



NATIONAL BANK OF GREECE
Economic Analysis Department

The Digital Profile of Greek SMEs

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- ❑ The degree to which digital technology is adopted and used has become, at the international level, a basic component of competitive advantage for enterprises. According to the Digital Economy Index produced by NBG's Economic Analysis Department, Greece lags substantially behind the European average – with the divergence remaining roughly the same over the past 5 years (36 per cent below the EU average). Specifically, the broad factors affecting the technological upgrade of the economy (business environment, infrastructure and human resources) are less supportive than the European average – with the human resources component presenting the biggest gap. As a result, the use of digital technology by all types of users lags behind the European average. A relatively smaller divergence exists concerning individual users (with young people closing the gap, in essence), while greater divergence is seen at an enterprise level (where electronic transactions and the adoption of new technologies are well below par).
- ❑ Focusing on the apparent weak link (the business sector), our analysis highlights the fact that by upgrading its digital profile a company can gain competitive advantages, both in terms of sales and in terms of profitability. Specifically, according to a questionnaire sent to a sample of 1,200 SMEs, enterprises that invested in digital technology in the past 5 years:
 - ✓ mitigated the decline in turnover in the period 2008-2014 by circa 18 pps (posting an average decline of 32 per cent vs 50 per cent for “traditional” SMEs).
 - ✓ posted smaller loss of profitability, thereby overturning the comparative advantage held by the traditional enterprises in 2008. Specifically, the average operating profit margin decreased by 4 pps in the case of digitally advanced SMEs, compared with 13 pps in the rest of the segment.
- ❑ An examination of the digital footprint of Greek SMEs shows that one in three enterprises does not use any digital tool (neither for improving internal operations and production processes nor online tools for enhancing communications with customers and suppliers, e.g. e-commerce). Likewise, digital upgrade in Greece seems to be still in its infancy, as only 4 per cent of enterprises possess an integrated digital system (i.e. an effective combination of the aforementioned digital tools), while 25 per cent of enterprises (1/3 of those that have at least one digital tool) state that they simply have a website or presence on social networks.

- ❑ There is a significant digital gap between medium and micro enterprises. For instance, 92 per cent of medium-sized enterprises (with sales from €0.5 million to €10 million) employ some kind of digital tool – with the majority stating that it is new (introduced in the past 5 years). The respective digital percentage for micro enterprises (with sales of less than €0.1 million) is less than 61 per cent – of which almost half (28 per cent of the segment) state that they simply have a webpage or presence on social networks.
- ❑ Besides the size of the company, there are significant differences in digital development across the sectors. Taking into consideration the specificities of the various sectors (e.g. inherently, manufacturing makes greater use of IT systems in organizing its production processes, while hotels make extensive use of e-commerce tools), it can be seen that not all sectors have developed in line with their structural dynamics (given the average digital profile in Greece):
 - ✓ As regards use of IT systems for the internal organization of the enterprise (ERP – Enterprise Resource Planning), the transport sector presents notable dynamism, while manufacturing presents a relative lag.
 - ✓ As regards the availability of online transactions (e-commerce), the trade sector (mainly wholesale) shows dynamism, while hotels present a relative lag.
- ❑ In attempting to describe the digital state of play of Greek SMEs over the next two years (on the basis of planned investments), we estimate that the percentage level of digitally advanced SMEs will rise to three out of four enterprises in 2018, from two out of three today.
- ❑ If this forecast materializes, it will likely enable Greek enterprises in 2018 to reach the current digital levels of the average European enterprise. Specifically, it is estimated that 22 per cent of Greek SMEs will be using a basic ERP system in 2018 (vs 9 per cent in Greece and 36 per cent in the EU in 2015). Similarly, it is estimated that 16 per cent of Greek SMEs will be offering e-commerce options to customers in 2018 (vs 10 per cent in Greece and 17 per cent in the EU in 2015) – with the most impressive improvement expected in the hotel segment, where 60 per cent will likely be offering online transactions in 2018 (vs 20 per cent in Greece and 61 per cent in the EU in 2015).

Key terms used in this presentation

- **Digital tools:** programs and applications that enable the gathering, processing, storing and use of information so as to improve monitoring, control and strategic decision making by the management. For the purposes of our survey, we make a distinction between two basic types of such tools, depending on their field of application:
 - ✓ **For internal operations:** systems that enable improvements in the efficiency of core operations and processes of the business, divided across the following broad categories:
 - **ERP** (Enterprise Resource Planning system): software that enables enhanced efficiency of cost management, as it combines information from across several (or all) departments in the enterprise (e.g. production, logistics, financials, HR).
 - **CRM** (Customer Relationship Management system): software that aims at enhancing the use of information that can be extracted from the market behavior of current and potential customers.
 - **Specialized IT software:** other kinds of software that enhance the efficiency of the various individual operations of the business, such as supply chain management (SCM), HR management and Accounting.
 - ✓ **For communication with customers:** systems that improve and expand communication channels with customers (existing and potential), which may be of a simple form (such as a webpage) or more advanced (such as e-commerce and digital marketing):
 - **Webpage and social network media:** tools by which the business gains an online presence and can thereby keep its clientele informed of its products and services and in general enhance awareness of its name.
 - **e-commerce:** a sophisticated system that enables online purchase of goods and services, and can be divided into two types: B2B (i.e. business-to-business) and B2C (business-to-customer) transactions. Strictly speaking, the term refers to online stores or online reservation/booking platforms, however for the purposes of our survey we include also a simpler version of online activity: e-mail correspondence or online completion of forms by which it is possible to explore the possibility of eventually purchasing a good or service.
 - **Digital marketing:** tools for targeted attraction and broadening of the customer base, using online activity (e.g. e-mail).

Key terms used in this presentation

- **Integrated digital system:** We consider an enterprise to have an integrated digital system when it combines different digital tools in a way that increases significantly its profitability through synergies. Specifically, we consider as:
 - **Integrated internal operation system:** the combination of three or more internal operation digital tools, covering all or a significant part of the enterprise's operations.
 - **Integrated customer system:** the combination of the following tools i) e-commerce, ii) digital marketing and iii) CRM, since by means of these, the company covers all stages of contact with customers.

- **Ways to develop digital tools:**
 - **In-house:** software development by employees within the enterprise, meaning that it is better adapted to its needs.
 - **Outsourcing:** assigning the development of software to external providers, whether tailored to the needs of the business or a ready-made package available on the market. In some cases, the provider also undertakes the management of the digital tool or system.
 - **Cloud:** use of software that is not installed on the equipment of the business (hardware infrastructure), but is provided online by another service provider acting as a host (software as a service).

□ NBG's Digital Economy Index

□ The importance of digital upgrade for SMEs

□ The digital profile of SMEs today

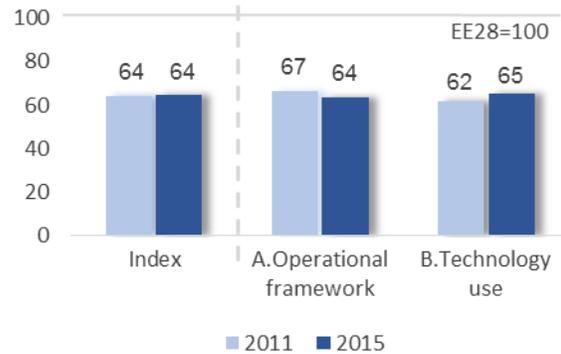
□ The digital profile of SMEs in two years' time – forecast

□ Annex

- Analysis of index components
 - Individual users
 - Enterprises
 - Public sector
- Contribution to sales and profits
- Digitally advanced vs traditional SMEs
- Digital tools for internal operations
- Digital tools for communication with customers
- How digital tools are acquired
- Adequacy of digital tools
- Relative digital position by sector
- Investments in digital upgrade
- Digital profile of SMEs in 2018
- Mapping the SME segment in Greece
- Sample Description
- Constructing NBG's Digital Economy Index
- Survey ID

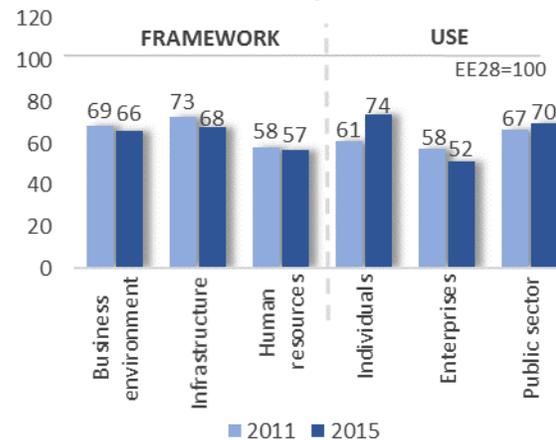
According to NBG's Digital Economy Index, the digital profile of the Greek economy lags significantly behind the European average

Greece: NBG's Digital Economy Index



Source: WEF, Eurostat, European Commission (e-Leadership Scoreboard), NBG estimates

Components of NBG's Digital Economy Index



Source: WEF, Eurostat, European Commission (e-Leadership Scoreboard), NBG estimates

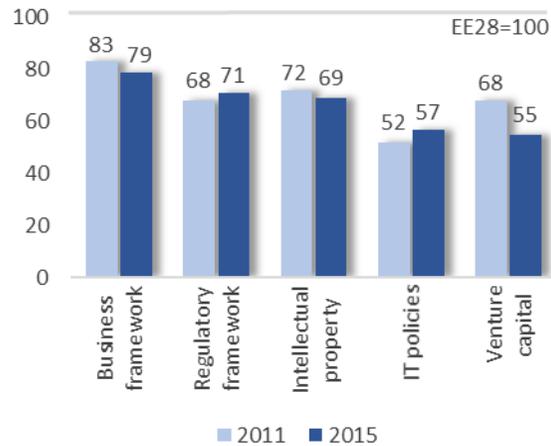
- In estimating the digital profile of the Greek economy, the NBG Economic Analysis Department constructed a Digital Economy Index (DEI), taking into consideration (i) the key factors in the operational framework that favor or hinder the growth of the digital profile of each country and (ii) the basic indicators for measuring actual use of digital technology by individual users, enterprises and the public sector (see Annex for the method for estimating the Index). According to our estimates, the DEI for Greece lags significantly behind the European average, with a stable divergence 36 pps below the average over the past 5 years – reflecting a small improvement in the use of digital technology within an environment that has become less supportive.
- Looked at in more detail, the broader factors influencing technological upgrade of the economy (business environment, infrastructure and HR) are less supportive in Greece relative to the European average. The level of infrastructure appears to be in a better position (despite the deterioration of the past 5 years), while the biggest gap appears to be in the digital profile of human resources.
- As a result, the use of digital technology by enterprises, government agencies and individual users is below the European average. It is notable, however, that the divergence between Greece and Europe has diminished slightly over the course of the past 5 years, mainly because of the improvement in the digital profile of individual users (where the divergence declined to 26 pps in 2015, from 39 pps in 2011). Greek enterprises present the biggest gap compared with the other two categories of users, while they are the only users to actually present a wider gap vis-à-vis the European average – reaching 48 pps in 2015 (vs 42 pps in 2011). This lag serves to highlight a significant comparative weakness of Greek enterprises vs their European counterparts.

* The above indices are expressed relative to the European average, with the highest values corresponding to positive impacts. See Annex for the precise composition of the indices.

The shortcomings in infrastructure and HR are holding back growth in the digital economy

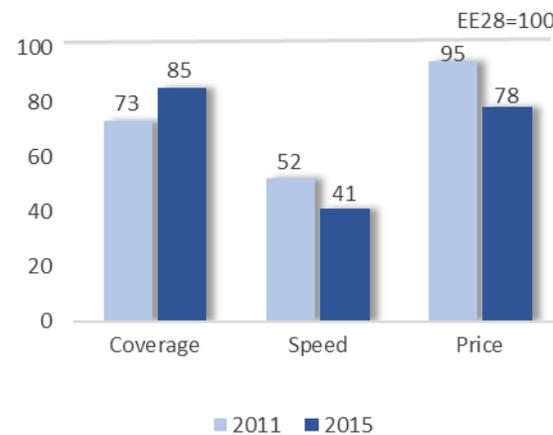
- The main parameters shaping the business environment (fostering or hindering growth of the digital technology) are restrictive in Greece – concerning both the legislative framework and protection of intellectual property, as well as the policies supporting IT.
- In the case of digital infrastructure there has been an improvement in broadband coverage over the past 5 years, with Greece now approaching the European average. However, over the same period there was a deterioration in terms of relative prices and mainly in terms of network speeds, where divergence from the EU is significant and widening over time (59 per cent below the European average in 2015, vs 48 per cent below the European average in 2011). Indeed, the majority of users in Greece use connections that are slower than 30 Mbs (97 per cent), while in Europe there is much wider use of high speed connections (connections below 30 Mbs are at 66 per cent).
- Although Greece is at a relatively good level in respect of basic digital skills (e.g. simple use of a PC), the country lags significantly behind in the area of ICT specialists, partly because of the relatively limited training opportunities and the lack of supportive policies.

