

WHITE PAPER

Luxembourg as a Center for Online and ICT Business

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IDC OPINION

Luxembourg may not be the first country ICT and ebusiness organizations may think about when establishing or consolidating their presence in Western Europe. Still, Luxembourg is clearly on the rise in terms of technology infrastructure and the presence of some leading technology organizations. Why have companies such as Amazon and PayPal established their European presence in Luxembourg? This IDC study provides an answer to this question.

After extensive research, we have reached the conclusion that Luxembourg offers important advantages for global ICT/online organizations doing business (or seeking to do business) in Western Europe.

- ☑ Luxembourg seeks to attract high-value industries through pro-business policies and a close working relationship between business and government. Key officials are accessible and aware of the challenges faced by enterprises, especially those in the financial services, media, and ICT sectors.
- ☑ Location-wise, Luxembourg is in the heart of the 500 million-strong EU consumer market, close to Amsterdam, Brussels, London, Paris, Frankfurt, and other major European business centers.
- ☑ Luxembourg enjoys a very diverse, well-educated, and multilingual workforce. The country attracts top talent from within and from the neighboring countries of France, Belgium, and Germany. There are three official languages (French, German, and Luxembourgish), while English, Italian, and Portuguese are widely spoken.
- ☑ Infrastructure is certainly a key success factor for an ICT or online business. Luxembourg has turned a prior weakness in infrastructure into a current strength. The country now has excellent high-speed connectivity both internally and throughout Europe. There is a large amount of Tier III and Tier IV datacenter space open, with adequate space available. Luxembourg has just opened its own Internet Exchange (LU-CIX).
- ☑ Although not discussed at length in this report, Luxembourg offers important financial benefits to companies operating in the country. Both its VAT and effective corporate tax rate are among the lowest in Europe. The new intellectual property (IP) regime offers particular advantages for ICT companies.
- ☑ Luxembourg offers a very high standard of living. Luxembourg City was named the world's top city for personal safety and security by Mercer Consulting. Luxembourg was also named the fourth best country to live in by a 2008 "International Living" survey.

IN THIS WHITE PAPER

Methodology

IDC conducted numerous interviews (from May to September 2009) with ICT/online companies, telecom providers, datacenters, ISPs, human resources experts, academics, and government officials in Luxembourg for this white paper, including:

- ☒ **Enterprises:** Telindus, SES Astra, Amazon.com, PayPal, Vodafone Procurement, Clearstream, RBC Dexia, iTunes, Hitec, Huawei, KPMG, Evalueserve.
- ☒ **Infrastructure:** LuxConnect, P&T Luxembourg, Tango, Cegecom, LU-CIX, Secure IT, eBRC, European Data Hub, root eSolutions, EuroDNS, Datacenter Luxembourg, Luxembourg Telecom.
- ☒ **Government, Education, and other:** Government administration, U.S. Embassy, American Chamber of Commerce in Luxembourg, University of Luxembourg.

INTRODUCTION

An ICT or online services company wishing to do business in Europe would be well served to locate its offices in a stable, business-friendly environment, with strong ICT infrastructure, and a capable/multilingual workforce. In evaluating locations in Western Europe, technology companies take a number of factors into account such as location and infrastructure, business climate, and access to skills.

The purpose of this white paper is to analyze where Luxembourg stands regarding each of these criteria that a company has to consider before choosing a business location. The next step is to present the challenges Luxembourg is facing before finally providing a well-balanced conclusion.

"Luxembourg is an outstanding place to do business — from its optimal location in the heart of Europe, to the high quality of life, a multinational/multilingual and skilled workforce, combined with a 'can-do', flexible and pro-business government. In the ICT sector in particular, Luxembourg has achieved phenomenal growth in terms of the number of U.S. and other tech and ecommerce firms establishing operations here and taking advantage of the tremendous public investments made in infrastructure and connectivity."

— Ann L. Wagner, former U.S. Ambassador to Luxembourg

LOCATION AND LOGISTICS

Bottom Line: Luxembourg is geographically and logistically a strong location for ICT and online companies. Excellent international road and rail connections link Luxembourg to Paris, Frankfurt, and Brussels. Most major European capitals can be reached within one hour via air.

