

# E-cigarettes: an emerging category

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# 1. Introduction

## 1.1 Background to the study

In September 2015, EY were commissioned by Nicoventures Holdings Limited to report on trends in the market for e-cigarettes, also known as electronic cigarettes. This report details the findings of this work, exploring recent developments in the sale and use of e-cigarettes with a focus on seven countries in particular (that collectively account for 75% of global e-cigarette consumer price turnover (CPTO) excluding US and China)<sup>1</sup>.



The analysis presented within this report is supported by two separate data sets sourced from Kantar Group Ltd. The first data set provided estimates of the proportion of adults who use e-cigarettes in each of the seven countries included in this report<sup>2</sup>. The second data set was drawn from a survey on user behaviour from approximately 2,000 adults in each selected country, for each of the years from 2013 to 2015<sup>3</sup>. The methodology for this survey is explained in more detail in Appendix A. EY has calculated cross country averages based on UN population data, and the proportion of respondents to the survey who identified themselves as regular e-cigarette users. In addition to data from Kantar, market information has been sourced from recognised sources, such as the World Health Organisation, to provide further context and detail in relation to e-cigarettes.

## 1.2 Defining the e-cigarette market

E-cigarettes were first imported into Europe and the United States between 2006 and 2007<sup>4</sup>. In the period since a wide variety of products have emerged. For the purposes of this report, we have grouped e-cigarette devices under three broad categories:

- ▶ Disposable – which can be used until the pre-filled cartridge of ‘e-liquid’ is emptied
- ▶ Rechargeable – which are designed to be refilled by the user
- ▶ Modular – can be refilled by the user, but also allows the user to regulate the power delivered from the system’s batteries to the atomizer

<sup>1</sup> Nicoventure’s estimate

<sup>2</sup> We understand from Kantar that these were established via a variety of different survey techniques developed specifically for each country

<sup>3</sup> Field work for the 2015 survey was conducted between the period 30 July and 6 August, therefore all references to 2015 data sourced from the Kantar study relate to this period. Six of the seven countries were included in the survey between 2013 and 2015. South Korea was excluded from the 2013 survey, but included in 2014 and 2015

<sup>4</sup> CASAA – Consumer Advocates for smoke-free Alternatives Association. See <http://casaa.org/>

An e-cigarette is a battery powered electronic device which heats a solution (typically, but not always, containing nicotine) to create a vapour. An electronic heating element is activated which vaporises the liquid formulation (often referred to as the 'e-liquid') and the vapour condenses to form an aerosol. No combustion takes place; instead the user inhales the liquid's vapour rather than smoke. E-cigarettes do not contain tobacco, however, where nicotine is used, it is derived from tobacco.

## 1.3 Key findings

The market for e-cigarettes has developed rapidly. A diverse and dynamic industry has emerged, providing a wide range of devices through newly established production and distribution networks. Using evidence-based research, this report aims to provide (for the seven countries surveyed) an overview of the growth of this industry, the different types of products that are available, and the consumers who use them. The key findings from our analysis are as follows:

### 1. The number of e-cigarette users continues to grow rapidly

The number of e-cigarette users in the seven countries surveyed grew from an estimated 2.8mn in 2013 to 5.1mn in 2015, an increase of 86%. Total usage is highest in the UK and France, where it represents 4.0% and 3.5% of the adult population respectively.

### 2. In most markets e-cigarette usage represents a significant proportion of the adult smoking population

The size of the e-cigarette market (in terms of number of users) is equivalent to 20% of the size of the combustible tobacco market in the UK, and 12% in France. Higher smoking prevalence within a population does not necessarily imply there will be a greater take up of e-cigarettes.

### 3. An increasing share of e-cigarette users are ex-smokers

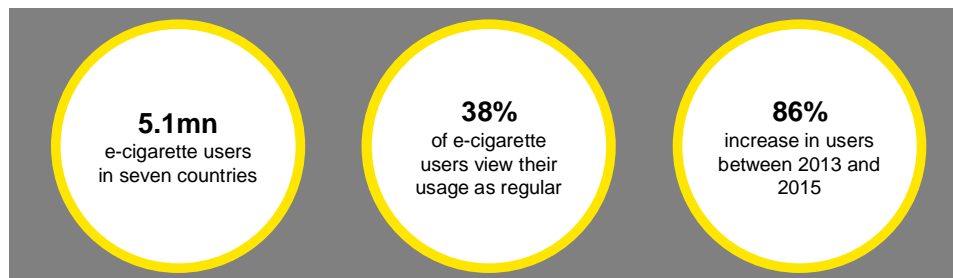
In 2015, 37% of e-cigarette users identified themselves as 'ex-smokers'. This represents an increase from 31% in 2013.

### 4. A significant proportion of e-cigarette users view their usage as 'regular'

In 2015, across the seven countries surveyed, 38% of e-cigarette users considered their use as regular rather than occasional<sup>5</sup>, this proportion has remained roughly constant since 2013 despite a rapidly growing market. South Korea is the only country surveyed where more than half (58%) of e-cigarette users view their use as regular in 2015<sup>6</sup>.

### 5. Modulars have become the e-cigarette of choice for over three-fifths of e-cigarette users

In many markets modular e-cigarettes, which allow for greater customisation, have overtaken rechargeable models as the most commonly used type of device. In 2015, modulars were chosen by 62% of all users in the countries surveyed, up from 55% in 2013. This compares to 35% of users who use rechargeable e-cigarettes and 16% who use disposables. These findings also highlight that many e-cigarette users currently use more than one type of e-cigarette.



<sup>5</sup> E-cigarette users were asked to self-define their usage as either 'regular' or 'occasional'

<sup>6</sup> Combustible tobacco prices in South Korea rose by 80% in 2015 due to a significant increase in excise that took effect as of January 2015

## 6. Consumers are demanding more variety in nicotine strengths and flavours

In addition to the different types of e-cigarette device, an extensive range of flavours and nicotine strengths is available in response to evolving consumer preferences. For example, 16% of users opt for nicotine-free e-liquids, and while tobacco flavoured e-liquids accounted for 28% of usage, other flavours such as fruits (23%) and botanicals (20%), are also popular.

