

# The 2004 e-readiness rankings

A white paper from the Economist Intelligence Unit



Written in co-operation with  
**IBM**

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## **About the 2004 e-readiness rankings**

Since 2000, the Economist Intelligence Unit has published an annual e-readiness ranking of the world's 60 largest economies. A country's "e-readiness" is essentially a measure of its e-business environment, a collection of factors that indicate how amenable a market is to Internet-based opportunities. Our ranking allows governments to gauge the success of their technology initiatives against those of other countries. It also provides companies that wish to invest in online operations with an overview of the world's most promising investment locations.

Nearly 100 quantitative and qualitative criteria, organised into six distinct categories, feed into the e-readiness rankings. These criteria assess countries' technology infrastructure, their general business environment, the degree to which e-business is being adopted by consumers and companies, social and culture conditions that influence Internet usage, and the availability of services to support e-businesses. (For a fuller account of the criteria and country-by-country scores, please see the appendix on page 24-25.)

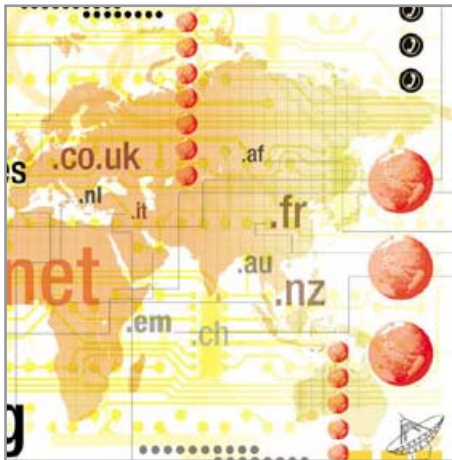
In a world of rapidly changing technological standards, we believe it is important to review our criteria for measuring e-readiness and refine our methodology on a periodic basis. This year, we have made a small but significant change: the addition of broadband penetration as a criterion. Basic telephony is critical to initial Internet uptake. But meaningful e-business development requires high-speed connectivity. Our methodology now treats basic and high-speed telephony as equally important components of the e-readiness picture.

As with the other penetration rates in the ranking (fixed-line connections, mobile phone subscriptions, Internet usage and PC ownership), broadband penetration is measured on a per capita basis. Because broadband rates are still very low just about everywhere, the addition of broadband to the equation has effectively pushed down countries' overall scores. Thus, overall scores in the 2003 and 2004 rankings are not, strictly speaking, comparable. But the rankings themselves are.

There is another notable addition to this year's ranking: more countries. In recognition of the European Union's eastward expansion, we have added four of this year's accession countries—Estonia, Latvia, Lithuania and Slovenia—to the four that were already part of the annual ranking (Czech Republic, Hungary, Poland and Slovakia).

For this and previous e-readiness rankings, the Economist Intelligence Unit worked in association with IBM's Institute of Business Value, a leader in e-business strategy. IBM worked together with the Economist Intelligence Unit to build the rankings model. The Economist Intelligence Unit is entirely responsible for the rankings and the content of this white paper.

"Economic development is largely predicated on the effective and innovative use of technology," says Peter Korsten, director, IBM Institute for Business Value. "The e-readiness rankings provide valuable insight into how governments can influence the rate and nature of adoption of technology and applications. Equally, they provide business leaders with information that can help guide decisions on where to invest to grow their companies."



# The 2004 e-readiness rankings

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## Executive summary

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Prospects for the information and communications technology (ICT) industry look sprightlier than they have for a while. Investment in encryption and security applications is on the rise, and new corporate governance legislation has boosted demand for database management and storage technology. Globally, there has been resurgence in telecoms services usage and new service adoption, particularly by enterprises taking advantage of Internet Protocol (IP)-based services and applications.

Much of this is opportunistic, with consumers taking advantage of increased priced-based competition for mobile, fixed-line and data services, and companies exploiting the post-bubble collapse in bandwidth prices. The digital economy may not, for now, be generating much more revenue for the service and equipment providers that support it, but the tools of

e-business are becoming more ingrained—and more affordable—in corporate operations and consumer behaviour.

The utility of the Internet is increasingly evident as a result, in developed and developing economies alike. Citizens can download government documents, file tax returns and participate in electronic forums with elected officials not only in Singapore, Helsinki, London and Ottawa, but in Cape Town and Sao Paulo as well. In markets where there are many more mobile phones in hands than PCs on desks—including most of the developing world—wireless devices are becoming delivery mechanisms for Internet services. It is not surprising that mobile banking services are more developed in the Philippines and China than in the US.

There are some areas of disappointment. Third-generation (3G) mobile services, which promised to bring multimedia interactivity to every



handset, are still uninspiring. The uptake of 3G subscriptions is slow and uneven—only 22m of the world’s 1bn mobile subscribers are 3G users, and 90% are in two countries: Japan and South Korea. Mobile carriers the world over are struggling, with little success, to define their services and come up with the next “killer app”.

The world’s fixed-line markets tell a happier tale. Broadband penetration has grown tremendously over the past several years. Reliable, flat rate broadband Internet access has been a boon to e-commerce and consumption of multimedia services. South Korea, the world’s most densely penetrated broadband market at 27% of the population, has spawned thriving e-tailing and online gaming sectors. Just as the precipitous fall in international leased-line prices over recent years has led to increased usage of virtual private networks amongst multinational corporations, so cheap plentiful bandwidth for homes and small businesses has driven the uptake of e-business tools and the growth in online transactions.

To reflect its role as an e-business driver, we have modified the methodology in this year’s ranking to specifically include broadband. Within the connectivity category, broadband penetration replaces an indicator that measured disposable income against fixed-line rental rates. For most

countries—particularly the top-ranked ones—the change has had a dampening effect on overall scores. With the exception of Spain and Israel, where investment in IT has been particularly strong, the scores for all top 25 countries have slipped. The explanation is in the broadband score: while basic fixed-line and mobile infrastructure is well established in the world’s most e-ready countries, broadband adoption is still low. In a digital world, new technology will constantly move the goalposts.

Broadband penetration alone will not vault countries up the e-readiness league table. Some of the densest broadband markets in the world today—Korea, Belgium, Taiwan and Japan—are not among the top ten in our ranking. It is the countries with dense connectivity of all types, including broadband, that have held their ground at the top. This is particularly true of Denmark and Sweden (1st and 3rd place). But the fact that the UK is Europe’s densest broadband market has helped push it into 2nd place. And the broadband factor is the major reason the US has slipped from 3rd to 6th place—per capita penetration stands at less than 7%.