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For companies delivering products throughout Europe, or for companies whose employees regularly travel to European capitals, Luxembourg is ideally located. The country is bordered by Germany, France, and Belgium, and is often considered a 'neutral' place to do business.

Major highways connect Luxembourg to Brussels, Paris, and Frankfurt. There are reliable rail services to locations throughout Europe, and Luxembourg is connected to the French high-speed train TGV. The newly expanded Findel airport offers air services throughout major European cities via the national carrier Luxair and a number of other airlines.

Luxembourg is currently positioning itself as a European logistics hub. Findel airport is the fifth largest cargo airport in Europe, and local cargo carrier Cargolux is among the largest cargo airlines in Europe.

"Vodafone evaluated several locations for the establishment of the Vodafone Procurement Company. We decided to move to Luxembourg because Luxembourg provides us with the geographical advantage of being in the middle of Europe, provides us with a supportive business environment and last, but not least, Luxembourg is a 'neutral' country since we do not have an own presence here. That guarantees the independence of the Vodafone Procurement Company."

— Detlef S. Schultz, CEO Vodafone Procurement Company

A MULTILINGUAL ENVIRONMENT AND A DIVERSE WORKFORCE

Bottom Line: A key advantage for international companies located in Luxembourg is its multicultural and multilingual workforce.

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"We're especially impressed by the multilingual capabilities of Luxembourg employees — with our French, German, and English Web sites we need employees that speak all of those languages — and we believe that this is unique in Luxembourg — and with many international employees from all over the world, we can be sure to serve our customers even better!"

— Christine Hoeger, Senior Manager Public Relations, Amazon.com

As a small nation, Luxembourg has always relied on a mixture of local nationals, permanent residents, and cross-border commuters to fuel its growth. As of 2009, significant portions of the active workforce are either permanent residents or commuters (144,000 commuters as of 2010, known as frontaliers). Luxembourg businesses can choose from highly skilled and highly educated workers from France, Germany, and Belgium. Moreover, Luxembourg ranks in the top five in the EU in terms of IT specialist occupation (ranking reflects the percentage of the workforce engaged in an IT occupation, citation: OECD Information Technology Outlook 2009).

There are three official languages in Luxembourg: Luxembourgish, French, and German. English, the language of many international businesses, is widely spoken as well, and, due to immigration during the 20th century, so are Italian and Portuguese.

A PRO-BUSINESS ENVIRONMENT

"The accessibility and pro-business mindset of the Luxembourg government makes this an ideal environment to pursue innovative business models."

— Brent Bellm, former CEO PayPal Europe

Luxembourg has already earned a reputation as a safe, stable, and flexible environment for businesses in the financial sector. These qualities are also important to ICT companies, especially those involving innovative new technologies where regulations and standards may not yet have been established.

IDC has identified five key areas where the Luxembourg government is helpful to ICT businesses:

☒ **A small, stable, and accessible government:** Luxembourg is a parliamentary democracy headed by a constitutional monarch, currently Grand Duke Henri. Law-making powers are vested in the Chamber of Deputies. The country has enjoyed extremely stable governments.

ICT and online businesses that have opened major offices in Luxembourg report that contact with key ministers is generally very easy. The Luxembourg government has a number of offices that are tasked with helping businesses, but leaders of major companies are often able to contact key government leaders directly.

Due to the small size of Luxembourg, Ministers are often responsible for more than one portfolio. This creates a lot of synergies and leads to more efficient decision making.

"Luxembourg's government has been very supportive [when Amazon.com announced its plans to centralize its European business in Luxembourg in December 2004], and always granted easy access to authorities as well as offering a business-friendly environment."

— Christine Hoeger, Senior Manager, Public Relations, Amazon.com

☒ **A pro-business government:** Luxembourg has been able to adapt its economy to major industrial and business trends over the past century. By identifying and pursuing new industries (while maintaining successful existing ones), Luxembourg has been able to maintain a dynamic and growing economic system.

Luxembourg has a history of making itself a center for innovative businesses and industries (first steel, later radio, TV and satellite broadcasting, and financial services, and today ICT and online businesses). A number of companies interviewed for this White Paper stated that the Luxembourg government is strongly business-oriented, and therefore has a very pragmatic attitude.

