

# Algerian E-Commerce Firms' Collection and Usage of Customers' Personal Data: An Exploratory Study

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## Article Information

### Article history

Received: 3 July 2024

Accepted: 10 September 2024

Published: 30 September 2024

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### Suggested Citation

Assi, Z. N., & Khelladi, M. A. M. (2024). Algerian E-Commerce Firms' Collection and Usage of Customers' Personal Data: An Exploratory Study, Finance and Business Economics Review, Vol. 8, No. 3, pp. 43-55. DOI : 10.54327/set2023/vy.in.x

**Abstract:** This study aims to identify the personal data collection and usage practices implemented by Algerian e-commerce companies. To achieve this, we adopt an exploratory approach based on a content analysis of the privacy policies available on the websites of 126 firms. The content is quantitatively assessed through coding and frequency counting, enabling a descriptive analysis. The results reveal a primary focus on the direct collection of identifying data, associated with a predominantly internal use for service provision.

**Keywords:** Data collection; Data usage; Personal data; Privacy policy; Privacy practices.

## 1. Introduction

Estimated at over 180 zettabytes by 2025 (Statista, 2023), the amount of data in circulation is growing at an unprecedented rate. The magnitude of this growth has pushed global society to an inflection point, marking the transition to a new economic era where data reigns.

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In this Data-Driven Economy (DDE), personal data (PD) is omnipresent and predominant, as much of the data has its origins as personal data created during individuals' interactions with digital technologies and tools. Consequently, this type of data is becoming a key concern for decision-makers in both advanced and developing countries. In this context, effectively defending a country short- and long-term interests in the DDE requires an in-depth understanding of data-driven firms that have succeeded in turning PD into a new asset.

### 1.1. Research Problematic

In Algeria, 71.2% of the population uses the Internet (ITU, 2024, cited in DataReportal, 2024), indicating a significant amount of data in circulation. This invites us to take an interest in the firms that are behind this and are building the foundations of this new economy at national level, and in particular e-commerce firms, which alone attracted 7.03 million users in 2024, representing more than 20% of the internet users (Statista, 2024) and

should, according to the exploratory study of Rachedi and Hamou (2022, pp. 326–330), soon be experimenting with the big data trend.

Our research question is therefore: how do Algerian e-commerce firms collect and use customers' and users' personal data? Given the diversity of parameters involved in these practices, we hypothesize that such practices exist, but need to be identified.

### 1.2. Research Aims

The aim of this paper is to explore the data practices currently adopted by e-commerce companies in Algeria, and to highlight the main trends that are emerging. Therefore, this modest contribution is, to the best of our knowledge, one of the first to investigate the issue of personal data on the Internet from an economic and managerial point of view.

For this, we will begin by reviewing the fundamental concepts of data, personal data and data-driven economy. Next, we will delve into the literature on PD practices, classifying them into data collection and data usage, which will serve us as a guideline for an exploratory study of the practices adopted by Algerian e-commerce websites. Our approach involves analyzing the content of the privacy policies published on these websites, which declare how the company manages operations relating to customers data, in order to extract quantifiable variables that could be described in numerical and statistical terms.

## 2. Literature review

### 2.1. Data and the data-driven economy

According to the United Nations Conference on Trade and Development (UNCTAD), “data” initially refers to small, unrelated, human-readable pieces of information (United Nations Conference on Trade and Development, 2021, p. 5). These are therefore a description of objects or events enabling them to be saved, analyzed and reorganized (Mayer-Schönberger & Cukier, 2013, p. 78). When these operations are conducted in a digital format, products and activities become expressed as strings of binary characters, known in computer language as bits, thus making them storable, processable and transmissible by machines or digital technologies.

Several taxonomies exist for categorizing data depending on the criterion chosen (Coyle et al., 2020, p. 4). Differentiating data based on origin leads to a distinction between data generated by consumers and those generated by business activities. Depending on the form, data can be classified into structured and unstructured data. According to the degree of sensitivity, data can be categorized as sensitive or non-sensitive. Additionally, depending on their ability to identify individuals, data can be classified as personal or non-personal.

The importance attached to data has led to the emergence of a so-called “data-driven economy”, born from the “*combination of growing scale and scope of data and increased capability and convergence of technology*” (Ciuriak, 2018, p. 1). According to Aaronson (2019), the DDE means “*an economy built around the collection, preservation, protection, implementation and understanding of many different types of data*” (Aaronson, 2019, p. 2). However, the author argues that among these types of data, a significant portion of the DDE is built on PD, which is the focus of the present paper.

### 2.2. Personal data, a new economic asset

PD refers to data concerning a specific and distinct individual that makes him identified or identifiable by it (Rochelandet, 2010, p. 14). The Organization for Economic Cooperation and Development (OECD) (2019, p. 5) explains this criterion by drawing up a list of data considered as personal, including:

- Users generated content: blog posts, comments, photos or videos posted by them, etc.;
- Behavioral data: searches made on the Internet, online purchases, etc.;

- Social data: contacts and friends on networking sites;
- Location data: residential and virtual addresses on Internet Protocol (IP), GPS and geolocation;
- Demographic data: age, gender, income, political affiliation, etc.;
- Official identification data: name, financial or medical information, social security number, etc.