### **Northern Europe still e-readiest**

There is some predictability in the digital world. Countries that continuously add resources to an existing base of mature telecoms

infrastructure maintain their lead in e-readiness. Of the top ten in last year's ranking, nine remain on top. Scandinavia now holds four of the top five positions, edging out the Netherlands and the US. While there are no ties in the top ten (last year there was a three-way tie for 3rd place and a two-way tie for 10th) the distance in between the scores is even smaller—just 0.25 of a possible 10 points separates 1st from 10th place.

### **All pulling together**

Coordination, particularly formal programmes between government organisations and the IT industry, is key to success. Here is where Europe—and especially Scandinavia—excels. Government-industry coordination is also why Asia's broadband leaders (South Korea, Hong Kong, Taiwan and Singapore) have been able to roll out the technology so quickly.

Some government strategies for expanding digital infrastructure and getting people to use it are better than others. Simply putting information online and evincing a benign attitude toward Internet development is no longer sufficient. To have a strong impact on the day-to-day activities of consumers and businesses, governments must embrace their role as early adopter and promote education programmes and legislation that make a difference. Smart

government initiatives are contributing to the steady rise of the Northern European countries, Singapore, Hong Kong and Korea, and the relative stagnation of such e-enabled but uncoordinated markets as the US and Australia. These two markets have seen their scores slip from 3rd to 6th place and from 9th to 12th place, respectively, over the past year.

### **The four tiers**

Four tiers of e-readiness have emerged in this year's ranking. The top 25 countries, which comprise the first tier, are all within a point and a half of each other—from Denmark at 8.28 to Japan at 6.86. This is roughly the same spread as in 2003. Despite the position swapping in the top ranks, all are moving forward in broadly the same terms.

Between Japan and new entrant Estonia, in the second tier, there is a significant dip of 0.32 points. In recognition of the European Union's eastward expansion, we have added four of this year's accession countries—Estonia, Latvia, Lithuania and Slovenia—to the four that were already part of the annual ranking (Czech Republic, Hungary, Poland and Slovakia). All place in the second tier, between ranks 26 and 40. The countries in this range are within 1.2 points of each other. They are countries that do not yet have dense communications and Internet infrastructure, or have





less well-coordinated e-government policies, but nevertheless have significant and quickly growing e-service industries.

The second tier includes the emerging Latin American outsourcing powerhouses Brazil (35th), Argentina (37th) and Mexico (40th), countries in Eastern Europe that have built niches in software and technology development such as the Czech Republic (28th), Hungary (30th) and Slovakia (39th), and Malaysia (33rd), which has skilfully transformed its technology manufacturing industry into a global source of IT service support and Internet-enabled customer care.

In the third tier, a mix of developing countries are clustered between Columbia in 41st place and Russia in 55th, including the large and increasingly e-ready economic powerhouses India (46th) and China (52nd). In these markets, e-business and e-enabled services are the exception rather than the rule. But some are striving to develop IT outsourcing competencies—particularly Bulgaria (42nd) and Romania (50th)—or are in the early stages of a coordinated plan to build an e-society, such as Thailand (43rd).

Finally in the fourth tier (56th through 64th places) there is a cluster of markets where Internet services are either a struggle or a luxury, or both. There is the occasional bright star—the

success of Vietnam's software development industry may encourage a coordinated response to other digital opportunities—but overall, infrastructure, policy and business environment challenges conspire to prevent the spread and utility of digital channels.

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### **What's changed in five years?**

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When the e-readiness rankings were introduced in 2000, the US was the indisputable leader. In each year since, its position has eroded as other developed countries, particularly in Northern Europe, have advanced. In 2003 the US lost the pole position to Sweden, and in this year's ranking it falls back to a humbling sixth place, bested by the four Scandinavian countries and the UK. Decay in the world's Internet superpower? Or is something else going on?

There is. Despite the dotcom bust and pummeling of the IT industry, which hurt the US disproportionately, the US continues to make strong strides in e-readiness. Its decline in the ranking is a result of other countries making faster progress. Northern Europe, and the Nordic countries above all, are experiencing accelerated penetration of high speed Internet infrastructure and advanced e-business services. The Internet is transforming the ways in which people interact, in

## Digital divides

Many countries are reaping benefits from being at least partially e-ready, even if they do not have all the components that support digital services (complete technology infrastructure, and favourable policy, business and social environments) in place. In this year's ranking, as in past years, countries that have all these enablers working in tandem score highest. But it is also clear that having one or more of the basics in place can go a long way, as a country leverages what e-assets it has to generate competitive advantage.

Consider India and Brazil, for instance, both of which have thriving IT-enabled services markets. India's software and related business process outsourcing services industry is worth an estimated 3% of GDP. The two markets rank low in overall e-readiness (46th and 35th place, respectively), but have better-than-average scores in the supporting e-services category. A combination of back-office facilities and competent, cost-competitive workers has given rise to thriving IT businesses.

Seen in this light, the "digital divide" is not so much a chasm between haves and have-nots, as a distinction between developed markets that have embedded e-business into a full range of economic activities and developing markets that have turned cost advantages to seize opportunities in specific technology niches. In either case, e-readiness can deliver real benefits to industry, government and individuals.

both the commercial and public realms. Scandinavia is remarkable for the way in which citizens have incorporated Internet technology into their daily lives, completely altering how they work, shop, and communicate with officials.

The changing fortunes of northern European countries, on the one hand, and the US, Canada and Australia—the Internet pioneers that led our earlier rankings—on the other, is the most salient development over the five years of our e-readiness rankings. The most remarkable gains have been registered

by Denmark and South Korea—up nine and seven places, respectively, since we substantially revised our methodology in 2001. In the same period, Japan, Russia, Egypt and Peru have fallen almost as far as Australia, by seven places each. While these countries have under-performed against their peers, it is not a case of decline, but rather of stagnation or slow development compared to more aggressive e-leaders. Indeed, nearly every country in our ranking is making progress. Whether they are progressing as quickly as their neighbours is the question.







