Skype in 2006

analysis and strategic recommendations

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BACKGROUND

In August of 2003, Niklas Zennström and Janus Friis founded Skype, an internet telephony service that provided free or near free telephone calls using a combination of voice-over-IP (VOIP) technology and peer-to-peer networking. Skype would not require fancy hardware to run, just a consumer-grade computer, some speakers, and a microphone. And Skype would not just be cheap, as many prior entrants to the VOIP market advertised. Provided the conversation was conducted entirely over Skype's VOIP system, Skype would always be completely free.

Neither Zennström nor Friis were novice entrepreneurs; Zennström had first hired Friis at Tele2, a pan-European telecom operator, and from there the pair had gone on to create KaZaA, a Napster-like peer-to-peer file sharing application that ultimately collapsed under legal pressure from content providers.

Thanks to the overprovision of high-capacity network cables between Europe, the Americas, and Asia, and the simultaneous explosion of broadband connectivity users were able to send and receive high quantities of data from homes and offices. Skype hoped to take advantage of what the first wave of VOIP providers could not, namely ubiquitous broadband availability capable of handling the heavy bandwidth load quality voice transmission required. Previous ventures, in particular Net2Phone, had failed to consistently provide acceptable voice quality. The service was popular among those making telephone calls from developing countries, particularly those in Latin America calling relatives in the US who were unable to afford more expensive international long distance; the voice quality was scratchy and exhibited consistent delays, making coherent conversations difficult.

Unlike Net2Phone and other VOIP first wave entrepreneurs, Skype planned to leverage the recently revealed disruptive power of peer-to-peer networking- as deployed by KaZaA- to power VOIP: "When we decided to go into P2P technology in 2000, we had visions that it could be used to solve multiple problems on the Internet," Zennström said. "We think telephony is an area where P2P can have a major disruptive impact."[1] Part of this disruption was the ability of peer-to-peer networking to get around firewalls and other network address translation (NAT) features that stymied many VOIP solutions that relied on centrally located servers. The other part was cost-based; Skype did not purchase its own servers, but rather used the computing power of its users (i.e. "nodes") to handle call data, which reduced Skype's costs. So like KaZaA's promise of free music, Skype promised, and delivered, free internet telephony at a reasonable quality. The ultimate target for disruption is the revenues from international and long distance telephone calls.

Skype started out with venture capital financing provided primarily by Draper Ventures, the same company that had successfully funded and sold Baidu, the preeminent Chinese internet portal. Two years later it was acquired by EBay for a notable sum of $2.6bn with another $1.5bn in incentives if certain revenue and installed user base targets are met.

Technological disruption aside, whatever "disruptive" qualities Skype's business model offers are yet unrealized. "It's 1999 all over again," writes Dave Pogue for the New York Times. "Start-ups like YouTube, less than a year old and unprofitable, are being sold for $1.65 billion. And the business

[1] Crupi, Anthony. "Kazaa Heads Look to Crash VoIP Party" Cable World. Overland Park: Sep 15, 2003.Vol.15, Iss. 34; pg. 44

plan known as Free has returned. You know, "We lose money on every transaction, but we'll make it up in volume."[2]

Like the other VOIP players, Skype has yet to demonstrate that its business model can be consistently profitable, much less competitive enough to disrupt the revenue streams of established telephony providers. Competitors like Vonage and Net2Phone have consistently recorded losses. An unnamed Skype executive admitted to Reuters that the company, which had expected to generate revenues of $60m in 2005 and predicted earnings of $200m in 2006, has never recorded a profit. This has led many analysts to be skeptical of eBay's decision to purchase Skype. "It's not clear to me," commented Maribel Lopez, an analyst at Forrester Research, "that you couldn't get three bright engineers in a garage to build the same thing for $200,000."[3]

Wise or unwise, EBay's investment in Skype is now a sunk cost, and EBay executives must design a business plan than converts Skype's established revenue streams into competitive advantage. This paper will analyze the Skype product and business strategy as it currently exists and make recommendations for the future.

SKYPE'S VALUE PROPOSITION AND COMPETITIVE ADVANTAGE

The value proposition

Skype's product provides free or near free high-quality telephone calls around the world through an easy to install and easy-to-use interface. This benefits both international dialers and those making long-distance telephone calls within a country with multiple calling zones. Skype combines this capability with other complementary services similar or identical to those provided by instant messaging and online conferencing services. By blurring the line between telephones and other communications tools, Skype allows users to integrate their telephony needs with a wide variety of applications that provide communication services, from video to chat to file exchange, using the TCP-IP protocol.

More importantly, Skype is not a closed system as far as traditional telephones are concerned. While an implicit component of Skype's value to its customers is its large established user community, Skype users can still make and receive calls to and from traditional telephones (meaning both cellular and landline services) This minimizes switching costs, since a Skype user does not *have* to force his friends, family members, and professional contacts to download the Skype client to contact him using the Skype number. Indeed, Skype's current revenue model depends on charging people who do not use Skype. However, since the Skype user id is completely portable, Skype users' telephone contact information is permanent so long as they maintain their Skype account. Relocation no longer requires the redistribution of new telephone numbers etc.; like an email address, the core Skype profile exists permanently, at no cost to the user.

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[2] Pogue, David. "Free AOL Stuff, Courtesy of Bubble 2.0" New York Times: November 16, 2006 http://www.nytimes.com/2006/11/16/technology/16pogue.html?8dpc# (Viewed 11/15/2006)

[3] "eBay to nab Skype for $2.6 billion: Auction site hopes to let consumers discuss transactions in real time. But analysts remain skeptical of the high-price deal." Anne Broache CNET News.com Published: September 12, 2005, 10:47 AM PDT. http://news.com.com/eBay+to+nab+Skype+for+2.6+billion/2100-1030_3-5860055.html (Viewed 11/15/2006)

Skype also offers free calling to traditional telephone 800 toll-free numbers in some countries, including the US and France, allowing users to use Skype to call toll-free numbers from anywhere. This is particularly useful for travelers who need to cancel credit cards or contact other customer service numbers in their home countries.

Skype also is offering free Skypeout calling to traditional phones in the US and Canada until the end of the year.

Skype also offers instant messaging, similar to Yahoo, MSN and AIM as well as many other messaging clients.

