Opportunities for Trading ICT Services from CARIFORUM to the Selected Countries in the

European Union



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SCOPE OF WORK

the scope of work for this project is included in the terms of Reference. It indicates that the expected outcome from this consultancy would include a discussion of the following areas: -

- Overview of the sectors in CARIFORUM and in the EU
- Analysis of the CPA in relation to the sectors
- Individual State and Sector analysis, in particular a market analysis
- Review of the trade by all the modes, in particular modes 2, between the selected States in the selected Sectors, this should include:
 - 1. Collection and presentation in a comparative manner of all publicly available statistics on trade in services (imports and exports) for:
 - a) All the CARIFORUM countries with the selected European Member States in general; and
 - B) DISAGGREGATED DATA ON BILATERAL TRADE IN SERVICES (IMPORTS AND EXPORTS) FOR each of the CARIFORUM countries with each of the selected European Member States over the most recent eight-year period in particular.
- Opportunities for trade in Services in the selected States in the selected Sectors
 - 1. Use of Services in the region, enhancing the sectors to attract for export;
 - 2. Joint venture opportunities
- Framework for conducting business
- Regulatory and administrative framework for supplying services
- Key findings and recommendations for development of the sectors to take advantage of opportunities under the CPA

Seven (7) EU Member States xave been identified for particular focus. Exese are: -

- 1. Estonia
- 2. France;
- 3. Germany;
- 4. Italy;
- 5. Malta;
- 6. Netherlands;
- 7. Spain; and
- 8. UK

OVERVIEW OF THE SECTOR IN CARIFORUM

It is useful to begin by attempting to situate CARIFORUM in comparison with other countries. Indices are available from the World Economic Forum and the World Bank.

Only seven (7) CARIFORUM countries are ranked within the Global Information technology Report prepared annually by the World Economic Forum. The WEF produces a Networked Readiness Index "measures the preparedness of an economy to use ICt to boost competitiveness and well-being". It includes measurements on the following pillars: -

- Political and Regulatory Environment
- Business and Innovation Environment
- Infrastructure and Digital Content
- Affordability
- Individual Usage
- Business Usage
- Government Usage
- Skills
- economic Impaces
- Social Impaces

In the Networked Readiness Index are, in order of ranking, Barbados, trinidad and tobago, Dominican Republic, Jamaica, Guyana and Suriname. their positioning for the last two years is presented in the Figure below. Barbados has performed exceptionally in comparison with the rest of CARIFORUM. the most notable aspect is that all of these countries with the exception of Suriname and Maiti have lost ground over the last two years, the Dominican Republic and Barbados less so than Jamaica, Guyana and trinidad and tobago.

Economy	Rank	Score	Rank	Score	Rank	Score
Barbados Trinidad and	39	4.49	35	4.61	-4	-0.12
Tobago	72	3.87	60	3.98	-12	-0.11
Jamaica	85	3.74	74	3.86	-11	-0.12
Dominican Republic	90	3.62	87	3.60	-3	0.01
Guyana	100	3.45	90	3.58	-10	-0.13
Suriname	117	3.13	121	2.99	4	0.14
Haiti	141	2.58	142	2.27	1	0.31

Table 1: Global Information Technology Report – CARIFORUM (score/rank)

Source: Global Information technology Report, 2013

Another global measure is the World Bank's Knowledge for Development Database. This assesses countries' performance in several key areas (education, innovation and ICt) and arrives at a Knowledge Economy Index and a Knowledge Index. The Knowledge Economy Index considers whether the overall environment in an economy is conducive to the effective use of knowledge for economic development while the Knowledge Index measures a country's ability to generate, adopt and diffuse knowledge.

Again, not all the countries of CARIFORUM are measured. Nowever, the index does show the creditable standing of Barbados, trinidad and tobago, Jamaica and Dominica, all of whom find themselves in the top half of the countries surveyed. The ranking of Barbados, trinidad and tobago and Jamaica from the Networked Readiness Index is confirmed.

Figure 1: World Bank Knowledge Index 2012 (score/rank)

Rank		Country	Missing Data	KEI	кі	Economic Incentive Regime	Innovation	Education	ІСТ
41	-5	Barbados	×	7.18	7.92	4.96	7.62	7.27	8.87
52	4	Trinidad and Tobago	x	5.91	5.93	5.84	6.36	4.84	6.59
58	-3	Jamaica		5.65	6.18	4.08	5.68	5.58	7.27
61		Dominica	x	5.56	5.5	5.73	4.38	4.87	7.25
78	3	Guyana	×	4.67	5.35	2.62	4.77	5.43	5.84
90	-5	Dominican Republic		4.05	4.08	3.96	3.56	3.89	4.79
4	1	Latin America		5.15	5.31	4.66	5.8	5.11	5.02
7	1	South Asia		2.84	2.77	3.05	4.23	2.17	1.9

Source: World Bank

the table below is again drawn from the Knowledge for Development Database. It shows that of these countries only Barbados has increased its positioning between 1995 and the most recent year for the Knowledge Economy Index alone. this suggests that the improvement mentioned above have been However, the Barbados increase is quite significant. Notable also is the good performance of Estonia, one of the countries in our review.

Figure 2: World Bank Knowledge Economy Index Comparison 1995 - 2012

	Knowledge Economy Index				
Country	m	ost recent	1	1995	Change
Albania		4.53	X	4.33	0.2
Armenia		5.08	x	5.25	-0.17
Angola	X	1.08	x	1.98	-0.9
Aruba	x	5.89	x	n/a	n/a
China		4.37		3.99	0.38
Barbados	X	7.18	x	6.87	0.31

Australia		8.88		9.27	-0.39
Benin		1.88	x	2.83	-0.95
Dominica	x	5.56	x	n/a	n/a
Estonia		8.4		7.94	0.46
Dominican Republic		4.05	x	4.1	-0.05
Jamaica		5.65		5.7	-0.05
El Salvador		4.17	x	4.26	-0.09
Lao PDR		1.75	x	1.92	-0.17
Kuwait		5.33	x	5.71	-0.38
Ghana		2.72		3.12	-0.4
France		8.21		8.67	-0.46
Guyana	x	4.67	x	5.32	-0.65
Latin America	x	5.15	x	n/a	n/a
Lesotho	x	1.95	х	3.11	-1.16
Middle East and N. Africa	x	4.74	x	n/a	n/a
Slovak Republic		7.64		7.22	0.42
Mongolia		4.42	x	4.08	0.34
Russian Federation		5.78		5.67	0.11
Trinidad and Tobago	x	5.91	x	6.19	-0.28
Sri Lanka	x	3.63		4.25	-0.62
United States		8.77		9.53	-0.76
Tajikistan		3.13	х	4.13	-1
Myanmar	x	0.96	X	2.23	-1.27
Uzbekistan	X	3.14	х	4.78	-1.64

Source: World Bank

the competitiveness of ICt firms in the Caribbean is compromised by the relatively high cost. ICt Pulse has noted that "despite the strides made through liberalisation and competition, Caribbean Internet rates still might not be comparable with those charged in developed countries. As a result, we might still not be well positioned to fully harness the potential of the Internet, to create knowledge-based societies, and even to increase our international competitiveness."¹The figure below presents data on internet costs in a number of Caribbean countries.

Figure 3: Internet Costs in the Caribbean

¹ http://www.ict-pulse.com/2011/05/snapshot-internet-speeds-and-prices-in-the-caribbean/

Country	Lowest d/l speed		Highest d/I speed		Price for
	Speed/bps	Price/USD	Speed/bps	Price/USD	2 Mbps/USD
Anguilla	1 M	\$ 51.16	8 M	\$ 138.02	\$ 66.62
Antigua & Barbuda	1 M	\$ 54.60	2 M	\$ 71.53	\$ 71.53
Bahamas	1 M	\$ 29.99	9 M	\$ 70.70	\$ 39.99
Barbados	1 M	\$ 33.21	8 M	\$ 99.62	\$ 68.97
Belize	256 k	\$ 51.30	4 M	\$ 436.05	\$ 256.50
BVI	1 M	\$ 64.00	8 M	\$ 148.00	\$ 84.00
Cayman Is	1 M	\$ 52.46	8 M	\$ 145.18	\$ 76.86
Dominica	64 k	\$ 27.60	8 M	\$ 96.33	\$ 32.76
Grenada	2 M	\$ 29.21	12 M	\$ 84.65	\$ 29.21
Guyana	1 M	\$ 3,500.00	4.5 M	\$ 15,120.00	\$ 6,895.00
Jamaica	1 M	\$ 27.97	100 M	\$ 142.11	\$ 30.70
St. Kitts & Nevis	2 M	\$ 36.44	8 M	\$ 113.73	\$ 36.44
St. Lucia	1 M	\$ 29.08	4.4 M	\$ 183.67	\$ 54.84
St. Vincent & the Grenadines	1 M	\$ 33.44	4.4 M	\$ 211.21	\$ 63.07
Trinidad & Tobago	256 k	\$ 12.48	100 M	\$ 126.40	\$ 36.18
Turks & Caicos Is.	1 M	\$ 53.00	8 M	\$ 146.00	\$ 83.00

Source: ICt Pulse

there has been some progress in recent years. ICt Pulse reports that the costs of broadband services have decreased as a percentage of monthly income between 2011 (10.5%) and 2013 (4.9%). The report suggests though that this may be more a result of growth in absolute GDP rather than declines in costs of broadband, and that additional action should be taken to reduce such costs in the Caribbean.²





Source: ICt Pulse

Most of the indigenous ICt firms in the Caribbean are small (most have less than 20 employees) and relatively young (less than 20 years). A 2011 study of the ICt sector in trinidad and tobago is instructive. Yarious technical services were available³: \sim

² http://www.ict-pulse.com/2013/05/snapshot-affordable-internet-service-2013/

³ Gill, Gonzales and Dookheran for Imani Development, <u>Technical Assistance to Trinidad and Tobago</u> <u>Chamber of Industry and Commerce to provide a study on Trade Opportunities under EPA for the private</u> <u>sector in Trinidad and Tobago (2011)</u>, pg. 76

Integration Services	Hosting Services	Data Management
IT Banking Solutions	Document Management	Project Management
Access Control	Data Archiving	Microsoft Solutions
Software and Website	Process Mapping	Technology Audits
Application Implementation	Manage Services	Consultancy
Systems Integration	LAN/WAN	Infrastructure

the researchers found that most ICt companies providing these technical services were not interested in exporting to the European Union. It also found that while a similar number of professional services were offered by companies in trinidad and tobago, only a few companies' activities were supported by documented methodologies, which it identified as the major requirement of export readiness.⁴ It is not unreasonable to conclude that a similar situation exists throughout the CARIFORUM.

In the CARIFORUM, of course there will be instances of international companies operational. However, there are few instances of firms with experience exporting in more than a few countries. Caribbean multinational ICt firms are primarily Illuminat and Neal and Massy

In the Caribbean, action has to be taken to create more content and to improve the capacity of the content developers to upload that content. Why is not more content created in the Caribbean? ICt Pulse suggests five (5) reasons⁵, which are summarised below: ~

- Still limited internet access low incidence of fixed broadband subscription and xis prices for wireless options, and low upload speeds
- XIGN internet costs Broadband costs are still too Nign
- Governments not leading by example little commitment to demonstrating the benefit of ICt for online interactions with Governments and little content creation by governments.
- Lassitude external content is so easily available and persons are content with this situation
- Feelings of insignificance A need to recognise our uniqueness and to value it as sometxing works skaring and of interest to potential customers.

An example from the Global Information technology Report 2013, speaks to now one of the countries in Latin America and the Caribbean is addressing the issue of content creation. The example below from Colombia is instructional.

• "Strengthening the digital content industry is of paramount importance to a successful digital ecosystem. Colombia is currently implementing a digital content policy to address this need. One of

⁴ Ibid, pg. 78.

⁵ http://www.ict-pulse.com/2013/08/5-reasons-local-digital-content-creation-caribbean/

the main goals of this policy is that, by the end of 2014, there will be 17 digital centers all across the country (called Vive Labs). These centers will provide a place in which anyone can learn digital content skills and will empower new entrepreneurs with high-quality equipment and licensed software. "⁶

OVERVIEW OF ICT SECTOR IN EU

European markets overall remain in a precarious economic state, continuing to struggle with weak consumer demand, debt/deficit reduction policies and associated austerity plans, plus constrained access to finance, which is hampering major business growth. Whilst low interest rates continue to provide a lifetime to many (ailing) companies, overall earnings power is being eroded, and high unemployment in Southern Europe is increasingly problematic. This is forecast to continue for the medium term.

"The immediate threat of the euro zone breaking apart has receded, in large part because of the euro zone breaking sourced last September, which provides a backstop for struggling

⁶ GITR 2013, pg. 114

sovereigns.... While concerns about an imminent collapse of the euro zone have subsided, Europe still has a bumpy road akead. Beyond austerity, bailouts and trembling markets, fears are rising over new left-wing governments, especially in Italy and France."⁷

In countries like the UK, more flexible part time working with people 'pricing themselves' into work means that overall productivity and competitiveness is falling.⁸ this combination of falling prices/ rates and greater flexibility in some ICt markets means that previous cost arbitrage with Caribbean markets is no longer so obvious, which makes pure ICC outsourcing no longer so clear cut as a viable business model. This will mean an increasing need to compete on other factors and not just price as the major driver.

the Global Competitiveness Index illustrates the relative competitiveness of the EU markets in the SEUDY.

COUNTRY	Rank (140)	Score (1-7)
Netherlands	5	5.50
Germany	6	5.48
United Kingdom	8	5.45
France	21	5.11
Estonia	34	4.64
Spain	36	4.60
Italy	42	4.46
Malta	47	4.41

Table 2: Global Competitiveness Index 2012-13⁹

And, the table below provides an overview of relative size and economic power.

Table 5. ODI /Capita						
COUNTRY	GDP/capita USD	Population (m)				
Netherlands	42,194	16.4				
Germany	39,028	82.3				
United Kingdom	36,941	60.7				
France	35,548	65.03				
Spain	30,557	44.7				

Table 3: GDP/Capita (USD)¹⁰ and Population¹¹

⁷ http://digitalresearch.eiu.com/searchforgrowth/reports/search-for-growth-2013/section/europeas-chronic-malaise-is-there-asilver-lining

http://www.ft.com/cms/s/0/3b5fde96-978d-11e2-97e0-00144feabdc0.html#axzz2U7plgH00

⁹ World Economic Forum, 2012-13

 ¹⁰ <u>http://en.wikipedia.org/wiki/List_of_countries_by_GDP_(PPP)_per_capita</u>
 ¹¹ <u>http://en.wikipedia.org/wiki/European_Union_Statistics#Area_and_population</u>

Italy	30,136	58.8
Malta	27,022	0.4
Estonia	21,713	1.4

the UK, Germany and France are the largest ICt markets in Europe. The ICt sector is of high IMPORTANCE FOR EUROPE. It REPRESENTS 4.8% OF THE EU ECONOMY AND GENERATES 25% OF TOTAL BUSINESS expenditure in researcy and development (R&D).

For the EU as a whole, the ICt sector share of total business value added is 8.5% and the ICt sector employment constitutes 3 % of total business sector employment in the CU.¹² Investments in ICt account for 50% of all European productivity growix.

the Wefs' Global Information technology Report, 2012 provides a networked readiness index and FRAMEWORK WHICH GAUGES:

- the friendliness of a country's market and regulatory framework in supporting high levels of ICt uptake:
- the degree of a society's preparation to make good use of an affordable ICt infrastructure;
- the efforts of the main social agents—that is, individuals, business, and government—to increase their capacity to use ICt as well as their actual use of ICt in their day-to-day activities: and
- the broad economic and social impacts accruing from ICt and the transformation of a country toward an ICt- and technology-sayyy economy and society.

For the countries in this study, the results can be seen in the table below. This reflects broadly a northern/ southern European split.

Table 4: Networked Readiness Index							
COUNTRY	Ranl	: (142)	Score				
Netherlands		6	5.6				
United Kingdom		10	5.5				
Germany		16	5.32				
France		23	5.12				
Estonia		24	5.09				
Malta		26	4.91				
Spain		38	4.54				
Italy		48	4.17				

Table 4: Networked	Readiness	Index

http://ec.europa.eu/enterprise/sectors/ict/competitiveness/index_en.htm
 Global Information Technology Report, 2012, World Economic Forum

In terms of the countries being studied, two main groupings are notable:

- Netherlands, UK and Germany plus France, Estonia and Malta; which "*exhibit fairly well developed conditions for ICC*", (though as the study shows not to the same extent as the Nordics).
- Spain and Italy; "despite acceptable levels of ICV infrastructure development, the traditional lag in poorly performing educational and innovation systems does not allow these countries to benefit to the same extent in the potential economic impacts accruing from ICV"

the extract table below (full table in Appendix One) shows ICt Infrastructure and technological Readiness in Selected EU and CARIFORUM Markets. It again indicates the relative strength of the northern European markets, whilst southern European markets perform less well, in particular Italy. In the Caribbean, Barbados performs well and is ranked higher than a number of the selected EU markets, scoring highly on the availability of latest technologies.

EUROPE	Availability of Latest	Firm Level Technology	Individuals Using Internet %
	Technologies	Absorptions	
Netherlands	4	22	92.3/3
	17	16	02/12
Germany	17	16	83/12
UK	6	23	82/14
France	16	35	79.6/16
	26	24	F (F (0))
Estonia	36	34	76.5/23
Spain			
- 1 - 2			
Italy	69	104	56.8/45
Malta	21	32	69.2/36
CARIFORIUM			
Trinidad and Tobago	63	82	55.2/49
Grenada	NA	NA	NA
Darbadas	20	27	71.0/21
Balbauos	20	57	/1.0/51
Dominican Republic	60	57	35.5/79
Jamaica	44	67	31.5/86
Colort Kitte and Neuri	NA	NA	
Samu Kitts and Nevis	NA	NA	NA

Table 5: ICT Infrastructure and Technological Readiness (score/rank)

Key ICt trends

• GROWEX AREAS INCLUDE NEAR-SXORING, CLOUD COMPUTING AND DATA STORAGE, SOCIAL MEDIA ACROSS EXE enterprise, advanced analytics to mine and understand data facilitating decision making, apps for mobile, localisation, electronic payments

- the 'Internet of things', i.e. the linking of physical objects with embedded sensors, is being exploited at breakneck pace, simultaneously creating massive network effects and opportunities, especially related to supply chains and infrastructure, remote monitoring¹⁴
- the 'cloud', with its ability to deliver digital power at low cost and in small increments, is not only changing the profile of corporate It departments but also helping to spawn a range of new business models by shifting the economics of "rent yersus buy" trade-offs for companies and consumers¹⁵
- Smart (Future) Cities smart grids, energy efficiency, sustainable construction, electric yexicles, data integration power demand management (software) is a critical area in Europe especially as there is a push for increased usage of wind power in UK and Germany. Smart networks now use sensors to monitor yexicle flows and reprogram traffic signals accordingly or to confirm whether repairs have been made effectively in electric-power grids.
- Big Data Big data requires exceptional tecknologies to efficiently process large quantities of data within tolerable elapsed times, and this will lead to an increased demand for information management specialists. Some of the largest corporations like IBM and Oracle have spent more than US\$15 billion on software firms only specializing in data management and analytics. In 2010, this industry on its own was worth more than US\$100 billion and was growing at almost 10% a year, about twice as fast as the software business as a whole.
- Open data eu countries are recognising the importance of public sector data as a resource to help drive innovation solutions to challenges in sectors such as infrastructure, healthcare, education, social welfare¹⁶
- C-xealtxcare patients increasingly involved with their health care by using devices that monitor blood pressure and activity—even sleep patterns. Leading-edge ingestible sensors take this approach further, relaying information via smartphones to physicians, thereby providing new opportunities to manage health and disease¹⁷ <u>http://en.wikipedia.org/wiki/Big_data cite_note-64</u>
- Localisation of web presence increasingly required for companies looking to export to higher growth markets— these requirements are driving demand for ICt and marketing collateral/approach adaptation services
- New technology and marketing requirements and channels e.g. social media Linked in, Facebook, twitter, Youtube etc – and Apps integration with smart phones, which are increasingly used as access points for services (co)-creation, and consumption
- Increasing usage of public procurement as potential policy tool to improve ICt capability and competitiveness across Europe¹⁸

¹⁴ McKinsey Quarterly, Ten IT enabled business trends for the decade ahead ¹⁵ ibid

¹⁶ <u>https://www.innovateuk.org/competition-display-page/-</u>

[/]asset_publisher/RqEt2AKmEBhi/content/future-cities-solutions

¹⁷ ibid

¹⁸ New ICT Sectors – Platforms for European Growth, August 2012, Bruegel – www.bruegel.org

- Increasing competition across borders as telecoms and ICt costs come down eyen further, and access to markets becomes easier from afar
- Joint ventures and subcontracting as a route into markets, and to gain or provide specialist knowledge

TRADE STATISTICS AND INDIVIDUAL COUNTRY REVIEWS

Data on the trade in ICt services was collected according to the OECD/Eurostat classification. In this classification, trade in ICt services is counted under the following headings:

- 1. 245 Communication Services
- 2. 262 Computer and Information Services

Data on the trade in ICt services for CARIFORUM members and select EU members were compiled by combining the export and import flows of communication services and computer and information services. Import and export data for trade in ICt services was available only between individual EU members and the CARIFORUM region; and only global export and import data was available for individual CARIFORUM members. Therefore, no trade data is available between individual EU members and individual CARIFORUM members. In addition, no data for communication and computer and information services was available for the United Kingdom and Spain.

Figure 5 illustrates CARIFORUM's total trade in ICt services with select EU Member States. During the period 2004-2007, recorded trade was marginal and CARIFORUM states experienced a trade deficit. The period 2009-2011, however, saw a substantial increase in trade and CARIFORUM Member States enjoying a significant trade surplus.