### Economist Intelligence Unit e-readiness rankings, 2004

2004 e-readiness ranking (of 64)	2003 ranking	Country	2004 e-readiness score (of 10) <sup>a</sup>	2003 score
1	2	Denmark	8.28	8.45
2	3 (tie)	UK	8.27	8.43
3	1	Sweden	8.25	8.67
4	7	Norway	8.11	8.28
5	6	Finland	8.08	8.38
6	3 (tie)	US	8.04	8.43
7	12	Singapore	8.02	8.18
8	3 (tie)	Netherlands	8.00	8.43
9	10 (tie)	Hong Kong	7.97	8.20
10	8	Switzerland	7.96	8.26
11	10 (tie)	Canada	7.92	8.20
12	9	Australia	7.88	8.25
13	13	Germany	7.83	8.15
14	16	South Korea	7.73	7.80
15	14	Austria	7.68	8.09
16	15	Ireland	7.45	7.81
17	17 (tie)	Belgium	7.41	7.78
18	19	France	7.34	7.76
19	17 (tie)	New Zealand	7.33	7.78
20	20	Taiwan	7.32	7.41
21	23	Spain	7.20	7.12
22	25	Israel	7.06	6.96
23	21	Italy	7.05	7.37
24	22	Portugal	7.01	7.18
25	24	Japan	6.86	7.07
26	n/a	Estonia <sup>b</sup>	6.54	n/a
27 (tie)	26	Greece	6.47	6.83
27 (tie)	27	Czech Republic	6.47	6.52
29	28	Chile	6.35	6.33
30	29	Hungary	6.22	6.23
31	n/a	Sloveniab	6.06	n/a
32	31 (tie)	South Africa	5.79	5.56

Source: Economist Intelligence Unit

### Economist Intelligence Unit e-readiness rankings, 2004

2004 e-readiness ranking (of 64)	2003 ranking	Country	2004 e-readiness score (of 10) <sup>a</sup>	2003 score
33	33	Malaysia	5.61	5.55
34	n/a	Latviab	5.60	n/a
35	36	Brazil	5.56	5.25
36	30	Poland	5.41	5.57
37	35	Argentina	5.38	5.41
38	n/a	Lithuaniab	5.35	n/a
39 (tie)	34	Slovakia	5.33	5.47
39 (tie)	31 (tie)	Mexico	5.33	5.56
41	37	Colombia	4.76	4.86
42	40	Bulgaria	4.71	4.55
43	42	Thailand	4.69	4.22
44	38	Venezuela	4.53	4.75
45	39	Turkey	4.51	4.63
46	46	India	4.45	3.95
47	41	Peru	4.44	4.47
48	45	Saudi Arabia	4.38	4.10
49	47	Philippines	4.35	3.93
50	43	Romania	4.23	4.15
51	51	Egypt	4.08	3.72
52 (tie)	50	China	3.96	3.75
52 (tie)	44	Sri Lanka	3.96	4.13
54	54	Ukraine	3.79	3.28
55	48	Russia	3.74	3.88
56	49	Ecuador	3.70	3.79
57	52	Iran	3.68	3.40
58	55	Nigeria	3.44	3.19
59	53	Indonesia	3.39	3.31
60	56	Vietnam	3.35	2.91
61	58	Algeria	2.63	2.56
62	57	Pakistan	2.61	2.74
63	59	Kazakhstan	2.60	2.52
64	60	Azerbaijan	2.43	2.37

Source: Economist Intelligence Unit

<sup>a</sup> The tendency of 2004 scores to be lower than 2003 scores is mainly due to a change in our methodology to include broadband penetration, which is still very low in most countries.

<sup>b</sup> Estonia, Latvia, Lithuania and Slovenia are new to the annual rankings and were not ranked in 2003.





## Western Europe: Overview of region

With the exception of Greece (27th place), all Western European countries in our ranking are within the first tier. Among the many common assets that put the region ahead (wealth, infrastructure and an e-savvy population, to name a few) there is an added benefit of coordination. There is coordination between the government and private sector, and increasingly, between EU member states. Benchmarking against each other with

greater regularity and formality is one way European governments are keeping their edge on e-readiness. By coordinating promotional and implementation activity across borders, e-commerce and e-government initiatives achieve a critical mass that would be hard to attain in Europe's smaller markets.

The European Commission's eEurope initiative aims to develop Europe into the world's most dynamic knowledge-based economy by 2010. Lofty goals aside, coordination is providing European states with something

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3	1	Sweden	3	8.25
4	6	Norway	4	8.11
5	5	Finland	5	8.08
6	3 (tie)	Netherlands	8	8.00
7	7	Switzerland	10	7.96
8	8	Germany	13	7.83
9	9	Austria	15	7.68
10	10	Ireland	16	7.45
11	11	Belgium	17	7.41
12	12	France	18	7.34
13	15	Spain	21	7.20
14	13	Italy	23	7.05
15	14	Portugal	24	7.01
16	16	Greece	27 (tie)	6.47

Source: Economist Intelligence Unit

tremendously useful: a steady stream of best practices to observe and adopt. The eEurope initiative includes an innovative programme to stimulate uptake of 29 different e-government services by teaming up member states to embark on them simultaneously. Electronic tax filing and payment systems for individuals are being rolled out and benchmarked concurrently in Finland, France and Spain, while corporate tax systems are being rolled out in Ireland, Portugal and Greece.

With infrastructure and government support in place, adoption is Europe's final frontier. There are indications that Internet use among businesses and consumers is growing, though not by the leaps and bounds predicted by Internet pundits. European enterprises are beginning to employ networking technology and e-services to improve operational efficiency and service global customers and subsidiaries. In Germany, more than one in three companies claims its processes are very dependent on the Internet.

Consumer adoption is a different matter. Among EU member states, citizens of Sweden and Denmark are the biggest online shoppers—37% of people in Sweden, and 36% of people in Denmark, say they have made at least one online purchase. Further south, enthusiasm wanes: 7% of Italians, 4% of Portuguese and 3% of Greeks have shopped online.



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## Trends and best practices

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### Centralised efforts to develop e-government

In addition to being the best region for doing e-business, Scandinavia leads the world in e-government development. Initiatives are implemented from the top down, or across local government institutions. Municipalities throughout Finland (5th place) are joining together to purchase and implement new electronic management systems, and central organisations are taking a direct role in implementing e-government billing systems: the state-owned Finnish Post Corporation, for example, recently purchased a majority stake in e-business services operator Elma Oyj Electronic Trading. The Danish government established 'E-boks' in 2003, a programme designed to replace the 230 letters the average Danish household receives from the government annually with e-mail. This is expected to reduce administration costs by US\$220m annually.