The product: Peer-to-peer VOIP Services

The technology that enabled Skype to provide free voice communications to anyone with a broadband internet connection was already widely understood and deployed in the market by the time Skype entered. Peer-to-peer file sharing was used in many different network environments and the wide variety of media sharing services that exploited this technology had demonstrated the resilience and reliability- if not legality, security, or profitability- of the technology.

Delivering quality voice communications using the TCP-IP protocol had taken some time to improve but thanks to improvements in bandwidth, computer processing power and memory, and incremental improvements in code, VOIP was used by many companies for voice communications by the time Skype entered the market.

> Skype, however, was the first to pair VOIP with a peer-to-peer model by which Skype's software essentially used its customers' computers to handle the bulk of the processing work and served largely as a facilitator of transactions executed between peer computers. How "disruptive" this technology truly is remains a question.

The market most at risk of *disruption* is the market for long-distance international telephone calls; in other areas Skype's solution competes with difficult-to-differentiate services: email, instant messaging, and other free internet communications solutions, some of which provided voice and video integrations. However, this paper will argue that Skype's technology, including its peer-to-peer model, is not truly disruptive as peer-to-peer involves a significant tradeoff for many users.

Hardware

As mentioned, Skype requires a suite of complementary hardware to run. First and foremost it requires a reliable broadband internet connection (which is both hardware and a service). Skype also requires a "telephone" of some sort, be that standard PC speakers and a microphone, or a special telephone designed to run Skype.

Technically a personal computer is not required to run Skype, if one purchases a telephone designed to connect directly to the internet. Skype sells one such package for $159.99 which includes a wireless router (which connects to the internet router) and a telephone designed to run over the wireless LAN frequency used by home PC wireless networks. Other phones plug into USB ports; some are "dual mode" phones that can send and receive both Skype and normal telephone calls.

Skype also supports conference calling and video conversations requiring webcams. As Skype develops products targeting business users who want to reduce their long-distance telephony costs, other hardware solutions are emerging, including conversion kits that allow office managers to reroute calls coming from standard telephones through their standard PBX and "bridge" them into Skype, allowing offices to deploy Skype service from the PBX without relying on installation on the desktop. Other products convert standard telephones into Skype phones. Suffice it to say Skype is a

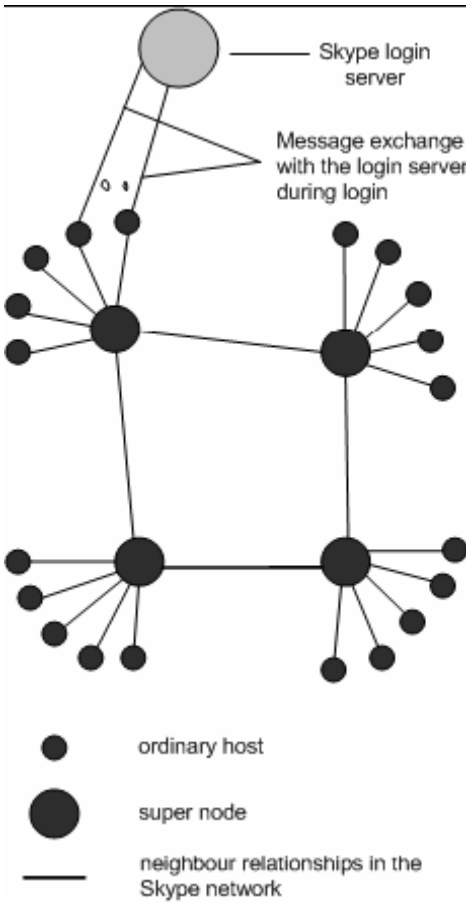
complementary service driving the sale of existing hardware technologies (such as webcams) and stimulating the production of new ones (such as Skype phones). Skype resells such hardware on its site and offers a Skype certification program that allows manufacturers of complementary hardware and software to advertise their product as "Skype certified."

Software

The Skype Application

The core of Skype's offering is the Skype Client application, currently in iteration 2.5. Skype 2.5 runs on Windows, Mac OSX, Linux, and on PDAs (and cell phones) running Microsoft's Mobile operating system. It does not run on the most popular and widely distributed PDA operating system, Palm OS.

The Skype Client application handles all core functions of the telephone call; logging in users, searching for other users, starting and ending calls, indicating presence, managing the transmission of non-voice media (such as text messages and file attachments) and providing security. While the software is free, neither the software nor the VOIP protocol used to transmit the data are open source. This prevents other parties both from reading Skype's code and from interacting with Skype VOIP transmissions, an important competitive decision by Skype intended to restrict the ability of other service providers to interact with the Skype system.



During a call (or other form of data transmission), Skype's client connects to the Skype "overlay network," a relatively unique network system composed of Skype's login server, which handles user authentication, "[4]supernodes," which are machines running Skype client software that have access to high bandwidth (and no firewall), and regular hosts i.e. ordinary Skype users. The Skype supernodes handle the bulk of the peer-to-peer encrypted traffic and consume most of the bandwidth, leading some universities to ban Skype installations on their machines.

Skype Software Services and Pricing

In addition to basic telephone calls, Skype provides additional complementary services that provide significant additional value to the product. This is critical given the relatively high number of competitors in the space; Skype must not only compete with VOIP telephony providers like Vonage but also with Yahoo, Google, Microsoft Netmeeting, WebEx, and dozens of other

[4] S.A Baset, H. Schulzrinne (September 14, 2004). An Analysis of the Skype Peer-to-Peer Internet Telephony Protocol (PDF). Technical Report. Columbia University. http://www1.cs.columbia.edu/~library/TR-repository/reports/reports-2004/cucs-039-04.pdf viewed on 11/11/2006

service providers, both open- and closed-source, from free to completely commercial.

Skypein

This feature allows subscribers to purchase an ersatz local telephone number in a given location, allowing persons using traditional telephones to call a local number. The call is then routed to the user's Skype telephone account. This means that a user can be reached through a free, local, traditional telephone call anywhere in the world. A user could, for example, purchase a Skypein number in their home town, and move to Mongolia. The user's parents could then reach him or her by dialing a local number, and the user's Skype phone would ring in Mongolia. Skype allows users to subscribe to up to 10 Skypein numbers at a time. The service costs €30 per year. Skype also sells a quarterly subscription for €10.

This service is complemented by Skype's call forwarding feature, which forwards missed calls in Skype to a cell phone or landline.

