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INFORMATION AND COMMUNICATION TECHNOLOGY: SLOVENIA'S CATALYST FOR ECONOMIC GROWTH

Briana Gardell



Introduction

Information and communication technology (ICT) could be the catalyst for economic growth in Slovenia. ICT is a broadly encompassing field that refers to communication of information through electronic devices (ICT). Consider a smartphone: the device itself, the service plan, and the apps are all a part of ICT. The evolution of ICT allows people, for example, to transfer money via text, register a business online in minutes at home, automatically pay bills, and video chat with people around the world. These technologies are changing the way individuals, businesses, and governments communicate and interact effectively, creating an environment coined an “information society” (“World Telecommunication...” 2006). ICT offers benefits to industry, such as improving production and distribution efficiencies and reducing business transaction costs. Studies have found positive correlations between the strength of a country’s information society

and its economic growth (Li and Xu).

The purpose of this article is to analyze Slovenia’s strengths and weaknesses in ICT. ICT is highly correlated with economic growth. If Slovenia is able to increase its ICT competency, it could propagate growth throughout the entire country. ICT is essentially a visible target in the large complex web of stimulants to economic growth. ICT could be the catalyst for economic growth in Slovenia because Slovenia, formerly a leader in ICT, has retained some of its past competencies. Remnants of a leading ICT society still nestle in crevasses of Slovenia’s business and academic environments, but Slovenia is not on a par with highly ranked digital countries. Slovenia’s current deficiencies in ICT—low levels of infrastructure and low usage—are linked to the lack of competition in subsections of the ICT sector. By analyzing its current position, I argue that Slovenia could strategically fix its weaknesses by breaking up its original telecom monopoly, Telekom Slovenije, and selling its parts. Once Slovenia

effectively ends the monopoly and successfully increases infrastructure and usage, it will be able to leverage its current strengths to attract foreign investment in ICT. Investors in ICT, in turn, will prompt Slovenia to adopt the latest technologies and once again become a high-access digital society.

Slovenia's Historic Competence in ICT

Within a decade after independence, Slovenia had established itself as a dominant force in ICT. In the "World Telecommunication Development Report" of 2003, Slovenia was ranked in the highest category for level of access to digital technologies. This category indicated that Slovenia's ICT had sufficient infrastructure and was affordable. Slovenia also had citizens who were knowledgeable of technologies, and usage was high. Twenty-five countries were classified in the highest bracket, including Sweden, Denmark, Korea, Norway, United Kingdom, and the United States. Among those top 25, Slovenia was the only country not classified as an advanced economy by the International Monetary Fund. Slovenia, as a developing economy, was considered an outlier with a huge opportunity to leverage ICT competencies ("World Telecommunication..." 2003). This article discusses how Slovenia's success in ICT was due to specific government efforts to promote technology through education and an environment that welcomed advancement through technology.

Slovenia's early success in ICT was largely due to focused efforts to incorporate technology into the classroom. Investing in technology at schools is a superb strategy to create an information society because schools reach a significant portion of the population and devices at schools can be shared ("World Telecommunication..." 2003). In the early 1990s, Slovenia launched two major initiatives to promote ICT in education. First, in 1992, the Slovenian government started to provide free Internet access to all schools, universities, and research institutions through the Academic and Research Network of Slovenia (Vehovar). Next, in 1994 Slovenia started the Računalniško Opismenjevanje (RO), or computer literacy, project. The project aimed to establish an upgrade schedule for the computer equipment, to create a

network to share educational materials, and to train teachers how to utilize ICT. To promote sharing, Slovenia created the Slovenian Education Network, which allowed teachers to download and upload educational resources. Unfortunately, the RO project officially ended in 1998 and was not subsequently funded (Batagelj et al.). Therefore, the benefits of the RO project will remain within the 1990s cohort. A report, "The Media and Computer Literacy Project in Europe: The Case of Slovenia," explains that by 2002 Slovenia should have been ranked among the developed European countries in the field of media and computer literacy (Erjavec). In fact, Slovenia's efforts in this area had propelled its early success in ICT.