## 7. Physical routes to market remain the dominant channel for purchases

In 2015, 79% of e-cigarette users purchased their devices at a retail store, with the most common being specialist stores. Retail stores were also the main purchase channel for refills. Online purchasing is slightly more common for refills than devices.

## 8. The most commonly cited reason for using e-cigarettes (51% of users) is that they are 'less harmful than regular cigarettes'

In three out of the seven countries (Germany, Italy and Russia) the most commonly cited driver of usage was that e-cigarettes are 'less harmful than regular cigarettes'. This was also one of the top three drivers cited in the UK, South Korea and Poland.

## 9. The second most commonly cited reason is that it 'Helps me reduce smoking FMC [factory made cigarettes]'

The second most commonly cited driver (cited by 49% of regular users), was that they 'help me reduce smoking FMC'. This was the most commonly cited driver in the UK, South Korea and France.

## 10. The price of cigarettes appears to influence e-cigarette use

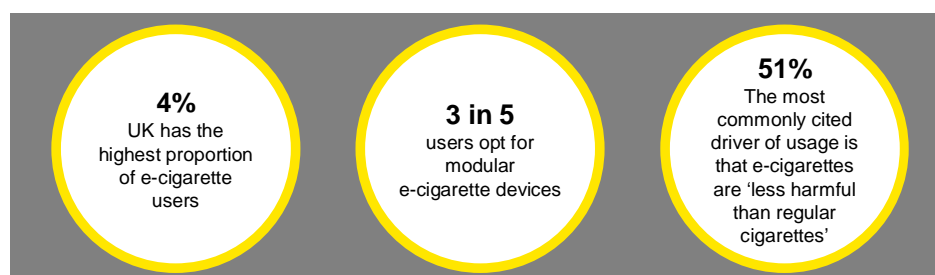
Countries with higher cigarette prices tend to have higher e-cigarette penetration. This finding corroborates survey evidence, which suggests that the difference in price between combustible tobacco and e-cigarettes is a key factor in consumers' decision making.

## 1.4 Report structure

The remainder of this report is structured under two further sections:

- ▶ **Section 2: Understanding the e-cigarette market** – considers the e-cigarette market, exploring historic growth trends, patterns of use and the varieties of e-cigarettes available

**Section 3: Drivers of e-cigarette use** – discusses the different drivers for use as reported by e-cigarette users, and also considers the relationship between pricing of e-cigarettes compared with combustible tobacco



## 2. Understanding the e-cigarette market

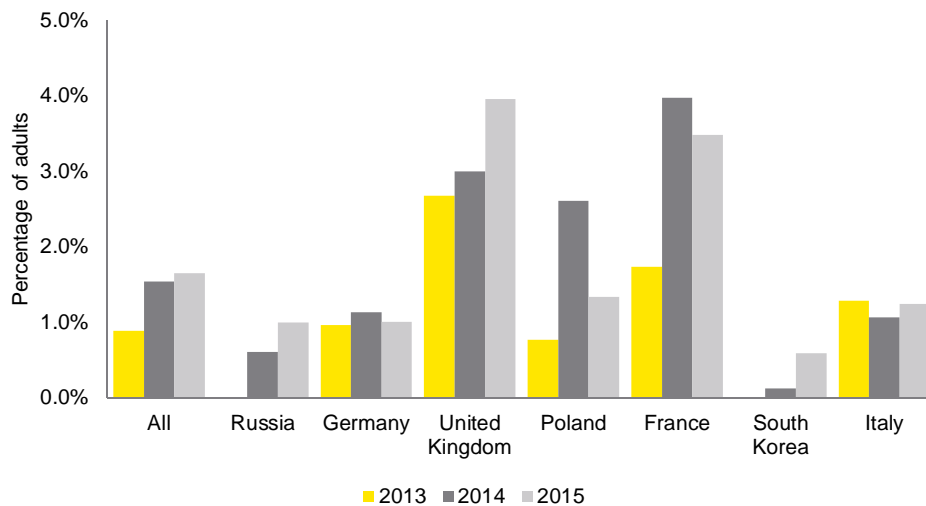
In recent years, the e-cigarette market has witnessed significant growth, supported by relatively low barriers to entry which have allowed many businesses to bring a diverse set of products to consumers through a variety of channels. This section of the report offers an overview of some of the emerging trends within this market, providing an evidence-based comparison across countries and over time.

### 2.1 The number of e-cigarette users continues to grow rapidly

Between 2013 and 2015 the number of e-cigarette users almost doubled, growing from 0.9% of Adults to 1.7%. As illustrated in Figure 1 below, total usage across the seven countries surveyed was highest in the UK (4.0%) and France (3.5%) and lowest in South Korea (0.6%) and Russia (1.0%). In 2015, the total number of regular e-cigarette users across these seven countries is estimated at around 5.1mn<sup>7</sup> up from 2.8mn in 2013, an increase of 86%.

In Germany and Italy usage has remained relatively flat across the period, while in Poland there was a substantial jump in usage from 0.7% to 2.6% between 2013 and 2014, and then a decline to 1.3% in 2015. These trends are likely to reflect the relatively nascent nature of the e-cigarette market, and hence the challenges in collating accurate usage data.