Skypeout

Skypeout allows subscribers to call traditional telephones, including cellular telephones, anywhere in the world. While this service is provided for free for US and Canadian users until the end of the year, ultimately this service is not free. Skype's rates are affordable compared to some similar providers (a call to a traditional Mongolian telephone line is $0.084 per minute), the rates vary widely depending on the tariff local telephony providers charge Skype to use their infrastructure.

Skype voicemail

Skype offers the ability to record voicemails from callers. This service has been subject to widespread criticism as to its reliability.[5]

Skype toolbars

Skype has developed toolbars for Microsoft Outlook and for Internet Explorer. The Outlook toolbar allows users to integrate Skype contacts with Outlook contacts and place calls etc. directly from Outlook. The Internet Explorer toolbar allows users to automatically launch a Skype connection when they click on telephone numbers and Skype user ids on web pages.

Skypecasts, group chats, and conference calls

Skype offers a variety of services allowing persons to conduct conference calls. A "Skypecast" is a conference call that can involve up to 100 users. Other 3rd party providers allow users in the US and the EU to hold high-speed Skype conference calls involving 500 users.

Skype for Business control panel

This feature allows a business manager to control the allocation of Skype "credits" (which allow users to use non-free Skype services) and assign Skypein numbers within a business unit.

[5] http://forum.skype.com/index.php?showtopic=41314

Third party tools

While Skype is a "black box" software system, it nevertheless allows third parties to develop software tools that "wrap" Skype technology or integrate it with other tools, allowing Skype technology (and user community) to be extended into realms outside of Skype's core competencies.

The source of Skype's current competitive advantage

Based on the current state of Skype's technology and customer requirements, we define Skype's competitive advantage in the following ways:

1. **Cost structure**: Skype's business model involves high upfront investment in software development but minimal marginal costs.
2. **Call quality**: The same peer-to-peer model that keeps Skype's costs down keeps the call quality high.
3. **Networking technology**: Skype's usage of black box software to control its revenue streams is subject to debate. It protects revenue streams but prevents viral marketing and testing by open-source advocates.
4. **Access to capital**: We believe the competitive environment is strongly influenced by access to cold, hard cash. Skype's backing by eBay is therefore a critical weapon.
5. **Existing community**: In a sense Skype is largely involved not in a disruptive technological revolution but a format war. Given the relative similarity of the services offered, the consumer's main interest is in avoiding being stranded in a format that is abandoned by his or her contacts (i.e. Friendster). Thanks to both its existing user community, relatively positive press coverage, and its acquisition by Ebay, Skype now has strong leverage to convert users to its format.
6. **(Relatively) High switching costs**: Skype does not let user ids or contact information be easily ported from its VOIP solution to another provider. Once a user has developed a substantial Skype contact list (and established a Skypein number), the costs of switching to another VOIP service, which can at best offer marginally cheaper service, become relatively high.
7. **Network effects**: The existing community amplifies the network effects of Skype's marketing strategy. While Skype allows people to call out to traditional telephones, it does not allow users to call Yahoo! or Google IM users using voice technology developed by these players.

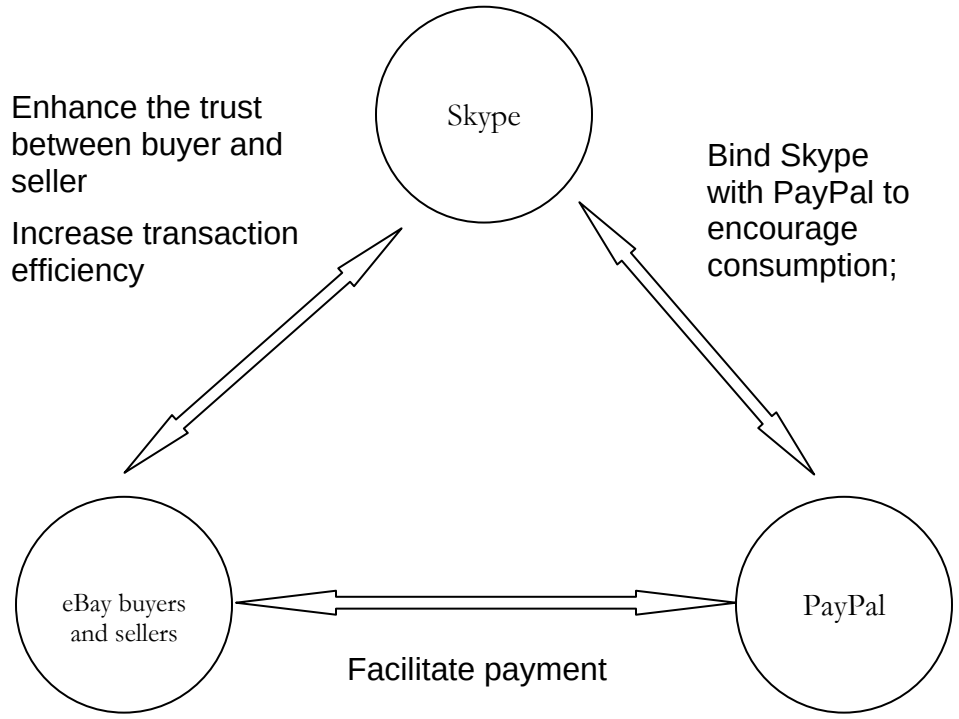
ORGANIZATIONAL ARCHITECTURE

Skype is an independent business unit owned by eBay Inc. (NASDAQ: EBAY), which manages an online auction and shopping website, where people buy and sell goods and services worldwide. The company's current business strategy includes increasing revenue by increasing international trade within the eBay system. eBay has already expanded to almost two dozen countries including China and India. The only places where expansion failed were Taiwan, Japan, and Hong Kong where Yahoo! had a head start.

In 2004 and 2005, rumors had been widely spread that eBay was losing market share in US and there was little room for improvement in its core business. The revenue growth rate was 20~30%, which was below market expectation. eBay took several steps to consolidate its leading position in online trading. It added services such as: rental property listing, online classified ad listing and comparison shopping, and the acquisition of Skype. Unlike most of eBay's other acquisitions, Skype did not qualify as an online auction site. The Skype acquisition was instead a complementary functional enhancement along the lines of the acquisition of PayPal.

eBay believed that Skype could increase the velocity of trade on the websites, especially in categories that require more involved communications, as well as enable them to develop and provide new e-commerce offerings.