"The accessibility and pro-business mindset of the Luxembourg government makes this an ideal environment to pursue innovative business models."
— Brent Bellm, former CEO PayPal Europe

- ☒ **A clear and forward-looking regulatory and legal framework:** Luxembourg often uses its legislative and regulatory tools to fine-tune an efficient business environment.

A good example of this process is the Professionals of the Financial Sector (PSF) certification program. This official business certification program ensures (among other things) the security and confidentiality of client information. PSF certification comes with monthly reporting and regular audits. The following types of organization have PSF status:

- ☐ Investment companies
- ☐ Financial services companies other than investment companies
- ☐ Companies pursuing activities related to the financial sector. This category includes "primary IT systems operators of the financial sector, secondary IT systems and communication networks operators of the financial sector, and professionals providing company formation and management services." (Source: LuxembourgForFinance)

IDC feels that the achievement of PSF status for ICT companies doing business in Luxembourg represents an important competitive advantage and is a clear demonstration of capabilities to both EU and global clients.

"The PSF accreditation places eBRC, since 2004, under the direct supervision of the local financial regulator (CSSF) with the same responsibilities and capabilities as any bank, in particular concerning financial data confidentiality.

This agreement is a real quality label specially designed for the financial sector, guaranteeing best practices to safeguard confidentiality, security, and availability of the data requested by enterprises launching business initiatives and outsourcing the service management of their ICT in Luxembourg."

— Alexander Duwaerts, Client Development Director, eBRC

- ☒ **A regulatory system that supports and encourages innovative technologies and innovative companies:** Luxembourg is open to 'new business models'. A number of innovative and 'disruptive' companies are headquartered in the country. Luxembourg has done well to identify which of these types of innovative technologies would most benefit the Luxembourg economy. Examples include:

- ☐ Online payments/electronic banking: In 2007, PayPal moved its European headquarters to Luxembourg. PayPal now operates as a European bank as well as an online payments provider. A number of other companies have joined, or are planning to join PayPal in Luxembourg.
- ☐ VoIP telephony: Luxembourg is the home to a number of VoIP telephony companies, including Skype and voipGATE. Skype, a pioneer in low-cost/no-cost telephony, was founded in Luxembourg.
- ☐ Domain name registration as intellectual property: In 2008, the government of Luxembourg instituted a new intellectual property regime (details below) that included domain names (among the first regimes to include domain names). As a result, an increasing number of DNS companies are operating in the country.

- ☒ **A developing crossroads for both content and content delivery:** Although content providers such as iTunes have been located in Luxembourg for a number of years, many have not brought their content (whether content delivery or content production) there.

A sign that this may be changing can be seen in the announcement in March of 2009, that Real Networks would centralize much of its datacenter and business support functions in Luxembourg. Real Network will provide subscription-based Internet radio services, videos, ring-tones, live digital broadcasts, and music downloads from its Luxembourg facilities.

In addition, Luxembourg's role in broadcasting provides an avenue for content distribution. The first private radio (and later TV) broadcaster in Europe was RTL (Radio Télé Luxembourg) and the company remains a leading European broadcaster. Luxembourg is also the home to Europe's first private satellite operator, SES Astra.

"Luxembourg has pioneered two very important developments in broadcasting and related technologies, enabling it to become a major European and global hub for this sector. Firstly, Luxembourg very early created the framework for the foundation and expansion of Europe's first and today's largest private broadcaster — RTL — by granting its licenses to a private company. Secondly, Luxembourg supported and allowed the creation of Europe's first and today's most important satellite operator, SES Astra, by granting it orbital licenses as a private satellite operator.

Both developments were based on visionary political decisions and have been major catalysts for the development of the broadcasting sector and the related infrastructure into a multibillion industry. Due to this historical role at the forefront of media and technologies, Luxembourg will, without any doubt, continue to maintain its pivotal role, as we can see it emerging, for example, in the telecom and IT sectors."

— Ferdinand Kayser, CEO, SES Astra

INFRASTRUCTURE

Bottom Line: Luxembourg has transformed itself into one of Europe's top locations for ICT infrastructure (datacenters, connectivity, and Internet traffic) following more than five years of targeted public and private investment.