E-government in Switzerland (10th place), by contrast, is slower to take hold, mostly due to the country's decentralised public sector. Switzerland scores above the European average in the connectivity, business environment and supporting e-services categories—a reflection of the

importance that e-commerce plays in the global services industries upon which the economy depends. But Switzerland's legal and policy environment scores are in the middle of the pack. Local institutions cannot achieve the same impact and scale as centralised ones.

### **E-shopping slowly takes hold**

Europeans are becoming more proficient at Internet shopping, though online spending is not growing quickly. In Norway (4th), online shopping over the Christmas period in 2002/03 reached 10.3bn crowns (US\$1.6bn), up by a modest 3% from the previous year. There is still mistrust of electronic payment systems. Studies suggest that even in the UK (2nd), where one in three people shops online, 50% of consumers are concerned that their personal details will be stolen and misused.

Europe's hesitant embrace of e-tailing also reflects the fact that there is great convenience and choice in the offline marketplace. With no pressing need to shop online, consumers buy mostly low-value items of predictable quality, such as books and flowers.

### **Timorous on telecoms**

One potentially troubling trend is hesitancy on the part of the region's ICT service providers to invest in next-

generation technologies. Many are still trying to "right-size" their operations following the telecoms crash. Merger and acquisition talks between a number of Germany's major operators have been aborted within the last year, and the UK's Vodafone has pulled out of plans to establish a wireless hotspot network across Germany. Service providers are also loath to invest in new technologies that consumers and businesses may spurn. Tremendous investment was poured into 3G mobile networks, yet there were only 1.3m 3G subscribers across Europe at the end of 2003. The exception is broadband. Investment in broadband infrastructure is strong, and competition among providers continues to heat up.

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## **Americas: Overview of region**

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There will be a North-South divide in the e-readiness of the Americas for some time. The Latin American markets have moved little since last year's ranking. But there are positive signs. Governments are increasingly supportive of e-commerce activity, mobile penetration is expected to grow, and the Internet is no longer the preserve of the rich. Governments are among the biggest consumers of e-services in the region, and they are implementing policies to promote IT industries.

In North America, the US and Canada





virtually define e-readiness. Rates of Internet adoption—about 70% of adults in both markets—are among the world’s highest. Telecommunications infrastructure is strong, and businesses and consumers have swiftly and effectively integrated online processes into daily activities.

But North America must work to maintain this edge. The US took a tumble in this year’s rankings—from 3rd to 6th place—largely because of the slow pace at which it is adopting broadband. Lack of comprehensive legislation forcing co-location of telecom facilities is a problem there, unlike in broadband-dense countries in Europe and Asia. The US is practically the only market in the world where shared-bandwidth broadband services offered over cable TV infrastructure is more popular—and more accessible—than dedicated services over DSL.

There are also worrying signs of maturity in North America’s e-commerce adoption. Canada’s online holiday spending decreased 1.2% over the past two years, suggesting (as it does in Western Europe) that early adopting e-commerce markets are entering a growth plateau, and that more must be done to make digital channels convenient and cost-effective for consumers and citizens.

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## Trends and best practices

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### **e-commerce shapes e-government in the US**

The e-commerce industry in the US is the world’s oldest and largest. As e-tail shops vie for sales, incentives such as free shipping, discounts and in-store pickups are pulling in consumers from all corners. Estimates place the total value of online retail sales in the US at nearly US\$50bn in 2003—US\$14bn of that accruing during the holiday season.

Significantly, consumer adoption and familiarity with online services is having a knock-on effect on government services in the US. In the past two years, the government has made a big push to put services online, including car license renewal, tax payment and applications for childcare vouchers. The push extends to the government’s internal procurement activities. The US Army, for example, recently mandated that its officers purchase office supplies through specified e-vendors only. The White House is requiring that its travel agents register their services on an online government portal.

A study ranking the websites most visited by American parents put government sites in 6th place, topping even Amazon.com. In some areas, such as healthcare and job recruitment, Americans express higher satisfaction



with federal sites than with their commercial counterparts. Government portals now serve over 6m citizens a month. The Bush Administration is aggressively pursuing security and efficiency for its e-gov portal. But there are still acceptance hurdles. A recent study found that 42% of Americans are uncomfortable with the idea of online government information and services and are concerned about Internet security.

### Expanding e-business in South America

South American governments are recognising the economic value of putting business processes online. Many are migrating their own procurement processes to online platforms in order to cut costs and improve transparency.

Governments are creating policies and legislation that support e-business development. In Mexico, a law on digital signatures was recently passed. In Chile (29th), Latin America's most e-ready market, companies are now eligible to start electronic invoicing. Peru's government is looking to build an e-business platform for its shipping and transport industries.

### Government push in Mexico

In Mexico (39th), the country's telecoms regulator, Cofotel, is seeking to expedite the traditionally lengthy process of installing Internet services. The Mexican government also has an ambitious e-commerce plan called "e-Mexico" that seeks to narrow the technology gap between the rich and poor and make online government

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2004 rank in region	2003 rank in region	Country	Overall ranking (of 64)	e-readiness score (of 10)
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3	3	Chile	29	6.35
4	6	Brazil	35	5.56
5	5	Argentina	37	5.38
6	4	Mexico	39 (tie)	5.33
7	7	Colombia	41	4.76
8	8	Venezuela	44	4.53
9	9	Peru	47	4.44
10	10	Ecuador	56	3.70

Source: Economist Intelligence Unit

services more accessible. So far under the plan, local access sites have been created in 2,300 municipalities—20,000 are expected to be reached by 2006.

### **Brazil's steady growth**

In Brazil (35th), private groups are proactively working to develop the country's e-markets. A private trade group called the Telecom Standardisation Fund (FUST) has plans to install free broadband in all public schools by the end of the year. Brazil's broadband rate is expected to more than double this year, with January sales of the technology already up 27% year-on-year. Another private-public group has been formed to boost e-commerce. Acceptance of the Internet in business transactions is growing, and the Brazilian government was the first in the world to allow corporate tax filings online—nearly 95% were submitted online in 2003.

### **Acceleration in the mobile market**

Across Latin America mobile usage continues to expand, though not at quite the speed seen in Asia and Europe. Mobile subscriptions grew by 18% in 2003 over the previous year. In the absence of PCs, mobile phones are providing a much-needed channel for electronic services.

Competition in the telecoms market is helping. Brasil Telecom will soon deploy GSM networks across the

country. In Columbia, the entrance of new players is driving prices down. In most markets, mobile subscriptions exceed fixed-line subscriptions—by as much as two to one in Chile. But there are problems. Operators continue to struggle with inadequate infrastructure and customer dissatisfaction is high. Most electronic services are basic—text messaging and ring-tone downloads—and it will be some time before full-fledged mobile Internet services make significant inroads.

