

# To invest or not to invest: ICT spending priorities in crisis-hit Central and Eastern Europe





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# Preface

*To invest or not to invest: ICT spending priorities in crisis-hit Central and Eastern Europe* examines the impact of the 2008-09 economic slowdown on the digital development plans and priorities of 17 countries in Central and Eastern Europe. The report was sponsored by Oracle. The Economist Intelligence Unit bears sole responsibility for the content of this report. The Economist Intelligence Unit's editorial team oversaw the analysis of national budget data, supervised in-depth interviews with senior corporate executives and other experts in the region, and wrote the report. The findings and views expressed in this report do not necessarily reflect the views of the sponsor. Katherine Shields and Aviva Freudmann edited the report. We would like to thank all the people who participated in the interviews for their time and insight.

November 2009



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# Executive summary

**B**efore the full onset of the global economic crisis in September 2008, the largest countries in Central and Eastern Europe (CEE) were some of the most stable and prosperous among emerging economies. They were also among the most digitally developed, although the level of development naturally varied by country.

Then came the deepest and most far-reaching recession the region had seen since the collapse of communism. In some countries, this has halted—albeit temporarily—years of progress, both in terms of economic development and in terms of digitalisation. The Economist Intelligence Unit expects the CEE economy to contract by 5.7% in 2009, far greater than the 4.1% decline expected in the euro area and the 2.5% contraction worldwide.

Given the slowdown, it is uncertain whether the CEE region can maintain its digitalisation lead over other emerging markets in international e-readiness rankings. Facing severe financial difficulties, few CEE governments can afford to fund large development projects in information and communications technology (ICT). If they are to maintain digitalisation progress at all, they must find other, less cash-intensive ways to pursue their ICT development objectives.

This report from the Economist Intelligence Unit and sponsored by Oracle looks at 17 countries in the region in terms of how the global economic slowdown has affected their digital development plans. It considers the effect of the slowdown on governments' ICT budgets, areas that are being focused on—and why—and the implications of current activities for future development. It builds on a programme of desk research into countries' ICT policies and a series of interviews with government officials, non-governmental organisations (NGOs) and other ICT experts.

The key findings of this report are highlighted below.

- **The crisis has reduced governments' formal ICT spending.**

Unlike large countries including the US, the UK and China, most CEE countries have been cautious about initiating massive stimulus spending packages. Where CEE stimulus programmes exist, they are



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unlikely to include significant ICT elements. On the contrary, most CEE governments expect to rein in formal ICT spending in 2009-10, although there are some notable exceptions.

- **CEE countries are now finding other ways to move digitalisation projects forward.**

Activity throughout the region has shifted more to projects that do not necessarily require new budgetary allocations. Instead, governments are using existing budgets to introduce ICT upgrades that do not require massive spending, such as improvements in the way agencies function. For example, governments are introducing e-accounting programmes to reduce paperwork, increase transparency in government record-keeping and improve workflow processing. Poland and Russia are among the leaders in launching ambitious e-administration strategies. Similarly, the Czech Republic is pushing ahead with an e-Treasury initiative to be launched in 2011. E-administration projects could in the future also provide a basis for other electronically based government services.

- **The focus is on e-administration and e-public service projects with near-term paybacks.**

In addition to not requiring formal new budget allocations, such projects have the advantage of offering cost savings in the short term, by reducing government paperwork. The above-mentioned Czech e-Treasury project, for example, is expected to save €377m each year beginning with the year of launch. Several governments are also looking into issuing electronic ID cards to enable online access to government services, which would cut paperwork and other administrative costs.

- **Universal, and particularly rural, access is an important current focus.**

Although budget funds are currently scarce, governments are not losing sight of the long-term goal of making digital access available universally, including to citizens in remote areas. The motivations are to promote economic development and job creation in rural regions; to give rural residents the same access to online government services as urban residents; and to improve the efficiency of telecommunications and broadband networks by maximising their reach. The funding for such projects tends to come from EU regional development funds rather than from national budgets. EU funding is currently focused on rural broadband access in a number of CEE countries.

- **Although EU funding is crucial, securing and using those funds requires effort.**

The EU is the main financial pillar supporting the region's digital development. CEE countries that belong to the EU or are close to membership (and therefore are eligible for EU support) tend to rely more on EU funds than on their own resources to upgrade ICT infrastructure and services. Indeed, without EU funds, digital progress in countries such as Latvia and Lithuania would be likely to grind to a halt. Even Slovenia, one of the richest CEE countries, is slashing its ICT budget in favour of absorbing more EU funds. That said, not all CEE recipients are able to direct the EU funds to useful projects. Governments that reduce their spending on ICT projects must still keep their ICT development planning up to date in order to keep the EU funds flowing in.

- **Political instability in some countries is slowing progress towards long-range goals.**

Political upheaval is a typical aftershock of financial crises, and this one is no exception. In CEE, this is creating a divide between governments that have the political capital to work towards long-term ICT



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plans and those that are forced to focus on short-term priorities. There are exceptions, however, which show that public support for digitalisation can overcome political instability. Estonia, whose governing coalition is somewhat unstable and whose GDP is expected to contract by 13% this year, is nonetheless keeping its ICT programme on track, owing to strong public backing.

#### ● **CEE governments' ICT reactions to the financial crisis fall into three categories.**

The impact of the financial crisis of 2008-09 on governments' ICT spending levels and priorities varies across the CEE region. But countries' reactions generally fall into three groups:

#### **Go full steam ahead**

Countries pressing ahead with ICT strategies despite difficult economic times are Bulgaria, Croatia, Estonia, Poland, Romania, Russia, Slovakia, Slovenia and Turkey.

#### **Change tack**

Countries changing the direction of ICT programmes, generally shifting emphasis from high-cost, long-term projects to administratively oriented projects with shorter-term paybacks, are the Czech Republic, Greece, Hungary, Latvia and Lithuania.

#### **Throw out the anchor and wait out the storm**

Countries reacting to the crisis by dramatically reducing ICT funding are Albania, Bosnia and Hercegovina and Ukraine.



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# ICT spending priorities in crisis-hit Central and Eastern Europe

## Enter the austerity years

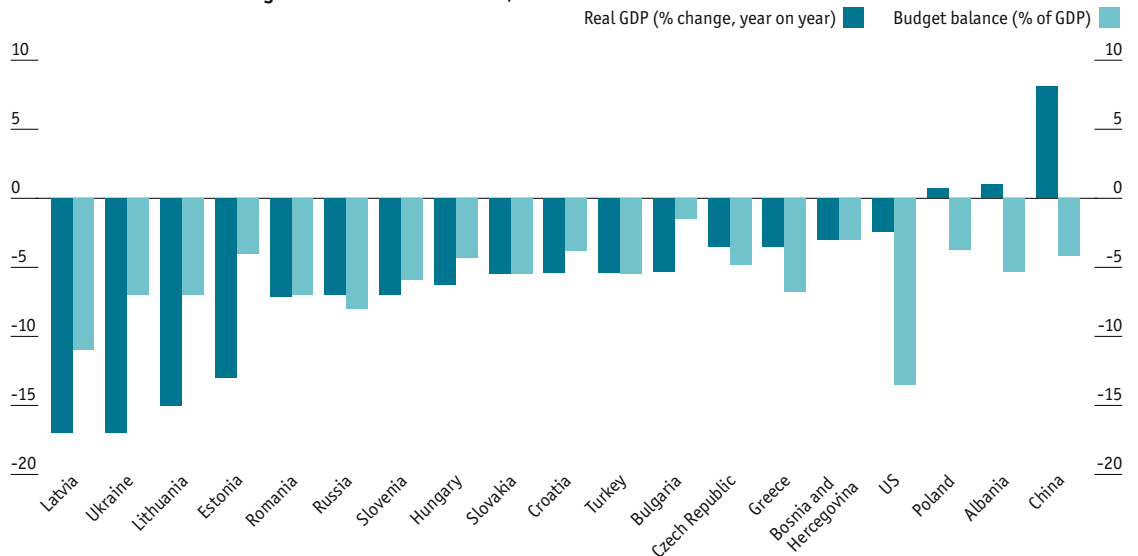
After years of high growth, the CEE region plunged into recession in 2009, as domestic demand and foreign investment slowed dramatically. Only two of the 17 CEE countries considered in this study—Poland and Albania—are expected to post economic growth in 2009, but even so growth will be sluggish. Most of the others will see economic contractions in the middle-to-high single digits, and the Baltic countries and Ukraine are heading for double-digit declines. The region as a whole will not see a return to the fast growth of 2004-07 for years to come.

As elsewhere, the slowdown in CEE has brought rising unemployment and swelling public deficits. At the same time, ageing populations with growing associated health and social security needs are forcing CEE governments to focus spending on current health and welfare needs. This often comes at the expense of spending on longer-term projects, such as building up ICT infrastructure and services.

This study considers 17 CEE countries in terms of the priority they assign to ICT in the aftermath of the economic slowdown, and how they are finding ways to move their ICT development agendas forward despite reduced ICT budgets. The countries under review include ten new members of the EU—Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia—and two EU candidates, Croatia and Turkey. The remaining five countries are Albania, Bosnia and Hercegovina, Greece, Ukraine and Russia.

