Internet Development as Political Comparative Advantage:

Estonia in International Organizations

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Abstract
This essay discusses the development of Estonia's Internet and information technology-driven economic development and its effects on the country's role in international organizations. Since regaining independence in 1991, Estonian policies have initiated, concurrently, innovation in information technology and international integration. To what extent is Estonia's current position in the multilateral North Atlantic Treaty Organization and European Union does the country owe to its information technology sector? Estonian policies were enacted within the context of an interdependent international community, allowing the small country to gain admittance to, and ongoing benefits from, NATO and the EU. This research will argue that through a focus on ICT, Internet-based innovation, and e-government services, Estonia has developed a comparative advantage in international politics.

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"The practice of diplomacy is not in fact very different from the practice of sound business, in that it relies for its efficacy upon the establishment of confidence and credit."
–Harold Nicolson, 1959[2]

1. Introduction and Literature Review

The end of the 20th Century was characterized by a globalized market economy and increasingly connected world affairs. Information technology development, and the Internet in particular, extended the means for actors to engage internationally and the necessity for participation in an increasingly information-dependent world economy. For the nation of Estonia, the 1990's were a period of positive political and economic upheaval after the small nation of 1.3 million regained independence from the Soviet Union in 1991. In their post-communist transition, Estonian policymakers drew from liberal economic and international relations theory. This essay will argue that through a focus on information and communications technology (ICT), Estonia developed a comparative advantage in international politics.[3]

In a networked world, "the measure of power is connectedness" (Slaughter, 2009). Since 1991, Estonian policies have initiated concurrent growth in the form of information technology and international integration. Estonia's technology-supported economic development stands as a case study in 21st Century economic growth amid transition and its post-Soviet accession into the European Union (EU) and North Atlantic Treaty Organization (NATO) is an example of successful international integration. This essay seeks to answer to what extent Estonia's current position in the multilateral institutions of NATO and the EU is a result of its ICT sector growth. Analysis of the Estonian case tests the relevance of a nation's economic capacities in international politics. Estonia's Internet-based development shows the capability of technology to, "level the playing field" of governance; it provides evidence of the trend toward a more democratic and plural international system through the use of ICT. This essay, analyzing original qualitative research with government and business decision makers, serves as one case study in evaluating the Internet's effect on political development in an increasingly global marketplace, building on the economic literature of international trade for inspection of the Internet and ICTs' role in international relations. Estonia's specialization in information technology afforded the nation advantages in its international relations through application of the comparative advantage principle to Estonia's international political engagement in international institutions.

1.1 Knowledge-based Economics

The foundation for today's knowledge-based global economic structure is a neoliberal international trade regime, first popularized by David Ricardo in 1821 with the theory of comparative advantage[4]. The principle holds that as new technologies enter a market, the economy's capacity for growth—relative to others'—increases. The modern global economy is built upon Ricardo's theory, after policies lowered trade tariffs and made possible more free flow of goods internationally. Some have described the economy in 2010 as the third stage of globalization, with intensive deregulation, trade liberalization, and the growing influence of ICTs (Bhattacharya, 2004).

Recognizing the increasing influence of ICTs in international economics and management, Peter Drucker coined the term, "knowledge-based economy" to describe the importance of

[2] As cited in: Chas W. Freeman, J. (1993). *A Diplomat's Dictionary.* Institute for National Security Studies. Washington, DC: National Defense University Press.

[3] This essay draws from interviews conducted among current and former Estonian governmental and business decision makers, sought for their understanding of the Estonian technology sector and/or Estonian foreign and defense policy. Given the size of the professional environments and the ease with which an interested party might be able to attribute contributions to individuals, the author has elected to keep the names and specific job titles of the research participants anonymous. Discussions were conducted in person, by telephone, and over email from December 2009 through August 2010. Secondary sources referenced by interviewees or independently gathered and analyzed are annotated at the conclusion of this paper.

[4] Ricardo, D. (1821). *On the principles of political economy, and taxation.* London.

services and information in an increasingly global economy.[5] Amid global competition, the increased importance of information in management, and the transition to a service-dependant global economy, an economy's move toward a knowledge or information-based service industry would be vital for success and growth in the 21st Century.