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## **Asia-Pacific: Overview of region**

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After Western Europe, Asia-Pacific is the next-best represented region in the e-readiness rankings. Singapore (7th) and Hong Kong (9th) are in the top ten, followed by Australia (12th), South Korea (14th) New Zealand (19th), Taiwan (20th) and Japan (25th). The fact that Australia has slipped from the top ten is due mainly to its very low broadband penetration—only 4% Australians have broadband access (and even fewer New Zealanders do), while the region's other leaders are rolling out broadband widely and quickly. There are indications of a turning point for broadband in Australia: national operator Telstra is committing to getting 1m subscribers hooked up by 2005.

While Asia lacks the region-wide







coordination of the European Union, old-fashioned competition may do the trick. Asian governments are intimately familiar with each other's e-development practices, and leading countries—Singapore, Hong Kong, South Korea and Taiwan—routinely emulate one another's strategy on telecoms deregulation and next-generation infrastructure development.

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## Trends and best practices

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### Competition, not cooperation

Increasingly, there is cooperation at both the national and the industrial level. This is particularly true in the fields of telecommunications, where many of Asia's leading operators and vendors are looking to tap into the advantages of their neighbours. NTT DoCoMo of Japan, the grandfather of mobile Internet providers, has set up an R&D facility in Beijing to develop 4G technology. It hopes to benefit from China's low development costs while making inroads into the world's single largest mobile market.

Often it is regulatory heavy handedness in Asia that helps kick-start initiatives. The fact that most of Asia's incumbent carriers remain state owned has been a boon in some ways. Japan, despite the semi-monopoly NTT maintains, now has the most effectively deregulated local loop unbundling

legislation in the world, thanks to the Ministry of Finance's control over the carrier. This has allowed for tremendous competition for broadband services and a huge jump in the number of high-speed Internet subscribers, to over 12m in 2003.

### Businesses slow on the uptake

Yet in other areas there is much work to be done. Despite the rapid growth of e-trading platforms, particularly in the regional finance and trading hubs of Singapore and Hong Kong, enabling technologies such as digital signatures and digital rights management remain woefully under-utilised by businesses. This is not for lack of legal infrastructure; even Thailand has passed legislation recognising the legitimacy of digital signatures. But Asian banks, a key link in the e-commerce chain, have not adopted them in their own transactions, let alone mandated them in their clients'.

### Outsourcing pushes India ahead

Asia has become an emblem of the borderless economy. India's famed IT-enabled service sector, which now contributes an estimated US\$17bn to the economy annually, is a shining example to emerging markets. India's success story has been replicated throughout the region—there are booming call centres surrounding Manila, customer help desk centres in

**Economist Intelligence Unit e-readiness rankings, 2004  
Asia-Pacific**

2004 rank in region	2003 rank in region	Country	Overall ranking (of 64)	e-readiness score (of 10)
1	3	Singapore	7	8.02
2	2	Hong Kong	9	7.97
3	1	Australia	12	7.88
4	4	South Korea	14	7.73
5	5	New Zealand	19	7.33
6	6	Taiwan	20	7.32
7	7	Japan	25	6.86
8	8	Malaysia	33	5.61
9	9	Thailand	43	4.69
10	11	India	46	4.45
11	12	Philippines	49	4.35
12 (tie)	13	China	52 (tie)	3.96
12 (tie)	10	Sri Lanka	52 (tie)	3.96
14	14	Indonesia	59	3.39
15	15	Vietnam	60	3.35
16	16	Pakistan	62	2.61

Source: Economist Intelligence Unit

Malaysia, and Korean and Japanese language software production houses in China.

It is ironic that India hardly appears on the e-ready radar screen, though it is starting to push ahead. If it were not for the entry of four new countries in this year's ranking, it would have moved up four places. As it is, it retains 46th place. The reason for its disappointing showing is that until recently, India's business environment was indifferent—even hostile—to the

thriving niches of programming, customer service and business process outsourcing. Basic connectivity remains abysmally low, and has only in the past year started to receive significant investment. International bandwidth into India is set to double this year; it has already increased tenfold over the last two. While many of India's other e-ready components are not world class, the demand created by the e-services sector will eventually pull them into line.





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## Middle East and Africa: Overview of region

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Compared to Asia, e-business development in Africa and the Middle East is only inching forward. Strict government control over Internet content and over-regulation of service providers is hampering development, particularly in Middle East markets such as Saudi Arabia (48th). Although multinational companies are eager to invest, for the most part they have been kept out. This is in sharp contrast to the experience in Eastern Europe, where international competition is driving telecoms development. In Sub-Saharan Africa's most e-ready country, South Africa (32nd), ineffective government policing of the liberalisation process has prevented the introduction of a new telecom carrier to compete against the *de facto* state monopoly. Weak infrastructure development and high costs are conspiring to keep connectivity rates for voice services—let alone Internet services—depressed.

Things may improve this year, however. Government and telecom carriers are stepping up infrastructure investment programmes, often using the technology and leapfrogging tactics of their peers in Asia. Turkey (45th) is ploughing investment into Japanese DSL equipment, and national telcos in Algeria and the UAE, among other North African and Gulf States, are investing in next-generation mobile

systems supplied by Chinese vendors including ZTE and Huawei.

While lagging infrastructure and poor business environments inhibit African and Middle Eastern markets, there are bright spots. Some countries have seized a niche and worked it into a competitive advantage—such as technology development in Israel (22nd) and business service processing in South Africa. Israel has pushed ahead three notches over last year's rankings, thanks to substantial increases in consumer and corporate spending on IT technology.

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## Trends and best practices

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### Government restrictions in South Africa and Israel

Some e-government initiatives in South Africa in particular look positively European in their implementation. The government spends over US\$1.2bn annually on its own IT infrastructure, much of it supporting e-government interfaces such as the South African Revenue Services eFiling and i-Tax platforms, which allow citizens and businesses nationwide to submit tax returns and in some cases pay taxes. Property bond registration is a three-week process online, compared to three months offline.