The diagram below illustrates how Skype facilitates transactions between buyers and sellers.



The acquisition was controversial in IT industry. Some believed that Skype was not worth the price. With $2.6 billion, eBay could have developed its own VOIP technology several times over. The stock price of eBay dropped more than 4% the day it declared the acquisition.

Citigroup Inc. analyst Mark Mahaney said he could justify only half of the deal's $2.6 billion price tag. Mr. Mahaney calculated that if [Skype] produced 2006 revenue of $200 million and generated a 25% earnings margin before interest, taxes, depreciation and amortization, Skype's earnings would total $50 million. If $50 million was multiplied by a 25- times multiple -- the number that had been used to value other Internet deals such as eBay's purchase of Shopping.com and IAC/InterActive Corp.'s acquisition of Ask Jeeves -- that resulted in a $1.3 billion value.

On the other hand, there were critics arguing that the acquisition would hinder the development of Skype. Skype users could pay much a lower fee to make a long distance call, which was a huge challenge for the traditional telecom operators, such as AT&T. And this was why Skype is boycotted by telecom operators in some countries. However, the new technology represented an irresistible trend, and the popularity of VOIP was just a matter of time. As a substitution of traditional telecom, Skype had immense room of development in the globe telecom market.

After the acquisition, eBay would mainly focus on using Skype to enhance its e-business. Thus Skype could miss its best strategy--- becoming "Global Telecom".

Also the acquisition would expose Skype to the competitors of eBay. Skype was labeled "subsidiary of eBay", although it was still operating on its own. So it was predictable that other C2C websites, such as "Taobao.com", would boycott Skype. Skype would lose the support which it could have from eBay's competitors---Skype lost the forest for the trees.

To make things worse, the competitors of eBay would take any opportunities to support the Skype's competitors, such as the VOIP software from MSN, Yahoo! and Google. The presence of these giant players used to place little threat to Skype. Instead, they have drawn people's attention on the new technology and make the market pie larger, which would stimulate the development of Skype. However, should these players be backed up by eBay's competitors, they will significantly threaten Skype's growth.

MARKET ANALYSIS

The global telecom industry is predicted to continue to grow at around 6% up thru 2008. Total US dollar value of the market is estimated to reach $1.7 trillion by this date. With less than 43% of the world population using a telephone, there is still a huge amount of room for new customers.[6]

Currently, 4.1% of the US telecom market uses VOIP. With over 100 million users worldwide, Skype is the current free VOIP soft phone leader. Skype currently handles 7% of the worlds long distance calls (in minutes). As of November 2006, Skype claimed eight million concurrent users. Prominent user profiles include price-sensitive small businesses, mobile sales forces, people who make regular international calls, conferencing (including video) users, and IM/chat client users.

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[6] Global Telecom News "Global telecomms market continues to grow" BT Global Services. December 14, 2006 http://www.btgtm.com/BTGlobalTelecomNewsFixed/Article.asp?ArticleCode=10583321&EditionCode=61073738 (viewed 12/16/2006)

Enterprise deployment of Skype is hampered by security concerns and existing investments in traditional telephony.

Geographically speaking, most of the Skype supernodes are located in Europe (45% to 60%), followed by Asia (20% to 25%) and North America (15% to 25%). [7] Users are widely distributed around the globe.

Within the VOIP sector, competition is primarily around voice quality, followed by price. For a survey documenting the reasons customers switch between VOIP providers, see Appendix 4. Research has also shown that total pure play VOIP has only accounted for 4.1% of total households.[8]

Speaking to hundreds of analysts and investors gathered at eBay's San Jose, California headquarters, Skype president and former eBay chief financial officer Rajiv Dutta said the service has 13 million users in China, according to a report at the financial news website MarketWatch.com. That means Skype has nearly as many Skype users in China as it has in the United States, Germany and the United Kingdom combined. [9]

Competitors

Skype largest competitor is not Qwest, AT&T or Verizon Wireless, but rather ingrained telephone calling habits. Changing these habits will be the greatest challenge for Skype to truly be able to unseat their larger traditional rivals. That said, Skype faces a wide range of competing firms in different parts of the market.

Traditional telephony

Depending on the price structure of the local call market, the Skypeout feature can be cheaper than monthly local subscription fees, especially in some countries with poorly developed local telephone networks that charge by the minute. Vonage is currently competing in this space in the US.

Traditional service providers will face stiffer competition from Skype in long-distance services. This is because making calls using Skype is cheaper compared with traditional long-distance calling. However, the impact and degree of threat that traditional service providers face will depend on the penetration of Skype and broadband. In Europe, where broadband penetration is significant, one report predicted that VOIP solutions would reduce traditional operator revenues, both local and long distance, by between 30% and 50%![10]

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[7] Guha, Saikat, Neil Daswani, and Ravi Jain "An Experimental Study of the Skype Peer-to-Peer VoIP System" Cornell University, 2006 http://www.guha.cc/saikat/pub/iptps06-skype/?theme=true (viewed 11/4/2006)

[8] Telephia, Inc. "TELEPHIA REPORTS 4.1 PERCENT OF ONLINE U.S. HOUSEHOLDS SUBSCRIBE TO A VOIP TELEPHONE SERVICE, UP FROM 3.1 PERCENT IN Q1 2006" July 21, 2006.

[9] Francisco, Bambi "EBay execs say Skype growing fast" MarketWatch.com May 4, 2006 http://www.marketwatch.com/news/story/ebay-executives-say-skype-growing/story.aspx?guid=%7BDDD88225%2DCF36%2D47F7%2D86D2%2D9E5CC9003AC5%7D (viewed 12/1/2006)

[10] [10]Evalueserve. "Impact of Skype on Telecom Service Providers" January 6, 2005 p.6 http://www.commnow.com/reports/EVS-Impact_of_Skype_on_Tele_Opr-January10.pdf (viewed on 12/1/2006)

Weakest of all is the international call market. International telephone calls using traditional telephony are both expensive and/or unwieldy. This vulnerability is Skype's primary target, and current data indicates it is enjoying some success stealing business from international call providers.

Thanks to the strong government connections telecom providers enjoy in certain markets, there is a possibility of retaliation in terms of market exclusion. There may also be increased price competition as VoIP begins to "take."