For the past decade, the government of Luxembourg, along with private enterprise, has made investments in local telecom networks, international fiber networks, WiFi connectivity, Tier III and IV datacenters, satellite broadcasting facilities, and business continuity centers. The wireless market is very competitive, with pricing among the lowest in Europe.

"The competitive [infrastructure] landscape has improved considerably over the last few years, making it more attractive to provide Deutsche Börse/Clearstream IT services from Luxembourg."

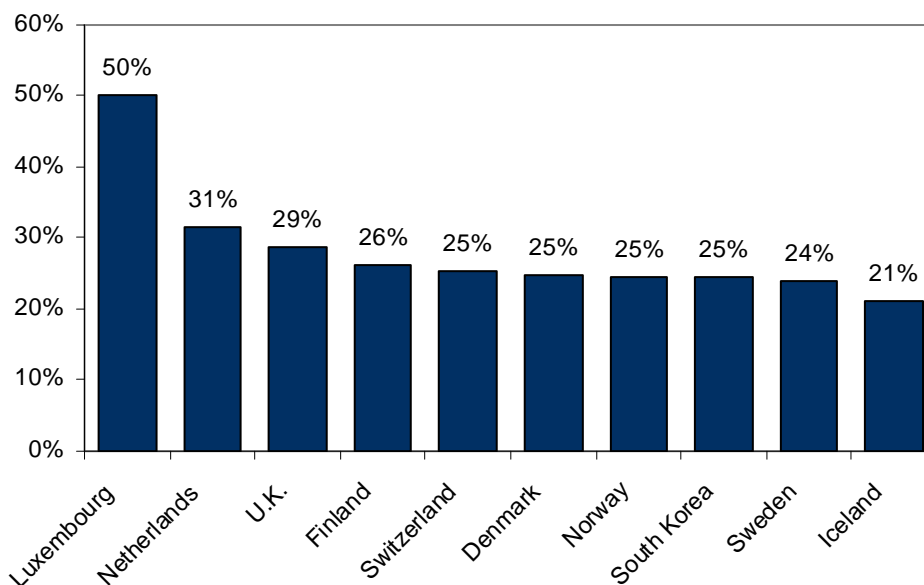
— Michael Girg, Director, Head of Network Support, Deutsche Börse Systems AG

Bottom Line: Luxembourg has transformed itself into one of Europe's top locations for ICT infrastructure (data centers, connectivity and Internet traffic) following more than five years of targeted public and private investment.

Luxembourg was the most improved nation in the top 10 of the International Telecommunication Union's ICT Development Index between 2002 and 2008. The ICT Development Index is a measurement of access, use, and skills, such as households with a computer, the number of Internet users, and literacy levels (Source: OECD Information Technology Outlook 2008).

FIGURE 1

Most Improved Countries in ICT Development Index



Source: International Telecommunications Union, 2009

Telecom Infrastructure

Connectivity is vital for ICT businesses, and mission-critical for online companies. When firms such as Ebay, Amazon, PayPal, and others began locating their offices in Luxembourg (2004–2007), high-speed connectivity was not always easily available. Most global telecom companies had only a limited presence in Luxembourg. High-speed (1Gbit and above) data connections were generally expensive and only available on a 'build to order' basis.

Luxembourg was determined to develop the required communications networks in the context of the 'investment realities' in the telecom sector. The challenge was to direct investment in a way that, a) ensured that the right type of networks were built, and b) that public investment worked in cooperation with the private sector, thus promoting a more competitive telecom environment for Luxembourg businesses. The resulting network availability (detailed below) indicates that many of these goals have been achieved and that today Luxembourg is ideally connected to the rest of Europe and the world with service offerings from BT Global Services, Cable & Wireless, Colt, Global Crossing, Level 3, Verizon Business, and others.

The Teralink International Broadband Network

P&T Luxembourg (or EPT-Entreprise des Postes et Télécommunications) is the dominant local telecom provider in Luxembourg, with over 2,800 employees.

In 2006, P&T Luxembourg started to build Teralink, a network connecting Luxembourg to Paris, Strasbourg, Kehl, Paris, Brussels, Amsterdam, and London. Teralink became fully operational in 2007 with a capacity of 40 Gbit/s connections to 15 PoPs in the markets detailed above. The network can accommodate 88 40 Gbit/s channels for a total capacity of 3.5 Tbit/s.