It should be noted that these definition elements, before being transposed to the economic sphere, were born in the legal field given the particularity of these data and its close link to human rights. In this regard, the Algerian legislation considers that PD means “*any information, whatever its medium, concerning an identified or identifiable person [...] in a direct or indirect manner, in particular by reference to an identification number or to one or more specific elements of his physical, physiological, genetic, biometric, psychological, economic, cultural or social identity*” (Law No. 18-07 of 25 Ramadhan 1439 corresponding to June 10, 2018 related to the protection of individuals in the processing of personal data, 2018, p. 11).

In economic theory, PD is considered as a special information resource. In this regard, theoretical positions diverge within the literature: we find, on the one hand, the supporters of the free circulation of PD, basing their arguments on the economic benefits resulting in terms of adjustment between the supply and demand in different markets, such as Posner (1981, p. 406) who considers that, like any informational resource, the reduction of available personal information leads to market failures because it deprives economic agents of potentially relevant information.

Varian (2002, p. 3) even demonstrates that, in the case of certain transactions, PD disclosure would be in the interest of both the seller and the buyer. Calzolari and Pavan (2006, pp. 168–204) also affirm this by demonstrating that it could be optimal for both parties to share personal information and that this does not necessarily reduce the economic surplus of the agent. These authors thus oppose state interventions for the protection of individuals' PD which they perceive as being ineffective and not achieving the desired objectives (Laudon, 1996, pp. 99–104).

On the other hand, we find those for whom the privacy of individuals must be protected through state intervention. Indeed, according to Hirshleifer (1971, pp. 561–574), this information cannot be considered productive because it only impacts the distribution of surplus between sellers and consumers in favor of the former. This can result in ineffective over-investment in collecting them without generating greater social value. Hermalin and Katz (2006, pp. 209–239) demonstrated that the circulation of this type of information between economic agents is likely to reduce the effectiveness of the exchange when the increase in available information does not lead to symmetrically or fully informed parties.

In this article, while admitting that respect for privacy is fundamental, our research object is in line with the work carried out by the first cited who advocate the interest of PD for companies, particularly in terms of creating business models that reduce transaction costs and improve the matching between buyers and sellers (Varian, 2002, p. 11). We therefore propose to take an interest in practices regarding PD in the case of e-commerce.

### 2.3. Personal data practices

To capture this intangible asset, companies adopt specific practices. We mean by “personal data practices” the way in which companies manage the data they hold or collect (Thomas et al., 2021, cited in Boroomand et al., 2022, p. 3). These practices may relate to various operations. Within the literature, the emphasis has been placed on certain particular types: for example, Boritz and No (2011, p. 20) consider that these operational practices relate to the collection of data, their recording, their use and protection, while Beke et al. (2018, p. 6) take into account the collection of data, their storage, their use, the transparency of these practices and the control offered to the consumer over their information. For the

purpose of this research, given that privacy policies primarily provide information on how data is collected and how it is used, we will mainly focus on these two practices.

### 2.3.1. Data collection

According to Beke et al. (2018, p. 12), data collection practices vary according to the following parameters: i) the type and amount of information requested; ii) the method of collection; iii) the behavior targeted by the collection; iv) the incentive mechanisms implemented for the collection.

Regarding the first aspect, Chellapa and Sin (2005, p. 188) identify three main categories of information commonly collected on the Internet: i) personally identifiable information (name, address, telephone number, etc.); ii) personally unidentifiable information (gender, age, hobbies, etc.); and iii) anonymous information (related to browsing activity). Conversely, Meinert (2006, p. 6) suggests categorizing them into contact information, biographical information and financial information but does not mention technical data that can be collected.

The sensitivity of the information requested has also been emphasized, Milne et al. (2017, p. 150) have demonstrated that different types of information are associated to various level of sensitivity based on the perceived risk they involve for the consumer.

Regarding the collection method, Miltgen (2006, p. 23) suggests that consumer-related data can be collected through three main manners: i) a direct collection method; ii) a discreet collection method; iii) an indirect collection method.

The direct collection method refers to the collection of information directly from the consumers through a processus similar to a *“conversation-like format”* (Martin & Palmatier, 2020, p. 452) or feedback between the retailer and the consumer, thus implying a double dimension of deliberate intention and proactive exchange (Polonioli, 2022, p. 3). The obtained data is then called *“zero-party data”* and refers to *“information that consumers knowingly, willingly provide to retailers”* (Rwan, 2020, as cited in Martin & Palmatier, 2020, p. 452).

The discreet collection method involves a passive data disclosure from the consumer associated with a direct gathering of data from the channels owned by the company (Bianchi, 2023, p. 35). The obtained data, called *“first party data”* are a *“bi-product of consumers’ day-to-day interactions with a firm”* (Krafft et al., 2021, p. 137), and generally concerns behavior-based data (Polonioli, 2022, p. 3), generated throughout the activity of the consumer on these channels, such as website interactions, search history, etc. The strategies employed to collect such data differ according to the degree of awareness of consumers about it. In this regard, Aguirre et al. (2015, p. 36) identify two main discreet collection strategies: an overt strategy if a conscious effort has been made by the firm to inform consumers about it and a covert strategy otherwise.

