



# Technical support on imaging equipment user behaviour study

Intermediate report

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## 1 Introduction

This Intermediate Report is the second report delivered to the JRC as part of the delivery of services for an Imaging Equipment User Behaviour Study, conducted by Ipsos European Public Affairs on behalf of the JRC. The report has the following contents:

- A description of the used research methodology and data collection process.
- A descriptive presentation of the survey results and of the conducted analyses (e.g. MaxDiff analysis).
- As an annex, a set of cross-tabulations in which all survey indicators are crossed with a series of selected sample breaks (country, sociodemographic categories, printer/consumable usage categories).

## 2 Background and research objectives

### 2.1 Study background

#### Research context

Acknowledging the rapid advances in technology and the urgency of the global climate change crisis, the European Union has already prioritised digital development and environmental preservation in its policy making. By focusing on “technology that works for people”<sup>1</sup> and the establishment of the foundations of an “open, democratic and sustainable digital society”<sup>2</sup> the European Commission has been working towards better convergence between the digital world and its green objectives. These goals have been reflected in the Circular Economy Action Plan (CEAP20) which, among others, prioritises imaging equipment (i.e. printers and its consumables), as key products that need to achieve cleaner outcomes. This equipment, although having a great circularity potential, continues to produce high volumes of waste, thus reinforcing the need for more appropriate regulation reducing the impact of imaging equipment on the environment.

In this context, as outlined in the CEAP20, the way imaging equipment is purchased and consumed, as well as its design, should comply with environmental considerations and should be in line with the policy framework for sustainable products<sup>3</sup>. Thus, including imaging equipment in the Eco-design Working Plan becomes even more important in a post-pandemic context, where printing at home patterns seem to be increasing. A recent study conducted in the UK, for example, shows that one in five consumers are printing more now than they were before the pandemic and over a quarter of consumers are using their printer daily<sup>4</sup>. With more people working from home now than before the pandemic, it is possible, for example, that consumers are using their printers more for work-related purposes.

Given the fact that consumer preferences play a key role in determining the wider demand for certain imaging equipment, it is essential to acquire an in-depth understanding of the ways in which consumers choose and use such devices. Obtaining comprehensive insight on users’ purchase preferences and consumption patterns would allow for a better forecasting of their needs and adequate policy planning that would ensure that both user demands and environmental obligations are satisfied in equal measure.

#### Research objectives

Taking into account the aforementioned circumstances and policy-making goals of the EU, this study aims to acquire improved understanding of the user behaviour and awareness with regards to the consumption of printers, cartridges and containers. The study looks specifically into:

- how the general performance of imaging equipment (i.e. energy consumption, price, reparability, page yield etc) affects consumers’ purchase decisions;
- consumers’ habits in relation to the use of printers, cartridges, and containers (i.e., how often do they use them, size, colour etc.);

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<sup>1</sup> <https://ec.europa.eu/digital-single-market/en/content/technology-works-people>

<sup>2</sup> <https://ec.europa.eu/digital-single-market/en/content/open-democratic-and-sustainable-digital-society>

<sup>3</sup> [EUR-Lex - 52020DC0098 - EN - EUR-Lex \(europa.eu\)](#)

<sup>4</sup> [Home Printing Statistics 2021 | Most Popular UK Printer Manufacturer Revealed \(cartridgepeople.com\)](#)

- Printers' and consumables' circularity (willingness to repair, reasons for disposal, willingness to use remanufactured consumables, barriers for circularity etc.);
- Preferences regarding printing services and subscription schemes.

In addition to these objectives, the study also focuses on the circularity of printers and their consumables. The main research questions in this regard are:

- How are consumers using imaging equipment and why is the lifetime of this equipment currently so short?
- How is the business model of the imaging equipment market affecting user behaviour and the circularity of imaging equipment (e.g. locked-in effect)?
- How are relevant design aspects of imaging equipment (e.g. device's lifetime, page yield, durability of the cartridge, printing quality, failure rate, consumable's origin, etc.) affecting consumers' purchase decisions?

## 2.2 Scope and structure of this report

This intermediate report presents a detailed overview of the results of the consumer survey. Specifically, the report focuses on a descriptive presentation of the quantitative findings of all survey indicators, at the overall level of the average consumer, as well as comparing different subgroups of consumers where relevant (i.e. in terms of sociodemographic background and the usage behaviour of printers and their consumables).

First, the next section of this introduction (2.3 below) gives more details about the methodology that was used to collect data, as well as information about the target population and sample used in the survey.

The following chapter (Chapter 3) discusses **what product factors consumers find important** and take into account when deciding which imaging equipment/consumables to buy – separately for single-function/multi-function printer and for their consumables. The analysis covers factors related to the performance of imaging equipment/consumables, as well as factors that are related to their sustainability and circularity – in addition to more general factors such as the price of the printer/consumables.

Chapter 4 looks at the usage behaviour of consumers for imaging equipment and their consumables. It focusses specifically on usage frequency and intensity, as well as usage behaviour when it comes to different paper size formats and print colours.

Chapter 5 discusses consumers' attitudes and awareness when it comes to the impact of their behaviour, particularly when it comes to the circularity of their printer/consumables, but also with regards their usage. In particular, this chapter looks at when and why consumers would envisage to replace their single-function/multi-function printer (and whether different attitudes towards replacement result in different expected use lengths), common printer and consumable failures that prompt consumers to replace their equipment before the expected end of life, and also discusses circular behaviours of consumers towards printers and their consumables. Finally, it discusses consumers' attitudes and awareness when it comes to printing subscription services.

Chapter 6 presents the general conclusions drawn from the consumer survey.

## 2.3 Methodology

### 2.3.1 Target population and sample representativity

The survey interviewed consumers who fitted the following definition:

*Any adult consumer who either has access to and uses a printer or a multifunctional printer (e.g., printer + copier) in their household, **or** finds it at least somewhat likely that they will buy such a printer for private use in the next two years.*

The overall final sample size was **800 complete interviews per country**. The profile of imaging device users and prospective users is not necessarily identical to that of the total consumer population. Precise statistics of the population of imaging equipment users were also not available at the time the survey was conducted. For that reason, we maintained a reasonable amount of flexibility when it comes to setting quota on sociodemographic parameters. We thus did not set hard quota on any sociodemographic parameter, since we lacked the statistics to determine what the correct targets would be. That said, **we monitored closely the amount of sample gathered along the parameters requested by the JRC (i.e. soft quotas)**, and we sought to collect in each segment enough interviews to allow for relevant comparisons (for instance, younger versus older users).

- Age (3 levels: 18-34, 34-50, 50+);
- Gender (male, female);
- Employment status (2 levels: active/employed, inactive/unemployed, the latter including retirees and students);
- Education level (3 levels: maximum primary school, maximum secondary education, tertiary/higher education).<sup>5</sup> (Note: in two Member States, Hungary and Poland, we distinguished between 2 levels: low/medium education level (primary or secondary education) and high education level (tertiary education)).

### 2.3.2 Selection of countries

The survey was conducted in seven EU Member States: **Germany, France, Hungary, Italy, Poland, Spain and Sweden**.

Results are analysed and presented in this report at the overall level (i.e., not per country). In order to allow to draw more general conclusions about European consumers, it was therefore vitally important to make sure the selected countries together covered a diverse and representative selection of European consumers, taking into account the objectives of the survey. Specifically, the following elements have been taken into consideration when identifying the countries included in the survey:

1. **The number of countries to be included.** The tender specifications required that the survey be run in seven EU countries.

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<sup>5</sup> This was assessed using local education levels, and subsequently converted to ISCED categories to determine the two generalised education levels.

2. **The regional spread of the countries.** Given that the survey results had to be analysed at the level of EU regions (Northern, Eastern, Southern and Western Europe), it was important to include at least one country from each region.
3. **The population size of the countries.** We included in our selection larger as well as a number of smaller countries, while still ensuring that the combined population of the countries covers a sizeable proportion of the total EU population.
4. **The real gross domestic product per capita**, allowing to include countries with different economy sizes.
5. The profile of the country when it comes to **consumers' behaviours related to imaging equipment, and more broadly to the habits related to electrical and electronic equipment (EEE)**. It is important to remember that the survey targeted users of imaging equipment who currently owned or planned to purchase one of the devices covered by the survey (printers or multi-function printers). In this regard, we aimed for a diverse spread of countries with high and low levels of EEE waste and e-waste recycling rates compared to the EU level. These indicators, although not specific to imaging devices, served as a proxy to reflect consumers' habits and provide some insights regarding the end-of-life practices of these devices. Specifically, our selection was informed by several indicators:
  - **% of Printer/ Copier ownership statistics**– as an indicator of how many households use imaging devices.<sup>6</sup>
  - **Kilograms per inhabitant of electrical and electronic equipment waste per country** – indicating the volume of waste produced by country for this type of products.<sup>7</sup>
  - **Recycling rate of e-waste per country** – reflecting the EEE recycling habits per country.<sup>8</sup>
  - **Total waste of electrical and electronic equipment collected from households in kilograms per capita** – indicating the volume of waste produced by households.<sup>9</sup>
  - **IT and telecommunications equipment waste collected from households** – reflecting the volume of waste produced by households for this subgroup of products which include imaging equipment.<sup>10</sup>

Based on an assessment of the above parameters, we selected the following seven countries for the survey: Germany, France, Hungary, Italy, Poland, Spain and Sweden. Together, these countries cover a substantial proportion of the population of the EU27 (71%), while at the same time representing a diverse range in terms of geography, as well as GDP and imaging equipment-related indicators. This is summarised in the table on the next page. In the table below, figures highlighted in green are above EU average, while those in red are below EU average.

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<sup>6</sup> <https://www.statista.com/forecasts/1247076/consumer-electronics-ownership-in-the-us>

<sup>7</sup> <https://digital-strategy.ec.europa.eu/en/policies/desi>

<sup>8</sup> *ibid.*

<sup>9</sup> *Ibid.*

<sup>10</sup> *Ibid.*

**Table 2.1 Country selection**

Indicator	Germany	France	Hungary	Poland	Italy	Spain	Sweden	EU27 (average/total)
Region	West	West	East	East	South	South	North	n.a.
Population (2022)	83,237,124 (large)	67,842,582 (large)	9,689,010 (small)	37,654,247 (large)	58,938,122 (large)	47,432,805 (large)	10,452,326 (small)	71% of total EU population
Real GDP/capita (2021)	35,480	32,530	13,660	13,580	26,710	23,450	44,820	27,840
Printer/ Copier ownership statistics	78%	74%	(not available)	65%	77%	65%	55%	(not available)
Waste of electrical and electronic equipment collected in 2019 ( Kilograms per inhabitant) <sup>11</sup>	11.4	12.6	8.5	11.7	7.7	7.9	15.1	10 Kg/ per inhabitant
Recycling rate of e-waste	36.9%	34.2%	50.5%	39.1%	32.1% <sup>12</sup>	43%	47%	38.9%
Total waste of electrical and electronic equipment collected from households ( Kilograms per capita, 2018)	9.32	11.18	6.67	5.98	4.8	5.96	12.16	n.a.
IT and telecommunications equipment waste collected from households (Kilograms per capita, 2018)	1.18	1.29	1.13	0.7713	0.36	0.43	1.11	n.a.

<sup>11</sup> [Statistics | Eurostat \(europa.eu\)](https://statistics.eurostat.europa.eu)

<sup>12</sup> las value available for 2016

<sup>13</sup> last value available for 2017

### 2.3.3 Definition of the sample subgroup parameters

Results of the survey were analysed not only at the level of the overall sample (i.e.; the average consumer), but also by comparing different consumer subgroups, to see whether various sociodemographic and other parameters have an impact on consumers' behaviour when it comes to the purchase of single-function/multi-function printers and their consumables and the usage of these imaging equipment.

In the first place, these analyses make use of the sociodemographic parameters defined in section 2.3.1: age, gender, employment status and education level. In addition to these four parameters, a diverse set of additional parameters will also be used to compare consumer subgroups. These are defined here below, to facilitate interpretation of the analyses presented in the next chapters:

- **Financial situation.** This parameter is based on respondents' assessment on how difficult to find it to make ends meet with the current financial situation of their household. **Levels of analysis:** easy vs. difficult.
- **Usage frequency.** For some indicators in the study, we compare current owners of printers depending on how often they use their single-function/multi-function printer in an average week. **Levels of analysis:** light (i.e. once a year or never) vs. medium (i.e. at least once a month to at least once a week) vs. heavy (i.e. daily) printer users.
- **Usage intensity.** For several indicators in the study, we compare consumers depending on how much they use their single-function/multi-function printers (imaging equipment usage intensity. This is based on the amount of pages printed by the consumer in an average month. **Levels of analysis:** 1) less than 10 pages; 2) 10-49 pages; 3) 50 pages or more.

### 3 Factors influencing the purchase of imaging equipment and its consumables

#### 3.1 Measuring the importance of purchase-influencing factors

The goal of this part of the study was to measure the relative importance of a set of product factors when it comes to their impact on consumers' purchase decisions. Gauging the relative importance of factors can be challenging in the context of survey research as people sometimes find it cognitively difficult to rank multiple factors in a list – or simply lack the inclination to do so. Often, they will pick factors placed towards the top of a list, ignoring those further down; or they may find it relatively easy to identify the most and least important factors but find discriminating between middling factors difficult.

It is also important to consider that for this particular context, where a range of (sometimes competing) factors are taken into account, ranking questions do not necessarily reflect accurately the real-life trade-offs that consumers often find themselves making. Certainly, in relation to the specific factors that are of interest for this study, it must be borne in mind that consumers will not, for instance, consider factors relating to printing performance and factors relating to the sustainability of the equipment separately. Rather, they will tend to trade-off factors from across the two areas of factors.

Given these issues, we used a sophisticated form of stated importance analysis that both lowers the cognitive load on respondents and more accurately mimics the purchase decision-making process. Specifically, we assessed the impact of different factors when purchasing imaging equipment (e.g. price, brand, printing quality, etc.) using a **MaxDiff (Maximum Difference Scaling) approach** – sometimes also referred to as "best-worst scaling".

In practice, respondents were repeatedly presented with smaller subsets of factors taken from a larger list and asked to each time choose the most and least important factors in each subset. From the resulting data it is possible to derive an overall ranking of all the factors for the sample as a whole and to arrive at an importance score for each factor – which in turn means it is possible to identify exactly how important each factor is *seen in relation to the others*. This is quantified using a score, where the higher the score, the more important the factor.

##### 3.1.1 Factors included in the survey

For single-function/multi-function printers and consumables separately, a unique list of product factors was developed that could potentially play a role in the decision process before purchasing the product. These factors can be categorised in three distinct groups:

- Factors related to the **printer/consumable performance**, such as printing quality, number of pages that can be printed, etc.
- Factors related to the **sustainability** of the printer/consumable, such as expected lifetime, but also consumer care, energy efficiency, repairability of the printer and take-back services.

- **Other factors** that do not fall into the previous groups but that can be reasonably expected to play a role in the consumer's decision, such as the price of the printer/consumable.

The table on the next page 3.1 shows which factors were included in the study from each of these groups, and whether they were included in the survey for imaging equipment or for consumables.

**Table 3.1 Product features for inclusion in the survey**

Factors	Type			Device	
	Performance	Sustainability	Other	Imaging equipment	Consumables
The price of the printer			X	X	
The (expected) price of the consumables			X	X	X
Availability of the printer as part of a subscription service			X	X	
Your knowledge about the manufacturer (e.g., the reputation of the model/brand/manufacturer, personal past experiences, reviews or ratings)			X	X	
Your knowledge about the manufacturer of the consumable (e.g. the reputation of the model/brand/manufacturer, personal past experiences, reviews or ratings of the consumable, whether the consumable was produced by an original equipment manufacturer, remanufactured and/or other manufacturers)			X		X
Performance and features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device)	X			X	
The energy consumption of the printer		X		X	
The expected lifetime of the printer before there is significant performance or usability decrease		X		X	
The number of pages that can be printed with one consumable	X				X
Whether and how you can use the printer together with other cartridges (e.g., refilling cartridges, remanufactured cartridges, etc.)		X		X	
The printing quality of the consumables	X				X
Availability of a take-back scheme for the empty consumables		X			X
Shelf life of the consumable (i.e. how long the consumable lasts on the shelf before it expires)		X			X
The environmental sustainability of the printer/consumable (e.g. Ecolabel-certified, sustainability information on printing, etc.)		X		X	X
Full compatibility of the consumable with the printer/multi-function printer (e.g. no error messages, no issues during the installation of the consumable)	X				X

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Customer care offered by the manufacturer (e.g. spare parts, repair services, help desk, warranty)		X		X	
<b>TOTAL</b>				<b>10</b>	<b>8</b>

## 3.2 Relative importance of factors

The figures below and on the next page show, for printers/multi-function printers and consumables respectively, the relative importance of the different factors that could have an influence on the purchase choice of consumers, each time ranked from high to low. As explained in the previous section, the numbers for each factor represent the relative importance score. The difference between any two scores indicates how much more important that factor is found, on average, compared to the other factor (e.g. 100 is twice as important as 50), and a score of 100 in itself indicates that the relevant factor is exactly as likely to be found more as well as less important than other factors (i.e. the closer this score is to 100, the more “average” the importance is compared to other factors).

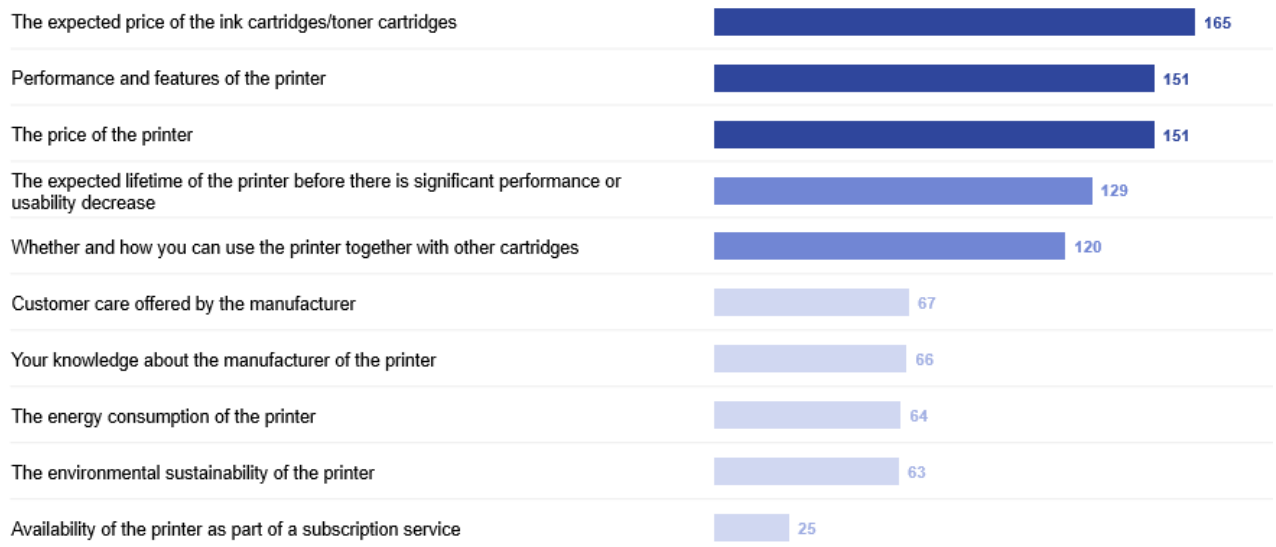
### 3.2.1 Overall trends

From the rankings presented in Figures 3.1 and 3.2, it becomes clear that **there are consistencies across imaging equipment/consumables when it comes to the relative importance of various product factors when purchasing them.**

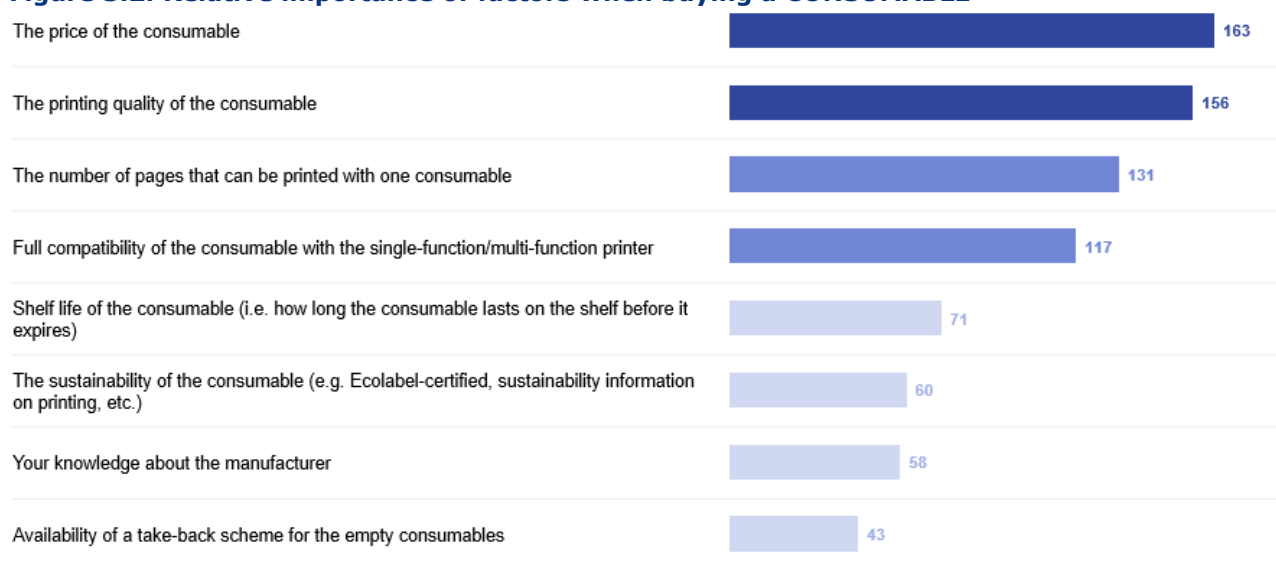
First, **the (expected) price of the consumables** (ink cartridges/toner cartridges) **is the most important factor** for consumers when choosing which printer and which consumable to buy, ranking first for both.