As the following chart shows, the entire region, with the exception of Poland and Albania, experienced economic contraction in 2009. For comparison, we include China, which saw rapid growth

**Double trouble: GDP and budget balance forecasts in CEE, 2009**



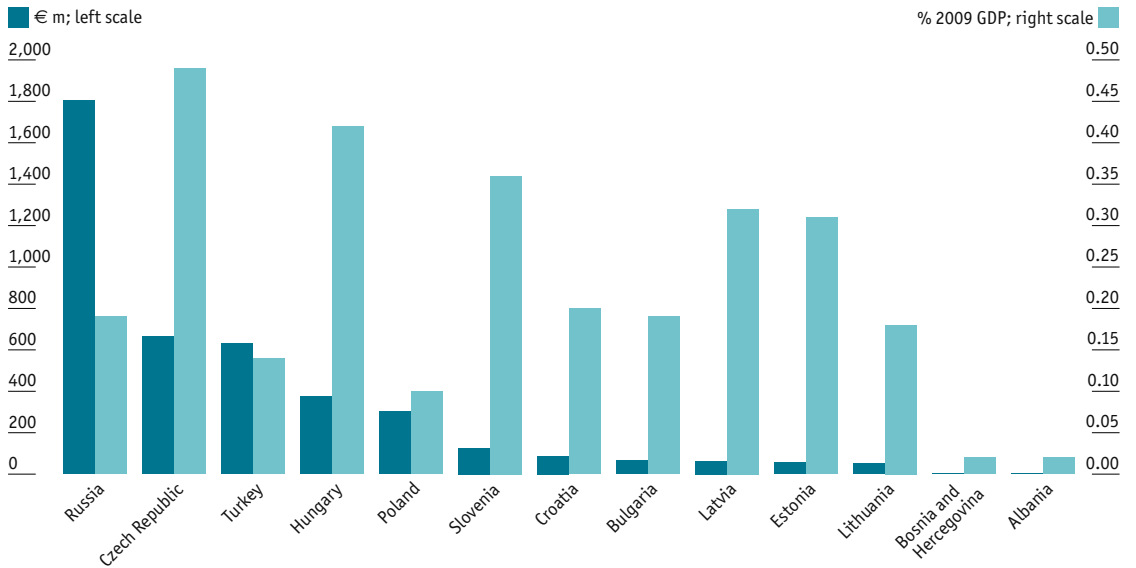
Source: Economist Intelligence Unit.



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### ICT budget for 2009-10



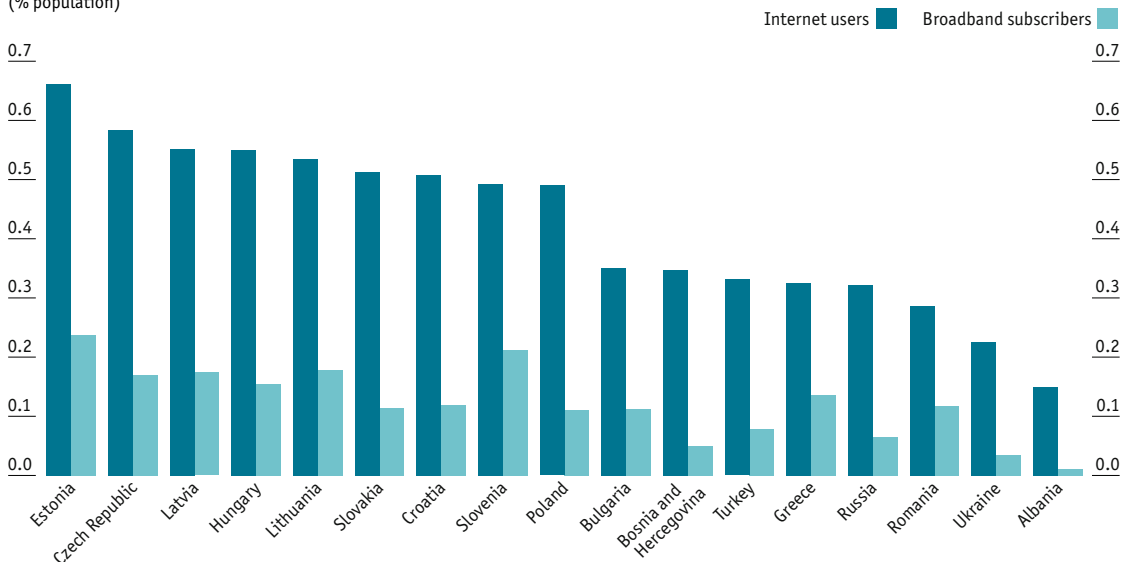
Source: Economist Intelligence Unit.

this year, as well as the US. The comparison with the US shows that the situation could be worse for the CEE region: budget deficits as a percentage of GDP are a problem in the CEE, but a much larger problem in the US.

A country-by-country comparison of absolute spending on ICT shows, as expected, that big countries like Russia and Turkey spend more. But when the ICT spending figures are viewed as a percentage of GDP, a different set of leaders emerges—the leading CEE countries are the Czech Republic, Hungary, Slovenia and the Baltic states.

### Internet usage and broadband subscriptions

(% population)



Source: Economist Intelligence Unit.

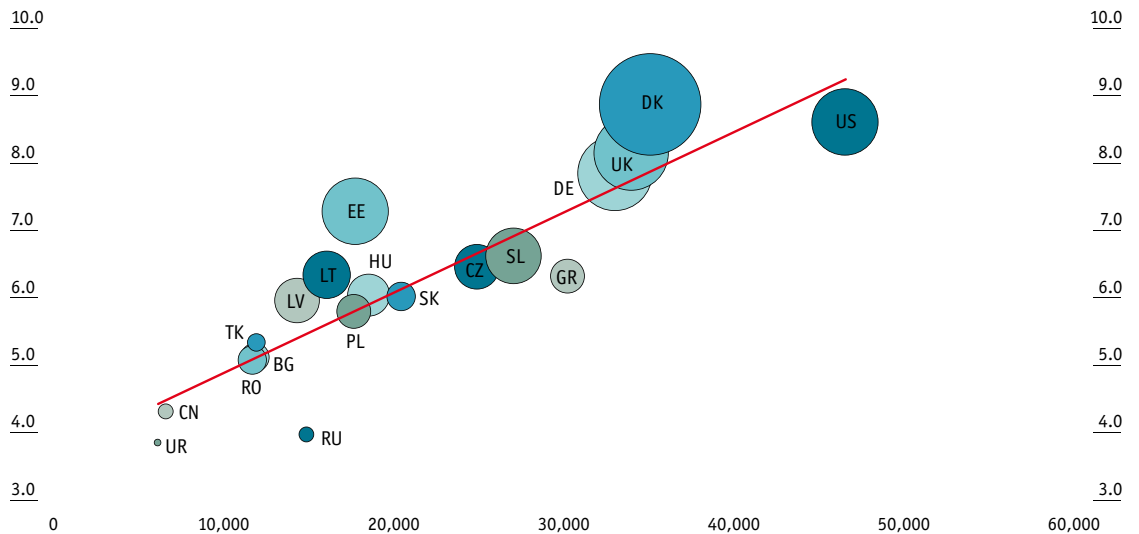


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### Room for manoeuvre: e-readiness vs GDP per head and broadband penetration in CEE and selected markets

(Y-axis: 2009 e-readiness score; x-axis: GDP per head (US\$ at PPP); Bubble size: broadband penetration (%))



Source: Economist Intelligence Unit.

## Leaders of the pack: ICT spending as percentage of GDP

The same leaders emerge when countries are compared in terms of their Internet penetration rates, and in particular in the data on broadband users as a percentage of the population. The regional leaders are, once again, Slovenia, the Baltic states, the Czech Republic and Hungary:

## Reaction to crisis: shifting priorities

If asked whether they are committed to investing in ICT, government officials in CEE countries tend to give an unequivocal “yes”. Their spending wish-lists focus on such areas as upgrading rural ICT infrastructure, offering government services online, and building up a skilled ICT labour force. But when asked what they are spending on in the short term, officials tend to admit that the immediate focus of national budgets is to stabilise economies—meaning that ICT projects requiring large outlays must be delayed or reduced in the near term.

That general picture is not uniform across the region, however. Based on our assessment of how the slowdown has affected countries’ ICT spending levels and spending priorities, we have divided CEE countries into three groups:

- 1. Go full steam ahead.** Several countries have made tangible efforts to push ICT programmes forward despite the economic crisis. Given often severe budget constraints, this has meant boosting ICT compared to other spending areas. The clear ICT-prioritisers are **Estonia** and **Slovenia**, both of which are maintaining spending levels and have a clear pipeline of projects, with many of these projects expected to reap future long-term benefits, such as expanding broadband in rural communities. **Poland** and **Russia** both announced bold mid-term ICT strategies during the crisis—with a particular focus on e-government—and are making large budget outlays for this purpose. **Croatia**,





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### ICT and the growth factor

Many studies have established a link between ICT development and economic growth. According to one such study conducted in 2007 by the US-based Information Technology and Innovation Foundation, for example, “In the United States, IT was responsible for two-thirds of total factor growth in productivity between 1995 and 2002 and virtually all of the growth in labour productivity.” Those productivity improvements translate into faster GDP growth and higher living standards.