Slovenia's success in ICT was also influenced by its high exposure to other countries with leading information societies. After World War II, Slovenia, then a part of Yugoslavia, had open borders with Western countries. This allowed Slovenes to work in countries like Austria, Germany, and Italy and also allowed for open trade and tourism (Vehovar). Not only was Slovenia open to other countries that were developing into strong information societies but also these countries were the best in the world. Fifteen of the 25 high-access countries in the Telecommunication Development Report 2003 were European countries ("World Telecommunication..." 2003). In addition to general openness, Slovenia established diplomatic relations with Germany, another high-access country, shortly after independence in 1991. Germany accounts for 20 percent of Slovenia's foreign trade and is a principal foreign investor in Slovenia; 250 companies in Slovenia are German or have German participation ("Political Relations"). Slovenia's exposure and experience doing business with other countries had a positive effect on its information society; most of its economy was in tune with global business standards at the time of independence (Vehovar).

Current Status of ICT

As of 2014, Slovenia is no longer considered a high-access digital society. In the "World Telecommunication Development Report" of 2003, Slovenia was tied for 21st place with New Zealand, Italy, and France. Slovenia's ICT

ranking has not changed dramatically since it was labeled a high-access country in 2003. The report, “Measuring the Information Society” of 2013, ranked Slovenia 28th of 157 countries. However, the profile of top ICT countries has changed. The top countries in ICT today are no longer competing on the basis of access or use of ICT services; they all have nearly universal access. Rather, the top countries are now striving for better and faster ICT services and adopting the latest technologies (“Measuring the Information Society” 2013). By way of contrast, Slovenia still struggles with the level of access and use of ICT services. Despite its weaknesses relative to the highest-tier nations, Slovenia is still in the top 20 percent of ICT countries in the world and a regional leader in Central and Eastern Europe. Slovenia needs to utilize its strengths to alleviate its weaknesses to regain its position in the top tier of countries in ICT.

Slovenia’s Strengths in ICT

Evaluating ICT competency is like tackling an artificial rock-climbing wall. The pegs used to climb the wall represent areas of ICT where the country has strengths. There are myriad areas in ICT that a country could develop. For example, a country could have a strong e-government program and provide government services online, or a country could have affordable Internet services. ICT strengths correlate with pegs on a rock-climbing wall, because not every peg has to be used to climb the wall. Similarly, countries do not have to be experts in everything in ICT to become a highly developed information society. At the same time, the more pegs available and the bigger the pegs, the easier it is to climb the wall. Similarly, the more strengths a country has in ICT, the easier it is to develop an information society. The following section describes the “pegs” or strengths that Slovenia already has in ICT. Knowledge of Slovenia’s current strengths in ICT will help determine how Slovenia should further advance its ICT competency in the future.

One way that ICT competence is quantified is by level of skill. Slovenian citizens have above-average ICT skills at all levels of expertise: 82 percent of citizens in Slovenia have some level of computer skills, whereas only 67 percent of citizens in the European Union (EU)

have some level of computer skills (“Slovenia: Internet Usage and Digital Skills”). Slovenia also has more high-level computer-skilled citizens: 31 percent have high-level skills, 21 percent medium-level skills, and 12 percent low-level computer skills. This compares with 26 percent, 25 percent, and 16 percent, respectively, for the EU. However, Slovenia is not a leader in high-level computer skills; Denmark, Finland, and Luxembourg all have 40 percent or more of their citizens with high-level ICT skills (“Slovenia: Internet Usage and Digital Skills”). Yet, the skill set of Slovenian citizens has brought the country foreign investors, including Aviat Networks, a leader in wireless transmission solutions. Aviat decided to build one of its research and development teams in Slovenia because the location provided access to highly educated engineers, according to Paul Kennard, senior vice president of products (“ICT: Testimonial”). Additionally, Slovenia has an adequate number of citizens trained in the field of ICT to support the demand of its industry. It is expected that by 2015 there will be 900,000 unfilled vacancies for ICT professionals in Europe (“Digital Skills and Jobs, European Semester”). Slovenia places fourth among countries that do not report difficulties filling ICT job vacancies, after Germany, Italy, and Romania (“Digital Agenda Scoreboard”). Essentially, Slovenian companies have an easier time finding qualified employees in ICT; the demand for employees, the supply of employees, and the location of employees all come into play when evaluating this metric.