Second, **performance-related factors are overall found more important when buying a printer/consumable than factors related to sustainability.** This is highly consistent across printers/consumables.

**Figure 3.1: Relative importance of factors when buying a SINGLE-FUNCTION/MULTI-FUNCTION PRINTER**



Base: All respondents (N=5675). Question Q1. Which of the following elements is MOST IMPORTANT and which one is LEAST IMPORTANT to you when deciding which single-function or multi-function printer to buy?

**Figure 3.2: Relative importance of factors when buying a CONSUMABLE**


Base: All respondents (N=5675). Question Q2. Which of the following elements is MOST IMPORTANT and which one is LEAST IMPORTANT to you when deciding which consumable to buy?

### 3.2.1.1 Performance-related factors

Table 3.2 below shows the ranking of each factor that relates to the performance of the printer/consumable. The ranking place among other factors is each time given, and it is indicated whether the relative importance score for that factor, pertaining to that printer/consumable, is above average (green) or below average (red).

**Table 3.2: Ranking of performance-related factors per printer/consumable**

Factor	Printer	Consumable
Performance and features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device)	3	
The printing quality of the consumables		2
The number of pages that can be printed with one consumable		3
Full compatibility of the consumable with the printer/multi-function printer (e.g. no error messages, no issues during the installation of the consumable)		4
<b>Total number of factors measured</b>	<b>10</b>	<b>8</b>

For printers, performance and (technical) features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device) is the third top factor after the (expected) price of the consumables and the price of the printer and is found well above average importance score for printers. For consumables, printing quality, number of pages printed with one consumable and full compatibility of the consumable with the single-function/multi-function printer are the top factors after the price of the consumable, and they are all above average importance score.

It can be noted that **all performance-related factors are above average importance score and rank consistently higher than all sustainability-related factors for both printers and consumables.**

After having been asked about the most and least important factors when deciding which consumable to buy, respondents were also asked whether they found the price of the consumable or the expected price per page to be the most important factor when deciding which consumable to buy. When purchasing a consumable, 66% of printer users find the price of the consumable to be a more important factor than the expected price per page. Just above one in four printer owners (28%) find the expected price per page a more important factor when purchasing a printer.

### 3.2.1.2 Sustainability-related factors

Table 3.3 below shows the same ranking information for factors that are related to environmental sustainability and energy/material efficiency of printers/consumables.

**Table 3.3: Ranking of sustainability related factors per printers/consumables**

Factor	Printer	Consumable
Energy consumption	7	
Expected lifetime of the printer	3	
Compatibility of printer with other cartridges	4	
Shelf life of the consumable		5
Customer care	5	
Environmental sustainability of the printer/consumable	8	6
Take-back scheme for empty consumables		8
<b>Total number of factors measured</b>	<b>10</b>	<b>8</b>

The table shows that, most often, **sustainability-related factors are only assigned little importance compared to other factors on average, for both printers and consumables.**

When purchasing a consumable, the availability of take-back schemes for empty consumables ranks as least important relative to all other purchasing factors. For consumables, the environmental sustainability of the consumable and the shelf life of the consumable rank closely above that.

For printers, it is also its environmental sustainability that is considered the second-to-least important factor relative to all other factors, followed closely by the printer's energy consumption and the availability of customer care. **The big exceptions to this are the expected lifetime and the compatibility of the printer with other cartridges. These two factors are found important compared to other factors and rank respectively third and fourth most important factors when purchasing a printer.**

### 3.2.1.3 Sociodemographic trends

**The above-described trends do not only hold largely for both printers and consumables, but there is also a strong consistency between different sociodemographic subgroups.** This means that regardless of consumers' sociodemographic background, the price of consumables is almost always the most important factor to take into account when buying a new printer/consumable, closely followed by the price of the printer and the printer's performance/other features, while in turn such factors are consistently found more important than factors related to sustainability, with the exception of the printer's expected lifetime and the compatibility between the printer and other cartridges.

**There are, however, some differences** between subgroups that can be noted (where applicable, for shared factors) in the ranking of factors influencing the purchase decisions of consumers across printers and consumables, which is why they are described together here, rather than separately for printers and consumables. Where observations differ, this is also mentioned.

- **Age:** When purchasing printers, younger consumers (aged 18-34) find the printer's performance and other features the most important factor before the price of the printer and of the consumables, though all three remain the three most important factors across age groups. While on average younger consumers seem to find sustainability-related factors slightly more important than other age groups when buying a printer or a consumable (e.g. environmental sustainability, customer care, energy consumption, availability of a take back scheme), almost all these factors remain below the average importance score for all age groups, with the relevant exceptions mentioned in Section 3.2.1.2 (see Tables 3.4 and 3.5 below).

**Table 3.4: Ranking of importance of factors when buying a printer, by age group**

Factors	Age group		
	18-34	35-49	50+
The price of the printer	139	150	157
The expected price of the consumables	144	168	173
Availability of the printer as part of a subscription service	36	29	18
Your knowledge about the manufacturer (e.g., the reputation of the model/brand/manufacturer, personal past experiences, reviews or ratings)	77	66	60
Performance and features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device)	148	148	153
The energy consumption of the printer	70	63	61
The expected lifetime of the printer before there is significant performance or usability decrease	131	128	129
Whether and how you can use the printer together with other cartridges (e.g., refilling cartridges, remanufactured cartridges, etc.)	109	120	126
The environmental sustainability of the printer (e.g. Ecolabel-certified, sustainability information on printing, etc.)	73	63	58

Factors	Age group		
	18-34	35-49	50+
Customer care offered by the manufacturer (e.g. spare parts, repair services, help desk, warranty)	73	65	65

**Table 3.5: Ranking of importance of factors when buying a consumable, by age group**

Factors	Age group		
	18-34	35-49	50+
The price of the consumables	143	163	173
Availability of a take-back scheme for the empty consumables	53	47	37
Shelf life of the consumable (i.e. how long the consumable lasts on the shelf before it expires)	78	74	67
Your knowledge about the manufacturer of the consumable (e.g. the reputation of the model/brand/manufacturer, personal past experiences, reviews or ratings of the consumable, whether the consumable was produced by an original equipment manufacturer, remanufactured and/or other manufacturers)	72	61	49
The printing quality of the consumable	146	150	165
The number of pages that can be printed with one consumable	121	130	137
The sustainability of the consumable (e.g. Ecolabel-certified, sustainability information on printing, etc.)	69	61	55
Full compatibility of the consumable with the single-function/multi-function printer (e.g. no error messages, no issues during the installation of the consumable)	117	116	117

- Gender:** When purchasing printers, customer care and energy consumption are more important factors than the knowledge about the printer's manufacturers for female consumers compared to male consumers. Vice versa, male consumers attach somewhat more importance to knowledge about the printer's manufacturers than customer care and energy consumption. When purchasing printers or consumables, female consumers also attach a slightly higher importance to the environmental sustainability of the printer/consumable than male respondents. However, all these factors remain below average importance score for all genders for printers and consumables.
- Education level:** highly educated consumers find the printers's performance and other features more important than the price of the printer when purchasing one, though both remain among the three most important factors across different education levels. Furthermore, low and middle educated consumers find the compatibility of the printer with other cartridges a more important factor than the printer's expected lifetime.
- Employment status:** When purchasing printers, the performance and other features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device) are more important factors for employed respondents than for unemployed/inactive respondents.

- **Financial situation:** When purchasing a printer, consumers in an easy financial situation find the performance and other features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device) more important than the price of the printer, whereas consumers in a difficult financial situation find price more important than performance and other features of the printer (e.g. type of cartridges, printing speed, paper formats supported, size/weight of the device). When purchasing consumables, consumers in an easy financial situation find the printing quality of the consumable more important than the price of the consumable, compared to consumers in a difficult financial situation.

Looking at differences between groups with a different use behaviour profile (expected use of the printer before replacement, the intensity of use and the frequency of use), the same conclusion can be drawn that differences are small, and there are no subgroups that greatly differ from the overall trend described above. Most notably:

- **Expected use length:** When purchasing a printer, consumers who expect to use their printer for only less than three years find the performance and features of the printer more important than the price of the printer/consumables, compared to consumers with higher expected use length. In line with this finding, when purchasing a consumable, consumers who expect to use their printer for five years or less attribute more importance to the printing quality of the consumable than its price.
- **Use frequency:** as it can be expected, **when purchasing a printer, consumers with a heavy printer usage frequency attach more importance to the performance and features of the printer than the price of the printer/consumables**, compared to consumers with lighter usage frequency. In line with this finding, when purchasing consumables, consumers with a heavy printer usage frequency find the printing quality of the consumables more important than the price of consumables, compared to consumers with a different use frequency. These differences are particularly pronounced among users of multi-function printers.

## 4 Usage behaviour

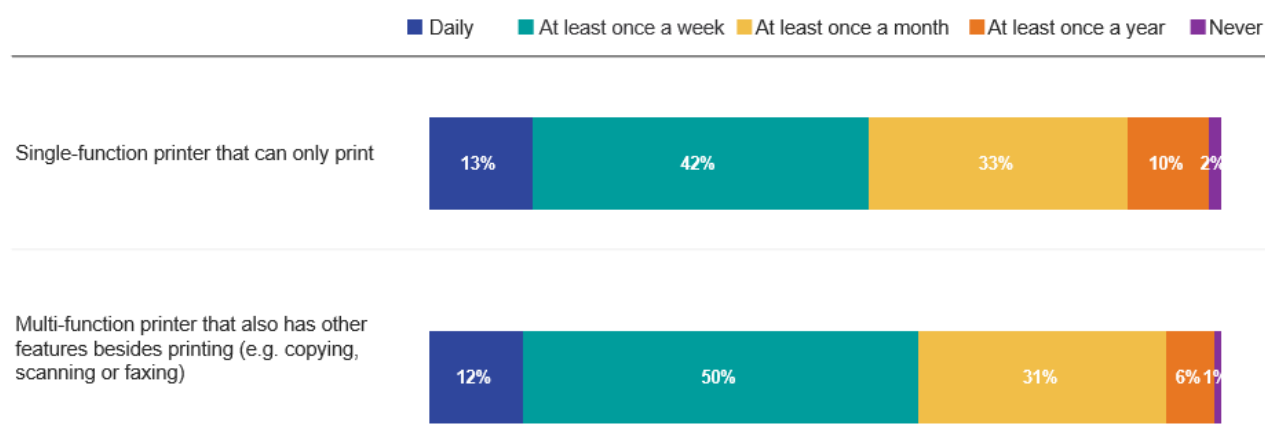
### 4.1 Usage frequency and intensity

In this section, we discuss how often and how intensively consumers use their printers and their consumables. We will first look at the **frequency of printing** (how often consumers use these printing devices), followed by a discussion on **usage intensity**, which is measured differently for printers and consumables. For consumables, use intensity is measured as the number of consumables that are used in a given year, whereas for printer intensity of use is measured as the number of pages printed during a typical month. Lastly, a discussion will follow about the intensity of printing in different formats or with different colour preferences.

#### 4.1.1 Frequency of printing

Across the users of printers we surveyed, between 42% and 50% of them report using their single and multi-function printers respectively at least once a week, whereas 33% and 31% respectively report using their printers at least once a month. **For both types of printer users, just above one in ten reports using their printers on a daily basis.** As shown in Figure 4.1 below, multi-function printer users are seven percentage points more likely than single-function printer users to report using their printer on a daily basis to at least once a week.

**Figure 4.1: Frequency of printing activities (for both types of printer users)**

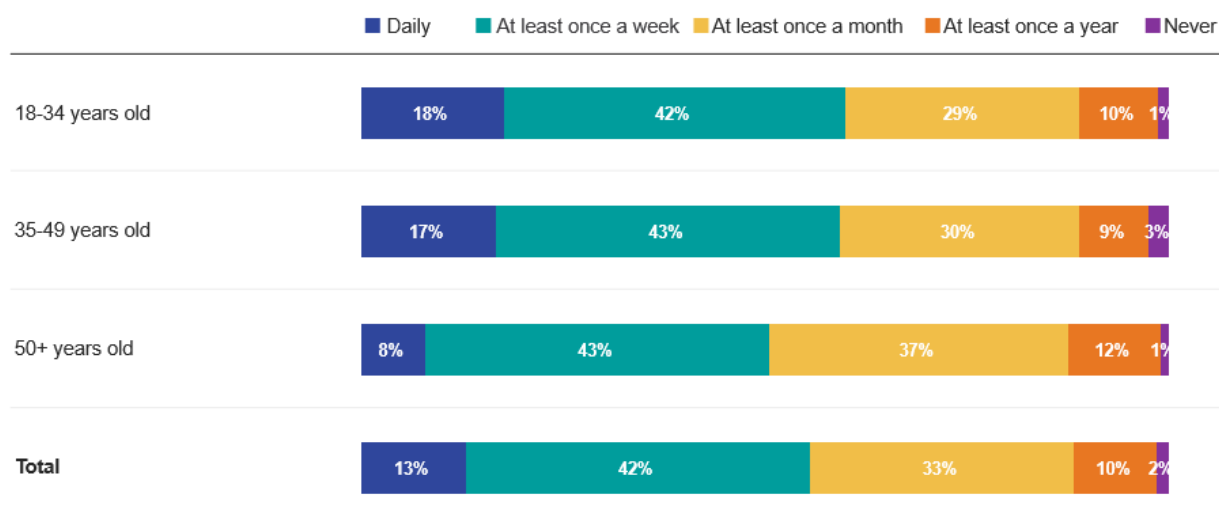


Base: 1409 respondents. Question: D4\_1. How often do you use these devices? - Single-function printer that can only print

While this relative frequency of printing activities generally holds across various sociodemographic subgroups, there are nonetheless some differences between subgroups.

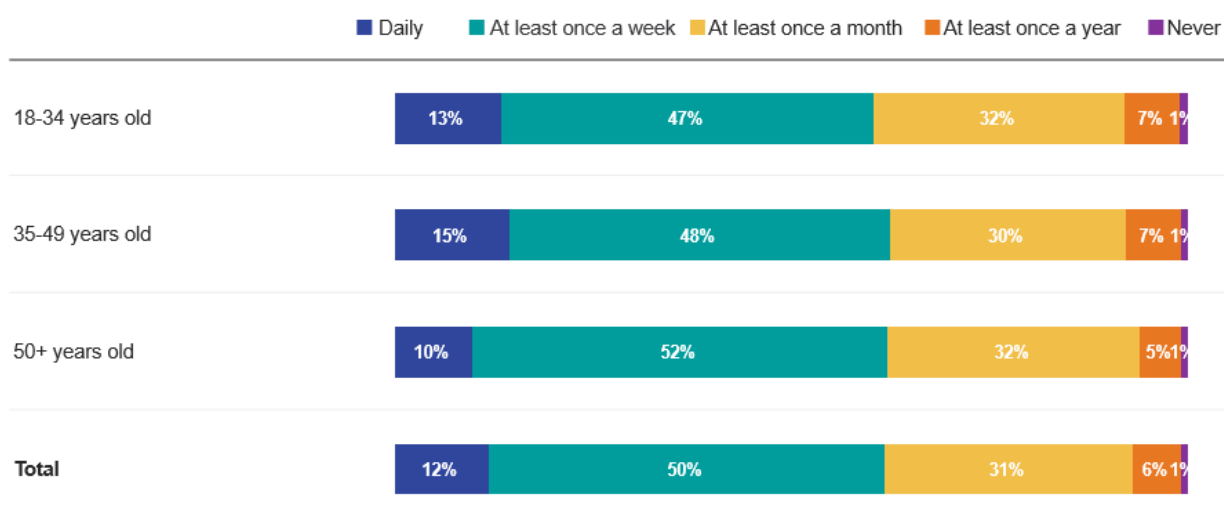
**Printing on a daily basis is most frequent among consumers aged 18-49 and least frequent among consumers aged 50+ and this is the case for both types of printers**, as shown in Figures 4.2 and 4.3 below. Users of single-function printers aged 18-34 are found five percentage points more likely than the average to print on a daily basis (18% vs. 13% average), whereas only 8% of users aged 50+ print on a daily basis. Similarly, users of multi-function printers aged 34-49 are found three percentage points more likely than the average (15% vs 12%) to print on a daily basis, against only 10% among users aged 50+.

**Figure 4.2: Frequency of printing activities for single-function printers (by age group)**



Base: 1409 respondents. Question: D4\_1. How often do you use these devices? - Single-function printer that can only print

**Figure 4.3: Frequency of printing activities for multi-function printers (by age group)**

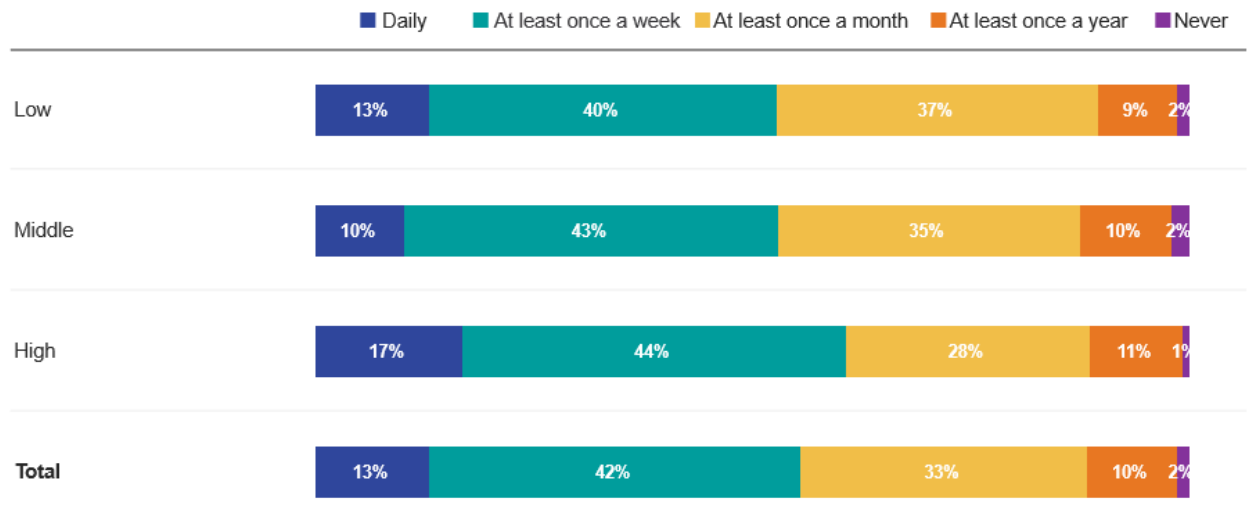


Base: 4188 respondents. Question: D4\_2. How often do you use these devices? - Multi-function printer that also has other features besides printing (e.g. copying, scanning or faxing)

Printing frequency is also associated with education level and employment status, as shown in Figures 4.4, 4.5, 4.6, and 4.7 below. Across the two types of printers (single-function and multi-function printers), consumers who are highly educated print slightly more frequently on a daily basis than those who are not (17% among single-function printer users vs. 13% average and 15% among multi-function printer users vs. 12% average). Furthermore, as can be expected with more people working from home since the Covid-19 pandemic, consumers who are employed print slightly more often on a daily basis than those who are

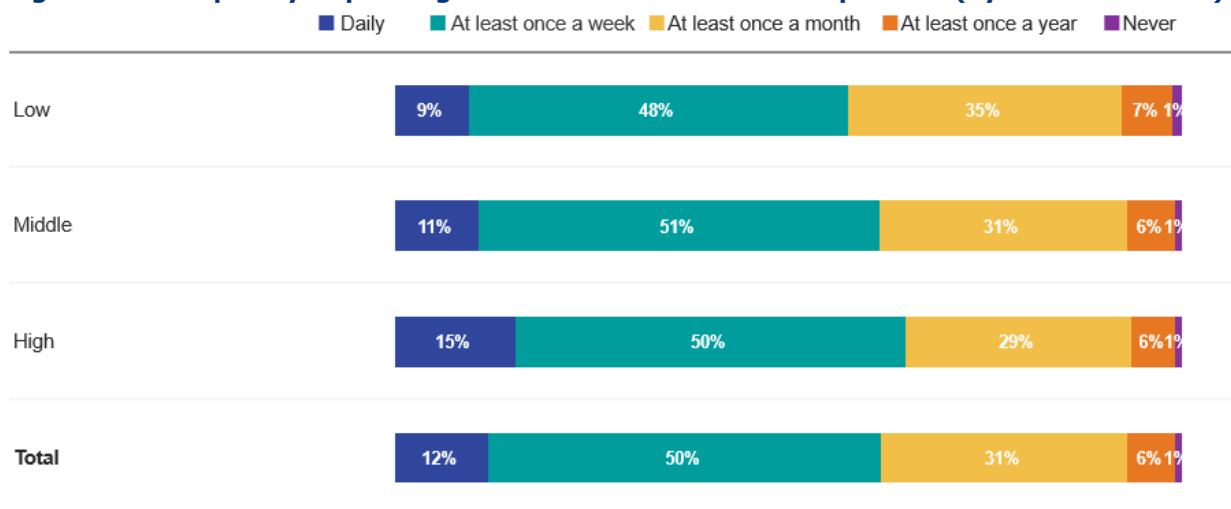
unemployed/inactive (16% vs. 8% average among single-function printer users and 15% vs. 8% average among multi-function printer users respectively).