The data collection is indirect when it is made through purchasing or leasing databases from third parties (Miltgen, 2006, p. 23). The so-called *“third party data”* consist of all information, either it is demographic, psychographic or behavioral which is *“[...] collected by an organization [...] that does not have a direct relationship with the data subject”* (Cinar & Ateş, 2022, p. 63). The exchange of such data is mainly done through specialized intermediaries such as data brokers or data aggregators.

Regarding the incentive or compensation mechanisms, it has been argued that consumers are sensitive to tangible and intangible benefits provided in exchange for the acceptance of data collection. Tangible benefits generally involve monetary reward which have been demonstrated, at a certain extent, to encourage the behavioral intention of disclosing personal information (Li et al., 2010); while the intangible benefits can be a better personalization, product and service recommendation, time saving, etc.”

### 2.3.2. Data usage

Globally, according to Beke et al. (2018, p. 21), customer-related data usage can either be situated at the aggregate or the individual level. This usage or exploitation for a direct or indirect economic benefit is often referred to as “data monetization” (Quach et al., 2022, p. 1301). Therefore, data monetization occurs when the intangible value of data is converted into real value, either by direct selling, creation of new products, conversion into financial returns, cost avoidance, etc., (Ofulue & Benyoucef, 2022, p. 2). The monetization strategy can thus be either direct or indirect (Zhang et al., 2023, p. 1).

The first one refers to explicit monetization (Faroukhi et al., 2020, p. 15), and means the direct selling of data. According to Parvinen et al. (2020, p. 28), this can be done through three main ways: i) by selling data, in a raw or an aggregated form, and transferring its ownership to the buyer; ii) by selling analyses extracted from the data; and iii) by selling services in exchange for the data provided. In addition to direct selling, firms can also share data. This occurs when they provide data they hold to their partners in order to benefit and facilitate collaboration in the entire ecosystem to which they belong (Quach et al., 2022, p. 1301).

The second type of monetization is considered as an implicit one (Faroukhi et al., 2020, p. 15) and focuses on “leverage collected data about consumers to improve the firm’s product or service offerings, increasing the firm’s competitiveness, product price, and market share” (Zhang et al., 2023, p. 1). Quach et al. (2022, p. 1301) focus mainly on this second aspect and consider that indirect monetization practices consist of the application of knowledge extracted from data analysis for: i) personalization marketing actions; and ii) the improvement of products and services, or the creation of new ones, by augmenting them with data-driven features and experiences, and thus increasing their value.

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### 3. Methodology

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Based on the practices identified in our literature review, the aim of this paper is to examine the practices concretely adopted by a sample of online firms in Algeria. To do this, we referred to the declared practices that they publish on their websites. Indeed, companies generally publish on their website declarations or written statements, called privacy policies, through which they inform of their practices regarding the collection and usage of users’ data (Awad & Krishnan, 2006, p. 19).

The analysis of these declarations is a particularly recurrent practice used by researchers for two main reasons: first, to examine the effect of their content on consumer behavior. Privacy policies have been proven to influence trust (Wang & Herrando, 2019, pp. 171–173), privacy concerns (Xu et al., 2011, pp. 809–812), purchase intention (Tsai et al., 2011, p. 266), etc. Second, to focus on the content, structure and complexity of these policies. In this case, the studies carried out are generally based on comparisons with the recommendations established by certain national or international organizations, such as the Fair Information Practices (FIP) in the United States or the General Data Protection Regulation (GDPR) in the European Union, which guide on the optimal way in which should be designed this type of declaration. These frameworks serve as references for analyzing the content and structure of privacy policies in terms of collection, usage and sharing with third parties (Becker, 2004, p. 56). For example, this has been done for the Fortune 500 companies (Liu & Arnett, 2002, p. 15), for state government and commercial websites (Becker, 2004, pp. 57–62), in the context of the financial sector (Javed et al., 2021, pp. 8–11), e-commerce (Desai et al., 2012, p. 228), air transport (Nyshadham, 2000, pp. 148–150), etc.

This article is in line with this approach. However, our purpose is not to focus on the way in which privacy policies are designed but to use them as a means to deduce the practices of websites in Algeria relating to the data they collect from individuals.

Using the database of e-commerce companies registered with the Algerian national center of the trade register and that of certified merchant websites, supplied by the GIE Monétique

group and SATIM<sup>1</sup>, we compiled a list of 323 accessible websites for companies offering goods and services to consumers. Of these websites, 126 have a privacy policy specifying the practices adopted<sup>2</sup>. Our analysis therefore focuses on this corpus.

To answer the research question and provide an overall picture of currently declared practices, we conducted a content analysis of these privacy policies. The content analysis that we carried out had a quantitative aim. It involves, according to Aktouf (1987, p. 114), to count and establish frequencies of appearance of the elements retained as units of information.

The different parts regarding data collection and data usage were extracted and then coded according to predefined categories based on our literature review, thus allowing us to carry out a statistical analysis using SPSS software. The obtained results are shown below.

## 4. Data analysis

### 4.1. Construction of variables

The variables for statistical analysis were constructed by counting their presence or absence in the various policies making up our corpus. To do this, after an initial reading of a privacy policy, we selected extracts containing the relevant information, and based on their content, we deduced the variable represented. The table below provides examples of the approach used each time to identify the different variables.