Slovenia also ranks high in subsections of e-business. According to the European Commission’s Digital Agenda Scoreboard, Slovenia has the highest percentage of large enterprises (companies with more than 250 employees) that utilize an enterprise resource planning software (ERP) to integrate internal processes in the EU. In Slovenia, 92.3 percent of large enterprises use an ERP, while the EU has 72.6 percent of large enterprises using an ERP. The European Commission’s Digital Agenda Scoreboard also indicates that Slovenia has the highest percentage of large enterprises using an automated method to exchange business documents. In Slovenia, 97.8 percent of large enterprises use an automated method to exchange business documents whereas in the EU 80.5

percent do so (“Digital Agenda Scoreboard”).

Slovenia is one of the strongest countries in ICT in the Central and Eastern European region. This is significant because there is a clustered group of countries in the region that have not joined the EU: Serbia, Macedonia, Bosnia and Herzegovina, and Albania (“List of Countries”). Slovenia does not directly share a border with the clustered group of non-EU countries; however, Slovenia does share a large border with the EU’s newest member state, Croatia. According to “Measuring the Information Society” (2013), Slovenia has a better ICT ranking than Croatia and all the other countries that border the non-EU countries in this region, including Hungary, Romania, Bulgaria, and Greece. Slovenia’s regional dominance in ICT and its proximity to the emerging market make the country an ideal place for technology companies looking to invest in the developing market. A prime example of this is that Microsoft invested in an e-governance center that was placed in the capital of Slovenia in 2008. The center is a partnership between southeastern European governments, nongovernmental organizations, and leading technology companies. Microsoft aims to utilize this center to work with governments, organizations, and other companies in the region to develop technology strategies (“Southeastern European Governments ...”). Slovenia is set up to be a gateway to the emerging markets in the Central and Eastern European region.

In essence, Slovenia’s ICT strengths have a commonality. All are strengths that Slovenia can use to attract more investors in any area of ICT. Slovenia’s citizens have ICT skills and have experience utilizing e-business tools. Slovenia is also in close proximity to an emerging market.

Slovenia’s ICT Weaknesses

To continue with the rock-climbing metaphor, Slovenia might have several advantages in ICT, but it is lacking the pegs on the bottom of the wall. For example, Slovenia has excellent ICT skills. Therefore, the government is able to build a sophisticated government website to supply health information to its citizens, but not all Slovenian citizens have Internet access. Therefore, the service becomes less effective. Characteristics like access are fundamental.

Access must come before citizens can apply the technology that will lead to efficiencies. Usage is the next step. If the service is available, citizens need to be able and willing to use it. Slovenia struggles with the ICT basics: access and usage—“pegs” that are on the bottom of the rock-climbing wall. Therefore, if these areas are not developed, Slovenia will not be able to reach high levels of ICT competencies.

Slovenia—once among the world leaders—currently has low access to ICT services compared with even average standards, much less world-best levels. As of 2012, Slovenia had 73.6 percent of its households with fixed broadband covered whereas the EU had 95.5 percent covered. In fact, Slovenia was second to last in the EU, behind only Poland. In terms of mobile access, Slovenia is comparable to the EU rate on third-generation mobile broadband at 96.3 percent. However, only 36.9 percent of the population has access to fourth-generation mobile broadband, whereas 54.5 percent of the EU is covered. Indeed, the European Commission has advised that the Slovenian government invest in ICT infrastructure (“Digital Agenda Scoreboard”).

