

# CYPRUS NATIONAL REPORT

ICT-enabled AMT



## Fostering the Adoption of ICT-enabled AMTs by European SMEs



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(\* ) Action: C = Creation, I = Insert, U = Update, R = Replace, D = Delete

## Referenced Documents

ID	Reference	Title
1	2018-1-FR01-KA202-04780	FAME Proposal
2		

## Applicable Documents

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1		

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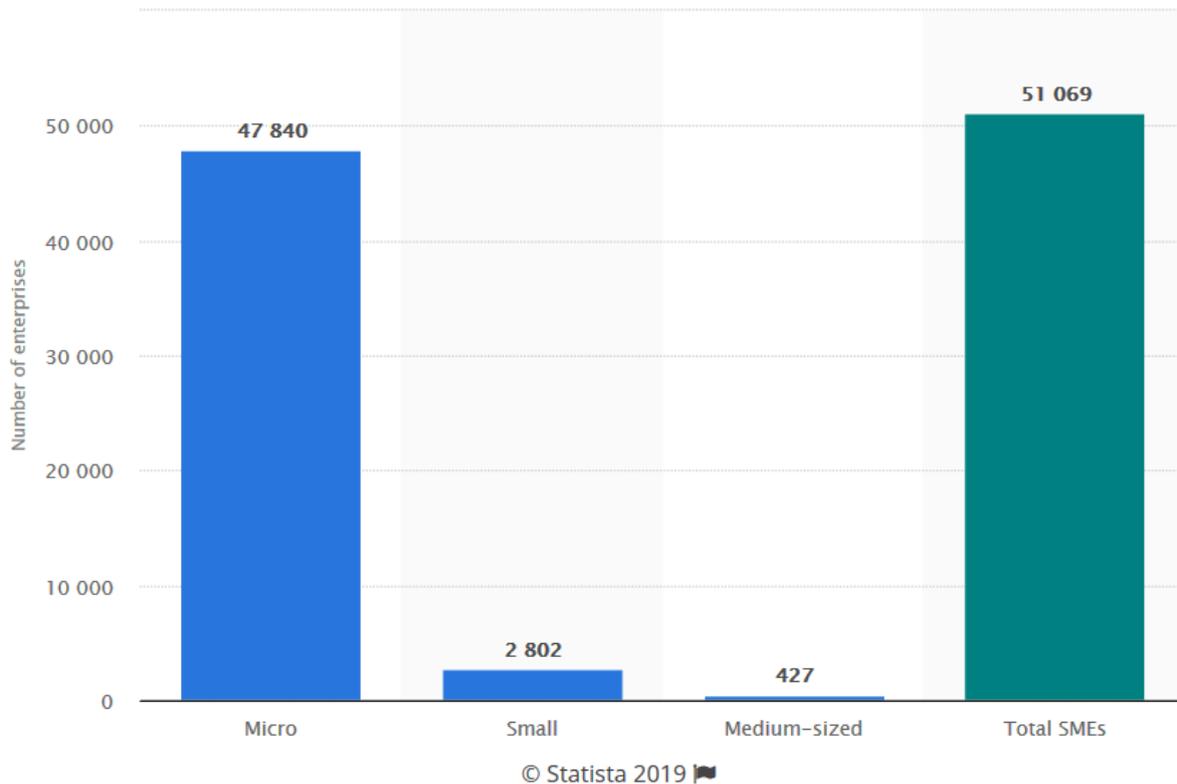
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# Introduction

Today, the number of businesses in Cyprus in terms of size is the following:



Non-financial business SMEs in Cyprus were hit hard by the financial crisis and are recovering slowly. In 2016, SME value added and employment remained 23.2 % and 9.6 % below their respective pre-crisis levels of 2008. In 2013-2016, SME value added and employment increased by 6.3 % and 5.4 % respectively. Most of this growth occurred in 2015-2016, when SME value added grew by 4.1 % and employment by 3.4 %. The outlook for SMEs in the non-financial business economy is particularly positive.