Table 1. Variables of the study

| FBER<br><br>48 | Extract from the privacy policy <sup>3</sup>                                                                                                                                                                                                                        | Keywords retained                                                                      | Variable represented |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------|
|                | "Once you have registered on [...], you will be asked to enter your <b>personal details</b> such as your <b>name</b> , <b>e-mail address</b> , <b>telephone number</b> , etc."                                                                                      | Personal details; name; e-mail address; telephone number                               | Identifying data     |
|                | "When you visit the website, we automatically collect certain <b>information about your device</b> , including <b>information about your web browser</b> , your <b>IP address</b> , your <b>time zone</b> , etc. This information is then stored on your computer." | Information about the device; information about the web browser; IP address; time zone | Technical data       |
|                | " <b>Usage information</b> (including <b>pages or content you are viewing</b> , <b>ad searches</b> on the [...] platform)."                                                                                                                                         | Usage information; pages viewed; content viewed; searches                              | Usage data           |
|                | "We collect the <b>information you provide to us</b> , including your name, e-mail address, payment method(s) and telephone number. We collect this information in a number of ways, <b>including when you enter it when you use our service</b> , [...]."          | Information provided; information entered when using the service                       | Direct collection    |
|                | "Browsing the [...] website may result in the <b>installation of cookie(s)</b> on the user's computer."                                                                                                                                                             | Cookies                                                                                | Discreet collection  |
|                | " <b>Other data is collected from various sources</b> , including affiliated entities, commercial partners and other independent third-party sources."                                                                                                              | Data collected from other sources                                                      | Indirect collection  |
|                | "We will only process the data we collect about you if there is a reason to do so and we have to in order to: to <b>provide you with access</b> to the relevant parts of the website; <b>provide you with the services</b> you have requested [...]"                | Website access; provide services                                                       | Service furniture    |
|                | "We use [...] to <b>identify and anticipate customer needs, preferences and interests</b> "                                                                                                                                                                         | Needs; preferences; interests; personalized                                            | Personalization      |

<sup>1</sup> In french : Société d'Automatisation des Transaction Interbancaires et de Monétique (Automated Interbank Transactions and Electronic Banking Company).

<sup>2</sup> These data are up to June 2024.

<sup>3</sup> In this table, these extracts have been translated. The original text was mainly in French.

and to provide you with **personalized offers, discounts, promotions and other services offered [...]**"

offer;  
discount;  
promotion;  
service

personalized  
personalized  
personalized

**"To compile commercial and traffic statistics for our application and/or our website"**

Commercial  
traffic statistics

statistics;

Statistics & analysis

**"Improving our platform: We use the information we collect to improve our platform and optimize our services."**

Improvements of platform;  
improvements of service;  
optimization

Products/services  
improvements

**"[...] will transfer your data to the following categories of recipients: companies of the group [...] Third-party business partners [...] Third-party subcontractors [...]"**

Transfer; companies; third-  
party;  
subcontractors

partners;  
Sharing

Source: Compiled by the authors

We therefore obtained 11 variables coded dichotomously, with a value of 0 assigned when the variable is not mentioned and a value of 1 when it is explicitly mentioned. In addition, an observation is considered as a missing value when the confidentiality policy does not mention any information on variables belonging to the same group.

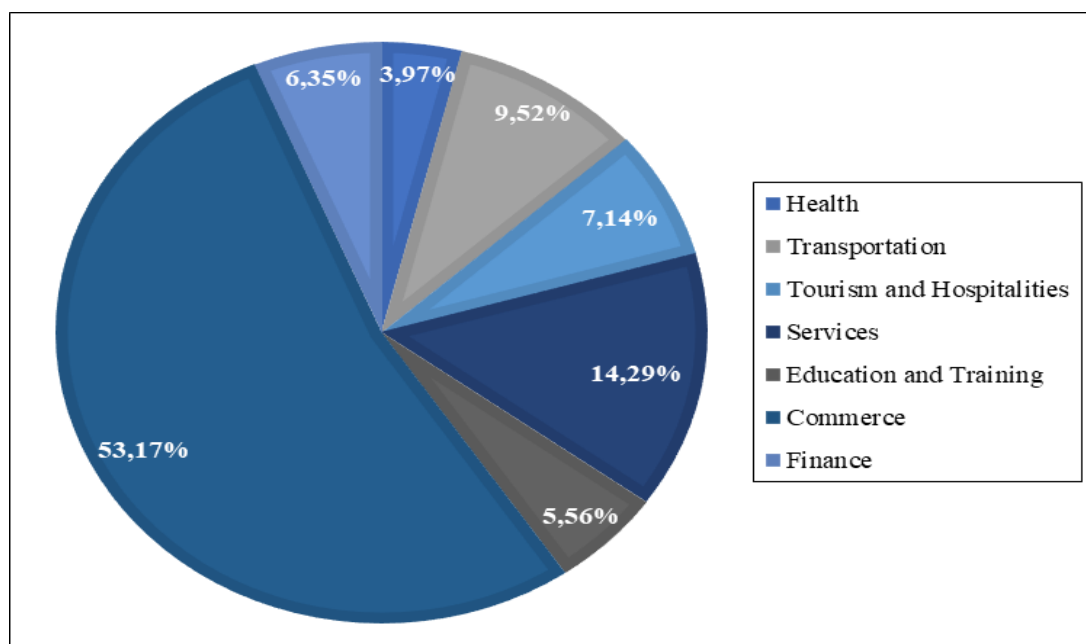
#### 4.2. Description of the sample

The following figure shows the distribution of the companies in our sample by sector of activity.