The future e-readiness of the region's leaders Israel and South Africa

**Economist Intelligence Unit e-readiness rankings, 2004  
Middle East and Africa**

2004 rank in region	2003 rank in region	Country	Overall ranking (of 64)	e-readiness score (of 10)
1	1	Israel	22	7.06
2	2	South Africa	32	5.79
3	3	Turkey	45	4.51
4	4	Saudi Arabia	48	4.38
5	5	Egypt	51	4.08
6	6	Iran	57	3.68
7	7	Nigeria	58	3.44
8	8	Algeria	61	2.63

Source: Economist Intelligence Unit

will be determined by telecoms liberalisation policies—or lack thereof—more than anything else. Uptake of Internet services has been modest in South Africa, at 7% of the population. The high cost and inadequate coverage of high-speed connections, which can be blamed partly on the lack of market competition, threaten to dampen uptake of broadband. Despite the government’s decision to license a second national operator, it has turned down numerous bids. The incumbent’s reputation for slow services, high prices, and increasingly dissatisfied customers grows.

Israel’s Internet market should see steady growth, thanks to the government’s recent move granting Internet service provider licenses to cable companies. Bezeq, the state-owned former monopoly carrier, will be

privatised by the end of 2004. The government has also authorised service providers to provide Wi-Fi and Bluetooth without licences, a significant step in security conscious Israel. Meanwhile, the mobile industry is preparing for the deployment of a 3G network. But like South Africa, Israel’s government is proving reluctant to significantly speed up the liberalisation process, and the e-readiness standing of both is at risk.

**Increased competition in Algeria and Turkey**

E-commerce in Algeria (61st) continues to be hindered by poor telecoms infrastructure. Internet penetration, at 16 users per 1,000 people, is one-fourth Saudi Arabia’s rate and one-fifth Turkey’s. New Internet service providers, including international carriers, are entering the market, but



PCs and disposable income are both in short supply. Like many emerging markets, more immediate connectivity gains will be seen in the mobile arena, due to greater competition. The recent licensing of the country's third mobile service provider, Kuwait National Mobile Telecommunications, has forced state-owned Algerie Telecom to expand GSM services more aggressively.

Turkey Telekom (TTI) remains the state-owned monopoly carrier in Turkey, but increasing efforts are being made to privatise the network and encourage competitors. TTI recently introduced DSL services to residential and business customers for the first time. Initial demand has been strong. The mobile market is also booming, with mergers between the major operators in the past year, decreased prices and greater coverage.

#### **Baby steps in Saudi Arabia**

E-commerce is still in the earliest stages of development in Saudi Arabia. The country suffers from a relatively poor telecoms grid, painfully slow Internet access, and high service prices. All Internet access is routed through government-monitored services, and heavy censorship is dampening development. There is some hope. The monopoly carrier, Saudi Telecommunications Company, intends to privatise in 2004, and small steps towards lowering service prices have

enticed some Saudi companies to adopt e-business practices. But overall the market will remain underdeveloped.

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## **Eastern Europe: Overview of region**

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Gradual market liberalisation in Eastern Europe has transformed the telecoms and IT sectors. As monopolies are privatised and competition is let in, services have improved and prices have fallen. This year's EU accession countries—Estonia, the Czech Republic, Hungary, Slovenia, Latvia, Poland, Lithuania and Slovakia (as well as Cyprus and Malta, not included in our ranking)—already have decent infrastructure and e-business environments. They will benefit from the coordinated development approach the EU is taking.

The region is leveraging its geographic and cultural proximity to Western Europe to create niches in software development, high-tech manufacturing and outsourcing services that cater to Western European businesses. Best practices in e-government are also starting to filter in. Romania's e-government portal recently received an achievement award from the World Summit of the Information Society.

Despite these encouraging signs, low average incomes across the region, inadequate infrastructure and





### Economist Intelligence Unit e-readiness rankings, 2004 Eastern Europe

2004 rank in region	2003 rank in region	Country	Overall ranking (of 64)	e-readiness score (of 10)
1	n/a	Estonia <sup>a</sup>	26	6.54
2	1	Czech Republic	27 (tie)	6.47
3	2	Hungary	30	6.22
4	n/a	Slovenia <sup>a</sup>	31	6.06
5	n/a	Latvia <sup>a</sup>	34	5.6
6	3	Poland	36	5.41
7	n/a	Lithuania <sup>a</sup>	38	5.35
8	4	Slovakia	39 (tie)	5.33
9	5	Bulgaria	42	4.71
10	6	Romania	50	4.23
11	8	Ukraine	54	3.79
12	7	Russia	55	3.74
13	9	Kazakhstan	63	2.60
14	10	Azerbaijan	64	2.43

<sup>a</sup> Estonia, Latvia, Lithuania and Slovenia are new to the annual rankings and were not ranked in 2003

Source: Economist Intelligence Unit

conservative government policies and business practices will limit the speed in growth of information and communication technologies.

## Trends and best practices

### Estonia shows the value of early adoption

The Estonia government showed, early on, the political will to create a digital society. Its efforts to bring IT to schools and villages—programmes have been in place since the early 1990s—

are paying off. All educational institutions now have broadband connections; indeed, the majority of Estonia's Internet users are broadband subscribers. Some 80% of all banking transactions are electronic. In the span of a few short years, the government has successfully liberalised and modernised the telecoms landscape, welcoming serious participation from Swedish operator Telia and Finland's Sonera. As the forerunner of e-commerce development in Eastern Europe, Estonia earns its stone's throw position behind Japan.

### **Broadband still a way off**

Unfortunately, when it comes to broadband in Eastern Europe, Estonia is the exception. Broadband penetration is only about 1%, compared to over 5% in Western Europe. Although broadband has reached most countries, high service prices inhibit penetration. In Poland, the monthly rate for broadband is equal to the average monthly wage. Regional carriers are pursuing new market opportunities (Eesti Telkekom of Estonia, for example, aims to install Internet hotspots across the region), which may spur price-busting competition.

### **Mobile growth may create alternate path to the Internet**

If broadband is a barrier to e-readiness in Eastern Europe, mobile communications is an enabler. The region, led by high-volume Russia, is among the world's fastest growing mobile markets. The Czech Republic enjoys a mobile penetration of 84%, the highest in Eastern Europe, and Hungary is at 74%. Even the larger markets have decent density levels: 40% in Poland and nearly 24% in Russia. There are 50% more mobile



than fixed-line subscriptions in Eastern Europe.

The success of mobile telephony is due to strong competition among domestic and international players, resulting in lower prices. UK's Vodafone plans to spend US\$18bn in 2004 to buy regional mobile phone operators. The region has long attracted mobile infrastructure vendors, including many from Asia: Chinese vendors Huawei and ZTE are entrenched in Russia and the Baltic States. There are many more mobile subscribers than Internet users in Eastern Europe, and the region presents a singular opportunity for mobile data services.