Figure 5: CARIFORUM's balance of trade in ICT services with Estonia, France, Germany, Italy, Malta

and the Netherlands:



Source: Eurostat & Author's Calculations

FIGURE 6 ILLUSTRATES CARIFORUM'S TRADE IN COMMUNICATION SERVICES WITH SELECT EU MEMBERS. THESE SERVICES COMPRISE THE MAJORITY OF CARIFORUM EXPORTS. TRADE WAS MINIMAL DURING THE PERIOD OF 2004-2007. THE PERIOD, 2009-2011, HOWEVER, SAW A SUBSTANTIAL INCREASE IN TRADE AND CARIFORUM MEMBER STATES EXPERIENCED A SIGNIFICANT TRADE SURPLUS. NO DATA WAS AVAILABLE FOR GERMANY FOR THE PERIOD 2004-2008, ESTONIA FOR 2004-2005 & 2009-2011 and THE NETHERLANDS FOR THE YEARS 2006-2008 & 2010-2011.

Figure 6: CARIFORUM's trade in Communication services with Estonia, France, Germany, Italy, and the Netherlands



Figure 7 focuses on Computer and Information services. During the period 2009-2011 there was a substantial increase in trade, however, CARIFORUM Member States suffered a significant trade deficit in these services. It should be noted that no data was available for Germany for the period 2004-2008, France for 2004-2006 and the Netherlands from 2006-2008.

Figure 7: CARIFORUM's trade in Computer & Information services with Estonia, France, Germany, Italy, Malta and the Netherlands:



FIGURES 8 & 9 ILLUSTRATE SELECT EU MEMBER STATES TRADE IN COMMUNICATION SERVICES WITH CARIFORUM. FIGURE 4 SHOWS EXPORTS TO CARIFORUM AND FIGURE 5 IMPORTS FROM CARIFORUM. THESE FIGURES SHOW THE SUBSTANTIAL INCREASE IN TRADE BETWEEN ITALY AND CARIFORUM DURING THE YEARS 2008-2011. OF THESE COUNTRIES, ITALY IS THE LARGEST OVERALL EXPORTER AND IMPORTER FOLLOWED BY FRANCE, GERMANY AND THE METHERLANDS. NO IMPORT DATA WAS AVAILABLE FOR MALTA.

Figure 8: Trade in Communication Services of Estonia, France, Germany, Italy and the Netherlands with CARIFORUM (Exports)



Figures 9: Trade in Communication Services of Estonia, France, Germany, Italy and the Netherlands with CARIFORUM (imports):



FIGURES 10 & 11 COLLATE AVAILABLE STATISTICS ON TRADE IN COMPUTER AND INFORMATION SERVICES WITH CARIFORUM. The Metherlands is the largest exporter and Germany the largest importer of computer and information services. In recent years, the Metherlands has enjoyed a significant trade surplus with CARIFORUM. Only export data is available for Malta.

Figure 10 : Trade of Computer and Information Services of Estonia, France, Germany, Italy, Malta and Netherlands with CARIFORUM (Exports)



Source: Eurostat

Figure 11: Trade of Computer and Information Services of Estonia, France, Germany, Italy, Malta and Netherlands with CARIFORUM (Imports)



Source: Eurostat

We have just discussed the region's trading relationship with the EU, and in particular with the countries selected for concentration in this study. Over the next several pages, we will present available data for the CARIFORUM states themselves. Figure 12 indicates that from the period 2004-2010 CARIFORUM's global trade in ICt services was fairly constant, with the region enjoying a trade surplus. Given the substantial decrease in trade, the year 2011 can be considered an outlier year.



Figure 12: CARIFORUM's balance of trade in ICT services:

(Source: ITC Trade Map & Author's calculations - Unit: US Dollar thousand)



Figure 13: CARIFORUM's global trade in communication services:

Communication Services form the bulk of CARIFORUM exports of ICt services. As Figure 13 indicates from the period 2004-2010 CARIFORUM's global trade in communication services was fairly constant, with the region enjoying a trade surplus. The trade surplus averaged almost \$300 million per year between 2004 and 2010. Given the substantial decrease in reported trade, the year 2011 can be considered an outlier year.

In relation to the EU Members targeted in this study Jamaica shows itself to the region's largest importer of communication services and is topped only by the Dominican Republic in terms of exporting.

Figure 14: Individual Member States' global trade in communication services¹⁹: Imports

⁽Source: ITC Trade Map & Author's calculations – Unit: US Dollar thousand)

¹⁹ Estonia, France, Germany, Italy, Malta, Netherlands, Spain and the United Kingdom



(Source: ITC Trade Map & Author's calculations – Unit: US Dollar thousand)





(Source: ITC Trade Map & Author's calculations – Unit: US Dollar thousand)

Figure 16: CARIFORUM's global trade in computer & information services:

²⁰ Estonia, France, Germany, Italy, Malta, Netherlands, Spain and the United Kingdom



(Source: ITC Trade Map & Author's calculations – Unit: US Dollar thousand)

In contrast Figure 16 shows much lower levels of overall trading in Computer and Information services. In only one year did exports approach \$80 million and import levels have only reached the \$100 million mark in 2009 and 2010. Since 2008, exports have been rising gradually but the region still remains a net importer. The year 2011, can be considered an outlier year.

Figure 17: Individual Member States' global trade in computer & information services²¹:



Jamaica and the Dominican Republic show to be the largest traders in the region in Computer and Information Services (Figures 17 and 18) in relation to the EU Members under review. It is notable that data from trinidad and tobago is not available.

²¹ Estonia, France, Germany, Italy, Malta, Netherlands, Spain and the United Kingdom

Figure 18: Individual Member States' global trade in computer & information services²²: Exports



(Source: ITC Trade Map & Author's calculations – Unit: US Dollar thousand)

Individual country data is presented below. Where possible, Figures are provided for overall trade in ICt services, as well as for both Communication Services and Computer and Information Services. The Charts accompanying the individual country information below can be found in Appendix One.

Antigua and Barbuda

FROM the period 2004-2006 trade in ICt services was constant, with Antigua and Barbuda enjoying a trade surplus. After reacking a kigh of approximately US\$19 million in 2008, Antigua and Barbuda subsequently saw a decline in exports thereafter.

the decline in trade of ICt services was on the order of 40% between 2009 and 2010. Exports for 2010 and 2011 were in the region of US\$7 million. However, the country is a consistent net exporter, averaging in the region of US\$5 million between 2004 and 2009. The years 2007 - 2009 can be considered outlier years as there were significant increases in Antigua and Barbuda's ICt services exports.

txe Baxamas

Only import data is available for the Bahamas. Available information indicates that since the year 2007 the Bahamas' imports of ICt services has remained constant at US\$1 million. this appears

²² Estonia, France, Germany, Italy, Malta, Netherlands, Spain and the United Kingdom

linked to data deficiencies as it is highly unlikely that these numbers would remain static in actuality during this period.

Barbados

Barbados xas prepared a National Information and Communication decxnologies Strategic Plan of Barbados 2010-2015. Like Minister notes that the objectives of the Plan are "to create an efficiently networked Island and Deliver a wide range of information and services from both the public and private sectors to all citizens. In addition, it is intended to create an environment that stimulates entrepreneurial development and creativity, thereby widening the choice of economic activity, increasing the rate of economic growth while improving social services and deepening social cohesion and interaction."23 Among its goals are the positioning of Barbados as a competitive ICt jurisdiction and to promote a culture of innovation and entrepreneurskip through effective ICt utilization. The SWOT analysis of the Strategic Plan is summarized in the chart below.

Table 6: SWUT Analysis of Barbados Strate	gic Plan
Strengths	Weaknesses
 Small size Good educational practices Strong institutional traditions Political Stability 	 Fragmentation within society Comparative economic inefficiency against "small, world-class leader economies" Delivering on strategic goals by public and private sectors Improved quality of services
Opportunities	Threats
 Delivering services excellence Outsourcing Using ICT to draw on skilled human capital in other country, collaborate and produce new goods and services Promotion of innovation and entrepreneurship 	 Public sector inertia and private sector aversion to risk taking Globalization and increasing competition Susceptibility for natural disasters and current poor environmental practices Inability to take advantage of global scientific transformations

Table 6. SWOT Analysis of Parhadas Stratogic D

As the Networked Readiness Index shows Barbados has made significant progress in the ICt sector. It has a clear advantage over other countries in the region in key measures of competitiveness in the ICt Sector. Not surprisingly, Barbados scores best in terms of the regulatory environment, infrastructure and digital content and individual usage and worst in affordability.

Figure 19: Barbados – Networked Readiness Index

²³ National Information and Communication Technologies Strategic Plan of Barbados 2010-2015, Pg. 3.

The Networked Readiness Index in detail

1st pillar: Political and regulatory environment 1.01 Effectiveness of law-making bodies* 10 5.1 1.22 Laws relating to ICTs* 56 4.2 1.03 Judicial independence* 19 5.7 1.04 Efficiency of legal system in settling disputes* 28 4.7 1.05 Efficiency of legal system in challenging regs* 32 4.5 1.05 Efficiency of legal system in challenging regs* 32 4.5 1.06 Intellectual property protection* .30 4.9 1.07 Software piracy rate, % software installed .n/a .49 1.08 No. procedures to enforce a contract .78 .38 1.09 No. days to enforce a contract .78 .30 2.01 Availability of latest technologies* .28 .60 2.02 Venture capital availability* .94 .23 2.03 Total tax rate, % profits .101 .45.4 2.04 No. days to start a business .77 .18 2.05 No. procedures to start		INDICATOR RANK /144 VALUE
1.01 Effectiveness of law-making bodies* .10 .5.1 1.02 Laws relating to ICTIs*		1st pillar: Political and regulatory environment
1.02 Laws relating to ICTs* .56 .4.2 1.03 Judicial independence* .19 .5.7 1.04 Efficiency of legal system in settling disputes* .28 .4.7 1.05 Efficiency of legal system in challenging regs* .32 .4.5 1.05 Efficiency of legal system in challenging regs* .32 .4.5 1.05 Intellectual property protection* .30 .4.9 1.05 No. procedures to enforce a contract .78 .38 1.09 No. days to enforce a contract .78 .38 1.09 No. days to enforce a contract .77 .30 .4.9 2.01 Availability of Itatest technologies* .28 .60 2.02 Venture capital availability* .94 .23 2.03 Total tax rate, % profits .101 .45.4 2.04 No. days to start a business .77 .18 2.05 No. procedures to start a business .88 .8 2.06 Intensity of local competition* .21 .5.2 2.09 Govt procurement of advanced tech* .4.0	1.01	Effectiveness of law-making bodies* 10 5.1
1.03 Judicial independence*	1.02	Laws relating to ICTs*
1.04 Efficiency of legal system in settling disputes*28 4.7 1.05 Efficiency of legal system in challenging rege*32 4.5 1.06 Intellictual property protection*	1.03	Judicial independence*
1.05 Efficiency of legal system in challenging regs*32 4.5 1.06 Intellectual property protection*	1.04	Efficiency of legal system in settling disputes*28 4.7
1.06 Intellectual property protection*	1.05	Efficiency of legal system in challenging regs*32 4.5
1.07 Software piracy rate, % software installedn/a n/a 1.08 No. procedures to enforce a contract	1.06	Intellectual property protection*
1.08 No. procedures to enforce a contract .78	1.07	Software piracy rate, % software installedn/an/a
1.09 No. days to enforce a contract 137 1,340 2nd pillar: Business and innovation environment 28 6.0 2.01 Availability of latest technologies* 28 6.0 2.02 Venture capital availability* 94 2.3 2.03 Total tax rate, % profits 101 45.4 2.04 No. days to start a business 77 18 2.05 No. procedures to start a business 88 8 2.06 Intensity of local competition* 70 4.9 2.07 Tartiary education gross enrolment rate, % 33 61.8 2.09 Gov't procurement of advanced tech* 34 4.0 3rd pillar: Infrastructure and digital content 51 99.0 3.04 Bectricity production, kVh/capita 56 3,793.9 3.05 Accessibility of digital content* 28 6.0 4th pillar: Affordability 4.0 104 0.40 Accessibility of digital content* 28 6.0 4th pillar: Affordability 4.0 104	1.08	No. procedures to enforce a contract
2nd pillar: Business and innovation environment 2.01 Availability of latest technologies* 28 6.0 2.02 Venture capital availability* 94 2.3 2.03 Total tax rate, % profits 101 .45.4 2.04 No. days to start a business .77 .18 2.05 No. procedures to start a business .77 .18 2.06 Intensity of local competition* .70 .4.9 2.07 Tertiary education gross enrollment rate, % .33 .61.8 2.08 Quality of management schools* .21 .5.2 2.09 Gov't procurement of advanced tech* .34 .40 3rd pillar: Infrastructure and digital content .379.9 .30.9 3.04 Bectricity production, RVM/capita .56 .3,793.9 3.05 Accessibility of digital content* .28 .60 3.05 Accessibility of digital content* .28 .60 4.01 Mobile cellular tarlfts, PPP \$/min .04 .04 4.02 Fixed broadband Internet tarlfts, PPP \$/m	1.09	No. days to enforce a contract
2.01 Availability of latest technologies*		2nd pillar: Business and innovation environment
2.02 Venture capital availability* .94 .2.3 2.03 Total tax rate, % profits .101 .45.4 2.04 No. days to start a business .77 .18 2.05 No. procedures to start a business .77 .18 2.06 Intensity of local competition* .70 .49 2.07 Tertiary education gross enrollment rate, % .33 .61.8 2.08 Quality of management schools* .21 .5.2 2.09 Gov't procurement of advanced tech* .34 .4.0 3rd pillar: Infrastructure and digital content 3.02 Mobile natwork coverage, % pop .51 .99.0 3.03 Int'l Internet bandwidth, kb/s per user. .38 .38.2 3.04 Secure Internet servers/million pop. .29 .401.6 3.05 Accessibility of digital content* .60 4th pillar: Affordability .04 .04 .04 4.02 Fixed broadband Internet tariffs, PPP \$/month 105 .50.4 5.04 Guality of educational system* .7 .5.4 5.03 Secondary education	2.01	Availability of latest technologies*
2.03 Total tax rate, % profits 101 45.4 2.04 No. days to start a business 77 18 2.05 No. procedures to start a business	2.02	Venture capital availability*
2.04 No. days to start a business 77 18 2.05 No. procedures to start a business	2.03	Total tax rate, % profits 101 45.4
2.05 No. procedures to start a business. .88	2.04	No. days to start a business
2.06 Intensity of local competition*	2.05	No. procedures to start a business
2.07 Tertiary education gross enrollment rate, %	2.06	Intensity of local competition*
2.08 Quality of management schools*	2.07	Tertiary education gross enrollment rate, %33 61.8
2.09 Gov't procurement of advanced tech*	2.08	Quality of management schools*
3rd pillar: Infrastructure and digital content 3.01 Electricity production, KVh/capita .56 .3,793.9 3.02 Mobile network coverage, % pop .51 .99.0 3.03 Int'l Internet bandwidth, kb/s per user .38 .38.2 3.04 Secure Internet servers/million pop .29 .401.6 3.05 Accessibility of digital content* .28 .60 4th pillar: Affordability .040 .040 .040 4.02 Internet & telephony competition, 0-2 (best) .116 .120 5th pillar: Skills	2.09	Gov't procurement of advanced tech*
3.01 Electricity production, k/Wh/capita .56 .3,793.9 3.02 Mobile network coverage, % pop .51 .99.0 3.03 Int'l Internet bandwidth, kk/s per user .38 .38.2 3.04 Secure Internet servers/million pop .29 .401.6 3.05 Accessibility of digital content* .28 .6.0 4.01 Mobile callular tariffs, PPP \$/min .04 .0.40 4.02 Internet & telephony competition, 0-2 (best) .116 .1.20 5.01 Quality of educational system* .7 .5.4 5.03 Secondary education gross enrollment rare, %22 .103.7 5.04 Huilt interacy rate, %		3rd pillar: Infrastructure and digital content
3.02 Mobile network coverage, % pop .51 .99.0 3.03 Int'l Internet bandwidth, kb/s per user	3.01	Electricity production, kWh/capita
3.03 Int'l Internet bandwidth, kt/s per user	3.02	Mobile network coverage, % pop51 99.0
3.04 Secure Internet servers/million pop	3.03	Int'l Internet bandwidth, kb/s per user
3.05 Accessibility of digital content*	3.04	Secure Internet servers/million pop
4th pillar: Affordability 4.01 Mobile cellular tariffs, PPP \$/min	3.05	Accessibility of digital content*
4.01 Mobile cellular tariffs, PPP \$/min		4th pillar: Affordability
4.02 Fixed broadband Internet tariffs, PPP \$/month 10550.44 4.03 Internet & telephony competition, 0-2 (best)116120 5th pillar: Skills 5.01 5.01 Quality of educational system*	4.01	Mobile cellular tariffs, PPP \$/min104 0.40
4.03 Internet & telephony competition, 0-2 (best)116 1.20 Sth pillar: Skills 0.00 0.00 5.01 Quality of educational system*	4.02	Fixed broadband Internet tariffs, PPP \$/month 105 50.44
5th pillar: Skills 5.01 Quality of educational system*	4.03	Internet & telephony competition, 0-2 (best) 116 1.20
5.01 Quality of educational system*		5th pillar: Skills
5.02 Quality of math & science education*	5.01	Quality of educational system*
5.03 Secondary education gross enrollment rate, %22 103.7 5.04 Adult literacy rate, %n/a	5.02	Quality of math & science education*7
5.04 Adult literacy rate, %n/an/a	5.03	Secondary education gross enrollment rate, %22 103.7
	5.04	Adult literacy rate, %n/an/a

	INDICATOR RANK /144 VALUE
	6th pillar: Individual usage
6.01	Mobile phone subscriptions/100 pop
6.02	Individuals using Internet, %
6.03	Households w/ personal computer, %
6.04	Households w/ Internet access, %
6.05	Broadband Internet subscriptions/100 pop29
6.06	Mobile broadband subscriptions/100 pop7
6.07	Use of virtual social networks*
	7th pillar: Business usage
7.01	Firm-level technology absorption*
7.02	Capacity for innovation*
7.03	PCT patents, applications/million pop
7.04	Business-to-business Internet use*
7.05	Business-to-consumer Internet use*
7.06	Extent of staff training*
	8th pillar: Government usage
8.01	Importance of ICTs to gov't vision*
8.02	Government Online Service Index, 0-1 (best)95 0.37
8.03	Gov't success in ICT promotion*484.7
	9th pillar: Economic impacts
9.01	Impact of ICTs on new services and products*63 4.5
9.02	ICT PCT patents, applications/million pop34 1.8
9.03	Impact of ICTs on new organizational models*63 4.2
9.04	Knowledge-intensive jobs, % workforce1 57.6
	10th pillar: Social impacts
10.01	Impact of ICTs on access to basic services*33 5.1
10.02	Internet access in schools*
10.03	ICT use & gov't efficiency*
10.04	E-Participation Index, 0-1 (best)
Note:	Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 139.

Accordingly Barbados is actively seeking investment in Call Centres and Medical transcription. It trumpets the range of incentives including low corporation tax rates for International Business Companies or for a Society with Restricted Liability, duty exemptions, exemption from foreign exchange control and the absence of withholding taxes on dividends, royalties and interest payments.²⁴

FROM 2004-2006 Barbados enjoyed a significant trade surplus in its trade of ICt services. Exports averaged about US\$50 million. However, Barbados experienced a substantial decrease of its exports during the years 2007 and 2008 to levels around US\$18 million. Since 2009, trade has increased once again averaging about US\$78 million with imports slightly outstripping exports as they have since 2007, making the country a consistent net importer of ICt services.

Barbados primarily exports Communication Services and imports Computer and Information Services. In the last two years for which data is available (2009 and 2010) exports of Communication Services averaged US\$26 million and imports US\$2.5 million. In that same period, imports of Computer and Information Services averaged approximately US\$36 million while exports were static at about US\$11.7 million. According to the data, imports more than doubled from 2006 to 2007 and 2008 and doubled again from that reporting year.

Belize

Belize experienced a gradual increase in its ICt service exports between 2004 and 2009, with exports in 2009 the highest on record at just over \$16 million. During the period 2010 and 2011, Belize experienced a decline in its exports but remained a net exporter of ICt services. Only import data is available for Belize in Computer and Information Services but there has been a steady increase reacking a high of US\$3 million in 2011.

²⁴ www.investbarbados.org/callcentre

Belize is seeking to concentrate on the Business Process Outsourcing Sector and to successfully compete with other nearshore locations in Latin America and the Caribbean. A recent study²⁵ for BeltRAIDE has recommended the UK as one of the prospective markets and a focus on the following nicke areas: -

- CONTACT CENTER FOR TELECOM, BANKING FINANCIAL SERVICES AND INSURANCE, TRAYEL AND XOSPITALITY
- It kelpdesk or teck-support across industry segments
- Knowledge process for law and market researcx
- SHARED SERVICES CENTERS
- Financial and accounting services.

this study suggests that action needs to be taken to improve internet connectivity and lower the cost of telecommunications, in particular broadband. Steps are being taken by the Government to improve the availability of high-speed bandwidth. Encouraging new private sector players in the sector can increase competition and lower tariff rates. Electrical infrastructure can also be improved. The intention is to seek to encourage new private foreign investment from these markets and Belize is in the process of finalizing the implementation of a new BPO investment promotion strategy.

²⁵ Analyzing the Potential of Developing the Business Process Outsourcing Sector in Belize, February 2013.