Fig. 1. Distribution of websites by sector

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Source: Compiled by the authors based on the outputs of SPSS software

Of the firms in our sample, the majority (53.17% of the total) focus on the sale of physical goods, while service companies represent the remaining 46.83%. The breakdown of service companies is as follows: health services (3.97%), education and training services (5.56%), financial services (6.35%), tourism services and hotel accommodation (7.14%), transport services (9.52%), and other various services (14.29%).

#### 4.3. Data collection practices

According to the information extracted, data collection practices can be described in two ways: i) according to the type of data collected; and ii) according to the method used to collect it.

#### 4.3.1. Types of data collected

The policies consulted indicate the collection of three types of data, which we propose to categorize as follows: i) identification data; ii) technical data; and iii) usage data.

Table 2. Types of data collected

|                               |                  | Count | Table Valid N % |
|-------------------------------|------------------|-------|-----------------|
| <b>Type of data collected</b> | Identifying data | 114   | 96.6%           |
|                               | Technical data   | 101   | 85.6%           |
|                               | Usage data       | 64    | 54.2%           |

Source: Compiled by the authors based on the outputs of SPSS software

Identifying data, frequently referred to as “account data”, “order data”, “data voluntarily entered”, “data transmitted directly by the customer”, “identity and contact data”, are collected by 96.6% of the companies in the sample. This type mainly concerns the collection of information relating to the identity of the person, such as surname, first name, e-mail address and, in some cases, telephone numbers. Technical data, also referred to as “connection data”, is mentioned in 85.6% of cases and mainly concerns data relating to the browser used, the date and time, location, IP address, etc. Finally, usage data is mentioned by 54.2% of companies and mainly refers to data collected once the person has an account on the website, such as data concerning search or purchase history, items selected with a view to purchase, etc.

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#### 4.3.2. Methods of collection

In the same way as we have previously identified through our literature review, it turns out that the websites in our sample declare adopting three main collection methods: i) direct; ii) discreet; and iii) indirect.

Table 3. Methods of collection

|                          |                 | Count | Table Valid N % |
|--------------------------|-----------------|-------|-----------------|
| <b>Collection method</b> | Direct method   | 114   | 96.6%           |
|                          | Discreet method | 102   | 86.4%           |
|                          | Indirect method | 33    | 28.0%           |

Source: Compiled by the authors based on the outputs of SPSS software

Direct data collection is carried out by 96.6% of companies, and involves the voluntary disclosure of data by the consumer, often using a form when registering or placing an order. Discreet data collection, which involves the use of tracking technologies such as cookies or log files, is present in 86.4% of cases. In this study, the collection is discreet but declared<sup>4</sup>, since it is explicitly included in the confidentiality policies. The indirect method consists of obtaining data on consumers by using third parties, and is declared by 28% of companies when they are doing it for themselves or for third parties.

<sup>4</sup> This corresponds to the overt strategy formulated by Aguirre et al. (2015, p. 36).

#### 4.4. Data usage practices

The analysis reveals five recurring uses: i) service provision; ii) personalization of services and products; iii) statistics and analysis; iv) improvements of products and services; and v) sharing with partners.

Table 4. Data usage

|                      |                               | Count | Table Valid N % |
|----------------------|-------------------------------|-------|-----------------|
| <b>Usage of data</b> | Service furniture             | 100   | 91.7%           |
|                      | Personalization               | 80    | 73.4%           |
|                      | Statistics & analysis         | 69    | 63.3%           |
|                      | Product/services improvements | 54    | 49.5%           |
|                      | Sharing                       | 72    | 66.1%           |
|                      |                               |       |                 |

Source: Compiled by the authors based on the outputs of SPSS software

The use of data to provide the service is mentioned by 91.7%, followed by personalization (73.4%), analysis and statistical studies (63.4%), improving products and services (49.5%) and external data sharing (66.1%).

The table shows that data use practices are divided into two main classes: internal and external. The first covers all uses of data within the company, this represents the indirect monetization applications described above, and mainly involves using data for service provision or enabling the use of the website, personalization and improvements of products and services and producing statistics and analyses. The second covers all uses based on a data flow output, and refers to direct monetization practices. However, contrary to what is postulated in the literature, our analysis does not reveal any sale of data or data products, but rather a sharing of data with subsidiaries, third-party partners and subcontractors, etc.

## 5. Results

The following results can be drawn from the above analysis: firstly, in terms of data collection, almost all the companies in our sample collect identification data related to the person's identity and contact details. In second place, technical data are collected on the connection between the hardware used and the website accessed. Finally, some companies also declare the collection of data specific to the use of their website throughout the user's navigation on it.

In regards to the way in which these data are collected, the first type is mainly gathered directly from the consumer, and is based on voluntary disclosure. To a lesser extent, two other methods are encountered: a discrete method based on tracking technologies, and the use of third parties, which represents an indirect method.