### **E-banking grows, even as e-commerce does not**

In the Czech Republic, banks dominate demand for IT services. In Hungary over half of banks, and all of the largest ones, have introduced online banking. But security issues are preventing full integration of the Internet into B2C operations. In Russia, not only do consumers distrust the Internet, they distrust credit cards and the retail banking system in general—and trust is essential to e-business development.



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## **Conclusion: Advocacy, implementation- then activity**

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Countries where government is most actively involved in putting citizens and businesses online, such as the Scandinavian countries, tend to have other assets in place—infrastructure and supporting services, good education systems, strong legal and regulatory systems, positive business environments, and money to spend. But even where some of these pieces are missing, proactive governments and smart businesses can use the Internet to improve services and create new opportunities. Take for example e-government advances in Mexico and Romania, and the creation of software and outsourcing niches in India, South Africa and Bulgaria.

Governments should be willing and able to coordinate with industry associations, with the ICT service and manufacturing sectors, with local governments, and with other national governments. Learning from each other and progressing toward common goals is the fastest and cheapest way to e-readiness. The European Union is showing what coordination can accomplish. And for the ever-competitive Asian tigers, observing and emulating best practices in neighbouring countries is standard practice.

The purchasing power of the state allows it effectively to force suppliers to use digital channels when tendering for government contracts—as the US is doing with its suppliers. Governments that use e-business processes for their own operations are better able to drive legislation on e-business in the private sector. And it is in the policy realm that governments bear the most basic responsibility. Governments around the world—from Thailand to Estonia—are taking tremendous steps toward making electronic transactions safe, reliable and commonplace.

There is a danger that, in their rush to promote e-readiness, countries will make only cosmetic changes to existing paperbound processes, or that they may run out of steam before electronic processes have been fully implemented. Asia's early adopters are at particular risk of not following through. While government tenders can be accessed via the Internet in Singapore, most also require submission in paper form. And in Hong Kong, the much-touted e-commerce enabling Smart ID card allows citizens little more convenience than being able to borrow library books.

Companies and consumers will exploit the Internet when it makes commercial sense. When the gains are doubtful, adoption rates will be tepid. Compare the rapid growth of customer care service outsourcing to sluggish attempts to find “killer apps” for 3G





services. The overarching goal of an e-ready country should be to raise the volume of valuable, efficient commercial activity, not to increase the bits and bytes shunted around.

There are conflicting demands on governments that want to boost their country's e-readiness. On the one hand, they must be willing to withdraw from the Internet economy in order for it to flourish. Countries where censorship of traditional media has carried over to the Internet, and where the old telecoms monopolies are

determining the rollout of new ICT technologies, e-business is stifled. On the other hand, governments must be intimately involved. They must push through laws protecting online transactions and digital property. They must make the Internet accessible to the public and support education in Internet skills. They must find ways to cooperate with other countries, with their own citizens and with local and global businesses to ensure that the evolving demands of the digital economy are recognised and met.



## **Appendix: Methodology and category scores**

Nearly 100 quantitative and qualitative criteria, organised into six distinct categories, feed into the e-readiness rankings. The majority of data is sourced from Economist Intelligence Unit and Pyramid Research. Qualitative criteria are assessed by the Economist Intelligence Unit's extensive network of country experts, and their assessments are reviewed by our top economists. The six categories (and their weight in the model) and criteria are as follows:

### **1. Connectivity and technology infrastructure**

**Weight in overall score: 25%**

**Category description:** Connectivity measures the access that individuals and businesses have to basic fixed and mobile telephony services, personal computers and the Internet. The affordability, quality and reliability of service—all functions of the level of competition in the telecom market—also figure as determinants, as does the security of content delivered and transactions conducted via the Internet. This year, broadband development has been added to the category, replacing a criterion that measured telecoms rental charges as a proportion of disposable income. Phone rental rates are less relevant in a world where fixed and mobile charges are falling rapidly, and connections are increasingly available through non-subscription means, such as Internet cafes and prepaid cards. Broadband, meanwhile, is emerging as a key requirement for sustained e-business development.

**Category criteria:** Fixed-line penetration; broadband penetration; mobile-phone penetration; Internet penetration; PC penetration; level of competition in telecom industry; quality of Internet connections; security of telecom infrastructure

### **2. Business environment**

**Weight in overall score: 20%**

**Category description:** In evaluating the general business climate, the Economist Intelligence Unit screens 70 indicators covering criteria such as the strength of the economy, political stability, the regulatory environment, taxation, competition policy, the labour market, the quality of infrastructure, and openness to trade and investment. The resulting business environment rankings measure the expected attractiveness of the general business environment over the next five years (2003-07). Calculated regularly as part of the Economist Intelligence Unit Country Forecasts, these rankings have long offered investors an invaluable comparative index for 60 major economies.

### **3. Consumer and business adoption**

**Weight in overall score: 20%**

**Category description:** The e-readiness rankings assess how prevalent e-business practices are in each country. What share of retail commerce is conducted online? To what extent is the Internet used to overhaul and automate traditional business processes?

And how are companies helped in this effort by the development of logistics and online payment systems, the availability of finance and state investment in IT?

**Category criteria:** State spending on information technology as proportion of GDP; level of e-business development; degree of online commerce; quality of logistics and delivery systems; availability of corporate finance

#### **4. Legal and policy environment**

**Weight in overall score: 15%**

**Category description:** E-business development depends both on a country's overall legal framework and specific laws governing Internet use. How easy is it to register a new business, and how strong is protection of private property, in particular intellectual property, which can easily fall victim to digital-age piracy? Governments that support the creation of an Internet-conducive legal environment—both through policy and enforcement—get high scores. Those more concerned with censoring content and controlling the web score lower.

**Category criteria:** Overall political environment; policy toward private property; government vision regarding digital-age advances; government financial support of Internet infrastructure projects; effectiveness of traditional legal framework; laws covering the Internet; level of censorship; ease of registering a new business

#### **5. Social and cultural environment**

**Weight in overall score: 15%**

**Category description:** Literacy and basic education are preconditions to being able to navigate the web. In addition, the rankings consider a population's "e-literacy"—its experience using the Internet and its receptivity to it—and the technical skills of the workforce. And because Internet business involves risk-taking, the rankings assess the national proclivity to business innovation and entrepreneurship.

