	Science Direct	Machine learnin	Kword OK	Title OK	Abs OK	Fulltext OK
23	Science Direct	Subject Index	Kword OK	Title mismatch		
24	Springer-Link	Handbook of e-T	Kword OK	Title mismatch		
25	Springer-Link	Data Intelligen	Kword OK	Title mismatch		
26	Springer-Link	Digital Economy	Kword OK	Title mismatch		
27	Springer-Link	Towards Sustain	Kword OK	Title mismatch		
28	Springer-Link	Intelligent Sys	Kword OK	Title mismatch		
29	Springer-Link	Sustainable Bus	Kword OK	Title mismatch		
30	Springer-Link	The Palgrave Ha	Kword OK	Title mismatch		
31	Springer-Link	Proceedings of	Kword OK	Title mismatch		
32	Springer-Link	The Fourth Indu	Kword OK	Title mismatch		
33	Wiley	Using AI to Get	Kword OK	Title mismatch		

## 2.6. Search Methods PRISMA Flow Chart

Documents collected during the search are systematically selected by the inclusion criteria and deselected by the exclusion criteria. The numbers of documents included and excluded are shown in **Table 12** and the PRISMA flow chart is shown in **Figure 4**. The PRISMA is the Preferred Reporting Items for Systematic Reviews

**Table 12.** Searching specific documents.

Identification	Select Database	Total
1	Google Scholar	19
2	Science Direct	4
3	Springer-Link	9
4	Wiley	1
	Total records	33
Screening	Search by Search by Keywords	Total
1	Kword OK	33
2	Keyword mismatch	0
	Total removed	0
	Move records to Keywords	33
Screening	Search by Titles	Total
1	Title mismatch	14
2	Duplicate	0
	Total removed	14
	Move records to Titles	19
Screening	Search by Abstract	Total
1	Summary vague	0
2	No methodology	0
3	Not English	0
4	Duplicate	0
5	Diff context	3
	Total removed	3
	Move records to Abstract	16
Eligibility	Search by Full Text	Total
1	Unavailable	6
2	Not scientific	0
3	Not original	0
	Total removed	6
	Move records to Full text	10

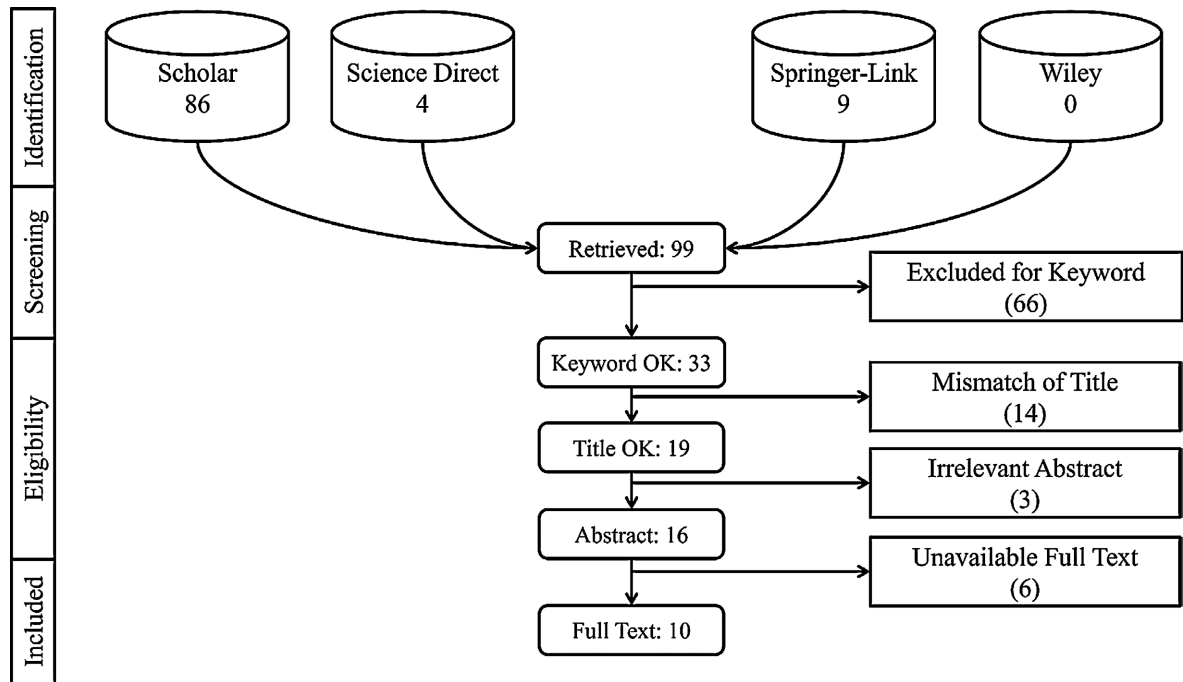


Figure 4. PRISMA flow chart.