Sub-index of business environment



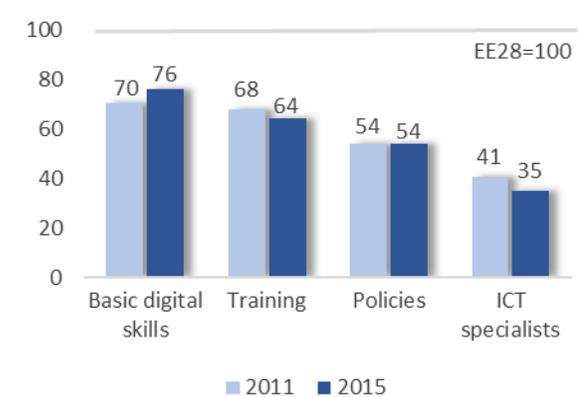
Source: WEF, NBG estimates

Sub-index of infrastructure



Source: WEF, Eurostat, OECD, NBG estimates

Sub-index of human resources

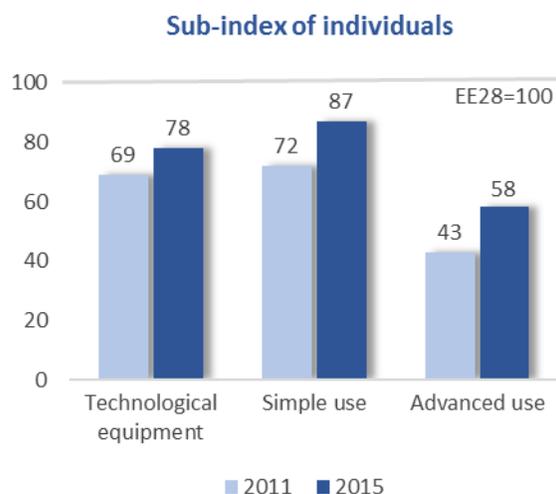


Source: WEF, Eurostat, European Commission (e-Leadership Scoreboard), NBG estimates

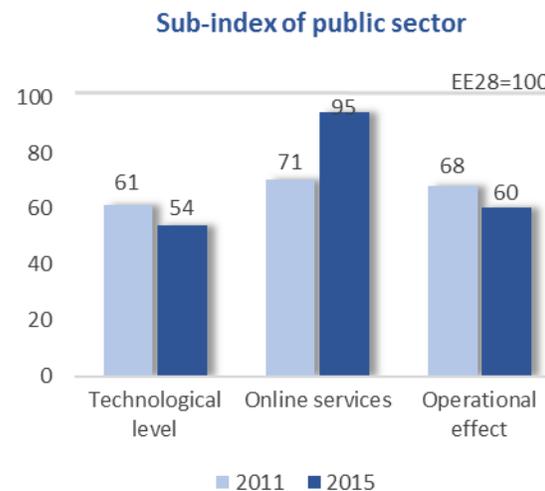
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The biggest gap between Greece and the European average is seen in the use of digital technology by enterprises

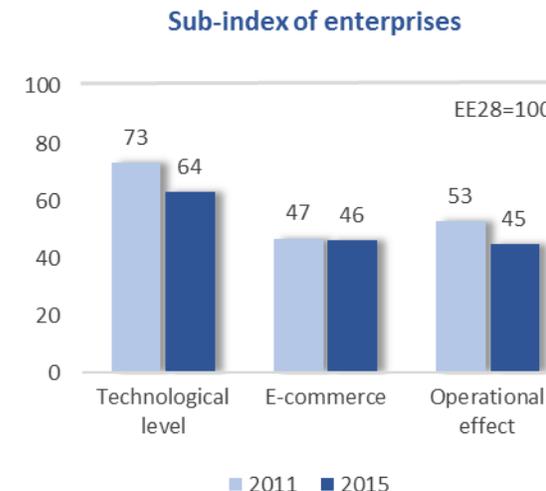
- Individual users in Greece are close to the European average as regards owning equipment (computers and access to the internet) and using this equipment for simple tasks (e.g. checking out news and social media). However, they are still reluctant to use more complex services (e.g. online shopping, e-banking).
- There has definitely been an improvement in the services that the government sector provides online, as they are now close to the European average. For instance, 46 per cent of Greek citizens make use of the electronic services offered by the public sector (the same level as in the EU) while 84 per cent of Greek enterprises make use of similar services (vs 88 per cent in the EU).
- However, the gap between Greek enterprises and their European counterparts vis-à-vis use of digital resources is substantial and widening – mainly as regards the adoption of online transactions (e-commerce) and the use of new technologies for the creation of new products and services.



Source: WEF, Eurostat, NBG estimates



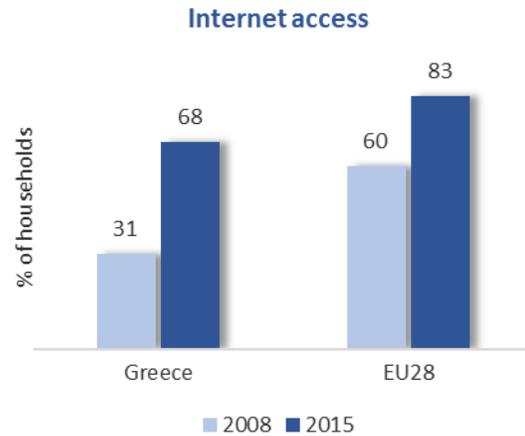
Source: WEF, NBG estimates



Source: WEF, Eurostat, NBG estimates

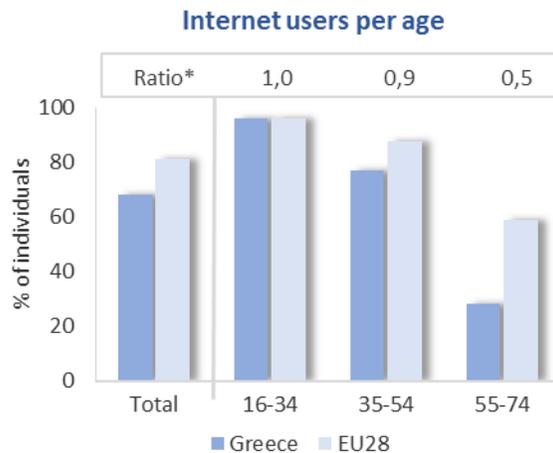
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It is young individuals that bridge the digital gap between Greece and the European average



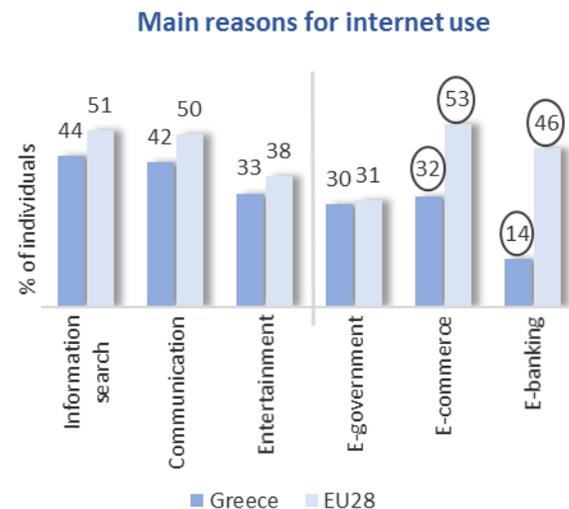
Source: Eurostat

- Internet access by Greek households presented a significant improvement during 2008-2015, as more than 68 per cent now has access (vs 31 per cent in 2008), compared with an average 83 per cent in the EU.
- This convergence has been achieved mainly due to the high level of familiarity of young individuals with the internet (with the number of internet users in the age group of 16-34 being close to the European average of 96 per cent), while there continues to be a significant lag among those in the age group of 55-74.
- As regards specific uses, it can be seen that while the level of familiarity of Greeks with simple uses (such as looking up info and using email) converges with the European average, the degree of use of more complex options (such as online shopping and e-banking) remains significantly lower. To illustrate, online shopping is carried out by 32 per cent of Greeks vs 53 per cent in the EU (the gap being in large part due to the fact that there are fewer such electronic marketplaces offered by Greek enterprises) and (ii) e-banking is performed by just 14 per cent of Greeks vs 46 per cent in the EU (although this percentage is estimated to have increased since the imposition of capital controls last summer).

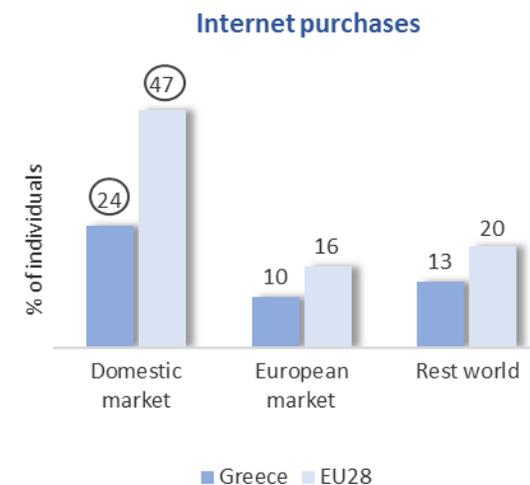


*% of Greeks internet users/% of European internet

Source: Eurostat, NBG estimates



Source: Eurostat, NBG estimates



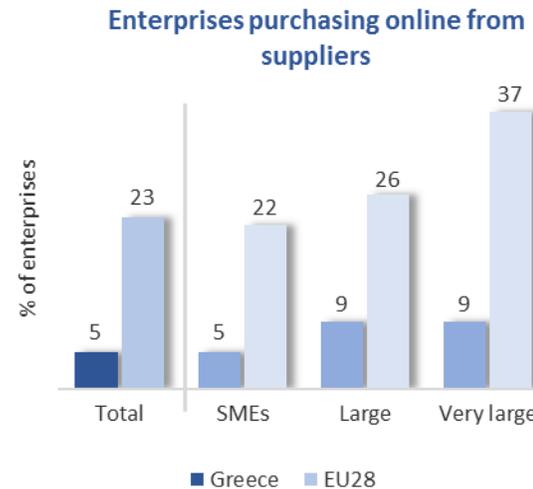
Source: Eurostat

Online sales by Greek enterprises are very low

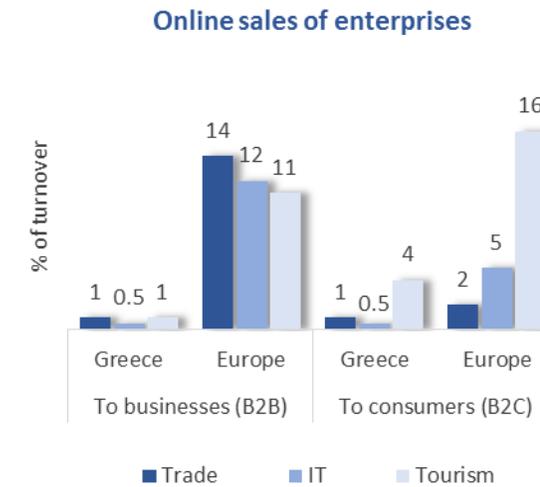
- In the case of Greek enterprises new technologies are slowly being adopted, but the majority make only superficial use without actually taking advantage of their full potential. Specifically, although Greek enterprises rank close to the European average in the use of simple e-tools (e.g. website), the percentage of enterprises carrying out electronic purchases from their suppliers stands at just 5 per cent (vs an average of 23 per cent in the EU) and the share of electronic purchases against total turnover is no more than 2 per cent (compared with an average 15 per cent in the EU).
- Specifically, the great lag of Greek enterprises regarding electronic sales is more evident in business-to-business transactions (B2B), while the lag in business-to-consumers electronic sales (B2C) is apparent, though not so marked (1 per cent of sales in Greek trade vs 2 per cent in EU, and 4 per cent of sales carried out by Greek hotels vs an EU average of 16 per cent).



Source: Eurostat



Source: Eurostat



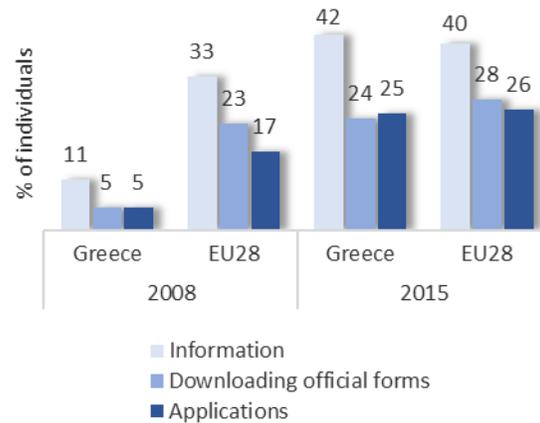
Source: Eurostat, NBG estimates

* The data refers to enterprises with turnover over €2 million. Specifically, the following scales shall apply (in € million): SMEs: (2-10], Large: (10-50], Very Large: (>50).

** The following applies: ERP=Enterprise Resource Planning System, CRM=Customer Relationship Management System, SCM=Supply Chain Management System, RFID=Radio-frequency Identification System

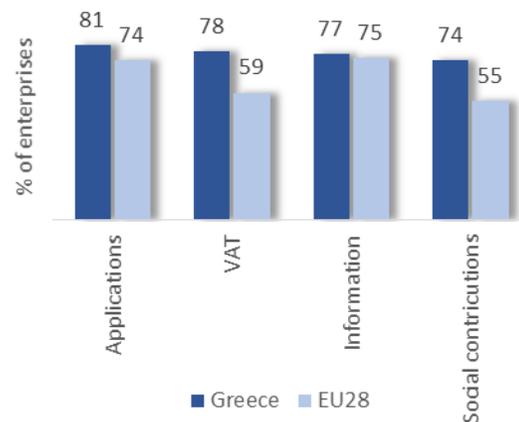
The government is acquiring digital tools, but a broader technological upgrade is needed to truly enhance efficiency

Individuals: Use of digital tools for interaction with public sector



Source: Eurostat

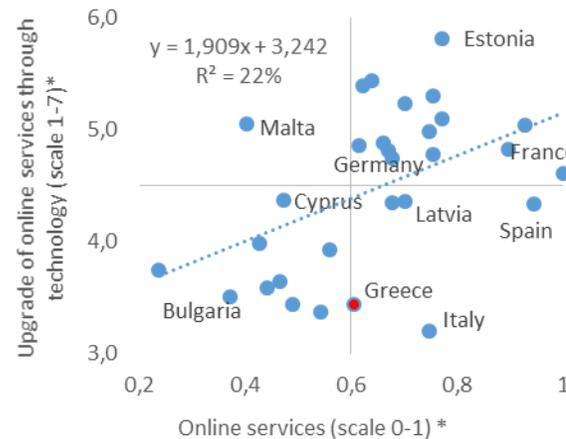
Enterprises: Use of digital tools for interaction with public sector



Source: Eurostat

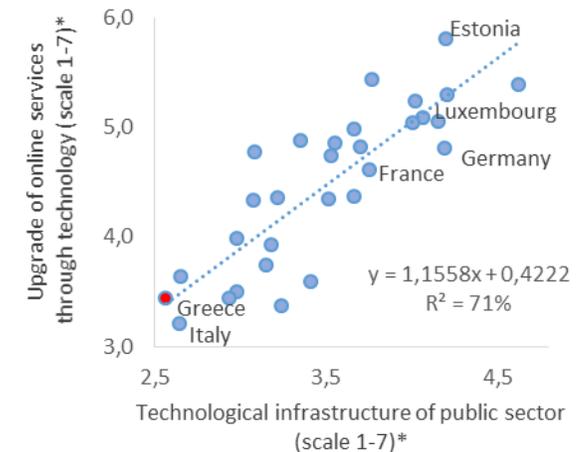
- Over the past six years, the volume of online transactions effected with the public sector by individual users increased significantly, approaching EU levels. Likewise, electronic transactions between enterprises and the public sector have increased to above the European average (e.g. 78 per cent of Greek enterprises submit VAT returns online vs an average of 59 per cent in the EU).
- However, although positive, this digital improvement in the Greek public sector doesn't seem to be enough to significantly increase the sector's efficiency (since the correlation between them is weak, as shown in the middle chart below). The upgrade in the quality of public services appears to be associated mainly with the general technological level of public sector infrastructures, and the current level in Greece is low compared with its European counterparts (as shown in the last chart).