Drucker was not the first to recognize the importance of technology in modern economics. The work of Joseph Schumpeter in the 1940s featured technology as an agent of economic change. Schumpeter's work is the foundation of the field of innovation economics oft applied to the globalizing world of the 1990s.[6] Innovation economics scholarship holds that technology promotion is a key element of development policy. Institutions play a guiding role with the ambition to trigger innovation that, due to spillover effects, leads to endogenous growth. Public-private partnerships are a choice method for creation of essential research and development gains (Rodríguez-Pose & Crescenzi, 2006). Comparative advantage is implicit to innovation theory in application, encouraging research and development of technologies for product and process innovations that would offer a creative edge to one firm or economy over another.

1.2 Liberal Institutionalism in the Information Age

The advent of ICTs and enhanced international networks contributes to the interdependence international relations theories that were first espoused in the 1970s by Nye and Keohane. A number of later scholars have noted the connection and support technology proffers for, "patterns of dependence and interdependence" (Singh, 2008). At the state level and beyond, liberal, rationalist theory holds that self-interested actors, "seek to establish international regimes through mutual agreement" and that international organizations are the embodiment and institutionalization of the post-World War II economic and political order (Pease, 2003). Joe Nye, in his seminal text on soft power, finds that, "information is power" (Nye, 2004). That international organizations can be a means for redistributing power emerges from the liberal tradition. As Barnett and Finnemore describe,

> "enthusiasm for international organizations as policy prescriptions flows directly from some of the most fundamental theoretical tenets of classic liberalism: a belief in progress and in the capacity of technological change and markets to transform the character of global politics in positive ways by creating ever-expanding material resources that can ameliorate social conflicts" (Barnett & Finnemore, 2005).

Nye describes the values of liberalism and pluralism as customary in the post-Cold War international system. The relative, "importance of soft power increases in the information age" and those states which hold the societal norms more similar to prevailing culture and ideas and, "with the most access to multiple channels of communication and thus more influence over how issues are framed…are likely to gain soft power" (Nye, 2004).

Yet, Keohane and Nye contend, the state remains the single most important actor in world affairs. While under conditions of interdependence, power is not distributed amongst non-governmental actors per say, but elements beyond the role of the state hold influence.[7] While modernists such as Alvin Toffler and Esther Dyson have identified the network effects of technology as possibly destructive to conventional hierarchies, both in business and politics, Keohane and Nye argued in 1998 that the state has been resilient through the information technology revolution (Dyson, Gilder, Keyworth, & Toffler, 1994) (Keohane & Nye, 1998).

Liberal scholarship has grown to integrate modern cultural trends, including the widespread use and application of technology. The post-internationalist approach is positivist in its acknowledgement of ICTs as relevant in international society. Within James Rosenau's turbulence theory, ICTs contribute to greater complexity in world affairs with the construction

[5] Drucker, P. *Age of Discontinuity. 1959.* Others such as Galbraith may have referred to the phenomenon previously, but Drucker is acknowledge for having coined the term.

[6] The transition Central and Eastern European (CEE) economies were perfect test cases at the time, and innovation features prominently in the literature of the economics of transition, yet studies show most CEE countries present low levels of innovation Akhmedjonov, A. R. (2010). Education, Training, Innovation: Evidence from Transition Economies. *Pardee RAND Graduate School dissertation series* , p. 118.

of a more skillful and analytic workforce (Rosenau, 1997). The potential of ICTs in developing skilled workers, and thereby economies, is a popular notion within the United Nations framework where organizations such as International Telecommunications Union and the World Summit on the Information Society have taken on the policy ambition of, "bridging the digital divide" for international development purposes.

Recent policy developments advocated by the U.S. Department of State under Hillary Rodham Clinton and Anne-Marie Slaughter build on this concept, with a focus on the potential of ICTs to aid in the construction of a modern state apparatus. "21st Century statecraft" is at the core of the Obama Administration's foreign policy, and acknowledges the potential for soft power gains brought about through broader communications (Washington Transcript Service, 2010).