Table 13. Documents selected for determining hyper-personalization attributes.

Database	Retrieved	Excluded	Included
Google Scholar	86	79	7
Science Direct	4	1	3
Springer-Link	9	9	0
Wiley	0	0	0
Total documents retrieved	99	89	10

and Meta-Analyses. This analysis was done using an Excel template which counted the number of inclusions and exclusions. The selection of the articles based on the numbers of documents is shown in Figure 4. A summary of the documents retrieved, excluded, and included is shown in Table 13.

### 2.7. Study Quality Assessment

Each article selected for the SLR was evaluated for quality assessment (Kitchenham et al., 2007) using the criteria specified by the Database of Abstracts of Reviews of Effects (DARE) criteria (University of York, 2014).

1) Were the inclusion and exclusion criteria applied on all the documents?

The inclusion and exclusion criteria defined in Table 8 were applied on all the studies.

2) Is the literature search exhaustive to have included all relevant studies pertinent to the objectives of this study?

Four digital databases (Table 1) and another source of study articles were

included in the study.

3) Were selected articles reviewed to form a synthesis?

The selected articles (**Table 14**) were analyzed for excerpts to form a synthesis of attributes for hyper-personalization.

4) Was the quality of the included studies assessed?

The quality of the studies was evaluated by the defined quality criteria and used in the extraction of the study articles.

5) Were selected articles reviewed to have clear purpose, methodology, findings, and conclusions?

The selected articles were reviews for completeness of purpose, methodology, findings, and conclusion in the full text search stage.

### 3. Data Collection and Analysis

#### 3.1. Selection of Study Articles

Of the 33 studies articles (**Table 11**) only 10 articles meeting all the inclusion criteria on title, abstract, and full text were identified and referenced as shown in **Table 14**. These articles were then used for excerpts collection in the data extraction stage.

**Table 14.** Documents selected for determining hyper-personalization attributes.

No.	Article	Reference	Web Link
1	Article 3	(Davenport, 2023)	<a href="https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4585804">https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4585804</a>
2	Article 5	(Auttri, 2023)	<a href="https://eelet.org.uk/index.php/journal/article/view/410">https://eelet.org.uk/index.php/journal/article/view/410</a>
3	Article 6	(Choudhury, 2023)	<a href="https://eelet.org.uk/index.php/journal/article/view/685">https://eelet.org.uk/index.php/journal/article/view/685</a>
4	Article 7	(Gurram, 2023)	<a href="https://rifanalitica.it/index.php/journal/article/view/59">https://rifanalitica.it/index.php/journal/article/view/59</a>
5	Article 11	(Priyanka, 2023)	<a href="https://sifisheriessciences.com/journal/index.php/journal/article/view/107">https://sifisheriessciences.com/journal/index.php/journal/article/view/107</a>
6	Article 15	(Ali, 2023)	<a href="https://thesis.cust.edu.pk/UploadedFiles/Sitara%20Ali%20-%20MPM203006.pdf">https://thesis.cust.edu.pk/UploadedFiles/Sitara%20Ali%20-%20MPM203006.pdf</a>
7	Article 19	(Wang & Wang, 2023)	<a href="https://scholar.google.com/scholar?hl=en&amp;as_sdt=0%2C5&amp;q=Decoding+Business+Applications+of+Generative+AI%3A+A+Bibliometric+Analysis+and+Text+Mining+Approach&amp;btnG=">https://scholar.google.com/scholar?hl=en&amp;as_sdt=0%2C5&amp;q=Decoding+Business+Applications+of+Generative+AI%3A+A+Bibliometric+Analysis+and+Text+Mining+Approach&amp;btnG=</a>
8	Article 20	(Chen, 2020)	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0377221719301948">https://www.sciencedirect.com/science/article/abs/pii/S0377221719301948</a>
9	Article 21	(Ayvaz, 2021)	<a href="https://www.sciencedirect.com/science/article/abs/pii/S1567422321000302">https://www.sciencedirect.com/science/article/abs/pii/S1567422321000302</a>
10	Article 22	(Soni, 2022)	<a href="https://www.sciencedirect.com/science/article/abs/pii/S1084804522000765">https://www.sciencedirect.com/science/article/abs/pii/S1084804522000765</a>