Weak correlation between digital tools and efficiency



Source: WEF, NBG estimates

Strong correlation between technological level and efficiency



Source: WEF, NBG estimates

* The data refers to enterprises with turnover over €2 million. Specifically, the following scales shall apply (in € million): SMEs: (2-10), Large: (10-50), Very Large: (>50).

- ❑ NBG's Digital Economy Index
- ❑ The importance of digital upgrade for SMEs
- ❑ The digital profile of SMEs today
- ❑ The digital profile of SMEs in two years' time – forecast
- ❑ Annex

- Analysis of index components
- Individual users
- Enterprises
- Public sector

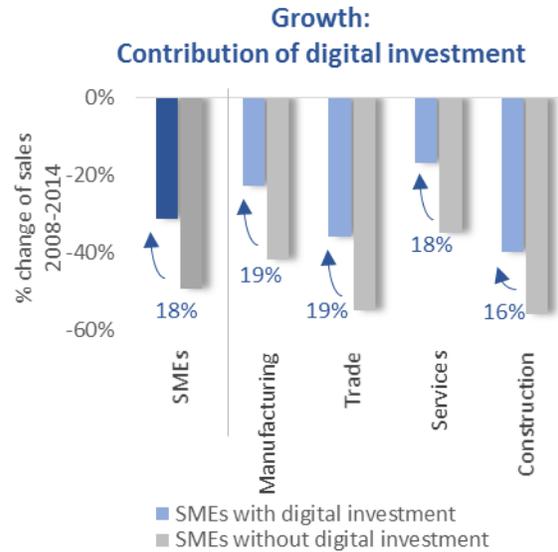
- Contribution to sales and profits
- Digitally advanced vs traditional SMEs

- Digital tools for internal operations
- Digital tools for communication with customers
- How digital tools are acquired
- Adequacy of digital tools
- Relative digital position by sector

- Investments in digital upgrade
- Digital profile of SMEs in 2018

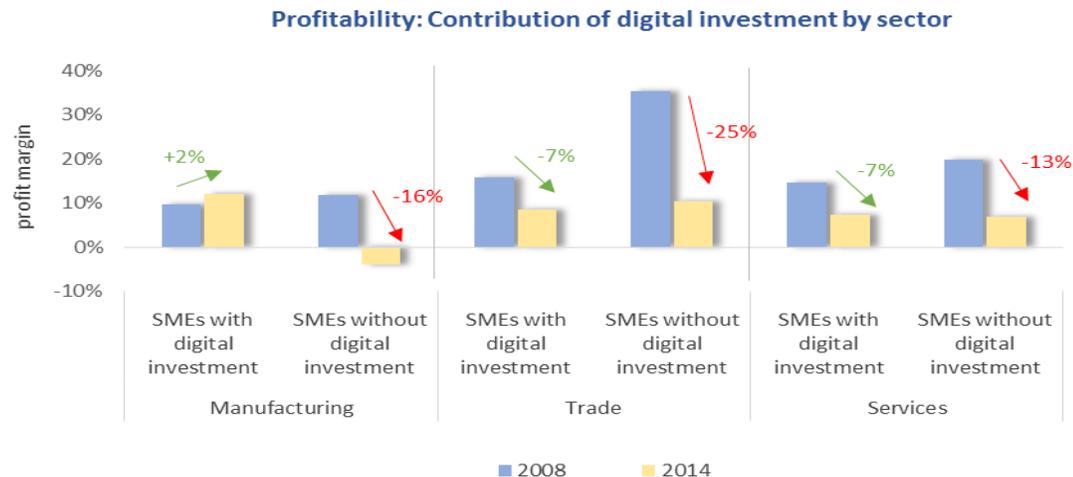
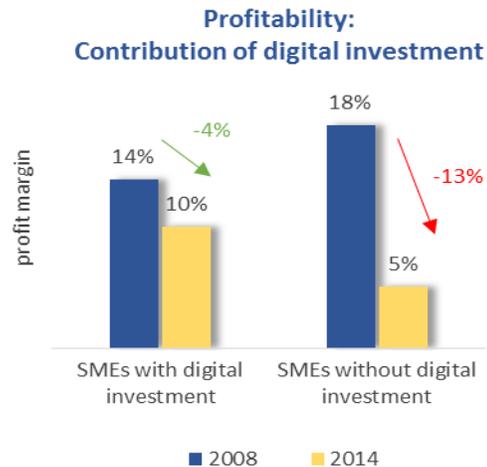
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Digital upgrade offers a competitive advantage in terms of sales and profits...



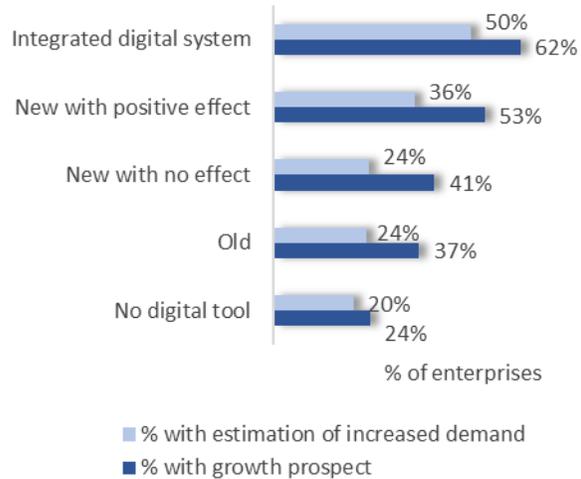
□ The digital gap of Greek enterprises compared with their European counterparts amounts to a measurable competitive disadvantage. Specifically, on the basis of our survey on a sample of 1,200 SMEs, it seems that enterprises having invested in digital tools within the last five years have benefited in terms of sales and profit:

- ✓ The downward trend of turnover in the period 2008-2014 was moderated by circa 18 per cent as the turnover of SMEs that invested in digital systems (internal or customer related) declined by an average of 32 per cent compared to 50 per cent in the case of the rest of SMEs. The two categories diverged similarly across all industries, regardless of the losses recorded.
- ✓ In addition, enterprises that carried out digital investments in the period 2008-2014 seem to have suffered less marked decline in profitability, while the rest of SMEs could not sustain the advantage they had at the beginning of this period. Specifically, the average operating profit margin was down by 4 pps for SMEs that made digital investments, while losses stood at 13 pps for SMEs that did not make digital investments. All industries benefited from investments, the impact being stronger on manufacturing and trade (divergence of 18 pps compared with 6 pps in services).



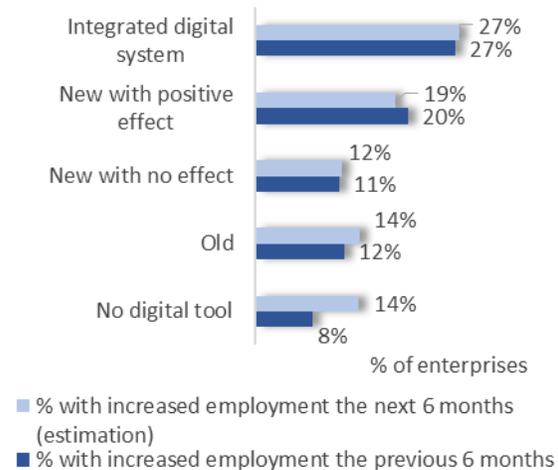
... and accordingly, digital SMEs are in a better position than traditional SMEs in terms of growth and employment prospects

Growth prospects by digital level

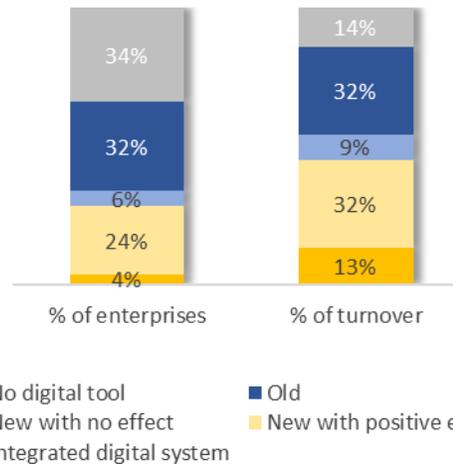


- The benefits of digital upgrading are confirmed by the fact that the higher the digital profile of SMEs, the higher the expectations of growth and employment become. Specifically, SMEs that have adopted an integrated digital system post better performance than those which do not have any kind of digital tool.
- Note that SMEs acknowledge that investment in digital tools within the past 5 years had a positive impact (80 per cent of those that have a new digital tool of some kind).
- However, our survey also reveals that the digital upgrade of Greece seems to be still in its infancy, as just 4 per cent of enterprises have developed an integrated digital system (2 per cent of micro enterprises and 18 per cent of the enterprises with turnover €0.5-10 million), while a very large percentage (circa 38 per cent of enterprises) has obsolete or insufficient digital tools.

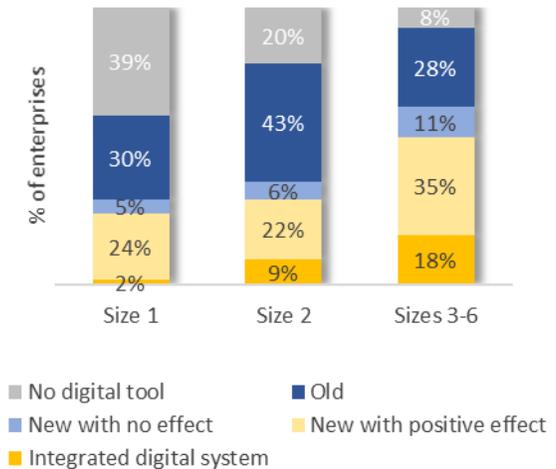
Employment by digital level



Digital level of SMEs



Digital level of SMEs by size class



*The scale of 1-6 in the charts above refers to annual turnover size class. Specifically (in € million): 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1], 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

- ❑ NBG's Digital Economy Index

- ❑ The importance of digital upgrade for SMEs

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- Digitally advanced vs traditional SMEs

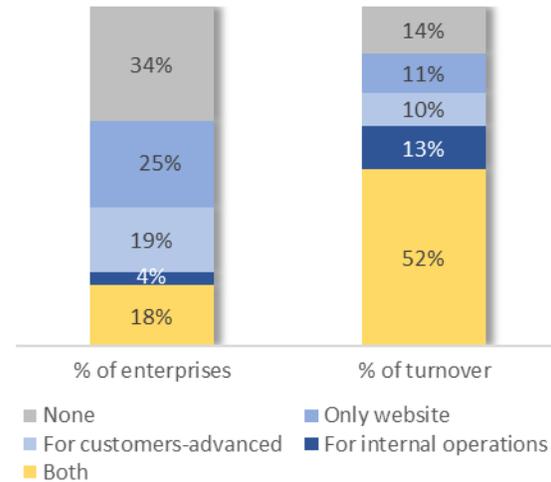
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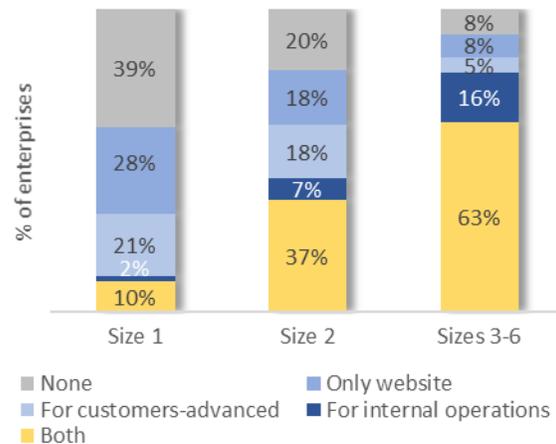
One in three SMEs doesn't use any kind of digital tool, while there's a significant gap between medium and micro enterprises

Use of digital tools - SMEs

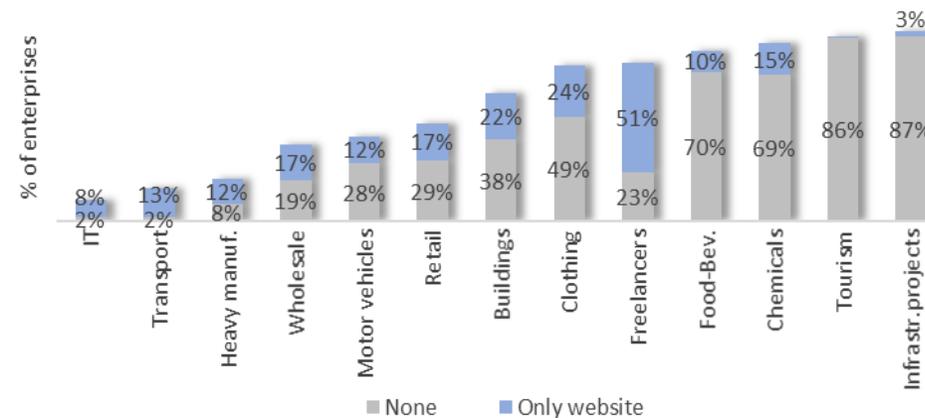


- According to NBG's survey, 66 per cent of the SMEs use some kind of digital tool, while they contribute 86 per cent of the total turnover.
- In addition, it is obvious that the Greek SME sector is a two-tier segment with regard to its digital footprint. On the one hand, the overwhelming majority (92 per cent) of medium-size enterprises (posting sales of €0.5-10 million) has adopted some kind of digital tool - 61 per cent of which have adopted a new one (i.e. the tool was obtained/upgraded in the past 5 years). On the other hand, the respective "digital" rate is just 61 per cent for micro enterprises (posting sales below €0.1 million) – almost half of which (28 per cent of the sector) stated that they only have a website or presence in social networks.
- As regards differences per sector, IT services, transport and heavy manufacturing stand out as having adopted more digital tools, while food manufacturing, construction, small chemical industries and small tourist enterprises (which are significant in Greece), lag behind in digital growth.