LuxConnect

To address the fairly low rate of competition in the marketplace for high-speed connectivity, the Luxembourg government created LuxConnect in 2006. Its mission is to provide non-discriminatory wholesale dark fiber services throughout Luxembourg and to major European capitals. LuxConnect also owns and operates datacenter services (detailed below).

LuxConnect has created a redundant fiber network by installing its fiber in previously unused railroad rights-of-way (different paths than those used by Teralink). The network consists of 96 pairs of dark fiber, each with a capacity of the 40 Gbit/s. The network connects Luxembourg to Brussels, Amsterdam, Frankfurt, and Paris.

Cegecom

Cegecom is a privately owned company (part of the Artelis group) that provides voice and data services to both businesses and consumers in Luxembourg. The company operates a high-speed fiber network at speeds of 2.5 Gbit/s to 10 Gbit/s. The network is extensive in Luxembourg and connects to Brussels, Paris, Metz, Saarbrücken, Frankfurt, and other European hubs.

Luxembourg's Internet Exchange

In March of 2009, a number of major Internet companies unveiled Europe's latest Internet Exchange point in Luxembourg. The LU-CIX provides a number of services, including Internet Transit and Public Peering. While the service brings significantly faster traffic to Luxembourg's end-user community, its impact on online businesses is even more important.

LU-CIX allows online companies to connect to the Internet in a more convenient, efficient and cost-effective manner. The exchange serves as an alternative to sending traffic to Frankfurt (DE-CIX), London (LINX), and Amsterdam (AMS-IX). LU-CIX is a non-profit organization made up of major players, including Cegecom, Datacenter Luxembourg, GMS, Inexio, LuxConnect, P&T Luxembourg, and root eSolutions. Services include peering, IP transit, IPv6 peering, and quality of service peering (for VoIP).

Advantages for companies in Luxembourg include

- Shorter routing resulting in optimized Internet flow and reduced latency
- New, alternative routes relying on congestion-free circuits
- Increased data throughput

- ☒ Lower costs
- ☒ Ample power and space availability

LU-CIX will be critical in attracting small and medium-sized content businesses to Luxembourg as it will offer them a cost-effective means to connect content and 'eyeballs'.

Datacenters and Business Continuity

The availability of modern (Tier III and IV) datacenters is necessary for a vibrant ICT economy and is especially important to the financial services and online content industries. Luxembourg has a vibrant datacenter market due in part to critical public investments. Luxembourg now has ample availability of state-of-the-art datacenters offering a variety of services from rack space to fully-managed facilities and business continuity centers.

A note on power resources in Luxembourg: The availability and price of electrical power are both vital to a strong datacenter market. Due to its location, Luxembourg has the capacity to tie into three electrical grids (Belgium, France, and Germany). IDC believes this is a competitive advantage for Luxembourg, especially in comparison with markets experiencing very limited availability of power for new datacenters.

Luxembourg has a number of datacenter operators and managed service providers, including (but not limited to):

- ☒ **eBRC:** eBusiness and Resilience Center

eBRC offers full business continuity services in four interconnected datacenters —11,500 m² of IT server space, 1,000 recovery workstations, trading rooms, and emergency command centers, and backup online infrastructure.

eBRC also provides e-Agility services and collocation and interconnection services.

The company was recently awarded Best Datacenter Operator Europe, Best Managed Services Provider, and Best Risk Mitigation Services (Broad Group London, 2008–2009).

- ☒ **LuxConnect**

LuxConnect offers datacenter services on a wholesale basis, similar to the way it offers dark fiber services. 'White room' Tier IV datacenter space is available in its Bettembourg location (currently 2,600 m² of technical space and 1,000 m² office space). A second datacenter is under construction (start of operation due in October 2010) with 1,400 m² of technical space). It will be unique as it will be a flexible facility, offering Tier II, III, and IV services within the same building.

- ☒ **European Data Hub (EDH):** EDH operates a combination of office complex, datacenter, and a business-resilience center in the Drosbach/Cloche d'Or area of Luxembourg City.

The office space comprises approximately 65,000 m², with an 11-storey central tower with five spokes extending from 80 to 100 meters each. The facility also has a congress hall with a capacity of up to 500 people.