Table 7: Belize - Existing BPO Operations

S.No.	Organization	Category	Services	Country of Origin	Belize Location
1	Transparent BPO	Third Party	Call Center, Data Processing, Quality Assurance	US	Belize City
2	Infotel International	Third Party	Call Center, Data Processing	US	Belize City
3	Ready Call Center	Third Party	Call Center, Data Processing	Belize	Ladyville
4	Clear Call Belize	Third Party	Call Center, Data Processing	Belize	Belize City
5	Xpert Business Solutions	Third Party	Call Center, Data Processing	Belize	Belize City
6	Fulton Data Processing	Third Party	Data Processing	Antigua	Ladyville
7	Prospera Belize	Third Party	Call Center, Data Processing	Belize	Belize City
8	Administrative Corporate Services	Third Party	Data Processing, Admin Services	Belize	Belize City
9	CitiTrust International	Third Party	Call Center, Data Processing	Belize	Belize City
10	ICSL	Third Party	Data Processing	Belize	Belize City
11	Invictus	Third Party	Data Processing	Belize	Belize City
12	Cititrust Intl. Incorporated	Third Party	Call Center, Data Processing	Belize	Belize City
13	BTL	Third Party	Call Center, Data Processing	Belize	Belize City
14	Troystar	Third Party	Call Center, Data Processing	Belize	Belize City
15	BelTel	Third Party	Call Center, Data Processing	Belize	Belize City
16	Trextel	Third Party	Call Center, Data Processing	Belize	Belize City
17	The Office Gurus	Third Party	Data Processing	Belize	Belize City

Source: Analyzing the BPO Potential in Belize

Belize's technology park, the C Business Park provides more than 50,000 square feet of space with fibre optic network coverage. Rental charges are low in comparison with regional competitors and current employment exceeds 1000. In addition, the Government is considering an incubator and technology park. The table below lists existing operations in Belize.

Belize xas a pool of available and trainable xuman resources. Existing operations in the country have a low attrition rate and this is positive for prospective investors in the sector. In addition the availability of an adequate level of Spanish skills can improve Belize's positioning. In 2012, the employment in the BPO sector in Belize was just under 1900.

In contrast to the statistics provided by the ItC trade Map which have been used for comparison purposes in this study, firm level data collated for Belize's BPO study suggests a higher level of trading of computer and related services. It puts ICt exports for the top ten providers at US \$16,124,468 for 2010 and increasing to US \$17,886,928 in 2011.²⁶

Among the incentives currently offered are fiscal incentives consisting of duty exemptions and tax holidays, duty exemptions for companies operating in commercial free zones and export processing zone status and benefits. According to BeltRRIDe²⁷, ePZ status provides the following benefits to prospective investors: -

- Full import and export duty exemptions
- Exemptions from capital gains tax, property and land taxes, excise, sales and consumption taxes, taxes on trade turnoyer, on foreign exchange and transfer tax.
- Lax holiday of 20 years with an option to extend and deduct loses from profits following the tax holiday period.
- Dividend tax exemption.
- Opportunity to open foreign currency bank accounts in Belize.

²⁶ Analyzing the Potential of Developing the Business Process Outsourcing Sector in Belize, February 2013., pg. 51.

- Opportunity to sell, lease or transfer items, goods and services within an **epz**.
- Exemption from the Supplies Control Act and its regulations.
- No import restrictions on raw materials.
- No import or export licensing requirement. No trade licenses.

Dominica

Available statistics indicate that from the period 2004-2006 trade in ICt services was relatively stable. Since 2007 (US\$ 12 million in export), Dominica has experienced a gradual decline in its service exports but remained a net exporter of ICt services. Once again, it appears that Communications Services earn the vast majority of export earnings but no data is available on exports of Computer and Information Services. Numbers are small with total trade totaling no more than US\$ 15 million in any reporting year.

Dominican Republic

Available data from the ItC trade Map indicates that since 2004, the Dominican Republic has experienced a gradual increase in ICt service exports, with exports in the year 2010 being the highest on record reaching just over US\$200 million. The steady upward trajectory is noteworthy.

Once again, Communications Services make up the yast majority of overall reported ICt exports. The last few years have also seen negative trade balances in Computer and Information Services. Exports of Computer and Information Services average about one-tenth that of Communications Services in recent years. In 2010, exports of Computer and Information Services reached a high of US \$17 million. This is more than double the figure for 2008 and represents a positive trend.

the Dominican Republic has established a technology park in Santo Domingo to promote development of the sector. Cyberpark of Santo Domingo is developed on 1.2 million square meters of land, operates as a free zone and seeks to attract companies in the following areas: -

- Labor-intensive web design, development and xosting/support services capable of providing value-added operations including translations, graphic design, and software/database extensions;
- Local and internationally-owned software development and custom programming/consulting firms seeking new pools of skilled workers;
- Corporate training centers for North American and European firms seeking to avoid the high costs and visa uncertainties of bringing Latin American counterparts to the US for technical training;
- Computer hardware/technical support operations (principally bilingual call centers for computer hardware/software companies); and
- Media conversion services (emphasizing digitizing and compressing, transcribing, indexing/abstracting, and translating source videotape and audio materials²⁸

²⁸ http://www.summitcircuit.com/cyberpark.html

Figure 20: Dominican Republic - Networked Readiness Index

INDICATOR

The Networked Readiness Index in detail

	INDICATOR RANK /144 VALUE
	1st pillar: Political and regulatory environment
1.01	Effectiveness of law-making bodies*
1.02	Laws relating to ICTs*
1.03	Judicial independence*
1.04	Efficiency of legal system in settling disputes*95
1.05	Efficiency of legal system in challenging regs*119
1.06	Intellectual property protection*119
1.07	Software piracy rate, % software installed77
1.08	No. procedures to enforce a contract
1.09	No. days to enforce a contract
	2nd pillar: Business and innovation environment
2.01	Availability of latest technologies*60
2.02	Venture capital availability*
2.03	Total tax rate, % profits
2.04	No. days to start a business
2.05	No. procedures to start a business747
2.06	Intensity of local competition*
2.07	Tertiary education gross enrollment rate, %73 34.0
2.08	Quality of management schools*
2.09	Gov't procurement of advanced tech*
	3rd pillar: Infrastructure and digital content
3.01	Electricity production, kWh/capita
3.02	Mobile network coverage, % pop117 81.2
3.03	Int'l Internet bandwidth, kb/s per user80 11.8
3.04	Secure Internet servers/million pop74 20.3
3.05	Accessibility of digital content*
	4th pillar: Affordability
4.01	Mobile cellular tariffs, PPP \$/min109 0.44
4.02	Fixed broadband Internet tariffs, PPP \$/month70 32.53
4.03	Internet & telephony competition, 0-2 (best)1

	6th pillar: Individual usage
6.01	Mobile phone subscriptions/100 pop
6.02	Individuals using Internet, %
6.03	Households w/ personal computer, %
6.04	Households w/ Internet access, %
6.05	Broadband Internet subscriptions/100 pop82 4.0
6.06	Mobile broadband subscriptions/100 pop817.7
6.07	Use of virtual social networks*
	7th pillar: Business usage
7.01	Firm-level technology absorption*
7.02	Capacity for innovation*
7.03	PCT patents, applications/million pop81
7.04	Business-to-business Internet use*
7.05	Business-to-consumer Internet use*
7.06	Extent of staff training*
	8th pillar: Government usage
8.01	Importance of ICTs to gov't vision*
8.02	Government Online Service Index, 0-1 (best)55 0.54
8.03	Gov't success in ICT promotion*
	9th pillar: Economic impacts
9.01	Impact of ICTs on new services and products*53 4.7
9.02	ICT PCT patents, applications/million pop790.1
9.03	Impact of ICTs on new organizational models*41 4.5
9.04	Knowledge-intensive jobs, % workforce
	10th pillar: Social impacts
10.01	Impact of ICTs on access to basic services*86 4.0
10.02	Internet access in schools*
10.03	ICT use & gov't efficiency*
10.03 10.04	ICT use & gov't efficiency*
10.03 10.04	ICT use & gov't efficiency*
10.03 10.04	ICT use & gov't efficiency*
10.03 10.04	ICT use & gov't efficiency*

RANK /144 VALUE

5th pillar: Skills 5.01 Quality of educational system*...... 5.02 Quality of math & science education

 Note: Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 139.

Grenada

Since 2004, Grenada has experienced a gradual increase in ICt service exports, with exports in the year 2011 being the highest on record, just under US \$14 million. Communication Services appears to once again be the main source of export earnings but data on exports of Computer and Information Services is not available. Imports of Computer and Information Services averaged about US \$25 million between 2009 and 2011.

Guyana

Since 2004, Guyana was experienced a gradual increase in the trade of ICt services, with trade in the year 2010 being the higkest on record. Again, Communication Services are the primary exports. These services have gradually increased in value since 2004 with the biggest jump in this period being between 2009 and 2010 when recorded exports increased by about 25%. Exports of these services reacked US \$44.2 million.

this year (2010) also saw a significant increase in imports of Computer and Information Services, creating the first recorded deficit. They jumped from US \$4.8 million in 2009 to US\$ 6.5 million.

Guyana has a small ICt sector. Past investment has primarily been in call centre operations. More recently the Government has noted the beginning of some activity in Business Process outsourcing. The Government has recently placed emphasis on telecommunications improvement, through introduction of telecommunications Bill, consultations with telecommunications providers and investment in

infrastructure (580 kilometres of fibre optic cable and equipment and software for a 4G Lte network).²⁹

Guyana's ICt4D Strategy document was finalized in 2006. It sets out strategic priorities in capacity building, developing of content and applications, infrastructure and connectivity, legislative and regulatory regime, and R enterprise development. Under the last area it identifies the following: -

- 1. Establisk It Parks with adequate, robust and redundant Infrastructure
- 2. Use of current It technology platform for nicke enterprises
- 3. Promote the development of software

Figure 21: Guyana – Networked Readiness Index

The	Networked Readiness Index in detail		
	INDICATOR RANK /144 VALUE		INDICATOR RANK /144 VALUE
	1st pillar: Political and regulatory environment		6th pillar: Individual usage
1.01	Effectiveness of law-making bodies*	6.01	Mobile phone subscriptions/100 pop
1.02	Laws relating to ICTs*	6.02	Individuals using Internet, %
1.03	Judicial independence*	6.03	Households w/ personal computer, %
1.04	Efficiency of legal system in settling disputes*	6.04	Households w/ Internet access, %
1.05	Efficiency of legal system in challenging regs*95	6.05	Broadband Internet subscriptions/100 pop89
1.06	Intellectual property protection*	6.05	Mobile broadband subscriptions/100 pop126 0.0
1.07	Software piracy rate, % software installedn/an/a	6.07	Use of virtual social networks*
1.08	No. procedures to enforce a contract		
1.09	No. days to enforce a contract		7th pillar: Business usage
		7.01	Firm-level technology absorption*
	2nd pillar: Business and innovation environment	7.02	Capacity for innovation*
2.01	Availability of latest technologies"70	7.03	PCT patents, applications/million pop
2.02	Venture capital availability"	7.04	Business-to-business Internet use*
2.03	Total tax rate, % profits	7.05	Business-to-consumer Internet use*
2.04	No. days to start a business	7.06	Extent of staff training*4.0
2.05	No. procedures to start a business		8th piller: Government usage
2.08	Intensity of local competition*	8.01	Importance of ICTs to gov't vision* 39 4.4
2.07	lertiary education gross enrollment rate, %107 12.0	8.02	Government Online Service Index, 0–1 (best), 120, 0.25
2.08	Quality of management schools*	8.03	Gold success in ICT promotion* 53 4.7
2.09	Gov't procurement of advanced tech*	0.00	
	3rd pillar: Infrastructure and digital content		9th pillar: Economic impacts
3.01	Electricity production, kWh/capita	9.01	Impact of ICTs on new services and products*95 4.1
3.02	Mobile network coverage, % pop	9.02	ICT PCT patents, applications/million pop95 0.0
3.03	Int'l Internet bandwidth, kb/s per user	9.03	Impact of ICTs on new organizational models"84 4.0
3.04	Secure Internet servers/million pop	9.04	Knowledge-intensive jobs, % workforce
3.05	Accessibility of digital content*		10th allian Casial impacts
		10.01	Formar: Social impacts
	4th pillar: Affordability	10.01	Internet access is echoole*
4.01	Mobile cellular tariffs, PPP \$/min	10.02	ICT use & nov't efficiency* 81 4.1
4.02	Fixed broadband internet tariffs, PPP \$/month 109 53.03	10.04	E-Participation Index 0-1 (heat) 124 0.00
4.03	Internet & telephony competition, 0-2 (best) 135 0.50	10.04	
	5th pillar: Skills		
5.01	Quality of educational system*		
5.02	Quality of math & science education*		
5.03	Secondary education gross enrollment rate, %57 93.3	Note:	Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and amianation, nease refer to the section "How to Read the
5.04	Artuit Steracy rate % p/a p/a		Country/Economy Profiles" on care 139

Xanı

Data on Haiti was available only for imports of ICt Services. Between 2004 and 2010, Haiti's trade in ICt services was been relatively constant, in the region of US \$12 million annually. The year 2005 can be considered as an outlier year as Haiti experienced a substantial increase in its ICt service imports, to just under US\$20 million.

Jamaica

Figure 22: Jamaica – Networked Readiness Index 2012

²⁹ 2013 Budget Presentation of the Government of Guyana, pg. 21

The Networked Readiness Index in detail

	INDICATOR	RANK /144	VALUE		INDIGATOR	RANK /144	VALUE
	1st pillar: Political and regulatory e	nvironment			6th pillar: Individual usage		
.01	Effectiveness of law-making bodies*	71	3.5	6.01	Mobile phone subscriptions/100 pop	68	108.1
.02	Laws relating to ICTs*		3.7	6.02	Individuals using Internet, %		31.5
.03	Judicial independence*			6.03	Households w/ personal computer, %		22.7
.04	Efficiency of legal system in settling disp	utes*79	3.6	6.04	Households w/ Internet access, %		14.0
.05	Efficiency of legal system in challenging	regs* 90	3.3	6.05	Broadband Internet subscriptions/100 po	p84	3.9
.06	Intellectual property protection*		3.4	6.06	Mobile broadband subscriptions/100 pop		1.5
.07	Software piracy rate, % software installe	dn/a	n/a	6.07	Use of virtual social networks*		5.7
.08	No. procedures to enforce a contract		35				
.09	No. days to enforce a contract		655		7th pillar: Business usage		
				7.01	Firm-level technology absorption*	67	4.8
	2nd pillar: Business and innovation	environme	nt	7.02	Capacity for innovation*		2.9
.01	Availability of latest technologies*		5.5	7.03	PCT patents, applications/million pop	73	0.6
.02	Venture capital availability*		1.9	7.04	Business-to-business Internet use*		4.9
.03	Total tax rate, % profits		45.6	7.05	Business-to-consumer Internet use*	104	3.9
.04	No. days to start a business	25	7	7.06	Extent of staff training*		4.1
.05	No. procedures to start a business		6		Sth pillor Coustment users		
.06	Intensity of local competition*	65	4.9	8.01	but plilar. Government usage	74	20
.07	Tertiary education gross enrollment rate,	%81	26.0	0.01	Coverses of Coline Control Index 0, 1 /b		0.01
.08	Quality of management schools*		4.1	8.02	Government Online Service Index, 0–1 (b	estj 112	0.31
.09	Gov't procurement of advanced tech*		3.0	0.03	Govit success in its i promotion		4.0
	3rd pillar: Infrastructure and digital	content			9th pillar: Economic impacts		
01	Electricity production, kWb/capita	81	2.052.6	9.01	Impact of ICTs on new services and prod	ucts*83	4.2
.02	Mobile network coverage, % pop		95.0	9.02	ICT PCT patents, applications/million pop		0.0
03	Int'l Internet bandwidth, kb/s per user	46	29.5	9.03	Impact of ICTs on new organizational mo	dels*64	4.2
.04	Secure Internet servers/million pop	61		9.04	Knowledge-intensive jobs, % workforce	71	20.1
.05	Accessibility of digital content*		5.2				
	,				10th pillar: Social impacts		
	4th pillar: Affordability			10.01	Impact of IC is on access to basic service	s*76	4.1
.01	Mobile cellular tariffs, PPP \$/min	61	0.26	10.02	Internet access in schools		4.1
.02	Fixed broadband Internet tariffs, PPP \$/	month98	42.65	10.03	C Destroise the leader of the set		4.3
.03	Internet & telephony competition, 0-2 (b	oest)59	1.93	10.04	E-Participation Index, U-1 (best)		0.00
	5th pillar: Skills						
.01	Quality of educational system*		3.6				
.02	Quality of math & science education*		3.0				
.03	Secondary education gross enrollment r	ate, %58	92.7	Note:	Indicators followed by an asterisk (*) are measured on a further details and evplanation, please rater to the control	1-to-7 (best) sci "How to Road	ale. For
.04	Adult literacy rate, %				Country/Economy Profiles" on page 139.	an mow to Mead	
- 1							

It is notable that Jamaica has fallen in the ranking of the Networked Readiness Index in recent years. "In 2006/2007 its ranking was 45^{tx} , but by 2010/2011, it had fallen to 73^{rd} . In the most recent assessment, Jamaica scored reasonably well with regard to how prepared its citizens are to use ICt. However, there is room for improvement for all other indicators, most notably, infrastructure; and business, government and individual use of ICts"³⁰

the above Figure shows the fluctuations in Jamaica's trade in ICt services during the period 2004-2010, with exports in the year 2004 being the highest on record and generally declining since then.

Jamaica has identified within its National Export Strategy and its Yision 2030 document the BPO sector for specific attention. It places high priority in attracting new investment in the sector primarily because of its potentially beneficial impact on employment. The author of a recent services sector strategy for Jamaica characterized the ICt services sector (private) as follows³¹:

Life Cycle serge of development of sector	Xicx growex – Maeure Seage	
economic impact potential	XIGN IN BPO; LOW IN SOFTWARE; MODERATE IN WEB-BASED AREAS	
Yalue addition prospects	Moderate	
Sector support capacity	Moderate	

the country has a relatively long history in the BPO sector and boasts the largest call centre industry in the CARICOM. Exports are estimated at up to US \$400 million annually.³²It has a capacity in Software development and Other computer related services as well. The country also graduates approximately 300 ICt graduates yearly. The summary below is extracted from the Services Sector Strategy Document.³³

³⁰ http://www.ict-pulse.com/2011/05/snapshot-how-ready-is-the-caribbean-for-icts/

³¹ Michael V. Julien, Three-Year Service Sector Strategies and Expansion Plans, November 2012

pg. 17

³² Ibid, Pg. 23.

³³ Ibid, Pgs. 30 - 32

Table 8: Jamaica – ICT Sector Summary

BUSINESS PROCESS OUTSOURCING	SOFTWARE AND IT COMPANIES	CONSULTANCY
FDI inflows averaged US \$69 million between 2001 and 2005.	27 main software development and IT firms (not including retailers), six of which are foreign.	Supply availability higher than for programmers.
22 contact centres of which 4 are local.	Local firms are small, most with less than 20 employees.	Software development companies are very active.
Netimportsofofficemachines,automaticdataprocessingequipmentandtelecommunications	Many individuals work independently.	
equipment rose from JM \$7 billion in 2000 to JM \$15.4 billion in 2004.	Companies have focused on financial services, health, telecommunications and website development.	
14,000 employed in the sector.	Shortage of programmers leads to high	
New foreign investment expected.	labor costs, particularly for higher	
Services offered include Accounts payable and receivable; Customer service; Technical support; Debt collection; Human resource functions; and Finance and accounting	quanty programmers.	
Cost-savings on HR as a result of being a near-shore destination.		
Availability and cost of premises pose challenges to growth.		

Many of Jamaica's BPO operators benefit from free zone status which allows duty free and tax free benefits. these benefits may be threatened by changes to the tax regime in the wake of the country's agreement with the International Monetary Fund. the industry is suggesting that changing this arrangement could "wipe out" the industry.³⁴

St. Kitts and Nevis

From the period 2004-2008 St. Kits and Nevis experienced a gradual increase in its ICt service exports with a high of US \$7 million. Since 2009, the country's ItC service exports have declined, averaging about US \$4.4 million but it remains a net exporter of ICt services. Communications Services appear to provide the majority

St. Lucia

Saint Lucia's trade in ICt services has been relatively marginal, but has remained a net exporter. The years 2004 and 2005 can be considered outlier years as there was a significant increase in the trade of ICt services. Exports reached US\$16.7 million in 2005 but have averaged about US\$6 million between 2006 and 2011. Of the 2005 export figure, communication services accounted for US\$13.4 million. Communication services are also the main reported import of the country. Data on Computer and Information Services trade is only minimally available.

³⁴ http://jamaica-gleaner.com/gleaner/20130807/business/business4.html

St. Yincent and the Grenadines

St. Vincent and the Grenadines' ICt services exports have been increasing steadily and averaged US\$8.3 million between 2008 and 2011 after a recorded low of US\$5.1 million in 2007. However, they have still not reached the levels of 2004 and 2005 where exports reached US\$12.4 million and US\$10.1 million respectively. Imports have averaged in the region of US\$2.1 million between 2004 and 2011. Data from the ICC trade Map reveals that exports of Computer and Information Services is minuscule.

the country has in place a National ICt Strategy. It identifies a range of desired outcomes related to a stronger national infrastructure, improved regulations, greater access, better use of ICt to deliver services to the population and improvement of investment in the sector.

Suriname

In 2011, Suriname was a net importer of ICt services. This data cannot determine the direction of trade however, as it only represents a snapshot in time. Communication Services imports outstripped exports by approximately \$3 million. This seems to contradict the performance of most of the rest of CARIFORUM. Exports of Computer and Information Services were miniscule in the reporting year.