Use of digital tools by size class



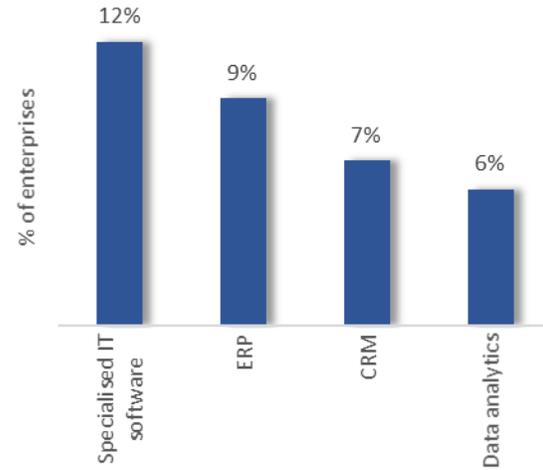
Use of digital tools by sector



*The scale of 1-6 in the charts above refers to annual turnover size class. Specifically (in € million): 1=(0-0.1), 2=(0.1-0.5), 3=(0.5-1), 4=(1-2.5), 5=(2.5-5] and 6=(5-10].

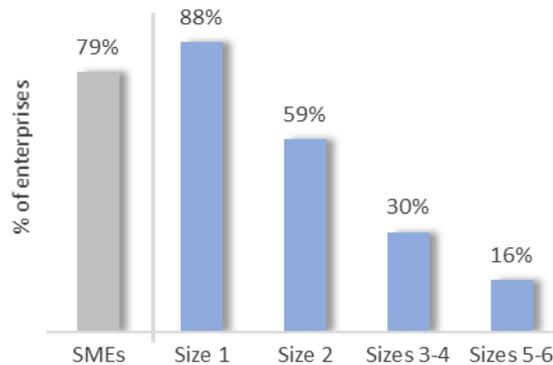
22 per cent of SMEs have adopted a digital tool for internal operations – but most of these are restricted to just one such tool, instead of an efficient combination

Digital tools for internal operations - SMEs

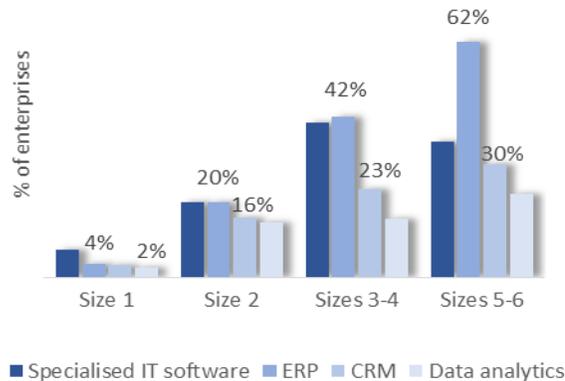


- Greek enterprises lag behind as regards use of digital tools for their internal operations. While specialized management software, e.g. for inventories or accounts (12 per cent of the SMEs), is the most widely used, less than 10 per cent of SMEs have deployed ERP or CRM, while an even smaller percentage (6 per cent of SMEs) use data analytics.
- Divergences by business size are significant – with 88 per cent of micro enterprises (posting sales below €0.1 million) using no digital tools for internal operation at all, compared with 16 per cent of the larger ones (posting sales of €2.5–10 million). The gap is even larger in the case of ERP, which is used by just 4 per cent of micro enterprises compared with 62 per cent of larger SMEs.
- The digital immaturity of Greek SMEs is reflected in the fact that 62 per cent of enterprises using an internal operation digital tool have not moved on to develop a wider system, combining at least two digital tools. Accordingly, since currently their use is to a great extent sporadic, the benefits in terms of returns are rather below their potential.

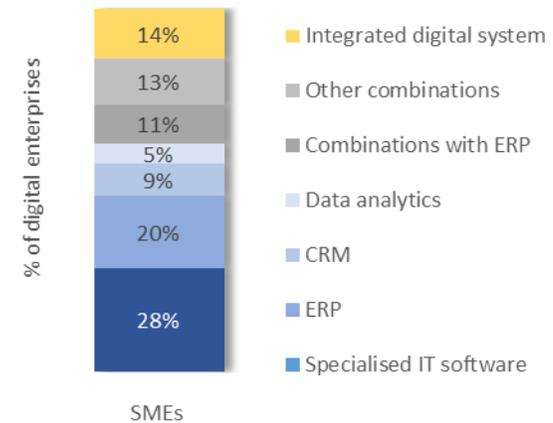
No digital tools for internal operations



Digital tools for internal operations by size class



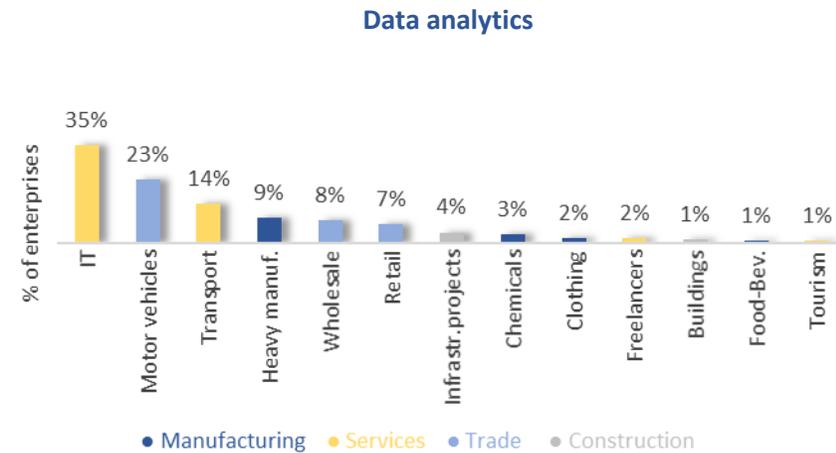
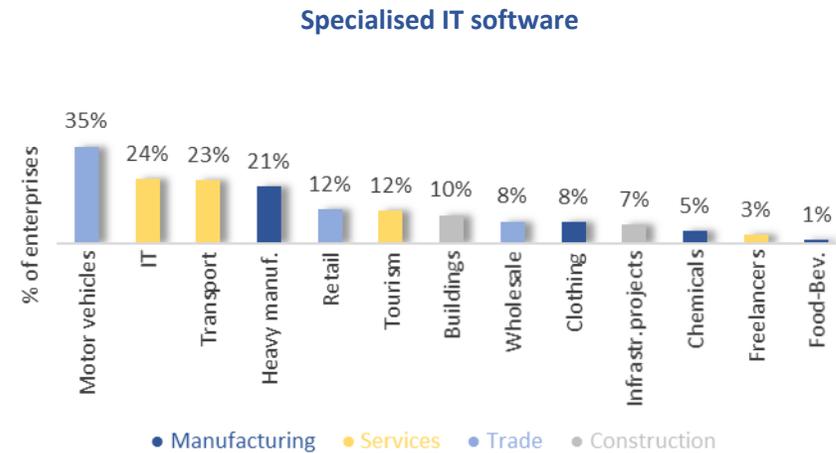
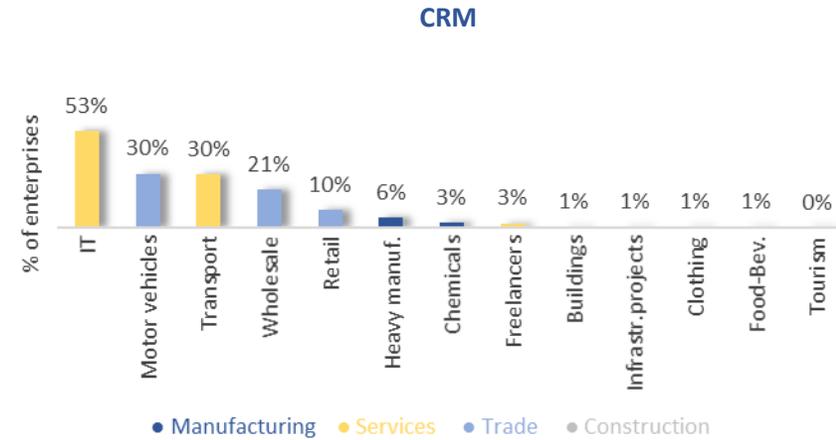
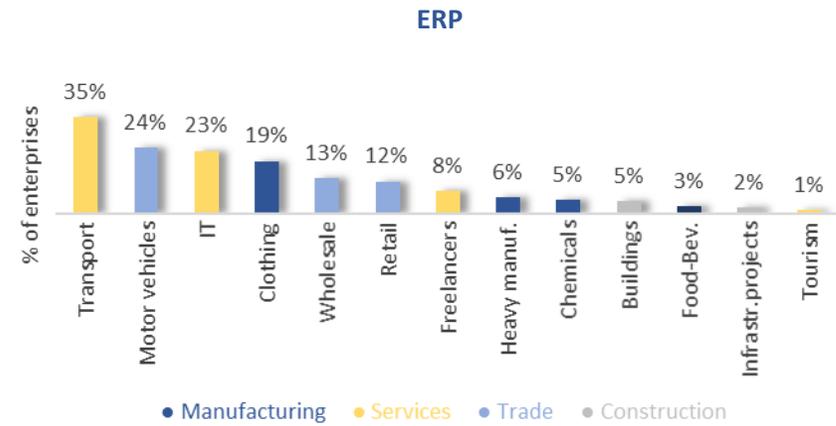
Quantity of digital tools for internal operations



* We define: ERP=Enterprise Resource Planning System, CRM=Customer Relationship Management System, Tailored management software=Inventories, HR, accounting management software

**The scale of 1-6 in the charts above refers to annual turnover size class. Specifically (in € million): 1=(0-0.1], 2=(0.1-0.5], 3=(0.5-1), 4=(1-2.5], 5=(2.5-5] and 6=(5-10].

Transport, IT services and car trade stand out for use of internal operation digital tools, while tourism and food manufacturing lag behind



* We define: ERP=Enterprise Resource Planning System, CRM=Customer Relationship Management System, Tailored management software=Inventories, HR, accounting management software

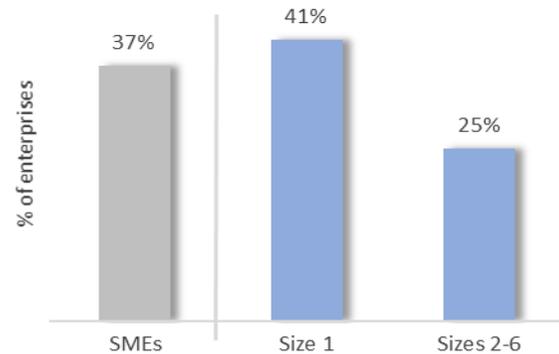
58 per cent of SMEs have a website or presence in social network media – this is encouraging for future penetration of digital tools, as it shows that a large percentage of SMEs are aware of the potential

Digital tools for customers-SMEs

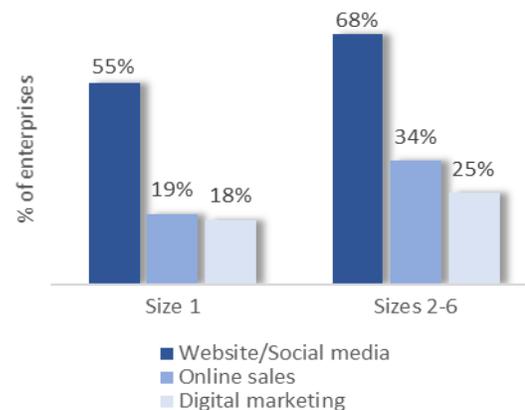


- The digital footprint of Greek SMEs with regard to the use of tools for communicating with customers is better, as 58 per cent of enterprises state that they have a website or presence in social networks. This high rate, which reflects digital awareness, suggests that we can expect further penetration of more advanced digital tools in the years ahead.
- However, currently, SMEs using more advanced tools are relatively few (just 18 per cent offer the option of online sales either directly or via a host, and 19 per cent use digital marketing). As a result, the digital immaturity of Greek SMEs is obvious at this level too, as 85 per cent of SMEs using digital tools for communicating with customers have not moved ahead to develop a wider combination of digital tools.
- Divergences between micro and larger enterprises are trivial with respect to simple customer tools (for example, website) but become marked when we look at more advanced forms. E-commerce, for example, is used by 15 per cent of micro enterprises (with sales below €0.1 million), vs 28 per cent for the rest of SMEs.