**Figure 4.4: Frequency of printing activities for single-function printers (by education level)**



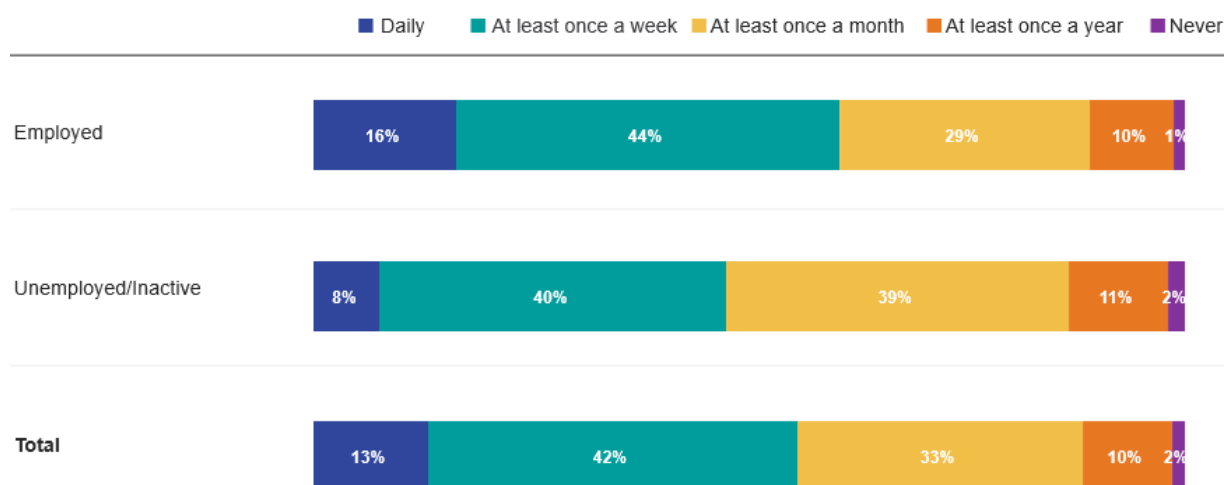
Base: 1409 respondents. Question: D4\_1. How often do you use these devices? - Single-function printer that can only print

**Figure 4.5: Frequency of printing activities for multi-function printers (by education level)**



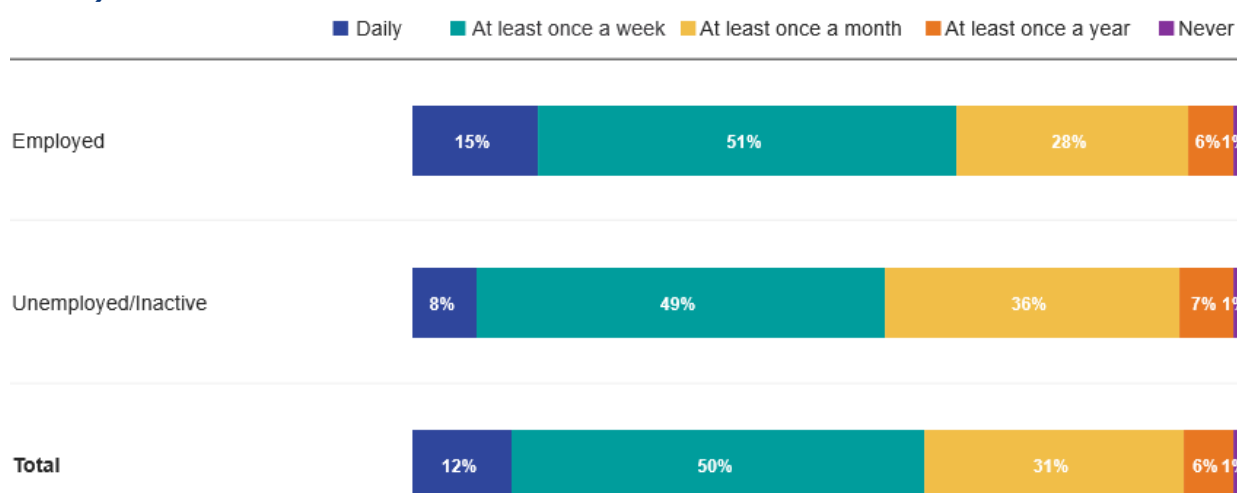
Base: 4188 respondents. Question: D4\_2. How often do you use these devices? - Multi-function printer that also has other features besides printing (e.g. copying, scanning or faxing)

**Figure 4.6: Frequency of printing activities for single-function printers (by employment status)**



Base: 1409 respondents. Question: D4\_1. How often do you use these devices? - Single-function printer that can only print

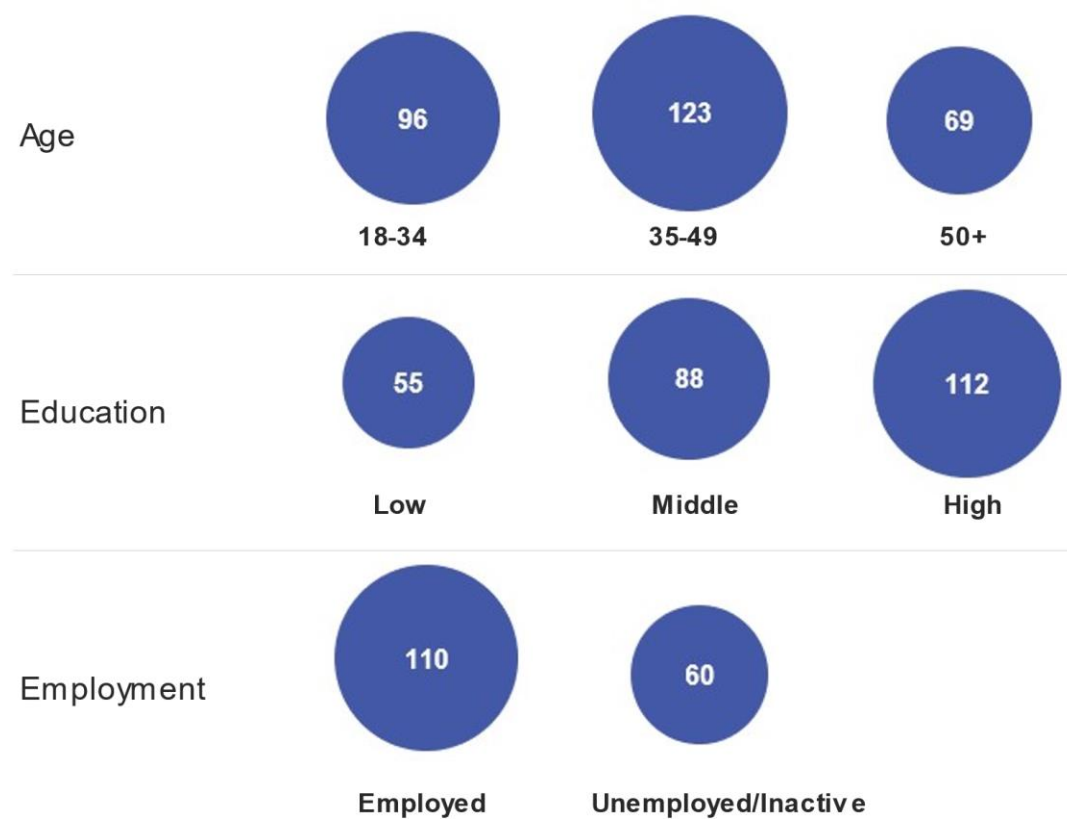
**Figure 4.7: Frequency of printing activities for multi-function printers (by employment status)**



Base: 4188 respondents. Question: D4\_2. How often do you use these devices? - Multi-function printer that also has other features besides printing (e.g. copying, scanning or faxing)

#### 4.1.2 Printer usage intensity

**Consumers who own and regularly use a printer in their household (i.e. at least once a month) on average print about 88 pages per month (median=25 pages per month), with 20% of the users printing 100 pages or more per month.** The number of pages printed per month is highest among consumers who are aged 35-49, high educated, and in employment and lowest among consumers aged 18-34, as is shown in the Figure 4.8 here below:

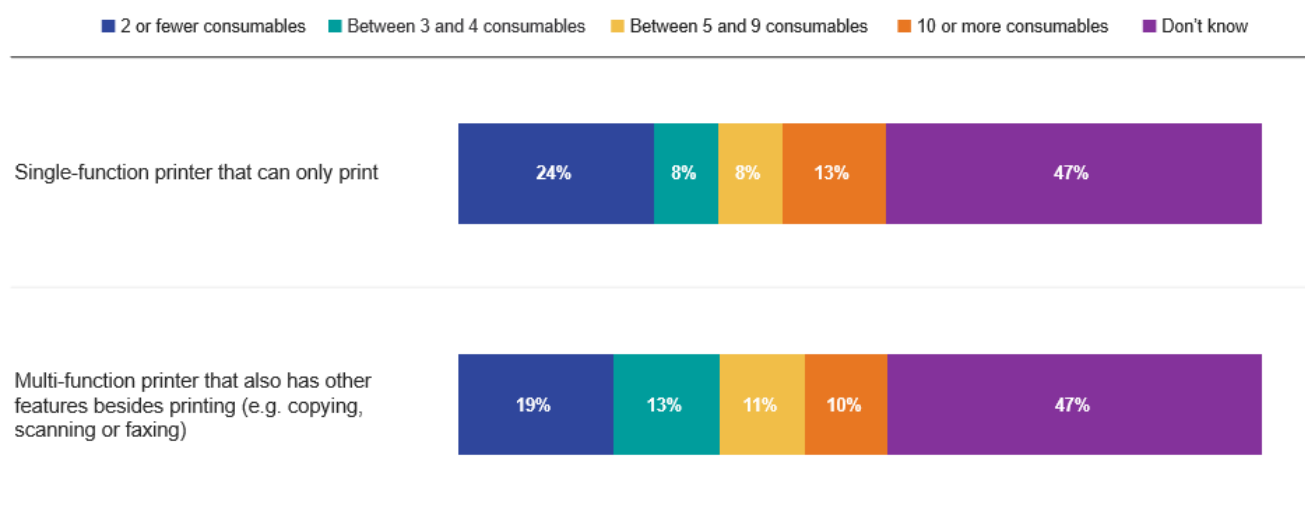
**Figure 4.8: Number of pages printed per month across types of printers**

Base: 4811 respondents. Question: Q3. On average, how many pages do you print with your single-function/multi-function printer during a typical month? Please answer in pages per month.

#### 4.1.3 Consumable usage intensity

**Among single-function as well as multi-function printer users, the average number of consumables used every year is 7.7.** Twenty-one percent of them report using two or fewer consumables in a year and 12% between three and four consumables. **Just about one in ten printer users either uses ten or more consumables every year, or between five and nine consumables every year, respectively.** A large number of printer users, however, indicated that they do not know how many consumables they use on average per year (47% of them do not), suggesting that the above figures should be interpreted with caution.

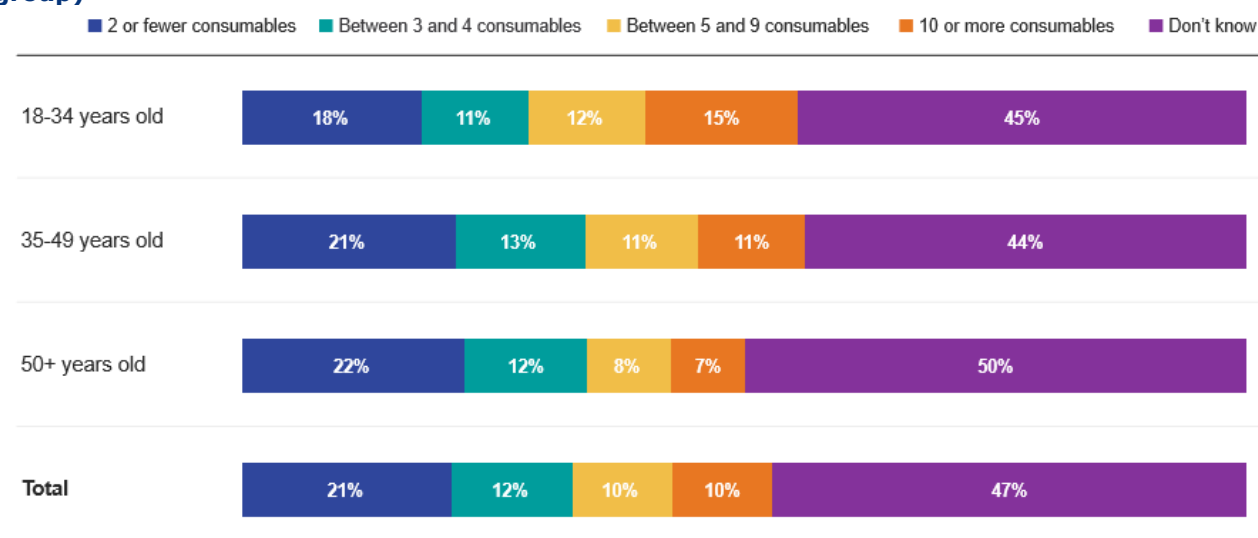
**Figure 4.9: Number of consumables used every year across types of printers**



Base: 5170 respondents. Question: rQ6. On average, how many consumables do you use every year?

**As shown in Figure 4.10 below, younger consumers aged 18-34 on average use more consumables than older consumers.**

**Figure 4.10: Number of consumables used every year across types of printers (by age group)**



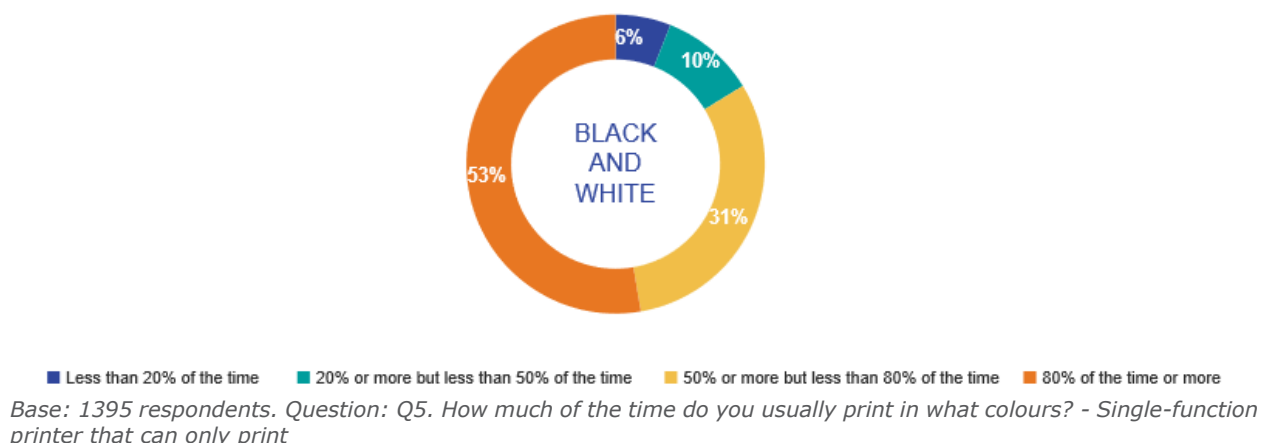
Base: 5170 respondents. Question: rQ6. On average, how many consumables do you use every year?

#### 4.1.4 Printing intensity with different colour printing preferences

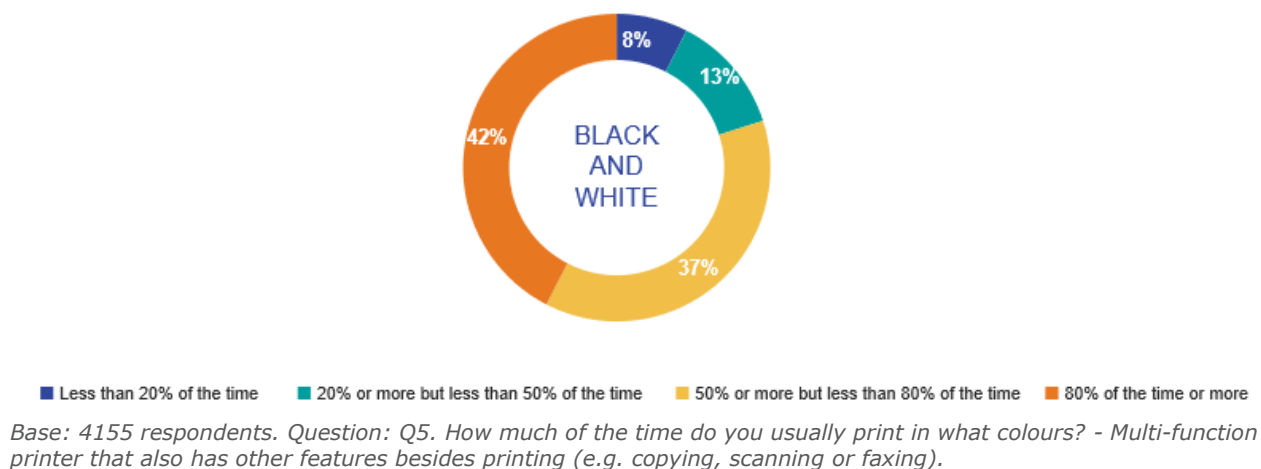
**When it comes to consumers' colour printing preferences, 84% and 79% of current single-function and multi-function printer users respectively report printing in black and white (B&W) 50% of the time or more.** The opposite holds for users' preferences printing in colours. As shown in Figures 4.11 and 4.12 below, single-function printer users are

more likely than multi-function printer users to print most of the time in black and white, whereas multi-function printer users are more likely than single-function printer users to often print in colours. Most notably, **single-function printer users are 11 percentage points more likely than multi-function printer users to report printing in black and white 80% of the time or more.**

**Figure 4.11: Colour printing preferences, single-function printer**



**Figure 4.12: Colour printing preferences, multi-function printer**

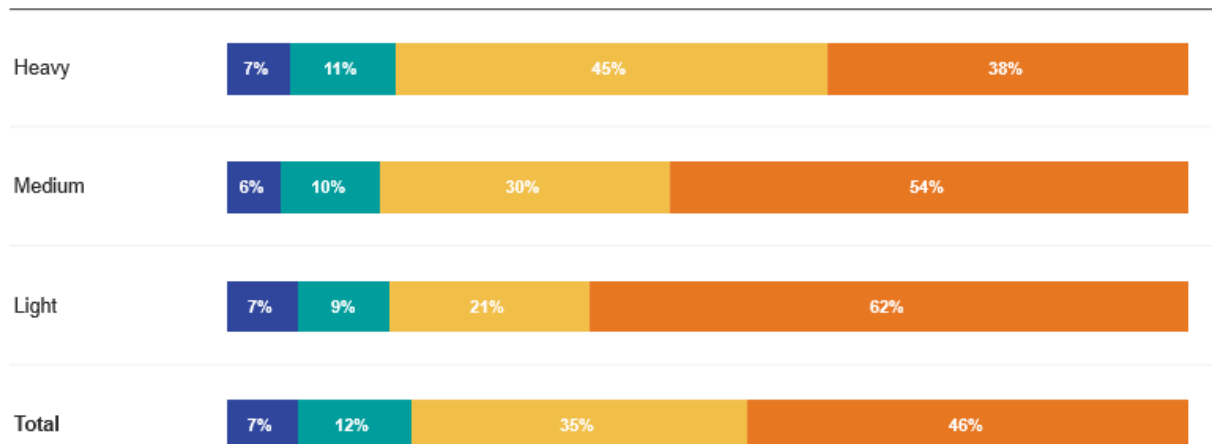


**When looking at the variation among consumer groups by different sociodemographics, younger consumers aged 18-34 print more often in colours than older consumers.** Consumers aged 18-34 are indeed five percentage points more likely than average to report printing in B&W 50% of the time or more but less than 80% of the time, and they are also five percentage points less likely than average to report printing in B&W 80% of the time or more. Printing colour preferences also seem somewhat correlated with the education level of consumers. Low educated consumers tend to print less frequently in B&W and more so in colours.