#### 3.2. Data Extraction Method

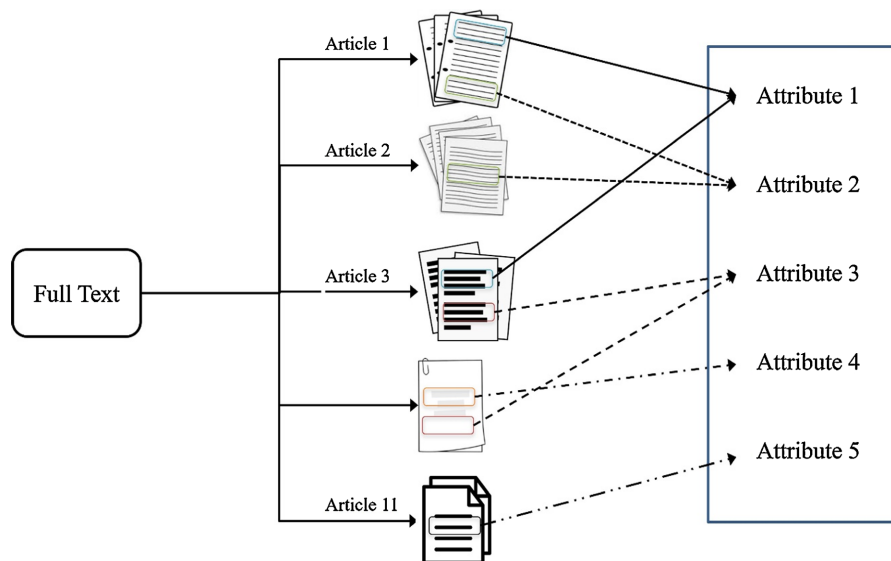
Once a document was deemed to be suitable, the full text data was studied to extract ideas that represented the attributes sought for the hyper-personalization. The ideas were recorded in a word pool and aligned with other ideas. This ideation step was to create a list of content describing customer needs by mapping words through word translation, localization, and content synonym. Thus, customer sentiments described in the article were translated to implied meaning and then to wanted attribute as shown in **Table 15**.

**Table 15.** Translation of reworded data.

Customer words	Implied meaning	Wanted attribute
Customer like quick download	transfer time	download speed
Customer has different needs	needs different plans	data plan
Customer stores many movies	large disk space	storage capacity

The data extraction was conducted on each of the selected article with a schema as shown in **Figure 5**. The data extraction was based on a numeric count of occurrences of each attribute and the aggregate of the word group. The count of items would give an indication of the importance of a given attribute and so would the group count.

A simple data extraction form was used for this purpose. Since the data extraction was conducted by the author alone, a simple pilot study for convenience of use was conducted. Since the data was extracted at the moment of reviewing the document, the selection of attributes was exploratory in nature, and the list of attributes was built simultaneously. Complete data extraction was achieved when the data showed a saturation of attributes.

**Figure 5.** Search methodology schema for excerpts collection for attributes synthesis.

### 3.3. Data Collection Procedure

Selected documents were analyzed through a detailed study for any excerpt that resembled an interest towards hyper-personalization. The documents identified by the SLR were studied one-by-one while looking for phrases or sentences that represented customer words with implied meaning related to a wanted attribute.

As the excerpts were identified and collected into meaningful groups named as an attribute suggestive of a variable that could be related to hyper-personalization. Many synonyms of excerpts were possible for an attribute. A collection of attributes

implying a similar concept was called a parameter. For example, closely related attributes such as family and age were named Demography.

Flexibility of arranging and rearranging excerpts, attributes, and parameter was the principle that made this Affinity Diagram a qualitative method related to thematic analysis. Affinity diagram (Widjaja & Takahashi, 2016) is similar to the thematic analysis (Braun & Clarke, 2006) and grounded theory where the excerpts are extracted from a document and assigned as codes, constructs, or categories (Figure 6). The schema for the Affinity Diagram is shown in Figure 6.

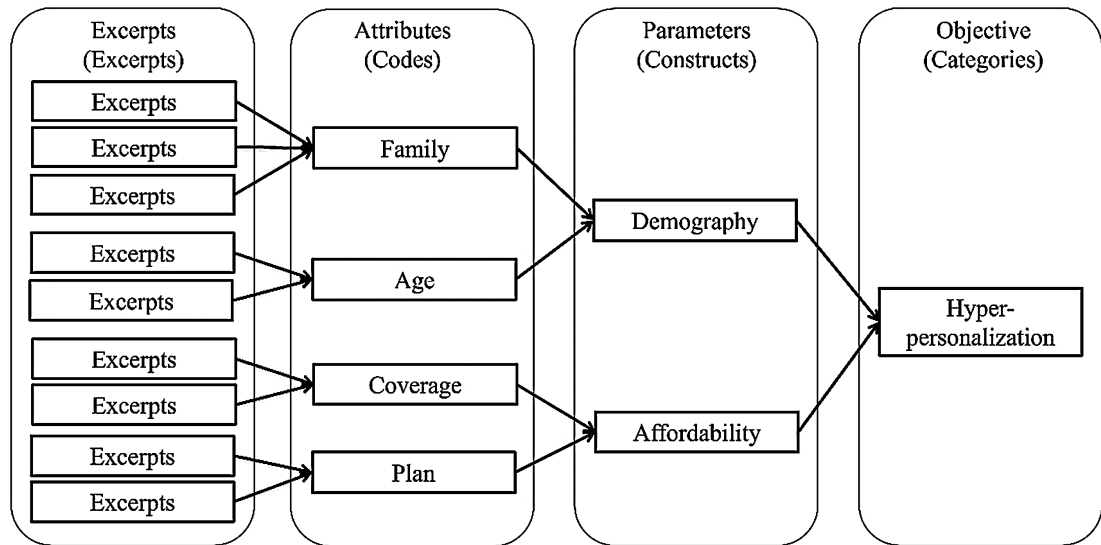


Figure 6. Excerpts, open, axial, and selective coding.