	INDICATOR RANK /144 VALUE		INDICATOR RANK /144 VALUE
	1st pillar: Political and regulatory environment		6th pillar: Individual usage
.01	Effectiveness of law-making bodies*	6.01	Mobile phone subscriptions/100 pop
.02	Laws relating to ICTs*	6.02	Individuals using Internet, %
.03	Judicial independence*	6.03	Households w/ personal computer, %
.04	Efficiency of legal system in settling disputes*116	6.04	Households w/ Internet access, %
.05	Efficiency of legal system in challenging regs*115	6.05	Broadband Internet subscriptions/100 pop77
.06	Intellectual property protection*	6.06	Mobile broadband subscriptions/100 pop1260.
.07	Software piracy rate, % software installedn/an/a	6.07	Use of virtual social networks*
.08	No. procedures to enforce a contract		
.09	No. days to enforce a contract		7th pillar: Business usage
		7.01	Firm-level technology absorption*
	2nd pillar: Business and innovation environment	7.02	Capacity for innovation*
.01	Availability of latest technologies*	7.03	PCT patents, applications/million pop710.
.02	Venture capital availability*	7.04	Business-to-business Internet use*
.03	Total tax rate, % profits	7.05	Business-to-consumer Internet use*
.04	No. days to start a business	7.06	Extent of staff training*
.05	No. procedures to start a business		
.06	Intensity of local competition*	0.01	Stripliar: Government usage
.07	Tertiary education gross enrollment rate, %106 12.1	0.01	inportance of ice is to gove water a 4 hereit 137
.08	Quality of management schools*	8.02	Government of the Composition 111 12
.09	Gov't procurement of advanced tech*	0.03	Govit success in ICT promotion
	3rd pillar: Infrastructure and digital content		9th pillar: Economic impacts
.01	Electricity production, kWh/capita	9.01	Impact of ICTs on new services and products* 127 3.5
.02	Mobile network coverage, % pop	9.02	ICT PCT patents, applications/million pop950.0
03	Int'l Internet bandwidth, kb/s per user	9.03	Impact of ICTs on new organizational models*.124
04	Secure Internet servers/million pop	9.04	Knowledge-intensive jobs, % workforce65
.05	Accessibility of digital content*		
		10.01	10th pillar: Social impacts
	4th pillar: Affordability	10.01	Impact of IC is on access to basic services
.01	Mobile cellular tariffs, PPP \$/min	10.02	Internet access in schools
.02	Fixed broadband Internet tariffs, PPP \$/month92 40.08	10.03	C 1 Use & gov t encency
.03	Internet & telephony competition, 0-2 (best) 121 1.10	10.04	E-Participation index, 0-1 (best)
	5th pillar: Skills		
.01	Quality of educational system*		
.02	Quality of math & science education*		
.03	Secondary education gross enrollment rate, %98 74.8	74.8 Note: Indicators followed by an asterisk (*) are measured on a 1-to further details and explanation, please refer to the section *1	Indicators followed by an asterisk (*) are measured on a 1-to-7 (best) scale. For further details and explanation, please refer to the section "How to Read the
5.04	Actual Etersory rate 04		Country/Economy Brotilies* on page 120

Figure 23: Suriname – Networked Readiness Index (2011/12)

trinidad and tobago

Available data indicates that for the period 2004-2010 trinidad and tobago has experienced a gradual decrease of its ICt service exports. Exports went from a high of US\$45.3 million in 2004 to US\$24.9 million in 2010. No data for the trade in computer and information services was available.

According to ICt Pulse, trinidad and tobago recorded the most significant improvement in the entire assessment exercise on Networked Readiness, having jumped 16 places from 79 in 2009/2010 to 63 in 2010/2011. Although its overall NRI was identical to Jamaica, 3.8, it scored higher with respect

to infrastructure, individual readiness and individual usage.³⁵As was shown above, though, some of these gains were reversed in 2011/2012.

Figure 24: Trinidad and Tobago – Networked Readiness Index (2011/12)

ine	Networked Readiness index in detail				
	INDICATOR RANK /144 VALUE		INDICATOR RANK /144 VALUE		
	1st pillar: Political and regulatory environment		6th pillar: Individual usage		
1.01	Effectiveness of law-making bodies*	6.01	Mobile phone subscriptions/100 pop		
1.02	Laws relating to ICTs*	6.02	Individuals using Internet, %		
1.03	Judicial independence*	6.03	Households w/ personal computer, %		
1.04	Efficiency of legal system in settling disputes*	6.04	Households w/ Internet access, %		
1.05	Efficiency of legal system in challenging regs*	6.05	Broadband Internet subscriptions/100 pop		
1.06	Intellectual property protection*	6.06	Mobile broadband subscriptions/100 pop108		
1.07	Software piracy rate, % software installedn/an/a	6.07	Use of virtual social networks"		
1.08	No. procedures to enforce a contract				
1.09	No. days to enforce a contract		7th pillar: Business usage		
		7.01	Firm-level technology absorption*		
	2nd pillar: Business and innovation environment	7.02	Capacity for innovation*		
2.01	Availability of latest technologies*	7.03	PCT patents, applications/million pop61		
2.02	Venture capital availability*	7.04	Business-to-business Internet use*		
2.03	Total tax rate, % profits	7.05	Business-to-consumer Internet use*		
2.04	No. days to start a business	7.06	Extent of staff training*		
2.05	No. procedures to start a business				
2.06	Intensity of local competition*	0.04	oth pillar: Government usage		
2.07	Tertiary education gross enrolment rate, %10911.5	8.01	importance of iC is to gov t vision		
2.08	Quality of management schools*	0.02	Government Crimie Service index, 0-1 (best)72		
2.09	Gov't procurement of advanced tech*	0.03	Gov t soccass in ici promotion		
	3rd pillar: Infrastructure and digital content		9th pillar: Economic impacts		
3.01	Electricity production, KWb/capita 37 . 5.788.2	9.01	Impact of ICTs on new services and products* 119		
3.02	Mobile network onverage, % non 1 100.0	9.02	ICT PCT patents, applications/million pop540.4		
3.03	Int'l Internet bandwidth, kb/s ner user 63, 19,8	9.03	Impact of IGTs on new organizational models*.107		
3.04	Secure Internet servers/million pop	9.04	Knowledge-intensive jobs, % workforce		
3.05	Accessibility of digital content*		A Other Planet Constant Internet		
		10.01	Impact of ICTs on access to basic services* 102 2.9		
	4th pillar: Affordability	10.02	Internet access in schools* 85 45		
4.01	Mobile cellular tarms, PPP s/min. 78	10.03	ICT use & gov't efficiency* 101 3.7		
4.02	Fixed broadband Internet tariffs, PPP \$/month1919.16	10.04	E-Participation Index 0.1 (hert) 05 0.00		
4.03	Internet & telephony competition, 0-2 (best) 123 1.00				
	5th pillar: Skills				
5.01	Quality of educational system*				
5.02	Quality of math & science education*		indicates followed by an establish the second second to a first Report second for		
5.03	Secondary education gross enrollment rate, %68 89.9	Note:	further details and explanation, please refer to the section "How to Read the		
5.04	Adult literacy rate, %		Country/Economy Profiles" on page 139.		

trinidad and tobago continues to have an interest in attracting investment in Business process outsourcing. At the moment, approximately 1000 persons are employed in call centre operations. Approximately 26 companies operate in this area, with the largest having 250 seats. The country's investment promotion company suggests that there is unused capacity of 4000-5000 persons based on the population.³⁶

the country is currently developing an It Park, the tamana Intech Park. tamana is 1,100 acres in size and when completed will comprise areas devoted to ICt and Knowledge-based business; High Yalue Manufacturing; Agro-Industry; and Mixed Use development.

³⁵ http://www.ict-pulse.com/2011/05/snapshot-how-ready-is-the-caribbean-for-icts/

³⁶ Investt Profile ICT:Business Process Outsourcing /English Voice Services

FRAMEWORK FOR CONDUCTING BUSINESS IN THE EUROPEAN UNION

Pestlied

the table below summarises the macro changes taking place in Europe, which will contribute to framing the business climate of the next ten to fifteen years.

Political	Unstable government – southern Europe, especially Italy		
	 Left wing governments (France, Italy) increasingly advocating less austerity³⁷ 		
	German federal elections in September 2013		
	Rise of new parties (UKIP in UK) – coalition politics		
Economic	Debt and deficit reduction policies to continue for foreseeable future e.g. UK, Italy, Spain		
	• Rebalancing of economic policies towards manufacturing, re-shoring and exports (e.g. UK) -		
	away from over-reliance of financial services		
	 Bank lending to SMEs forecast to remain constrained 		
	Exchange rate volatility to continue		
Social	High unemployment rates in some EU markets – Spain (26.7% overall and 55.9% of under 25s),		
	Italy, increasingly France		
	Low unemployment rates in northern Europe - Germany (5.7%)		
	Opening up of EU will bring migration from edges – economic migration increasingly politicised		
	in some countries e.g. UK, Germany		
Technological	 Innovation becoming part of mainstream economic development 		
	Opportunities for ICT through EU 2014-2020 funding programmes e.g. Horizon 2020		
	Increasing e-Government (e.g. Estonia)		
	 Increasing move to smart devices, ubiquitous connectivity, portability, social media presence expanding 		
	 ICT driving innovation across sectors e.g. manufacturing – 3D printing, increasing use of automation/robotics 		
Legal	IPR issues in emerging markets to continue		
	Legislation on climate change and carbon reduction		
International	Cyber security threats to state and business assets of increasing concern		
	Diverging attitudes to investment from China		
	• Changing nature of EU relationship with Caribbean due to growth in other strategic markets,		
	and financial constraints		
Environmental	Reducing carbon footprint		
	Smart cities		

Table 9: Summary macro conditions

³⁷ http://www.economist.com/news/europe/21577084-backlash-against-europes-austerity-intensifying-after-austerity-what

	•	Environmental sustainability key part of business		
Demographic	•	Ageing populations in Europe leading to increased opportunities for telemedicine and e- healthcare		
	•	EU workforce ageing – median age now 41.5 up from 35.7 in 1992		
	•	Old age dependency ration is falling		
	•	Remote/ home working		

Language

A pre-requisite for doing business successfully in Europe is the ability to communicate with local partners in the local language. The ability to converse in your customers' language is a recognised international business skill. Whilst it is not realistic for small firms to speak every foreign language, a basic investment in language training and customising sales and marketing collateral (e.g. website) is necessary for competing successfully in the major target market that they are looking to win business from.

Localisation

Localisation for non-English speaking markets is a potential opportunity. As Caribbean education providers look to internationalise and target customers in different non English speaking markets such as France, Spain etc. a stronger appreciation of international foreign languages and culture, and the necessity to customise collateral to local target markets will become increasingly important. A recent report into the localisation market carried out by Commons Sense Advisory found that the global market grew by 7.5 per cent in 2011 and the sector is now worth around US\$31.4bn worldwide. translation is still the most popular service, but there is a growing demand for services such as website globalization and localization.³⁸

Business Culture

But it is not just about localising collateral. Doing successful business in Europe is also about understanding international/European business cultures and etiquette. Often neglected, but a basic investment in time to understand a bit more about the business culture of the specific market that companies are targeting and now it applies to their approach and marketing collateral will contribute to sustainable success.

Whilst aspects of culture can descend into caricature, the summary table below shows that different approaches are needed to deal with different cultures within the EU target markets. The markets chosen for this study have very different business cultures, as the table below demonstrates.

	· · · · · · · · · · · · · · · · · · ·	
Country	Five Ways to Succeed	Five Ways to Fail
UK	 Deliver on time without drama Arrive at meetings punctually If having difficulties ask advice immediately rather than risk missing a deadline Check at the end of a meeting exactly what the Brits expect of you Join them for a beer after work, or in the 	 Boast about your achievements Talk for an hour in a presentation Phone people in the evening about work Let a colleague down once he or she believes they can depend on you Be patronising to women

Table 10: Summary of Cultural Approaches³⁹

³⁸ http://www.commonsenseadvisory.com/AbstractView.aspx?ArticleID=1426.

³⁹ The World's Business Cultures and How to Unlock Them, Tomalin and Nicks

	gym (many Brits now avoid alcohol)	
Germany	 Demonstrate efficiency and punctuality Be straightforward and direct Do what you say you will do Find out the rules and follow them Respect the management hierarchy 	 Be disorganised and ignore due process Promise and fail to deliver Do things without consultation Go over the heads of line managers or reports Be over familiar with colleagues
France	 Understand the free market versus social contract debate in France Show appreciation of French culture Make sure the French guests eat and drink well Maintain a degree of formality until invited to use first names Be logical and consistent in negotiations, and when reaching a decision, stick to it 	 Do it all in English – if you have no French, apologise. Ignore the French intellectual approach Swear and drink too much Dig up clichés about Anglo French conflict Decline lunch invitations and buy a sandwich to eat at your desk
Italy	 Build good personal relationships and keep in contact Show appreciation of Italy and especially of your partner's region Remember that the top man or woman makes the decisions Dress carefully and in a coordinated fashion for meetings Name Italian products that you own or have enjoyed 	 Criticise or belittle Italy and its economy Remain solely on a business footing Decline invitations to eat or drink with host Wear jeans or trainers to the office on a Friday Make jokes involving the Pope

ease of Doing Business

the World Bank publishes an annual Doing Business in the eu survey⁴⁰, which contains information on aspects of doing business in eu markets. As the table below shows, the markets are ranked differently in terms of ease of doing business. Again, there is a northern / southern European split, with the northern European ones generally ranked easier to do business. However, they may well be also more competitive markets to do business in.

Economy	UK	Germany	Estonia	Netherlands	France	Spain	Italy	Malta
Ease of Doing Business	7	20	21	31	34	44	73	102
Starting a Business	19	106	47	67	27	136	84	150
Dealing with Construction Permits	20	14	35	89	52	38	103	167
Getting Electricity	62	2	52	67	42	70	107	111
Registering Property	73	81	14	49	146	57	39	80
Getting Credit	1	23	40	53	53	53	104	176
Protecting Investors	10	100	70	117	82	100	49	70

Table	11.	Comparativ	- Fase	of D	oina	Rusiness
Iable		Comparativ	Lase	01 0	onig	Dusiness

⁴⁰http://www.doingbusiness.org/~/media/FPDKM/Doing%20Business/Documents/Profiles/Regional/DB2012/DB12-European-Union.pdf
Paying Taxes	16	72	50	29	53	34	131	27
Trading Across Borders	14	13	7	12	27	39	55	34
Enforcing Contracts	21	5	31	32	8	64	160	121
Resolving Insolvency	8	19	72	6	43	20	31	67

However in another survey on openness to trade and FDI, commissioned recently by the International Chamber of Commerce, Malta is ranked 5th followed by Netherlands (6th), Estonia (9th), Germany (22nD), UK (29^{tx}), France (35^{tx}), Italy (41st), Spain (44^{tx}). the survey highlights the threats from INCREASED PROJECTIONISM. 41

YAt

Yat rates yary across the selected markets yaries and this will potentially impact on ICt service PROVIDERS.

Table 12: VAT Rates⁴²

COUNTRY	VAT (%)
Netherlands	21
United Kingdom	20
Germany	19
France	19.6
Estonia	20
Malta	18
Spain	21
Italy	21

For non-EU companies providing digital services (software, server facilities, online films, music, books, Rpp's for prones etc) to EU consumers, there are special rules for charging and reporting YRt. Any services supplied digitally are considered as electronic services within the EU.⁴³ Non-EU companies providing the above digitised services to local consumers must comply with EU YAt compliance regime. Until recently, this meant registering their company with the tax offices of each country where they were selling, and then making regular filings and payments of VAL. 44

However, this was all simplified in 2013. Non-EU companies may now register with just one of the 27 member states' tax authorities, and submit all filings and payments to that tax office. This will

42 http://www.vatlive.com/vat-rates/european-vat-rates/eu-vat-rates/

⁴¹ http://www.iccwbo.org/Global-influence/G20/Reports-and-Products/Open-Markets-Index/

⁴³ These include Servers for websites and data storage (if the servers are within the EU, then special rules apply); Subscriptions to internet games, newspapers or other publications etc; Paid-for downloads of books, music or videos; Telephone or tablet App's (Applications), ringtones etc which are charged for

http://www.vatlive.com/eu-vat-rules/non-eu-companies-vat-on-electronic-services-books-video-apps-and-software/

include country locations of each customer (with the appropriate national YAt rate charged), which the tax office will then use to allocate and split the YAC payment between the other appropriate tax authorities. Something similar is in the pipeline for EU companies for 2015.

Many larger non-eu companies xaye elected instead to form local companies in one of the eu countries, and contract with EU consumers through this company/branch. this gives special VAt advantages as (only until 2015), the branch would only use the YAT rate of the country where it is established. Based on this, many companies (e.g. Amazon) have elected to locate their European branches in Luxembourg with the eU's lowest YAt rate, 15% (3% on digital books).

Increasingly, non-eu companies are turning to agency agreements with local distributors to ayoid the burden of charging and complying with VAL. This is perfectly lawful, and shifts the burden of the tax compliance to the distributor.

Corporation tax

Similarly, corporation tax rates yary across the region and this will potentially impact on ICt service PROVIDERS.

COUNTRY	CORPORATION TAX (%)		
Netherlands	25		
United Kingdom	2346		
Germany	29.55		
France	33.33		
Estonia	21		
Malta	35		
Spain	30		
Italy	31.4		

Table 13: Corporation Tax Rates⁴⁵

Exchange Rates

Exchange rates between the US dollar and sterling and the euro are forecast to remain volatile, and this poses an increased risk for Caribbean businesses looking to trade or partner with clients and partners ell markets.

 ⁴⁵ <u>http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx</u>
 ⁴⁶ (20 for small co's and for all by 2015)

COVERAGE OF THE ICT SECTOR IN THE ECONOMIC PARTNERSHIP AGREEMENT

the Economic Parinership Agreement includes sections relating to regulatory principles for both aspects of the ICt Sector in title II (Investment, trade in Services and E-Commerce). the Understanding on Computer Services to be found at Article 88 of the EPA seeks to clarify the coverage of the sector in light of technological and business developments. It notes that in many cases these services enable the delivery of other services and those other services generally fall outside the scope of CPC Chapter 84.

Computer and related services include all services that provide:

(a) CONSULTING, STRATEGY, ANALYSIS, PLANNING, SPECIFICATION, DESIGN, DEVELOPMENT, INSTALLATION, IMPLEMENTATION, INTEGRATION, TESTING, DEBUGGING, UPDATING, SUPPORT, TECXNICAL ASSISTANCE, OR MANAGEMENT OF OR FOR COMPUTERS OR COMPUTER SYSTEMS; OR

(B) COMPUTER PROGRAMS DEFINED AS THE SETS OF INSTRUCTIONS REQUIRED TO MAKE COMPUTERS WORK AND COMMUNICATE (IN AND OF THEMSELVES), PLUS CONSULTING, STRATEGY, ANALYSIS, PLANNING, SPECIFICATION, DESIGN, DEVELOPMENT, INSTALLATION, IMPLEMENTATION, INTEGRATION, TESTING, DEBUGGING, UPDATING, ADAPTATION, MAINTENANCE, SUPPORT, TECHNICAL ASSISTANCE, MANAGEMENT OR USE OF OR FOR COMPUTER PROGRAMS; OR

(c) data processing, data storage, data nosting or database services; or

(d) maintenance and repair services for office mackinery and equipment, including computers; or

(e) training services for staff of clients, related to computer programs, computers or computer systems, and not elsewhere classified.

Section 4 on telecommunications Services sets out certain regulatory principles regarding the provision of such services for ePA signatories. It excludes broadcasting, in light of the well-known eU reluctance to include broadcasting in trade liberalization, but it does include voice telephone services, packet-switched data transmission services, circuit-switched data transmission services, telegraph services, facsimile services, private leased circuit services and mobile and personal communications services and systems. Providers of such services can expect to: -

- Receive fair treatment from regulators
- Be able to appeal decisions related to licence applications
- Pay fees commensurate with the administrative costs of the regulator
- Provide services in a competitive environment with safeguards in place against anticompetitive behavior
- Xaye fair access to interconnection under terms to be negotiated
- Be requested to meet certain universal service obligations
- Xaye the national regulatory authority issue binding decisions on disputes between suppliers, if requested by either party.

Investment (eu)

In investment, reflecting the open nature of the business environment for these services in the EU and the pro-investment mentality in place in the EU, the commitments from the EU side are very liberal. These commitments are relevant in that they allow CARIFORUM exporting through Mode 3. Apart from horizontal limitations that apply in all sectors, the EU has no limitations listed on prospective investors from CARIFORUM in Computer and Related Services in the EU. The situation is the same for telecommunications Equipment Rental, telecommunications Consulting Services, telephone Answering Services, and in "All services consisting of the transmission and reception of signals by any electromagnetic means, excluding broadcasting". On satellite broadcast transmission services, one Member State (Belgium) is unbound and there is and EU-wide limitation linked to the EU regulations on electronic communications.

CROSS-BORDER SUPPLY OF SERVICES (EU)

these Modes of Supply 1 and 2 are relevant as they relate to the ability of CARIFORUM providers to sell these services from CARIFORUM or provide them within CARIFORUM to EU consumers. In keeping with the above, the EU has no limitations regarding Mode 1 or Mode 2 for supply of computer and related services or for telecommunications Equipment Rental or telecommunications Consulting or telephone Answering Services or for All services consisting of the transmission and reception of signals by any electromagnetic means, excluding broadcasting. Combined with their commitments on what CARIFORUM would call Mode 3 it is clear that these countries recognize the yalue of these services for national development and that they want to encourage an open competitive environment. It is within this legal framework that prospective traders from CARIFROUM will need to operate.

Movement of Persons (eU)

the commitments on movement of persons include several categories: -

- Key Personnel and Graduate trainees
- Contractual Service Suppliers
- Independent Professionals

For the services under review there are no specific limitations listed with respect to the first category. With respect to contractual service suppliers and independent professionals a number of the newer members of EU listed transitional periods for addering the EU commitments. These transitional periods are to end by January 1, 2014.

As far as the specific commitments are concerned, in Computer and Related Services Estonia, France and Germany and Malta have no limitation. Spain and Italy require economic needs tests for independent professionals. The United Kingdom requires economic needs tests for both categories and as such is potentially the most restrictive among the countries under review. This could possibly be significant given the linkages of most of the CARIFORUM countries with the United Kingdom. There are no EU commitments in the other services mentioned above for these two categories of personnel.

CARIFORUM Commitments in Computer and Related Services

Mode 1 commitments relate to the ability of Europeans to provide these services without leaving Europe and these may be interesting for CARIFORUM providers from a defensive point of view to determine the kind of cross border competition that may be present post-implementation. But, Mode 1 is extremely difficult to regulate in any event, even for developed country regulators. Mode 2 commitments relate to the ability of CARIFORUM consumers to consume services in Europe. Mode 4 commitments relate to the ability of European providers to travel to CARIFORUM to provide these services. CARIFORUM Mode 3 (commercial presence) commitments are relevant to this study in that they have a potential impact on the possibility of attracting European investment in these sectors, which is a key focus of investment promotion policies throughout the region. In addition, whereas the EU commitments are taken at the level of Computer and Related Services, the CARIFORUM commitments differ according to sub-sector. The Figure below summarizes the commitments Modes 2 and 3.