Figure 1: E-cigarette users (both regular and occasional) as a percentage of adults, 2013-2015



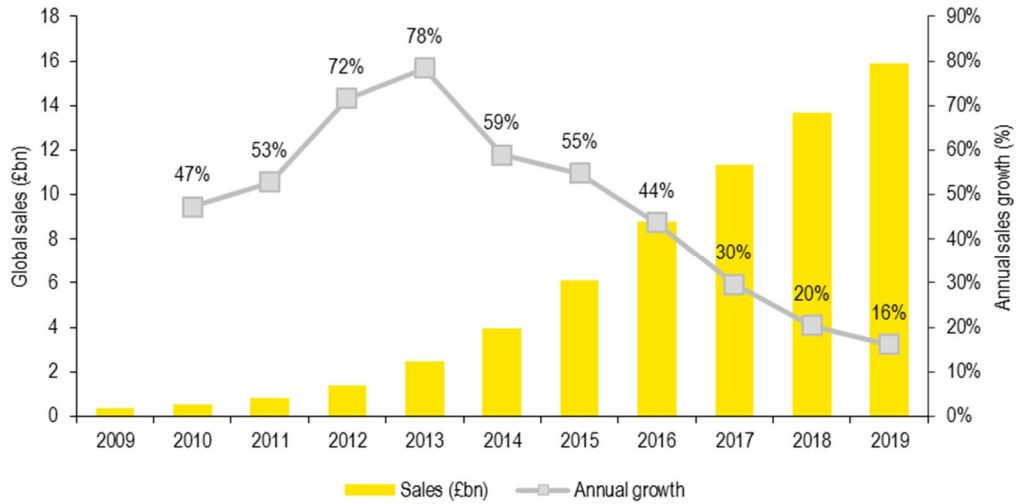
Source: Kantar, EY analysis, 2015 data for Poland and 2014 data for the UK are Nicoventures' estimates

\* All refers to the weighted average across seven countries surveyed, excluding South Korea

Euromonitor, a market intelligence firm, estimated that sales of e-cigarette devices would reach £6.1bn globally in 2015. As illustrated in Figure 2, this represents a significant rise from 2009, when sales were estimated to be less than £0.5bn, equal to a compound annual growth rate (CAGR) of 52%.

<sup>7</sup> EY calculation based on UN population data and information from Kantar on regular e-cigarette usage

**Figure 2: Global sales of e-cigarette devices (£bn) and annual growth**

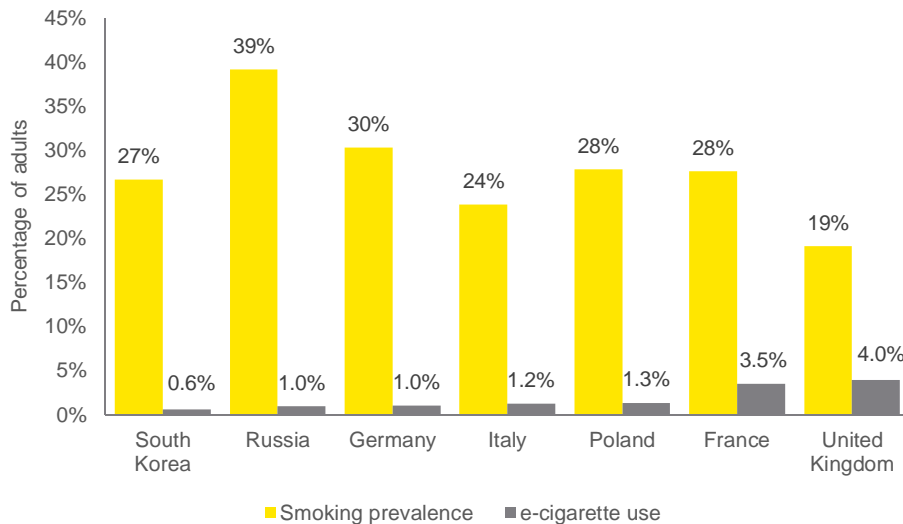


Source: Euromonitor

## 2.2 In many markets e-cigarette usage represents a significant proportion of the adult smoking population

The size of the e-cigarette market (in terms of number of users) is equivalent to 20% of the combustible tobacco market in the UK and 12% in France. However, as shown in Figure 3, higher smoking prevalence within a population does not necessarily imply there will be a greater take up of e-cigarettes. Russia, for example, has the highest rate of tobacco smoking (39%) within the seven countries surveyed, but has the second lowest use of e-cigarettes (1%). Therefore, a variety of other factors – such as pricing, devices, channels to market, brands, and regulation – need to be considered when interpreting the rate of evolution of the market in different countries.

**Figure 3: E-cigarette use and prevalence of tobacco smoking by country (percentage of adults), 2015**



Source: Kantar and World Health Organisation Global Health Observatory (GHO) data<sup>8</sup>

<sup>8</sup> Accessible at: <http://www.who.int/gho/tobacco/use/en/>



## 2.3 An increasing share of e-cigarette users are ex-smokers

Comparing e-cigarette use with an individuals' past or current use of combustible tobacco potentially provides an indication as to the motivation driving consumers' choices. This comparison is presented in Figure 4, which separates e-cigarette users into those who also use tobacco ('dual' users), those who have stopped smoking tobacco (ex-smoker), and those who have never smoked tobacco.

The findings show that, in 2015, 37% of e-cigarette users identified themselves as ex-smokers. This represents a significant fall from 31% in 2013 and highlights the fact that an increasing proportion of e-cigarette users are 'sole' users, and do not use e-cigarettes in conjunction with tobacco products.

Looking across countries, South Korea has the largest proportion of e-cigarette users who identify as ex-smokers (60%), with the next highest being France where the figure is 38%.

Figure 4: E-cigarette users by tobacco smoking characteristics (percentage of users), 2015<sup>9</sup>

Country	Dual user			Ex-smoker			Never smoked		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
<b>All</b>	<b>64%</b>	<b>59%</b>	<b>54%</b>	<b>31%</b>	<b>37%</b>	<b>37%</b>	<b>5%</b>	<b>4%</b>	<b>9%</b>
France	51%	44%	50%	41%	50%	38%	9%	6%	11%
Germany	70%	57%	58%	25%	37%	35%	5%	5%	7%
Poland	59%	58%	56%	37%	39%	37%	4%	2%	7%
Italy	65%	60%	60%	26%	34%	34%	9%	6%	7%
UK	62%	61%	44%	35%	33%	35%	3%	6%	20%
Russia	71%	74%	70%	28%	25%	22%	1%	1%	7%
South Korea	#N/A	79%	34%	#N/A	20%	60%	#N/A	1%	6%