Cellular providers

Skype both competes with and complements cell phones. The mobile Skype PDA feature allows cell phone users to avoid expensive cell phone roaming fees in areas with wireless broadband connectivity. Evalueserve projected that Skype would cause mobile operator revenues to decline by 1.7% in the US and 6.8% in the EU.[11]

However, if a cellular provider were to create its own VoIP solution, bundled with cellular services, this would prove a strong competitor with Skype.

Business collaboration environments

Skype provides an affordable alternative platform from which to conduct business conference calls, competing against providers like WebEx and Microsoft's Communicator platform. Microsoft could prove a particularly potent competitor if its Sharepoint/Communicator solutions become widely distributed in business environments. If Microsoft's voice/IM solution as released in 2007 proves popular with IT managers, it could kill Skype in the business space single-handedly.

VoIP providers

This space is already quite competitive, as IM providers like Yahoo! and MSN Messenger have already added voice services to their products. A press release from Google in 2005 discussed their interest to enter the market as well. Internet service providers like Earthlink are also releasing products similar to Skype. Earthlink has launched free online calling and plans to offer a paid service similar to SkypeOut by next year.

Alliances & complementors

Skype has current alliances, of varying qualities, with an impressive variety of enterprises: Cable & Wireless, Linksys, Polycom, Creative, Logitech, RadioShack, HP Motorola, Salesforce.com, Hutchison 3, Netgear, Siemens, Intel, Panasonic, Sony, Kodak, Philips, Warner Music Group, Level 3, and Plantronics. As one observes from this list, Skype has done a particularly good job of allying with hardware manufacturers. Skype has also developed a reseller program, which includes selling Skype service at a volume discount to telecom providers. However, there are still many opportunities for Skype to use alliances to its advantage, particularly in terms of software, wireless ISPs, cellular providers, and social networking websites.

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Third party developers

Many third party developers are wrapping Skype's service with their own value-added software through Skype's exposed API. Third party developers such as vSkype and Video4Skype have developed video plug-in software which can be run on Skype. However, Skype has not exerted strong control over this part of its marketing strategy. For example, Skype has developed and distributed a tool that integrates with Microsoft Outlook. Skype also sells, via its website, another tool that integrates with Microsoft Outlook in a slightly more profound way. Skype offers a Skype-certified label, but also sells uncertified products through its own website. This can only result in user confusion.

Wireless ISPs

Making Skype available on mobile platforms is a "natural evolution", according to Zennström. Skype is already out for Pocket PC but the next step is smart phones. Zennström said the company is in the process of evaluating various mobile platforms such as Windows Mobile, Symbian and PalmSource. This could appeal to businesses even more than using Skype on the desktop.

Cellular Service providers

While increasing wireless penetration (and adoption of the 3G mobile telephony standard) may ultimately enable Skype to compete against cellular services directly, for the time being Skype is more a complement to cellular than a competitor. Persons using cellphones to call Skypein numbers are still producing revenue for the cellphone provider by consuming minutes. And since cellphones services largely fail to provide competitive rates for international calls, allying with Skype might encourage cellphone users to make international calls using cellphones by using cellular service for the local connection and Skype's VOIP service to cross borders.

Social networking sites

Bundling Skype with social networking services such as MySpace, Friendster, or Match.com would help Skype develop its customer base and allow such sites to provide better service.

SALIENT ISSUES AND CHALLENGES

Skype's primary challenge is profitability. Given its low marginal costs, estimated at less than one cent per new user, Skype must grow its user base as quickly as possible to achieve economies of scale and recover the high fixed costs of continuous software development. However, this growth process has a limit; since the Skype-to-Skype service is free, Skype depends on the existence of traditional telephones to drive its revenues from Skypein and Skypeout. As of 2005, only ten percent of Skype's customers were paying users![12]

The VOIP market has no barriers to entry, and Skype's peer-to-peer model can be imitated. There is no given feature that is unique to Skype. While the VOIP sector as a whole may ultimately displace much of traditional telephony, there is no guarantee Skype will survive to see it.

[12] Osterwalder, Alexander, Jan Ondrus and Yves Pigneau "Skype's Disruptive Potential in the Telecom Market: A Systematic Comparison of Business Models" Working Paper. University of Lausanne http://www.hec.unil.ch/yp/Pub/05-skype.pdf (viewed 12/4/2006)

Skype also faces non-market competition from protected state telecom markets. [6] Since the traditional cellular and landline infrastructure owners stand to benefit little by letting VOIP providers cut into their profits by providing "bridge" services like Skype, and given the fact that in many countries, telecommunications companies are government monopolies, the sustainability of profit margins in this area is highly questionable. Skype is also vulnerable to other forms of government regulatory intervention, and has indeed already been banned or restricted in numerous countries/localities, including southern China and the United Arab Emirates.

STRATEGIC RECOMMENDATIONS

Aggressively promote Skype through eBay and PayPal

Give the high usage of eBay and PayPal, integrating Skype services with auction and financial transactions would be a key advantage. Voice capabilities could be used to combat incidence of fraud on eBay and increase buyer confidence. Allowing people to Skype each other PayPal money would be a significant convenience and help differentiate Skype from other VOIP providers with no online financial transaction capability, such as Microsoft.

Win the format war through robust integrations with hardware and software

Skype must continue to develop and a robust application protocol interface encouraging third party developers to add value to the core offering, and encourage hardware manufacturers to build Skype-friendly tools. Bundling Skype with online games, telephones, PDAs can only increase Skype's market penetration at low cost to Skype.

Develop a reputation for security

All Skype communications are encrypted to ensure they can't be intercepted and read while passing through the ether. But a bigger issue for IT directors in this age of worms and viruses is the risk any application could provide to their network. Bringing in an application they don't know and can't test could be a problem. Peer-to-peer networking has traditionally been "an IT manager's nightmare."

For one thing, Skype encrypts all its traffic, which makes it impossible to monitor what employees are doing, sending, or saying when they use this communications tool. In addition, Skype doesn't follow the path of most VOIP services. It enters the corporate network as an application embedded in a mobile device; it is activated whenever a user accesses the Internet from within the corporate network to make a call. In this way, Skype could open holes in a corporate firewall from the inside. The fear is that Skype users could expose corporate networks to hackers, viruses, and malicious software ("malware"), or shield the activities of malicious employees. [13]

Skype's value proposition to businesses suffers from questions about its security. As Skype moves up market, it must develop products targeted for business users that assuage these concerns and to compete with Microsoft Communicator.