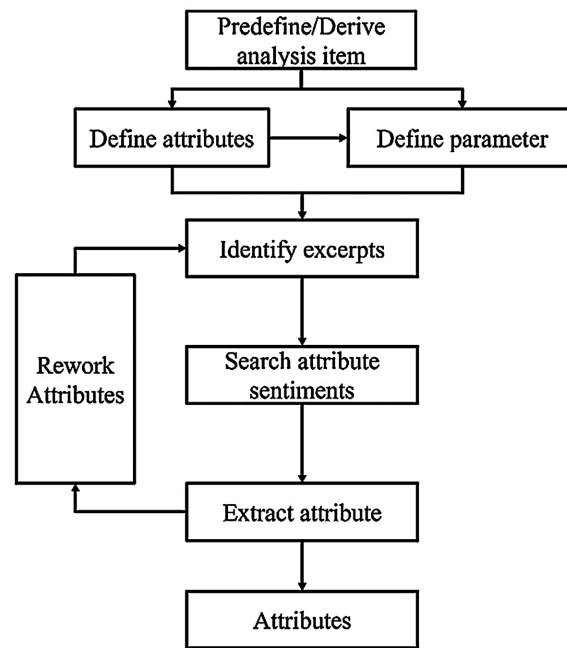
The qualitative analysis is highly relevant here for three reasons.

- 1) Affinity diagram (thematic analysis, or grounded theory) is suited to making claims about how individuals interpret reality.
- 2) There is no established theory on the process of seeking attributes for hyper-personalization (Creswell, 2014).
- 3) The qualitative analysis provides a guideline for research data interpretation (Cullen & Brennan, 2021).

The qualitative analysis adopted in this research is based on both the inductive and deductive approaches. The inductive coding allowed new codes to emerge from the excerpts. The deductive coding was deduced from the developing codes. All the codes were driven towards answering the research questions and the research framework adapted for hyper-personalization (Wicks, 2017).

The data extraction process was a cyclic process (Figure 7) with codes emerging into a recognizable theme associated with the research purpose (Williams & Moser, 2019). The constant comparison method was used in the data organizing and refining activity until the code converged to saturation.

To facilitate a dynamic method of recording during the cyclic coding process, an Excel format as shown in Table 16 was used. An example of excerpts from full text and the attribute implied is shown Table 16 using page 1141.



Source: Adapted from (Priyanka, 2023).

Figure 7. Cyclic coding process.

Table 16. Coding via data extraction.

Excerpts from Full Text	Attribute Implied
tailored product recommendations	Contract duration
touchpoints such as websites, mobile applications, social media platforms	Plan
chosen communication platform	Communication Channels
address customer inquiries	Inquiries
resolve issues promptly	Complaint handling
consistent and personalized customer experience,	Consistent Quality
real time responsiveness	Download Speed
sales, marketing, and customer service	Purchasing