Source: Kantar, EY analysis

\* All refers to the seven countries surveyed

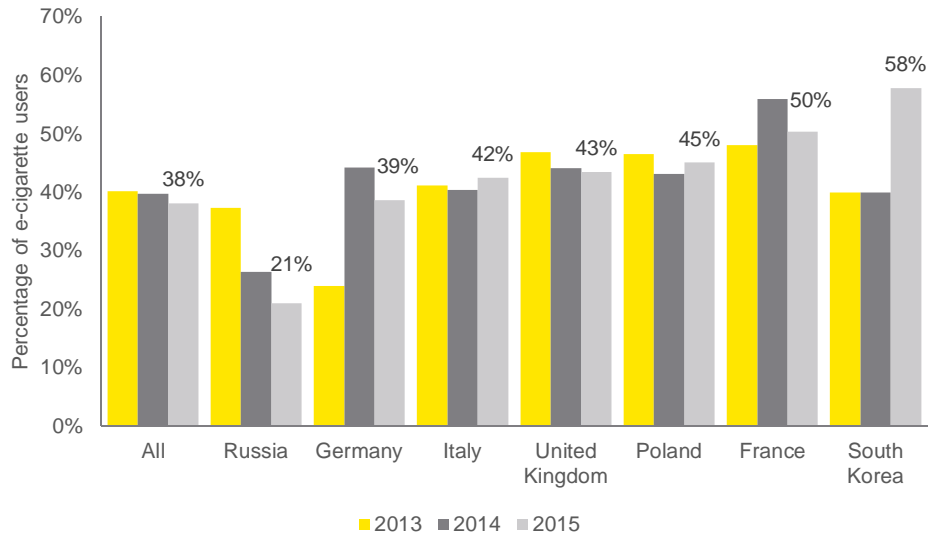
## 2.4 A significant proportion of e-cigarette use is regular

The frequency of use of e-cigarettes also varies across countries. As shown in Figure 5, in 2015, 38% of e-cigarette users across the seven countries surveyed viewed their use as regular, as opposed to occasional. This is slightly below the proportion of regular users of 40% in both 2013 and 2014, but should be seen in the context of the growth in total user numbers; i.e., the absolute number of regular users has grown even though the proportion remains stable. Notably, South Korea was the only country surveyed where more than half (58%) of e-cigarette users viewed their use as regular. As shown earlier, South Korea also has the highest proportion of e-cigarette users who are dual users.

<sup>9</sup> The data for this chart is derived from relatively small populations of e-cigarette users in each market (between 300-500) and therefore care must be taken when extrapolating the results to the general population (the survey approach is explained in more detail in the Appendix). For example, the 20% 'never smoked' result for the UK in 2015 appears to be an outlier. The survey is expected to be re-run in 2016, and this will provide a further data point to supplement the UK figure for 2016. Further, the figure for the UK should be seen in the context of provisional data issued by the ONS for 2015 (based on its Opinions and Lifestyle survey of 6,000 individuals) which suggested that 3% of current e-cigarette users have never smoked.

<http://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2014#e-cigarette-data-2015-provisional-data>.

**Figure 5: Self-reported regular users of e-cigarettes (percentage of users), 2013-2015**



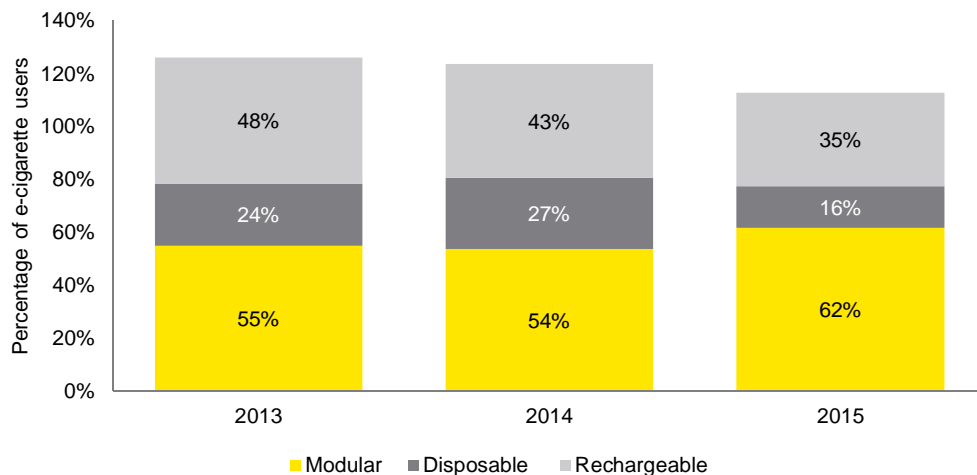
Source: Kantar, EY analysis

\* All refers to the seven countries surveyed

## 2.5 Modulars have become e-cigarette of choice for three-fifths of e-cigarette users

The e-cigarette market can broadly be divided into three product categories; disposable, rechargeable and modular. Of these three, modular e-cigarettes, which allow for greater customisation, were the most popular. Overall, in 2015 they were used by more than three fifths (62%) of users in the countries surveyed, up from 55% in 2013. Over the same time period, the use of both rechargeable and disposable e-cigarettes reduced, to 35% and 16% of users respectively.

**Figure 6: Use of e-cigarettes by type (percentage of users), 2013-2015<sup>10</sup>**



Source: Kantar, EY analysis

As is shown in Figure 7, France has by far the highest prevalence of modular users, at 78% in 2015, reflecting a high presence of specialist e-cigarette stores and a high proportion of consumers using modular as their first e-cigarette (see Figure 8 below). Russia, where e-