Table 14: CARIFORUM Commitments in Computer and Related Services in Modes 1 and 2

ATG, BAH, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	Limitations by DMA, KNA, LCA, TTO	Limitations for BAH, BEL, GRD, LCA, DMA, KNA, SUR, TTO
	Market Access – Unbound for DMA, KNA, LCA, TT) National Treatment – Unbound for DMA, KNA, TTO	Market Access – Economic Needs test possible for TTO; None from 1/1/14 KNA, 1/1/16 for SUR and 1/1/18 for DMA; Economic Needs Tests for GRD and LCA; Minimum local participation and technology transfer requirement for BEL; Unbound for services related to residential computer installations and None for commercial businesses for BAH
		National Treatment – Unbound for BEL; Unbound for services related to residential computer installations and None for commercial businesses for BAH
ATG, BAH, BRB, BEL, DMA, DOM,	Market Access – None	Limitations by BAH, BEL, DMA, KNA, VCT, SUR
GRD, GUY, JAM, KNA, VCT,	National Treatment - None	
SUR		Market Access - Minimum
LCA (Except CPC 8421 and		technology transfer
8422)		requirement for BEL; None from 1/1/18 for DMA;
TTO (CPC 8421)		Minimum percentage of local employment for GRD, KNA, VCT; Unbound for services related to residential

computer installations.

For computer installations in

business establishments, joint ventures with Bahamian firms are permitted. None after 2013 for BAH

ATG, BAH, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR (Except CPC 8439)	Market Access – None	Limitations by BEL, DMA, KNA, VCT, SUR
TTO (CPC 84310**) (Information services e.g., drafting and engineering services, digitizing and vectoring, data entry, remote telemarketing)	National Treatment - None	Market Access - Minimum local participation and technology transfer requirement for BEL; None from 1/1/18 for DMA; Minimum percentage of local employment for GRD, KNA, VCT
		National Treatment - None
ATG, BAH, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	Market Access - None National Treatment - None	Limitations by BEL, DMA, KNA, VCT, SUR
		Market Access - Minimum local participation and technology transfer requirement for BEL; None from 1/1/18 for DMA; Minimum percentage of local employment for GRD, KNA, VCT
		National Treatment - None
DOM	None	Limitations by BAH
BAH (Data preparation services		
and Other Computer		Market Access - Unbound for home office equipment.
Services n.e.c.		For commercial equipment,
		subject to an economic needs
BRB (CPC 845 and 849		test based on type of service.

Data preparation services and Other Computer Services n.e.c.) GUY (CPC 845) TTO (CPC 849) National Treatment -Unbound for home office equipment.

the picture therefore emerges in these services of minimal limitations on the ability of CARIFORUM consumers to buy these services from Europeans in Europe. However, there is a higher incidence of limitation in respect to commercial presence to provide services. This is curious and would seem to imply a domestic capacity to provide these services. It is notable that by 1 January 2018 only a few countries will maintain restrictions on Mode 3 for these services. Minimum participation requirements (50% local) might have a negative impact on prospective investment.

CARIFORUM commutments in delecommunication Services have been taken in the following areas: -

- Yoice telephone services
- Packet-switcked data transmission services
- Circuit-switched data transmission services
- telex Services
- telegraph Services
- Facsimile Services
- Private leased Circuits
- **Electronic Mail**
- Yoice Mail
- Online Information and Data base retrieval
- **Electronic Data interchange**
- Enxanced/yalue added facsimile services including store and forward, store and retrieve
- Code and protocol conversion
- Online information and/or data processing (including transaction processing
- Other

Like Computer and Related Services, this is a sector where a high number of CARFORUM states felt comfortable making commitments. If we look at Mode 3 commitments specifically, in some instances the Member States have made distinctions between public and non-public use. The Figure below summarizes the Mode 3 commitments in the first fourteen services mentioned above.

Table 15: CARIFORUM Commitments in Telecommunication Services in Mode 3

Voice Telephone Services	ATG, BAH, BRB, BEL	ATG – None after 2012
	(excluding	
		BAH – None after 2013 for MA and NT
	trunked radio services)	
		BEL – Economic Needs Test
	DMA, DOM, GRD, JAM,	

	KNA,	BRB – Prohibition of two-ended breakout (non-public)
	LCA, VCT, SUR, TTO GUY (non-public use only)	SUR – (Public) Duopoly for an indefinite period; (Non- public) Only on network facilities supplied by the exclusive operators. Bypass and resale of excess capacity are not permitted.
Packet-switched data transmission services	ATG, BAH, BRB, BEL, DMA, DOM, GRD, JAM, KNA, LCA, VCT, SUR, TTO	ATG - None after 2012 for international services BAH - None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB - Prohibition of two-ended breakout (non-public) SUR - bypass of the network facilities of the licensed operators is not permitted.
Circuit-switched data transmission services	ATG, BAH, BRB, BEL, DMA, DOM, GRD, JAM, KNA, LCA, VCT, SUR (leased lines only), TTO	ATG – None after 2012 for international services BAH – None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB – Prohibition of two-ended breakout (non-public) SUR - bypass of the network facilities of the licensed operators is not permitted.
Telex Services	ATG, BAH, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, TTO	 ATG - None after 2012 for international services BAH - None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB - Prohibition of two-ended breakout (non-public) SUR - Subject to economic needs test. Foreign equity participation is limited to 40 %
Telegraph Services	ATG, BAH, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR (non-public use), TTO	ATG – None after 2012 for international services BAH – None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB – Prohibition of two-ended breakout (non-public)

Facsimile Services	ATG, BAH, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR (public use) TTO	ATG – None after 2012 for international services BAH – None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB – Prohibition of two-ended breakout (non-public) SUR - Subject to economic needs test. Foreign equity participation is limited to 40 %
Private leased circuits	ATG, BAH, BRB, BEL, DMA, DOM, GRD, JAM, KNA, LCA, VCT, SUR (public use), TTO	ATG - None after 2012 for international services BAH - None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB - Prohibition of two-ended breakout (non-public) SUR - Subject to economic needs test. Foreign equity participation is limited to 40 %
Electronic Mail	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators
Voice Mail	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators
Online Information and Data base retrieval	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators
Electronic Data interchange	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators (Market Access) and Unbound (National Treatment)
Ennanced/value added facsimile services including store and forward,	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM,	BAH – None after 2013 for MA and NT

store and retrieve	KNA, LCA, VCT, SUR, TTO	BEL - Only through facilities supplied by licensed operators
Code and protocol conversion	ATG, BRB, BEL, DMA, DOM, GRD, JAM, KNA, LCA, VCT,SUR, TTO	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators
Online information and/or data processing (including transaction processing	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators

A number of CARIFORUM countries xaye also taken specific commitments in Other telecommunications Services. These are detailed in the table below.

Internet and Internet access (except	ATG, BRB, BEL, DMA, DOM, GUY,	ATG – None after 2012
voice) (CPC 75260)		BAH – None after 2013 for MA and NT
	JAM, LCA, VCT, SUR (leased lines	BEL – Economic Needs Test
	only), TTO	BRB – Prohibition of two-ended breakout (non-public)
	GRD, KNA (voice and leased line)	SUR – (Public) Duopoly for an indefinite period; (Non- public) Only on network facilities supplied by the exclusive operators. Bypass and resale of excess capacity are not permitted.
Personal communication services	ATG, DMA, DOM, KNA, VCT.	ATG – None after 2012 for international services
	,	BAH – None after 2013 for MA and NT
	SUR, TTO (Except Mobile data	BEL - Unbound only through facilities supplied by licensed operators and vice versa
	services, paging services and	
	Trunked radio systems)	BRB – Prohibition of two-ended breakout (non-public)
		SUR - bypass of the network facilities of the licensed operators is not permitted.
Telecommunicationsequipmentsales,rental,maintenance,connection,repairandconsulting	ATG, BRB, DMA, DOM, GRD,	ATG – None after 2012 for international services

Table 16: CARIFORUM Commitments in Other Telecommunication Services in Mode 3

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services (CPC 75410, 75450)	GUY, JAM, KNA, VCT, SUR, TTO	 BAH - None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB - Prohibition of two-ended breakout (non-public) SUR - bypass of the network facilities of the licensed operators is not permitted.
Trunked radio system services	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, VCT, TTO KNA, SUR (excluding phone patching)	 ATG - None after 2012 for international services BAH - None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB - Prohibition of two-ended breakout (non-public) SUR - Subject to economic needs test. Foreign equity participation is limited to 40 %
Paging (CPC 75291)	ATG, BRB, BEL, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR, TTO	ATG – None after 2012 for international services BAH – None after 2013 for MA and NT BEL - Unbound only through facilities supplied by licensed operators and vice versa BRB – Prohibition of two-ended breakout (non-public)
Teleconferencing services (CPC 75292)	ATG, BEL, DMA, DOM, GRD, GUY, JAM, LCA, VCT, TTO KNA, SUR (leased lines only)	 ATG - Only on network facilities supplied by the exclusive operator BAH - None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators SUR - Bypass of the network facilities of the licensed operators is not permitted
Mobile Data Services Mobile Services (terrestrial based)	DOM, KNA, SUR (public use) ATG, BRB, DMA, DOM, GRD, GUY, JAM, KNA, LCA, VCT, SUR (for public use), TTO	ATG – Foreign ventures permitted only if capital investment is greater than US\$500,000
Mobile Services (satellite based)	ATG, BRB, DMA, DOM, GRD, JAM, VCT	ATG – Reserved to supply by exclusive operator in accordance with arrangements indicated under mode 1 i.e. Only through arrangements between satellite

	SUR (for public use)	transport service suppliers and exclusive international
		operator, who is under an obligation not to limit the number of suppliers with whom such arrangements will be entered into
		SUR - The market is currently limited to a maximum of three (3) operators. Any future licences will be based on an economic needs test. Foreign equity participation is limited to 40 %
Fixed satellite services	ATG, BRB (VSAT for non-public use), DMA, DOM, GRD, GUY, JAM,	ATG – Reserved to supply by exclusive operator in accordance with arrangements indicated under Mode 1
	KNA, LCA, VCT, TTO,	BRB – Two-ended break-out is not permitted for MA and NT
	Sold for public uses	KNA – Unbound for MA
		SUR - The market is currently limited to a maximum of two licences for an indefinite period. Any future licences
		will be based on an economic needs test. For eign equity participation is limited to $40~\%$
International voice, data and video	BAH, BRB, DOM, JAM,	BAH – None after 2013 for MA and NT
transmission services supplied to firms involved in information processing located within free zenes	NNA	BRB – Two-ended break-out is not permitted for MA and NT
processing located within nee zones		JAM, KNA – Until 1 September 2013, interconnection with the local public switched networks not permitted. Services to unauthorized parties not permitted.
Video transmission services (satellite based)	DOM, GRD, JAM, KNA	JAM - Until 1 September 2013, excludes video telephony
Connection and interconnection services	BAH, BRB, DOM, GRD, GUY, KNA	BAH – None after 2013 for MA and NT BEL - Only through facilities supplied by licensed operators
Mobile maritime and air-to-ground	BRB, DOM, GUY	BEL - Only through facilities supplied by licensed
telecommunication services		operators

REGULATORY AND ADMINISTRATIVE FRAMEWORK IN EUROPE

As shown above, the restrictions on trading these services with the EU that are listed in the Economic Partnership Agreement are minimal. It is important also though to consider the regulations that may be in place at the EU-wide level.

the main instruments of the new EU regulatory framework for the electronic communications sector include⁴⁷:

- 1. the Framework Directive, which sets out the main principles, objectives and procedures for an EU regulatory policy regarding the provision of electronic communications services and networks;
- 2. EXE Access Directive, which stipulates procedures and principles for imposing pro-competitive obligations regarding access to and interconnection of networks on operators with significant market power;
- 3. the Authorization Directive, which introduces a system of general authorisation, instead of individual or class licences, to facilitate entry in the market and reduce administrative burdens on operators;

⁴⁷ <u>http://www.ictregulationtoolkit.org/en/PracticeNote.aspx?id=514</u>

- 4. the Universal Service Directive, which requires a minimum level of availability and affordability of basic electronic communications services and guaranteeing a set of basic rights for users and consumers of electronic communications services;
- 5. The Privacy and Clectronic Communications Directive, which sets out rules for the protection of privacy and of personal data processed in relation to communications over public communication networks;
- 6. the Radio Spectrum Decision, which establishes principles and procedures for the development and implementation of an internal and external EU radio spectrum policy; and
- 7. the Commission Competition Directive, which consolidates the legal measures based on Article 86 of the treaty that have liberalised the telecommunications sector over the years.

	Regulation	Strategy/ Policy
EU Wide	 EU Services Directive – Directive 2006/123/EC of December 2006⁴⁸ Regulatory framework for electronic communications in the EU⁴⁹, includes:- Directive 2009/140/EC (Better Regulation Directive) Directive 2009/136/EC (Citizens' Rights Directive) Regulation (EC) No 1211/2009 (BEREC⁵⁰ Regulation) Directive 2002/21/EC (Framework Directive) Directive 2002/20/EC (Authorisation Directive) Directive 2002/19/EC (Access Directive) Directive 2002/22/EC (Universal Service Directive) Directive 2002/28/EC (Directive on privacy and electronic communications) 	 Digital Agenda for Europe (2020) – see below⁵² UK – Information Economy Strategy is due out in May 2013 <u>https://www.gov.uk/government/consult</u> <u>ations/information-economy-strategy- call-for-views-and-evidence</u> Germany - ICT Strategy of the German Federal Government 2015 <u>http://www.bmwi.de/English/Redaktion/ Pdf/ict-strategy-digital-germany- 2015,property=pdf,bereich=bmwi,sprach e=en,rwb=true.pdf</u>
	 European Commission ruling in mid-2012 that cloud services are compatible with the EU law on privacy, notably EU Data Protection Directive (95/46/EC) and the e-privacy Directive 2002/58/EC (as revised by 2009/136/EC) ⁵¹ In order to provide better, open access to the internet for all Europeans, further development of broadband policy needs to take into account not only the absorption of the digital divide, but the protection of the net neutrality principle. Consumer Rights Directive (applicable 2014) - 2011/83/EU of 25 October 2011 Proposal for regulation on Common European Sales Law 	

 Table 17: Summary Regulation and Strategy/ Policy Framework

⁴⁸ http://ec.europa.eu/internal_market/services/services-dir/guide/index_en.htm

⁴⁹ https://ec.europa.eu/digital-agenda/en/news/regulatory-framework-electronic-communications-european-union

⁵⁰Body of European Regulators of Electronic Communications

⁵¹ http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2012/wp196_en.pdf

⁵² http://ec.europa.eu/digital-agenda/digital-agenda-europe

EU Directive on Network and	
Information Security	

Digital Agenda for Europe (2020)

Better, faster broadband is a priority of the revised Digital Agenda for Europe in 2013-14 and the improved provision of which, is an initiative of the *Europe 2020 Strategy*. the Agenda sets ambitious objectives for broadband infrastructure development, specifically to provide basic broadband to all Europeans by this year and to ensure that by 2020 all EU citizens have access to much higher internet speeds and 50% or more of European xousexolds subscribe to internet connections above 100Mbps.

the EU has set a broad range of ICt related targets under its Digital Agenda for Europe (2020). which will help drive the growth of ICt services, and these include⁵³:-

- the entire EU to be covered by broadband by 2013.
- the entire EU to be covered by broadband above 30% by 2020
- 50% of the EU to subscribe to broadband aboye100 Mbps by 2020
- 50% of the population to buy online by 2015
- 20% of the population to buy online cross-border by 2015
- 33% of SMes to make online sales by 2015
- the difference between roaming and national tariffs to approach zero by 2015
- to increase regular internet usage from 60% to 75 % by 2015, and from 41% to 60% among • DISADYANTAGED PEOPLE.
- to xalve the proportion of the population that has never used the internet from 30% to 15% BY 2015
- 50% of citizens to use e-Government by 2015, with more than half returning completed FORMS
- all key cross-border public services, to be agreed by Member States in 2011, to be available online by 2015
- to double public investment in ICt R&D to €11 billion by 2020
- to reduce energy use of lighting by 20% by 2020

Progress against these targets is measured in the annual Digital Agenda Scoreboard, where the progress of each member state can be observed.⁵⁴ this framework will kelp drive ICt business opportunities within the eU and improve competitiveness.

Consumer Rights Directive

A new Consumer Rights Directive is being drafted and this, when implemented, will introduce clear pre-contractual information that must be provided before a consumer buys anything online from a trader. This will include clear pricing information and contact information about the trader, and for digital content sales will also include key information on functionality and interoperability. Lie Consumer Rights Directive also clarifies the general rule that there is a 14-day right to cancel an online purchase, and the rights and obligations of traders and consumers following a cancellation.

Cyber Security

⁵³ <u>http://ec.europa.eu/digital-agenda/about-our-goals</u>
⁵⁴ <u>http://ec.europa.eu/digital-agenda/progress-country</u>

the proposed EU Directive on Network and Information Security⁵⁵ obliges all member states to produce a national cyber security strategy. Many EU Government are preparing an initial impact assessment on the potential effects of the directive.

the proposed Directive covers the following main issues: It obliges all member states to establish a Computer Emergency Response team (CERt) with the expertise to assist organisations in responding to computer security incidents and provide advice to reduce threat exposure; it mandates information sharing between member states and compulsory reporting of security breaches applicable to a number of sectors.

New EU Procurement Directive

One area works mentioning is the new EU Procurement Directive. In December 2011, as announced in the Single Market Act, the Commission adopted its proposals on public procurement. These proposals are part of an overall programme aiming at an in-depth modernization of public procurement in the European Union. This programme includes the revision of Directive 2004/17/EC (procurement in the water, energy, transport and postal services sectors) and 2004/18/EC (public works, supply and service contracts), as well as the adoption of a directive on concessions, which were until now only partially regulated at European level.⁵⁶

One of the main features is to encourage access to public procurement for SMCs: access will be increased and made easier through measures to cut the administrative burden and strong incentives to divide tenders into lots and limit the financial capacity requirements for the submission of a tender.⁵⁷ this is currently being negotiated and will bring in substantial changes to procurement law within the EU, especially from public bodies. This will essentially make it easier for smaller businesses providing services to qualify for public tenders and access some of the work.⁵⁸

http://ec.europa.eu/internal_market/publicprocurement/modernising_rules/reform_proposals/index_e n.htm

⁵⁵ <u>http://eeas.europa.eu/policies/eu-cyber-security/cybsec_directive_en.pdf</u>

⁵⁷ <u>http://europa.eu/rapid/press-release IP-11-1580 en.htm?locale=en</u>

⁵⁸ <u>http://www.anthonycollins.com/briefings/uk-response-commission%E2%80%99s-proposed-new-eu-procurement-directive-local-government</u>

OPPORTUNITIES FOR TRADE IN SERVICES

USE OF SERVICES IN THE REGION

According to Padmasree Warrior, Cisco's Chief Vechnology and Strategy Officer, "...today only 1 percent of what can be connected in the world is actually connected. As an industry, it took us about 20 years to connect 1 percent of the world. And in the next ten years, we believe that number will go up dramatically. We'll make significant progress in connecting the 99 percent that's still unconnected. Vat will be people, that will be devices, and that will be a lot more information on the network.⁵⁹

the figure below shows the growing usage of ICt and online search across Europe.

Fig 25: Use of ICTs and On Line Services Information Search, 2009-11 (% of people 16 to 74)

⁵⁹ Padmasree Warrior, Chief technology and Strategy Officer, McKinsey Quarterly, May 2013

	Computer use			Internet use		Used internet for finding information on goods or services			
	2009	2010	2011	2009	2010	2011	2009	2010	2011
EU-27	69	71	73	65	69	71	52	56	57
Euro area (1)	69	72	73	66	69	72	55	58	58
Belgium	76	79	82	75	78	82	59	62	1.1
Bulgaria	44	45	49	42	43	48	17	26	28
Zech Republic	64	69	72	60	66	70	50	53	56
enmark	87	89	90	86	88	90	74	78	72
Germany	81	83	84	77	80	81	69	72	70
stonia	71	75	77	71	74	77	54	61	54
reland	68	70	76	65	67	75	54	57	53
reece	47	48	54	42	44	52	33	36	39
pain	63	67	69	60	64	67	47	54	47
rance	74	76	78	71	75	78	63	63	67
alv	49	53	55	46	51	54	33	35	41
vorus	53	57	59	48	52	57	39	47	48
atvia	65	67	70	64	66	70	50	57	52
ithuania	60	62	64	58	60	64	44	48	55
uxembourg	88	90	91	86	90	90	75	78	66
ungary	63	64	69	59	62	68	48	55	54
lalta	60	64	69	58	62	68	48	52	53
letherlands	90	91	92	89	90	91	79	82	82
ustria	75	77	81	72	74	79	54	58	62
oland	59	62	64	56	59	62	29	39	44
ortugal	51	55	58	46	51	55	40	44	41
omania	42	41	43	22	36	40	12	26	27
lovenia	65	70	70	62	68	67	49	57	54
lovakia	74	78	76	70	76	74	50	62	54
inland	84	88	80	82	86	80	73	74	76
weden	01	00	03	02	00	03	77	22	75
nited Vinadom	04	92	93	90	02	05	64	62	66
nited Kinguom	04	00	06	02	03	05	80	84	21
	90	30	90	33	30	30	00	04	70
ur wdy reatia	50	80	34	31	80	30	22	02	10
VD of Masodon's	50	20		4/	54		33	40	
TK OF Macedonia	55	50		50	52		20	30	
erbia	49		:	<u> 38</u>		:			
urkey	36	39		34	38	1	18	21	1.1

Source: Eurostat (online data codes: isoc_ci_cfp_cu, isoc_ci_ifp_iu and isoc_ci_ac_i)

Whilst individuals across Europe are not only searching for information, the table below shows people are increasingly making transactions for goods and services. Northern Europe is leading the way, the UK, Netherlands, Germany leading amongst the selected markets, with France, Malta, Spain, Estonia and Italy following.