1.3 Liberalism and Independent Estonia

Until recently, most of the literature describing Estonia's ICT specialization remained within the fields of innovation and transition economics. The studies describe a successful and rapid transition from planned to market economy as a result of liberalization policies, privatization policies, and an influx of foreign investment. International influences on Estonia's innovation policies were significant, particularly from Finland and Sweden. Detailed accounts of Estonia's economic growth from 1991 to the present are available, some of which were commissioned by the Estonian state or state-funded organizations, and draw from transition economics and information technology scholarship.[8] Underlying the reports is the Schumpeter and Drucker-supported assumption that technology is important for sustainable economic growth in the information age. One recent study reaches beyond the economics field and contributes to Baltic Studies more generally, describing the international impacts of the Tiger's Leap program to place Internet-connected computers in each Estonian classroom (Runnel, Pruulmann-Vengerfeldt, & Reinsalu, 2010).

Given Estonia's former membership in the USSR, like Latvia and Lithuania, much of the late 20th and early 21st Century international relations scholarship treats the Baltic States as a single unit. Estonia's size, common past as a Soviet state, and accession into the European Union and NATO alongside CEE (Central and Eastern European) neighbors, often affords it investigation as one of the "new member states" in CEE. Estonia is not often the recipient of individual study, although its development story, in the context of the EU and NATO, is unique in the region. This essay examines Estonia's ICT and international political development in detail, considering the impact of technology in Estonia's development and standing in international politics as indicated by the country's accession to, and role within, the EU and NATO.

2. The Choice of ICTs for Growth

As 1.3 million Estonians broke away from the Soviet Union and regained independence in 1991, the political and economic systems had collapsed. Estonia faced challenges of connection after years as a part of the eastern bloc rendered Estonians isolated from European and western allies. The nation found itself trailing more modernized nations in technology and communications infrastructure and with an image abroad of a post-communist state in disrepair. Estonian political leaders recognized the need to reestablish connections with western neighbors and to construct a modern, liberal market economy. It was policymakers who administered the basis for transition.[9]

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[7] The state remains the most important actor in the countering realist view.

[8] In addition to regional analyses such as those by Krzysztof Piech and Slavo Radošević, Estonian government-funded studies including the *Knowledge-Based Estonia* series are helpful. Studies published by the PRAXIS center are also relevant. This essay will draw from these and qualitative interviews to summarize the role of the state and policymakers in Estonia's innovative development.

[9] This essay will offer only a summary of Estonia's innovation and ICT development. For further details on Estonia's innovation development between 1991 and 2004, consult: Knowledge Assessment Matrix by the World Bank, assessment by McConnell International, questionnaire based assessment by the Mosaic group, "The Global

2.1 Internalizing Technology

Technology application was not a new concept for Estonians in 1991. Throughout its years as a Soviet state, Estonia had been a testing ground for various technology experiments and policies in agriculture and communications technology. In the 1950's, a Cybernetics Institute was established in Estonia and the Soviet planned economy assigned resources to research. Hard sciences were ideologically free from Soviet control and thus a number of Estonia's brightest students pursued higher education in the sciences. Understanding of the cultural benefits of connection with the west came to northern Estonia via Finnish television by the late 1980s. Estonians sought to reproduce the tech-fueled growth enjoyed by Estonia's Scandinavian neighbors. By independence in 1991, two generations of Estonians were familiar with the application of science and technology for cultural and economic gains (Estonian Innovation Expert, 2010).

A former government official contrasts the Estonian independence story with the well-known creative independence narrative of the Czech Republic: "For Czechs, the people who led the independence movement were artists, poets, and writers. In Estonia, it was scientists who were most involved" (Estonian Innovation Expert, 2010). The quasi-technocratic leadership of the early transition period elected to pursue a neo-liberal, laissez-faire economic policy of privatization, free trade, and liberal investment laws (Kalvet, Pihl, & Tiits, 2002). Early governments took important steps to modernize the economic infrastructure for innovation: liberalization of the telecommunications regime, education and training for use of ICTs, institution of regulations that would accommodate an information society, and government-sponsored leadership of ICT programs and through public-private partnerships (Krull, 2002-2003). Due to the small size of the Estonian and Baltic markets, the new market economy would have to compete internationally and absorb insights from its successful neighbors.