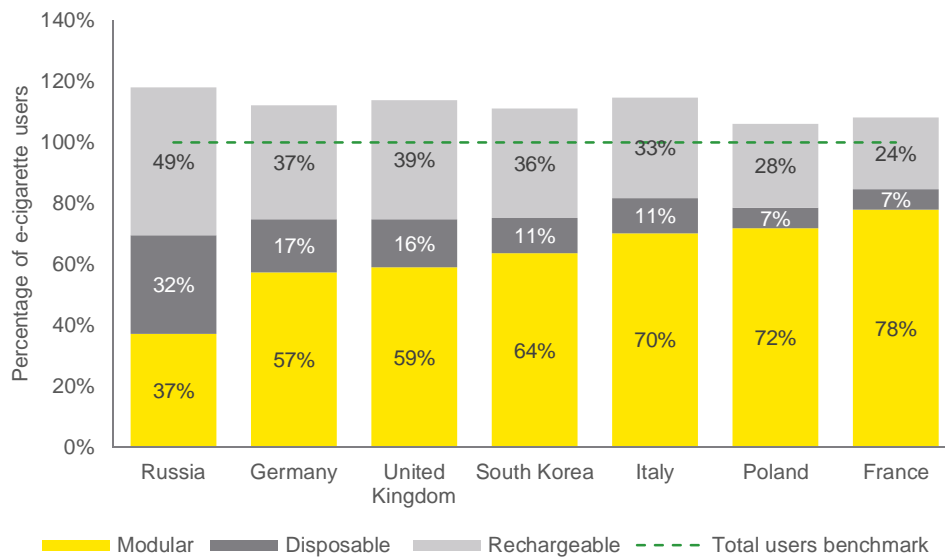
<sup>10</sup> Figures do not sum to 100 since some users may use more than one type of e-cigarette

cigarette use is relatively low compared to that of tobacco, has the lowest share of modular use compared to wider use of e-cigarettes.

Figure 7 also illustrates the extent to which consumers use more than one type of device. Where the sum of the individual shares of each type of e-cigarette is greater than 100%, this suggests that some users are using more than one type of device.

Across all seven countries, reported use of e-cigarettes by device was approximately 13% higher than the total number of users, suggesting that a significant proportion of users are actively using more than one type of device. Use of multiple types of e-cigarette device appears to be highest in Russia, where reported use by type of device exceeds users by 18%. By contrast, use of multiple types of e-cigarette device appears to be lowest in Poland.

**Figure 7: E-cigarette currently used (percentage of users), 2015**



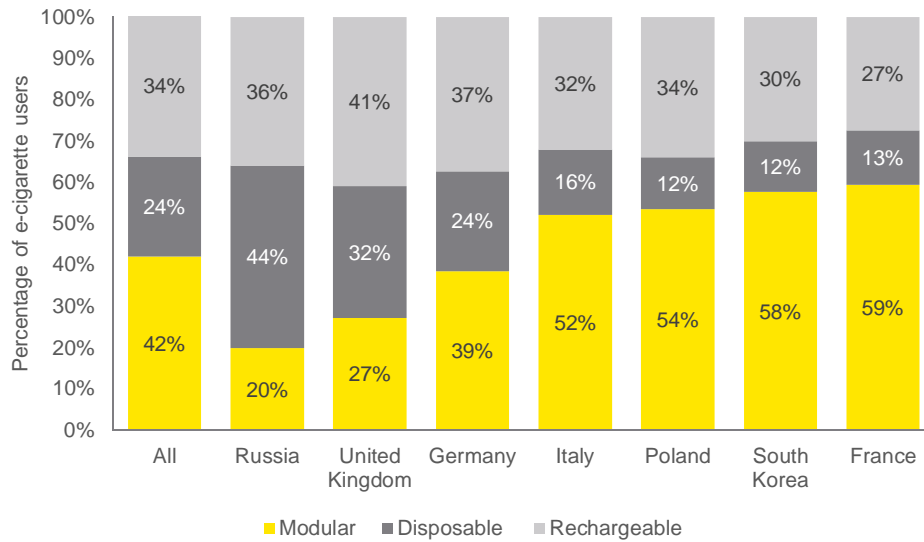
Source: Kantar

## 2.6 The first-use device varies by country

As shown in the previous section, the most commonly used e-cigarette varies substantially between countries, but modular devices prove to be most popular overall. This finding is consistent with the e-cigarette device that users tend to select first although there is more variety in entry device. As illustrated in Figure 8, modulators are the e-cigarette device typically used first by 42% of users. These were followed by rechargeables at 34% and disposables at 24%. This would suggest a more balanced distribution of first time use by device compared to current use.

As with current use, there are large differences in first time use by device type across countries. In Russia, 44% of users first use disposable e-cigarettes, while in France, South Korea, Poland and Italy over half of users report modular as the first e-cigarette they use.

**Figure 8: Type of e-cigarette first used, percentage of users, 2015**



Source: Kantar, EY analysis

\* All refers to the weighted average across seven countries surveyed

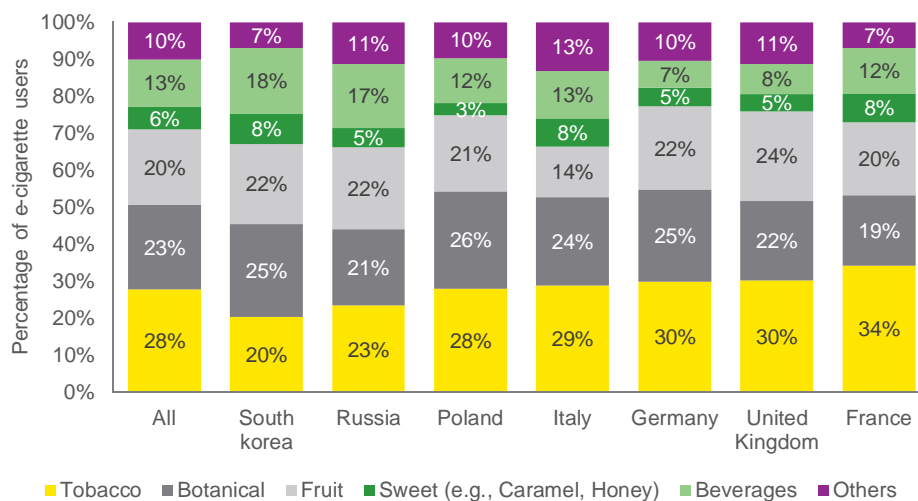
## 2.7 Consumer demand is driving innovation in the variety of flavours and nicotine levels

In addition to the different types of e-cigarette device, an extensive range of flavours and strengths are available in response to evolving consumer preferences, allowing markets across countries to develop notable differences.