The obverse is also true: a country’s increased prosperity enables it to boost investment in ICT infrastructure and services, thereby supporting further growth and job creation. This mutual feedback cycle, or virtuous circle, may not be discernable in short-term data, but tends to appear as a strong correlation in the medium and long term.

The virtuous circle works for emerging economies just as it does for advanced economies. There is in fact a correlation between individual CEE countries’ levels of digital development and their GDP per head; that is, a nation’s digital development score tends to improve as its income per head rises.

The chart below is based in part on the Economist Intelligence Unit’s e-readiness ranking, which compares digital development in 70 countries, including 14 countries in the

CEE region. Countries are measured on several categories of digital development, including connectivity, quality of ICT infrastructure, government policy and vision, and consumer and business adoption.

This year, Estonia was the best-scoring CEE country, ranking 24th (up from 28th last year), ahead of Spain and Italy. Lithuania and Slovenia also scored within the top 30, with the Czech Republic and Hungary not far behind. Bringing up the rear was Ukraine in 62nd place, a few steps behind Russia in 59th place.

Although the correlation between income and digital advancement holds as a general matter, in some instances countries are more digitally advanced than their incomes would suggest. Estonia and its Baltic neighbours are good examples. With strong public backing, Estonian officials have continued upgrading ICT infrastructure even in the face of low-to-middling GDP per head.

Other countries are exceptions in the other direction, that is, they spend less on ICT than their GDP per head would suggest they would or should spend. Greece, for example, lags in terms of its e-readiness, compared with its GDP per head. Russia and Ukraine are even deeper in the digital doldrums, with low e-readiness scores and low broadband penetration—most likely the result of slow liberalisation of telecoms markets, which has limited competition and inflated prices for digital communication.

too, announced a new strategy mid-crisis, and is funding much of it from national sources since its EU allocation is small. **Bulgaria, Romania, Slovakia** and **Turkey** also have forward-looking ICT strategies covering areas such as infrastructure and e-education.

**2. Change tack.** A second group of countries reacted to the crisis by avoiding large, long-term budget outlays and instead prioritising certain key projects that bring near-term paybacks. Their emphasis tends to be on projects that improve bureaucratic efficiency and save costs. Countries in this group generally suffer political uncertainties, such as the relatively digitally developed **Czech Republic** and **Hungary**. The Czech Republic appears to have lost its focus on ICT as it awaits the outcome of elections early next year. Hungary created a new ICT secretariat in 2008 and recently signed off an ICT action plan, which, owing to reduced budgets, aims to redirect funds at priority projects. However, evidence from tender announcements suggests that few projects are getting through the pipeline. **Greece’s** recent government change leaves a question mark over the future of the country’s ambitious broadband programme. **Latvia’s** new government has stated a general commitment to ICT, but cannot do much about it because of its dire finances. **Lithuania** is trying to channel increasing levels of EU funding to ICT projects. However, its 2009 ICT budget—including EU funds—has been cut in half, indicating that it is currently unable to stick to its original strategy.



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**3. Throw out the anchor and wait out the storm.** Some countries have decided that the best post-crisis course for ICT is to put projects on hold and wait for better times. This group is mainly limited to poorer countries that have neither EU funds nor extensive access to world financial markets. Projects in **Albania** and **Bosnia and Hercegovina**, for example, are able to move forward only because of donor funds. The total amounts spent on ICT represent a tiny portion of GDP, compared to elsewhere in the region. Bosnia and Hercegovina has a slightly stronger infrastructure, owing to donor funding in recent years, but its complex government structure slows progress on current projects. **Ukraine's** government lacks the political clout to implement its ICT strategy, which has been underfunded since adoption in 1998. The country is suffering the twin ills of deep recession and political turmoil; a turnaround is unlikely until at least after the 2010 presidential election.

## How much spending and on what?

The financial crisis of 2008-09 has hit ICT spending across the region, to varying degrees. In the following chart, the two left-hand columns evaluate the overall severity (high, medium or low) of the slowdown's impact on ICT budgets and ICT pipeline projects, respectively. The right-hand portion of the chart looks at the types of ICT projects that each country has chosen to emphasise. An X indicates that the country in question has chosen the marked field as one of its areas of emphasis for ICT spending. (For details on each country's programmes and outlook post-crisis, please see the Appendix beginning on page 14.)

The economic crisis appears to have focused CEE countries on three main ICT priorities: e-administration (improving internal government functioning); e-public services (allowing online interaction between citizens and government); and rural connectivity (encouraging universal Internet and broadband service).

### e-administration

Governments across the region are prioritising projects that support the internal functioning of government. Such e-administration projects include everything from automating government accounts (e-accounting systems) to digitalising official documents and archives, and setting up unified government Intranets. These projects digitalise and interconnect agencies' documents and work flow, thereby improving speed, accuracy, transparency and efficiency. In general, such projects are more easily justified in the short term, as cost savings are likely to show up on balance sheets fairly quickly. Such projects are also a building block upon which future e-public service initiatives (allowing online interaction between governments and citizens) can be launched.

Other motivations include improving transparency of government transactions to reduce official corruption. The Russian president, Dmitry Medvedev, recently threatened to "punish financially" any regional governments that do not meet the government's 2010 deadline to automate official documents and processes. With the opportunity for graft substantial in many of the regions, the potential efficiency and revenue gains could be large.

The Czech Republic presents a good example of the benefits of e-administration. The Ministry of Finance is funding a large e-Treasury project, which aims to pull all ministries and institutions into a common accounting system. The unplanned way in which the Czech e-government system developed



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Country	Impact of crisis on...							Policy focus 2009-10	
	ICT budget	Project pipeline	eAdministration	eBusiness services	eCitizen services	eHealth	eSchools	Rural connectivity	ICT R&D
Albania	L	L	X				X		
Bosnia and Hercegovina	L	L	X						
Bulgaria	M	L	X	X	X	X		X	
Croatia	L								
Czech Republic	M	M	X						
Estonia	L	L	X		X	X	X	X	X
Greece									
Hungary	M	M	X				X	X	
Latvia	H	M	X					X	
Lithuania	H	M	X	X	X	X		X	
Poland	L	M	X	X	X	X			
Romania									
Russia	L	M	X	X	X				
Slovakia									
Slovenia	L	L						X	
Turkey	M	M							
Ukraine	H	H	X						

Sources: Ministries of finance, ITU (Internet statistics--end 2008), interviews

over the years—with no one ministry or institution in charge of overall strategy—has meant that each ministry runs on different systems and technologies, causing huge administrative inefficiencies.

### e-public services

Once governments have built e-administration platforms, they can offer services to citizens electronically. The aim is to increase the speed and efficiency of bureaucratic processes and reduce compliance burdens. Some countries are moving smartly in this direction. Poland, for example, is directing most of the funds in its December 2008 *Polska Cyfrowa* (Digital Poland) strategy towards 23 e-government projects, aiming to offer the 20 most frequently used public services online by 2013.

Poland has targeted its government-funded healthcare system for e-public services improvements, including digitalising health records. The government hopes that its ambitious, €274m e-health project will cut administrative costs in its highly indebted healthcare system. Lithuania has a similar project, which it is piloting in a few regions. In addition to digital health records, Lithuania's e-health system will offer an e-prescription capability, allowing patients to order prescribed medications online. Estonia has introduced electronic ID cards allowing citizens to file certain required forms online, and has recently launched a mobile version.

Several countries are choosing scalable technologies for their e-administration projects, intending to add e-public services to the same platforms at a later date. E-public services projects do the most good when they are supported by the right technologies, such as chip cards, and buttressed by



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consumer awareness programmes. Hungary learned this the hard way, when it saw a low uptake of its *Customer Gate* project offering tax filing online. Only 200,000 citizens use that service—around 3% of the adult population—compared with the 91% of Estonians who file their taxes online.

Offerings of e-public services across Europe have made deeper inroads into businesses than households, as evidenced by the following chart:

## Rural connectivity/universal broadband service

Extending broadband networks to rural areas helps to promote fairness, by giving rural citizens the same chances for Internet access as urban residents. It also improves the overall efficiency of broadband networks by extending their reach, and it contributes directly to economic development in rural areas by making it possible for high-technology companies to establish operations there.

Although CEE countries tend to have fairly well-developed Internet and broadband networks in major urban areas, coverage and access fall considerably in the countryside. Up to one-half of CEE rural communities lack sufficient broadband connections—a far higher proportion than the EU average of 30%. In a recent report on connectivity, the EU singled out Greece, Bulgaria, Slovakia, Romania and Poland as needing to improve rural broadband access. As the following chart shows, Hungary, the Czech Republic, Slovenia and the Baltic states are in the lead when it comes to rural DSL (digital subscriber line) coverage.

E-public services take-up by citizens and enterprises in Europe

	Use of online public services in households	Use of online public services in enterprises
Latvia	13%	30%
Netherlands	45%	55%
United Kingdom	25%	37%
Cyprus	12%	40%
Slovakia	27%	55%
Austria	30%	75%
Belgium	20%	62%
Estonia	28%	70%
Finland	48%	87%
Hungary	20%	62%
Portugal	15%	58%
Czech Republic	5%	77%
Ireland	15%	75%
Italy	10%	73%
Lithuania	12%	70%
Greece	5%	80%
Slovenia	20%	70%
Sweden	51%	80%
Norway	52%	82%

Source: eGovernment Study by Cap Gemini, 2006.