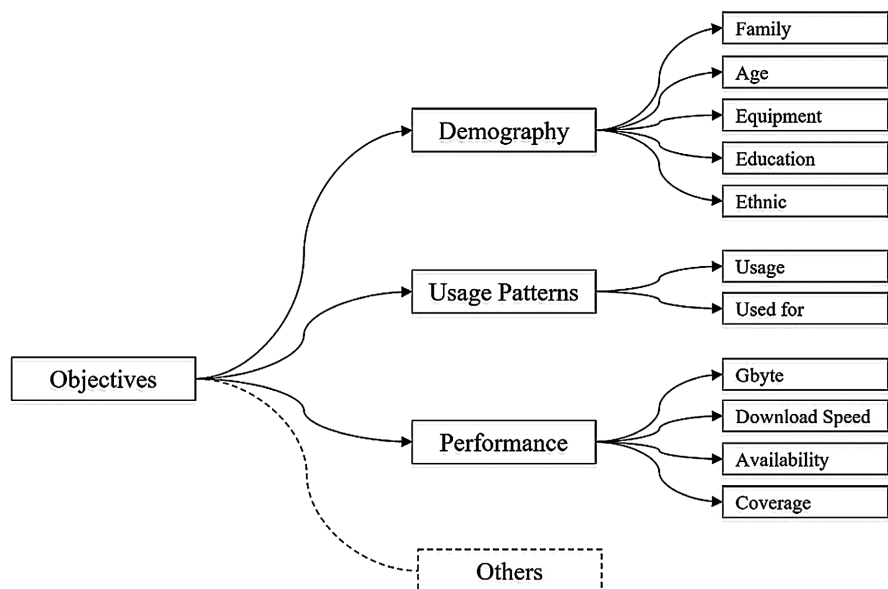
### 3.4. Data Coding Procedure

The articles were reviewed using Affinity Diagram. Affinity analysis is a brainstorming technique to organize ideas and concepts. The technique can be represented as a diagram to visualize the organization (Widjaja & Takahashi, 2016). As each article was evaluated, the article was identified and recorded. During the review process, attributes discussed within the article related to the user’s digital information were recorded. Initially, some of the attributes were added based on the “definite” types of attributes. The number of times an attribute was used within the article was recorded. Attributes were added, combined with other attributes, or deleted as each article contributed to the information accumulated.

When a number of attributes developed into a meaningful parameter, the attributes were reorganized under the parameter. This process was repeated until a saturated state was obtained.

### 3.5. Data Synthesis Procedure

The Affinity Diagram was used to organize innovative insights and ideas to create new patterns of understanding. The data was collected through the excerpts analysis from full text documents. As each document was read, variables related to hyper-personalization were identified, noted, and recorded as shown in **Table 17**. Data collected was arranged and rearranged to form meaningful derivatives and collections of ideas (Gupta et al., 2016). The collection of ideas converged on a concept which was regarded as an attribute for hyper-personalization. In this method a pool of words is considered and each observation (word or phrase) is used to find relationships between the observation and identifying a creative connection through grouping and regrouping of a derived idea to form attributes relevant to hyper-personalization. The affinity diagramming technique is visualized as a mind map (Iqbal et al., 2022) as shown in **Figure 8**.



**Figure 8.** Mind map of affinity diagram.

### 3.6. Risk of Bias in Included/Excluded Studies

At least four approaches were used to reduce the risk of bias in the study. One, the review process used multiple databases to provide a broad coverage of journals, conferences, and sources. This increases the likelihood of identifying a comprehensive range of documents relevant to the research while reducing the risk of missing studies that might be excluded due to the database indexing policy. Hence, multiple databases were used in this study.

Two, search engines use different policies for ranking algorithms to flag the

requested document in terms of relevance, citation numbers, and content. Some content may be seen to be irrelevant to the search engine. For example, a medical database may systematically exclude engineering documents. Hence, multiple search engines were used.

Three, some search engines had their own search templates resulting in a different approach to finding relevant documents (Rethlefsen et al., 2021). This bias was reduced by using multiple databases and multiple search engines.

Four, some seemingly relevant documents were only available behind multiple barriers of signing up, institutional collaboration, library permissions, expensive payment, or requesting the authors, for the full text article. Strict compliance to all these requirements is impractical for the researcher. Consequently, open-access articles tended to be in the selected search list. Nevertheless, this bias was reduced by a more detailed study of the abstract and searching for alternative sources of the document.

### 3.7. Assessment of Reporting Biases

Reporting bias is influenced by search engine operations and characteristics of the included studies. Search engines tend to highlight studies that are significant and deemphasize insignificant studies. Search engines also tend to highlight studies with higher number of citations. This leads to a bias favoring highly cited studies and thus not being representative of the literature (Pautasso, May 2010). Often documents with more citations tend to receive even more citations. Studies that did not support an established theory are less likely to be published. Language bias is also possible as many studies are not published in the researcher's native English language. Language bias may also be associated with regional bias (Briner & Denyer, 2012).

The mitigation to reporting bias in this study includes a comprehensive search to identify both published and unpublished studies, e.g., Google Scholar identified 1290 documents (Table 7) which were reduced to 86 documents (Table 10), and finally to 7 documents (Table 13).