As illustrated in Figure 9, tobacco flavoured e-cigarettes are the most popular category in 2015, as reported by 28% of users across all seven countries. However, tobacco flavours face clear competition from other flavours available on the market.

In South Korea, where growth in e-cigarette use has been highest over the past 12 months, other flavours, such as botanical and fruit, rival tobacco in popularity. Use of tobacco flavours is most common in France, where just over a third of users prefer this to available alternatives.

**Figure 9: Most often used e-cigarette flavour (percentage of users), 2015**



Source: Kantar, EY analysis

\* All refers to the weighted average across seven countries surveyed

Further to the variation in flavours, e-cigarettes provide a range of options for the levels of nicotine they contain. These nicotine strengths are generally expressed in terms of the amount of nicotine (in milligrams, mg) contained in every 1ml of 'e-liquid'.

The strengths currently consumed across the seven countries surveyed are illustrated in Figure 10. In 2015, the most commonly used strengths were between 1-11 mg (73%). While comparisons to combustible tobacco cigarettes are not entirely straightforward, it is notable that 16% of consumers used nicotine-free e-cigarettes most often.

Comparing between countries, Italy had the highest use of nicotine-free e-cigarettes, reported by 23% of users. This was followed by Germany, at 16%. Poland had the lowest use of nicotine-free e-cigarettes, at 10% of users.

**Figure 10: Nicotine strength (Mg) of most often used e-cigarettes (percentage of users), 2015**

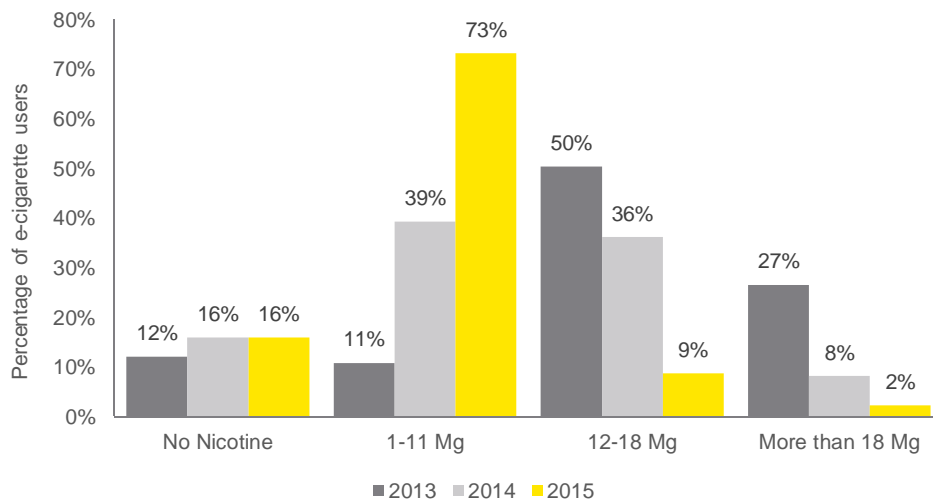
	No Nicotine	1-11 Mg	12-18Mg	More than 18 Mg
All	16%	73%	9%	2%
Poland	10%	71%	15%	5%
South Korea	13%	82%	4%	1%
United Kingdom	13%	65%	17%	5%
France	15%	72%	10%	2%
Russia	15%	82%	2%	1%
Germany	16%	70%	13%	2%
Italy	23%	69%	6%	1%

Source: Kantar, EY analysis

\* All refers to the weighted average across seven countries surveyed. Data may not sum to 100% due to rounding

Across the countries studied, there appears to be a trend towards the use of lower nicotine e-cigarettes, as illustrated in Figure 11 below. For example, 73% of users opted for lower nicotine strength e-liquids of 1-11Mg in 2015, up from 39% in 2014. While changes from year to year should be viewed with caution, since they may be influenced by both changes in consumer's awareness of e-cigarette strengths and variation in survey samples, at this stage the evidence does indicate a growing preference for lower strength e-cigarettes.

**Figure 11: Nicotine strength (Mg) of most often used e-cigarettes (percentage of users across all\* countries), 2013-2015**



Source: Kantar, EY analysis

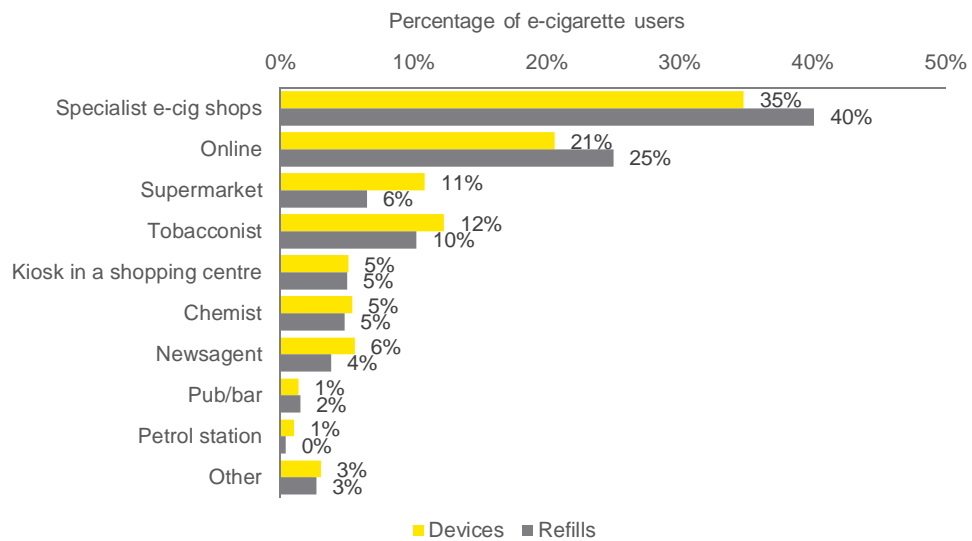
\* All refers to the weighted average across seven countries surveyed. Data may not sum to 100% due to rounding

## 2.8 Physical routes to market remain the dominant channel for purchases

The way a product is marketed, and the purchase channels made available to consumers, are likely to influence its growth trajectory; with greater awareness and ease of access to a product, consumers are more likely to engage with it. With this in mind, understanding differences in how e-cigarette users purchase their device of choice may provide some explanation as to the differences in e-cigarette market development.