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In March 2009, the EU made €1bn available to countries to boost rural broadband availability. In May 2009, the Slovenian town of Slovenj Gradec received €18.3m in EU funds to connect more than 3,000 households to broadband networks. The project is part of a broadband development scheme set up by the Ministry of the Economy in 2008. Matej Lahovnik, the economy minister, is using this project to encourage other towns to apply for EU funds.

Having expanded its networks early on, Estonia has fairly good broadband coverage—80% of rural areas have DSL coverage—but still suffers from slow speeds. (More than 60% of Estonian connections run on speeds of 2 Mbps or less, according to the EU.) It is therefore directing substantial EU funds into upgrading rural networks, with the goal of achieving universal high-speed access by 2015. The government set up a public-private partnership in August 2009 to implement the project.

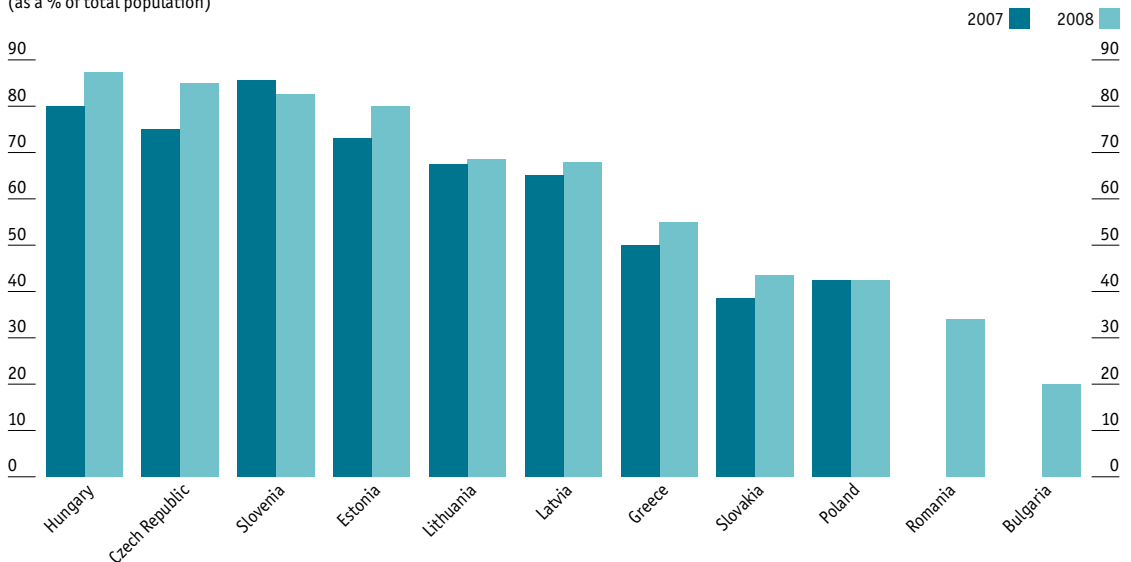
In Lithuania, the government is also using EU funds for rural connectivity—in particular for its *Langas i Ateiti* (Window to the Future) programme, a joint venture between the Ministry of the Interior and several private companies. The programme includes expanding the broadband network and building new rural Internet access points.

Not all countries are making broadband expansion a priority, however. Poland, whose broadband penetration lags behind that of other countries with similar income levels, appears to be moving slowly to upgrade DSL infrastructure. Rather than drawing on EU funds directly, the government is trying to make it easier for private companies to offer broadband networks.

The major sums that countries are spending to connect often very small communities is a reminder of the significant costs of bridging the CEE's digital divide. Countries without access to EU funds have to find creative ways to continue their digital development, despite limited budgets. As the rest of the world's emerging markets increasingly go online, the CEE will have little choice but to find its own way to continue its digital development.

### DSL coverage in rural areas

(as a % of total population)



Source: Economist Intelligence Unit.

## Appendix: Country profiles

### Albania

#### ICT strategy

The National Agency for Information Society (NAIS), set up in 2007, is responsible for overseeing Albania's ICT strategy, but most of the funding comes from international and private-sector donors. There is no specific ICT spending allocation in Albania's national budget for 2009.

According to the United Nations Development Programme (UNDP) in Albania, around €1.5m of donor funding is directed towards four major development projects. The largest is the UN-funded €610,000 e-schools project, which involves building computer labs in all 379 of Albania's high schools and some 800 primary schools. The labs will offer modern computers and high-speed, reliable Internet access. Since its launch, this programme has benefited 450,000 students and 25,000 teachers, resulting in a higher percentage of Internet users. As a result of this project and others, the share of the Albanian population using the Internet has soared from 2.4% to 16% in the space of a few years.

The other three UNDP development projects in Albania are geared towards technical assistance programmes for the NAIS. The UNDP is also funding the second phase of GovNet, an e-administration initiative to improve the transparency and efficiency of inter-governmental communication and collaboration by using an integrated digital network and Intranet.

Albania lags behind other CEE countries considerably in terms of its ICT infrastructure development. The International Telecommunication Union (ITU) estimates Internet subscription at below 2% of the population, Internet access at around 15% of the population and broadband penetration at 1.2%. Albania scores near the bottom of the UN's e-participation index for Europe.

#### Post-crisis outlook

Albania's public finances have been shaken by the global economic crisis. According to the Economist Intelligence Unit, this has seen GDP growth shrink from over 6% in 2007-08 to an expected 1% this year. The government hopes to hit its current budget deficit target of 4.5% of GDP in 2009 by freezing spending commitments to the end of the year.

Spending on ICT, however, should continue, owing to Albania's reliance on international funds. In July 2009 it secured €2.5m from the European Commission towards the "One UN" programme, of which its main goals involve improving the country's democratic structures, promoting social inclusion and regional development. Several ICT programmes—including GovNet and e-schools—stand to gain from the funding.

Future ICT development will continue to hinge on international support and efforts to engage the public in Albania's ICT strategy. There are indications that although there is broad support for the e-schools project, citizens are less convinced of the benefits of GovNet, and would rather see funding going towards expanding ICT infrastructure and lowering the costs of Internet access.

## Bosnia and Hercegovina

### ICT strategy

The NAIS sets and carries out ICT strategy for Bosnia and Hercegovina (BiH). The NAIS reports to the Council of Ministers, which governs the two entities that make up BiH as well as the self-governed district of Brcko.

The NAIS has been in existence since 2008, four years after it was officially established under the country's 2004-10 action plan. The agency has made little progress on developing a national ICT plan. Officially, the NAIS programme involves five development pillars: legal infrastructure, e-education, e-government, ICT infrastructure and ICT industry. So far, only e-government appears to have got off the ground, with around €2.35m in funds committed to projects in this area in 2008-10. Most funding comes from the Public Administration Reform Fund, set up with €4.5m from the European Commission and the UNDP.

BiH has benefited from early post-war reconstruction investment into its fixed-line infrastructure, so that almost 9% of the population subscribes to the Internet, of which 56% subscribe to broadband services. According to the ITU, around 35% of residents accessed the Internet regularly in 2008.

### Post-crisis outlook

Bosnia and Hercegovina's ICT hopes lie in the funding it receives from international donors. There are few signs that funding will dry up in the near future—despite the fact that, according to Economist Intelligence Unit data, the country's budget deficit is estimated to reach 4.5% of GDP in 2009 and GDP growth is expected to contract by 3%.

The biggest obstacle to developing ICT in Bosnia and Hercegovina is navigating its complex administrative structure. This could hinder the e-government projects currently under way—and, indeed, most are running behind schedule. BiH scores worst in the region in terms of its e-government services, according to latest analysis by the UN.

There are signs, however, that individual administrative entities are initiating their own e-administration improvements, even in the depth of the crisis. The Republika Srpska (one of the two main political-territorial divisions of Bosnia and Hercegovina, the other one being the Federation of Bosnia and Hercegovina) recently launched its own 2009-12 ICT strategy. This plan envisages creating a national ICT infrastructure for citizens, businesses and government, along with an e-Public Administration programme. However, it has yet to release details on the plan.

## Bulgaria

### ICT strategy

The State Agency for Information Technology and Communications (SAITS) is charged with implementing Bulgaria's ambitious ICT strategy. Its broad mission is to develop an information society that will stimulate socioeconomic development. Among its concrete goals include building up the ICT sector so that it accounts for 10% of GDP by 2011; equipping all schools with computers and Internet access; and boosting Bulgaria into the top 40 economies in the UN's e-readiness rankings (Bulgaria was 43rd in 2008).

SAITS' total budget for 2009 is Lv33.3m (€17m), divided between 11 programmes, of which the largest is the Lv26.6m (€14m) regional development programme. It has a heavy focus on e-public services. Projects recently concluded include e-Tax, an online reporting portal, and a digital revamp of the existing National Health Insurance system.

As a recent EU entrant, Bulgaria also receives significant structural funds: €6.8bn in total for 2007-13. An estimated €300m of that amount is slated for ICT, including €89m to develop rural broadband infrastructure (with the goal of increasing broadband penetration by 9%) and funding projects that help to develop a "knowledge and service economy".