In terms of the uses to which these data are destined, internal uses predominate, notably in the context of providing the service, personalizing the offer or communication to the consumer, drawing up statistics and analyses, and improving the products or services provided. We do not note any explicit monetization of data, but an outgoing data flow can nevertheless be observed through the sharing practices employed with third parties.

## 6. Discussion

These results suggest that e-commerce firms registered in Algeria are aware of the flow of data circulating on the web and are putting in place specific practices for its collection and use. In this context, although our analysis revealed a certain diversity in terms of the data

collected and the uses to which they are dedicated, the majority of companies seem to be oriented towards collecting customer identification data, mainly to enable the product or service to be supplied.

This collection of identifying data necessary for the execution of the service is found in almost all the studies dealing with a similar theme, whether on the most popular platforms (Winkler & Zeadally, 2016, pp. 77–81) or local government websites (Dias et al., 2013, pp. 92–94). In addition, the level of indirect monetization appears to be rather low and sharing is limited to partners for the most part, which leads us to perceive firms as being data harvesters according to the typology established by Quach et al. (2022, p. 1316).

However, these results could evolve. The study carried out by Wagner (2023, pp. 14–18) on a large corpus of privacy policies over 25 years shows the existence of certain changes, for example a reduction in the collection of certain types of personal information, including contact details, cookies and users' online activities, but more implicit data collection and an increase in data sharing with unnamed third parties. Such trends should therefore be carefully monitored.

Therefore, without claiming to be general or exhaustive, this study provides an initial overview of the maturity of Algerian companies with regard to consumers' personal data online. It should be emphasized that this research has focused on declared practices, which may differ from those actually implemented. In addition, manual analysis is susceptible to human error.

Several extensions seem possible. For instance, it seems relevant to compare the practices adopted according to the activity domain and to investigate a possible link between PD strategies and performance, as highlighted by the work of Cecere et al. (2015, p. 92) in relation to business models and degree of intrusion. Furthermore, the fact that there are a considerable number of websites that do not communicate about these practices deserves to be explored further by questioning the factors that determine this. In addition, it is also possible to examine the degree of compliance with national or international regulatory recommendations in place, following the example of the work of Javed et al. (2020, pp. 156071–156078) for Asian countries or Jiang and Syn (2023, pp. 669–676) for companies traded in the U.S. equity market.

## 7. Conclusion

To ensure a successful transition to a data-driven economy, considerable attention must first be given to the data itself. Therefore, exploring the real foundations on which this economy should be built is needed. This is particularly important in the Algerian context where digitalization is increasing but discussion about the DDE is still limited. The e-commerce sector being one of the most dynamic in terms of data exchange has therefore been the focus of the present paper.

In order to shed light on the practices adopted by commercial websites in the Algerian context, this study employs an exploratory approach based on the content analysis of 126 declarations relating to data privacy.

This analysis enabled us to extract quantified results regarding the types of data collected, the collection method employed and the uses, both internal and external, for which the data collected are intended. We have thus demonstrated the existence of different practices, but a common trend that is shared by the majority consisting of a collection of identifying data directly from consumers and primarily for the provision of the service. To a lesser extent, we detected the collection of technical and website usage data, the use of discrete or indirect collection methods, and uses for analytical purposes, personalization, product and service improvement and sharing with external parties.

These results provide information on the current state of data practices in order to guide regulatory efforts to achieve the desired practices, while also revealing areas for

improvement for companies wishing to create value from data. More broadly, this overview paves the way for further work on the issue of privacy on the Internet in the Algerian context.