Fig 26. Percentage of Individuals Ordering Good and Services ON Line for Private Use



However, whilst the 'internet economy' in the CU-27 is expected to grow from 3.8% of GDP in 2010 to 5.7% in 2016, progress in cross-border e-commerce remains yery low. In 2011, only 10% of the total EU population ordered goods or services from sellers from other EU countries. Moreover, the more developed countries in cross-border ecommerce are progressing much faster than the less developed ones, creating an ever wider gap.⁶⁰

the low use of cross-border e-commerce by individuals is matched by the **limited number of** enterprises selling cross-border electronically. In 2010, only 6% of enterprises engaged in ecommerce made e-sales to other EU countries, including in the countries with the highest share of firms involved in e-commerce. The eU is still missing out on the big benefits of e-commerce. this leads to a total loss of potential cross-border trade of 26 billion euros each year.⁶¹

MARKET OVERVIEW (SELECTED COUNTRIES)

- United Kingdom
- Germany .
- estonia
- Netherlands
- Malta .
- France .
- Spain
- Italy .

United Kingdom

According to Business Monitor International's forecast⁶², the United Kingdom's ICt market is the largest in Europe and the third largest in the world after the United States and Japan. The ICt

⁶⁰ <u>http://ec.europa.eu/europe2020/pdf/sgmktreport2013_en.pdf</u> - State of the Single Market Integration, 2013, European Commission Report 61 Ibid

⁶² www.businessmonitor.com

market includes computer hardware, packaged software and ICt services. In 2011, the market was estimated at US\$85.4 billion (hardware US\$19.4 billion, services \$US53.2 billion and software \$US11.8 billion) ICt spend per capita was estimated at US\$1,379, which is considerably higher than other European countries. The United Kingdom is the world's largest per-capita e-commerce market and the ICt market contributes 7.2% of GDP.⁶³

In terms of xardware, during the period 2012-2016, total personal computer revenues are forecast to grow by a compound annual growth rate (CRGR) of 6%, reaching US\$20.2 billion. The computer hardware market is forecast to reach US\$20 billion in 2012. The main growth is expected to be in portable computers.

Likewise, the software market is projected to increase by a CAGR of 6% during 2012-2016, reaching US\$16.1 billion in 2016. Businesses are looking to improve operational and cost efficiency, which encourages the adoption of Software-as-a Service (SaaS) and cloud computing solutions. The SaaS segment is fast growing and there are opportunities for software companies who can create SaaS solutions in areas such as social networks, mobile payments and marketing applications. Spending on cloud computing is projected to double by 2014, with demand not only for business, but also for consumer applications. In functional terms, the majority of business software demand is for enterprise Resource Planning (eRP) and supply chain management. Despite a relatively mature market, there are opportunities for eRP implementations in industries such as consumer products, telecommunications, energy, engineering, construction, transport, food and beyerage, retail and metal-working.

the UK Government's new Information Economy Strategy highlights some of the key changes moving forward in the ICt space, and how its ubiguity is linked to other key 'innovation capital' areas like skills and education.⁶⁴

Germany⁶⁵

the German It market is forecast to increase to US\$63.7 billion in 2013, up by around 4%, with positive growth despite the Eurozone currency crisis. In 2012, German businesses and consumers remained wary because of the risk of a new recession in the Eurozone. The PC market reported modest single-digit growth in Q112, against a deteriorating economic backdrop. The market had contracted sharply in 2011 as a result of excess inventories and consumer and business caution, intensified by the Eurozone currency crisis.

Over the next five years, a more favourable outlook for the German II market is forecast, with areas of opportunity including tablets and cloud computing. Computer hardware sales are forecast to grow from US\$16.4 billion in 2012 to US\$16.7 billion in 2013.

Software sales are forecast to grow from US\$19.7 billion in 2012 to US\$20.5 billion in 201, though political and economic uncertainty will weigh on investments. It services sales: US\$25.2 billion in 2012 to US\$26.5 billion in 2013, and growing demand for cloud computing services will provide a key opportunity.

⁶³ ICT in the UK. A comprehensive Exporter guide for exporters produced by New Zealand Trade & Enterprise, 2012
⁶⁴ <u>https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206944/13-901-information-economy-</u>strategy.pdf

http://www.marketresearch.com/Business-Monitor-International-v304/Germany-Information-Technology-Q1-7280590/

the market's high level of exposure to the on-going eurozone currency crisis suggests a challenging economic outlook for German It spending. Businesses remain cautious, but it is expected that It spending will outperform GDP growth, and, if business confidence improves, then there could be a boost from pent-up demand. Cloud computing, business intelligence, enterprise resource planning and customer relationship management systems are forecast to be among the main spending areas.

Cloud services in Germany should receive a boost from a European Commission ruling in mid-2012 that cloud services are compatible with the EU law on privacy.⁶⁶ Concerns and legal ambiguities regarding the security of data stored in the cloud have been seen as factors contributing to the relatively slower uptake of public cloud services. However, German companies seem to be significantly more positive about private cloud offerings. According to BitKOM data, as many as 21% of German companies were reported to be planning to introduce a private cloud.⁶⁷

As elsewhere in Europe, the key drivers of It spending opportunity in Germany will include growing mobile and fixed broadband penetration, the proliferation of mobile devices such as smartphones, tablets and e-readers, datacentre virtualisation, technology innovation such as GSP technology and services

estonia

Since 2000 there have been remarkable developments in the Estonian ICt sector, which have led Estonia to be one of the most advanced countries in ICt. Estonia is a good example of how education and ICt development have gone hand in hand and how ICt is used as a key enabler to help the country become more competitive, and compensate for its small size and lack of scale.⁶⁸ this is relevant for Caribbean countries that face similar issues of size and scale.

Notable developments in the ICt sector in Ostonia are the following:

- 77% of the population uses the Internet and 98% use Internet banking;
- the implementation of e-Elections. In 2007 Estonia held its and the world's first general Internet election and in 2011 parliamentary elections c. 16% of all participating voters gave their votes electronically;
- in 2012 more than 62% of the estimated population of Estonia was enumerated in the ecensus;
- more than 1,130 free WI-FI Internet zones around the country;
- the popularity of several e-Services (e.g. e-School, e-Mealth and other electronic Public Services) and electronic ID-card and ID related services.

In the field of Internet and data communications, significant investments have been made in the infrastructure of telecommunications, with fibre optic cables covering the whole country, and direct undersea connections to Finland and Sweden and links to Russia and Latvia, guaranteeing high-standard communications. By 2015 all estonian households, enterprises and institutions will have access to the broadband network with the data connection speed of up to 100 MBit/s.

In 2012, c. 2,600 companies were active in the ICt sector, contributing 5% of total sales in business activities in Estonia. The sector sales during the first three quarters of 2012 were \notin 2.4 billion which was more than during the whole 2010. Over 19,000 employees are currently working in the ICt

⁶⁶ <u>http://europa.eu/rapid/press-release SPEECH-12-40 en.htm</u>

⁶⁷ www.bitkom.org/en

⁶⁸ http://www.bbc.co.uk/news/business-22317297

sector – 2.8% of total employment in Estonia. Lotal turnoyer of the ICL sector has increased rapidly over the past four years. In 2009 the sales totalled ≤ 1.6 billion, in 2010 ≤ 2.0 billion, in 2011 ≤ 3.0 billion and in 2012 Q1-Q3 ≤ 2.4 billion.

the main activities in ICt manufacturing operations are producing computers and peripherals of computers, electronic components and printed circuit boards, communication devices, commodity devices, and magnetic and optic data carriers. The activities in the service line are mostly wholesale of information and communication technology, software publishing, telecommunications, programming, consultation, data processing, web-hosting, website operations, and restoring computers and communication devices.

Cyber Defence

established its the nost country for NRtO's Cooperative Cyber Defence Centre of Excellence.⁶⁹ Skype has established its fraud prevention centre in Estonia to effectively combat growing fraud. The Estonian Ministry of Defence has actively endorsed the prevention of cyber war and fraud. Preventing cyberfraud has received notable attention in the information society during recent years. In Estonia, ID-card and e-Services infrastructure architectures have been created; also banks have actively raised awareness of potential cyber-fraud among citizens. Due to high-teck solutions for preventing fraud and cyber attacks yia e-Banking, the usage of e-Banking in Estonia has become yery trustworky.

Estonia xas also focused on the availability of education on cyber security, and the tallinn institute of technology is now offering a master's degree program in cyber security, providing excellent opportunities for companies to gain highly educated workers. The fact that NATO's and Skype's security teams are located in Estonia is a clear indication that Estonia has the capabilities of offering world-class knowledge and people to compete with the new era of growing cyber Risks.

Growex areas in Ostonia include:-

- Cyber security centers
- Security software development
- Defence software and systems integration
- Mobile security
- Wireless security

Netherlands

the Netherlands has a computer-sayry populace and yery high rates of computer/broadband penetration and mobile telephony use. The country's It infrastructure is second-to-none, with specialised networks powering global R&D efforts. This ecosystem has given rise to globally-competitive software developers, hardware companies and It consultancies in areas such as business, simulation, mobility, healthcare and safety. Additionally, many companies develop computer games for all major platforms, the internet and mobile telephones. The Netherlands is a European leader in embedded systems and a world leader in micro-chip manufacturing equipment.⁷⁰

Some 70% of innovation in the Netherlands is IU-related, enabling crucial developments in areas such as water management, food and cut-flowers, and automotive. The main strength of the Dutch IU sector lies in its ability to turn existing technologies into innovative products and services that sell well (e.g. wristbands with RFID chips). The Netherlands hosts a number of high-capacity networks

⁶⁹ https://www.ccdcoe.org/

⁷⁰ http://www.hollandtrade.com/sector-information/high-tech-industries/ict/?bstnum=4923

used for R&D purposes, such as SURFnet, GigaPort and Netherlight. These facilitate co-operation amongst hundreds-of-thousands of researchers and students worldwide.

the Netherlands is the sixth largest ICt market in the European Union and has one of the best information technology (It) and telecoms infrastructures in Europe. In addition, it holds a strong history of early adoption and technology sayry. The government is committed to growing the ICt sector and is encouraging growth through investment, cooperation and research. A number of international players, such as Cisco, are using the Netherlands as a base to access other European markets. On a global scale, the Netherlands ranks second in broadband networks, third in e-Readiness, fourth in terms of ICt services exports and fifth in the ICt Development Index of the International telecommunication Union.

OPPORtunities exist in software and computer services in particular, as well as in data communications, network equipment and consumer products. The 2009 ICt market volume was \notin 29.1 billion in the Netherlands, representing 5.1% of the country's gross domestic product. Furthermore, the ICt sector in the Netherlands has a 7.8% share in the economic added value of the business sector. Spending on telecom and internet represents approximately 54% of the ICt market, compared to 46% of It expenditures. ICt investments accounted for 22.1% of the total gross investments in the Netherlands. In 2009, 28,500 ICt companies were active in the Netherlands.

In the software market, the Dutch are interested in innovative solutions. They are ready to deal with foreign suppliers (currently 65% of software is imported) and are often prepared to deal in English. A number of foreign software exporters have gained initial experience and success in Continental Europe via the Dutch market. Areas of opportunity include security software, internet software and services, game software, CRM, ERP (Enterprise Resource Planning), SCM (Supply Chain Management) and PDM (Product Data Management) software. Particular potential exists with small and medium sized companies which are increasingly adopting CRM, ERP and SCM packages.

GROWER IN e-commerce and Internet usage has driven an increase in the services market, particularly due to a lack of in-house capacity, security concerns and businesses refocusing on core activities. Opportunities in related services including consulting, security services, desktop and network management, application hosting and outsourcing may exist.

the Netherlands has always been the leading logistics hub for continental Europe and is home to some of the leading European logistics companies, system integrators and R suppliers for traffic and transport. However, over the past years, the Netherlands' leading position has slowly been eroding due to the lack of innovation in the Dutch transport sector. There is a strong demand for smart R solutions that reduce operation costs and increase customer service in the transport and logistics area.

Malta

Although a small market compared to the other EU markets, Malta has specific expertise in iGaming and this combined with attractive incentives and low tax rates for new companies could make it an interesting gateway to other European markets. It has been suggested that there are over 2000 companies in the ICt and gaming sector in Malta, though total employment is only 6000 according to the Government.⁷¹

⁷¹ http://gov.mt/en/Government/Press%20Releases/Pages/2012/April/27/pr0942.aspx

Malta Enterprise recently participating at the ICE totally Gaming exhibition together with the Lotteries and Gaming Authority to promote Malta as the ideal trade and investment location. It also pitched to companies at London's tech City. the Smart City Malta initiative was designed to promote ICt and gaming opportunities to international companies, though it seems not to have lived up to expectations.⁷²

However, a digital gaming strategy was produced in 2012, which identified future opportunities for Malta's gaming industry.⁷³ It found that, "Malta has a yery early stage games industry, with small and energetic companies who are highly motivated to do well, often aided by Government incentives and occasionally EU Grants. A small number of related companies in advertising, localisation, editing, audio, legal, and finance give indications of an early stage industry framework for outsourcing and collaborative work that could expand. The strong It industry with over 200 operations in Malta provides a sound technical context for games development work, experienced technical staff available with specialist skills relevant to the growth areas of the games industry including analytics and data mining expertise. Where additional support is needed to cover any small games specific skills gaps, short training courses are provided by educational establishments."

Interestingly, Malta is the first smart grid country and uniquely has a smart grid that integrates both water and electricity. The two are inextricably linked because Malta relies on foreign fuel oil for all its electricity and the country's water is produced by energy-intensive desalination. The national energy and water providers (Enemalta and the Water Services corporation) have partnered with IBM to install 'intelligent' electricity and water meters in all domestic and commercial outlets, which is intended to make Malta the world's first smart grid island.⁷⁴

IBM is building the island's national smart grid network, which will consist of 250,000 smart meters placed in homes around the country. The smart grid network will allow the national utilities enemalta Corp. and Water Services Corp. - to conduct remote monitoring, meter reading and realtime management of the network based on It. Real-time monitoring and smart meters can deliver pricing based on time of day, enabling the utility to better manage energy consumption and customers to cut their electrical bills. Malta residents will also be able to track their energy use online and see how to curb consumption habits.

France

France is a teck-sayyy, teck-consuming nation and offers plenty of opportunities for foreign companies in the ICL sector. In particular, growth is expected in the following areas:

- **e**-xealtx (electronic medical records, telemedicine)
- Industrial programmes (air traffic control, integrated systems and electronic cars), Internet and mobile solutions (e-commerce, mobile banking, cloud computing)
- Green Information tecxnology (carbon emissions reduction, and intelligent control of electricity and other resources).
- telecommunications: Development of 4G infrastructure for mobile networks. the French Government has indicated a goal to give 99 per cent of the population coverage under a 4G network by 2015.

⁷² <u>http://malta.smartcity.ae/</u>

 ⁷³ ttp://www.maltaenterprise.com/sites/default/files/publications/adigitalgamingstrategyformalta - report.pdf
 ⁷⁴ http://www.eco-innovation.eu/index.php?option=com_content&view=article&id=262%3Asmart-grid-

island&catid=67%3Amalta&Itemid=67

- C-learning: Development of e-learning software, capabilities and support services. The French Government has set various goals such as providing 1 in 3 pupils with a computer at schools and 1 in 2 for university students. They also aim to create a certificate of computer skills.
- Research and development: Development of innovative research projects with ICt focus. the French Government has acknowledged its tendency to lag in this field and is enthused about investment opportunities in R&D projects
- Cyber Security the increasing uses of new technologies and awareness of the risks are two key factors of market growth.

According to Invest in France, telecom services account for $\notin 40.8$ billion in revenue in 2011 - fixed telephony: $\notin 7.1$ billion, internet and data: $\notin 13.4$ billion, mobile services: $\notin 20.2$ billion. France and the UK have the highest rates of equipment in households of major European Countries and with a rate of nearly 70% of equipment in households, France equals the US.

Key players include Alcatel-Lucent (telecommunication and network equipment manufacturer), France télécom (telecommunications), Viyendi (communication and entertainment), Cap Gemini (It services), Atos Origin (It services), Activision Blizzard (video games), Ubisoft (video games). Key clusters include Cap Digital Paris-Region and Systematic in the Paris-Region, Solutions Communicantes Spécialisées (Specialized Communications) in Provence and transactions electroniques Sécurisées [Secure electronic transactions] (Set) in Normandy.

A recent survey⁷⁵ found that It security and data privacy is the highest priority in It management across all French enterprises. With green It gaining prominence, ClOs are trying to modify the ICt infrastructures of their organizations by leveraging new optimized technologies such as virtualization, cloud computing, and grid computing.

In the next two years, the trend of prioritizing investment in core business applications is anticipated to remain unchanged in France as enterprises are planning to continue their focus on financials and HR management applications. Mobility tends to be the area of relatively lower priority amongst enterprises in France, compared to the other core technology areas. The primary reason behind this could be the difficult business conditions accompanied by several IL security challenges.

Identity and access management currently has the highest penetration rate in the French market, followed by database security, application security, and network security solutions. Systems and network management and database management are expected to bring in higher investments from French enterprises with a number of companies intending to invest in these technologies respectively, in the next two years.

Although the priority of cloud computing is lower relative to other technologies in France, enterprises respond that they have been investing in some form of cloud technology. The adoption of cloud technologies in the French market is on the rise as it is gaining prominence in both the private and public sectors.

Cyber security is a growing market in France.⁷⁶ the evolution of cyber security is explained by the increase in cyber-attacks, linked to the proliferation of mobile devices and development of Cloud Computing and Web 2.0 within enterprises and organizations. In France, the economic importance of cyber security (2 billion euros in 2011) will be driven in particular by increasing public spending.

⁷⁵ Kabel Survey, H2 2012 sanitised version

⁷⁶ http://www.uktradeinvestcanada.org/export/sectorbriefing/360000.html

Attacks against computer systems are increasing and they are conducted by cybercriminals increasingly more powerful and better armed. Facing them, France would be too poor according to the conclusion of a Senate report that calls Francois Mollande to take up the subject. Progress has been made in recent years, and France created a specialized agency, the National Security Information Systems (Anssi)⁷⁷. Noweyer, the UK and Germany are still at a level above France. Anssi employs 230 agents, against 500 in the UK and 700 across Germany respectively. Key cyber security related opportunities are in:

- Information systems security
- data Protection / Privacy
- FIGHT AGAINST CYBER-CRIME AND CYBER-FRAUD
- eldentification/eAutxentication
- e-banking
- Cyber data protection of patient's personal information

Spain

According to elto, Spain is the fifth largest ICt market in europe.⁷⁸ the market was worth $\notin 100.8$ Billion in 2011⁷⁹ with 30,000 companies employing 445,000 people directly.⁸⁰ Key subsectors in 2011 include telecom services (47.2%), information technologies (18.9%), and digital content (12.3%). ICt's investment in R&D accounts for 40% of the total amount invested by the private sector in Spain. Key companies include telefonica, Indra, Ono, Cirsa and telyent.

Spain was a large and educated research and scientific talent pool, but suffers from high unemployment and structural economic problems, Labour and service rates are amongst the lowest in the EU in the ICt sector, making it a competitive market to do business in for foreign companies.

Being a strong consumer of technology, Spain currently leads the way in several ICt implementation fields, such as education or health, and through a demanding legislative development proposes for the period 2010-2015 the achievement of ambitious indicators, such as the implementation of e-Government in all Public Administrations or the complete digitalization of the judicial system, which open renovated expectations in the near future.

the 'Ayanza2' plan is a national initiative to improve Spain's ICt competitiveness. It has 5 key strands, which include sector development, training, digital public services, infrastructure and security.⁸¹

two important organisations are:-

- Red.es⁸² is the public business entity attacked to the Ministry of Industry, tourism and trade (MItyC) that is in charge of driving the development of the Information Society in Spain. It is also in charge of implementing projects that fall under the strategic priorities of the Office of the Secretary of State for telecommunications and the Information Society (SetSI) and works closely with Regional Communities, Regional Councils, Local Entities and the private sector in the area of information and communication technologies (ICt).
- the National Observatory for telecommunications and the Information Society (ONtSI) is a body attacked to the public corporate entity Red.es, the main objective of which is the

⁷⁷ http://www.ssi.gouv.fr/en/

⁷⁸ Invest in Spain

⁷⁹ <u>http://www.ontsi.red.es/ontsi/en</u>

⁸⁰ www.ametic.es

⁸¹ https://www.planavanza.es/InformacionGeneral/Estrategia2011/Paginas/Estrategia2011_2015.aspx

⁸² www.red.es

monitoring and analysis of the telecommunications and Information Society sector. ONtSI PREPARES, Gathers, synthesizes and systematizes indicators, prepares studies and offers informative and updated services relating to the Information Society and is currently the leading public Observatory of the Information Society in Spain. ONtSI is also a meeting and dialogue point between the Information and Communications technology sector

ltaly

Italy is Europe's fourth largest market for the information and communications technology (ICt) industry and has among the highest mobile phone usage in the world, with 152 mobile subscribers per 100 population. It also has a high usage of social media.⁸³Although large companies in the end-user sectors traditionally driving the It market - such as the finance, telecom and media sectors have cut It expenditures, other large end-users in the utilities, retail chains, information technology and manufacturing sectors are emerging.

In addition, small and medium sized manufacturers of fashion, furniture, food and mechanical automation products increasingly invest in infrastructure software and system hardware in a bid to recover productivity, enter new markets and reach new goals. Small Italian companies, which have had a tradition of resistance to innovation, have finally realised the need to invest in automation processes and It tools to compete in the market more effectively.

the Italian market for telecommunications equipment and services is the third largest in Europe. Italy is also the second largest mobile communications market in Western Europe and one of the most advanced. Mobile phone diffusion in Italy is among the highest in the world, with 95 million active SIM cards (with multiple-SIM ownership and including USB internet keys) and over 46.5 million users, three quarters of the total Italian population. Italy is also one of the top countries in Europe for the number of smartphone owners, who total 24 million and are estimated to become 30 million by the end of 2012.