There are four main drivers of the government's ICT spending:

- **EU harmonisation.** To bring the IT systems of Bulgarian institutions in line with those of other EU countries (for example, e-public services systems allowing for customs and tax declarations).
- **Transparency.** To make the work of institutions transparent and thereby minimise corruption. If and when they are built, automated government systems would focus on procurement, among other functions.
- **EU funds absorption.** Bulgaria risks losing EU funds if it is unable to direct them to useful projects. ICT projects are some of the easiest projects to originate conceptually, because there are ready-made templates and justifications for them. Key stakeholders such as ministries boost their overall budgets by making sure they have EU funding flowing through ICT projects.
- **Attracting inward investment.** Bulgarian politicians like to see their country as the next ICT outsourcing destination and believe they can attract a higher share of foreign direct investment by improving connectivity and ICT infrastructure.

### Post-crisis outlook

According to Economist Intelligence Unit data, Bulgaria's economy grew by 6% in 2008 but is expected to shrink by over 5% this year following sharp contractions in the first two quarters. Nonetheless, having posted a positive budget last year, public finances only went into deficit in July 2009. The government plans to make up the shortfall by raising taxes and clamping down on smuggling, rather than cutting spending.

There is broad agreement within government (and particularly the SAITS) that Bulgaria will seek to sustain, and even increase, the pace of ICT development post-crisis. Projects launched before the crisis remain largely on track, including a €150,000 pilot project to digitalise 40,000 employee health records, which would pave the way for a national e-health programme.

Although Bulgaria scores well in international circles for the comprehensiveness of its ICT strategy, observers worry that ICT budgets still favour hardware and physical infrastructure projects, and that going forward Bulgaria needs to channel more funds into project management, skills and systems. But Bulgaria still has far to go in developing its core ICT infrastructure. Despite recent improvements in broadband penetration, it remains at around 11% of the population, with more than 33% of Bulgarians having never accessed the Internet, according to a recent EU survey.



## Croatia

### ICT strategy

Given Croatia's relative wealth compared to its Balkan neighbours (it is the eighth-richest country in the CEE region), Croatia's progress in ICT development has been relatively poor to date. Broadband networks remain underdeveloped—with around 11% penetration, similar to Bulgaria—and the majority of the population has never been online.

Croatia effectively began its ICT strategy in 2003 with the launch of the e-Croatia 2007 programme, which aimed to put most government services online within four years. The programme has come some way in reaching its goals. In particular, the *hitro.hr* platform, set up as a one-stop-shop for new businesses, has been widely praised for cutting to 15 the number of days required to open a business. More broadly, Croatia scores well in e-business rankings. Around 88% of businesses have broadband access and 57% use government e-services.

This compares, however, with just 27% of households with access to broadband, and 12% using e-government services. Most major citizen services, such as e-taxation and e-health, remain in the project pipeline. More than one-half (54%) of the population has never used the Internet.

### Post-crisis outlook

Croatia is among a few countries to have launched an ICT strategy mid-crisis, at the beginning of 2009. It details 68 different e-government, e-health, e-education and ICT infrastructure initiatives for 2009. Efforts to increase Internet usage have shown results, with the number of users surpassing the projected figure of 500,000 this year. (The actual number of users is 683,000.) Recent research by GfK, a market research group, reports that internet penetration increased by 8% year on year, and places Croatia in 11th position among the 17 CEE countries in terms of Internet usage.

According to Economist Intelligence Unit data, Croatia's economy will shrink by 5.4% this year. Nonetheless, its ICT budget will be broadly maintained, with a modest (6%) cut recently announced by the Ministry of Finance. National funds dedicated to ICT compare well with the rest of region, at around 0.2% of GDP (or some HRK652m/€88m) in 2009. Although Croatia receives some pre-accession funds from the EU, its allocation is expected to increase considerably following membership, which is currently expected in 2011.

## Czech Republic

### ICT strategy

One of the most digitally developed countries in CEE, the Czech Republic focuses its ICT strategy on digitalising government administration and on making it easier to access government services online. Both the EU and the UN rank the Czech Republic among the top CEE countries in terms of its e-government programmes, with all basic services for businesses already digitalised. However, only 25% of public services to citizens are currently available online. Moreover, while broadband penetration—over 17%—is high for the region, 33% of the population has never accessed the Internet.

Nevertheless, e-administration is receiving the most attention. Indeed, the Czech ICT strategy is

aimed primarily at improving government efficiency. The decentralised nature of government has meant that each ministry—with its own ICT budget—has developed its own accounting and operating systems, leading to substantial administrative costs and lack of transparency when transferring funds or communicating across the administration. A new e-Treasury system, spearheaded by the Ministry of Finance and with an estimated budget of Kc2.6bn (€98m), aims partly to rectify this by developing a single integrated accounting system for all ministries and departments. The finance ministry forecasts substantial savings of Kc10bn (€377m) per year. The project is slated for completion in 2011.

The new electronic state treasury system is intended to save 1% of fiscal spending (or Kc11.9bn /€449m in the 2010 draft budget). The main sources of savings are integration and unification of accounting systems in the public sector, thus giving the finance ministry a clearer overview. The new system should allow government bank accounts to be consolidated at the central bank. Among other things, this will help the state to take advantage of all its reserves instead of using short-term loans, saving interest costs. The new electronic treasury system should also bring a significant upgrade in terms of transparency, as data about state accounting will be publicly available on a new website.

Faster, cheaper and streamlined communication is also a main objective of another big ICT project: data boxes—virtual electronic vaults storing official letters from authorities. The data boxes, as substitutes for snail mail, are projected to save around Kc200m (€7.6m) every year. The state will pay no more than Kc17.90 (€0.67) per letter sent to a data box, whereas the whole process of physical mailing costs up to Kc38 (€1.43). Companies operating in the Czech Republic are required to have a data box for communications with government authorities. They may also use the system for communications with other private companies.

Overall, it is difficult to put a definitive figure on total ICT spending by the public sector, since there is no centralised ICT budget. According to government sources, the combined ICT budgets of the ministries of justice, defence, labour, culture and the interior total Kc6.6bn (€249m) for 2010. EU funds add a lot to this total, notably through the Operational Programme for Enterprise and Innovation, with an overall budget of €3bn over 2007-13, and an estimated €414m allocated to projects in 2009.

### **Post-crisis outlook**

With the economy estimated to contract by around 4.3% this year according to Economist Intelligence Unit data, the budget deficit—already around 4.8% of GDP—is expected to swell to over 5% of GDP in 2010. However, the current interim government can do little except focus on operational costs ahead of elections early in 2010, and so there is limited scope for developing a post-crisis ICT strategy.

The onus therefore is on prioritising those projects already in the pipeline and most likely to save costs. The e-Treasury system is expected to remain on track. Similarly, the data boxes project, financed by the Ministry of Justice, aims at digitalising all official government communication within the administration and with businesses. It is expected to save the equivalent of Kc350m (€13.2m) in postal and printing costs. EU-funded projects, which rely on only limited government resources, are also being pushed ahead.

Elsewhere, however, ministries are announcing substantial ICT budget cuts for next year, of around 22% on average, with the ministries of defence, justice and culture announcing the biggest cuts.

## Estonia

### ICT strategy

Estonia prioritised ICT development in the early 1990s and currently ranks comfortably at the top of CEE markets (and ahead of many developed markets) in global e-readiness rankings.

ICT strategy is co-ordinated by the Ministry for Economic Affairs and Communications (MfEAC), with strategic support from the Estonian Development Fund (EDF), an operationally independent, state-funded body that acts as both think-tank and venture capital fund for Estonian ICT initiatives.

Estonia has a centralised ICT budget, which totalled €57m in 2008 (around 1% of state spending). Its Information Society Strategy 2013, published in 2006 and amended in 2009, also includes €62.6m from the EU Regional Fund for the 2007-13 funding period.

Private-sector participation has been a cornerstone of Estonia's ICT development. The latest public-private initiative, the Estonian Broadband Development Foundation, was set up in August 2009 by a consortium of local telecommunications companies, with the Ministry of Economic Affairs on the supervisory board. The consortium plans to build a rural fibre-optic network (Estwin) to provide universal Internet access at a speed of 100 Mbps by 2015. Currently around 54% of households have broadband access, but speeds are among the slowest in the EU27. EU structural funds are set to fund most of the €96m project.

Estonia is also well ahead of the e-services curve. It made its first foray into e-government in 2001 with the X-road project, which provided the backbone for the country's state, business and public e-government services, and has allowed for recent spin-offs, such as the paperless Document Exchange Centre, launched in 2008. E-invoicing is next in the pipeline.

Other pioneering projects have included chip-based ID cards, launched in January 2002 (with a mobile version using PKI-capable SIM cards launching in 2007). Some 1m Estonians now possess an ID card. The cards can be used for a variety of services, including e-voting, e-parking and tax declarations. In 2008, 91% of citizens filed their tax returns online, compared with 59% in 2003 and only 9% in 2000.

The investment in ICT has produced some measurable benefits. The use of the chip-based ID card has speeded up procedures for businesses as well as citizens. Since early 2007, it has been possible to form a business online using the ID card in the space of two hours; the use of the card replaces the need for a public notary. Moreover, an eNotary system has reduced staffing needs at public notaries and the Ministry of Justice, and has reduced the number of copies of notarial deeds by one-third. This has simplified work at the land registry and commercial registry, in addition to streamlining procedures for citizens.