Slovenia also struggles with usage of ICT. Usage of ICT can include a variety of services but is commonly quantified by Internet use. Slovenia is below the EU average of “regular” Internet use (at least once a week); 65 percent of the Slovenian population uses the Internet regularly while 70 percent of the EU uses the Internet regularly. Slovenia is even further away from the usage rate of leading countries that have 90 percent of the population regularly using the Internet. Slovenia’s low usage stems from high prices for ICT services (“Slovenia: Internet Usage and Digital Skills”). ICT services have to be affordable for people to use them. Slovenia was ranked 40th in the ICT Price Basket index, which measures the price for fixed telephony, mobile cellular telephony, and fixed broadband (“Measuring the Information Society 2011...”). The ranking translates to fixed broadband being twice as expensive in Slovenia as in Sweden. For example, in 2013, for fixed broadband stand-alone Internet access in Slovenia (with advertised download speeds of at least 8 and below 12 megabits per second), the price was €43.50 per month compared to Sweden’s €18.90 (“Digital Agenda Score-

board”). Slovenia clearly needs to reduce its ICT service prices before it can increase usage.

Reasons for Slovenia’s Weaknesses in ICT

Telekom Slovenije is the dominant player in Slovenia’s telecommunication market. However, the company is resisting competitive price pressures and is driving competitors out of the market. In its Annual Report for 2013, Telekom Slovenije explains it has maintained the highest overall market shares in Slovenia in several sectors. For example, Telekom Slovenije has 37 percent of the market share for fixed broadband access. In this sector Telekom Slovenije is competing with Telemach, T-2, and Amis (“Annual Report 2013”), although Amis, with ten percent of the Slovenian Internet services market, one component of fixed broadband access, was squeezed out of the market and recently put itself up for sale (“Slovenija’s Amis Up for Sale”). Telekom Slovenije is also the leader in the mobile telephone market, where it competes with Tušmobil, T-2, and new operators Telemach and Amis. Essentially Telekom Slovenije, the former monopoly, has successfully held on to its market power. It is the lack of a competitive market that is driving the high prices and lack of infrastructure.

The evidence from other national ICT markets suggests that a competitive ICT market sparks private investment in infrastructure and lower prices. For example, much like Slovenia, the U.S. suffered from limited service when the Bell System was a monopolistic power (Adelmann). However, after 13 years of competition, telephone service became available almost everywhere in the country (Adelmann). Competition not only increases availability of services but also improves service offerings (Battersby and Yeates). Sweden achieved the highest percentage of fixed broadband subscriptions with at least 100 megabits per second (“Digital Agenda Scoreboard”). It is believed that Sweden was able to reach that level of access through its reliance on private market players to invest in infrastructure (“ICT for Everyone...”). Competition not only improves services but also lowers prices for consumers in the telecommunications industry (Adelmann). For instance Australia, after splitting up its

telecom (Telstra) in 2012, saw competitors fight for market share through lower prices. The cheapest monthly phone and Internet plan offered by a sub-company of the original telecom monopoly was \$80, whereas one competitor’s (Optus) lowest offering was \$65 a month and another’s (Exetel) was \$35 (Battersby and Yeates). Essentially, the experience in the U.S., Sweden, and elsewhere suggests that Slovenia’s problem areas in ICT—low infrastructure and high prices—can be alleviated through the forces and incentives leashed by a competitive market. Slovenia could become an even more advanced information society if it continued to liberalize the market, in other words, open the market to competition (“World Telecommunication...” 2003). Yet Slovenia has instead failed to create a competitive environment because the market is not privatized or regulated for competition.

On paper, at least, Slovenia liberalized its telecommunications market in 2001 by allowing competition to enter the market. However, Telekom Slovenije and the Slovenian government have continuously been accused of intentionally stifling competition. A number of lawsuits have been brought against Telekom Slovenije for violating competition rules (Hosman and Howard). For example, in 2007 T-2 filed a claim against Telekom Slovenije that the company prevented it from entering the Internet services market. Six years later, T-2 was allowed to make its case in court. After an hour and a half, the case was dismissed because the court felt that T-2 lacked evidence, even though 3,000 pages of written materials and more than 5,000 pieces of evidence were provided during the six-year period. In another case, Telekom Slovenije successfully argued that it did not cause any damage to its competitors by not letting them enter the market but that its actions were beneficial for competitors because it protected them from entering markets where they would incur losses (“Competition Protection...”). The regulatory body to ensure telecom sector competition, APEK (Post and Electronic Communications Agency), has also been charged with anti-competitive behavior. For example, APEK has been accused of improperly transferring its responsibilities to the Competition Protection Office, which oversees competition in Slovenia’s industries (Hosman

and Howard). The Competition Protection Office has significantly fewer staff members than APEK; therefore, transferring cases to this office will effectively postpone the case. Although legally competition is allowed in the telecommunications market of Slovenia, Telekom Slovenije effectively controls the market.