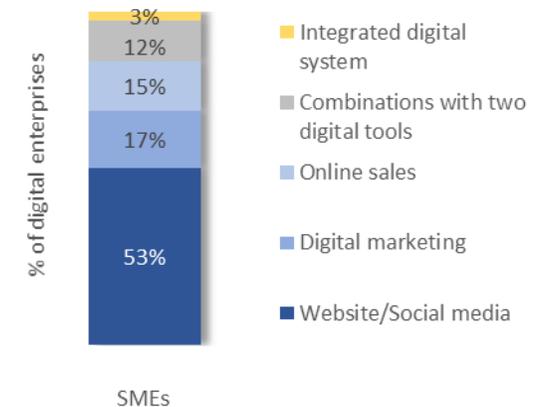
No digital tools for customers



Digital tools for customers by size class



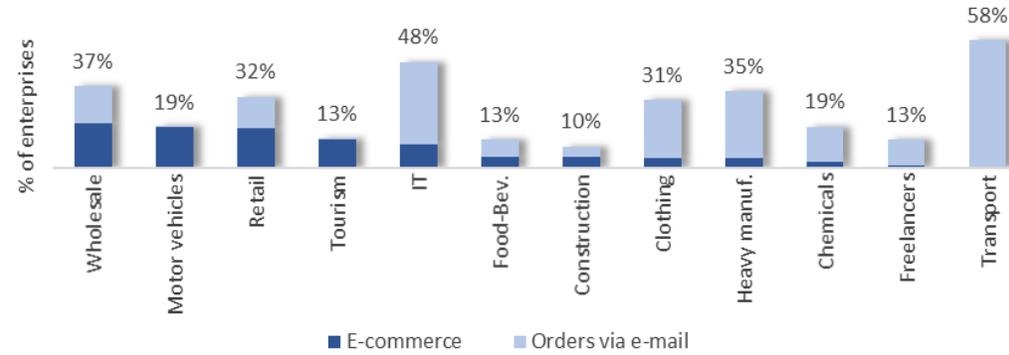
Quantity of digital tools for customers



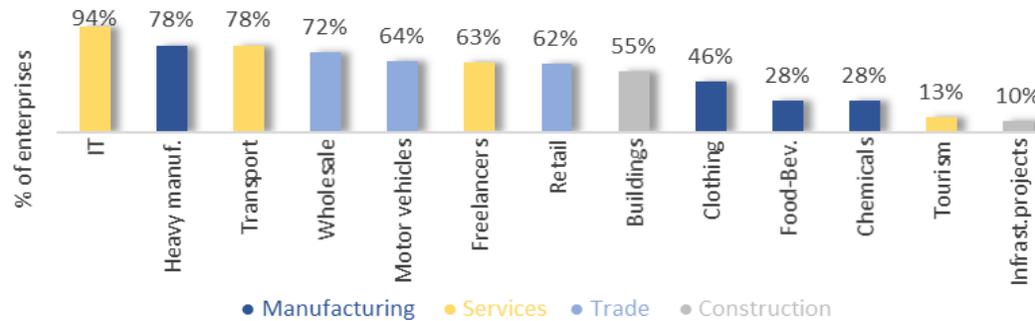
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IT stands out overall, while trade segments also perform quite well as regards electronic transactions

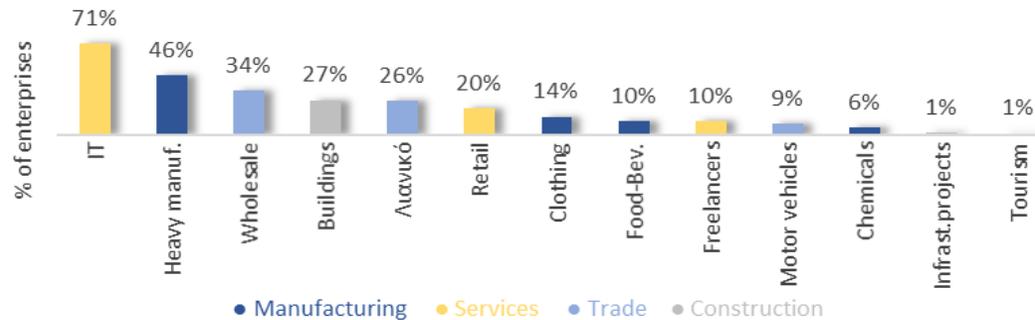
Online sales



Website/ Social Media

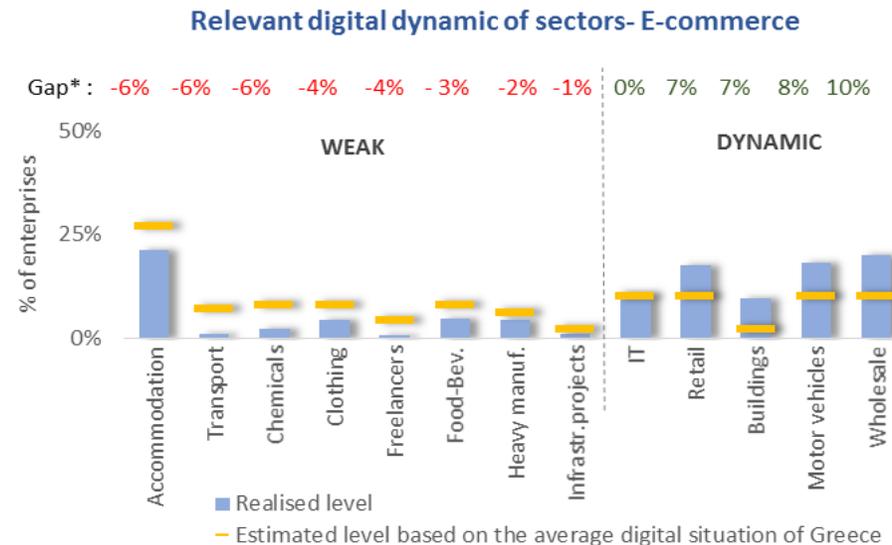
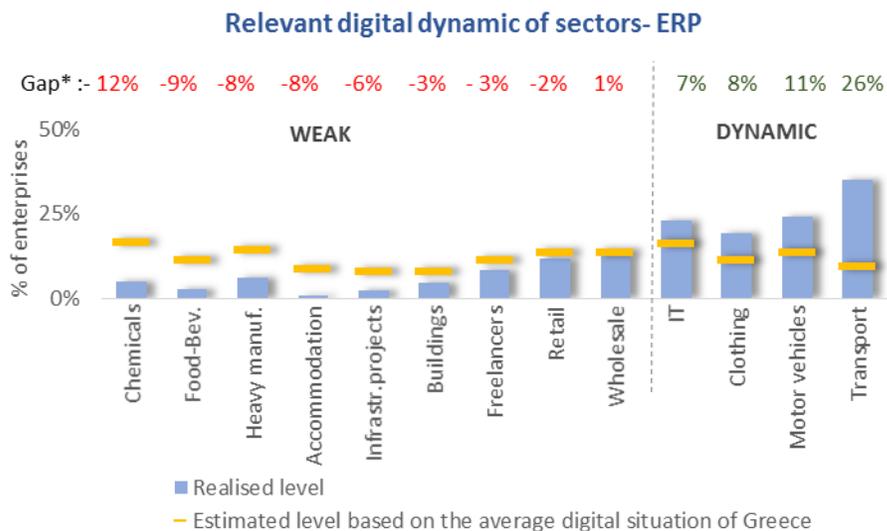


Digital Marketing



Hotels lag well behind concerning e-commerce

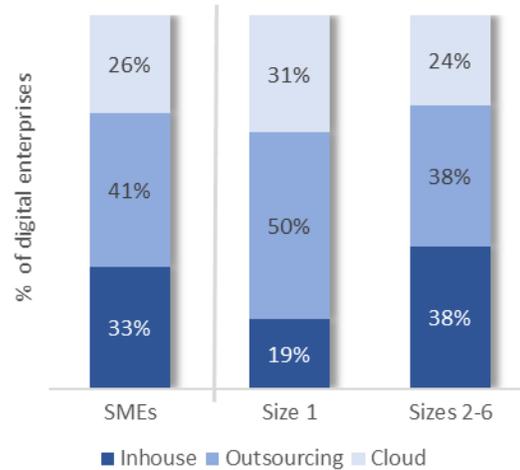
- Given the specificities of the various sectors regarding their operation (e.g. inherently, manufacturing makes greater use of digital tools for internal operations and processes, while hotels make extensive use of e-commerce), a fair assessment of their dynamics needs to take into consideration the reasonable level of each sector's digital development in light of the average digital situation in Greece and the respective European average digital development per sector. From this perspective, it is clear that not all sectors have developed in line with their structural dynamics (given the average digital profile in Greece):
 - ✓ As regards use of ERP systems, the transport sector presents a notable dynamic, while a relative lag can be seen in almost all manufacturing sectors.
 - ✓ As regards e-commerce, the trade sectors (mainly wholesale trade) appear to be dynamic. On the other hand, hotels, despite the relatively high use of e-commerce (20 per cent of hotels compared with 10 per cent of SMEs), underperforms (for example, in Europe e-commerce is used by 61 per cent of hotels vs 17 per cent of companies).



* Sectors were classified according to their digital dynamic. In green color are sectors performing higher than their potential in 2015, while in red the sectors performing lower.

1 in 4 digital tool users has adopted cloud solutions

Acquisition of digital tools for internal operations

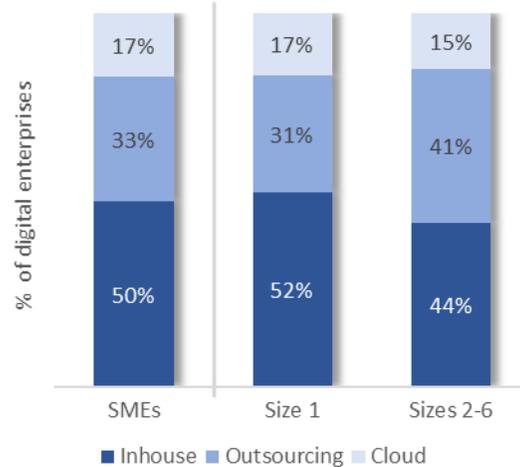


As regards how digital technologies are acquired, it seems that internal operation tools are acquired mainly through outsourcing (41 per cent of users) and, secondarily, developed in-house (33 per cent of users). However, note that 1 out of 4 enterprises using digital tools has already turned to cloud technology.

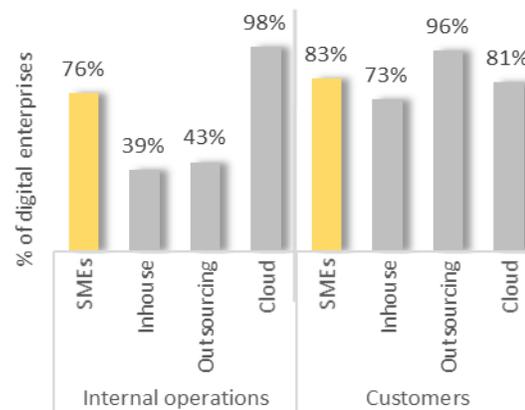
On the other hand, digital tools for communicating with customers are mainly developed in-house (as they generally tend to concern the creation of websites).

75 per cent-85 per cent of users state that their business has reaped profits from digital upgrade, irrespective of digital tool type and method of acquisition. The only exception is solutions that involve in-house development and outsourcing of internal operation digital tools for micro-enterprises (with sales below €0.1 billion): at this company size, cloud solutions seem to enhance profitability more.

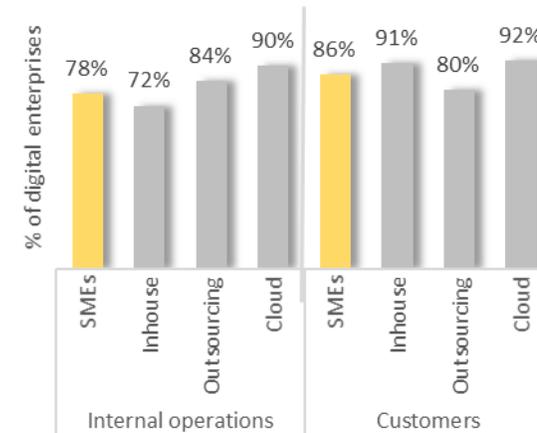
Acquisition of digital tools for customers



Positive effect of digital tools in profitability - size 1



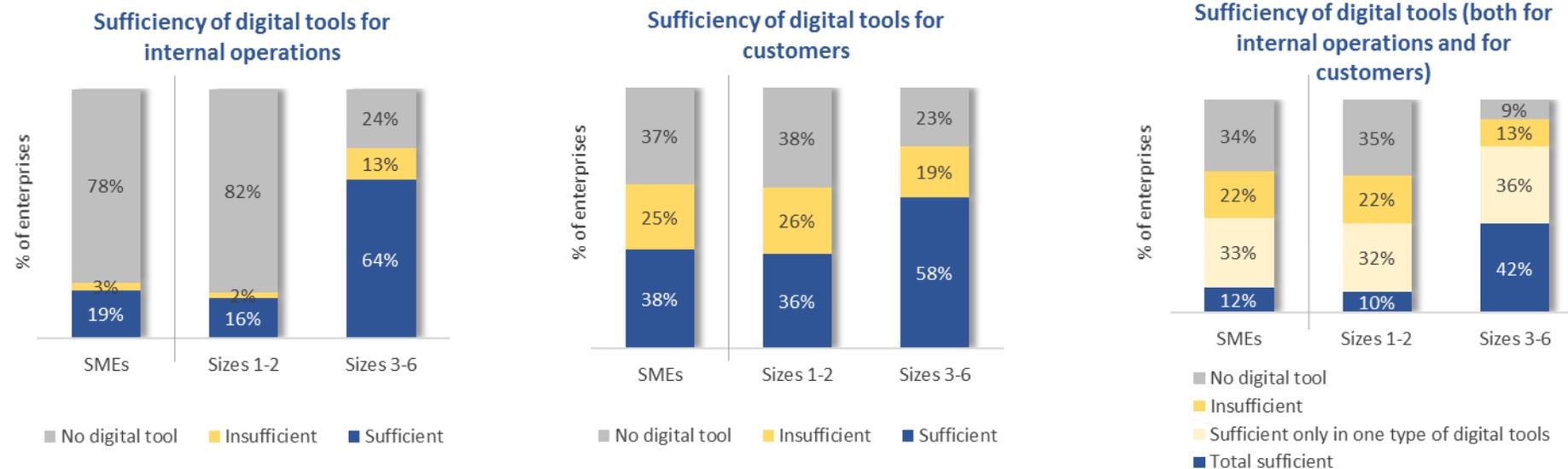
Positive effect of digital tools in profitability - sizes 2-6



*The scale of 1-6 in the charts above refers to annual turnover size class. Specifically (in € million): 1=(0-0.1), 2=(0.1-0.5), 3=(0.5-1), 4=(1-2.5), 5=(2.5-5) and 6=(5-10).