**More interestingly, printing colour preferences seem highly correlated with the usage frequency of printer users, particularly among single-function printer users.** In particular, **light single-function printer users** (using their printer at least once a year) **are much more likely to avoid printing in colours and to print most often in B&W, when they do so.** Indeed, light single-function printer users are 16 percentage points more likely to report printing in B&W 80% of the time or more (62% vs. 46% average).

**Figure 4.13: Printing in B&W, by usage frequency**

■ Less than 20% of the time   ■ 20% or more but less than 50% of the time   ■ 50% or more but less than 80% of the time   ■ 80% of the time or more



Base: 5170 respondents. Question: rQ5\_1 How much of the time do you usually print in what colours? - Black and white (grayscale)

#### 4.1.5 Printing intensity in different paper size formats

In terms of preferred paper size formats in which consumers print, **more than eight out of ten consumers (84%) print in the standard A4 paper format 80% of the time or more**. Of those that do not print in A4 paper format only, some print in A3 paper format (11% do so between 20% and 39% of the time, whereas 83% do so less than 20% of the time) and others print in another paper format less than 40% of the time (8% do so between 20% and 39% of the time, whereas 89% do so less than 20% of the time). **Only a minority of consumers prints in these alternative formats more than 40% of the time** (respectively, 5% do so in A3 paper format and 3% in another paper format).

**While these trends hold generally across sociodemographics, some minor differences are found. In terms of age, younger respondents aged 18-34 are more likely to more frequently print in alternative paper formats compared to older respondents.** They are also 11 percentage points less likely than average to reporting printing in a standard format A4 80% or more of the time. Younger respondents aged 18-34 are more likely to report printing in alternative printing formats more often than all other age cohorts. Vice versa, older respondents aged 50 or over are seven percentage points more likely than average to report printing in a standard paper format A4 80% of the time or more (91% among respondents aged 50 or over, vs. 84% average).

**Employment status is also slightly correlated with paper size format preferences.** Indeed, unemployed/inactive respondents are five percentage points more likely than average to report printing in the standard A4 paper format 80% of the time or more. In line with this finding, they are also more likely than average to report printing in alternative paper formats only less than 20% of the time (respectively, 89% vs. 83% average for A3 format, and 93% vs. 89% average for other paper formats).

## 5 Usage and sustainability attitudes and awareness

In this chapter, we look at consumers' behaviour and attitudes in relation to the circularity of their printer/consumables. In particular, this chapter looks at when and why consumers would envisage to replace their single-function/multi-function printers and consumables (and whether different attitudes towards replacement result in different expected use lengths), as well as experienced printer and consumable failures that prompt consumers to replace their equipment before the expected end of life (Sections 5.1 and 5.2). This chapter also discusses consumers' behaviours regarding the circularity of printers and consumables (such as repairing and sharing schemes) (Section 5.3).

### 5.1 Replacing a printer: reasons and timing

In the following sub-sections, we look at consumer behaviour when it comes to the replacement of their printers. This is discussed from two complementary angles. First, section 5.1.1 analyses what consumers consider as valid reasons to replace their printer before it breaks down or gets lost/stolen, and specifically also to what extent consumers are likely to keep using their printers until that happens. Subsequently, sections 5.1.2 and 5.1.3 look at how long consumers intend to keep using their single-function or multi-function printers before they buy a new one (assuming their printers did not break down or get lost/stolen), and how expected usage length relates to reasons for replacing their printers.

#### 5.1.1 Printer replacement

Survey respondents were asked to indicate, from a list of possible reasons, what would be important reasons for them to replace their printers, imagining that theirs are still working. They were presented with the following reasons:

- The printer is **no longer performing as well** as it used to (e.g. it is slowing down, printing quality has gone down);
- There is a **new printer on the market** that has better or newer features than the one they owned now;
- The current printer is **no longer compatible with remanufactured/third-party consumables**;
- The **cost of the printer's consumables is too high**;
- **No customer is offered anymore** by the printer's manufacturer;
- The printer is **no longer updated or supported** by the manufacturer and/or software providers.

Alternatively, respondents could indicate that they intended to keep using their printer until it stops functioning completely – i.e. that there would be no other valid reason to replace a printer if it still works.

As shown in Figure 5.1 below, **approaching four in ten respondents would change their printer before it breaks down if their printer started no longer performing as it used to (37%)**, followed by almost three in ten respondents who would consider replacing their current printer if the cost of the printer's consumables were too high (28%). Less commonly, consumers would replace their printer if it were no longer compatible with remanufactured/third-party consumables (17%), if there were a better printer on the market

(16%), or if there were no longer updates or support available by the manufacturer and/or software providers for the printer (16%). Notwithstanding these reasons for possible printer replacement, **30% of all respondents stated that they intend to keep using their printer until it would break down.**

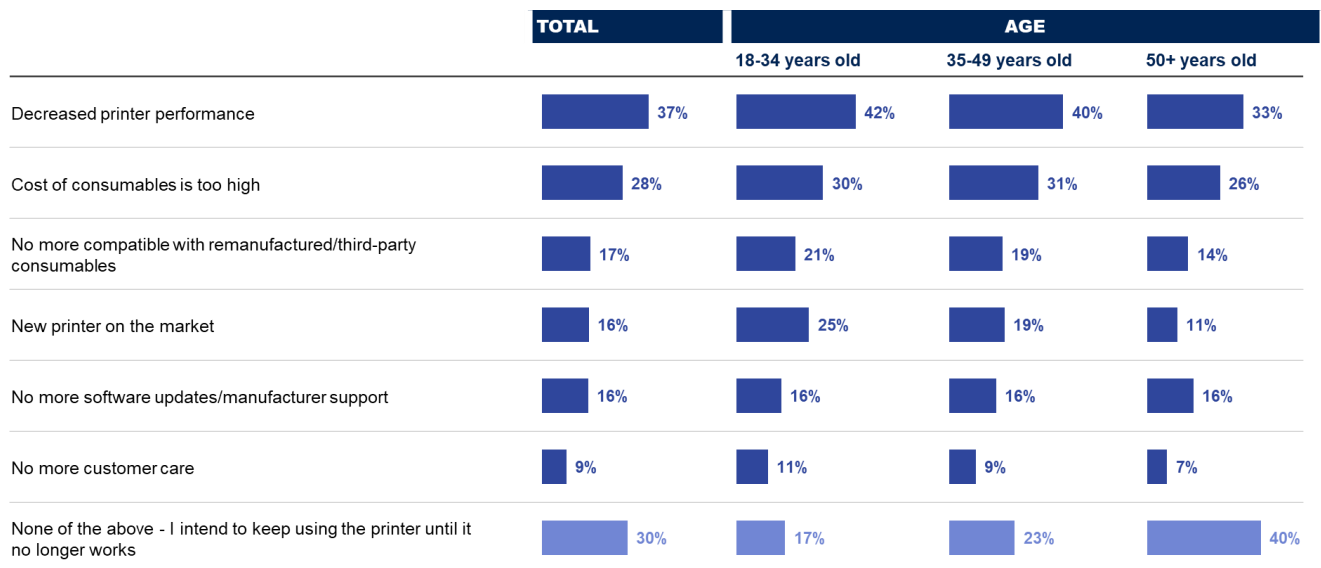
**Figure 5.1: Reasons for replacement of a printer**



*Base: All respondents (N=5675). Question: Q7. Imagine you have a single-function or multi-function printer that is still working. What would be an important reason for you to consider buying a new printer to replace your current one?*

There are, however, some interesting differences to report when it comes to the ranking of reasons to replace a printer by different socio-demographic groups.

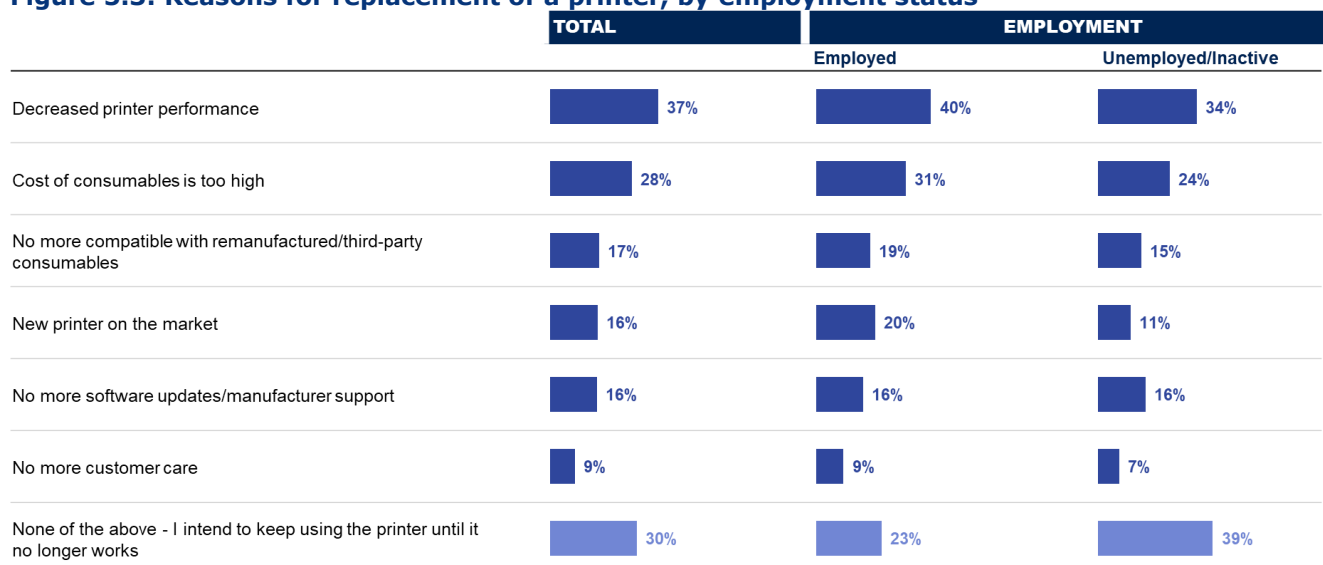
First, as shown in Figure 5.2 below, age is an important factor when it comes to the ranking of reasons for replacement of a printer. Most importantly, older respondents aged 50 or over are ten percentage points more likely than average to intend to keep using their printer until it no longer works (40% in this age cohort vs. 30% average). Vice versa, younger respondents aged 18-34 (and to a lesser extent those aged 35-49) are more likely than average to report they would change their printer if their printer no longer performed as well as it used to (42% among respondents aged 18-34 vs. 37% average), or if there were a better printer on the market (25% vs. 16% average), or if their current printer were no longer compatible with remanufactured/third-party consumables (21% vs. 17% average).

**Figure 5.2: Reasons for replacement of a printer, by age cohort**


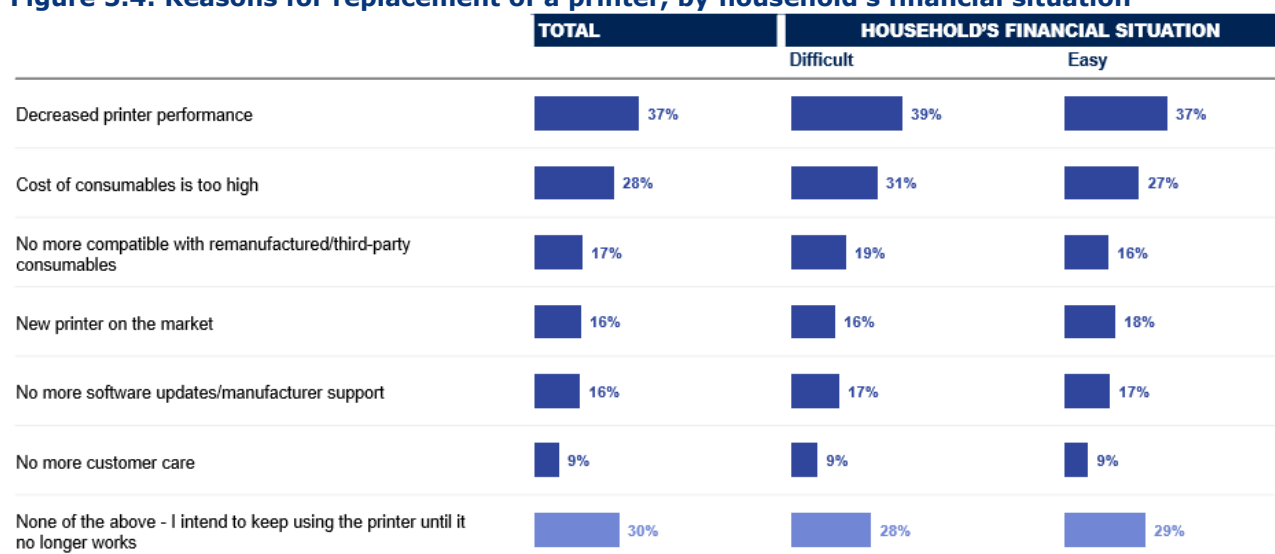
Base: All respondents (N=5675). Question: Q7. Imagine you have a single-function or multi-function printer that is still working. What would be an important reason for you to consider buying a new printer to replace your current one?

Secondly, there is a slight correlation between the education level of respondents and reasons for replacing their printer before it breaks down. Low educated respondents are more likely than average to indicate wanting to use their current printer until it no longer works (35% among them vs. 30% average). Vice versa, high educated respondents are more likely than average to report as important reasons for replacing their printer the high cost of consumables (32% among them vs. 28% average) and the presence of a better printer on the market (19% vs. 16% average).

Lastly, there is a correlation between employment status and reasons for printer replacement. Unemployed/inactive respondents are nine percentage points more likely than average to report they intend using their current printer until it no longer works (39% vs. 30% average). Employed respondents are, vice versa, more likely than average to consider replacing their printer in case the printer no longer performs as well as it used to (40% vs. 37% average), if a better printer existed on the market (20% vs. 16% average), or if the cost of the printer's consumables were too high (31% vs. 28% average). A similar correlation can be found between the household's financial situation and the reasons for replacing a printer, as shown in Figure 5.4 below.

**Figure 5.3: Reasons for replacement of a printer, by employment status**


Base: All respondents (N=5675). Question: Q7. Imagine you have a single-function or multi-function printer that is still working. What would be an important reason for you to consider buying a new printer to replace your current one?

**Figure 5.4: Reasons for replacement of a printer, by household's financial situation**


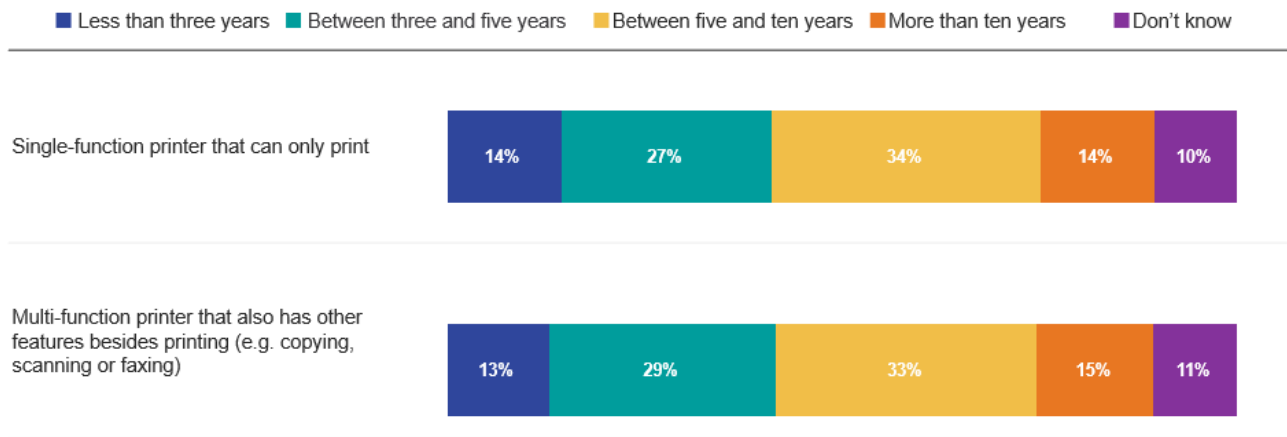
Base: All respondents (N=5675). Question: Q7. Imagine you have a single-function or multi-function printer that is still working. What would be an important reason for you to consider buying a new printer to replace your current one?

### 5.1.2 Expected use length

When asked how long they intend to keep using their printer for, assuming it does not break down or it is not lost/stolen, (future) owners of single-function and multi-function printers showed a relatively similar response pattern. Among single-function printer users, 14% of them report they would intend using their printer for less than three years, 27% between

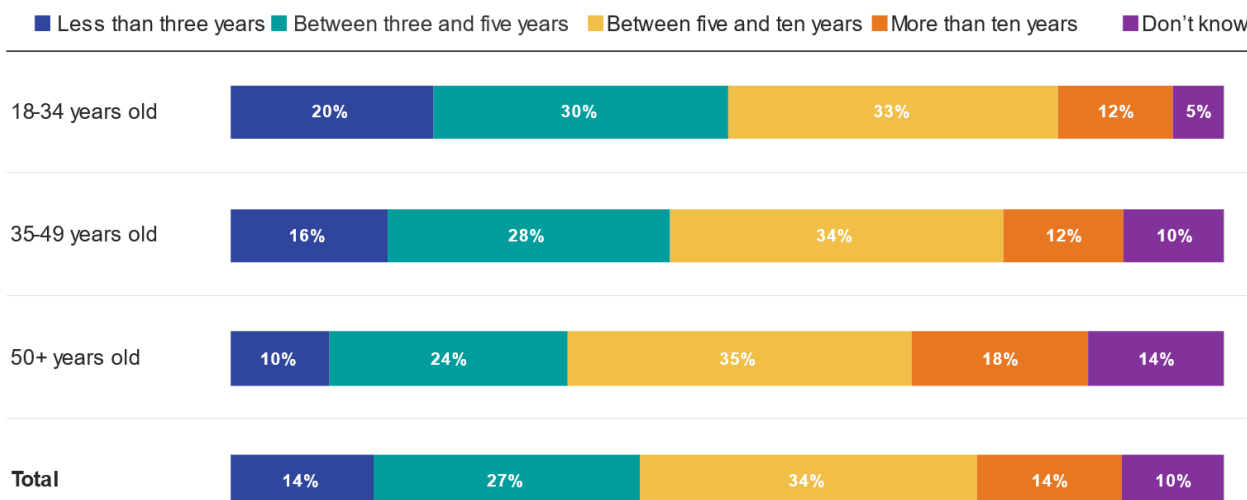
three and five years, and 34% between five and ten years. Among multi-function printer users, 13% of them report they would intend using their printer for less than three years, 29% of them report they would intend using it between three and five years, and 33% of them between five and ten years. The main difference between the two types of (future) printer owners could be found for long-term expected use length: indeed, **(future) owners of multi-function printers are more likely than single-function (future) printer owners to report they would use a new printer for more than ten years** (15 vs. 14% among single-function printer (future) owners).

Figure 5.5: Expected use length

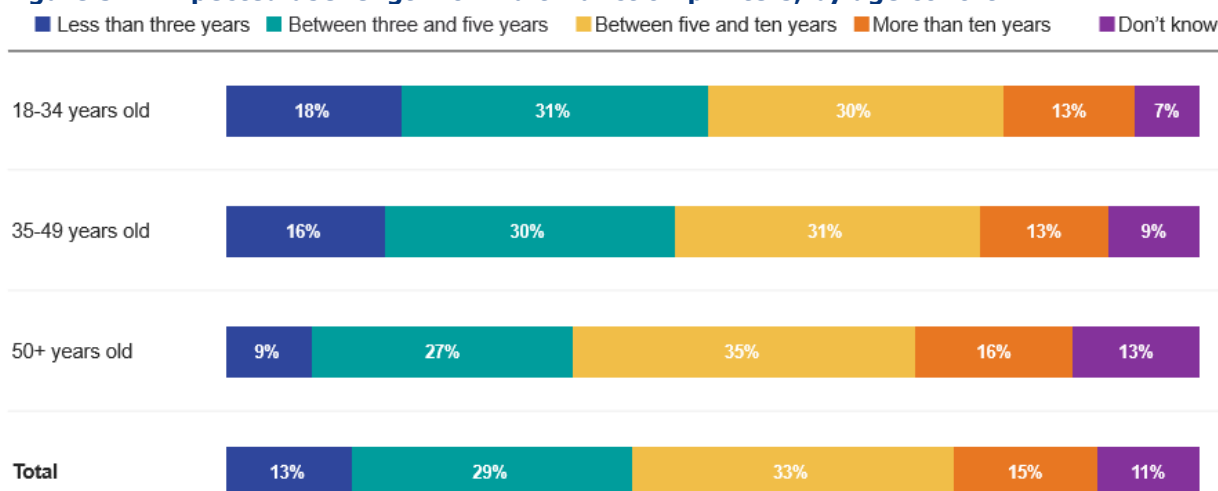


Base: All respondents (N=5675). Question: Q8. Imagine you buy the following device today. How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen?