Privatization is key to developing a competitive market because it signals a commitment to pro-market reforms and attracts private investment (Li and Xu). Yet, as of mid-2014, the Slovenian government still owns a majority stake in the largest supplier of telecommunications, Telekom Slovenije. More than a decade has passed since the top ten countries with the highest ICT Development Index (the current index for evaluating ICT in the “World Telecommunication Development Report”) privatized their telecommunications markets (“Measuring the Information Society 2013”). When other countries started to privatize, Slovenia passed a law that gave exclusive monopoly rights to Telekom Slovenije for both voice and data telephone until the end of 2000 (Hosman and Howard). To some degree, Slovenia’s hesitation to privatize was grounded in quasi-socialist ideals; Slovenia was previously a part of socialist Yugoslavia. However, despite converting to capitalism in the early 1990s, Slovenia has held on to myriad state-owned enterprises (Rousek). In fact, Slovenia is the only post-Yugoslavia nation that has not privatized the telecom monopoly it inherited (Hosman and Howard). It made plans to sell its telecom monopoly in 1999 and later again in 2005. Unfortunately, it missed the best time to sell. The market value of telecommunications firms decreased significantly after the dot-com bubble burst in 2000 and 2001 (“Telekom Slovenije...”). Investors who bought shares of France Telecom and Deutsche Telekom realized considerable losses after their purchases (“Coming Home to Roost”). Slovenia decided not to sell because the market value went down dramatically. During a second attempt to privatize in 2006, Slovenia listed shares on the Ljubljana Stock Exchange (“Telekom Slovenije...”). Slovenia received offers for the remaining portion of the business but again cancelled the sale because it was not satisfied with the price of the bids.

In 2013, the Slovenian government reluctantly, but voluntarily, approved the pri-

vatization of Telekom Slovenije along with 14 other government-owned entities. The government decided to privatize the companies in order to raise money to bail out Slovenia’s government-controlled banks. The three largest banks have a combined \$9.2 billion in non-performing loans—an amount equivalent to 20 percent of Slovenia’s annual economic output. The non-performing loans had been used to fund businesses owned by the Slovenian government. The root problem that resulted in the non-performing loans, according to economists and bankers, is that the Slovenian government attempted to prevent foreign ownership of the businesses. The banks loaned capital to financially weak businesses owned by the Slovenian government (Rousek). As of mid-2014, the privatization remains pending, but Slovenia has several buyers interested in Telekom Slovenije. Interested parties include Deutsche Telekom and private equity groups Providence Equity Partners, Cinven, CVC, and Blackstone and Bain. Norway’s Telenor and Russia’s MTS were originally interested but did not place bids. The majority stake that Slovenia is selling is valued at more than €700 million (\$971 million) (“Deutsche Telekom Lined Up...”). However, the value that privatization could bring to the telecommunications industry is much more. Privatization is a significant factor that will determine the competitiveness of the Slovenian market.