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[6] Business Monitor International "Company Finance Alert: Ban On VoIP Services Leads To Growing International Call Profits" December 1, 2006.

[13] Cook, Gordon. "Skype's Challenge" strategy + business June 29, 2005 http://www.strategy-business.com/enewsarticle/enews062905 (viewed 11/12/2006)

Value added services for business

Despite Skype's flaws as far as IT managers are concerned, a recent survey showed that 30 percent of Skype retail users also used Skype at work.[14] Continuing to win over business and IT managers to Skype usage will allow Skype to capture additional revenue streams from less price-sensitive consumers! Software development efforts should focus on this portion of the market and allow third party developers to concentrate on cheap consumer applications.

Skype can also compete with traditional telecom service offerings by copying their "wholesale" discount strategy and going directly to businesses offering even cheaper telephone calls based on volume.

Be part of the eBay Team

While Skype's current organizational architecture leaves it separate from eBay to a certain degree, Skype is only a worthwhile entrepreneurial venture to eBay so long as it is contributing to eBay's bottom line. This means that while Skype may make a loss as an independent unit, as long as it helps drive business to PayPal and eBay, it can still prove a valuable investment. That said, running Skype as an independent profit center will keep it efficient.

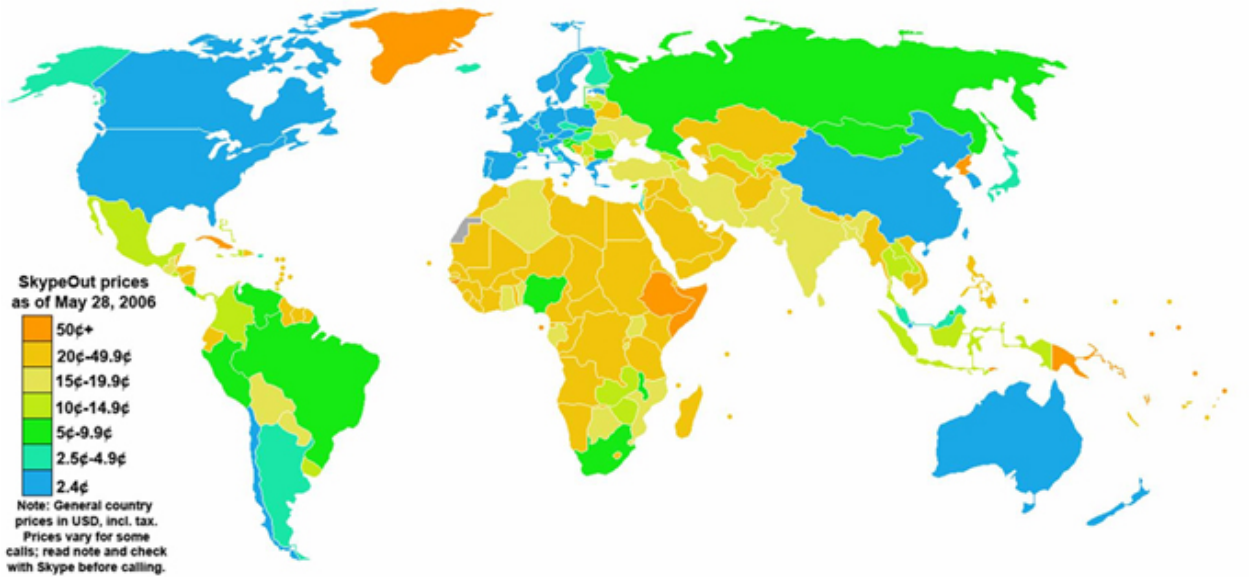
Aggressively attack quality issues

While there are many VOIP players offering similar services, the market space is not yet commoditized; different solutions have different feature sets, pricing schemes, and quality levels. However, there is a risk that Skype could end up negatively distinguishing itself by providing poor quality customer service or otherwise allowing the quality of its calls to significantly deteriorate relative to another VOIP provider. If this happens, Skype will lose much competitive advantage in the VOIP sector.

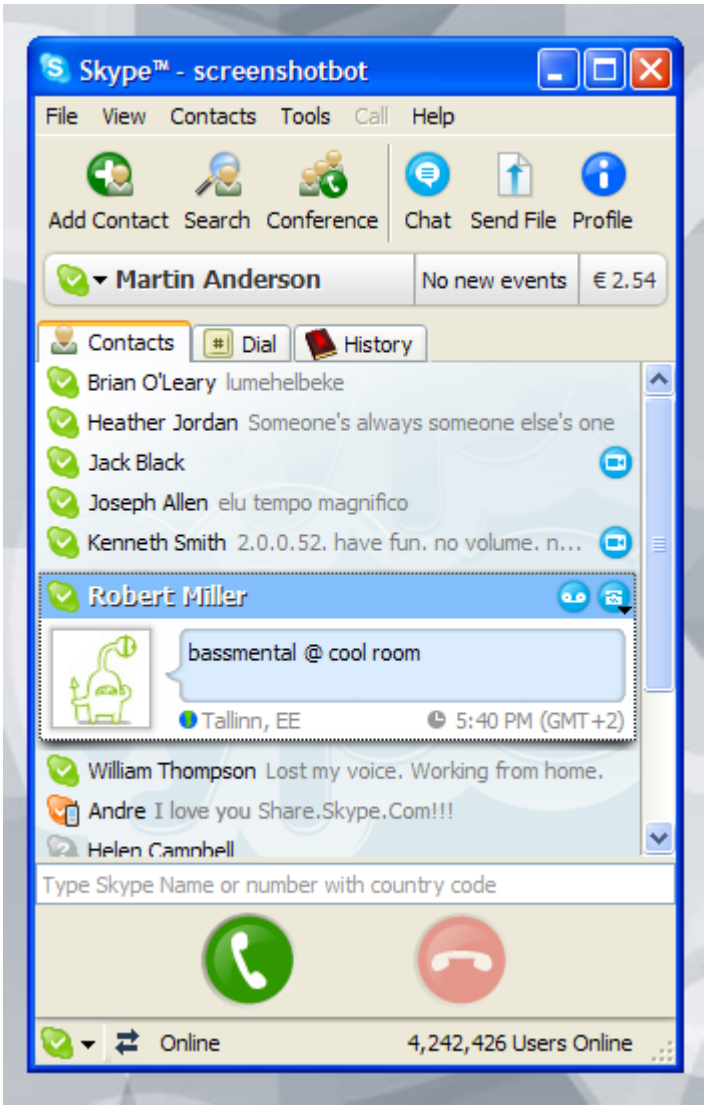
[14]Evalueserve. "Impact of Skype on Telecom Service Providers" January 6, 2005 p.6 http://www.commnow.com/reports/EVS-Impact_of_Skype_on_Tele_Opr-January10.pdf (viewed on 12/1/2006)