While this trend holds generally for different socio-demographic groups, some notable differences can be identified. First, as shown in Figures 5.6 and 5.7 below, **younger respondents aged 18-34 and owning (or planning to buy in the future) either a single-function or multi-function printer are more likely than average to expect that they would replace a new printer with another one in up to five years.** Vice versa, older respondents aged 50 or over and owning (or planning to buy in the future) either a single-function or multi-function printer are more likely than average to expect that they would use their new printer for longer than ten years.

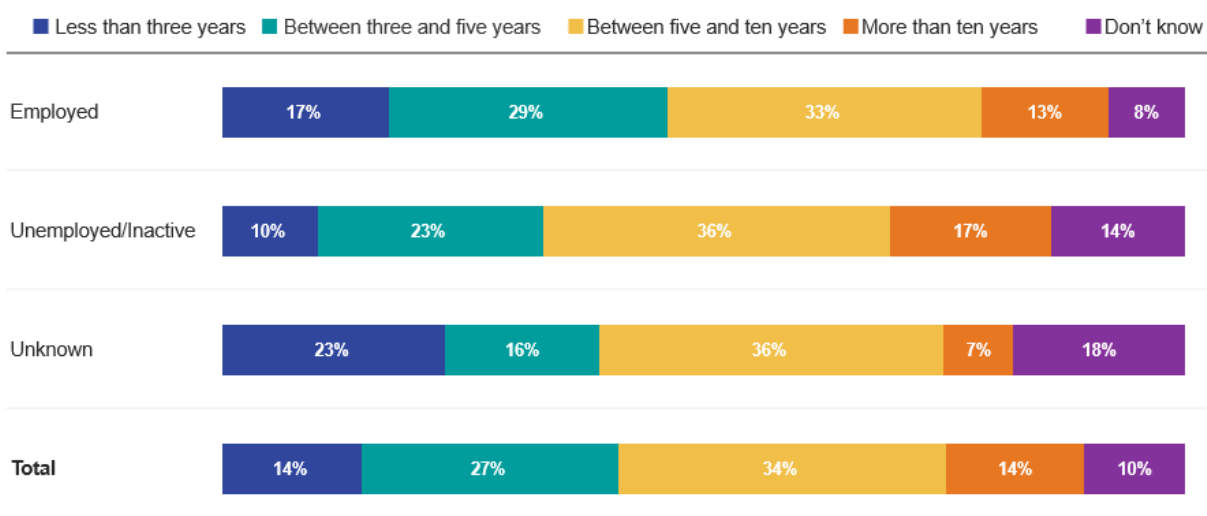
**Figure 5.6: Expected use length for single-function printers, by age cohort**


Base: 1714 respondents. Question: Q8\_1 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Single-function printer

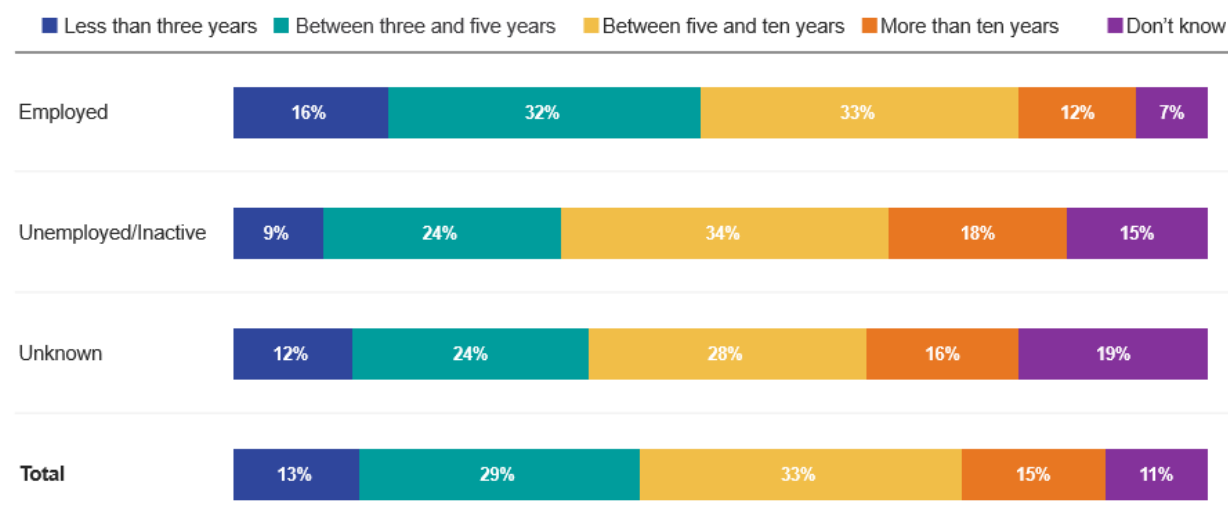
**Figure 5.7: Expected use length for multi-function printers, by age cohort**


Base: 4536 respondents. Question: Q8\_2 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Multi-function printer

Employment status is also slightly correlated with the expected use length of a new printer (see Figures 5.8 and 5.9). Indeed, employed respondents owning (or planning to purchase in the near future) either a single-function or multi-function printer are more likely than average to intend using a new printer for either less than three years or between three and five years. Vice versa, unemployed or inactive respondents owning (or planning to purchase in the near future) either a single-function or multi-function printer are more likely than average to intend using a new printer for more than ten years, or to not know for how long they would use their new printer.

**Figure 5.8: Expected use length for single-function printers, by employment status**

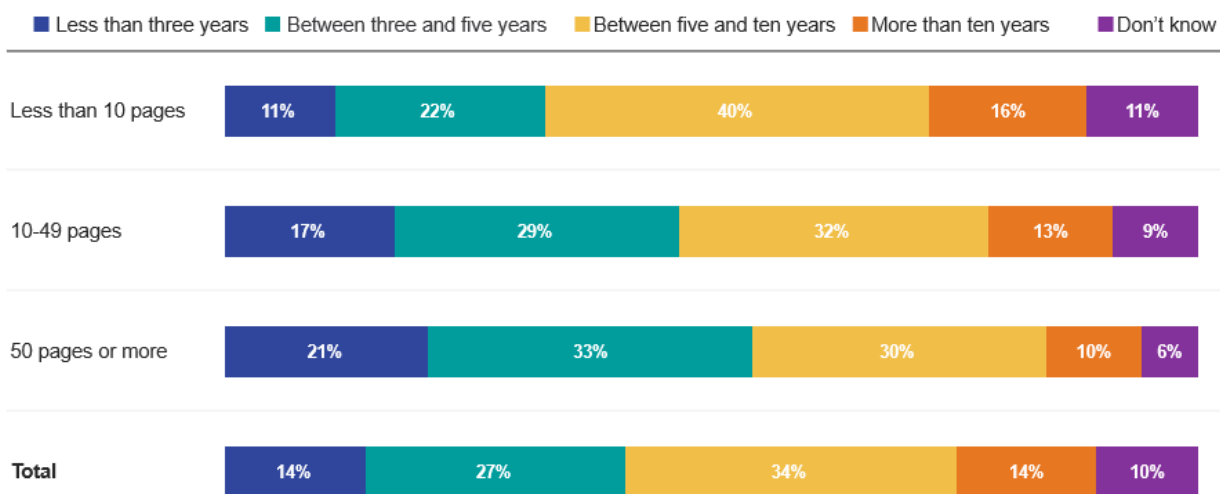
Base: 1714 respondents. Question: Q8\_1 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Single-function printer

**Figure 5.9: Expected use length for multi-function printers, by employment status**

Base: 4536 respondents. Question: Q8\_2 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Multi-function printer

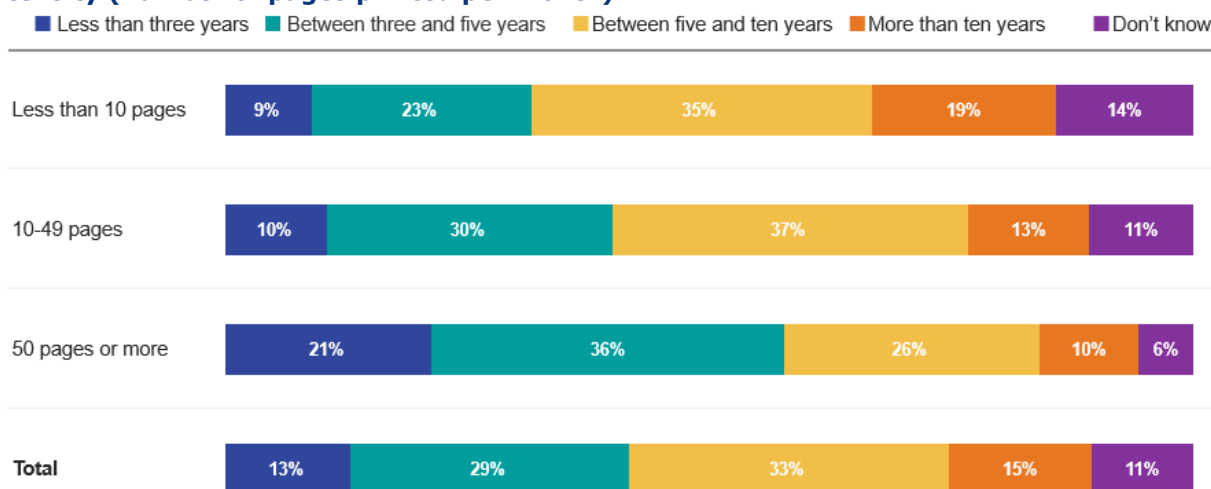
Lastly, we find for both printer types a correlation between the expected use length and printer usage intensity. In particular, as shown in the Figures 5.10 and 5.11 below, heavy printer users (i.e. printing 50 pages or more a month) are more likely than average to expect using their printer for less than three years and for between three and five years; they are also found less likely than average to expect using their printer for between five and ten years or for more than five years.

**Figure 5.10: Expected use length for single-function printers, by imaging equipment usage intensity (number of pages printed per month)**



Base: 1714 respondents. Question: Q8\_1 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Single-function printer

**Figure 5.11: Expected use length for multi-function printers, by imaging equipment usage intensity (number of pages printed per month)**



Base: 4536 respondents. Question: Q8\_2 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Multi-function printer

### 5.1.3 Use length and replacement reasons

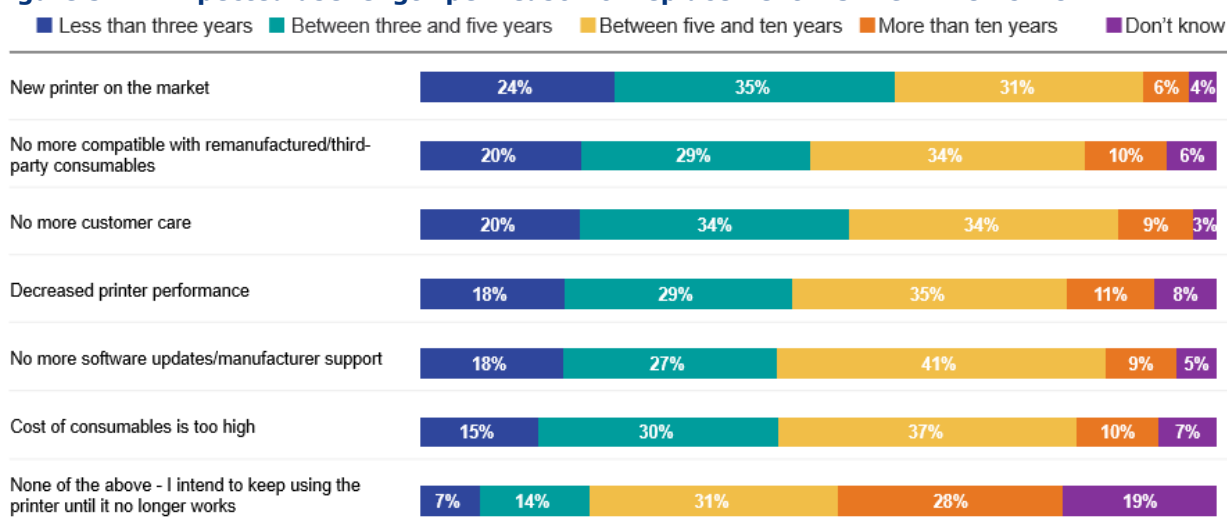
**The expected use length of a printer depends on the reasons that consumers see as important to replace that printer before it breaks down.**

For both types of printers, consumers who report that the availability of a new printer on the market is an important reason to replace a printer are most likely to expect to use their printer

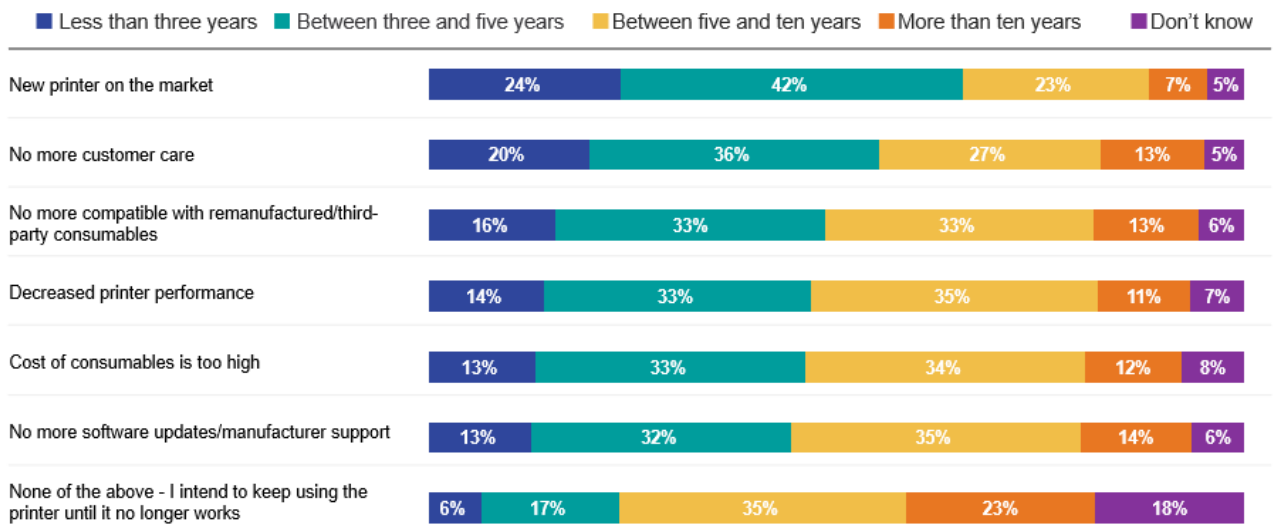
for less than three years and for between three and five years. Single-function printer (future) owners who consider the lack of updates/support by the manufacturer and/or software providers is an important reason to replace their printer are more likely than average to replace their printer after between five and ten years. Multi-function printer (future) owners who consider the decreased printer performance, the lack of software updates and of manufacturer support as important reasons to replace their printer are most likely to replace their printer after between five and ten years. **As can be expected, consumers who intend to use a printer until it no longer works (i.e. no reasons to replace their current printer) intend to use their printer the longest.** Among single-function printer (future) owners, 28% of those who intend to keep using their printer until it no longer works expect to use their printer for more than 10 years (vs. 14% average). Among multi-function printer (future) owners, 23% of those who intend to keep using their printer until it no longer works expect to use it for more than ten years (vs. 15% average).

Detailed results per type of printer are shown in the Figures 5.12 and 5.13 that follow.

**Figure 5.12: Expected use length per reason of replacement – SINGLE-FUNCTION PRINTER**



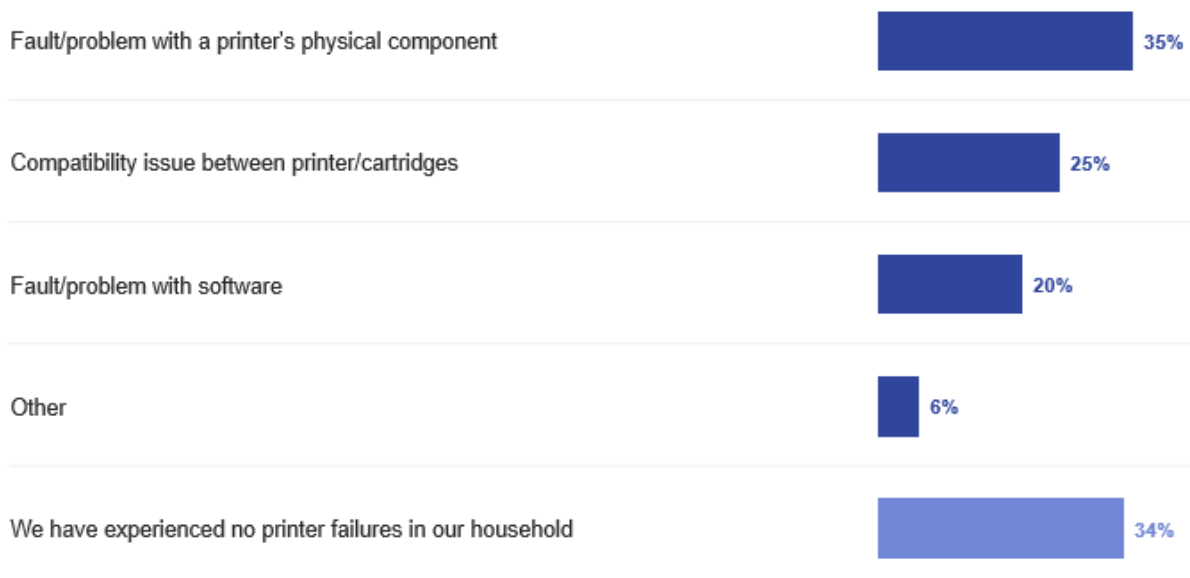
Base: 1714 respondents. Question: Q8\_1 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Single-function printer

**Figure 5.13: Expected use length per reason of replacement – MULTI-FUNCTION PRINTER**


Base: 4536 respondents. Question: Q8\_2 How long do you intend to use this device before you buy a new one, assuming that it does not break down or gets lost/stolen? - Multi-function printer

#### 5.1.4 Common printer failures

When asked about the most common printer failures experienced in the past, 35% of all respondents indicate to have had a fault or a problem with a physical component of the printer in the past (e.g. the paper jammed) and 25% indicate to have had a compatibility issue between the printer and cartridges. Two in ten respondents report having had a fault or a problem with the printer's software. Of all respondents, 34% indicate never having experienced printer failures in their household in the past (see Figure 5.14).

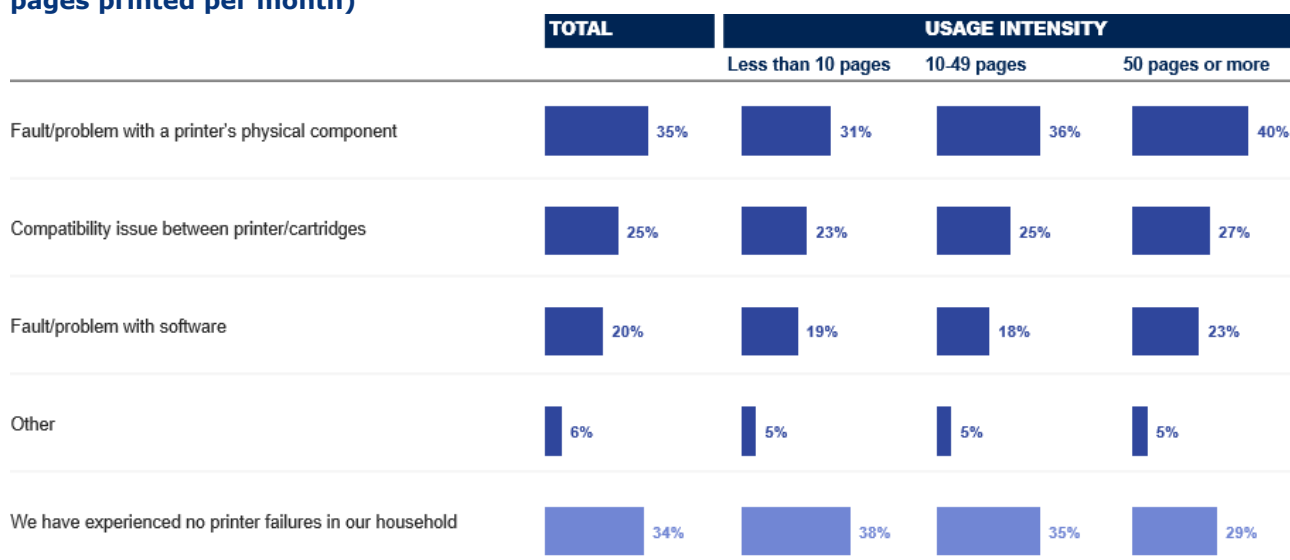
**Figure 5.14: Common printer failures**


Base: All respondents (N=5675). Question: Q9. Thinking about the most common printer failures you have experienced. Which, if any, of the following, have happened to you in your household?

Between different age groups, the occurrence of printer failures is slightly different. Respondents aged 50 or over are eight percentage points more likely than average to indicate not having experienced any printer failures in the past, whereas younger respondents aged 18-34 and 35-49 are more likely than average to report having had a fault with the software, with a physical component of the printer, or a compability issue between the printer and the cartridges. Furthermore, education and employment status are also found to be correlated with printer failures, with high educated respondents and employed respondents more likely than average to indicate having experienced some printer failures in the past.