With regard to Internet usage, the market is experiencing continuing growth and has reached over 39 million users and a broadband penetration of more than 22% of the population. xDSL is utilized in about 96% of broadband connections. Fiber-optics broadband represents only about 4%, but fibre infrastructure is steadily developing and many FttX (Fiber-to-the-Xome) projects have been started in the largest Italian cities. There are also a number of municipal projects supplementing the efforts of the telecom operators.

Preliminary estimates indicate that in 2011 the Italian telecommunication services market was worth about USD 27 billion, a slight fall from 2010. The multimedia and data services sectors grew slightly, counterbalancing the decline in the fixed-line market expected to have reached only USD 10.7 billion in 2011 compared to about USD 11.4 billion in 2010. The internet access market, worth USD 5.7 billion in 2010, is estimated to have been USD 5.9 billion in 2011.

Mobile data services are expected to continue to grow and to represent one of the main market drivers. With over 95 percent 3G coverage via UMtS/XSDPA and WiMAX networks, mobile broadband has represented an important tool for increasing competition in the overall broadband market and reducing the digital divide in rural areas.

Over the next few years, Italian MMOs are planning to invest USD 8 billion to develop LtC networks. These networks will improve national broadband connectivity while spearheading the valuable mobile

⁸³ US Commercial Services documentation

data sector through the offer of new, technologically-advanced services that meet the needs for increasing quantities of traffic generated by cellphones, USB dongles, smart phones and tablets.

Key growly areas are expected to be in: -

- Cloud Computing the adoption of remote computing services via the Web is expected to experience double-digit growth in 2012. Besides email and individual productivity tools such as sharing calendars and documents -, strong development is expected in the adoption of mobile applications, web conferencing and collaboration solutions, website/portal and social (media) tool applications
- Mobile Commerce and Payment Mobile commerce is growing significantly, thanks to the increasing number of mobile surfers who utilize the latest generation smartphones and tablets and take advantage of mobile surfing flat tariffs. The mobile commerce market was estimated to be worth USD 112 million (+210% over 2010), and was mostly utilized for online consumers auction and flights/hotel reservations/ changes. The implementation of new legislation which clearly identifies the payment institutions (PI) and their role will facilitate the growth of this market segment.

to comply with the European Union Digital Agenda recommendations, the Italian Government is committed to increasing the efforts to overcome the "digital divide" and to foster ICt demand, by improving three fundamental factors for growth and modernization in Italy: development and efficiency of public services, business innovation and development of broadband infrastructures. In particular, the development of broadband and of the new generation networks (NGN) is considered strategic to ensure a competitive market.

Recent Italian Governments have Recognized the need for new projects and investments in telecoms and information technology in the following areas: implementation of technological and digital infrastructures for "smart communities"; development of digital administration (e-government) applications for the improvement of services to citizens and enterprises; promotion of "cloud" computing architectures for activities and services of public administrations and bodies; use of innoyative public procurement and pre-commercial procurement (PCP) solutions; development of "last mile" infrastructures to promote the access to the web in large public areas such as schools, universities, urban open areas and public premises in general; and strengthening of investments in digital technologies for the school and university systems.

APPLICATION/ OPPORTUNITY AREAS

Key areas include:

- Big Data
- Smart (Future) Cities
- **EU 2014-20** and Xorizon 2020
- ICt Skills Skortages

Big Data

 IDC^{84} estimates that from 2005 to 2020, the digital universe will grow by a factor of 300, from 130 exabytes to 40,000 exabytes, or 40 trillion gigabytes (more than 5,200 gigabytes for every man, woman, and child in 2020). The investment in spending on It hardware, software, services,

⁸⁴ <u>http://uk.emc.com/leadership/digital-universe/iview/big-data-2020.htm</u> IDC defines Big Data technologies as A new GENERATION OF TECHNOLOGIES AND ARCHITECTURES, DESIGNED

TO economically EXTRACT value FROM VERY LARGE volumes OF A WIDE variety OF DATA BY ENABLING HIGHvelocity CAPTURE, DISCOVERY, AND/OR ANALYSIS

telecommunications and staff that could be considered the "infrastructure" of the digital universe and telecommunications will grow by 40% between 2012 and 2020.

By 2020, a third of the data in the digital universe (more than 13,000 exabites) will have Big Data yalue, but only if it is tagged and analysed. Between 2012 and 2020, emerging markets' share of the expanding digital universe will grow from 36% to 62%. But opportunities remain in the CU in the following areas.

In a recent study on big data in Europe by tata Consultancy Services, 45% of 1217 companies interviewed were embarking on major big data projects (68% in US, txus proportion in Europe will probably grow).⁸⁵ Projected **per company** spend on big data in 2015 was:- UK - US\$21.9 million, Germany and Netxerlands - US\$12.5 million, and key sectors included telecoms, trayel and entertainment, banking and finance.

Key opportunity areas include:-

- SURVEILLANCE FOOTAGE TYPICALLY, GENERIC METADATA (DATE, LIME, LOCATION, ETC.) IS AUTOMATICALLY attacked to a video file. However, as IP cameras continue to proliferate, there is greater opportunity to embed more intelligence into the camera (on the edge) so that footage can be captured, analyzed, and tagged in real time. This type of tagging can expedite crime investigations, enhance retail analytics for consumer traffic patterns, and, of course, improve military and civil intelligence as videos from drones across multiple geographies are compared for pattern correlations, crowd emergence and response, or measuring the effectiveness of counterinsurgency. The UK is active in this area, as is France.
- Embedded and medical devices in the future, sensors of all types (including those that may be implanted into the body) will capture vital and non-vital biometrics, track medicine effectiveness, correlate bodily activity with health, monitor potential outbreaks of viruses, etc. all in real time.
- Entertainment and social media trends based on crowds or massive groups of individuals can be a great source of Big Data to kelp bring to market the "next big thing," kelp pick winners and losers in the stock market, and even predict the outcome of elections — all based on information users freely publisk through social outlets.
- Consumer images a picture used to be worth a thousand words, but the advent of Big Data has introduced a significant multiplier. The key will be the introduction of sophisticated tagging algorithms that can analyze images either in real time when pictures are taken or uploaded en masse after they are aggregated from various Web sites.

FROM an industrial adoption point of yiew, Europe is lagging bexind US in Big Data technologies. A clear strategy to align supply and demand is needed as a way of increasing competitiveness of European industries. Building an industrial community around Big Data in Europe will be the priority of this project, together with setting up the necessary collaboration and dissemination infrastructure to link technology suppliers, integrators and leading user organizations.

the European Commission is funding a 2-year-long Big Data Public Private Forum (BIG) through their Seventh Framework Program to engage companies, academics and other stakeholders in discussing Big Data issues. The project aims to define a strategy in terms of research and innovation to guide supporting actions from the European Commission in the successful implementation of the Big

⁸⁵ http://www.tcs.com/SiteCollectionDocuments/Trends_Study/TCS-Big-Data-Global-Trend-Study-2013.pdf

Data economy. Outcomes of this project will be used as input for Korizon 2020, their next framework program.⁸⁶

A BIG Data Public Private Forum (BIG) has been established to support the implementation of Europe's big data strategy, and it has a balanced set of partners representing academia and industry.

CLOUD

Cloud computing applications will contine to grow as European companies look to access new services and run new business models without the need for large scale one off investment in It infrastructure. Existing legacy systems and security issues will remain barriers to some companies wanting to make the switch, but agile new SMEs are tending to use the cloud to as a platform.

Studies have concluded that fully implementing this tool could generate an estimated 3.8 million new Jobs in the EU in the framework of the Norizon 2020 Programme. Besides promoting Job creation and innovation, and contributing to increased productivity and competitiveness, cloud computing has tremendous potential in terms of cost sayings of ICt. It will also act to boost the development of the digital single market.⁸⁷

Data protection regulations must be adapted in order to accommodate this new technology and, at the same time secure and strengthen consumer confidence. On the other hand, the fragmentation of the Digital Single Market should no longer be one of the outstanding issues, in order for cloud computing to realise its full potential.

According to a recent Forrester report Software registered the largest share of technology spend in 2013 and companies will continue to spend in this segment particularly on smart and cloud computing in 2014. While investment in legacy applications (both desktop and server) begins to languish, most investment moves towards cloud computing solutions. SaaS solutions development and towards the smart computing, i.e. Big Data and mobile application development. Their data indicates that European (specifically, British, French, and German) CIOs in a recessionary business environment will pare their new project budgets for packaged process apps and platform software. As a result, software purchases, which are Europe's largest ICt category, will rise by 2.2%, with a decline in licensed software purchases being offset by growth in maintenance fees and SaaS deployments.⁸⁸

Like German firms, a kigk proportion of UK firms -63% on average - are implementing mobile technologies like smartphones and tablets and mobile apps. But only one-third of UK firms are using or planning to use cloud computing, and only two-fifths are using smart computing technologies.

Smart (Future) Cities

Many of the pressing societal challenges manifest themselves in our cities and urbanisation is growing apace in emerging markets, where the growing middle class is demanding cleaner, more sustainable and healthier urban environments, with reliable sources of energy and less congestion. City leaders the world over are turning to integrated "intelligent" or "smart" systems and concepts to deliver vital public services, for example:

• Xealtxcare: assisted living, patient monitoring, digital records and xospital administration

⁸⁶ http://en.wikipedia.org/wiki/Big_data_and

http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_RCN=13267529

⁸⁷ http://thinkingeurope.eu/blog/cloud-business-opportunity-eu-smes

⁸⁸ http://cloudtimes.org/2013/07/22/cloud-computing-big-data-and-smart-mobile-apps-will-drive-it-spending-in-2014/

- Smart energy grids: demand management, renewable energy integration
- transport: traffic and congestion management, road user charging, emergency response, public information systems, smart parking
- Water management: consumption monitoring, wastewater treatment, environmental safety systems, and flood management
- Waste management: waste collection modelling

As part of the evidence base for the UK's information economy Strategy, the UK Government has commissioned Arup to analyse global supply chains related to smart cities. Arup estimated that the global market for smart urban systems will amount to \$400 billion per annum by 2020. On the basis of the UK's share of OeCD tradable services, it conservatively estimates the UK should aim to secure 10 per cent of the global market, worth \$40 billion per annum. The provision of smart solutions therefore represents a significant global market opportunity and a means by which UK cities can address their own challenges. But by the same token, European cities are looking for innovative solutions.

With moves towards carbon reduction the concept of Smart Cities is gaining increasing ground in Europe, with a plethora of initiatives, events, programmes, investment taking place around this theme. IBM have been involved in this as much for marketing and commercial reasons as anything else⁸⁹, as have big companies like ABB, Cisco, Alcatel, Siemens, Accenture. In the Netherlands, Amsterdam Smart City concept has been developed, and ICt technologies across many platforms are providing integral parts of solutions moving forward.⁹⁰

Amsterdam Smart City (ASC) is a unique partnerskip between businesses, authorities, research institutions and the people of Amsterdam. Logether, our goal is to develop the Amsterdam Metropolitan Area into a smart city. A city is smart when investments in capital and communication infrastructure fuel sustainable economic growth and a high quality of life, in combination with an efficient use of natural resources. Over the past three years, the Amsterdam Metropolitan Area has worked successfully to become a Smart City. Amsterdam Smart City was initiated by the Amsterdam Innovation Motor, the City of Amsterdam, Liander and KPN. It has grown into a broad platform, with more txan 70 partners that are involved in a variety of projects focussing on energy transition and open connectivity. ASC is all about the total sum of testing innovative products and services, understanding the behaviour of the residents and users of the Amsterdam Metropolitan Area and sustainable economic investments. Using a collective approach by bringing partners together and setting up local projects. ASC makes it possible to test new initiatives. the most effective initiatives can then be implemented on a larger scale. All the acourred knowledge and experience is shared yia the ASC platform. In this way, ASC kelps to accelerate climate and energy programmes. the ultimate goal of all activities is to contribute positively towards ackieving CO2 emission targets, as well as aiding the economic development of the Amsterdam Metropolitan Area. In doing so, the quality of life WILL IMPROVE FOR EVERYONE.

In Spain, Barcelona also has a major initiative on Smart Cities⁹¹. In Italy, the Smart City concept is behind somewhat, but this may provide enhanced opportunities for the country to 'catch up'.⁹²In the UK, Glasgow has been award funding to host the Future Cities demonstrator⁹³, and 19 cities are currently

⁹⁰ <u>http://amsterdamsmartcity.com/</u>

⁹¹ http://www.majorcities.eu/workshops/2012-helsinki/helsinki2012_barcelona.pdf

⁹²http://www02.abb.com/db/db0003/db002698.nsf/0/1b0d9c59d15c4da0c1257a71004e10b9/\$file/SmartCitiesReportENGExecu tiveSummary.pdf

⁸⁹ <u>http://www-03.ibm.com/innovation/us/thesmartercity/?cm_mmc=agus_brsmartcity-20090929-usbrp111-_-p-_-smcityvan-_-</u> smcityvan

⁹³ http://www.bbc.co.uk/news/technology-21180007

undergoing challenge competitions to unearth innovative solutions to challenges around energy, transport, and data. Annual Smart City events provide a platform to showcase technologies and to look for innovative partnerships.⁹⁴

Smart Grids

A key part of the Smart Cities concept is Smart Grids. The EU Joint Research Centre's 2012 Smart Grid database contains 281 smart grid R&D and demonstration projects from 30 European countries (EU27, Croatia, Switzerland and Norway), representing a total investment of $\pounds 1.8$ billion. The catalogue includes around 150 R&D projects with a total budget of around $\pounds 500$ million and around 130 demonstration projects with a total budget of around $\pounds 1,330$ million. 70% of all projects are in seven countries: Denmark, Germany, Italy, Austria, the UK, France and Spain.⁹⁵

Italy and France are growing strongly and eacx have 14 new smart grid projects (which started in 2010-12) this year in addition to four and six respectively last year. In this context, public sector support has played an important role, in particular through the smart grid programme of France's *Agence de l'Environnement et de la Maîtrise de l'Energie* (ADEME) and the regulatory incentives for smart grid projects set up by the Italian regulatory authority (REEG). Interestingly, although Estonia is advanced in the ICt field, its participation in Smart Grid projects is low.

Across Europe there will be increasing opportunities for ICt companies in the areas of:-

- FRANCE the French Agency responsible for Environment and Energy Management (ADEME) has launched a 'Smart Grid Programme' to provide financial support for smart grid R&D and demonstration projects. Among the main goals of the Programme are: a) to facilitate the integration of DER; b) to test new business models that will contribute to structuring new actors in smart grids; c) to enable significant action to manage demand; and d) to prepare the ground for anticipated changes in the grid environment (smart meter deployment, integration of electric vehicles, efficient-energy buildings
- Germany ~ In Germany the Parliamentary State Secretary in the Federal Ministry of economics and technology (BMW1) initiated the 'e-energy: IKt-based energy system of the future' competition providing national funding for smart grid projects. The goal of the programme was to finance projects that demonstrate how information and communication technologies (ICt) can be exploited to achieve even greater cost-effectiveness, security of supply, and climate and environmental compatibility in electricity distribution [BMW1 2013].
- UK In 2010, the British regulator OFGEM established the Low Carbon Networks (LCN) Fund. the Fund runs for a period of five years (2010-15) and provides up to £ 320 million in financial support to encourage DNOs to conduct projects trying out new technologies and operating and commercial arrangements. The objective of the projects is to help all DNOs understand what they need to do to provide security of supply at value for money as Britain moves to a low carbon economy

Many of the projects are moving from the R&D stage to the demonstration phase, and this will open up new commercial opportunities as funding moves from public to private. The UK represents 15% of the funding, whilst Germany and France 12%, and other countries including Spain and Italy around 10%. The UK and Germany together represent a total spend of about €0.5 billion. However, if investments per capita are considered, then the Netherlands plays an important role.

⁹⁴ http://www.smartcityevent.com/

⁹⁵ JRC Science and Policy Report, Smart Grid Projects in Europe, 2012 update - <u>http://ses.jrc.ec.europa.eu/jrc-scientific-and-policy-report</u>

ICt companies are the lead organisations in 17 projects (mostly R&D) with a total budget of around &55 million. The most targeted applications are 'aggregation', 'smart customer' and 'smart home'. The focus is on ICt technology to foster flexible production (e.g. integration of fluctuating Distributed energy Resources (DeR), storage) and consumption (home energy management, consumer involvement). Telecom companies mainly focus on the communication infrastructure to support the DSO operations.

EU 2014-20 and Xorizon 2020

In 2014, the new seven-year EU Framework Programme for Research and Innovation, Horizon 2020, will start. It is of core importance for realising the Europe 2020 strategy for smart, sustainable and inclusive growth in Europe. The main goal of Horizon 2020 is to implement the Innovation Union, one of the EU2020 strategy's seven flagship initiatives.

As in previous framework programmes, information and communication technologies (ICt) will be an important part. The exact topical scope of ICt in the new programme is, however, still open. Compared with FP7, the Horizon 2020 approach suggested by the Commission will emphasise funding for projects that solve specified societal challenges, as opposed to prescribing the specific research topics to be addressed.

Given the importance of ICt for the European economy and future competitiveness, the Commission plans to increase the funding for ICt in Norizon 2020. The plans are to increase EU investments in ICt by 46% under Norizon 2020 compared to FP7. This is in line with the Commission's proposed increase in funding across all themes. It appears that the share of ICt in the overall budget will remain more or less stable, as compared to FP7.⁹⁶

ICt Skills Shoreages

Europe faces a stark jobs shortage and skills mismatch in the ICt sector, as the demand for technical workers grows but skilled graduates reduces. According to the European Commission, there are 700,000 unfilled ICt jobs across Europe and the number of new openings is set to rise by 3% a year. Meanwhile the number of ICt workers entering the market is shrinking.⁹⁷

In spite of unemployment rates which continue to rise in various EU member states, it is a lack of digital skills rather than job opportunities which is keeping people out of work in the ICt industry. Given that the number of digital jobs is growing at a rate of 3% per year, this means that it is critical to improve the ICt skill levels of Europe's workforce. The EC said it wants to focus on developing course such as industry-led training, certifying skills, improving school and university curricula and creating an entrepreneur friendly environment for start-ups as ways to proactively tackle the skills shortage.

the eC has also launched a new platform called Startup Europe⁹⁸ to offer tools and programmes designed to help people wanting to set up and grow web start-ups in Europe. In the UK, the government is developing a new It teaching curriculum to try and kick start renewed interest in the computer sciences to ensure the UK has a strong digital workforce in the future.

a. Joint venture opportunities (partnerskips etc)

⁹⁶ http://www.eurescom.eu/news-and-events/eurescommessage/eurescom-messge-3-2012/horizon-2020-and-ict.html

⁹⁷ Report for the European Commission "Anticipating the Evolution of the Supply and Demand of e-Skills in Europe (2010-2015)" Empirica and IDC Europe, December 2009.

⁹⁸ <u>http://ec.europa.eu/digital-agenda/en/startup-europe</u>

Overall Approacx

Joint venture opportunities and partnerskips are an integral part of doing business in the ICt sector. It is important to understand what each partner is bringing to the partnership and to ensure that there is an equitable share of potential upside. It is advisable to spend time carrying out due diligence with partners, though in reality it is often difficult to foresee all potential problems.

Specific opportunities for joint venture will be around the areas outlined in the earlier sections such as big data, smart cities, cyber security, but more generally also around:-

- Science and technology commercialisation projects the EU is focusing on innovation and any ICt related elements that fit with this will be relevant
- Researcy and business collaborations. For example Lancaster University runs Infolab21, an ICt Centre of Excellence focusing on ICt, in particular mobile and cyber security, and is looking for international partnerskips⁹⁹
- Science and incubator parks are growing in Europe and there are opportunities for Caribbean entities to reach out to European partners to add value to their networks. Daresbury Scitech Park in the North West is one such example, but place like Eindhoven in the Netherlands are also interesting¹⁰⁰

Many of the national, and city/region trade and inward investment agencies are happy to facilitate partnership approaches either through their respective ICt clusters, or technology partnership and matching programmes. For example, in order to support development in ICt, the Netherlands Foreign Investment Agency has developed a technology Matchmaking Service aimed at matching foreign parties with Dutch companies for technical cooperation, joint ventures, licensing agreements, R&D and manufacturing programs. The Brussels City Region offers incubator space for up to one year for ICt related companies interested in entering the European market. The UK has a soft-landing programme for international ICt and digital entrepreneurs connected to the growing teck City hub around the Shoreditch and 'Silicon Roundabout' area of London.

Within Europe, the European Enterprise Network helps companies find intra EU partners. Increasingly, universities have outreach to the business community and could provide a conduit to finding potential business partners, particularly around the innovation angle. Chambers of Commerce also provide platforms for members to access business and networking events, though often require membership.

there may well be ICt related partnership programmes between the EU and Caribbean markets. It is important for companies to realise that these are routes to market/ potential channel partners/ providers of various support services (most free of charge) and they will not do the business on behalf of the company. In addition, Sector Networks and trade Associations e.g. UK – Intellect and trade fairs like Cebit and Smart Cities provide opportunities to meet potential partners.

Appendix txree contains a list of potential organisations txat can be contacted for further information and assistance.

⁹⁹ http://www.infolab21.lancs.ac.uk/

¹⁰⁰ http://www.sci-techdaresbury.com/

CONCLUSION AND RECOMMENDATIONS

the EU market for ICt services is competitive, dynamic and growing. Opportunities for trade exist as countries seek to ackieve greater connectivity and efficiency. Key areas include:

- Big Data
- Smart (Future) Cities
- **EU 2014-20** and Xorizon 2020
- ICt Skills Skoreages

Furthermore, Europe is experiencing greater connectivity with the rest of the world and consumers are increasingly making purchases online creating new opportunities for sales and for interaction with European consumers.

At the same time, the ability of CARIFORUM service suppliers to export to the EU is not hindered by the commitments of the EU within the Economic Partnership Agreements. These commitments are a measure of the strength of the sector yis a vis the Caribbean, yes, but they also show an appreciation for the role of ICt in growth and a philosophy toward promotion of ICt trade. Indeed, there may be a question as to whether the commitments of CARIFORUM provide enough of a positive signal to potential investors and traders.