EDH operates a Tier IV datacenter of approximately 5,000 m² in space, partially underground. Customers can purchase a wide variety of services from 'white-room' space to more managed offerings. Connectivity to the EDH facilities is provided by LuxConnect, P&T Luxembourg, Cegecom, Verizon, Level 3, and others.

- ☒ **BT:** BT began operations in Belgium in 1988 and expanded into Luxembourg in 1996. BT has fiber facilities in parts of Luxembourg and Belgium.

BT operates an 800 m² Tier III datacenter, and offers a variety of managed services and connectivity.

- ☒ **Secure IT:** Secure IT operates a 750 m² datacenter of its own, and also provides datacenter services via LuxConnect facilities in Bettembourg. Secure IT's telecom partners include Artelis, Cegecom, P&T Luxembourg, BT, and others. The company also partners with BCE, LuxConnect, HP, IBM, Datacenter Luxembourg, and APC.

- ☒ **Verizon:** Verizon operates a Tier III datacenter of approximately 3,800 m², and offers a variety of managed services and connectivity. Verizon also operates a fiber network in Luxembourg.

- ☒ **Datacenter Luxembourg:** Datacenter Luxembourg is a managed services and managed hosting provider, and an ISP. The company utilizes datacenter space from facilities-based datacenter providers.

Product offerings from Datacenter Luxembourg include web hosting/mail hosting, server space, managed services (storage, back-up, firewalls, etc.), cloud computing, IP services and VOIP services.

- ☒ **Telindus:** Telindus is a member of the Belgacom Group, a leading telecom and IT services company from Belgium. Tango, a leading Luxembourg wireless company, is also part of the Belgacom group.

Telindus (in partnership with Tango when appropriate) offers a full-range of enterprise datacenter, collaboration, applications, and mobility services.

- ☒ **Luxembourg Telecom:** Luxembourg Telecom offers telecom services in addition to a wide variety of datacenter and managed services. Founded in 2009, Luxembourg Telecom does not own its own facilities, but leases telecom and datacenter capacity from other providers. Luxembourg Telecom is an example of the success of the government's initiative to promote competition through targeted investments in infrastructure.

Telecom services offered by Luxembourg Telecom include DWDM connectivity and IP telephony. Managed services offerings include storage, protection, and virtualization.

INTELLECTUAL PROPERTY LAW IN LUXEMBOURG

Bottom Line: Luxembourg has an innovative intellectual property regulatory framework. The inclusion of Internet domain names is attractive for ebusiness enterprises.

In 2008, Luxembourg instituted a new legal regime for intellectual property (IP), one of the most favorable in Europe. The stated goal of the regime was to a) encourage innovation and research and development within Luxembourg, and b) stimulate value-added activities by Luxembourg businesses.

The IP regime in Luxembourg may be of interest to high-tech companies as it offers significant tax benefits for IP either created in Luxembourg or acquired by a Luxembourg company. The general provisions are:

- Revenues generated from the use of licensing of a design or model, software copyright, patents, or trademark may benefit from an 80% exemption.
- Providing an effective corporate tax rate of 6% on qualifying net IP income.

EDUCATION AND RESEARCH

Bottom Line: Luxembourg has taken critical steps to ensure that robust research institutions are available to the business community.

ICT is one of the top priorities of the national R&D agenda. The focus lies with research in information security and high-performance telecommunication networks.

"The University of Luxembourg is the government's key instrument in an ambitious investment plan for research and higher education in the country. By focused efforts in priority areas relevant to the region, excellence and impact will be created."

— Björn Ottersten, Director of the Interdisciplinary Center "Security, Reliability and Trust", University of Luxembourg

Luxembourg has made important progress over the past 10 years in identifying potential weaknesses and working to address them. One such weakness has been a lack of local universities and research institutions. The lack of such institutions did not reflect a lack of scholarship, rather a tradition in this small country to have its youth study abroad in order to be exposed to a wide variety of cultures.