The Soviet legacy of scientific research institutes did not emphasize research for product or process development. After independence in 1991, funds for non-applied research dwindled and a series of efforts, led by the Ministry of Education, moved the research institute apparatus into the University system. "It took ten to fifteen years for the research to be fully integrated into the University curricula," finally achieved through University rector enforcement in the early 2000s to move research into classrooms (Estonian Innovation Expert, 2010). By 2000, Estonia boasted a high level of human capital—"approximately 4,000 scientists and engineers [were] employed in research and development"—but research and development investment amounted to only 0.5 percent of GDP (Hernesniemi, 2000).

Estonia had, however, become a successful recruiter of foreign direct investment (FDI), attracting, "the third highest level of foreign direct investment per capita" in Central and Eastern Europe.[10] The FDI inflows were, "tens of times higher" than research and development investment (Hernesniemi, 2000). "Over the period 1992-2001, Estonian ICT manufacturing industry production grew by 30 percent per annum on average and [in 2004 had reached] 234 million EUR". In the early and mid-1990s, privatization policies spurred FDI inflow; later "less expensive production inputs" drew investment from around the Baltic Sea region. Swedish and Finnish monies were most dominant and were particularly relevant in the financial services, manufacturing, and communications sectors. In 2004, nearly half of all Swedish investment abroad came to Estonia (Kalvet, 2004)(Tiits, 2007). From Finland, home of mobile phone firm and SMS-inventor Nokia, investment and perspective traveled the short 80km distance across the Baltic Sea. Estonia's absorptive capacity for FDI, essential for reaping the full benefits of the foreign investment, was high. FDI supported the growing economy with technology and human capital spillovers (Radosevic, 2003) (Sinani & Meyer, 2004).

Information Technology Report 2001-2002" by the Center for International Development (CID) at Harvard University and World Economic Forum, and Krull, A. (2002-2003) *ICT Infrastructure and E-readiness Assessment Report: ESTONIA*.

[10] Between 1997 and 1998, FDI inflow as a percentage of GDP grew from 2.8 to 10.6 percent (Hernesniemi, H. (2000). *Evaluation of Estonian Innovation System.* ETLA: The Research Institute of the Finnish Economy. Helsinki: European Union's Phare Programme (Support to European Integration Process in Estonia).

The Estonian economy benefited from a newly gained position within a broader Nordic ICT cluster, but Estonia served as a subcontracting destination, not the target for significant high-tech equity or start-up investment (Kalvet, 2004). Scandinavian financial services sector firms dominated the Estonian market and brought with them a need for large IT departments and skilled local employees (Estonian Innovation Expert, 2010). Banks in Estonia capitalized on the freedom of a lack of legacy systems or competition and a relatively less expensive IT workforce (Kalvet, 2004). Overall economic growth was steady over the period from 1993 to 2003, with GDP increasing by 6.1 million USD (International Monetary Fund, 2009).

Estonian policymakers approached the transition as an entrepreneurial exercise—to build over and around the legacy bureaucracies and systems. Technology and the free market did not determine the direction of Estonia's transition. The approach of policymakers in the banking and technology sectors was to build from nothing and it was state-led policies that set the appropriate conditions for innovation.

> "From creating favorable legal environment and leading the way with computerizing the whole public administration, some of the major e-services were developed for the public sector which have been useful to attract people to the Internet…the state has played the most important role in building up the information society in Estonia" (Krull, 2002-2003).

In 2000, an appraisal of the Estonian innovation system described the country's comparative success in traditional industries such as wood and textiles and potential policy decisions to, "maintain and strengthen [Estonia's] position in these industries and benefits from their positive cluster effects. Estonia could be a high-tech producer in these industries that have traditionally been kept as low-tech" (Hernesniemi, 2000). Rather than a focus on enhancing the traditional industries, policymakers, particularly Prime Minister Mart Laar and his IT advisor Linnar Viik, sought an image of an Internet and ICT-driven economy. They prioritized human capital, thus investing in the basis for long-term economic growth. The choice was risky.