These socio-demographic trends may reflect **a tendency of younger, high educated and employed consumers to more frequently use imaging equipment compared to other socio-demographic profiles**, as discussed at length in Section 4.1.1. Indeed, the survey results also show that respondents with a high printer usage intensity profile (i.e. printing 50 pages or more per month) are more likely than average to indicate having experienced a fault with the printer's software (23% vs. 20% average) or a fault with a physical component of the printer (40% vs. 35% average). Vice versa, respondents with a low printer usage intensity (i.e. printing less than ten pages per month) are more likely than average to indicate not having experienced any printer failures in their households in the past (38% vs. 34% average) – see Figure 5.15 below.

**Figure 5.15: Common printer failures, by imaging equipment usage intensity (number of pages printed per month)**



Base: All respondents (N=5675). Question: Q9. Thinking about the most common printer failures you have experienced. Which, if any, of the following, have happened to you in your household?

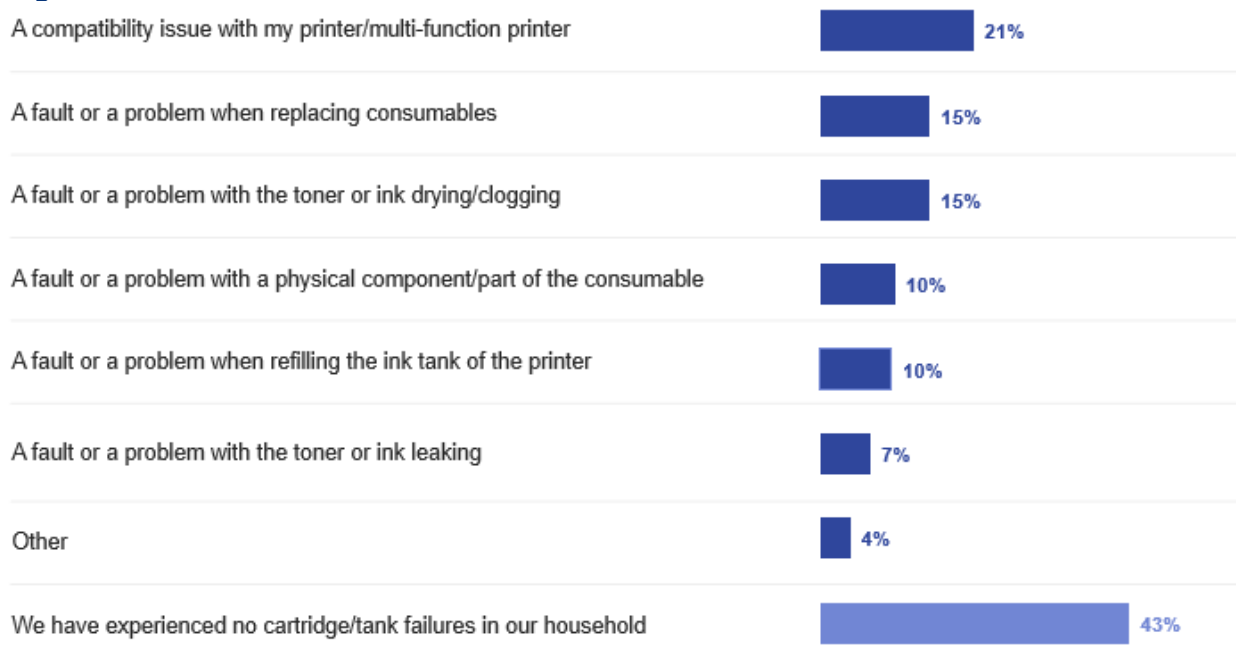
## 5.2 Replacing a consumable: reasons and frequency

In the following sections, we look at consumer behaviour when it comes to the replacement of their consumables. First, in Sections 5.2.1 and 5.2.2 we look at the most common consumable failures and how often they happened in the past, respectively. Then, in Section 5.2.3, we look at reasons that prompted consumers to replace their consumables before they were empty in the past.

### 5.2.1 Common consumable failures

When asked about the most common consumable failures experienced in the past, over four out of ten respondents (43%) indicate never having experienced such failures. As shown in Figure 5.16 below, the most commonly reported consumable failure among all respondents is a compatibility issue between the consumable and the printer (21%), followed by a fault when replacing the consumable and a fault with the ink/toner clogging or drying (15% in both cases). Approximately one in ten indicate having experienced a problem with a physical component of the consumable or a problem when refilling the ink tank of the printer (10% in both cases). Less than one in ten indicate having experienced a problem with the toner or ink leaking (7%).

**Figure 5.16: Common consumable failures**



Base: All respondents (N=5675). Question: Q14. Thinking about the most common consumables failures you have experienced. Which, if any, of the following, have happened to you in your household?

Similarly to the case of common printer failures, a correlation between age and common consumable failures is found, such that respondents aged 50 or older are 11 percentage points more likely than average to report never having experienced consumable failures in their household (54% vs. 43% average), whereas younger respondents aged 18-34 are more likely than average to indicate having experienced some consumable failure in the past (see Figure 5.17 below).

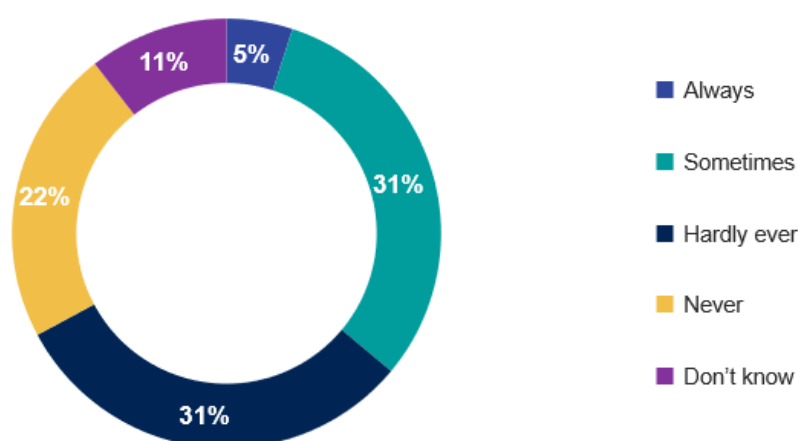
**Figure 5.17: Common consumable failures, by age**

	TOTAL	AGE		
		18-34 years old	35-49 years old	50+ years old
A compatibility issue with my printer/multi-function printer	21%	31%	24%	15%
A fault or a problem when replacing consumables	15%	20%	17%	12%
A fault or a problem with the toner or ink drying/clogging	15%	17%	15%	14%
A fault or a problem with a physical component/part of the consumable	10%	15%	12%	7%
A fault or a problem when refilling the ink tank of the printer	10%	16%	11%	6%
A fault or a problem with the toner or ink leaking	7%	9%	8%	5%
Other	4%	4%	3%	4%
We have experienced no cartridge/tank failures in our household	43%	27%	37%	54%

Base: All respondents (N=5675). Question: Q14. Thinking about the most common consumables failures you have experienced. Which, if any, of the following, have happened to you in your household?

### 5.2.2 Replacing consumables before they are empty

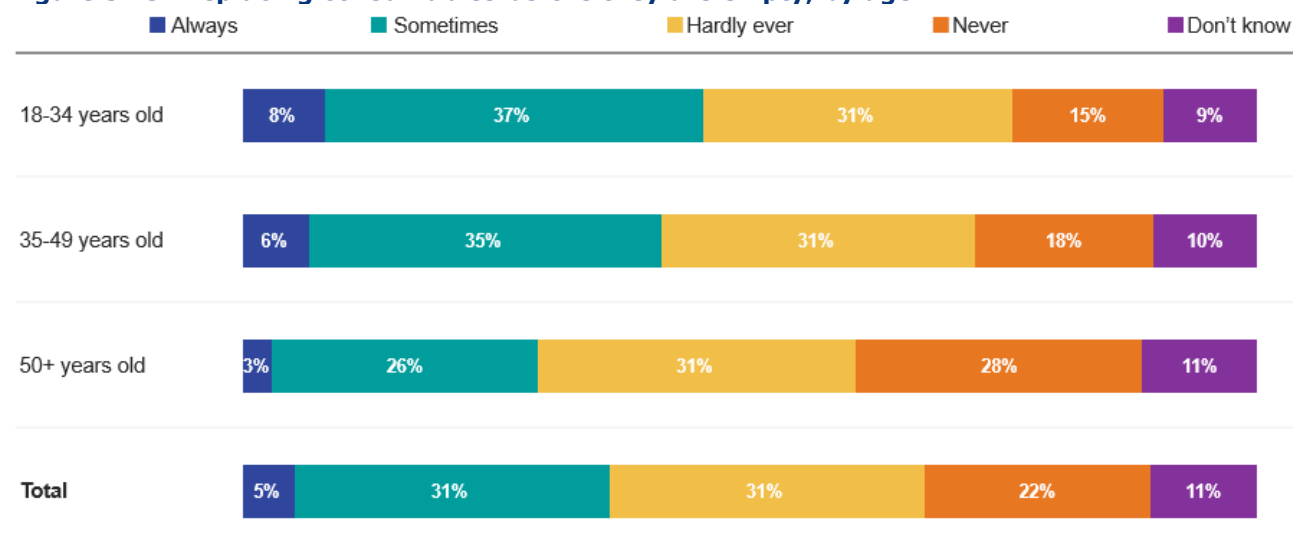
**More than half of all respondents report they *never* or *hardly ever* have to change their consumables before they are empty** (22% and 31% respectively). Five percent of all respondents indicate that they *always* have to replace their printer's consumable before it is empty (Figure 5.18), whereas approximately three in ten indicate having to *sometimes* do so (31%).

**Figure 5.18: Replacing consumables before they are empty**

Base: All respondents (N=5675). Question: Q15. In the past, how often if at all did you have to change a consumable before it was empty (for instance because it was no longer working properly)?

**Replacing consumables before they are empty is found to be slightly correlated with age** (see Figure 5.19). Indeed, respondents aged 18-34 are three percentage points more likely than average to report *always* replacing them before they are empty, and are six percentage points more likely than average to report *sometimes* doing so. Vice versa, respondents aged 50 or over are found six percentage points more likely than average to report *never* replacing consumables before they are empty.

**Figure 5.19: Replacing consumables before they are empty, by age**



Base: All respondents (N=5675). Question: Q15. In the past, how often if at all did you have to change a consumable before it was empty (for instance because it was no longer working properly)?

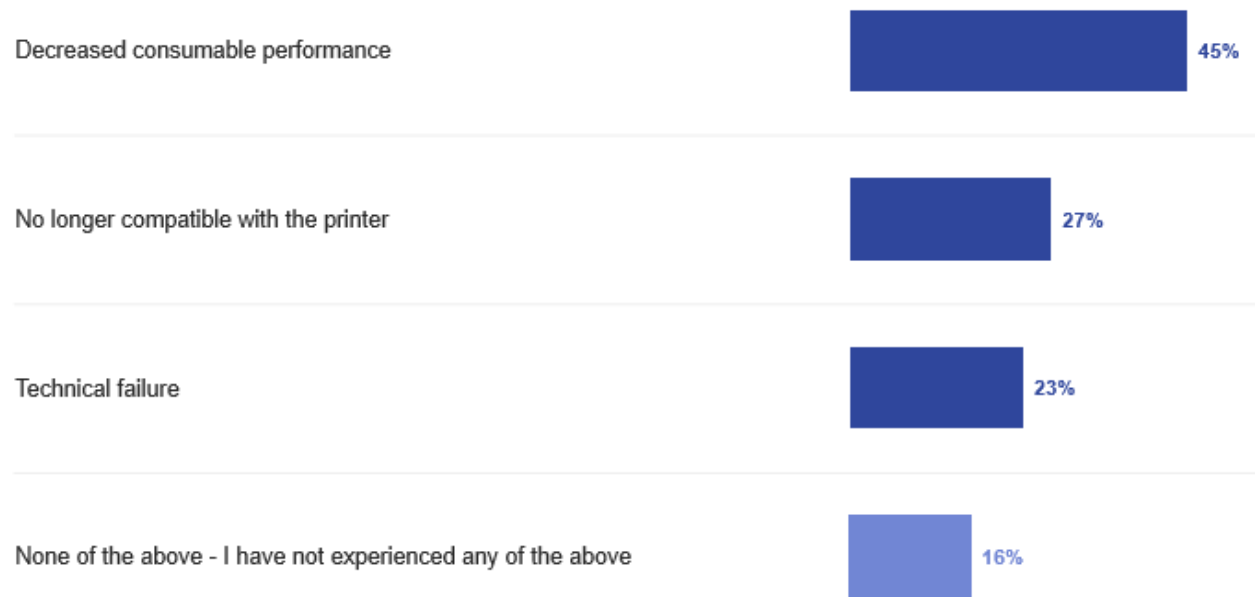
Replacing a consumable before it is empty is also found to happen slightly more frequently among employed than unemployed/inactive respondents. Unemployed/inactive respondents are six percentage points more likely than average to indicate *never* replacing a consumable before it is empty (28% vs. 22% average).

Lastly, **a correlation is found between the frequency of consumable replacement and consumers' printer usage intensity (in terms of pages printed per month)**. Indeed, while users with low printer usage intensity profiles are slightly more likely than average to indicate having to *always* replace their consumables before they are empty, **consumers printing 50 pages or more per month are found to be five percentage points more likely than the average to indicate having to *sometimes* replace their consumables before they are empty.**

### 5.2.3 Common replacement reasons

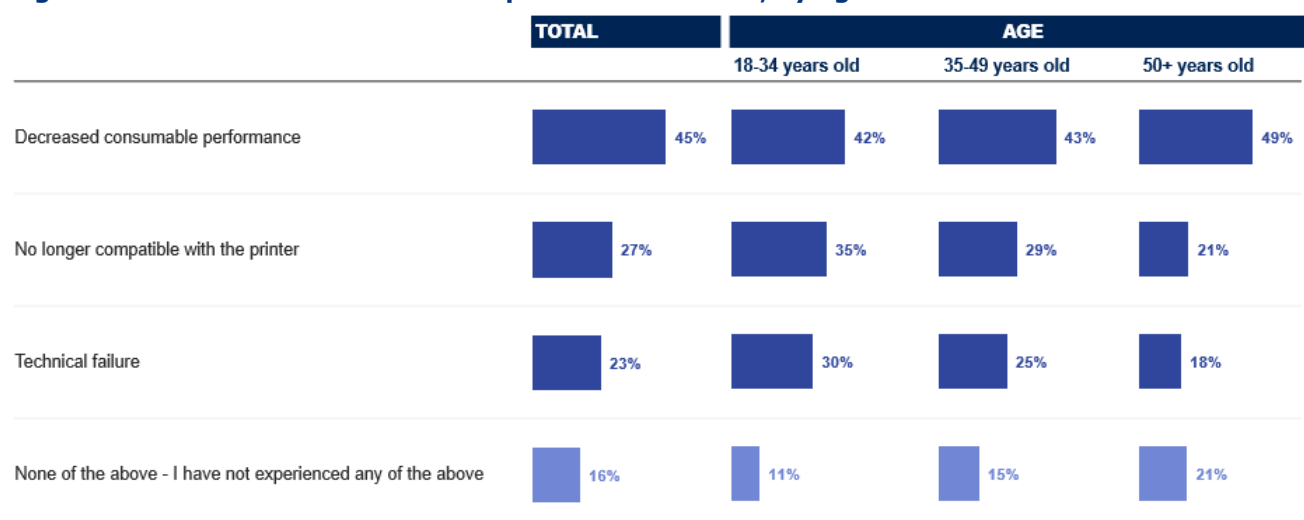
**Among those consumers who indicate having had to replace a consumable in the past before it was empty**, the survey enquires about the main reasons that prompted them to do so in the past. **Approaching half among these consumers report having been forced or prompted to replace them in the past due to decreased consumable performance (45%)**, followed by 27% due to incompatibility between the consumable and the printer, and 23% of them due to a technical failure. Of those who replaced consumables in the past before they were empty, 16% of them indicate not having experienced any such consumable failures in the past.

**Figure 5.20: Common consumable replacement reasons**



*Base: 3796 respondents. Question: Q16. You mentioned that in the past you at times had to replace a consumable of your printer before it was empty. Which of the following did you experience that forced or prompted you to buy a new consumable to replace yours before it was empty?*

Common replacement reasons differ to an extent depending on the age of respondents (see Figure 5.21 below). Technical failure and incompatibility between the consumable and the printer are respectively seven and eight percentage points more likely than average to be reported as common replacement reasons among youngest respondents aged 18-34 (30% and 35% vs. 23% and 27% average respectively). Older respondents aged 50 or over are slightly more likely than average to cite as replacement reasons a decreased performance (49% vs. 45% average) or to not have experienced any of the cited replacement reasons (21% vs. 16% average).

**Figure 5.21: Common consumable replacement reasons, by age**


Base: 3796 respondents. Question: Q16. You mentioned that in the past you at times had to replace a consumable of your printer before it was empty. Which of the following did you experience that forced or prompted you to buy a new consumable to replace yours before it was empty?

**Certain consumable replacement reasons are also slightly more or less likely to be reported depending on the consumer's printer usage intensity.** For instance, consumers with a heavy usage intensity profile (i.e. printing 50 pages or more per month) are three percentage points more likely than the average to point to a technical failure as common replacement reason (26% vs. 23% average), whereas consumers with a low usage intensity profile are three percentage points less likely than average to point to a decreased performance of the consumable as a replacement reason. Consumers with a low usage intensity profile are four percentage points more likely than average (20% vs. 16% average) to cite no particular replacement reason for having been prompted or forced to change a consumable before it was empty in the past.

### 5.3 Printers and their consumables in the circular economy

In this section, we look at consumers' behaviours regarding the circularity of printers and consumables (such as repairing and sharing schemes). First, we look at consumers' behaviours with regards to repairing their printers and using remanufactured cartridges and reasons why they did not do so in the past (Section 5.3.1). Secondly, we enquire about the consumers' attitudes towards the disposal of printers and consumables no longer in use (Section 5.3.2). Lastly, we analyse consumers' use of printing subscription services (Section 5.3.3) and reasons why they are/are not using them (Section 5.3.4).

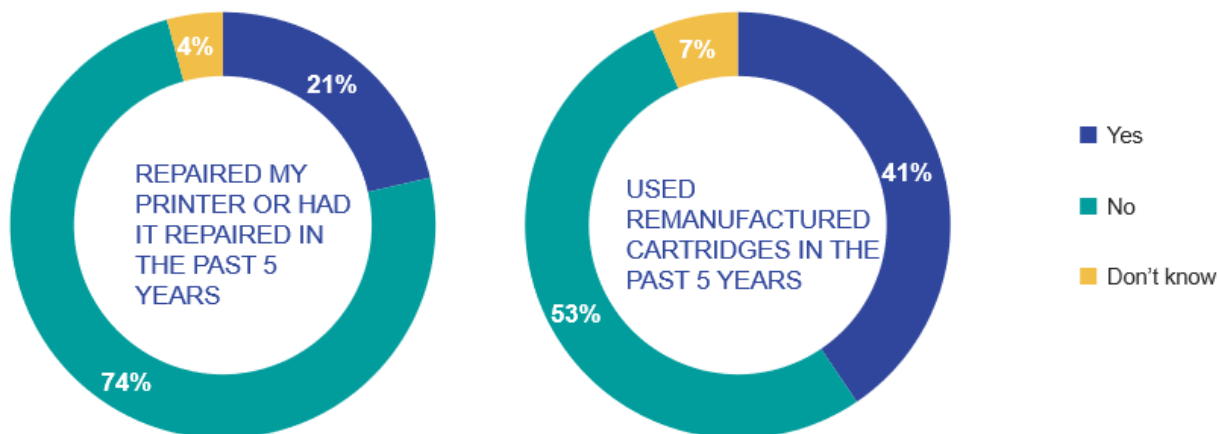
#### 5.3.1 Consumers' behaviours towards repairing printers and using remanufactured cartridges

When asked whether they personally repaired their printer, or had it repaired, in the past five years, only slightly over two out of ten (21%) report having done so. Between seven and eight out of ten respondents report not having repaired their printer in the past five years (74%).

Compared to consumers' behaviours towards repairing printers, the use of remanufactured cartridges appears more common among consumers (see Figure 5.22): while a majority still

reports never having used remanufactured cartridges over the past five years (53%), just over four in ten consumers report having done so in the past 5 years (41%).