Cyprus scores below the EU average in access to finance and single market, while in environment and internationalisation the country performs better than the average. Cypriot SMEs face severe difficulties in accessing finance. In Cyprus, there is a lack of effective implementation of measures to stimulate investments, promote entrepreneurship and innovation, reduce administrative costs and support SMEs' export ambitions. Despite recent improvements in bank lending, access to finance is identified as the most pressing issue, with the country still well below the EU average.

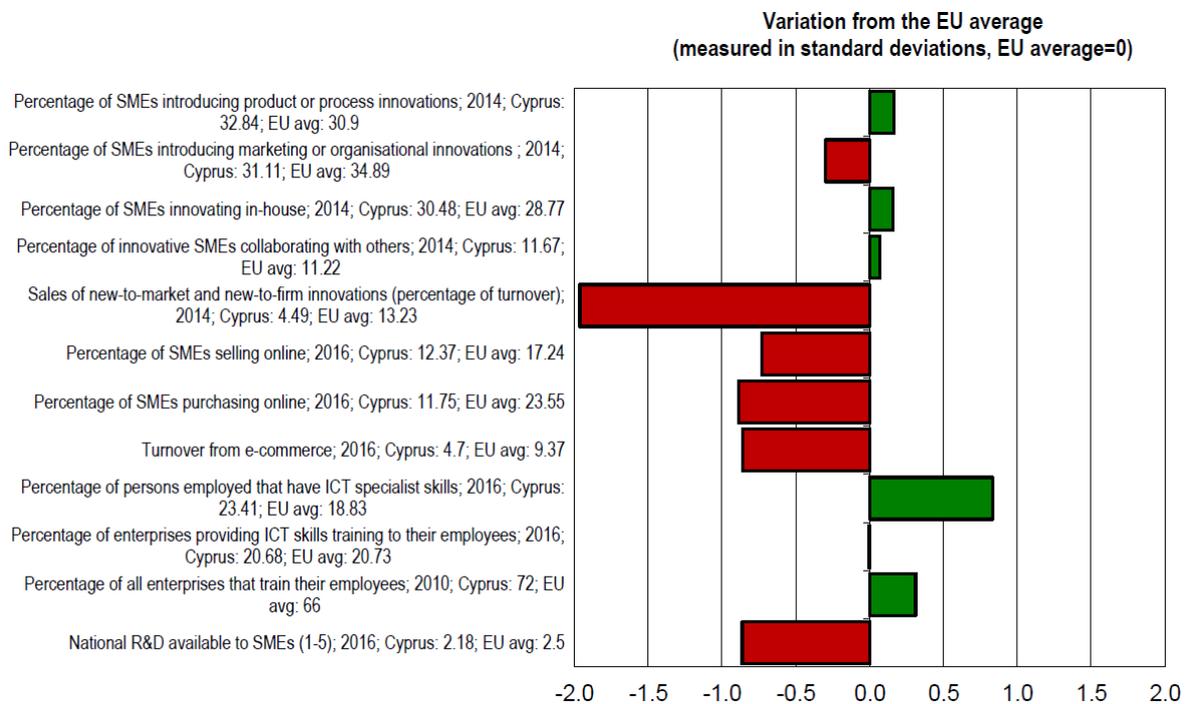
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# ICT-enabled AMT in Cyprus

The manufacturing businesses in Cyprus are between 5.000 and 5.500, small businesses, many times family owned. These businesses employ about 30,000 people (about 9% of the workforce employed in manufacturing and industry). They are very flexible and open to innovation which makes them very good candidates for improving their industrial infrastructure.

The following chart indicates the variations from the EU average in several areas of interest for the FAME project as they indicate room for improving the present situation through fostering of the adoption of AMT technologies among Cypriot SMEs.