> "It is one of the main issues of the economic development strategy…to see which unique competitive advantages are available and how new ones could be created—in other words, what could be the future international specialization of the given economy. …Even though it is clear from economic theory that it is more beneficial to specialize in rapidly growing high productivity industries, making these choices assumes very high risks and is thus closely related to the value judgments and legitimacy of the public policy decisions in general" (Tiits, 2007).

The policies targeted innovation development two ways: by setting the legal basis for a digital economy and offering training and e-government services to the public.[11] A horizontal innovation policy was required to build a skilled workforce, spur research, competition, and enterprise development.

In addition to broader incorporation of English language studies into curricula, Estonian President Lennart Meri initiated the Tiger's Leap (Tiigrihüpe) Program and Foundation to put computers in schools in 1996. A meager 10.5 million Euros from the national budget between 1997 and 2000, with an additional 5 million Euros from local government, garnered training for over half of Estonia's teachers and a national average of 25 students per computer (Krull, 2002-2003).[12] Additional partnerships arose to build the Estonian IT College and usher in vocational ICT training. Concurrently, the government initiated and installed electronic citizen services with the X-road program, taking advantage of the digital signature regulations implemented in the 1990s. With an electronic means for citizen identification, services from electronic voting to online tax filing and e-health care became available, adoption rates of which continue to increase.[13] The Prime Minister operated the world's first paperless Cabinet

[11] The two-pronged approach was also politically advantageous, creating a regulatory environment recognized by only the business and legal subset of the population and citizen-oriented training for students and workers.

[12] The decision was made to begin a variety of public-private partnerships to fund the programs, permitting greater flexibility than the legacy personnel and bureaucracy within the Ministry of Education would permit. The Education Minister would be a part of the governance of the program and maintain a seat on the Foundation board but would not directly manage the efforts (2010 April-June). Estonian Innovation Expert. (E. D. Dumbacher, Interviewer) Tallinn, Estonia. This public-private partnership model would continue to be used in latter IT-related engagements such as the Tallinn Technopol complex.

[13] A mere 1.85 percent of voters in the 2005 local elections voted via the Internet portal: in 2009, 15.75 percent Estonian National Electoral Committee. (n.d.). *Internet Voting in Estonia*. Retrieved March 22, 2010, from www.vvk.ee: http://www.vvk.ee/index.php?id=11178

meeting room in 2000 and Estonia became the, "poster child for progress in taking e-government processes on a complete end-to-end journey," receiving the top rank for e-governance in the region by 2004 (Economist Intelligence Unit, 2004).

2.2 Estonia Today

As a result of the policies, Estonia today is able to posit itself as a tech-savvy, innovative outpost on the Baltic. Although some have criticized the policy approach of Estonia to pursue quantitative ICT adoption measures, the efforts:

> "helped Estonia gain the international image of an advanced e-state. The successful implementation of information technologies became a spectacular characteristic that was used to sell Estonia to international audiences" (Runnel, Pruulmann-Vengerfeldt, & Reinsalu, 2010).

Estonia today ranks 20th in the world in broadband use, with nearly 24 users out of every 100 residents (ITU World Telecommunications/ICT Indicators Database, 2008). A full 75 percent of Estonians use the Internet; 67 percent of Estonian households have a computer at home, with more than 90 percent of those connected to the Internet (Estonian Informatics Center). Though the European Innovation Scoreboard ranks Estonia as an, "innovation follower" within the second tier of European states, Estonia has made significant gains in its innovation performance between the 2008 and 2009 assessments due to increased firm investment and throughputs (European Innovation Scoreboard 2009: Comparative Analysis of Innovation Performance, 2010). Estonian government funds support organizations such as Tallinn's Technopol research park and Eesti Arengufond (the Estonian Development Fund) based on Finland's Sitra model, aiding start-ups with venture capital investment and best-practice sharing.

The Estonian population is increasingly reliant on Internet-based resources and services, an image projected abroad in trade and political spheres. Enterprise Estonia, the Estonian trade promotion agency, quotes that approximately 98 percent of the nation's banking transactions are conducted online and shows potential investors photographs of Estonians with laptops beside one of the country's numerous summer lakes (Estonian Informatics Center). According to the Tiger's Leap Foundation, 99 percent of all Estonian schools have Internet access, with an average of seven teachers per computer (Tiger's Leap Foundation). The corporate triumphs of Skype and Playtech help the promoters' cause.[14] Visitors to Estonia see advertisements for Skype in the Tallinn airport, reminding newcomers that the voice-over-IP technology behind Skype was developed in Estonia, and that Skype's research and development center remains nearby the capital city of Tallinn.