## 4. Results and Findings

### 4.1. Results of the Study

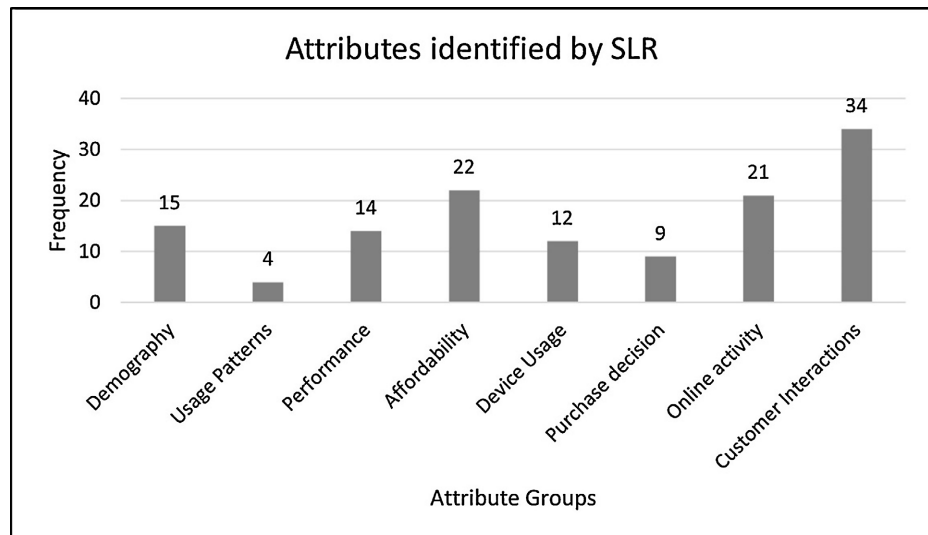
The parameters identified through the affinity diagramming include Demography, Usage Patterns, Performance, Affordability, Device Usage, Purchase decision, Online activity, and Customer Interactions. The attributes for hyper-personalization are listed in Table 17. Frequency indicates the number of occurrences of the attribute while Total indicates the number of occurrences of the attributes within the parameter. Based on this research, eight parameters were identified (Table 17, Figure 9) with a total of 32 attributes most associated with hyper-personalization (Table 18).

### 4.2. Key Themes and Categories

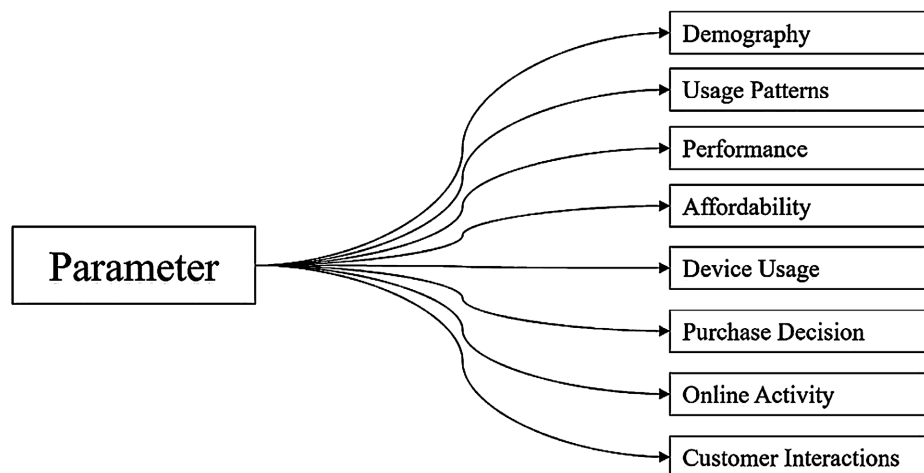
Based on the thematic analysis, a structured and comprehensive understanding

**Table 17.** Results of the study.

Parameters	Total	Variable	Frequency	Description
Demography	15	Family	3	Why family is suggested
		Age	3	Age determines user behavior
		Equipment	3	The device the user uses is important
		Education level	3	The education sets the type of usage
		Ethnic	3	Different ethnics have preferences
Usage Patterns	4	Usage	2	Frequency of use
		Used For	2	Who is the user
		Gbyte	3	Amount of data
Performance	14	Download Speed	4	Speed of download
		Availability	4	Available at all areas
		4G Coverage	3	High speed connections
Affordability	22	Cost	7	Cost per month
		Coverage	7	Coverage by device
		Plan	8	Plans available
Device Usage	12	Phone models	6	Phone models used
		Product range	6	Type of product
Purchase decision	9	Changeable options	2	User requirement update
		Contract duration	2	User committed period
		Auto renew contract	1	Continuation unless changed
		Cancellation window	1	Flexibility to change of mind
		Billing	3	Convenience for payment
Online activity	21	Video	4	User video needs
		Games	4	User games needs
		Communication Channels	4	User communication needs
		Browsing	4	User browsing needs
		Purchasing	5	User purchasing needs
Customer Interactions	34	Consistent Quality	9	Reliable quality service
		Consistent Cost	9	Reliable cost expectation
		Complaint handling	4	Courteous service
		Feedback	5	User provides feedback
		Inquiries	4	Able to inquire something
		Helpdesk	3	Help is available



**Figure 9.** Occurrences of attribute groups.



**Figure 10.** Thematic analysis resulting in attribute groups.

of the attributes were identified and classified as parameters shown in **Figure 10**. The parameters represent excerpts collated into meaning categories and provide a visualization of the attribute groups that highlight the consumer's digital demography as elucidated in this study. The attribute groups provide an easy reference to the collections of attributes identified in this study. The parameters collectively determine the customers' demography, their usage patterns, performance expectations, affordability of products and services, device types used, purchase decisions, their online activities, and interactions necessary.

### 4.3. Data Attribute Classification

From the results of the study, the excerpts were translated into the attributes associated with hyper-personalization as shown in **Table 18**. These attributes represent the digital demography identified as most pertinent to predict the user's purchasing behavior essential for effective hyper-personalization strategies.