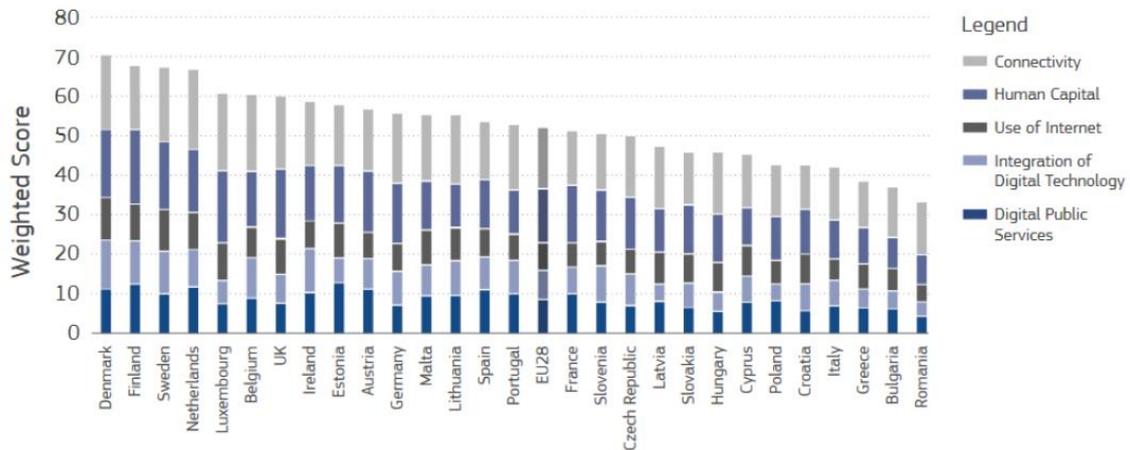
*Note: Data bars pointing right show better performance than the EU average and data bars pointing left show weaker performance.*

[Source: 2017 SBA Fact Sheet — Cyprus]

The potential for improvement is reflected also in the Digital Economy and Society Index (DESI) through which the European Commission monitors the state of digitalisation across the EU through different indexes and indicators.

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Digital Economy and Society Index, by Main Dimensions of the DESI



European Commission, Digital Scoreboard 2017

Recent governmental policies aim to stimulate growth in areas such as ICT, manufacturing parts, instruments and electronics, consumer products. Promotion of AMT technologies is very high on the agenda.

In the following sub sections we look into a bit more detail in the situation with respect to three areas of interest which are important for the implementation of the FAME project:

- VR Simulations
- Management
- ICT-Tools

### VR Simulations

As one would guess, the use of VR technology in Cyprus is not in any way common in all business sectors, the exception being tourism, including culture and the online gaming industry. These two industries which have workable and efficient examples of VR implementations to demonstrate do not belong to the core sectors of the FAME project (Food industry, Agriculture industry, Metal industry, Electronics and electrical equipment industry) but provide several good practices which could be adopted by these sectors. So, even though there are practically zero examples of VR technologies

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adoption by the project sectors per se, there are several interesting examples from the aforementioned sectors of tourism, culture and online gaming which are worth considering.

The promotion of VR in the sectors of tourism, culture and the online gaming industry is evident also from the projects supported by the Research Centre on Interactive Media Smart Systems and Emerging Technologies / RISE (<http://www.rise.org.cy/en-gb/about/projects/>) where we see plenty of interest in virtual museums, history and culture projects.

As such, the most advanced uses of VR in Cyprus concern virtual 360 tours and the most established company is called Lemon Image (<http://www.lemonimage.com>). Such applications are of course very relevant to architecture and construction also.

So, in conclusion, with respect to the sectors of the FAME project there is no implementation of substance that has anything significant to contribute. At best SMEs from these industries use SaaS solutions of wide visibility.