Today, Luxembourg realizes the importance of having locally trained experts and world-renowned research institutions. With that in mind, the University of Luxembourg was founded in 2003. As a young university, it has been primarily focused on research and establishing a Ph.D. program. An important aspect of the new university (especially for ICT and high-tech businesses) is the Interdisciplinary Center for Security, Reliability and Trust, which "carries out interdisciplinary research and graduate education in secure, reliable, and trustworthy ICT systems and services" (source: University of Luxembourg) — critical work for the financial services industry that is vital to the Luxembourg economy.

Bottom Line: Luxembourg has an innovative intellectual property regulatory framework. The inclusion of Internet domain names is attractive for ebusiness enterprises.

Bottom Line: Luxembourg has taken critical steps to ensure that robust research institutions are available to the business community.

"The... center... is the university's first focused effort with the goal to become an internationally leading research facility that together with external partners establishes Luxembourg as a European center of excellence and innovation for secure, reliable, and trustworthy ICT systems and services." — Björn Ottersten

The National Research Fund (FNR) is supporting the economy through grants it is awarding to students from various university programs who want to complete an internship at a local company.

In addition to the University of Luxembourg, there are a number of other important research institutions. One, the Centre de Recherche Public Henri Tudor provides a wide variety of research services to the ICT, healthcare, and other industries in Luxembourg. The Max Planck Institute of Germany has announced plans to open a branch in Luxembourg concentrating on financial research.

The Centre de Recherche Public Gabriel Lippmann is a public facility focusing on R&D and technology transfer in a number of sectors, including IT, systems, and collaboration (ISC). The center's ISC department focuses on information system modeling, information system architectures, software engineering, and language engineering.

CHALLENGES

The ICT or online business planning to locate in Luxembourg is certainly facing challenges. Foremost is that Luxembourg has a relatively small home market. Companies will not be able to concentrate on the Luxembourg market while making plans to extend throughout Europe. A large ICT or online business coming to Luxembourg must put in place a pan-European strategy, or at least a multicountry strategy, prior to opening shop.

The small size of the market does offer some advantages. Luxembourg is an ideal 'test-market' for various products, ranging from wireless phone plans to innovative financial services products. There is enough size and diversity in the market for an effective test, while the geography and business landscape are quite manageable.

The limited local workforce may be of concern for some companies. A significant percentage of the local workforce is not native Luxembourgish. However, Luxembourg has demonstrated that it is able to continue to attract top foreign talent through a combination of excellent living conditions, diverse job offerings, and competitive pay packages (especially when compared to the close neighboring locations from where most of the international workforce comes).

As demonstrated above, Luxembourg has made great strides in providing the type of infrastructure demanded by ICT companies. However, much of this investment has been made by the government, rather than by private industry. IDC believes this government investment in technical infrastructure was (and may still be) necessary. However, it is vital that government investment and government policy do not interfere with the private market for such services in the future. The government must make sure that its state-owned enterprises (such as LuxConnect, P&T Luxembourg, and eBRC) operate in a manner that does not discourage private investment.

Luxembourg does need to improve on its accessibility for the business traveler. Despite advances in communications and meeting technologies, physical mobility remains very important for an enterprise. Companies establishing their European

headquarters in Luxembourg will likely have numerous senior executives who will spend a majority of their time traveling, and it is important they are not inconvenienced by limited air connections and/or high fares.

While the new airport is a good facility and major destinations are served, there are not enough flights to European business locations. Luxair is the dominant carrier at Findel Airport, and its fares tend to be at a premium level. Luxembourg would do well to attract additional carriers. A high-speed rail connection between Luxembourg and Brussels would also be welcome.

CONCLUSION

When the name Luxembourg is mentioned in business circles, it is likely that the first thought is about a country with a very strong financial services and banking industry, a continuing player in the world steel market, and one of the founding nations of the European Union. Increasingly, global ICT companies think of Luxembourg as an interesting place to do business in Europe. Luxembourg offers these companies a welcoming legal framework, state-of-the-art technical infrastructure, a skilled workforce, and strong supporting local institutions. ICT companies can also take advantage of local financial benefits and an excellent quality of life in the center of Western Europe.

IDC has been in touch with major ICT players in Luxembourg for this study. Relying on a number of interviews with company representatives, IDC comes to the conclusion that Luxembourg has been addressing many of its potential weaknesses in the past few years and is now a top location to accommodate ICT enterprises with the intention to develop their business throughout Europe.

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