**Table 18.** Sample attributes identified by SLR.

Parameter	No.	Attribute
Demography	1	Family
	2	Age
	3	Equipment
	4	Education level
	5	Ethnic
Usage Patterns	6	Usage
	7	Used For
Performance	8	Gbyte
	9	Download Speed
	10	Availability
	11	4G Coverage
Affordability	12	Cost
	13	Coverage
	14	Plan
Device Usage	15	Phone models
	16	Product range
Purchase decision	17	Changeable options
	18	Contract duration
	19	Auto renew contract
	20	Cancellation window
	21	Billing
Online activity	22	Video
	23	Games
	24	Communication Channels
	25	Browsing
Customer Interactions	26	Purchasing
	27	Consistent Quality
	28	Consistent Cost
	29	Complaint handling
	30	Feedback
	31	Inquiries
	32	Helpdesk

## 5. Conclusion

### 5.1. Conclusion of Study

The first objective of this study was to use an SLR based on the Kitchenham

recommendations. The methodology was adapted to identify articles pertaining to hyper-personalization from several databases. An unbiased search was adopted to select the most pertinent articles. The selection of articles was listed in a table that was used to draw the PRISMA flow chart.

The second objective of this research was to apply a Boolean search process to discover primary studies pertinent to hyper-personalization. The systematic search procedure used in this study ensured that the number of articles was progressively reduced to be more selective as permitted in the inclusion and exclusion criteria. This method facilitated the creation of search results that were replicable and reproducible and thus representing a crucial step to reduce the bias in the search method. This was accomplished by having a series of filters that progressively eliminated articles in the sequence Keyword > Title > Abstracts > Full Text.

The third objective was to perform a thematic analysis to gather data that could be applied to hyper-personalization. Carefully selected articles were examined to extract excerpts related to the attributes associated to hyper-personalization. The coding process involved open coding, axial coding, and selective coding. As a result of the thematic analysis, eight parameters consisting of 32 attributes were identified for hyper-personalization. The parameters identified include Demography, Usage Patterns, Performance, Affordability, Device Usage, Purchase decision, Online activity, and Customer Interactions.

Another benefit of this study is that it provides a template for conducting an SLR without the need for specialized software. The study demonstrates a self-reliant methodology that can be easily traced by an individual researcher.

## 5.2. Discussion of Study

First, the keywords for the SLR were constructed by using permutations of words listed in a table and identified as topic, issues, and scope. This method entailed a phrase that had components of an independent variable, a dependent variable, and a scope variable.

Second, the initial keyword or phrase was developed into a more specific phrase by attaching another word (or phrase) to the anterior or posterior of the current phrase. This ensured that the search space was not changed but trimmed progressively. Such a method ensured that search results did not swing between searches due to the sample space foci.

Third, Boolean concepts of And, Or, and Not were also used in the construction of the keyword and phrase.

Fourth, a table of search output was used to list all the document properties in a tabular format. Articles were downloaded for subsequent inclusion or exclusion. Where the document was not available as a file, the URL for the document was recorded.

Fifth, the search was based on the priority based on Keywords, Title, Abstract, and Full text. This ensured that irrelevant documents were rapidly excluded and a manageable list of documents remained for further analysis. This was an

important method when the document selection had to reduce hundreds of documents to a few important ones.

Sixth, the search for the attributes was an extension of the Keywords, Title, Abstract, and Full text. Another spreadsheet format was used to collect the attributes from the excerpts. Attributes were not always found as a keyword but often as a phrase or sentence implying an attribute. Thus, a phrase or sentence was regarded as pointing to an attribute when an underlying attribute was implicated. For example, a sentence or phrase on “provide customized services” could be reworded to “changeable options”. Also, “interact with unhappy guests” could be reworded to “complaint handling”. This approach was necessary to identify synonyms of words phrases with similar tones of meaning.

During the elucidation of factors that are important for hyper-personalization, none of the selected articles were exclusively related to the factors sought. Therefore, the scope of the topics discussed in the paper was taken as an indicative factor. In many cases, the voice of the customer was interpreted to a reworded data, *i.e.*, common idea.

It is notable that for any given search phrase applied in the databases, Google Scholar gave the highest number of documents meeting the search phrase. Search phrases could also be saved in a label. Items in the label could also be saved into a document list as a comma separated value (csv) file. This made it much easier to compile the list of articles from the search.

### **5.3. Implications of Findings**

There are both theoretical and practical implications of the study findings. The theoretical implication is that the research exposed the theoretical underpinning of digital demographic attributes in the context of hyper-personalization for telecommunications. It is a significant contribution to the body of supporting development models that can guide future academic investigations.