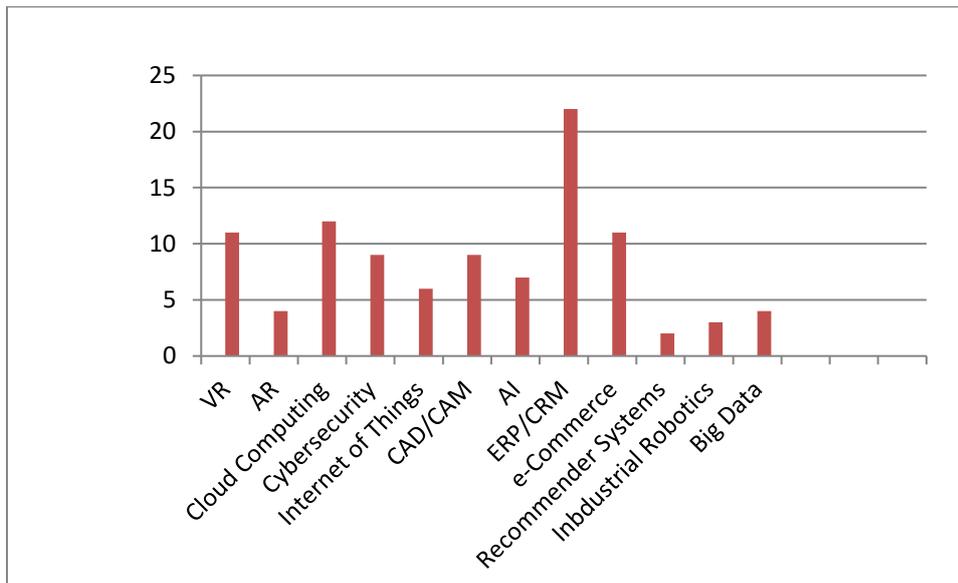
### Management: Big data, ERP, Cloud computing, Cybersecurity

This is not an area in which Cyprus has anything of substance to report in terms of ICT-enabled AMT uses. The numbers which demonstrate the use of ICT-enabled AMT in Cyprus

Use of ICT-enabled AMT in Cyprus	
VR	11%
AR	4%
Cloud Computing	12%
Cybersecurity	9%
Internet of things	6%
CAD/CAM	9%
AI	7%
ERP/CRM	22%
e-Commerce	11%
Recommender systems	2%
Industrial robotics	3%
Big data	4%

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## Big Data

In Cyprus, **data mining** is used mostly by the **telecom industry** for predictive analytics. It is employed by the telecom operators for uncovering insights, patterns and correlations and discovering meaningful information from mounds of data that exists in various forms, structured and un-structured. To achieve this they employ techniques from a diverse set of scientific fields including computational statistics, machine learning, deep learning, mathematics, data processing, visualisations, business intelligence and many others.

**Data analytics** is mostly used by the **shipping industry** for decision making through the uncovering of insights, patterns and correlations and discovering meaningful information from mounds of data that exists in various forms, structured and un-structured, using techniques from different scientific fields such as statistics, data modelling, machine learning, mathematics, computer science, neuroscience, visualisations, business intelligence and many others.

**Data driven analytics** are also used by the **financial services** to transform manual operational and business bank processes to digital ones, reducing in this unnecessary costs and improving upon efficiency and speed. Today, the Financial Services Industry is undergoing a major transformation driven by big data technologies and predictive analytics, moving towards a formal, critical and data-driven.

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## Cybersecurity

Development in the cybersecurity area in Cyprus are for the most part driven by the aforementioned industries (shipping, financials services), but heavily influenced also by the advent of **the online gaming industry** in the island.

It is a developing area where there is room for companies seeking to differentiate and provide practical hands on services which companies can immediately put into use and witness the benefits rather than theoretical one-size-fits all solutions of low benefit to the adopters due to their general purpose.

A company which stands out offering a variety of services from the wider cybersecurity area is Dexterity Solutions Ltd ([cyber.dexterity.com.cy](http://cyber.dexterity.com.cy)).

For the rest, the island does not currently have something significant to report as the major players from the industries which operate from the island are turning to big names in the area from abroad. As adopters however, they use state of the art software and tools for cyber security as required by their size, customer base and reputation. This however does not say much about the state of play in the island as all advice and expertise is from abroad.