APPENDIX

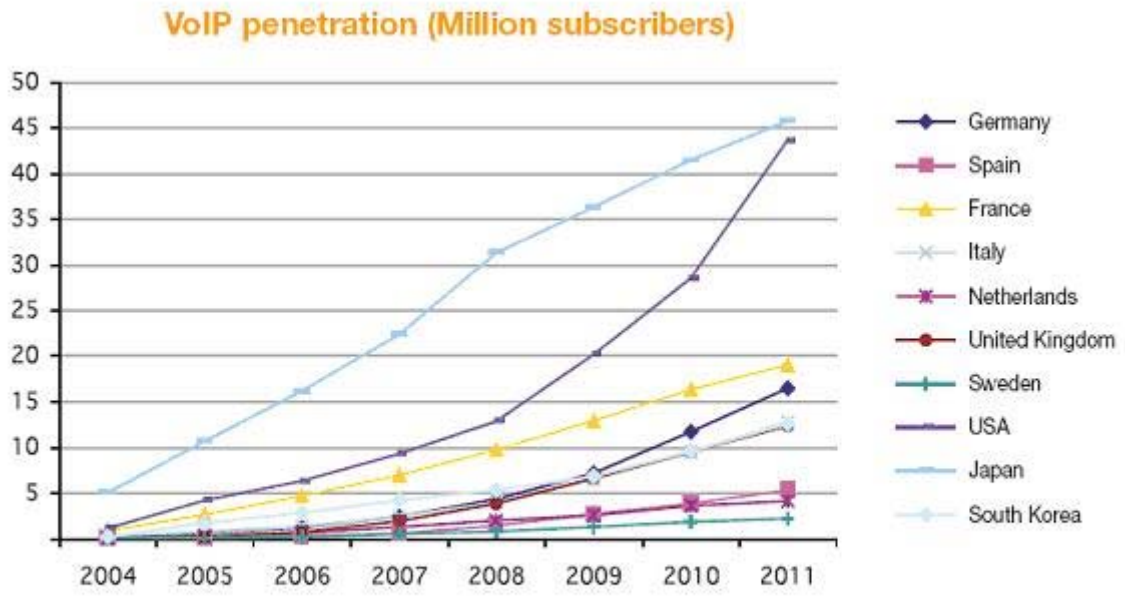
1. Skypeout World Rates as of May 2006



2. The Skype user interface



3. VOIP market penetration



4. Top Reasons for Switching VoIP Providers

Primary Reason for Switch	Primary Reason Percent Share
For better network quality (e.g., better voice-audio quality, fewer disconnected/blocked calls)	27.4%
For better customer service	14.7%
For a better monthly service plan price	13.4%
To take advantage of a promotion or sale	10.3%
For more convenient billing-payment options	5.8%
To combine services together (bundled services)	2.1%
Recommendation from family, friends or my employer	1.6%
For additional product features or services	1.1%
I will be moving to an area where current provider does not provide service	0.3%
Other	23.3%

Source: *Telphia Total Communication Survey Q2 2006*

5. Competition and alternatives

Open source alternatives

Kiax: VoIP application based on IAX

PSI: The current Beta version has protocol support for Google Talk

Switchboard: Free VoIP applet which works from within a web browser. Works on Windows, Mac, Linux, and any other Java enabled platform. No installation necessary

Tapioca: Includes support for Google Talk

WengoPhone: A free VoIP application based on SIP open standard

Ekiga: A free application that supports both H.323, SIP, audio and video. Ekiga was formerly known as GnomeMeeting. So far works only with various Linux based systems. No version for Microsoft Windows has been released yet, but there is a working snapshot available.

Closed source alternatives

amiciPhone: A secure peer-to-peer VoIP application

Google Talk: A popular service provided by Google

Gizmo Project: A closed source VoIP application based on SIP open standard and uses SRTP between clients. Now offering free landline/cell calls to over 60 countries

iCall: A closed source free VoIP application based on SIP open standard and providing free PC to Phone calling in the US and Canada.

Jajah: Alternative where no headset, no download, no installation and no broadband connection is necessary. A VoIP call gets activated between two normal phones.

Secure Shuttle Transport (SST): Free encryption and secure messaging software including VoIP and video. Works on PCs running Windows 98 or higher.

Raketu: A VoIP service that combines communication, information, and entertainment. Its integrated multi-messenger allows communication with contacts from AOL Instant Messenger, ICQ, MSN Messenger, Google Talk, Yahoo Messenger and Skype.

SightSpeed: Free video and voice calling service supporting Mac & Windows. Also allows phone out and in calling.

Parlino: A VoIP network based on open standard SIP-protocols, launched by Parlino S.A.

Vbuzzer: A VoIP softphone and service as well as an active advocator of SIP open standard

VoipBuster: A VoIP application offering 300 minutes per week of free calls to landlines in many countries, including the EU, USA, Australia, etc.

VoipStunt: A VoIP application offering 300 minutes per week of free calls to landlines in many countries, including the EU, USA, Australia, etc.