1 in 5 digitally advanced enterprises deems its current digital tools as sufficient

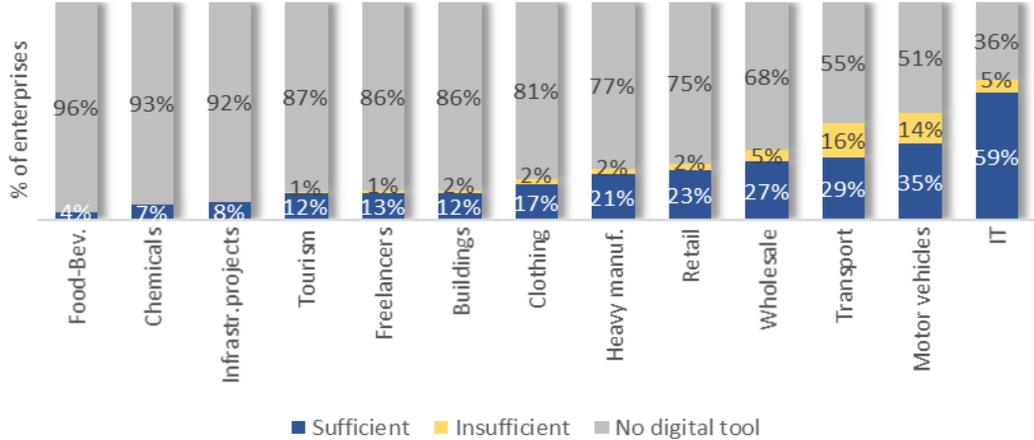
- Adding the parameter of adequacy, we see that 19 per cent of SMEs state that the internal operation digital tools used are adequate and twice as many (38 per cent) state that the digital tools for communicating with customers are adequate. In particular:
 - ✓ Although the number of SMEs with digital tools for internal operations is relatively low (22 per cent), the overwhelming majority of them state that their digital system is adequate (86 per cent).
 - ✓ As regards digital tools for communicating with customers, where the number of SME users is higher (63 per cent), the number of those stating that their digital system is adequate was significantly lower (60 per cent of enterprises with such digital tools). In light of this, there is a significant number of SMEs that deem their digital tools for communicating with customers inadequate (26 per cent of small and 19 per cent of medium enterprises), mainly due to the fact that most of them only have a website or presence in social network media.
- In aggregate, only 1 in 5 digitally advanced SMES (corresponding to 12 per cent of the entire SME sector) states that its digital tools are adequate.



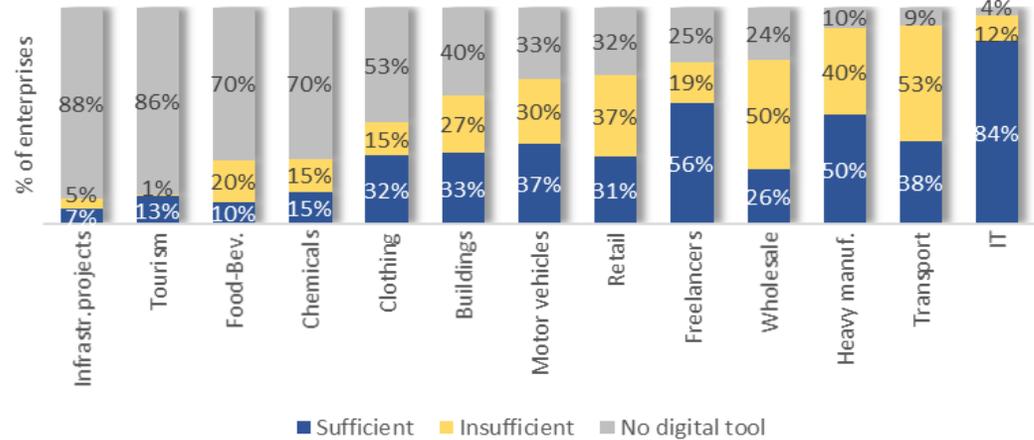
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A high percentage of enterprises in trade (wholesale, retail and motor vehicles), transportation and heavy manufacturing state that they have deployed digital tools for communicating with customers, but are insufficient

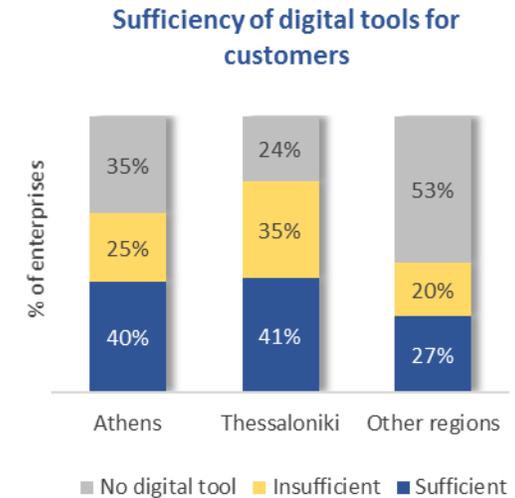
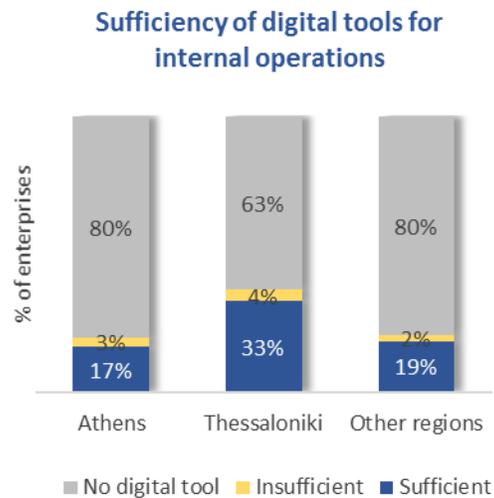
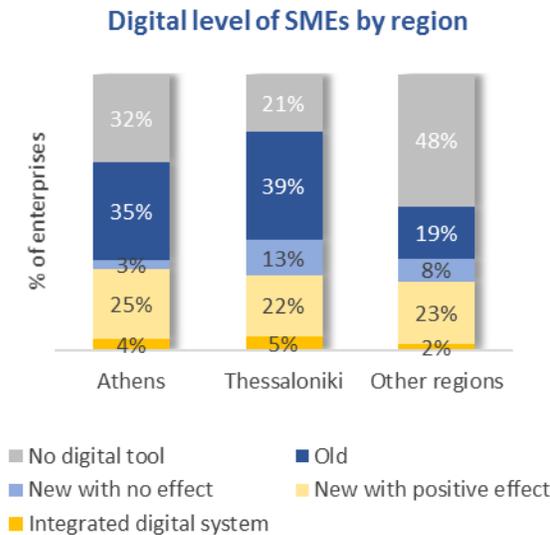
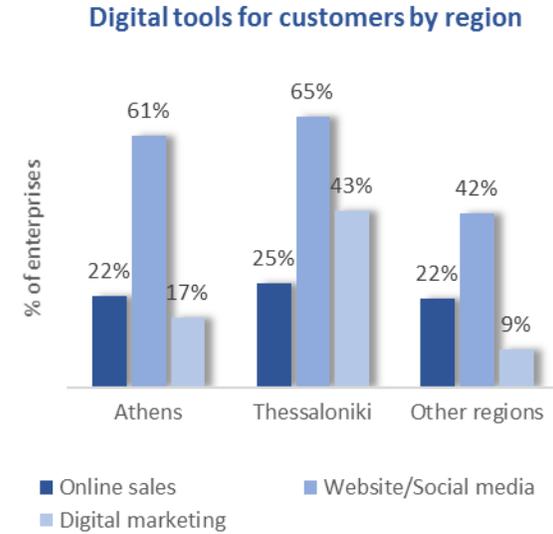
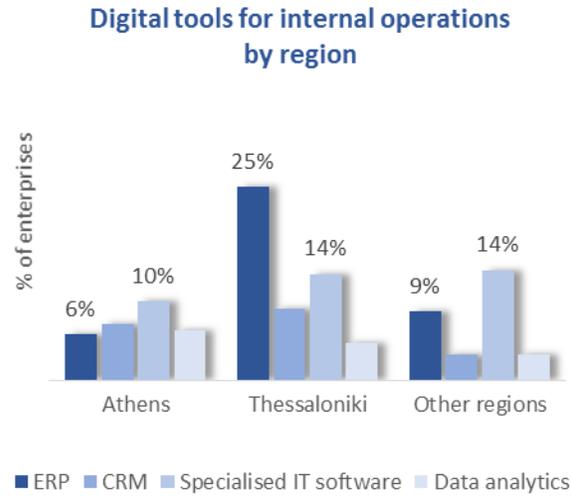
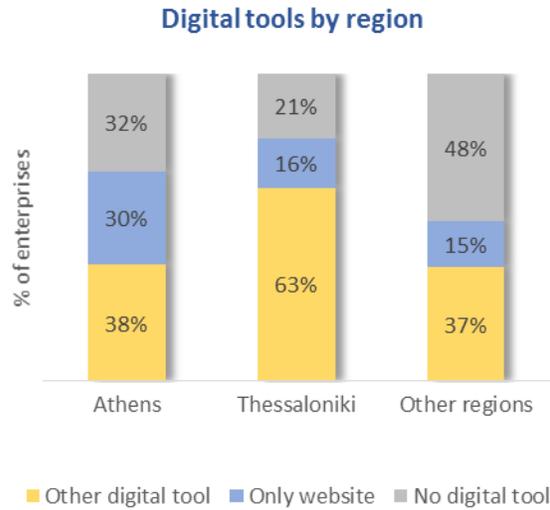
Digital tools for internal operations



Digital tools for communicating with customers



Thessaloniki stands out in terms of digital technology (mainly concerning the use of ERP and digital marketing)



- NBG's Digital Economy Index

- The importance of digital upgrade for SMEs

- The digital profile of SMEs today

- The digital profile of SMEs in two years' time – forecast

- Annex

- Analysis of index components
 - Individual users
 - Enterprises
 - Public sector

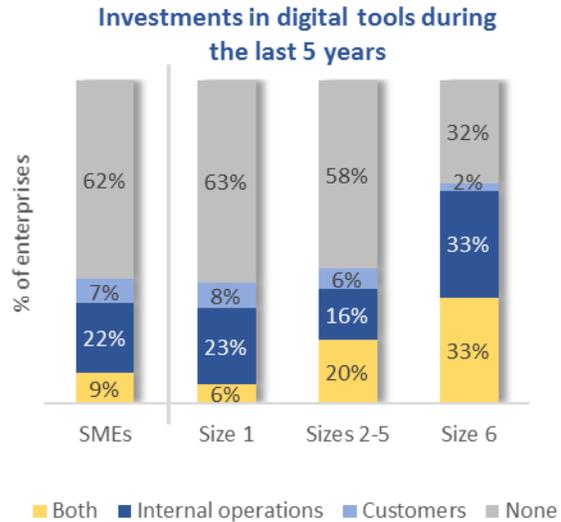
- Contribution to sales and profits
- Digitally advanced vs traditional SMEs

- Digital tools for internal operations
- Digital tools for communication with customers
- How digital tools are acquired
- Adequacy of digital tools
- Relative digital position by sector

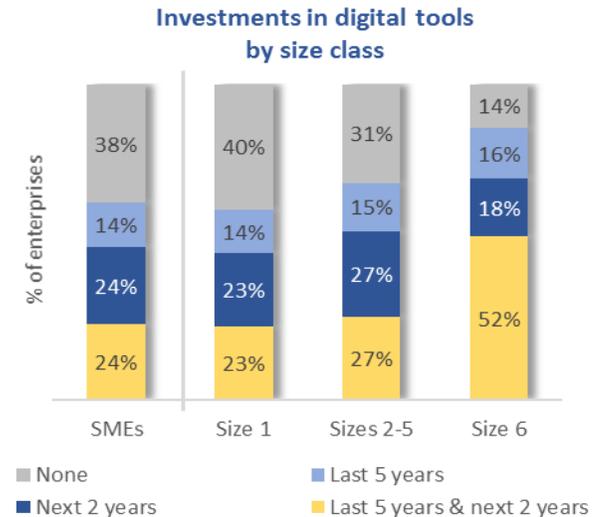
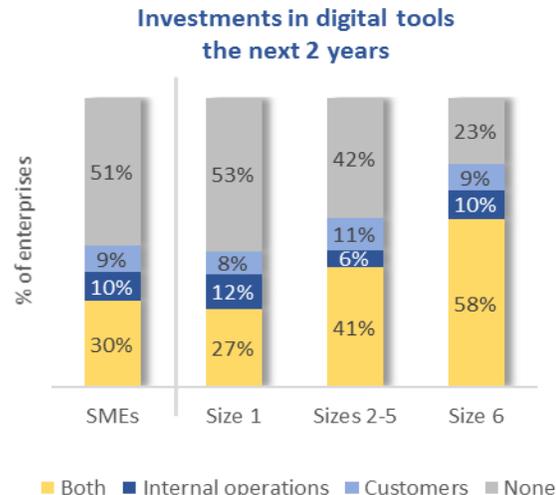
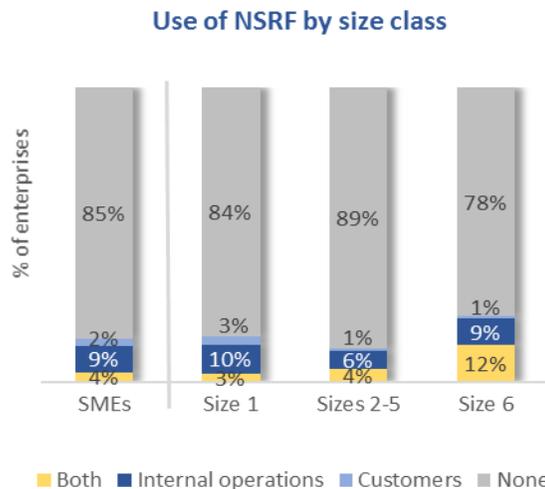
- Investments in digital upgrade
- Digital profile of SMEs in 2018

- Mapping the SME segment in Greece
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1 in 2 SMEs intends to invest in digital technologies within the next two years



- Over the last five years, 38 per cent of SMEs have invested in digital tools, while only 9 per cent invested in both internal operation and customer communication tools. It should be noted that larger SMEs were more active (with sales of €5-10 million), as 68 per cent went ahead with such investments (½ of them in both types of digital tool).
- SMEs look set to become more dynamic in the next two years: ½ of them state that they intend to make digital investments – the number exceeding ¾ in larger SMEs. Accordingly, taking into consideration the total investment picture, only 1 in 3 enterprises states complete abstention from digital technology – mainly enterprises with sales below €0.1 million (40 per cent abstains from investments vs 14 per cent of SMEs with sales of €5-10 million).
- Regarding the use of NSRF (National Strategic Reference Framework) programs for digital upgrade, they have been used by only 15 per cent of SMEs (mostly enterprises with sales of €5-10 million).