On the bright side, there is a national cybersecurity strategy addressing the following objectives<sup>1</sup>:

- Address cyber crime
- Citizen's awareness
- Critical Information Infrastructure Protection
- Develop national cyber contingency plans
- Engage in international cooperation
- Establish a public-private partnership
- Establish an incident response capability
- Establish an institutionalised form of cooperation between public agencies
- Organise cyber security exercises
- Strengthen training and educational programmes

## Internet of Things

This is an area where the island is more active in comparison to the other areas of ICT-enabled AMT and is a main topic of interest during the annual Infocom conference ([infocomcy.com](http://infocomcy.com)).

<sup>1</sup> [https://www.enisa.europa.eu/topics/national-cyber-security-strategies/ncss-map/strategies/national-cyber-security-strategy-cyprus/@@download\\_version/04259c4d8350414b8fff6e3f27644b92/file\\_en](https://www.enisa.europa.eu/topics/national-cyber-security-strategies/ncss-map/strategies/national-cyber-security-strategy-cyprus/@@download_version/04259c4d8350414b8fff6e3f27644b92/file_en)

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An interesting initiative is the Things Network<sup>2</sup> which has the mission to build an open, global and crowdsourced Internet of Things data network with a new type of wireless network using a technology called LoRaWAN (Long Range Wide Area Network) , owned and operated by its users.

An area which is of particular importance to IoT is the agroindustrial production where the island has a major need for automation of process and improvement of the production. Several research projects in the area are being financed while there are some attempts to launch commercial solutions, also through the Eureka – Eurostars programme.

A current example where IoT is employed for helping resolve a problem is the shortage of Halloumi cheese.

We witness also a vivid interest by partners and the educational community for IoT education and several training centres are offering relevant training programmes in response. Cyprus is also home to the award winning toys manufacturer Engino Toys (<https://www.enginotoys.com/>).

It is reported that IoT in agriculture is set to experience significant growth until 2025.

## Cloud Computing

The nature of cloud computing is such that there is zero need for a local provider of such services. Nevertheless, there are companies in Cyprus, such as IBS (<http://www.ibs.com.cy/en/cloud-services>) offering a range of services on the cloud.

The adoption of cloud computing models by Cypriot industries is around the EU average. Cypriot SMEs are commonly family businesses which are passed from one generation to the next while Cypriot youth is for the most part highly educated and a significant number has attended universities abroad receiving state of play education. As a result, there is a positive attitude towards adoption of such technologies while at the same time they make sense due to the lack of significant infrastructure and expertise in the island constituting the cost of acquisition and maintenance of traditional infrastructure expensive.

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<sup>2</sup> <https://www.thethingsnetwork.org/country/cyprus/>

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## Conclusions

As one would expect, there are no significant findings to report in terms of the actual uses of the ICT-enabled AMT in the islands industry. There are examples which can be singled out but they do not offer conclusions of substance.

The island is heavily dominated by industries such as shipping, financial services, tourism and online gaming. In all these industries, decisions are taken elsewhere as Cyprus serves more as the financial HQ.

The exception are the industries of tourism and the agro-industry.

In tourism, the adoption of emerging technologies and tools is low and is restricted to energy efficiency solutions and water consumption as water is a major issue for the island. In the area of recreational services however, there are plenty of implementations of AR/VR in culture and the island has many examples to offer.

In the agro industry, there are implementations of smart agriculture but they are scarce even though they could be a solution to boost the islands production. One particular problem is the unmet demand for halloumi cheese while there are issues with the quality of the produced halloumi.

So, there are opportunities, but the size of the island deters entrepreneurs to engage in business activities in these areas as demand will be low. On the other hand, local business cannot find adequate expertise and affordable infrastructure.

There are national policies and public investment in some areas of strategic importance to the island and we expect to see a higher adoption rate in the immediate future.

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