Prognosis

Based on this diagnosis, Slovenia’s top priority should be to facilitate the creation of a competitive ICT sector. Experiences in other nations suggest that competition will allow Slovenia to increase its ICT infrastructure and decrease prices in the market, which will prompt increased usage of and access to ICT and ultimately allow Slovenia to take advantage of the productivity benefits that come with an information society. Telekom Slovenije’s de facto monopoly position is the number one barrier to a competitive market. Unfortunately, the upcoming sale of Telekom Slovenije in itself poses a threat to creating a competitive market: selling Telekom Slovenije could simply transfer the de facto monopoly to another entity. Other former Yugoslavia countries have

had problems creating a competitive market after privatizing their telecom monopolies. Montenegro privatized its telecom, T-Crnogorski, in 2004, but did not see improvements in competition until the government reduced the fee on international traffic from €100,000 to €1,000 in 2007. Moreover, seven years later, the original monopoly continues to dominate the market. Croatia has also experienced problems creating a competitive market after privatizing. Deutsche Telekom purchased 35 percent of the Croatian telecom, Hrvatske Telekomunikacije (later called Hrvatski Telekom) (HT) in 1999 and then acquired a majority stake in 2001. HT retained near monopoly status because it was not required to share physical wires with other operators, provide customers the ability to select the operator, or provide the ability to keep telephone numbers regardless of provider until January 1, 2005. Croatia stimulated competition by reducing the cost of acquiring a fixed line license. The country saw immediate, albeit limited, results: two licenses were awarded. Croatia also replaced its regulatory authority with a new one that was self-financed and not for profit (Hosman and Howard). Despite these efforts to create a competitive environment, HT maintained its leading position in the Croatian telecommunications market across all areas of operation in 2013. The company indicated in its annual report that competition was becoming more intense (“Market Overview”). Clearly, privatization alone is not enough to create a competitive environment with these former Yugoslavia monopolies. Slovenia needs to take action to ensure that Telekom Slovenije does not remain a monopoly regardless of the owner.

Slovenia’s past and the experience of other former Yugoslav countries’ privatizations of their respective telecoms suggest that Slovenia should not sell Telekom Slovenije as a whole company. Rather, Slovenia should split up the telecom and sell its parts, in effect ending the monopoly. Neither Montenegro nor Croatia was able to successfully reduce its own monopoly’s market share below that of competitors, and both countries took additional actions beyond privatization to stimulate competition. In light of Slovenia’s regulatory experience with Telekom Slovenije, Slovenia would need a lot of work to increase investor confidence that this

is a market in which competition will thrive and where the old monopoly would not be capable of stifling new entrants. Slovenia’s current strengths are potentially attractive to investors in all areas of ICT. In turn, ICT investors could help Slovenia boost its ICT competency. For example, an investor could either bring new technology to the market or hire and train Slovenian citizens. However, Slovenia’s strengths could be temporary. It could lose its regional lead, and the reduction in ICT education after the late 1990s could diminish citizens’ ICT skill levels in years to come. Additionally, ICT investors outside of telecommunications are relying on citizens’ access and usage, which are projected to increase after the split of the telecom. For example, a company providing an e-commerce service is dependent on citizens’ ability to access the Internet. Therefore, there is value in accelerating the process by eliminating the monopoly and splitting Telekom Slovenije into smaller companies.

Slovenia would not be the first country to split a telecom to create a more competitive market. The Bell System, the U.S.’s de facto telecom monopoly, was broken up into seven independent companies in 1984. The breakup successfully led to more competition in the long distance telecommunications market (Kushnick). Australia split its telecom, Telstra, in 2012, but regretted not doing it earlier. Broadband Minister Stephen Conroy explained that the structural separation would finally create an even playing field and said that they should have split Telstra when they privatized 20 years ago (Battersby and Yeates). Australian Competition and Consumer Commission chairman Rod Sims agreed, stating that if Telstra had separated earlier the industry would be more competitive today (Ludlow and McDuling). Slovenia should not make the same mistake as Australia and should split Telekom Slovenije now.

Conclusion

ICT is a catalyst for growth. It stimulates the economy because technology spawns productivity. Slovenia is not reaching its full potential in ICT, which means that it is not reaching its full potential economically. Fortunately, Slovenia has the opportunity to reboot its ICT

competency by breaking up its historic telecom monopoly, Telekom Slovenije, and selling the pieces. A free competitive market would increase access and lower prices of ICT services, allowing Slovenia to climb to the top of ICT

competency and fully develop an information society. There are many pieces to move in the strategic game of the world economy. ICT is the piece Slovenia should move forward.

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