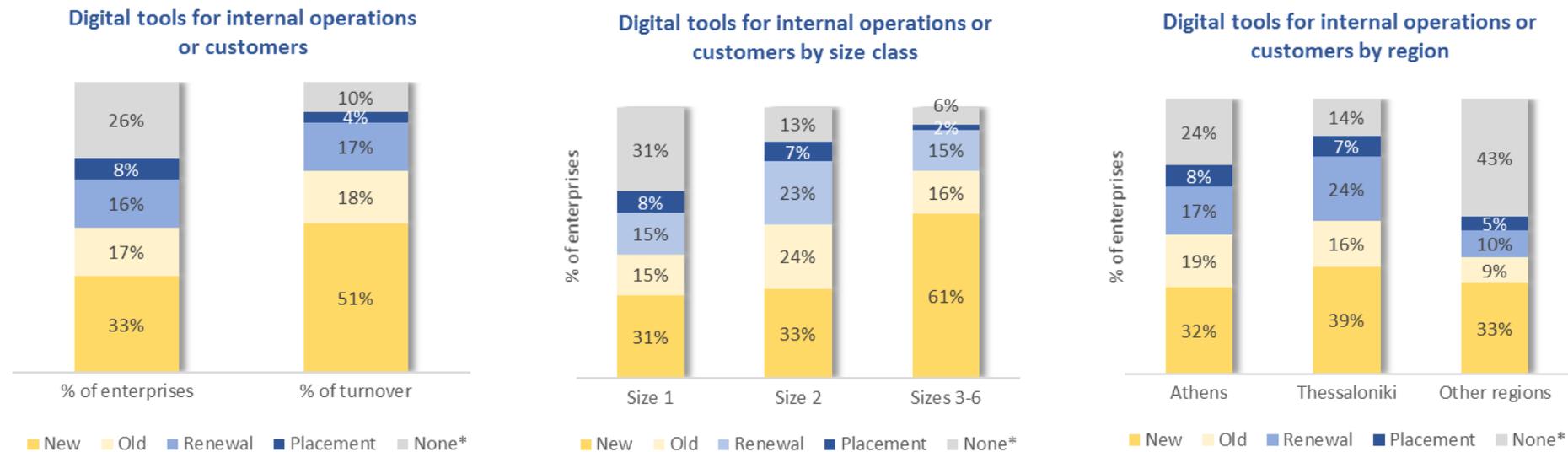


* Note that about 5 per cent of SMEs appear to have digital investments in progress, but these have yet to translate into actual existence and operation of digital tools.

** The scale of 1-6 in the graphs above indicates turnover in € millions: 1=(0-0.1), 2=(0.1-0.5), 3=(0.5-1), 4=(1-2.5), 5=(2.5-5) and 6=(5-10).

The planned investments are expected to improve the digital footprint of SMEs, as just 1 in 4 enterprises will not have digital tools, compared with 1 in 3 today

- It is hopeful that by means of planned investments 8 per cent of SMEs intend to acquire some kind of digital tool in the following two years (while they currently lack such tools). As a result, the number of digitally advanced SMEs will rise to 74 per cent (from 66 per cent today). Likewise, considering that a significant percentage of the segment has "old" digital tools (i.e. has not made investments in digital upgrade or expansion over the last five years), the intention to upgrade digitally in the next two years, as stated by 15 per cent of SMEs, is positive.
- In addition, given that 8 per cent of micro-enterprises intend to acquire some kind of digital tool in the following two years (while they currently lack such tools), vs 2 per cent of medium-size firms, the gap between the two categories of SMEs is expected to shrink to 25 pps (69 per cent vs 94 per cent) by 2018, from 31 pps today (61 per cent vs 92 per cent).
- Regarding geographical regions, SMEs in Thessaloniki seem to be keen on expanding their digital advantage, stating high rates of acquisition and upgrade of digital tools in the next two years, as compared with SMEs in other regions.

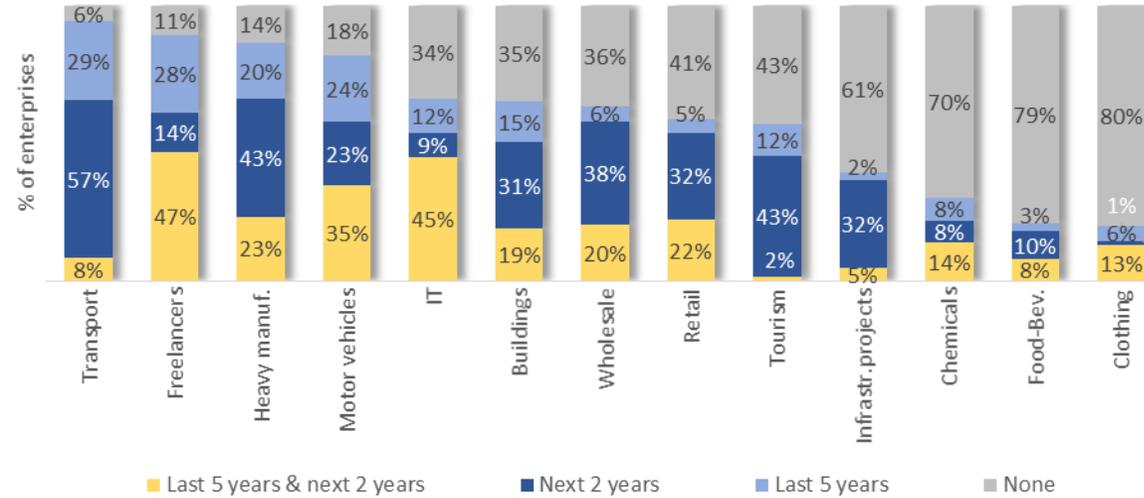


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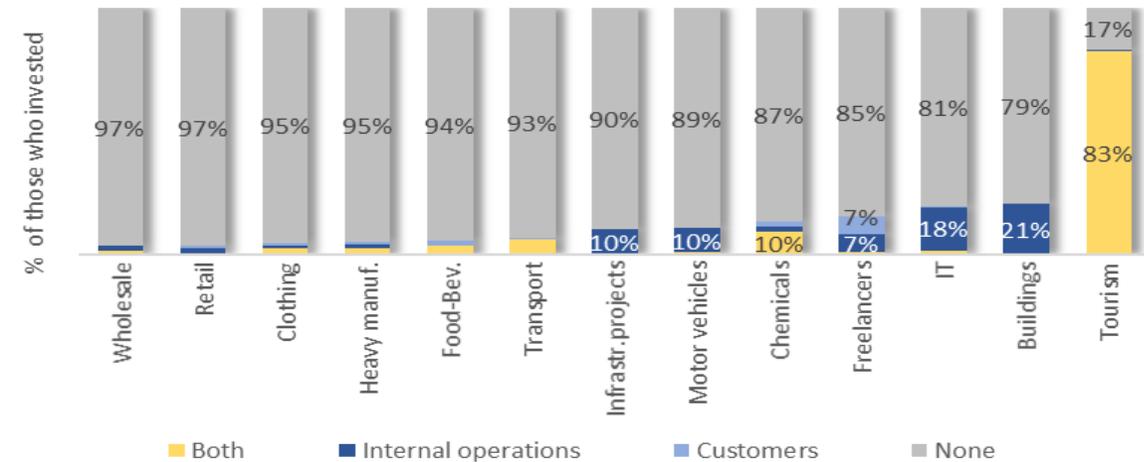
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High digital investments are expected in transport, freelancers and heavy manufacturing – Tourism SMEs present low rates of investment but extensive use of NSRF funds

Digital Investment



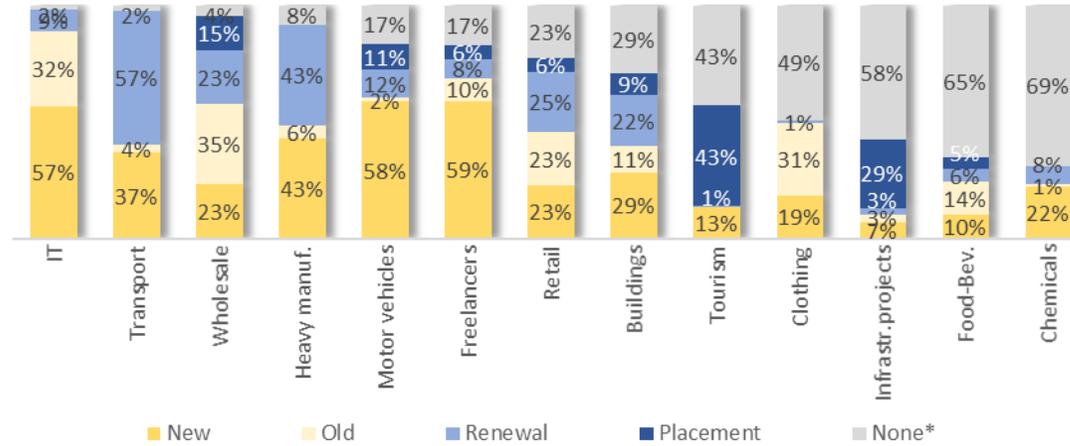
Use of NSRF funds



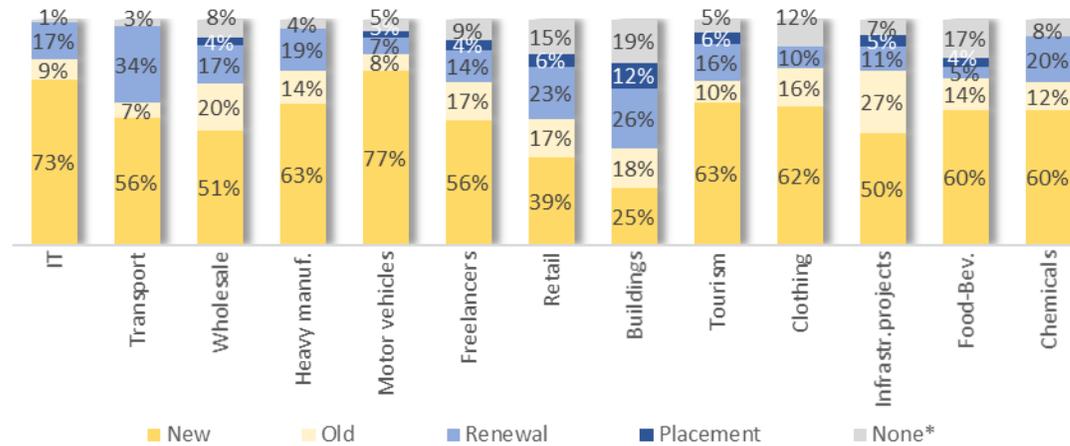
* Note that about 5 per cent of SMEs appear to have digital investments in progress, but these have yet to translate into actual existence and operation of digital tools.

Significant digital upgrade is expected in hotels, while small food and chemical industries will continue to lag behind

% of enterprises



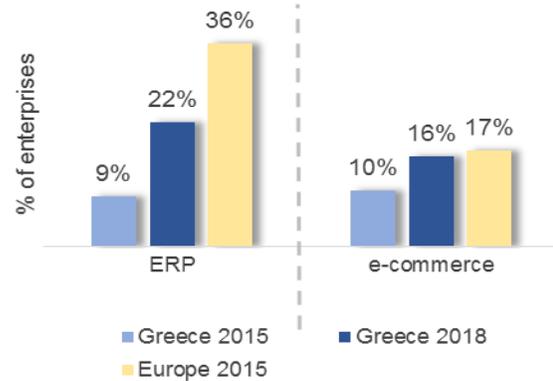
% of turnover



* Note that about 5 per cent of SMEs appear to have digital investments in progress, but these have yet to translate into actual existence and operation of digital tools (most of them being sole proprietors).

Planned investments could narrow the digital gap between Greece and Europe, while hotels are expected to present significant progress in e-commerce

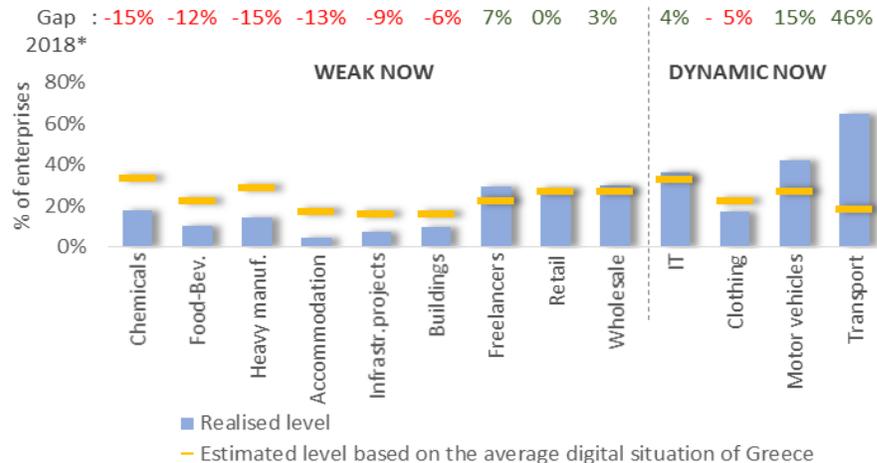
Digital level of SMEs



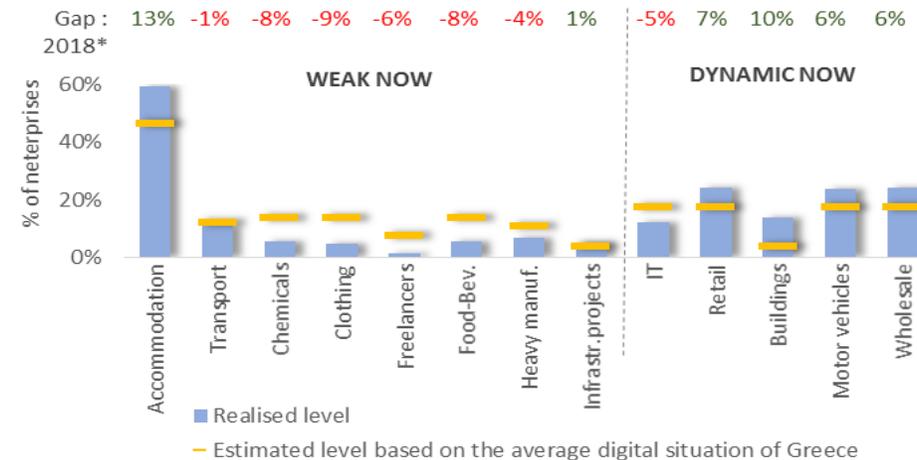
Source: Eurostat, NBG estimates

- The investments planned by SMEs are in the right direction to cover the digital gap with Europe. For example, in connection with the two key digital tools (ERP and e-commerce), in light of planned investments, 22 per cent of SMEs are expected to have an ERP by 2018 (vs 9 per cent in 2015 and 36 per cent in Europe) and 16 per cent are expected to use e-commerce (vs 10 per cent in 2015 and 17 per cent in Europe).
- Regarding the dynamic of each sector vis-à-vis its potential, the following can be seen:
 - ✓ ERP: the dynamic investments of transport SMEs are enhancing their lead, while small manufacturers are expected to continue to lag far behind.
 - ✓ e-commerce: hotels are estimated to limit their current lag (60 per cent in 2018 from 20 per cent today), while IT seems to be losing dynamism.