Similarly, the Paperless Motor Vehicle Registration Centre, created in 2008, as streamlined procedures for registering vehicles. The centre provides an electronic alternative for functions that previously required a personal visit. In all, paperless e-government initiatives are estimated to save €60,550 annually in paper costs.

### Post-crisis outlook

Economist Intelligence Unit data show that Estonia's crisis-ravaged economy will shrink by a staggering 13% this year, with the recession likely to continue until late 2010. With that as background, the

government's recent announcement that it will cut its ICT budget by just 8% (from €63m to €57m) is yet another signal of Estonia's commitment to developing its ICT infrastructure and services.

Nonetheless, according to Marek Tiits, the chairman of the Institute of Baltic Studies, Estonia still needs to do more to support ICT skills development. He would like to see the government promote more ICT use in education, health, industry and energy efficiency. Together with leading Estonian universities, the institute plans to develop an ICT education plan for the country. A master's degree programme in Cybersecurity is already in place as of September 2009.

## Greece

### ICT strategy

Greece has one of the worst ICT infrastructures in the region, despite the highest income levels and longest history of EU funding. It lags considerably behind most EU countries in terms of broadband penetration, at just 13.5% of the population (compared with 37.3% in Denmark). The Internet revolution came late to Greece owing to the monopoly over landline provision of the Hellenic Telecommunications Organisation (OTE), previously state-controlled but broken up only in 2001 and in which the state continues to have a significant share.

Belatedly, Greece has been using EU funds to support infrastructure development. In 2006 the state allocated €450m to a Broadband Action Programme, designed to roll out broadband infrastructure across the country—particularly in low-access areas—and including new regulations on local loop unbundling, which allows other Internet providers to use the same networks as the OTE. Private participation has increased, despite the OTE's continued dominance, such that access costs fell by 85% in 2004-07. Together with EU funds, this allowed the pace of broadband adoption to pick up dramatically, trebling the number of connections in as many years. However, rural connectivity remains a concern, with about one-half of rural areas still lacking DSL (digital subscriber line) coverage.

The government is experimenting with various electronic access programmes for public services, as part of its Digital Convergence programme. The Observatory for the Greek Information Society estimates that online tax filing brought the following savings:

- 250,000 man hours or the annual work of 120 employees was saved by the electronic submission of income tax and value-added tax (VAT) statements (26% saving);
- waiting time for receiving tax clearance was reduced by 92% for those submitting income tax statements electronically;
- 635,000 hours were saved by citizens who submitted their income tax statement online in 2007; and
- 4m hours were saved by companies that submitted VAT statements online in 2007.

### Post-crisis outlook

Greece's 2007-13 digital strategy retains a strong focus on infrastructure, but its main priorities going forward are to improve e-government services and ICT usage in small businesses. Notwithstanding the promising results of the pilot project on electronic tax filing, the EU has found that only 10% of citizens

use the Internet to access public services of all types. Over 2007–13 the government has allocated €1.47bn in funding to ICT, of which 58% will come from the EU. The rest will be split broadly between national funds and support from the private sector. Of the funds, 41% is earmarked to expand digital services for citizens, in particular e-health, e-government and e-learning.

Although Greece's economic contraction will be milder than those in CEE countries, Greece faces both political and administrative challenges that may shift attention away from its ICT goals. Recent ICT initiatives have also stalled because of a lack of co-ordination between business and government. For example, this has hampered the progress of a plan to set up a state-funded ICT venture capital firm that would have invested in local start-ups.

## Hungary

### ICT strategy

Hungary has recently increased its policy emphasis on ICT, establishing a state secretariat for information and communication in early 2008. The secretariat's budget comes from various parts of the New Hungary Development Plan (NHDP), which in turn is supported by the EU. Total funds earmarked for 2009–10 are Ft102bn (€375m), or 4.4% of the NHDP budget.

The secretariat allocates ICT funds to five priority areas:

- Citizen involvement, particularly broadband expansion, e-inclusion and e-schools.
- IT for business, mostly supporting SMEs and the e-commerce sector.
- E-administration, including developing electronic government backbone, e-payment and e-identification systems.
- Integrated public services, mainly focused on eliminating duplication of services by centralising data collection and storage.
- Customer-oriented public services, including development of a single interface for key public services, such as customs administration, land registration and social security payments.

Accounting for over 11% of GDP, Hungary's ICT sector is among the most developed in CEE, and it scores well in terms of the availability of Internet to citizens and businesses, and, in particular, the ICT skills of its labour force. However, political and economic instability in recent years have taken their toll on the government's ability to meet ICT goals, putting a question mark over a number of projects currently in the pipeline. According to Tamas Klotz, the secretary-general of the Hungarian ICT Association (IVSZ), the ICT market has been slowing down for some time, with scores of past government-related projects postponed or cancelled. Few large-scale ICT projects have been launched over the past two years, and only a few tenders will be announced before the end of 2009. Slow bureaucracy, burdensome legislation and red tape are among the concerns.

That said, the government's investment in ICT projects to date has yielded some benefits. A complete cost-benefit analysis of various e-public services is not expected before 2010, but the government reports the following indicators of progress:

- Slightly faster processing of standard requests. The introduction of e-public services has cut the average time required to process a standard request, such as obtaining an ID card, passport or driver's licence, from 36 minutes in 2007 to 34 minutes in 2008, according to the Central Office for Administration and Electronic Public Services.
- Stricter controls on healthcare spending. Since April 2007, doctors, hospitals and pharmacies must use an electronic link to OEP, the national insurer, to check whether patients have valid OEP insurance, before providing services or medications. In 2006, 1m Hungarians were believed to be "free riders", making no payments into the insurance system. With the new electronic checking system in place, that number was cut to 300,000-400,000 by mid-2009.
- Streamlined electronic payment systems. Introduction of a unified payment system will allow citizens and businesses to combine their debts owed to government agencies into a single electronic payment, with the transferred amount split among various government offices internally. This will reduce the time that citizens spend on payment transactions, as well as the amount they pay in banking fees.

### **Post-crisis outlook**

Given that Hungary's economy was weak even before the economic crisis of 2008-09, it is no surprise that future ICT spending commitments are being questioned. But in early September 2009 the government approved an ICT action plan to regroup available funds towards certain priority projects. Although no concrete figures are available, the government has said that e-public services programmes would not be delayed because of the crisis. Other priority areas, according to the action plan, include ICT infrastructure and online education programmes.

If the government follows through on that plan, it could address serious deficiencies in the uptake of e-public services. For example, *Customer Gate*, a one-stop shop for online access to government services, is falling short of its potential. Only an estimated 200,000 citizens use the service, a fraction of the 2m who use electronic banking services offered by private-sector banks.

## **Latvia**

### **ICT strategy**

Latvia compares well to other CEE markets in terms of the general IT literacy of its population. But with the massive impact of the global economic crisis, its main ICT strategy has been to speed up absorption of EU funds, and in particular to take advantage of the EU's commitment to increasing its co-financing of broadband projects from 85% to 100%.

In total, Latvia has earmarked €189m for ICT projects in 2007-13, or about 4.2% of the EU allocation of €4.53bn. Latvia's ICT strategy gained momentum in 2008 when the government approved a number of high-priority projects. Current priorities include e-administration, public Internet access points, particularly in rural areas, and broadband network development. Despite an average broadband penetration rate of 17.4%, only 62% of businesses have broadband, placing Latvia at the bottom of the EU27, according to the EU's August 2009 report on connectivity.

Latvia's main rationale for its current ICT spending is a genuine search for new sources of growth, now that consumption-driven expansion has come to a virtual halt. ICT is seen as a prerequisite for developing new industries as well as for boosting productivity levels.

Latvia's ICT spending approach is comparatively passive, driven by past practices rather than by clearly formulated, forward-looking strategic goals. Essentially, Latvia is still focusing on more urgent economic priorities, such as balancing its fiscal deficit and buttressing its banks' balance sheets.

Latvia's poor financial situation means that it must rely on EU funding as a source of public fiscal stimulus. EU funding is earmarked for strategically important infrastructure projects, including ICT. Nonetheless, ICT projects are secondary to roads and physical infrastructure. Even EU-favoured projects such as e-public services and increasing broadband reach must take a place farther back in the queue.

### **Post-crisis outlook**

Latvia faces a number of acute macroeconomic challenges as a result of its worsening economic environment: GDP is expected to plunge by almost 17% in 2009, according to Economist Intelligence Unit data. Stabilising the economy is therefore first on the government's list of commitments.

Nonetheless, since taking office in March 2009, the new government of Valdis Dombrovskis has pledged to support a number of priority ICT projects, including some involving e-administration. It hopes that these will improve information sharing among agencies and streamline processes, thereby cutting costs. The government also signalled a greater interest in promoting e-procurement and electronic skills developments, and to fund research and development (R&D) in software and communications as a way to boost the country's competitiveness.

Given current budget constraints, however, it may not be able to fund any project that is not already in the pipeline and fully financed by EU funds. And although the government pledges its support to ICT, it is cutting administrative budgets related to ICT. For example, the post of minister for e-government affairs was recently absorbed into the Ministry of Regional Development. The Latvian Information Technology and Communications Association (LITKA) is actively lobbying to increase state funding of IT programmes at universities, once public finances are unlocked.