As highlighted in Figure 12, physical premises are the dominant purchase channel for both refills and devices. In 2015, 79% of e-cigarette users purchased their devices at a retail stores, with the most common being specialist stores. Retail stores were also the main purchase channel for refills.

**Figure 12: Purchase channel primarily used (percentage of users), 2015**



Source: Kantar, EY analysis.

It is possible that consumers are reassured by specialist stores when making their initial purchases to build familiarity, but are then subsequently more comfortable making purchases through other channels (e.g., online). As the market develops, channels can be expected to evolve, for example on-line channels may become increasingly important as the market matures.

It is notable that online purchasing was slightly more common for refills (25%) than for devices (21%), and there are also similar differences for other channels; for example specialist e-cigarette shops were the preferred channel for 35% of device purchases but 40% of e-liquids. Although these differences are relatively small, it does suggest some variation in consumer purchasing behaviour in respect of devices vs. liquids.

### 3. Drivers of e-cigarette use

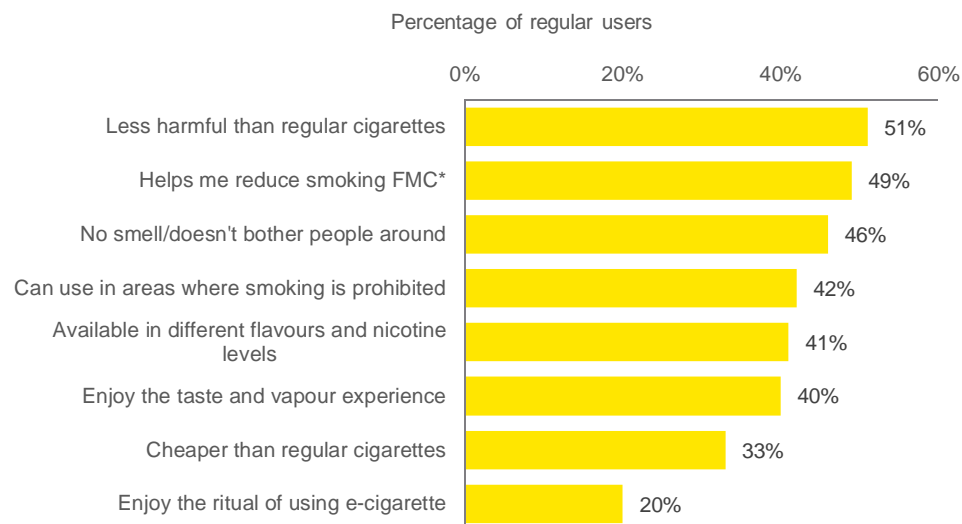
To further understand the e-cigarette market, this section investigates the motivations and drivers of e-cigarette usage, as well the relationship between e-cigarette usage, and the relative prices of e-cigarettes and combustible tobacco.

#### 3.1 The most commonly cited driver of regular e-cigarette use is that they are ‘less harmful than regular cigarettes’

Across the countries surveyed, the most commonly cited driver of regular e-cigarette use is that they are ‘less harmful than regular cigarettes’. This was cited by 51% of regular e-cigarette users. The second most commonly cited driver (cited by 49% of regular users) is that their use ‘helps me reduce smoking FMC’. This would suggest that the most significant drivers of e-cigarette use relate to reducing exposure to the harmful effects of combustible tobacco.

The next most commonly cited drivers are ‘no smell/doesn’t bother people around’ and ‘can use in areas where smoking is prohibited’. The full results are show in Figure 13 below:

**Figure 13: Drivers behind regular e-cigarettes use (percentage of regular users), 2015**



Source: Kantar, EY analysis

\* Factory made cigarette

There is a high degree of consistency in the main drivers of regular e-cigarette use across countries, as illustrated in Figure 14 below. This shows that in three out of the seven countries (Germany, Italy and Russia) the most commonly cited driver of usage was that e-cigarettes are ‘less harmful than regular cigarettes’. This was also one of the top three drivers in the UK, South Korea and Poland. In France, South Korea and the UK the most commonly cited driver of usage is ‘helps me reduce smoking FMC’.

In Poland, the range of choice offered by different flavours and nicotine levels is viewed as being the most important driver of e-cigarette usage. In France, both the lower price relative to cigarettes and the enjoyment of the experience of e-cigarette use also appear important to regular users.

**Figure 14: Top three drivers of regular e-cigarette use by country, 2015, percentage of regular users**

	France	Germany	Italy	Poland	Russia	South Korea	United Kingdom
Less harmful than regular cigarettes		54%	43%	53%	59%	45%	59%
Helps me reduce smoking FMC*	52%	51%	39%			46%	61%
No smell/ doesn't bother people around		50%		55%	50%	44%	
Can use in areas where smoking is prohibited			42%				
Available in different flavours and nicotine levels				60%	54%		
Enjoy the taste and vapour experience	48%						50%
Cheaper than regular cigarettes	48%						
Enjoy the ritual of using e-cigarette							

**Key**

Driver ranking: 1 2 3 Other

Source: Kantar, EY analysis

\* Factory made cigarette

The belief that e-cigarettes are less harmful than combustible tobacco is a key driver for the use of e-cigarettes. As a consequence, the extent to which public health bodies and governments are able to clarify and advise on the relative health risks of e-cigarettes vs. tobacco is likely to be highly influential on the growth of e-cigarette usage.

For example, in August 2015 a study released by Public Health England found that e-cigarettes were around 95% less harmful compared to combustible tobacco<sup>11</sup>. In the two weeks following its release, e-cigarette sales in the UK increased by 15%<sup>12</sup>.