## 8. References

1. Aaronson, S. A. (2019). Data is different, and that's why the world needs a new approach to governing cross-border data flows. *Digital Policy, Regulation and Governance*, 21(5), 441–460. <https://doi.org/10.1108/DPRG-03-2019-0021>
2. Aguirre, E., Mahr, D., Grewal, D., de Ruyter, K., & Wetzels, M. (2015). Unraveling the personalization paradox: The effect of information collection and trust-building strategies on online advertisement effectiveness. *Journal of Retailing*, 91(1), 34–49. <https://doi.org/10.1016/j.jretai.2014.09.005>
3. Aktouf, O. (1987). *Méthodologie des sciences sociales et approche qualitative des organisations. Une introduction à la démarche classique et une critique*. Les Presses de l'Université du Québec. <https://doi.org/10.1522/cla.ako.met>
4. Awad, N. F., & Krishnan, M. S. (2006). The Personalization Privacy Paradox: An Empirical Evaluation of Information Transparency and the Willingness to Be Profiled Online for Personalization. *MIS Quarterly*, 30(1), 13–28
5. Becker, S. A. (2004). A usability study of internet privacy policies for state and commercial websites. *International Journal of Services and Standards*, 1(1), 52–68. <https://doi.org/10.1504/ijss.2004.005688>
6. Beke, F. T., Eggers, F., & Verhoef, P. C. (2018). Consumer informational privacy: Current knowledge and research directions. *Foundations and Trends in Marketing*, 11(1), 1–71. <https://doi.org/10.1561/17000000057>
7. Bianchi, A. (2023). Implications of zero party data on user decision-making in digital advertising: The implications of behavioral economics on decision-making. *Behanomics*, 1, 33–47. <https://doi.org/10.55223/bej.7>
8. Boritz, J. E., & No, W. G. (2011). E-commerce and privacy: Exploring what we know and opportunities for future discovery. *Journal of Information Systems*, 25(2), 11–45. <https://doi.org/10.2308/isis-10090>
9. Boroomand, F., Leiponen, A., & Vasudeva, G. (2022). *Does the market value attention to data privacy? evidence from US-listed firms under the GDPR* (Wharton Mack Institute Working Paper)
10. Calzolari, G., & Pavan, A. (2006). On the optimality of privacy in sequential contracting. *Journal of Economic Theory*, 130, 168–204. <https://doi.org/10.1016/j.jet.2005.04.007>
11. Cecere, G., Le Guel, F., & Rochelandet, F. (2015). Les modèles d'affaires numériques sont-ils trop indiscrets? Une analyse empirique. *Réseaux*, 189(1), 77–101. <https://doi.org/10.3917/res.189.0077>
12. Chellappa, R. K., & Sin, R. G. (2005). Personalization versus Privacy: An Empirical Examination of the Online Consumer's Dilemma. *Information Technology and Management*, 6, 181–202. <https://doi.org/10.3138/cras.42.1.7>
13. Cinar, N., & Ateş, S. (2022). Data Privacy in Digital Advertising: Towards a Post Third-Party Cookie Era. In M. Filimowicz (Ed.), *Privacy: Algorithms and Society* (pp. 55–77). Routledge. <https://doi.org/10.2139/ssrn.4041963>
14. Ciuriak, D. (2018). The Economics of Data: Implications for the Data-Driven Economy. In *Data Governance in the Digital Age*. <https://doi.org/10.2139/ssrn.3118022>
15. Coyle, D., Diepeveen, S., Wdowin, J., Kay, L., & Tennison, J. (2020). The Value of Data Policy Implications. In *Bennett Institute for Public Policy, Cambridge and the Open Data Institute*.
16. DataReportal. (2024). *Digital 2024: Algeria — DataReportal – Global Digital Insights*. <https://datareportal.com/reports/digital-2024-algeria>

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17. Desai, M. S., Desai, K. J., & Phelps, L. D. (2012). E-commerce policies and customer privacy: A longitudinal study (2000-2010). *Information Management and Computer Security*, 20(3), 222–244. <https://doi.org/10.1108/09685221211247325>
18. Dias, G. P., Gomes, H., & Zúquete, A. (2013). Privacy policies in web sites of portuguese municipalities: An empirical study. In *Advances in information systems and technologies* (pp. 87–96). Springer Berlin Heidelberg
19. Faroukhi, A. Z., El Alaoui, I., Gahi, Y., & Amine, A. (2020). Big data monetization throughout Big Data Value Chain: a comprehensive review. *Journal of Big Data*, 7(3). <https://doi.org/10.1186/s40537-019-0281-5>
20. Hermalin, B. E., & Katz, M. L. (2006). Privacy, property rights and efficiency: The economics of privacy as secrecy. *Quantitative Marketing and Economics*, 4(3), 209–239. <https://doi.org/10.1007/s11129-005-9004-7>
21. Hirshleifer, J. (1971). The Private and Social Value of Information and the Reward to Inventive Activity. *American Economic Review*, 61(4), 561–574
22. Javed, Y., Al Qahtani, E., & Shehab, M. (2021). Privacy Policy Analysis of Banks and Mobile Money Services in the Middle East. *Future Internet*, 13(10), 1–15. <https://doi.org/10.3390/fi1301001>
23. Javed, Y., Salehin, K. M., & Shehab, M. (2020). A study of South Asian websites on privacy compliance. *IEEE Access*, 8, 156067–156083. 10.1109/ACCESS.2020.3019334
24. Jiang, Y., & Syn, T. (2023). Online privacy policy disclosure: an empirical investigation. *Journal of Computer Information Systems*, 63(3), 663–680. 10.1080/08874417.2022.2095542
25. Krafft, M., Kumar, V., Harmeling, C., Singh, S., Zhu, T., Chen, J., Duncan, T., Fortin, W., & Rosa, E. (2021). Insight is power: Understanding the terms of the consumer-firm data exchange. *Journal of Retailing*, 97(1), 133–149. <https://doi.org/10.1016/j.jretai.2020.11.001>
26. Laudon, K. C. (1996). Markets and Privacy. *Communications of the ACM*, 39(9), 92–104. <https://doi.org/10.1016/B978-0-12-415040-9.50142-1>
27. Li, H., Sarathy, R., & Xu, H. (2010). Understanding Situational Online Information Disclosure as a Privacy Calculus. *Journal of Computer Information Systems*, 51(1), 62–71. <https://doi.org/10.1080/08874417.2010.11645450>
28. Liu, C., & Arnett, K. P. (2002). An Examination of Privacy Policies in Fortune 500 Web Sites. *Mid-American Journal of Business*, 17(1), 13–22. <https://doi.org/10.1108/19355181200200001>
29. Law No. 18-07 of 25 Ramadhan 1439 corresponding to June 10, 2018 related to the protection of individuals in the processing of personal data. (2018)
30. Martin, K. D., & Palmatier, R. W. (2020). Data Privacy in Retail: Navigating Tensions and Directing Future Research. *Journal of Retailing*, 96(4), 449–457. <https://doi.org/10.1016/j.jretai.2020.10.002>
31. Mayer-Schönberger, V., & Cukier, K. (2013). *Big Data : A Revolution that Will Transform how We Live, Work, and Think*. Houghton Mifflin Harcourt
32. Meinert, D. B. (2006). Privacy Policy Statements and Consumer Willingness to Provide Personal Information. *Journal of Electronic Commerce in Organizations*, 4(1), 1–17.
33. Milne, G. R., Pettinico, G., Hajjat, F. M., & Markos, E. (2017). Information Sensitivity Typology : Mapping the Degree and Type of Risk Consumers Perceive in Personal Data Sharing. *The Journal of Consumer Affairs*, 51(1), 133–161
34. Miltgen, C. L. (2006). *Dévoilement de soi et réponses du consommateur face à une sollicitation de ses données personnelles : une application aux formulaires sur Internet*. Doctoral dissertation. University of Paris Dauphine
35. Nyshadham, E. A. (2000). Privacy policies of air travel web sites: A survey and analysis. *Journal of Air Transport Management*, 6(3), 143–152. [https://doi.org/10.1016/S0969-6997\(00\)00007-7](https://doi.org/10.1016/S0969-6997(00)00007-7)
36. Ofulue, J., & Benyoucef, M. (2022). Data monetization: insights from a technology-enabled literature review and research agenda. *Management Review Quarterly*. <https://doi.org/10.1007/s11301-022-00309-1>