## **Lithuania**

### **ICT strategy**

A strong R&D community drove Lithuania's development in the 1990s, with government involvement largely confined to national communications infrastructure. From 2001 onwards, ICT received more focus, following the establishment of the Information Society Development Committee, which remains responsible for co-ordination of policy development. E-Government policy and Public Internet Access Points (PIAPs) are handled by the Ministry of the Interior, while the Ministry of Transport is responsible for broadband development and the Ministry of Economy for funding support for e-business.

This decentralised approach has led, according to at least one study, to Lithuania's falling behind its EU accession peers in ICT adoption. Others counter that the decentralised approach has allowed "bottom-up" initiatives like PIAPs, which in turn have helped to narrow the rural-urban digital divide.

International comparisons place Lithuania among the top five countries in CEE in general e-readiness, although Lithuania lags other EU countries in R&D and in specialised ICT skills.

Lithuania's ICT budget totalled LVL202.4m (€59m) in 2008, including LVL50.4m (€14.7m) of EU support (or 25% of total funding). In 2009 Lithuania reduced its ICT budget to LVL159.7m (€46.5m) as a result of the economic contraction. However, the allocation of EU funds rose to LVL67.5m (€19.7m), or 42% of the budget. Budget amendments in 2009 have cut a further LVL69.1m (€20.1m) of state funds into ICT, which indicate that overall spending this year, including EU funds, will be in the region of LVL90.6m (€26m), or less than one-half of the budget in 2008, but with EU funds making up some 75%.

### **Post-crisis outlook**

Lithuania has the second-worst economic outlook in the region, with GDP expected to contract by 15% this year, according to Economist Intelligence Unit data. Thus, in the near term, further cuts to the state portion of the ICT budget remain likely. Nonetheless, Lithuania has done commendably well at speeding up absorption of EU funds this year, largely by improving the quality of its funding applications.

With construction of the networking and access backbone completed, Lithuania's ICT policy has shifted to supporting development of ICT services and skills. E-government projects are being given specific priority, owing to their potential to cut costs in other areas. One such project involves digitalising criminal records, to replace the 300,000 paper reports that the current system generates each year. Another likely future project is an e-health initiative that would set up a national electronic health registry. It would hold patient records and would be accessible by doctors and hospitals. The plan envisions an associated e-prescriptions system, allowing doctors to order prescriptions for patients electronically.

## **Poland**

### **ICT strategy**

Poland has earned kudos from the EU and other observers for the comprehensiveness of its most recent ICT strategy—Digital Poland (Polska Cyfrowa)—launched in December 2008 by the Ministry for Interior Affairs and Administration.

Within the strategy, e-government is top priority. Overall, the interior ministry has earmarked around €3.2bn of funds for 23 separate e-government projects to be financed between 2009 and 2013, with most of the funding coming from the EU. Poland aims to get 95% of the top 20 public services online by 2013 (in 2007 just 25% were online). The largest projects are an e-Health project to digitalise all public health records, with funds of Zł 877m (€274m) to 2013; the PL.ID electronic identity cards project (Zł 370m/€116m), which aims to provide all citizens with an ID card with electronic chip enabling access to a range of online public services; and the second phase of a wide-ranging project to provide a single electronic platform for all areas of government.

Connectivity and thus the ability of citizens and businesses to make use of such services remains a concern, however. Poland scores poorly compared with other EU and CEE countries in terms of DSL coverage, broadband penetration and Internet usage. Some 42% of enterprises do not have broadband access. The interior ministry strategy contains a target for broadband to be available nationwide by 2012. However, the government prefers to encourage private-sector participation in the sector, rather



than dedicating state funds. Michal Boni, an adviser to the prime minister, expects combined funding from state, EU and private-sector investments into digital infrastructure to amount to around €2bn-2.5bn this year.

### **Post-crisis outlook**

Poland's economy has proven more resilient to the crisis than in other countries in the region. GDP has continued to grow (by 1% in real terms in the first half of 2009, according to Economist Intelligence Unit data). However, growth has slowed sharply from the highs of 2005-07, and has already forced the government to trim its state budget for 2009 by 7%. As Poland does not have a centralised ICT budget, it is difficult to determine spending trends. However, mirrored cuts—or at least delays—in its ICT spending programmes are probably inevitable. According to DiS, a local research firm, public-sector ICT spending was Zl 1.4bn (€385m) in 2008. Despite the interior ministry's ambitious strategy, few major contracts were placed during the first half of 2009.

## **Romania**

### **ICT strategy**

ICT is high on the government's agenda, although Romania still has a long way to go in order to catch up with its CEE peers. In particular, infrastructure remains underdeveloped: only 13% of the population has access to broadband service, and the proportion is lower in rural areas, where almost one-half of the population lives. On the positive side, improvements are coming quickly and are expected to contribute to rapid uptake of Internet services thanks to a now fully liberalised telecoms sector.

The government has spent heavily in ICT in an effort to close the infrastructure gap, and it is likely to continue to do so. Romania has earmarked €3.3bn in EU funds in 2007-13 towards financing ICT projects. The three priority areas are communications, e-government services and e-business. International donors, particularly the World Bank, also are prominent contributors to Romania's ICT development, providing funding for its National Strategy for Broadband Development. This programme aims to increase household broadband penetration to 40% by 2010 and to 80% by 2015.

E-public service, in particular, is set to receive a boost this year following a November 2008 strategy announced by the Agency for Information Society Services. E-Romania, a government website offering services for citizens and businesses, was recently launched and aims to cut administrative processing costs by 30-70% by the end of 2009.

### **Post-crisis outlook**

Romania was hard hit by the global economic slowdown and GDP is expected to fall by over 7% in 2009, according to Economist Intelligence Unit data. The government is planning for a budget deficit of 7.3% of GDP, but financing remains tight. In order to stimulate the economy, it is replacing private and government spending with international funds, particularly from the EU.

Vasile Baltac, the president of the Association for Information Technology and Communications, an non-government organisation (NGO) representing the IT sector, is concerned that ICT will disappear from the political agenda as the government elected in early 2009 deals with more pressing

financial and social issues, such as meeting its budget target and dealing with rising unemployment. But according to Andrei Savelescu, a cabinet minister within the Ministry of Communications and Information Technology, money-saving e-administration and e-public services projects will continue to receive high priority.

Mr Baltac also believes that the private sector has a key role to play in developing Romania's ICT sector. As a large-population, low-cost country, Romania has attracted significant ICT investment in recent years. Several leading multinationals have established a presence in the country, employing several thousand people each.

## Russia

### ICT strategy

Russia's level of broadband penetration—at 6.5% of the population—remains low compared with the rest of the region. Service provision is also limited. Russia scores second to last place in the region in terms of the level of development of e-public services (just ahead of Albania) in the UN's latest rankings. Sergei Sobyanin, a deputy prime minister and government chief-of-staff, claims that Russian citizens make some 3bn trips to government agencies each year to fill in forms—or about 21 trips per inhabitant.

To address this and other shortcomings, Russia's ICT action plan for 2009-12 envisages spending US\$5bn in 2010-11, according to Leonid Reiman, an adviser to the president. Priorities include the development of digital grids, e-government and e-education. Projects will focus on digitalising government documents by 2010, a measure that aims to fight official corruption as well as increasing citizens' convenience. Other elements of the e-government strategy include developing an e-procurement system and an electronic patents database, which the government hopes will serve the R&D sector.

Infrastructure hurdles remain a big constraint to offering such e-services. Rural broadband access is almost non-existent. The government hopes to increase broadband penetration to 15% by the end of 2010 and 23% by 2012, although it relies on private-sector funding for much of this development. In contrast to some countries, mobile Internet has developed rapidly in Russia, where the country's vast size means many areas lack fixed-line infrastructure. Some 30m Russians are estimated to have accessed the Internet via a mobile phone in 2008. Future broadband developments are likely to include a mix of fibre-optic cables (in urban areas), satellite and Wi-MAX solutions.

The government's ICT spending is driven by a need to diversify away from reliance on the oil and gas sector; the need to give central authorities better control over far-flung institutions and agencies across the country by using a common IT system; and the need to keep up with global competitors, particularly in the IT-intensive aerospace and defence sectors.

### Post-crisis outlook

The financial crisis and the related drop in oil prices have forced the government to speed up plans to diversify the economy. The Economist Intelligence Unit expects Russian GDP to contract by 7.4% in 2009, after growing by 8% in 2007 and almost 6% in 2008. Although the government seems committed to implementing its ICT strategy—for example, the president recently announced a project to digitalise government administration—budget constraints may interfere in the short term. Given that oil prices

are at less than one-half of their mid-2008 highs of US\$140/barrel, budget cuts for publicly funded programmes cannot be ruled out.

## Slovakia

### ICT strategy

Limited development of broadband is a major drag on Slovakia's otherwise e-ready economy. ICT is a significant contributor to GDP, with Slovakia providing a production base for several major technology companies, including Alcatel, Nokia and Siemens. Slovakia has one of the highest rates of IT-skilled workers in the EU.

Paradoxically, Slovakia's broadband penetration is the lowest in the EU. This reflects slow liberation of the fixed-line telecoms sector, where Slovak Telecom controls most of the infrastructure. Although Internet usage is fairly widespread, broadband penetration is just 10.9% of the population. Less than one-half (43.5%) of rural areas have DSL coverage.