Zfone: A solution of Phil Zimmermann (inventor of PGP) to encrypt VoIP (SIP) sessions, protocol published as IETF draft. [10]

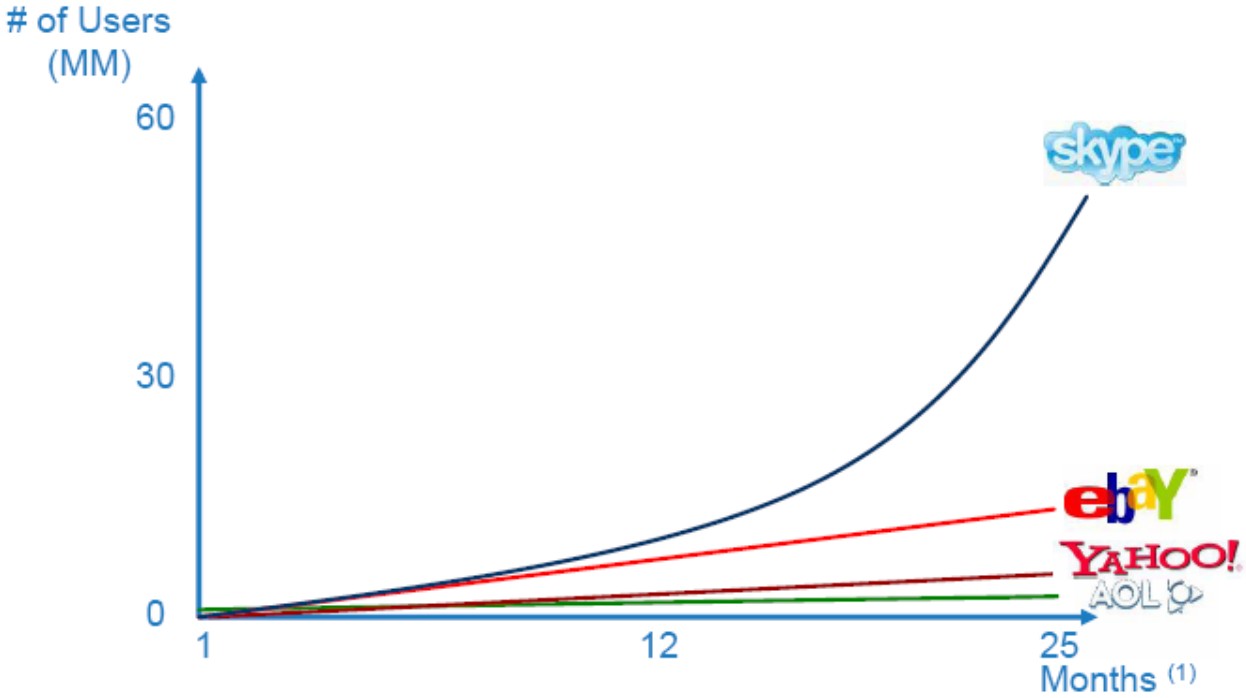
TipicIM: A free VoIP application, Videocalling based on XMPP/Jabber and Speex audio codec support

[ClosedTalk]®: A secure VoIP software free from CE-Infosys for Business/Personal use. Works on PCs running Windows 2000/XP. [ClosedTalk]" exposes ﷺman in the middleﷺ attacks by displaying a short security message on both caller screens for comparison.

BT Communicator: A VoIP service from British Telecom (BT plc.)

Source: http://en.wikipedia.org/wiki/Skype#Competition_and_alternatives (viewed 12/10/2006)

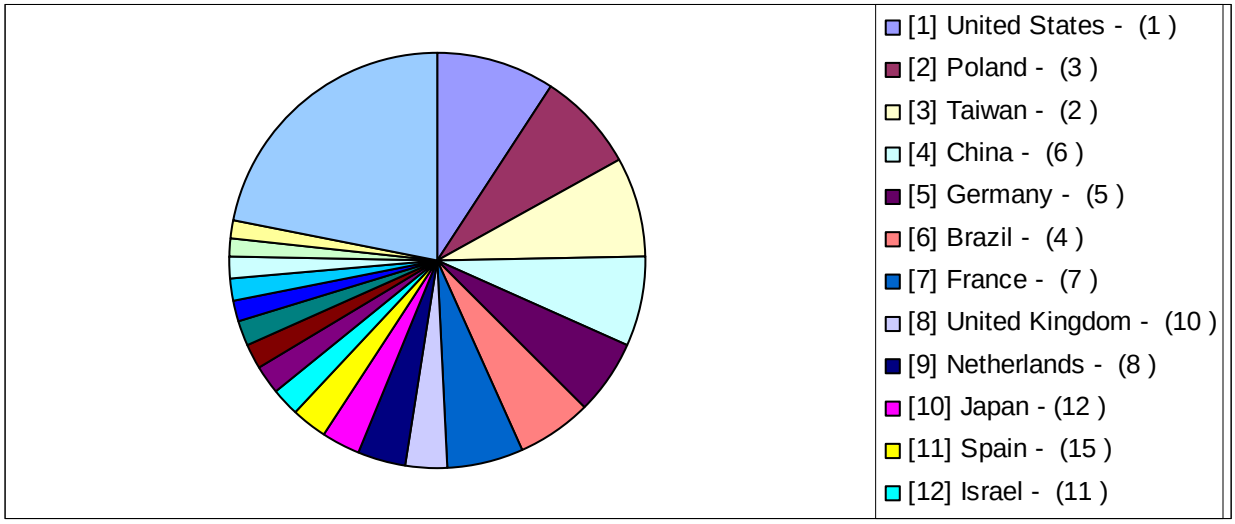
6. Skype's market growth since launch



(1) Ebay starts Q2 98, Yahoo! Starts Q1 95, AOL since Q1 92 (IPO) from co. data and Merrill Lynch, Skype since launch in 2003

7. Global distribution of Skype users April 2005 (Oct 2004)

Source: Enck, James. EuroTelcoBlog http://eurotelcoblog.blogspot.com/2005/04/whose-net-is-it-anyway-stumbled-across.html (viewed 12/12/2006)



[1] United States - 9.13% (1, 10.3%)

[2] Poland - 7.87% (3, 8.78%)

[3] Taiwan - 7.80% (2, 9.24%)

[4] China - 6.75% (6, 5.89%)

[5] Germany - 6.06% (5, 6.18%)

[6] Brazil - 5.85% (4, 7.24%)

[7] France - 5.62% (7, 5.53%)

[8] United Kingdom - 3.50% (10, 2.94%)

[9] Netherlands - 3.47% (8, 3.50%)

[10] Japan - 3.17% (12, 2.61%)

[11] Spain - 2.64% (15, 1.82%)

[12] Israel - 2.36% (11, 2.94%)

[13] Canada - 2.22% (13, 2.46%)

[14] Belgium - 1.95% (14, 2.10%)

[15] Italy - 1.91% (18, 1.44%)

[16] Denmark - 1.73% (9, 3.07%)

[17] Sweden - 1.62% (16, 1.76%)

[18] Turkey - 1.59% (not ranked)

[19] Switzerland - 1.42% (19, 1.22%)

[20] Australia - 1.41% (17, 1.46%)