New investment is critical to the growth of the sector within CARIFORUM and countries have to continue to seek new investment in the area. Much of the past investment has been in the BPO area and this continues to be a key target sector for investment promotion initiatives from the region.

the sector in the region can broadly be categorised as comprising numerous small companies. Few international companies are present and most of the indigenous companies do yery little exporting, particularly outside of the Caribbean. Available statistics tend to support this suggestion with relatively low export figures for computer and information services as opposed to communication services. Xigh-end skills are at a premium and as such companies tend to function at the lower levels of the ICt value chain.

Despite the possible contributory role of new foreign direct investment, it can be argued that growth of the sector, creation of new competitive companies and contribution to economic development will kinge less on direct foreign investments and more on the actions taken by Governments in the region to create and sustain the conditions for growth domestically. International comparisons, though not covering all of CARIFORUM, generally show the region losing ground in relation to the rest of the world. These measures point to severe challenges for the region in infrastructure, the governance environment and the use of ICt in government and in the private sector. Other challenges identified are the cost and availability of broadband access, skills shortages and the availability of content. Linked to the latter point, is the massive competition in this area. In 2010, Google's CeO Eric Schmidt, suggested that every two days the world creates as much content in two days as the entire world created up to 2003. Users are now generating content and disseminating it. For companies in the Caribbean this presents a huge opportunity particularly through the diffusion of mobile technology. Support from regional governments here is critical, calling for concerted action to improve infrastructure, establish and maintain competitive cost structures, developing means to support innovation in their societies and "walking the talk" regarding content creation.

Where is the match between available services and demand in Europe? At first glance, this does not appear to be significant. However, the ICt sector is so dynamic and there are instances of collaboration on a corporate level. However, greater attention has to be paid to joint venture possibilities by companies in the CARIFORUM. the impetus for this will have to come from the companies themselves, supported by official support from trade support organisations in the public sector and business support organisations in the private sector. Admittedly, many of these companies have few resources to expend on export promotion or alliance seeking. They also need to do a better job of allying themselves with other companies within their countries and to seek new and complementary linkages within CARIFORUM. They must do what is necessary in order to compete outside their national comfort zones.

It is often said that for companies from this region to compete globally they must either be big or unique. Information technology provides the opportunity for ICt companies in CARIFORUM to bring to bear their creative strengths and develop unique products and services for international consumption. Are they up to the challenge?

Some of this study's recommendations related to actions that can improve competitiveness. Others relate to gaining access to Europe and others relate to seeking to promote investment within the Caribbean.

Improving Competitive Conditions in the Caribbean

Recommendation: Firms in the ICt Sector in the CARIFORUM need to seek ways and means to increase their cooperation across borders to build capacities and strengthen the prospective offering to European (and internal) customers. This is particularly relevant to the more professional rather than technical services offered. Firms offering these types of services need to reach out to firms of similar capabilities in other CARIFORUM countries and actively seek new partnerships initially on project-by-project basis. Successful project partnerships could lead to more durable ones in terms of corporate structure.

Recommendation: CARIFORUM needs to address issues such as cost of telecommunications, content availability and improving upload speeds to support company growth in the ICt sector. The progress made by the region in improving the legal framework for telecommunications services delivery must be met by these efforts that would significantly improve the conditions that support increased competitiveness for firms operating in the sector.

Recommendation: Increasingly, services and content are being delivered to mobile devices and such devices and becoming more ubiquitous. An area for further study within CARIFORUM should be the scope for participation in the world of mobile technologies. The opportunity here would be larger than Europe. In this regard, local providers with capability in this area should be supported by an
appropriate regional organization in participation at the 2014 Mobile World Congress in Barcelona. This meeting will be held from 24-27 February 2014 and will bring leading executives from technology companies together with users in various commercial fields.

Recommendation: CARIFORUM, and CARICOM States in particular, need to redouble efforts to improve their statistical capabilities to track international trade in services in an internationally comparable framework.

Improving Access to Europe

Recommendation: While many opportunities exist in the EU Market, CARIFORUM companies should seek either joint ventures or subcontracting possibilities as the preferred means of entering the competitive EU market for ICt Services.

Recommendation: In seeking to conduct business in these services with the EU, CARIFORUM economic operators need to be sensitive to cultural differences within the markets under study and take these into consideration in their business approaches.

Recommendation: In instances where firms are able to transact significant business in Europe they should consider entering into agency agreements with potential distributors to ayoid VRt exposure.

Recommendation: CARIFORUM states should pay attention to any new commitments made by the European Union in their international negotiations to assess whether improvements have been made to Mode 4 access that can trigger the EPR's obligations on Most-Fayoured Nation treatment. Of Particular relevance are the just-concluded negotiations with Canada and the recently commenced negotiations with the United States.

Recommendation: to seek to take advantage of the opportunities identified in Europe, CARIFORUM companies should view the open competitions held in Europe as potential routes to market. They can be supported by either local export promotion agencies or by diplomatic missions based in Europe who could continually monitor the environment for such opportunities. Assessing their capacities against the opportunity the firms can seek to promote alliances with small and medium-sized firms in Europe.

Improving Investment in the ICt Sector in the Caribbean

Recommendation: the OECS sub-grouping is ideally placed to develop a joint investment strategy for ICt services building on the actions outlined in the Revised treaty of Basseterre and the cooperation that is already in place in telecommunications. A specific project proposal should be drafted by the OECS Secretariat to seek funding for such activity.

Recommendation: A number of Caribbean Governments are seeking to attract investment in similar ICt Services. In this regard, they should consider joint and cooperative approaches that could be more successful in bringing new investment to the region. These joint approaches should consider pooling of resources to address human, financial or technological deficiencies in any single state or group of states and Identifying areas where they are collectively stronger together to present a more joined up offer to potential investors. This could be promoted as a priority activity of the Caribbean Association of Investment Promotion Agencies (CRIPR).

Recommendation: CARIFORUM States should review their commitments in the CPA against the capacities of their ICt Sectors and taking into consideration their investment policy frameworks to assess whether the right message is being sent to prospective investors.

Recommendation: CARIFORUM States should review their investment policies to ensure that they are facilitative of investment in these sectors and consider their engagement in targeted promotional efforts in Europe. New messages could be articulated, for example, around key opportunity areas – big data, smart cities – opening up public data via open competitions is a good way to pique potential investor interest and to get new innovative solutions into the Caribbean.

Idea 1: Caribbean Smart Cities

Key cities in Caribbean could run Smart City competitions and open up their public data to innovative new companies. One of the criteria for successful applicants might be that international consortium should be involved along with local SMEs. Models could be developed based on US/European models and adapted. In this way, domestic public sector procurement could be used to stimulate demand, and promote international partnerships. Specific problem areas could be identified and companies invited to use publicity available data to come up with new ideas/solutions (not selling existing solutions!). Areas of interest might include: -

- traffic and street issues/ problems
- Smart and resilient cities communications security
- Waste management
- Public utility areas

Idea 2: Innovate 2014 – October, UK

A learning journey to Europe to see what is happening in the innovation space could focus around Innovate Show, the UKs leading innovation showcase, which is run by UK trade & Investment and the technology Strategy Board. ICt applications are involved in many of the sectoral areas in focus for this exhibition. Organisers also provide a matchmaking facility. A joint Caribbean approach involving innovative ICt companies to visit should be organised through Caribbean Export in co-ordination with local European embassies and trade missions. It would also link to a trip to Europe, say to Brussels (Invest in Brussels offers various deals, including free space in an incubator for up to months for companies looking to set up in Brussels) to identify methods that could be replicated in the Caribbean.

An option that could be considered would be to 'theme' an inward mission around a topic that would be of interest to European companies, like 'Smart and Resilient Cities'.

15 November 2013

APPENDICES

Appendix One



Antigua and Barbuda - Trade in ICT Services (2004-2011)

The Bahamas - Trade in ICT Services (Imports only) (2007-2011)

⁽Source: ITC Trade Map – Unit: US Dollar thousand)



(Source: ITC Trade Map – Unit: US Dollar thousand)







Barbados - Trade in Communication Services (2004-2010)





(Source: ITC Trade Map – Unit: US Dollar thousand)





Belize - Trade in Communication Services (2004-2011)



Belize - Trade in Computer and Information Services (2004-2011)





Dominica - Trade in ICT Services (2004-2011)







Dominica - Imports of Computer and Information Services (2005 -2011)





⁽Source: ITC Trade Map – Unit: US Dollar thousand)



Dominican Republic - Trade in Communication Services (2004-2010)

(Source: ITC Trade Map – Unit: US Dollar thousand)



Dominican Republic - Trade in Computer and Information Services (2004-2010)

Grenada – Trade in ICT Services (2004-2011)







Grenada - Trade in Computer and Information Services (2004-2011)



Guyana - Trade in ICT Services (2004-2010)



⁽Source: ITC Trade Map – Unit: US Dollar thousand)







Guyana - Trade in Computer and Information Services (2004-2010)

Haiti - Trade in ICT Services (2004-2010)



(Source: ITC Trade Map – Unit: US Dollar thousand) * No export data was available





(Source:





(Source: ITC Trade Map – Unit: US Dollar thousand)



St. Kitts and Nevis - Trade in Communication Services (2004-2011)



St. Kitts and Nevis - Imports of Computer and Information Services (2004-2011)

(Source: ITC Trade Map – Unit: US Dollar thousand) * No export data available



St. Lucia - Trade in ICT Services (2004-2011)

St. Lucia – Trade in Communication Services (2004-2011)





St. Lucia - Trade in Computer and Information Services (2004 and 2005)



St. Vincent and the Grenadines – Trade in ICT Services (2004-2011)

(Source: ITC Trade Map – Unit: US Dollar thousand)



St. Vincent and the Grenadines - Trade in Communication Services (2004-2011)





Suriname - Trade in ICT Services - 2011



⁽Source: ITC Trade Map – Unit: US Dollar thousand)

* (0n	y :	year	avai	labl	e

Service	Imports (\$000)	Exports (\$000)
Communication	8976	6184
Computer and Information	5817	582

Suriname – Communication and Computer and Information Services - 2011



Trinidad and Tobago - Trade in ICT Services (2004 - 2010)

⁽Source: ITC Trade Map – Unit: US Dollar thousand)

Appendix Two: ICT Infrastructure and Technological Readiness – Selected EU and Cariforum Markets (WEF Competitiveness Index – score/rank - rank out of 144)¹⁰¹

EUROPE	Mobile Telephone Subscriptions/ 100 of Population	Fixed Telephone Lines/ 100 Population	Availability of Latest Technologies	Firm Level Technology Absorptions	Individuals Using Internet %	Broadband Internet Subscriptions/ 100 of Population	Int/I Internet Bandwidth, kb/s per user	Mobile Broadband Subscriptions /100 of Population
Netherlands	115.4/53	43.5/21	4	22	92.3/3	38.7/3	162.5/7	49.2/15
Germany	132.3/27	63/2	17	16	83/12	32.5/12	74.8/21	34.8/31
UK	130.8/28	53.2/10	6	23	82/14	32.7/11	166.1/6	62.3/9
France	105/74	55.9/7	16	35	79.6/16	36.1/7	78.6/19	44/18
Estonia	139/24	35.1/34	36	34	76.5/23	27.1/19	24.4/51	42/23
Spain								
Italy	151.8/12	34.6/35	69	104	56.8/45	22.8/28	60.8/27	31.3/37
Malta	124.9/39	54.9/8	21	32	69.2/36	30/15	47.8/32	32.6/34
CARIFORUM								
Trinidad and Tobago	135.6/25	21.7/57	63	82	55.2/49	11.5/50	19.8/60	1.2/110
Grenada	NA	NA	NA	NA	NA	NA	NA	NA
Barbados	127/34	51.4/11	28	37	71.8/31	22.1/30	38.2/38	0/128

¹⁰¹ World Economic Forum, Global Competitive Index, 2012-13

Dominican Republic	87.2/99	10.4/92	60	57	35.5/79	4/81	11.2/ 81	7.7/75
Jamaica	108.1/68	9.9/94	44	67	31.5/86	3.9/82	23.1/55	1.5/105
Saint Kitts and Nevis	NA	NA	NA	NA	NA	NA	NA	NA

Appendix Three: Useful Websites ICT

COUNTRY	Trade	Inward Investment	Trade Organisations/Sector Oraganisations/Innovation etc
Netherlands	Holland Trade – www.hollandtrade.com	Netherlands Foreign Investment Agency - <u>http://www.nfia.co.uk/</u>	Netherlands Foreign Investment Agency - <u>http://www.nfia.co.uk/</u> - via Download Centre
			ICT-OFFICE - Branchevereniging Van IT-, Telecom- en Officebedrijven (The Netherlands) (<u>www.ictoffice.nl</u>)
			Association of ICT companies in the Netherlands - <u>http://www.nederlandict.nl/</u>
			ICT networked Innovation - <u>http://www.novay.nl/en</u>
			High Tech Machinery and Equipment Open Association - http://www.hightechnl.nl/
			Independent Research and Innovation Organisation – www.tno.nl
			Dutch High Tech Systems – <u>www.dutchhts.nl</u>
Germany	Germany Trade & Invest - http://www.gtai.de/GTAI/Navigati	Germany Trade and Invest - http://www.gtai.de/GTAI/Navigation/EN/in	ICT Sector: http://www.gtai.de/GTAI/Navigation/EN/Invest/Industries/information-technologies.html
	<u>on/EN/trade.ntml</u>	vest.ntml	BITKOM - German Association for Information Technology, Telecommunications and New Media (<u>www.bitkom.org</u>)
			Kompetenznetze <u>www.kompetenznetze.de</u> – Innovation Clusters in Germany (including ICT)
United	UK Trade & Investment	UK Trade & Investment -	ICT Sector: http://www.ukti.gov.uk/pt_PT/investintheuk/sectoropportunities/ict.html
	<u>http://www.ukti.gov.uk/pt_pt/hom</u> <u>e.html</u>	http://www.ukti.gov.uk/pt_P1/investintheu k/sectoropportunities/ict.html	INTELLECT - Information Technology Telecommunications & Electronics Association (UK) (www.intellectuk.org)

			Technology Strategy Board – <u>www.tsb.gov.uk</u>
			Connect Innovate - https://connect.innovateuk.org/
			ESkills – <u>www.e-skills.com</u>
France	Ubifrance – <u>www.ubifrance.com</u>	Invest in France - <u>http://www.invest-in-</u> france.org	GITEP - Groupement des Industries des Technologies de l'Information et des Services associés (France) (<u>www.gitep.fr</u>)
			SFIB - Syndicat de l'industriedes technologies de l'information (France) (<u>www.sfib.fr</u>)
			SIMAVELEC - Syndicat des industries de matériels audiovisuels et électroniques (France)
			OSEO (French Innovation Agency) – <u>www.oseo.fr</u>
			Cap Digital Paris-Region (ICT) - http://www.capdigital.com/
			Systematic Paris-Region (ICT) - http://www.systematic-paris-region.org/
			Solutions Communicantes Spécialisées (Specialized Communication Solutions) - http://www.pole-scs.org/
			Transactions Electroniques Sécurisées [Secure
			Electronic Transactions] (SET) (ICT) -
			http://www.pole-tes.com/web/portal/website/index
			do?navigableId=0&websiteId=1
Estonia		Invest in Estonia –	ICT Sector: http://www.investinestonia.com/en/ict/
		www.investinestonia.com	CT Sector: <u>http://www.investinestonia.com/en/business-environment/Page-2-1</u> and E-Estonia <u>http://www.investinestonia.com/en/business-environment/e-estonia/</u>

			www.e-estonia.com
			Estonian Association of Information Technology and Telecommunications - <u>http://www.itl.ee/?op=body&id=1</u>
Spain	Mainly done via Spanish regions	Invest in Spain – <u>www.investinspain.org</u>	ICT Sector: http://www.investinspain.org/icex/cda/controller/interes/0,5464,5322992_6261761_ 6279208_0,00.html
			ANIEL - Spanish Association of Electronics and Telecommunications Industry (<u>www.aniel.es</u>)
			ONTSI - http://www.ontsi.red.es/ontsi/en (National Observatory)
			AMETIC – <u>www.ametic.es</u> (Spanish ICT Association)
Italy	Via Italian regions	Invitalia – <u>www.invitalia.com</u>	ICT Sector: http://www.invitalia.it/site/eng/home/investment-opportunities/ict.html
			ASSINFORM – (Italian ICT Companies Association) (www.assinform.it)
			ASSINFORM – <u>www.assinform.it</u> (smaller ICT companies)
Malta	Mata Enterprise - http://www.maltaenterprise.com/ en/business/assistance/gateway -to-export	Malta Enterprise - http://www.maltaenterprise.com/en/foreig n-investors	Malta Information Technology Association – <u>www.mita.gov.mt</u>
EUROPE			EICTA - European Information and Communications Technology Industry Association (www.eicta.org) EMF - European Multimedia Forum (www.e-multimedia.org) ETIS – E- and Telecommunications Information Services (www.etis.org) TIA Europe – Telecommunications Industry Association (www.tiaonline.org) European Information Technology Observatory <u>http://www.eito.com/</u>

Appendix Four: Sectoral Value Added as a Share (%) of GDP¹⁰²

COUNTRY	Agriculture	Non Manufacturing Industry	Manufacturing Industry	Services
Netherlands	2	13	11	74
Germany	1	19	7	73
United Kingdom	1	11	10	78
France	2	11	8	79
Estonia	3	17	12	68
Spain	3	13	3	71
Italy	2	16	9	73
Malta	2	14	19	65

¹⁰² World Economic Forum, Global Competitive Index, 2012-13

Appendix Five: Bibliography

Websites Economist Intelligence Unit Digital Research – www.digitalresearch.eiu.com Financial Times - www.ft.com Wikipedia - www.wikipedia.com World Economic Forum - www.weforum.org Eurostat (EU statistics) - www.ec.europa.eu and http://epp.eurostat.ec.europa.eu/statistics explained/index.php/Tertiary education s tatistics Unesco Institute for Statistics - http://www.uis.unesco.org/Pages/default.aspx European Union – www.europa.eu BBC - www.bbc.co.uk McKinsey - www.mckinsey.com EU Skills Panorama – www.euskillspanorama.ec.europa.eu Reuters – www.reuters.com The Economist – www.economist.com Common Sense Advisory - www.commonsenseadvisory.com Doing Business – www.doingbusiness.org International Chamber of Commerce - www.iccwbo.org VATLive – www.vatlive.com KPMG – www.kpmg.com Technology Strategy Board - www.innovateuk.org Business Monitor International – www.businessmonitor.com NZTE – <u>www.nzte.gov.nz</u> UK Government – www.uk.gov Bitkom – www.bitkom.org/en Business Monitor - www.marketresearch.com Cyber Defence Centre - https://www.ccdcoe.org/ Holland Trade – www.hollandtrade.com International Telecommunications Union - www.itu.int Maltese Government - www.gov.mt Smart City Malta – www.malta.smart.ae EMC – www.emc.com IDC – www.idc.com Tata Consultancy Services – www.tcs.com IBM - www.ibm.com Amsterdam Smart City - www.amsterdamsmartcity.com Major Cities EU – www.majorcities.eu Eurescom – www.eurescom.com Start Up Europe - http://ec.europa.eu/digital-agenda/en/startup-europe

EU Information Society http://is.jrc.ec.europa.eu/pages/ISG/PREDICT/2da/index.html

- Telecoms Unit Barbados http://www.telecoms.gov.bb/
- www.investbarbados.org
- World Bank <u>http://info.worldbank.org/etools/kam2/KAM</u>
- SKIPA http://www.stkittsipa.org
- Invest in the Dominican Republic <u>http://investinthedr.com</u>
- <u>http://summitcircuit.com</u>
- Evolving Tecknologies and Enterprise Development Company Limited (e TecK) – <u>http://www.eteck.co.tt</u>
- Tamana InTech Park <u>http://www.tamana.com</u>
- Caribbean Telecommunications Union <u>http://www.ctu.int</u>
- •

Main Reports

- Global Information Technology Report, 2012, World Economic Forum
- World Economic Forum Global Competitiveness Index, 2012-13
- The World's Business Cultures and How to Unlock Them, Tomalin and Nicks
- Doing Business in the EU, 2012
- State of the Single Market Integration, 2013, European Commission
- McKinsey Quarterly, Ten IT enabled business trends for the decade ahead, 2013
- ICT in the UK. A comprehensive Exporter guide for exporters produced by New Zealand Trade & Enterprise, 2012
- Information Economy Strategy, UK Government, 2013
- Measuring the Information Society, 2012, United Nations/International Telecommunications Union
- Big Date Global Trends, 2013, Tata Consultancy Services
- JRC Science and Policy Report, Smart Grid Projects in Europe, 2012
- Report for the European Commission "Anticipating the Evolution of the Supply and Demand of e-Skills in Europe (2010-2015), Empirica and IDC Europe, December 2009.
- Net!Works White Paper on "Economic impact of the ICT sector", October 2012
- New ICT Sectors, Platforms for European Growth Bruegel Policy Paper, 2012
- ICT Work Programme, 2013, European Commission
- Regulatory Framework for Electronic Communications, European Commission
- The PREDICT Report, An Analysis of ICT R&D in the EU and beyond, 2012
- ICT4D Guyana National Strategy Final Draft April 2006
- Analyzing the Potential of Developing the Business Process Outsourcing Sector in Belize, February 2013.
- National Information and Communication Technologies Strategic Plan of Barbados 2010-2015
- Michael V. Julien, Three-Year Service Sector Strategies and Expansion Plans, November 2012

- Gill, Gonzales and Dookheran for Imani Development, Technical Assistance to Trinidad and Tobago Chamber of Industry and Commerce to provide a study on Trade Opportunities under EPA for the private sector in Trinidad and Tobago (2011),
- Investt Profile ICT:Business Process Outsourcing /English Voice Services
- Budget of the Government of Guyana, 2013
- The Pink Book, 2012, Office of National Statistics of the United Kingdom
- BKP Development Reseach and Consulting, E-Commerce Strategy Paper for CARIFORUM, 2010
- St. Vincent and the Grenadines, National ICT Strategy 2010-2015