### 3.2 The influence of the price of cigarettes

The survey data suggests that the majority of e-cigarette users are either past or current tobacco users (see Figure 4), and therefore the relative price of combustible tobacco products is likely to exert some influence over the use of e-cigarettes. As discussed above while other factors affect consumers' choices (e.g., health concerns), where tobacco prices are higher, a greater monetary incentive towards the use of e-cigarettes will exist (and vice versa). Using cigarette prices as a representative measure of all tobacco, Figure 15 shows the relationship between cigarette prices and regular e-cigarette usage as a percentage of tobacco use<sup>13</sup>.

The chart shows a simple correlation between countries with higher cigarette prices and a greater use of e-cigarettes. At the lower extreme of the seven countries, Russia, with cigarette prices among the lowest, has the lowest level of market penetration of regular e-cigarette use, at around 1% of adults. In the UK, where cigarette prices are highest, e-cigarette use is considerably higher.

<sup>11</sup> See Public Health England, *E-cigarettes: an evidence update*, 2015. The evidence review suggests that '... e-cigarettes are 95% less harmful than normal cigarettes'

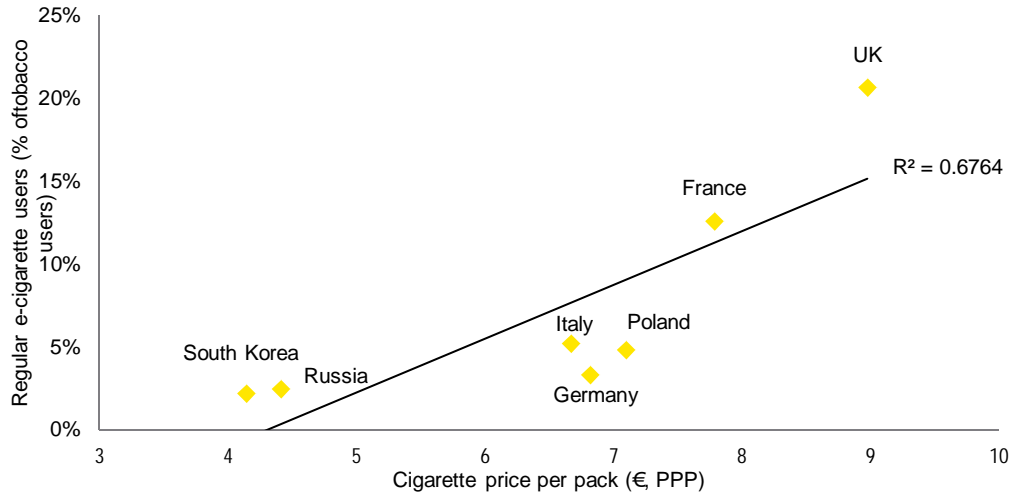
<sup>12</sup> AC Nielson market information

<sup>13</sup> Cigarette prices have been adjusted to reflect relative goods and services costs in each country using IMF purchasing power parity indices



The relationship between e-cigarette use and tobacco prices is supported by further survey evidence, reviewed by Public Health England, an executive agency of the Department of Health, which suggests that the difference in price between tobacco and e-cigarettes is a key factor in consumers' decision making<sup>14</sup>.

**Figure 15: Relationship between cigarette pack price (€, PPP) and regular e-cigarette usage as a percentage of tobacco use, 2015**



Source: Kantar (e-cigarette incidence by market), IMF, EY analysis

There is likely to be a more complex relationship (than shown in the chart above) between the relative pricing of combustible tobacco products and e-cigarettes and its impact on consumer demand. There is currently only limited historical data available to explore this relationship as the category is relatively new.

It should be noted that combustible tobacco pricing is heavily influenced by fiscal policy. The extent to which similar interventions occur in respect of e-cigarettes is likely to depend on whether there is general acceptance by policy makers of the potential public health benefits.

<sup>14</sup> See Public Health England, *E-cigarettes: an evidence update*, 2015

## Appendix A Kantar survey methodology

### Overview of the survey

The survey was conducted in 2013, 2014 and 2015 across a number of countries, of which the results for seven countries are presented within this report. The survey used an online panel with the objective of understanding the e-cigarette category in terms of Penetration, Usage (in terms of Formats, Flavours, Nicotine levels), Purchase Behaviour and Consumer Attitude. The field work for the 2015 survey was conducted between 30 July and 6 August 2015.

### Methodology

The adopted approach was CAWI (Computer Aided Web Interviewing) using online panels in each country.

### Coverage and Target Group

Adults in the age group of 18-64 years were contacted in seven countries: UK, France, Germany, Italy, Poland, Russia and South Korea. The minimum age was adapted as per legal restrictions in each country. The data was weighted on Age, Gender and smoker/non-smoker status. Russia also had additional weights for population strata.

### Sample Sizes

Around 2,000 adults were randomly contacted in each market to gauge their interaction with e-cigarettes.

The sample has been designed to represent the adult 18-64 population in each country by the use of quotas on age, gender and region, and attempts have been made to minimise bias through weighting of the resulting sample to known population characteristics. However, it should be noted that the sample of respondents is drawn from 'opt-in' online panels. The key characteristic of 'opt-in panels' is that the participant pool is not constructed with random selection. Rather, the group of participants is comprised of self-selected individuals who choose to sign up with a panel, participating at will. Because the sample is based on those who initially self-selected for participation (in the panel) rather than a probability sample, all estimates in this report that pertain to the underlying population within a country should be treated with caution.

In order to enable further analysis among the e-cigarette users that we found within the above group, purposive sampling was also carried out to boost the e-cigarette user numbers in some countries. These e-cigarette user boosters were applied in UK, Germany, Poland, Russia and South Korea in 2014, and to South Korea in 2015.

Total e-cigarette user sample sizes within each market were (in 2015):

UK	France	Germany	Poland	Italy	Russia	South Korea
406	376	338	389	537	482	424

### Research Agencies

Kantar was responsible for overall project coordination, setup, analysis and reporting.

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Ernst & Young LLP, 1 More London Place, London, SE1 2AF.

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