37. Organization for Economic Cooperation and Development. (2019). Good practice guide on consumer data. In *OECD Digital Economy Papers* (Issue 290)
38. Parvinen, P., Pöyry, E., Gustafsson, R., Laitila, M., & Rossi, M. (2020). Advancing data monetization and the creation of data-based business models. *Communications of the Association for Information Systems*, 47(2), 25–49. <https://doi.org/10.17705/1CAIS.04702>
39. Polonioli, A. (2022). Zero party data between hype and hope. *Frontiers in Big Data*, 5. <https://doi.org/10.3389/fdata.2022.943372>
40. Posner, R. A. (1981). The Economics of Privacy. *The American Economic Review*, 71(2), 405–409
41. Quach, S., Thaichon, P., Martin, K. D., Weaven, S., & Palmatier, R. W. (2022). Digital technologies: tensions in privacy and data. *Journal of the Academy of Marketing Science*, 50(6), 1299–1323. <https://doi.org/10.1007/s11747-022-00845-y>
42. Rachedi, A., & Hamou, N. (2022). Le futur du e-commerce en Algérie : les perspectives pour les années à venir. *Revue Organisation & Travail*, 10(4), 318–336
43. Rochelandet, F. (2010). Economie des données personnelles et de la vie privée. In *Repères*. La Découverte.
44. Statista. (2023). *Data growth worldwide 2010-2025*. <https://www.statista.com/statistics/871513/worldwide-data-created/>
45. Statista. (2024). *Number of users of e-commerce in Algeria 2020-2029*. <https://www.statista.com/forecasts/1331902/number-of-e-commerce-users-in-algeria>
46. Tsai, J. Y., Egelman, S., Cranor, L., & Acquisti, A. (2011). The effect of online privacy information on purchasing behavior: An experimental study. *Information Systems Research*, 22(2), 254–268. [10.1287/isre.1090.0260](https://doi.org/10.1287/isre.1090.0260)
47. United Nations Conference on Trade and Development. (2021). *Rapport sur l'économie numérique 2021* (Issue September)
48. Varian, H. R. (2002). Economic Aspects of Personal Privacy. In W. H. Lehr & L. M. Pupillo (Eds.), *Cyber Policy and Economics in an Internet Age. Topics in Regulatory Economics and Policy Series*. Springer. [https://doi.org/10.1007/b104899\\_7](https://doi.org/10.1007/b104899_7)
49. Wagner, I. (2023). Privacy policies across the ages: Content of privacy policies 1996–2021. *ACM Transactions on Privacy and Security*, 26(3), 1–32. <https://doi.org/10.1145/3590152>
50. Wang, Y., & Herrando, C. (2019). Does privacy assurance on social commerce sites matter to millennials? *International Journal of Information Management*, 44(December 2017), 164–177. <https://doi.org/10.1016/j.ijinfomgt.2018.10.016>
51. Winkler, S., & Zeadally, S. (2016). Privacy policy analysis of popular web platforms. *IEEE Technology and Society Magazine*, 35(2), 75–85. [10.1109/MTS.2016.2554419](https://doi.org/10.1109/MTS.2016.2554419)
52. Xu, H., Dinev, T., Smith, J., & Hart, P. (2011). Information Privacy Concerns : Linking Individual Perceptions with Institutional Privacy Assurances Information Privacy Concerns : Linking Individual Perceptions with Institutional Privacy Assurances. *Journal of the Association for Information Systems*, 12(12), 798–824
53. Zhang, X., Yue, W. T., Yu, Y., & Zhang, X. (2023). How to monetize data: An economic analysis of data monetization strategies under competition. *Decision Support Systems*. <https://doi.org/10.1016/j.dss.2023.114012>