Rolling out broadband infrastructure is therefore an important element of Slovakia's ICT strategy, much of which will be funded by the EU. The country is set to receive €1.2bn in EU funds between 2007 and 2013. Those infrastructure improvements, in turn, are critical to achieving the government's second priority: expansion of public service offerings online. According to the EU, currently 30% of Slovak citizens use e-public services. The Slovak government aims to offer 192 public services online by 2013. It also hopes to increase broadband penetration by 700,000 households over the same period, which would almost double current subscription rates.

Some progress has already been made since the onset of the financial crisis, particularly in the area of e-administration. In December 2008 the government set aside around €100m for digitalising the services of the Ministry of Labour and Social Affairs, and those of the social insurer. However, observers note that meaningful progress will have to wait for the passing by parliament of amendments to the 2002 electronic signature law. Moreover, the government needs to step up public awareness of e-public services programmes if their usefulness is to be fully realised.

A particular focus of the Slovak initiative is the effort to automate health records. The recently launched e-health initiative aims to decrease costs and relieve administrative burdens within the healthcare system. It also aims to increase efficiency and improve communication between doctors, patients, insurers and government officials. An important aspect of the e-health initiative is a "smart card" that will allow the electronic exchange of patients' medical records. According to Paul Buddle Communication, a telecoms research website, currently only 1% of the country's general practitioners exchange medical data electronically with other doctors and caregivers, and only 5% exchange analytic results from labs electronically.

### Post-crisis outlook

Slovakia's economy contracted by 5.5% in the first half of 2009, according to Economist Intelligence Unit data. Even though the budget currently registers a similar deficit, the government is unwilling to raise taxes or reduce expenditure. Instead, it is focusing on attracting more EU funds. Overall EU funding is expected to reach 1.2% of GDP in 2009.

Responsibility for ICT development, and in particular for the broadband initiative, rests with the Ministry of Information, Post and Communications. However, ICT initiatives are scattered among different ministries. Since each ministry controls its own budget and there is no government-wide compilation of ICT activities, it is difficult to determine the overall spending level for ICT.

## Slovenia

### ICT strategy

Slovenia compares well with the rest of the region in terms of its digital development. It is a leader in Europe in implementing e-public services initiatives. A recent survey by the European Commission found that around 90% of public services for businesses and individuals are fully accessible online. Broadband penetration, at 21% of the population at the end of 2008, is also high by regional standards, although speeds are fairly slow. While most urban areas and most businesses have high-speed Internet access, coverage in rural areas remains patchy. Nonetheless, with the help of the government's rural broadband development project, 7% more rural municipalities gained broadband connections in 2008 compared to 2007.

Slovenia's policies are mainly focused on extending broadband connections to rural areas. Slovenia's ICT strategy tracks that of the European Commission's i2010 programme, which aims for high-speed Internet access for all EU citizens by 2010. The government is currently managing 44 separate ICT projects with a combined value of €305.8m. About one-third of those projects focus on broadband development, particularly in rural areas.

Spending on broadband in 2009 amounts to €66.4m, or 1.4% of the entire government budget and 55% of the ICT budget, according to the Ministry of Finance. Another 12% of the national budget has been earmarked for technological equipment and software for governments and municipalities, with the rest going mainly towards smaller e-administration projects.

### Post-crisis outlook

Government agencies are currently focused on containing the impact of the global economic crisis, which has led to a deep recession in the domestic market, owing to Slovenia's reliance on EU export markets and high levels of consumer and business debt. The Economist Intelligence Unit expects the economy to contract by 6.5% this year. Nonetheless, ministry and industry sources suggest that the government will stick to its ICT commitments. Dr Jozsef Györkös, state secretary at the Ministry of Higher Education, Science and Technology, insists that ICT remains one of the most crucial infrastructure elements for Slovenia.

Increasing competitiveness and modernising the economy is a key goal of the government's 2010 and 2011 budgets, which include a number of strategic ICT projects. Although the actual ICT budget is set to decline over the period—by 10% in 2010 and up to 40% in 2011, according to the Ministry of Finance—Slovenia is expected to make up the difference with EU funds. Those funds will be used mainly for developing broadband networks. The government predicts it will spend €1bn of EU funds in 2010, up from €700m in 2009.

## Turkey

### ICT strategy

Turkey's ICT development has been driven in part by its efforts to join the EU. The accession process has focused attention on, among other things, improving the country's infrastructure and liberalising its telecoms sector. The process also involves harmonising telecoms laws with those of the EU, and strengthening the country's administrative apparatus through e-administration and e-public services initiatives.

Turkey's fiscal stimulus programme emphasises spending on ICT connectivity in rural areas as a way of driving future economic growth and reducing wealth disparities between different regions. Only around 7.8% of the Turkish population currently has broadband service, and this conceals large variations by region and between urban and rural areas.

The State Planning Organisation and the Ministry of Transport and Communication are the main agencies responsible for ICT policy and strategy. They are the authors of Turkey's 2006-10 Information Society Strategy, which earmarks US\$2.14bn (€1.44bn) for 111 ICT projects. These programmes aim variously at increasing business uptake of sophisticated ICT technologies, improving automation within government agencies, offering more government services online, contributing to ICT R&D projects, providing Internet access to schools and providing broadband access to low-income communities. The government spent about US\$591m (€397m) on ICT in 2008. The government has also given a €150m tax break to businesses and consumers by lowering the Special Communication Tax on Internet services from 15% to 5% for fixed line, and by lowering the value-added tax on computers and software from 18% to 8%.

### Post-crisis outlook

According to Economist Intelligence Unit data, the economy is expected to contract by 5.7% in 2009, followed by a mild recovery, to 3%, in 2010. If Turkey accepts an agreement with the IMF before the end of 2009 to bolster its economy, this could bring tight spending constraints, which then might have an impact on the financing of new ICT projects. However, ICT funding in 2009-10 is expected to continue to support current e-administration and broadband connectivity projects.

## Ukraine

### ICT strategy

Ukraine's ICT strategy is led by the State Committee for Information (SCI), an agency of the Ministry of Transport and Communications. The SCI implements the national ICT programme, adopted in 1998. Its goals include building an "information society", developing an electronic document system and information sources, and providing online services for citizens and business at state and local level.

Despite substantial political and economic instability, the SCI has made every effort to realise its goals. Ukraine now has a single web portal for all government bodies, and scores well in the web presence component of the UN's e-readiness rankings, coming in 6th among the 18 CEE countries.

Ukraine scores an even better 2nd place for its e-participation score, which measures the quality of e-public services for citizens.

Each year, the SCI draws up a list of priority projects for financing. Its project financing has averaged HRN900m (€86m) per year over the past ten years, and this level is expected to continue in 2009. Among 2009 funding plans are HRN15.8m (€1.5m) for an electronic voter registry, and HRN7m (€0.68m) for an automated accounting system for local and state budgets. The government is also using a five-year, US\$57m (€38m) grant from the World Bank to develop a system to manage public finances; the aim is to make both government budget allocations and public procurement more transparent.

ICT infrastructure will also require funding; broadband penetration remains below 5% of the population. However, most of the SCI's projects are still awaiting specific budget allocations.

One project that has received funding—and so far to mixed reviews—is an electronic system allowing taxpayers to make VAT declarations online. The nationwide system went live in early 2008, offering the option of saving time-consuming visits to the tax office. The State Tax Administration (STA) says that 60% of VAT payers chose to use the system in 2008, and close to 90% chose to do so this year. The STA also says the electronic filing system has reduced the number of questionable VAT refund claims to one-third of the previous level, and has reduced on-site checks of enterprises by tax inspectors to one-quarter of the previous number.

Taxpayers themselves, however, raise some complaints about the system. In order to use it they are required to buy a so-called electronic key from the STA, which needs to recoup its HRN30m (€2.8m) investment in the system. Taxpayers also must send their filings to an intermediary designated by the STA, which charges a hefty fee for forwarding the information to the tax authorities.

### **Post-crisis outlook**

Both politically and economically, Ukraine is in difficulty. The country has faced electoral uncertainty since the Orange Revolution in 2004. As a result, the relevant government agencies may not be able to pay full attention to ICT strategy until after the presidential election planned in early 2010.

In addition, budget constraints are likely to affect current spending commitments. According to Economist Intelligence Unit data, the economy is expected to shrink by 17% in 2009. Over the past six years, there has been a 60-75% shortfall in spending relative to the SCI's budgeted commitments. With the economy shrinking, it is highly likely that further spending commitments will be put on hold.

While every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this white paper or any of the information, opinions or conclusions set out in this white paper.

GENEVA

Boulevard des Tranchees 16  
1206 Geneva  
Switzerland  
Tel: +41 22 566 24 70  
E-mail: geneva@eiu.com

LONDON

25 St James's Street  
London, SW1A 1HG  
United Kingdom  
Tel: +44 20 7830 7000  
E-mail: london@eiu.com

FRANKFURT

Bockenheimer Landstrasse 51-53  
60325 Frankfurt am Main  
Germany  
Tel: +49 69 7171 880  
E-mail: frankfurt@eiu.com

PARIS

6 rue Paul Baudry  
Paris, 75008  
France  
Tel: +33 1 5393 6600  
E-mail: paris@eiu.com

DUBAI

PO Box 450056  
Office No 1301A  
Thuraya Tower 2  
Dubai Media City  
United Arab Emirates  
Tel: +971 4 433 4202  
E-mail: dubai@eiu.com