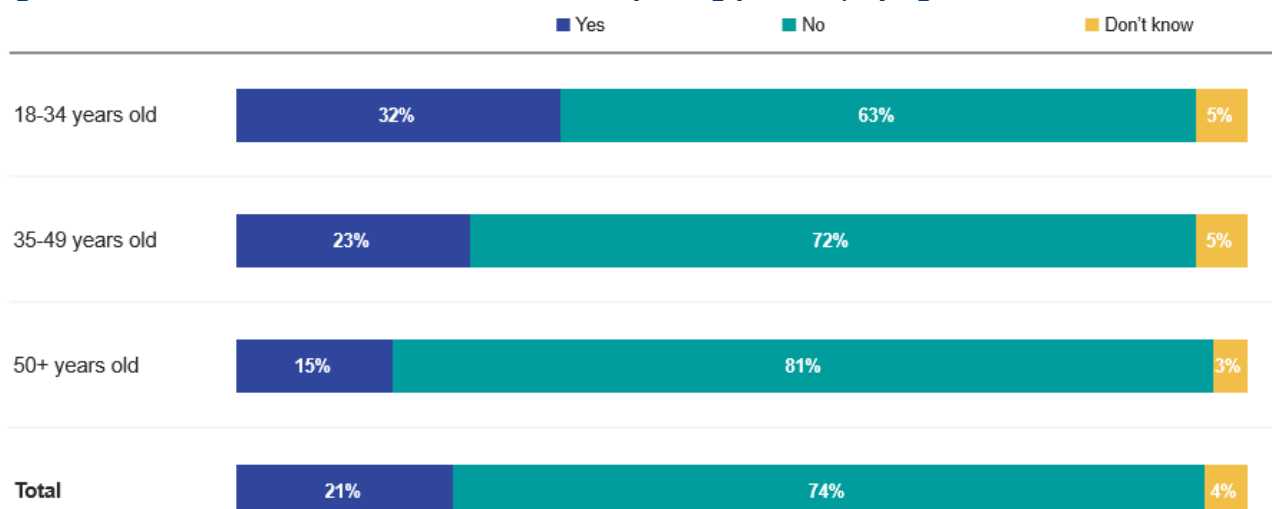
**Figure 5.22: Consumers' behaviours regarding repairing printers and using remanufactured cartridges**



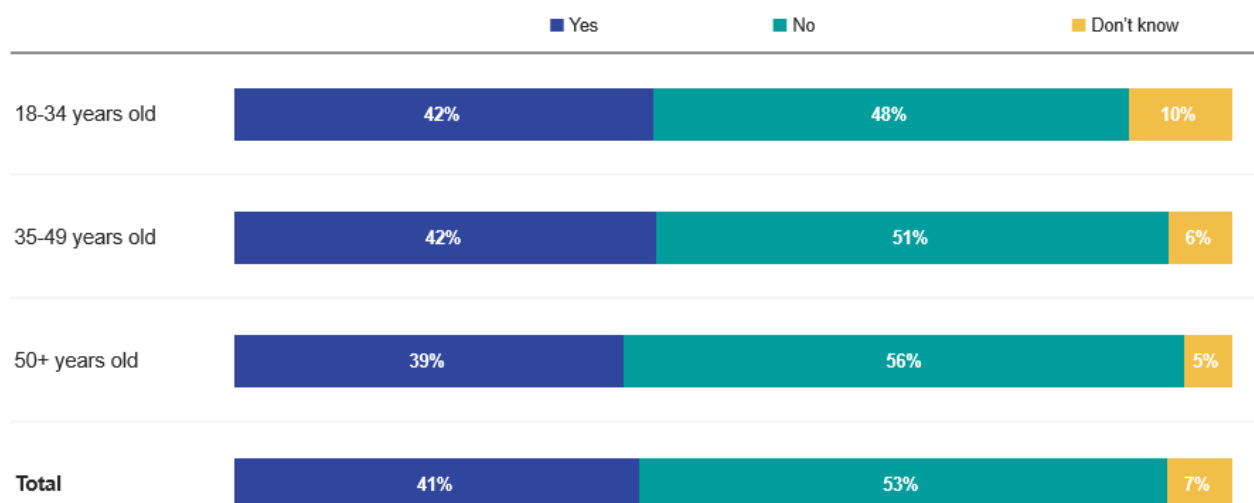
Base: All respondents (N=5675). Question: Q10. Which of the following, if any, have you done in the last 5 years?

**These behaviours are found to be slightly correlated with the age of respondents**, in such a way that younger respondents are more likely than the average to repairing printers and using remanufactured cartridges (see Figures 5.23 and 5.24). Indeed, respondents aged 18-34 are 11 percentage points more likely than the average to report having repaired their printer (or had it repaired) in the past five years (32% vs. 21% average). Vice versa, older respondents aged 50 or over are found to be seven percentage points more likely to indicate never having repaired their printer in the past five years (81% vs. 74% average). They are also found to be three percentage points more likely than average to indicate never having used remanufactured cartridges in the past 5 years (56% vs. 53% average).

**Figure 5.23: Consumers' behaviours towards repairing printers, by age**

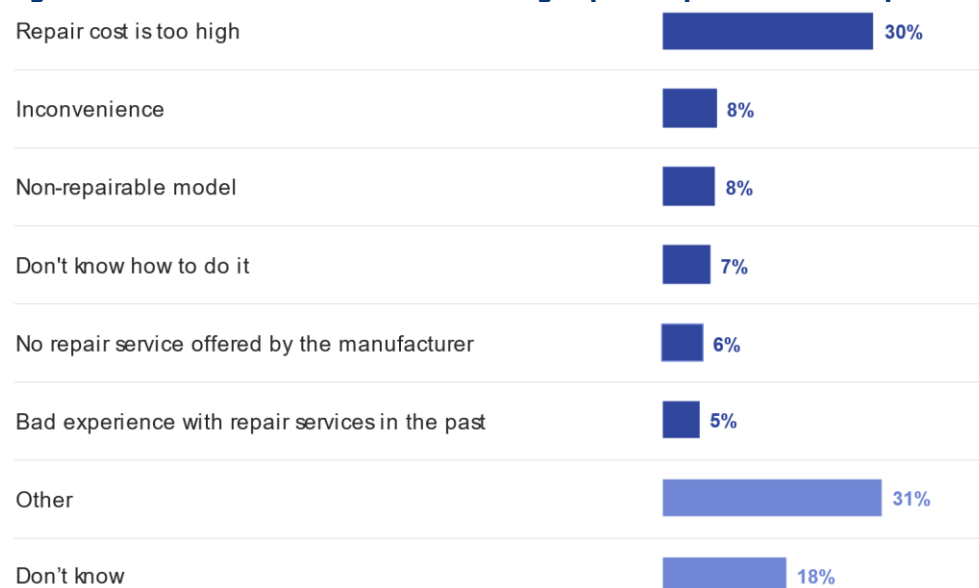


Base: All respondents (N=5675). Question: Q10. Which of the following, if any, have you done in the last 5 years?

**Figure 5.24: Consumers' behaviours towards using remanufactured cartridges, by age**


Base: All respondents (N=5675). Question: Q10. Which of the following, if any, have you done in the last 5 years?

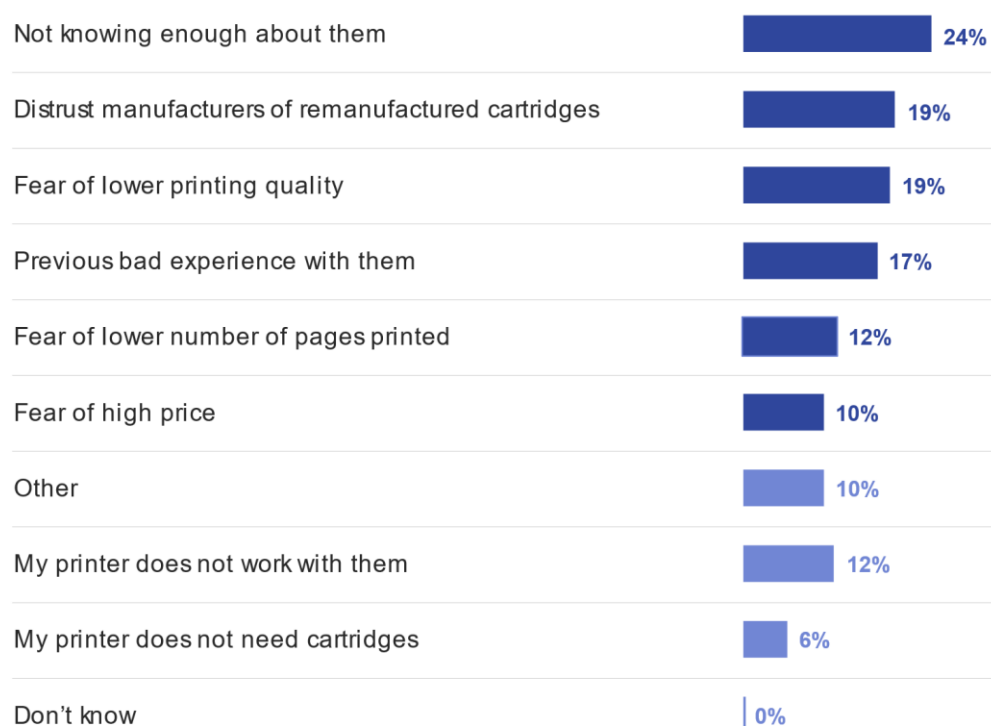
As shown in Figure 5.25 below, the main reasons indicated by respondents for not having repaired their printer in the past five years are primarily related to either the overly high price of a printer's repair (30%), or a reason other than those mentioned in the survey (31%). These are followed by the repair's inconvenience (8%), the non-repairable nature of their printer's model (7%), and not knowing how to repair their printer (7%). Respectively 5% and 6% of these respondents indicate as a reason for not having repaired their printer in the past five years that the manufacturer is not offering repair service or a past bad experience using a repair service.

**Figure 5.25: Main reasons for not having repaired printers in the past 5 years**


Base: 4249 respondents. Question: Q11. You previously stated that you did not repair your printer in the past 5 years. Which, if any, of the following are the main reasons why?

When it comes to the use of remanufactured cartridges, reasons why consumers did not do it in the past are more varied. The main reason indicated for not having done so in the past five years is not knowing enough about remanufactured cartridges (24%), followed by almost 20% either not trusting the manufacturers of remanufactured cartridges or fearing that the printing quality of remanufactured cartridges would be lower than traditional cartridges (19% in both cases). Seventeen percent of these consumers indicate as a reason having had previous bad experiences with remanufactured cartridges, followed by 12% indicating a fear that the number of pages printed with remanufactured cartridges will be lower than with traditional cartridges and a fear that their price would be too high.

**Figure 5.26: Main reasons for not having used remanufactured cartridges in the past 5 years**



Base: 3022 respondents. Question: Q12. You previously stated that you did not use remanufactured cartridges in the past 5 years. Which of the following, if any, are the main reasons why?

Reasons behind consumers' behaviours towards repairing printers and/or using remanufactured cartridges are found to be very much correlated with the age of respondents, as were the consumers' behaviours themselves:

- As shown in Figure 5.27 below, for the repair of their printers, younger respondents aged 18-34 seem more likely than average to indicate one of the following reasons for not having repaired their printer in the past 5 years: the inconvenience of the repair service (12% vs. 8% average), the absence of a manufacturer's repair service offered (9% vs. 6% average), the non-repairability of their printer's model (11% vs. 8% average), having had a bad experience using a repair service in the past (9% vs. 5% average) and not knowing how to do it (11%).
- In the case of consumers' behaviours towards the use of remanufactured cartridges (see Figure 5.28 below), younger respondents aged 18-34 are more likely than average to indicate one of the following reasons for not having used remanufactured cartridges in the past 5 years: a fear that the number of pages printed with one remanufactured cartridge be lower than that printed with a traditional cartridge (16% vs. 12% average), a fear that the price of remanufactured cartridges be too high (14% vs. 10% average) and not knowing enough about remanufactured cartridges (31% vs. 24% average).

**Figure 5.27: Main reasons for not having repaired printers in the past 5 years, by age**

	TOTAL	AGE		
		18-34 years old	35-49 years old	50+ years old
Repair cost is too high	30%	28%	34%	29%
Inconvenience	8%	12%	10%	5%
Non-repairable model	8%	11%	9%	6%
Don't know how to do it	7%	11%	8%	5%
No repair service offered by the manufacturer	6%	9%	7%	4%
Bad experience with repair services in the past	5%	9%	6%	3%
Other	31%	25%	27%	35%
Don't know	18%	14%	14%	21%

Base: 4249 respondents. Question: Q11. You previously stated that you did not repair your printer in the past 5 years. Which, if any, of the following are the main reasons why?

**Figure 5.28: Main reasons for not having used remanufactured cartridges in the past 5 years, by age**

	TOTAL	AGE		
		18-34 years old	35-49 years old	50+ years old
Not knowing enough about them	24%	31%	24%	21%
Distrust manufacturers of remanufactured cartridges	19%	15%	17%	22%
Fear of lower printing quality	19%	18%	18%	19%
Previous bad experience with them	17%	13%	18%	18%
Fear of lower number of pages printed	12%	16%	12%	10%
Fear of high price	10%	14%	13%	7%
Other	10%	10%	10%	11%
My printer does not work with them	12%	12%	10%	13%
My printer does not need cartridges	6%	4%	6%	6%
Don't know	0%	0%	0%	0%

Base: 3022 respondents. Question: Q12. You previously stated that you did not use remanufactured cartridges in the past 5 years. Which of the following, if any, are the main reasons why?

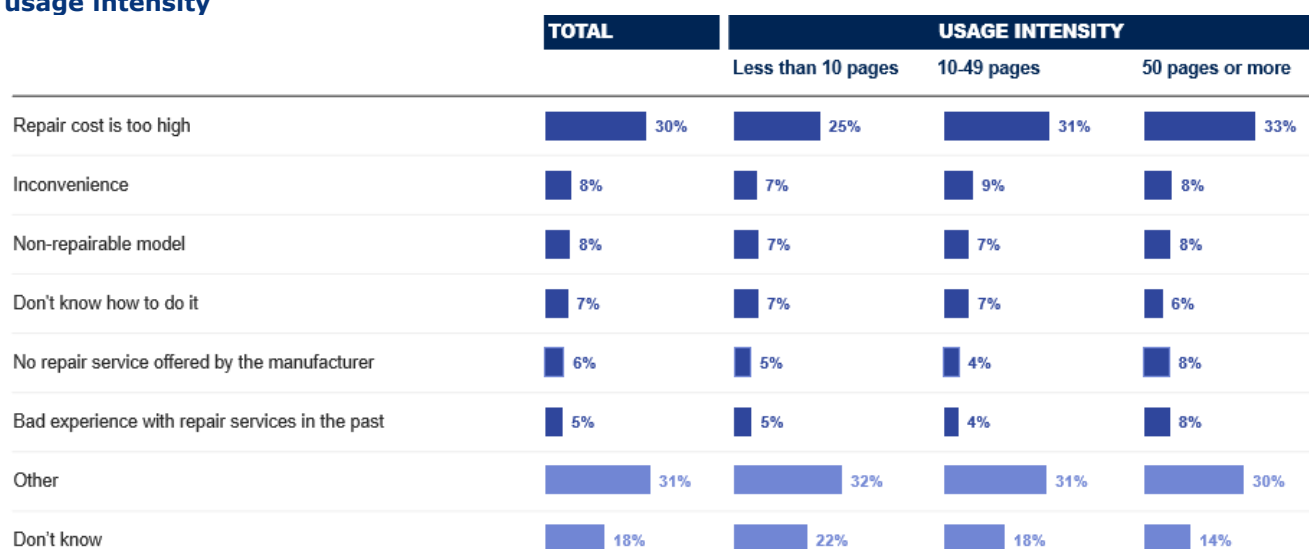
Reasons for not having repaired their printers and/or used remanufactured cartridges in the past five years are also found to slightly vary depending on the consumers' printer usage intensity (in terms of pages printed per month). Indeed, as shown in Figures 5.29 and 5.30 below:

- In the case of reasons for not having repaired their printers in the past, consumers with high usage intensity profiles (i.e. printing more than 50 pages per month) are

more likely than average to indicate the overly high cost of repair service (33% vs. 30% average) as a reason for not having done so.

- In the case of reasons for not having used remanufactured cartridges in the past five years, consumers with high usage intensity profiles are more likely than average to indicate the fear that the printing quality with remanufactured cartridges be lower than with traditional cartridges (23% vs. 19% average), the fear that the number of pages printed with one remanufactured cartridge be lower than that printed with a traditional cartridge (17% vs. 12% average), a lack of trust in manufacturers of remanufactured cartridges (25% vs. 19% average) and previous bad experiences with remanufactured cartridges (22% vs. 17% average).

**Figure 5.29: Main reasons for not having repaired printers in the past 5 years, by printer usage intensity**



Base: 4249 respondents. Question: Q11. You previously stated that you did not repair your printer in the past 5 years. Which, if any, of the following are the main reasons why?

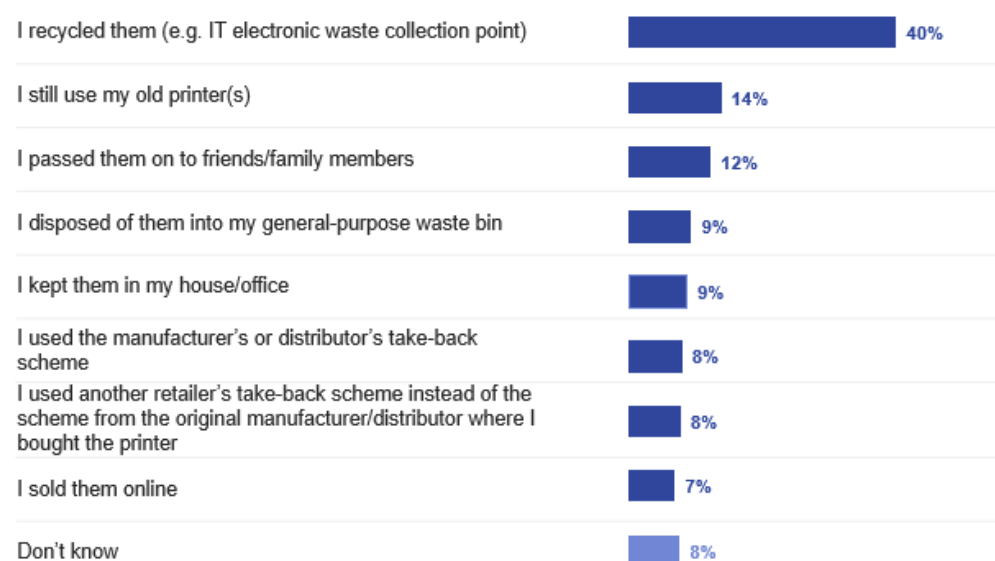
**Figure 5.30: Main reasons for not having used remanufactured cartridges in the past 5 years, by printer usage intensity**

	TOTAL	USAGE INTENSITY		
		Less than 10 pages	10-49 pages	50 pages or more
Not knowing enough about them	24%	24%	25%	23%
Distrust manufacturers of remanufactured cartridges	19%	17%	19%	25%
Fear of lower printing quality	19%	14%	21%	23%
Previous bad experience with them	17%	13%	19%	22%
Fear of lower number of pages printed	12%	11%	10%	17%
Fear of high price	10%	11%	9%	11%
Other	10%	11%	8%	5%
My printer does not work with them	12%	13%	12%	10%
My printer does not need cartridges	6%	7%	5%	5%
Don't know	0%	0%	0%	0%

Base: 4249 respondents. Question: Q11. You previously stated that you did not repair your printer in the past 5 years. Which, if any, of the following are the main reasons why?

### 5.3.2 Consumers' attitudes towards the disposal of printers and consumables

Respondents were then asked about how they have disposed of printers they were no longer using in the past. **A total of 75% of all respondents reports having selected circular disposal options.** The most common of these is recycling them, for example at an IT electronic waste collection point (40%), followed by passing it on to friends or family members (12%), using the manufacturer's or distributor's take-back scheme (8%) using another retailer's take-back scheme (8%), or selling it online (7%). Less than one in ten respondents reports having disposed of their printer into their general-purpose waste bin in the past (9%).

**Figure 5.31: Disposal of printers**

Base: All respondents (N=5675). Question: Q13a. In the past, how have you disposed of printers you were no longer using?