The practical implication of the study offers telcos a practical approach to identifying attributes important to implementing effective hyper-personalization strategies. This is achieved by the practical methodology advocated in this study. The experience highlighted through this study can be an enabler to facilitate customer-centric approaches and consequently enhance customer satisfaction, loyalty, and reduced churn.

### **5.4. Implications for Practice and Policy**

This study provides a thorough investigation into identifying parameters essential for hyper-personalization in the Telco industry. It describes an objective process of identifying the parameters necessary to achieve matching customer preferences and product or service delivery. These parameters and the associated attributes are intended to form the basis of variables adopted into artificial intelligence prediction models, elevating the degree of product and service matching with customer expectations.

## 5.5. Implications for Research

The implications of this research are considered as follows:

This study offers insights into using digital personality attributes to integrate into artificial intelligence applications for more accurate predictions of the customer preferences.

This study contributes to a practical model of how SLR can be conducted in other areas of research. The study will form a basis that guides future research to explore new dimensions of identifying digital personality attributes for hyper-personalization.

This SLR study can provide telcos with a better understanding of the digital personality attributes most relevant to hyper-personalization of their services. This study provides an objective method of determining the attributes in a systematic way rather than a presumed list of attributes.

The findings of this study can be adopted by telcos to tailor their offerings to meet customer needs more effectively and thereby increase customer satisfaction and retention. This will also enable telcos to differentiate themselves by providing hyper-personalized services.

This research also promotes a customer-centric approach by emphasizing the importance identifying attributes important to customers and then adapting hyper-personalization to meeting individual customer needs. This strategy will lead to better customer satisfaction and customer retention.

## 5.6. Limitations

The search was based on a manual search process using keywords and phrases concatenated by Boolean logic. Since this was limited to certain databases, some articles may be left out. However, this was mitigated to some extent using Google Scholar search which searched more widely across many databases. Also, only the researcher selected the articles and conducted the reviews. The researcher's interest in the topic could result in some subjective decisions. The subjective decisions were to some extent mitigated by the Study Quality Assessment.

## 5.7. Potential Biases in the Review Process

The main limitation in this study was the difficulty to find enough relevant articles that discussed hyper-personalization in the field of telecommunications. SLRs are vulnerable to publication bias as they depend on published literature. Published literature itself is biased with studies that mostly show positive and significant findings while non-significant and negative results are often not published. Furthermore, the quality and relevance of the studies vary widely and some lack the correct scope of hyper-personalization. Heterogeneity of the study methods used in the documents searched also makes it difficult to synthesize or generalize findings. Although these limitations are mitigated with clear inclusion and exclusion criteria, some level of subjectivity still influences the process. Another limitation was the articles were mostly that which were freely available on the internet. As a

result, the study mainly included open access articles in this research.

## 6. Future Research Directions

It is proposed that the attributes uncovered in this study be assessed by a team of industry experts to evaluate the relevance of each attribute to generate a consensus of attributes that can then be used to develop other aspects of the hyper-personalization.

Future research could be to develop real-time customer behavior and preference attributes to attain dynamic hyper-personalization. As real-time data becomes increasingly available, future research can explore the integration of artificial intelligence models into dynamic hyper-personalization. Additionally, future research could investigate the long-term effects of hyper-personalization with respect to customer behavior, loyalty, and churn rates.

## Author Contributions Statement

**Umapathy Sivan G. Murugasu:** Conceptualization of ideas, data collection, application of computational, and thematic data analysis techniques to analyze and synthesize the study data (lead). Developed the design methodology and created the models (lead). Original draft writing (lead) and editing (equal). **Anusuyah Subbarao:** Project management and coordination responsibility for the research activity planning and execution (lead). Original draft review and editing (equal). Research supervision (lead). All authors have reviewed, discussed, approved, and agreed to their individual contributions as submitting by the corresponding author.

## Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work the authors did not use any AI tools except the basic tools for checking grammar, spelling, and references.

## Ethics Approval

Ethical approval is not applicable for this research paper. There was no funding received for this research paper.

## Data Availability

The data that support the findings of this study and presented in this paper is available from the corresponding author upon reasonable request.

## Funding

No funding was requested or received for this research.

## Summary Statement of Contribution

This study contributes in many ways. The study underpins the importance of

identifying digital demographic attributes of customers for better hyper-personalization of telecommunications customers. Telecommunications organizations benefit from the structured customer-centric approach. The study provides a framework for empirical determination of customer digital personality attributes and integrating them into AI models for optimizing service customization. Telecommunications providers can leverage the study methodologies to customize their customer satisfaction and strengthen customer retention through enhanced customer-centric approaches. The innovations of the paper allow solitary scholarly researchers to conduct systematic literature reviews (required for academic purposes). The paper introduces a document search technique by refining the search scope without swinging between disparate search domains and thus enabling PRISMA counts. The paper also shows how document exploration is a continuous process that transitions from keyword to title to abstract, and to full-text excerpts extraction.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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