**Category criteria:** Level of education and literacy; level of Internet literacy; degree of entrepreneurship; technical skills of workforce

#### **6. Supporting e-services**

**Weight in overall score: 5%**

**Category description:** No business or industry can function efficiently without intermediaries and ancillary services to support it. For e-business, these include consulting and IT services, and back-office solutions. The rankings also take into account whether there are consistent, industry-wide technology standards for platforms and programming languages.

**Category criteria:** Availability of e-business consulting and technical support services; availability of back-office support; industry-wide standards for platforms and programming languages.



## Economist Intelligence Unit e-readiness rankings, 2004

### Category scores

	Overall score	Connectivity	Business environment	Consumer and business adoption	Legal and policy	Social and cultural environment	Supporting e-services
Category weight		0.25	0.20	0.20	0.15	0.15	0.05
Denmark	8.28	7.09	8.50	8.52	9.09	8.50	9.25
UK	8.27	6.59	8.57	8.85	8.86	9.00	9.25
Sweden	8.25	7.05	8.36	8.13	9.00	9.25	9.00
Norway	8.11	6.57	8.06	9.10	8.77	8.50	9.00
Finland	8.08	6.06	8.51	8.45	9.05	9.00	9.25
US	8.04	6.25	8.50	8.22	8.45	9.30	9.40
Singapore	8.02	6.70	8.44	8.14	8.31	9.00	8.75
Netherlands	8.00	6.53	8.65	8.19	8.51	8.50	9.00
Hong Kong	7.97	7.20	8.31	8.13	8.56	7.80	8.50
Switzerland	7.96	6.13	8.41	8.19	8.73	9.00	9.00
Canada	7.92	6.22	8.66	7.61	8.61	9.00	9.33
Australia	7.88	5.88	8.06	8.88	8.83	8.50	8.50
Germany	7.83	5.77	8.20	8.26	8.39	9.25	9.00
South Korea	7.73	6.66	7.38	8.53	8.19	8.23	8.50
Austria	7.68	6.02	7.88	7.79	8.83	8.50	8.75
Ireland	7.45	5.65	8.28	6.88	8.96	8.25	8.50
Belgium	7.41	5.92	8.12	7.10	8.42	8.00	8.50
France	7.34	5.43	8.23	7.22	8.45	8.00	8.50
New Zealand	7.33	5.49	8.01	7.36	8.52	8.00	8.13
Taiwan	7.32	6.27	7.99	7.67	7.67	7.25	7.75
Spain	7.20	5.18	7.96	7.49	8.58	7.50	8.00
Israel	7.06	5.87	7.32	6.42	7.32	8.75	8.75
Italy	7.05	5.40	7.29	6.80	8.49	8.00	8.25
Portugal	7.01	4.98	7.49	7.65	8.52	7.25	7.50
Japan	6.86	5.67	7.42	6.54	7.06	8.00	7.75
Estonia	6.54	4.47	7.60	6.70	6.84	8.00	6.75
Greece	6.47	4.49	6.77	6.91	8.19	6.75	7.50
Czech Republic	6.47	4.74	7.37	6.81	6.73	7.25	7.00
Chile	6.35	3.82	8.00	6.26	7.69	6.88	7.13
Hungary	6.22	4.08	7.18	6.49	6.87	7.25	7.00
Slovenia	6.06	4.31	7.20	6.11	6.25	7.25	6.00
South Africa	5.79	3.16	6.26	6.75	7.09	6.63	6.85

Source: Economist Intelligence Unit

**Economist Intelligence Unit e-readiness rankings, 2004**  
**Category scores**

	Overall score	Connectivity	Business environment	Consumer and business adoption	Legal and policy	Social and cultural environment	Supporting e-services
Category weight		0.25	0.20	0.20	0.15	0.15	0.05
Malaysia	5.61	3.63	6.85	6.73	5.94	5.75	4.75
Latvia	5.60	3.01	7.00	6.05	5.79	7.00	6.50
Brazil	5.56	3.21	6.36	6.95	6.05	5.88	6.13
Poland	5.41	3.01	7.10	5.32	5.88	6.50	6.25
Argentina	5.38	3.32	5.91	5.95	5.54	6.88	6.38
Lithuania	5.35	2.76	7.10	5.37	5.79	6.75	5.75
Slovakia	5.33	3.56	6.54	4.76	6.02	6.50	6.00
Mexico	5.33	2.75	6.75	5.01	7.21	5.95	6.25
Colombia	4.76	2.29	5.96	5.03	6.08	5.25	5.75
Bulgaria	4.71	2.37	6.12	5.00	5.28	5.75	4.75
Thailand	4.69	2.73	6.88	4.85	5.31	4.50	3.75
Venezuela	4.53	2.32	5.16	4.93	5.78	5.13	5.88
Turkey	4.51	3.00	5.76	3.88	4.65	5.75	5.50
India	4.45	1.91	6.05	4.72	4.61	5.63	5.75
Peru	4.44	1.98	5.79	3.73	6.67	5.08	5.63
Saudi Arabia	4.38	2.56	5.84	4.65	4.29	5.00	5.00
Philippines	4.35	2.33	6.32	4.50	4.39	5.00	4.00
Romania	4.23	1.69	5.78	3.65	5.50	5.75	4.75
Egypt	4.08	1.72	5.28	4.74	4.90	4.25	5.50
China	3.96	2.00	6.22	4.08	3.52	4.65	3.50
Sri Lanka	3.96	1.78	6.00	3.58	4.64	4.75	3.75
Ukraine	3.79	1.34	5.26	4.08	4.14	5.00	4.25
Russia	3.74	1.62	5.78	2.68	4.37	5.25	4.00
Ecuador	3.70	1.82	5.12	2.84	5.29	4.40	4.13
Iran	3.68	2.34	4.39	3.65	3.87	4.75	4.00
Nigeria	3.44	1.03	4.17	3.50	4.50	5.13	4.05
Indonesia	3.39	1.22	5.57	4.12	2.85	3.75	3.13
Vietnam	3.35	0.92	5.11	3.47	3.68	4.75	2.75
Algeria	2.63	1.11	5.15	1.52	2.45	3.25	3.25
Pakistan	2.61	0.55	4.93	2.21	3.54	2.50	2.75
Kazakhstan	2.60	0.98	5.26	1.58	2.27	3.50	2.50
Azerbaijan	2.43	0.73	5.23	1.60	2.12	3.00	2.25

Source: Economist Intelligence Unit

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