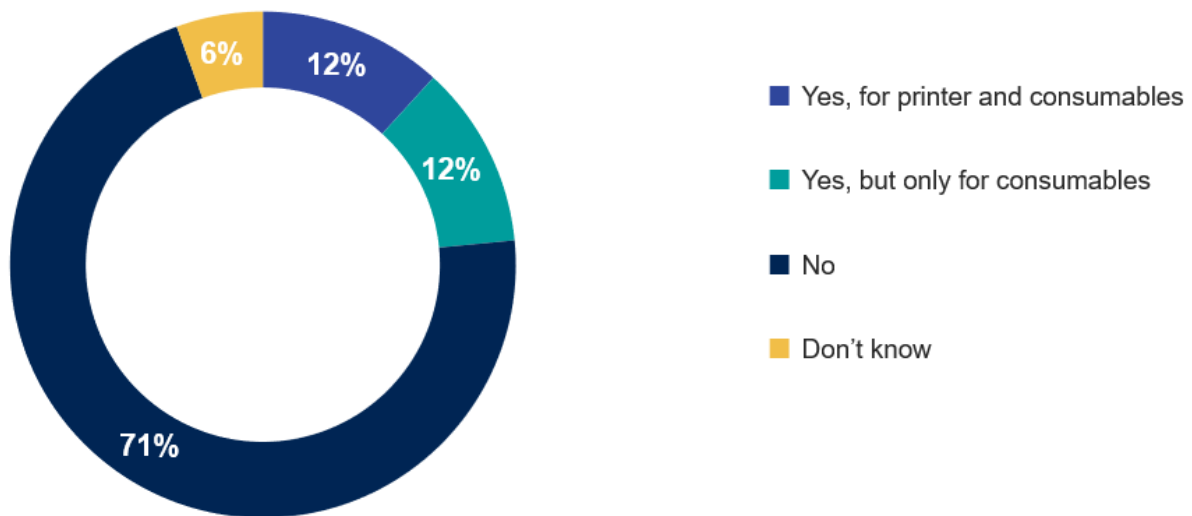
In terms of socio-demographic differences in the disposal of printers, the following trends are observed:

- **Gender:** male respondents are three percentage points more likely than average to report having recycled their printers (e.g. at an IT electronic waste collection point);
- **Age:** younger respondents aged 18-34 are 11 percentage points less likely than average to report having recycled their printer (e.g. at an IT electronic waste collection point); they are also more likely than average to dispose of them in one of the following ways: to keep them in their house/office (13% vs. 9% average); to sell them online (12% vs. 7% average); to use a manufacturer's or distributor's take-back scheme (13% vs. 8% average) or another retailer's take-back scheme (13% vs. 8% average).
- **Printer usage intensity:** printer users with a high printer usage intensity (i.e. who print 50 pages or more in a typical month) are four percentage points more likely than average to report having used a manufacturer's or distributor's take-back scheme.

### 5.3.3 Consumers' usage of printing subscription services

Lastly, respondents were asked about their usage of printing subscription services in the past 12 months. Slightly over seven in ten respondents report not having used a printing subscription service in the past 12 months. Equal splits of the population report having used it for both printer and consumables (12%) and only for consumables (12%).

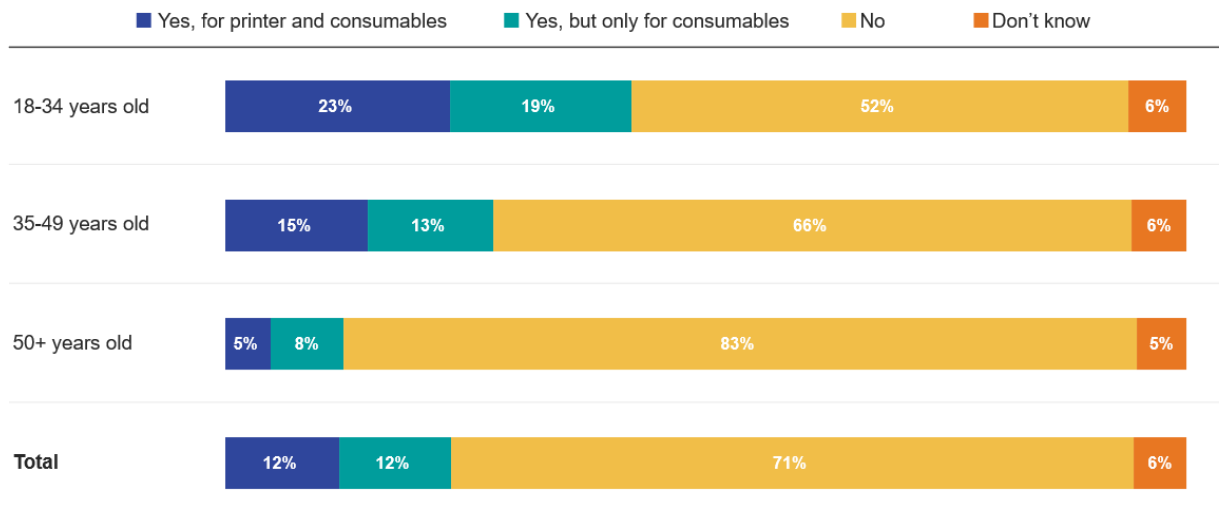
**Figure 5.32: Consumers' usage of printing subscription services**



Base: All respondents (N=5675). Question: Q17. In the past 12 months, have you used a printing subscription service?

A strong correlation is found between the age of respondents and their likelihood of having used a printing subscription service in the past (see Figure 5.33 below), such that younger respondents aged 18-34 are least likely to report not having used one in the past (52% vs. 71% average). Younger respondents aged 18-34 are also 11 percentage points more likely than average to have used such a service for both printer and consumables (23% vs. 12% average) and seven percentage points more likely than average to have used such a service for consumables only (19% vs. 12% average). Vice versa, older respondents aged 50 or over are 12 percentage points more likely than average to report not having used a printing subscription service in the past (83% vs. 71% average).

**Figure 5.33: Consumers' usage of printing subscription services, by age**

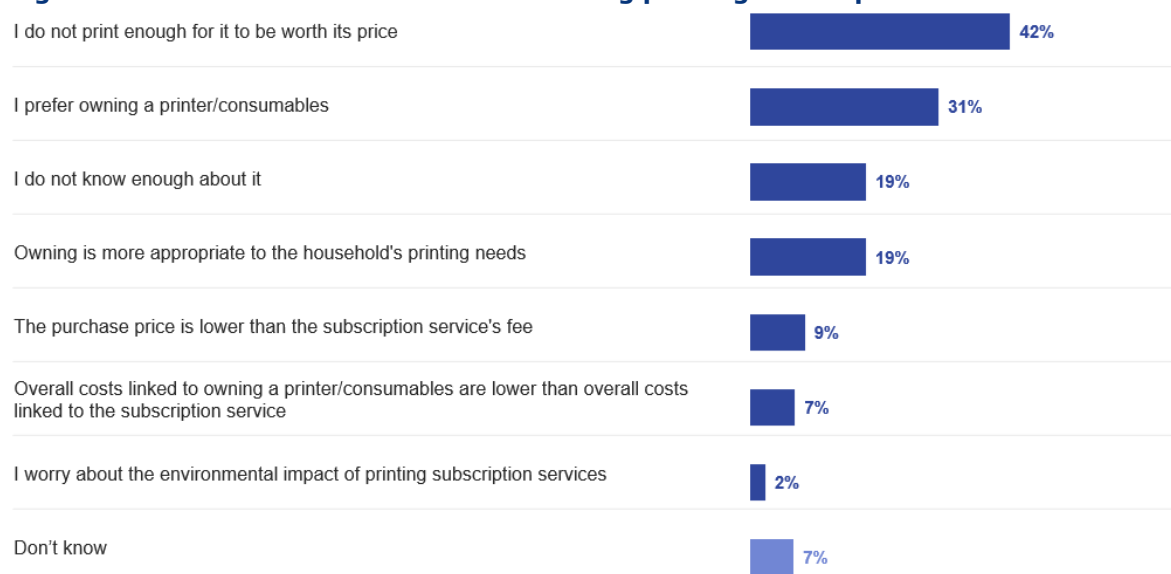


Base: All respondents (N=5675). Question: Q17. In the past 12 months, have you used a printing subscription service?

### 5.3.4 Reasons for using or not using printing subscription services

When prompted to think about the reasons why they did *not* use printing subscription services in the past, respondents attribute this choice primarily to either the price of the service being considered too high for their printing needs (42%), or a preference for owning printer/consumables (31%) or similarly a consideration that owning is more appropriate to the household's printing needs (19%), or simply not knowing enough about it (19%). Fewer than one in ten respondents attribute this decision to a rational comparison between costs linked to purchasing/repairing the printer and the printing subscription service's fee (7%) or to a comparison between the purchase price of a printer/consumables and the service's fee (9%). Only 2% of respondents who did not use such services did not do so because of a concern for the environmental impact of such services.

**Figure 5.34: Consumers' reasons for not using printing subscription services**



Base: 4082 respondents. Question: Q19. You previously stated that you have not used a printing subscription service in the past 12 months. Which, if any, of the following are the main reasons why not?

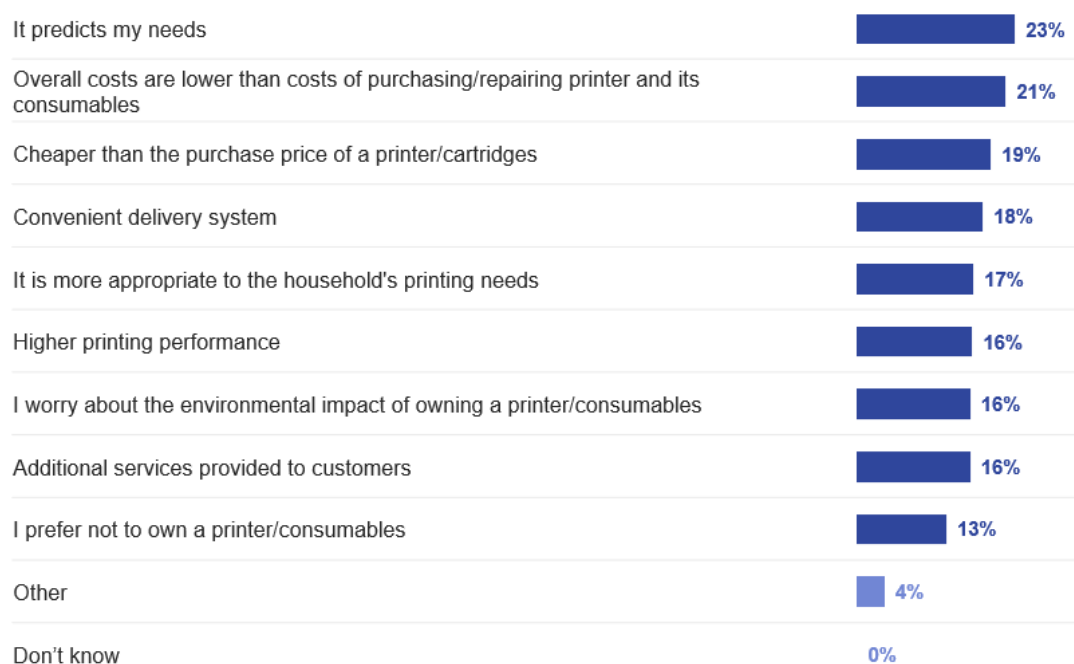
In terms of sociodemographic differences in reasons for *not* using such services, the following is found:

- **Age:** younger respondents aged 18-34 are slightly more likely than average to *not* have used a printing subscription service in the past due to a lack of knowledge about the service (23% vs. 19% average); older respondents aged 50 or over are instead slightly more likely than average to mention as a reason not printing enough for the printing subscription service to be worth its price.
- **Education:** high educated respondents are slightly more likely than average to mention as a reason a lack of knowledge about printing subscription services (22% vs. 19% average).

- **Imaging equipment usage intensity:** respondents with a low usage intensity profile (i.e. printing less than 10 pages per month) are more likely than average to mention as a reason not printing enough for the service to be worth its price (47% vs. 42% average).

Similarly, respondents who report having used a printing subscription service in the past 12 months were asked about the main reasons why they did so (see Figure 5.35 below). **Reasons for using printing subscription services varied among respondents, with close to equal shares of this subgroup reporting to have done so either in view of the service's ability to predict their printing needs (23%) or out of conviction that the overall costs linked to the service would be lower than the cost of purchasing and repairing a printer and its consumables (21%),** followed closely by a consideration of the service's affordability compared to the purchase price of a printer and its consumables (19%) and the convenience of the printing subscription service's delivery system (18%). Between one and two of those who report having used such a service in the past 12 months mentioned as main reasons the additional services provided by the service to customers (16%), a concern about the environmental impact of owning a printer/consumables (16%), higher performance of the service (16%), and considering such a service more appropriate to the household's printing needs than owning a printer (17%). About 13% of consumers who used such a service in the past 12 months mentioned as a reason a preference to not own a printer and its cartridges/ink.

**Figure 5.35: Consumers' reasons for using printing subscription services**



Base: 1285 respondents. Question: Q18. You previously stated that you have used a printing subscription service in the past 12 months. Which, if any, of the following are the main reasons why?

In terms of sociodemographic differences in reasons for not using such services, the following is found:

- **Gender**: male respondents are slightly more likely than average to mention as a reason to have used a printing subscription service the fact that the service predicts their needs (26% vs. 23% average) or a preference to not own a printer and its cartridges/ink (16% vs. 13% average).
- **Age**: older respondents aged 50 or over are more likely than average to mention as a reason the service's convenient delivery system (21% vs. 18% average) and the service's affordability compared to the purchase price of a printer and its cartridges (23% vs. 19% average). Older respondents aged 50 or over are also less likely than average to mention as a reason to have used this service the following: the lower overall costs linked to the services compared to the cost of purchasing/repairing a printer/cartridges (16% vs. 21% average), a preference to not own a printer and its cartridges/ink (9% vs. 13% average), the service's additional services (12% vs. 16% average), and the appropriateness of the service compared to the household's printing needs (13% vs. 17% average).
- **Education**: low educated respondents are less likely than average to mention as a reason to have used a printing subscription service in the past the fact that the service provides them with additional services (12% vs. 16% average).
- **Employment**: unemployed respondents are more likely than average to mention as a reason to have used printing subscription services in the past the service's convenient delivery system (22% vs. 18% average) and less likely than average to mention as reasons the following: a preference to not own a printer and its cartridges/ink (10% vs. 13% average), the printing subscription service's additional services (11% vs. 16% average), and the appropriateness of the printing subscription service compared to the household's printing needs (12% vs. 17% average).
- **Imaging equipment usage intensity**: high intensity printer users (i.e. printing more than 50 pages per month) are more likely than average to mention as a reason to have used printing subscription services in the past the higher printing performance of subscription services (20% vs. 16% average).

## 6 General conclusions

### 6.1 Factors influencing the purchase of imaging equipment and its consumables

When it comes to the relative importance of various product factors when purchasing printers and their consumables, there are clear consistencies:

- The (expected) **price of the consumables** (ink cartridges/toner cartridges) is the most important factor for consumers when choosing which printer and which consumable to buy.
- **Performance-related factors are overall found more important than sustainability-related factors when buying a printer/consumable.** The big exceptions to this trend are the expected lifetime and the compatibility of the printer with other cartridges. These two sustainability-related factors are found highly important and rank respectively third and fourth most important factors when purchasing a printer.
- **When purchasing a consumable, 66% of printer users find the price of the consumable to be a more important factor than the expected price per page.**

### 6.2 Usage behaviour

- **Across the users of printers we surveyed, between 42% and 50% of them report using their single and multi-function printers respectively at least once a week**, whereas 33% and 31% respectively report using their printers at least once a month. For both types of printer users, just above one in ten reports using their printers on a daily basis. **Printing on a daily basis is most frequent among respondents aged 18-49 and least frequent among respondents aged 50 and over and this is the case for both types of printers.**
- **Consumers who own and regularly use a printer in their household on average print about 88 pages per month.** The number of pages printed per month is highest among consumers who are aged 35-49, high educated, and in employment and lowest among consumers aged 18-34.
- Among both types of printer users, **the average number of consumables used every year is 7.74.** Just about one in ten printer users either uses ten or more consumables every year or between five and nine consumables every year, respectively. **The number of consumers using ten or more consumables every year is higher than average among younger consumers aged 18-34.**
- When it comes to consumers' colour printing preferences, **84% and 79% of current single-function and multi-function printer users respectively report printing in black and white (B&W) 50% of the time or more.** Single-function printer users are 11 percentage points more likely than multi-function printer users to report printing in black and white 80% of the time or more.
- **In terms of preferred paper size formats in which consumers print, more than eight out of ten consumers (84%) print in the standard A4 paper format 80% of the time or more.** Only a minority of consumers prints in A3 or another paper format more than 40% of the time (respectively, 5% do so in A3 paper format and 3% in another paper format).

### 6.3 Usage and sustainability attitudes and awareness

- When asked to indicate the most important reasons to replace their current printer, imaging theirs is still working, **approaching four in ten respondents mention they would be prompted to change their printer if it started to no longer perform as it used to** (37%), followed by almost three in ten respondents who would consider replacing their current printer if the cost of the printer's consumables were too high (28%). Thirty percent of all respondents mentioned they will keep using their printer until it breaks down.
- **Age is an important factor when it comes to the ranking of reasons for replacement of a printer.** Most importantly, older respondents aged 50 or over are more likely than average to intend to keep using their printer until it no longer works. Vice versa, younger respondents aged 18-34 (and to a lesser extent those aged 35-49) are more likely than average to report they would change their printer if it no longer performed as well as it used to, or if there were a better printer on the market, or if their current printer were no longer compatible with remanufactured/third-party consumables.
- **When asked for how long they intend to keep using their printer assuming it does not break down or it is not lost/stolen, owners of single-function and multi-function printers show a relatively similar response pattern.** Among single-function printer users, 14% of them report they would intend using their printer for less than three years, 27% between three and five years, and 34% between five and ten years. Among multi-function printer users, 13% of them report they would intend using their printer for less than three years, 29% of them report they would intend using it between three and five years, and 33% of them between five and ten years. **The main difference** between the two types of (future) printer owners **could be found for long-term expected use length: indeed, (future) owners of multi-function printers are more likely than single-function (future) printer owners to report they would use a new printer for more than ten years.**
- **Printer owners with a high printer usage intensity (printing 50 pages or more a month) are more likely than average to expect using their printer for less than three years and for between three and five years;** they are also found less likely than average to expect using their printer for between five and ten years or for more than five years.
- **The expected use length of a printer depends on the reasons that consumers see as important to replace that printer before it breaks down.** For both types of printers, consumers who report that the availability of a new printer on the market is an important reason to replace a printer are most likely to expect to use their printer for less than three years and for between three and five years. Single-function printer (future) owners who consider the lack of updates/support by the manufacturer and/or software providers is an important reason to replace their printer are more likely than average to replace their printer after between five and ten years. Multi-function printer (future) owners who consider the decreased printer performance, the lack of software updates and of manufacturer support as important reasons to replace their printer are most likely to replace their printer after between five and ten years. **As can be expected, consumers who intend to use a printer until it no longer works (i.e. no reasons to replace their current printer) intend to use their printer the longest.**

- **When asked about the most common printer failures experienced in their household in the past, 35% of all respondents indicate to have had a fault or a problem with a physical component of the printer in the past** (e.g. the paper jammed) and 25% indicate to have had a compatibility issue between the printer and cartridges. Of all respondents, 34% indicate never having experienced printer failures in their household in the past.
- **When asked about most common consumable failures experienced in the past, over four out of ten respondents (43%) indicate never having experienced consumable failures in the past.** Among those who did experience some consumable failure in the past, the most commonly reported one was a compatibility issue between the consumable and the printer (21%), followed by a fault when replacing the consumable and a fault with the ink/toner clogging or drying (15% in both cases).
- **In terms of frequency of consumable replacement before consumables are empty, more than half of all respondents report they *never* or *hardly ever* have to do it** (22% and 31% respectively).
- Among those consumers who indicate having had to replace a consumable in the past before it was empty, **approaching half of these report having been forced or prompted to replace them in the past due to decreased consumable performance (45%)**, followed by 27% due to incompatibility between the consumable and the printer, and 23% of them due to a technical failure.
- **When asked whether they personally repaired their printer, or had it repaired, in the past five years, only slightly over two out of ten (21%) report having done so. Between seven and eight out of ten respondents report *not* having done so (74%).**
- When asked why they did *not* repair their printer in the past five years, the main reasons indicated related to either the overly high price of repairing the printer (30%), or a reason other than those mentioned in the survey (31%).
- When it comes to having used remanufactured cartridges in the past five years, just over four in ten report having done so in the past 5 years (41%).
- Consumers' behaviours regarding the circularity of printers and consumables (i.e. the repair of printers and the use of remanufactured cartridges) were found to be slightly correlated with the age of respondents, in such a way that **younger respondents are more likely than the average to be using remanufactured cartridges and repairing their printers.**
- When it comes to the use of remanufactured cartridges, reasons why consumers did *not* do it in the past are more varied. The main reason for not having done so in the past five years relates to not knowing enough about remanufactured cartridges (24%), followed by almost 20% of this subgroup either not trusting the manufacturers of remanufactured cartridges, or fearing that the printing quality of remanufactured cartridges would be lower than traditional cartridges (19% in both cases).
- **When asked how they disposed of printers they were no longer using in the past, a majority of (future) printer owners report having selected circular disposal options.**

- **Lastly, respondents were asked about their usage of printing subscription services in the past 12 months. Slightly over seven in ten respondents report *not* having used a printing subscription service in the past 12 months.** Equal splits of the population report having used it for both printer and consumables (12%) and only for consumables (12%).
- **The main reasons for having used a printing subscription service in the past year varied among respondents,** with close to equal shares of this subgroup reporting to have done so either in view of the printing subscription service's ability to predict their printing needs (23%) or out of conviction that the overall costs linked to the service would be lower than the cost of purchasing and repairing a printer and its consumables (21%), followed closely by a consideration of the service's affordability compared to the purchase price of a printer and its consumables (19%) and the convenience of the service's delivery system (18%).
- **The main reasons for *not* having used a printing subscription service in the past year relate primarily to the price of the service being considered too high for the consumer's printing needs (42%),** followed by a preference for owning printer/consumables (31%) or similarly a consideration that owning is more appropriate to the household's printing needs (19%), or simply not knowing enough about these services (19%).