Relevant digital dynamic of sectors 2018- ERP



Relevant digital dynamic of sectors 2018- E-commerce



* Sectors were classified according to their digital dynamic in 2015 (page 22). In green color are sectors performing higher than their potential in 2018, while in red the sectors performing lower.

- ❑ NBG's Digital Economy Index

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- ❑ The digital profile of SMEs today

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❑ Annex

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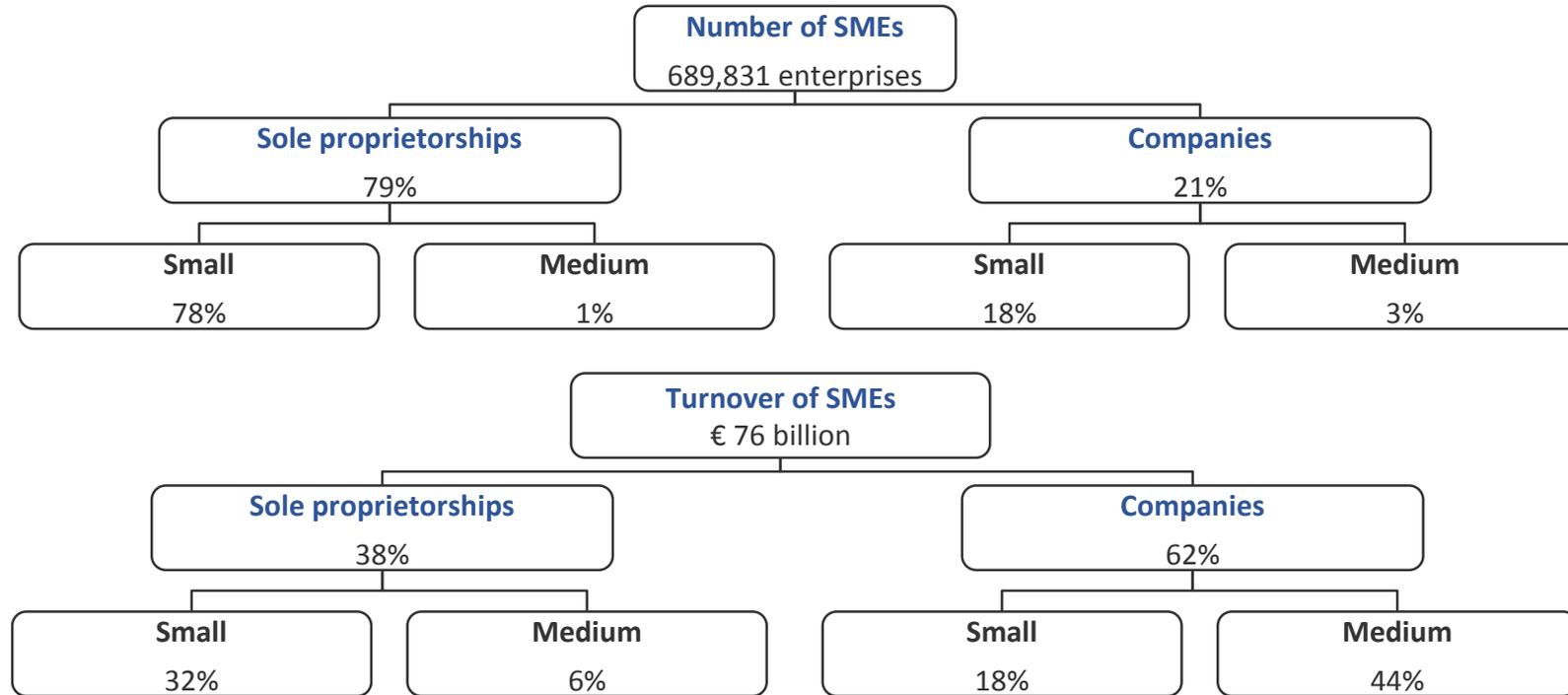
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Mapping the SME segment in Greece



** For the purposes of the survey, small enterprises are those reporting turnover of less than €1 million and medium-sized enterprises are those reporting turnover of between €1 million and €10 million.*

Source: SBA Factsheet 2015, Eurostat, EL.STAT. Company Register, NBG Estimates

- ❑ The circa 690,000 SMEs in Greece generate turnover of around €76 billion.
- ❑ 4/5 of SMEs are sole proprietorships, which account for a corresponding share of the total domestic business sector (compared with just ½ of the business sector in Europe).
- ❑ Although sole proprietorships comprise the majority of SMEs, the greater share of turnover (over 60 per cent) is generated by companies of various legal status (SA, limited partnership, limited liability, etc.).

Sample Description

Sample Structure (number of companies)*					
Turnover (in million €)	Manufacturing	Trade	Services	Construction	Total SMEs
1: (0 - 0.1]	45	45	73	30	193
2: (0.1 - 0.5]	45	45	73	30	193
3: (0.5 - 1]	45	45	74	30	194
4: (1 - 2.5]	45	45	74	30	194
5: (2.5 - 5]	45	45	73	30	193
6: (5 - 10]	45	45	73	30	193
Total SMEs	270	270	440	180	1160

* Depending on data availability, there is possible deviation of circa 10 per cent

Greek SMEs segment structure* (based on turnover)					
Turnover (in million €)	Manufacturing	Trade	Services	Construction	Total SMEs
1: (0 - 0,1]	1%	3%	5%	1%	10%
2: (0.1 - 0,5]	3%	13%	6%	1%	23%
3: (0.5 - 1]	2%	9%	3%	1%	15%
4: (1 - 2,5]	3%	11%	4%	1%	19%
5: (2.5 - 5]	4%	8%	4%	1%	17%
6: (5 - 10]	4%	8%	3%	1%	18%
Total SMEs	17%	52%	24%	7%	100%

* 2007-2013 average

Source: EL.STAT. Company Register (2007), ICAP Data, Eurostat, NBG Estimates

- ❑ Our survey examines a sample of enterprises with a turnover of below €10 million, which, for the purposes of the analysis, we define as small and medium-size enterprises (SMEs).
- ❑ Enterprises were selected using a stratified sampling method, in line with the standards of similar surveys carried out by international organizations. Specifically, a total of 1,160 enterprises were selected in such a way as to enable even distribution of the sample on the basis of two key factors: scale of turnover (6 scales) and sector of activity (Manufacturing, Trade, Services, Construction).
- ❑ In order to draw conclusions that are representative of the SME segment, answers were weighted according to the participation of each sub-set in the total turnover of the segment. Thus, findings were arranged (i) by size, (ii) by sector, and (iii) for the entire SME business sector. In line with the methodology, the segments are weighted on the basis of their shares in total turnover and not the number of enterprises (unless stated otherwise).

NBG's Digital Economy Index (DEI)			
	Weights	Units	Sources
DEI = (1/2)*A + (1/2)*B			
A. Operational Framework = (1/3)*Ai + (1/3)*Aii + (1/3)*Aiii			
Ai: Business Environment ▼ 100%			
1. Business framework ▼ 20%			
No. procedures to enforce a contract	1/6	Number of procedures	WEF (Networked Readiness Index 2015)
No. days to enforce a contract	1/6	Number of days	WEF (Networked Readiness Index 2015)
Total tax rate	1/6	% of profits	WEF (Networked Readiness Index 2015)
No. days to start a business	1/6	Number of days	WEF (Networked Readiness Index 2015)
No. procedures to start a business	1/6	Number of procedures	WEF (Networked Readiness Index 2015)
Intensity of local competition	1/6	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
2. Regulatory framework ▼ 20%			
Effectiveness of law-making bodies	1/3	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
Judicial independence	1/3	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
Efficiency of legal system in settling disputes	1/6	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
Efficiency of legal system in challenging regs	1/6	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
3. Intellectual property ▼ 20%			
Intellectual property protection	1/2	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
Software piracy rate	1/2	% software installed	WEF (Networked Readiness Index 2015)
4. IT policies ▼ 20%			
Laws relating to ICTs	1/3	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
National ICT development plan	1/3	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
Gov't success in ICT promotion	1/3	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)
5. Venture capital ▼ 20%			
Venture capital availability	1	Scale 1-7 (best)	WEF (Networked Readiness Index 2015)

NBG's Digital Economy Index (DEI)				
	Weights	Units		Sources
Aii: Infrastructure				
100%				
1. Coverage				
	1/3			
Next-generation access networks (NGA)	1/3	% of households		Eurostat
Fixed broadband coverage	1/3	% of households		Eurostat
Mobile broadband coverage 3G	1/3	% of households		Eurostat
2. Speed				
	1/3			
Internet bandwidth	1/3	kb/s per user		WEF (Networked Readiness Index 2015)
Actual download speed	1/3	Mbit/s		OECD
Share of fixed subscriptions (>=30)	1/3	% of subscriptions		Eurostat
3. Price				
	1/3			
Fixed BB price	100%	Euro (PPP)		Eurostat
Aiii: Human Resources				
25%				
1. Basic digital skills				
	1			
Basic digital skills	1	% of individuals		Eurostat
2. Training				
	25%			
Master ICT	1/3	% of population 20-59		European Commission (e-leadership scoreboard)
ICT graduates	1/3	% of population 20-24		European Commission (e-leadership scoreboard)
% of enterprises that train ICT	1/3	% of enterprises with turnover > €2mil		Eurostat
3. Policies				
	25%			
ICT practitioner skills	1/2	Scale 1-5 (best)		European Commission (e-leadership scoreboard)
Skills for digital entrepreneurship	1/2	Scale 1-5 (best)		European Commission (e-leadership scoreboard)
4. ICT specialists				
	25%			
ICT specialists	1	% of employees		Eurostat

NBG's Digital Economy Index (DEI)				
	Weights		Units	Sources
B. Technology Use = (1/3)*Bi + (1/3)*Bii + (1/3)*Biii				
Bi: Individuals				
1. Technological equipment				
	1/3			
Internet users	1/2	% of population		WEF (Networked Readiness Index 2015)
Households with personal computer	1/2	% of households		WEF (Networked Readiness Index 2015)
2. Simple use				
	1/3			
Information	1/3	% of individuals		Eurostat
Entertainment	1/3	% of individuals		Eurostat
Communication	1/3	% of individuals		Eurostat
3. Advanced use				
	1/3			
E-commerce	1/3	% of individuals		Eurostat
E-banking	1/3	% of individuals		Eurostat
E-government	1/3	% of individuals		Eurostat
Bii: Enterprises				
1. Technological level				
	1/3			
Firm-level technology absorption	1	Scale 1-7 (best)		WEF (Networked Readiness Index 2015)
2. E-commerce				
	1/3			
Enterprises having a website	1/3	% of enterprises with turnover >		Eurostat
Enterprises selling online (B2C-B2B)	1/3	% of enterprises with turnover > €2mil (for trade, accommodation and IT sector)		Eurostat
Enterprises purchasing online	1/3	% of enterprises with turnover >		Eurostat
3. Operational effect				
	1/3			
Impact of ICTs on new services & products	1/2	Scale 1-7 (best)		WEF (Networked Readiness Index 2015)
Impact of ICTs on new organizational models	1/2	Scale 1-7 (best)		WEF (Networked Readiness Index 2015)
Biii: Public Sector				
1. Technological level				
	1/3			
Government procurement of advanced tech	1	Scale 1-7 (best)		WEF (Networked Readiness Index 2015)
2. Online services				
	1/3			
Quality of public e-services	1	Scale 0-1 (best)		WEF (Networked Readiness Index 2015)
3. Operational effect				
	1/3			
Upgrading public services with ICT use	1	Scale 1-7 (best)		WEF (Networked Readiness Index 2015)

* All variables were expressed in relation to the European average (EU (28) = 100) and so that higher values correspond to positive effects

- ❑ Company: TNS ICAP
- ❑ Methodology: Quantitative research in the form of Computer Aided Telephone Interviewing - C.A.T.I., using a 20-minute structured questionnaire.
- ❑ Sample: A total of 1,160 interviews were conducted (960 within the context of the current assessment plus 200 booster interviews with SME IT Services):
 - ✓ 580 enterprises with annual turnover up to €1 million (freelancers, sole proprietorships, unlimited partnerships, limited partnerships, limited liability companies, SAs) - 100 of which are IT services
 - ✓ 580 enterprises with annual turnover between €1 million and €10 million (unlimited partnerships, limited partnerships, SAs, limited liability companies) - 100 of which are IT services
- ❑ Geographical coverage:
 - ✓ Athens, Thessaloniki, Heraklion, Ioannina, Kavala, Larissa, Patras
- ❑ Sampling: multi-stage, stratified, non-proportional sampling for sector, turnover size & geographical area in each of the two sets of samples. Quotas relating to turnover and for the booster sample.
- ❑ Statistical error: in each of the two sets of samples of 480 enterprises the maximum statistical error is estimated at +/- 4.15 per cent at a 95 per cent confidence level.
- ❑ Period of survey: 25/9/15- 9/11/15
- ❑ Survey framework: The survey was carried out in line with ESOMAR and SEDEA (Association of Greek Market and Opinion Research Companies) codes of conduct and the quality control requirements set by PESS (Quality Control in Data Collection). A total of 47 researchers and 5 reviewers with experience and know-how in business surveys participated in the field research.



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