Estonia's e-governance and ICT expertise has become a diplomatic export. An ICT Demo Center stands in Ülemiste City, one of two technology research parks near central Tallinn. The Tallinn University of Technology has expanded its information technology programs to internationally "hot topics" such as a Master's program in Cyber Security and Technology Governance. The government-sponsored Archimedes Foundation hopes to increase the number of international students pursuing these courses of study. The current Estonian President, Toomas Hendrik Ilves, summarizes Estonia's ambition: "I believe that Estonia's cause will be advanced best by investments, incentives and grants that reward doing and enterprise, innovation and creativity" (Ilves, 2010).

Estonian policies through the 1990s and early 2000s sought a new definition of the former Soviet state through the use of innovation as a connected, international, and cosmopolitan state. Within the framework of a juvenile market-based economy, Estonian policymakers aided the country's place among western intergovernmental organizations through education programs, establishment of electronic citizen services, and technology-driven economic development. Estonia's technological connectivity and international ambitions in business and politics made Estonia a likely candidate for European Union and North Atlantic Treaty Organization membership in the early 2000s.

3. Achieving Interdependence

[14] Skype is an international voice-over-Internet protocol firm. While never owned or managed by Estonians, the engineers who wrote the original code were Estonian. Playtech is an online gaming firm with Estonian roots.

Estonia defined its post-communist international political development within the norms of a complex and interdependent international system, adopting membership requirements as domestic necessities. Estonia was successful in joining the European Union and the North Atlantic Treaty Organization in 2004. Membership in the two organizations served a central objective: that Estonia join (or rejoin) the concert of "free nations" through membership in organizations representing western, or liberal, values. The traditions of functionalism and collective security that the European Union and NATO represent offered a platform for Estonia's political development. Estonia leveraged its specialty in ICT to support its application to the EU and to contribute towards NATO's collective defense, in the hopes of receiving ongoing support from the alliances.

3.1 European Union Accession

Estonia's foreign policy elite acted rationally within the liberal internationalist framework established during the Cold War in the transition toward European and transatlantic institutions. Estonia took advantage of the interdependent and liberal institutionalist environment developed in the decades after World War II. Estonian political leaders recognized and seized the opportunities offered through an interdependent international system for a small country in a post-Cold War world. As a small state within a disadvantaged region in an increasingly globalized world, Estonian policymakers recognized the need for alliances.

> "The disadvantages of its small size, its relative poverty, its lack of resources, and its position as a 'frontierland' at Europe's margins had to be compensated by intense diplomatic activity—finding as many friends and allies as possible and binding the country to Europe with every possible thread" (Streimann, 2007).

The functional norms of the European Union permitted Estonia to take part in European integration (Majone, 2005). European Union membership would signal the reestablishment of Estonia as a liberal, Scandinavian and Central and Eastern European nation with a commitment to western values.

The case of the small nation of Estonia supports the importance of the state as the principle actor in transition of a small country. It is institutions that have brought positive growth to Estonia domestically in empirical development guidance and assistance, and have provided a platform for Estonia's post-communist image abroad. Estonia's development in advance of EU and NATO membership is an example of the constructivist notion of coercive socialization, that international organizations can exert over a member state or future member, by which its organizational norms change domestic realities (Hurrell, 2005).

Estonian political elites were not hesitant to seek integration into Western European and Euro-Atlantic structures; EU and NATO accession were top foreign policy priorities for every government between 1991 and 2004 (Schürmann, 2001). "The main driving factor was still the desire to simply become a part of a normal, democratic, stable, wealthy community with shared values. Never, during the ten years of accession process, did the desirability of EU membership come under question among the country's political decision-makers" (Streimann, 2007). The popular view in Estonia was that EU accession was more prized than NATO—"shared by the foreign policy elite"—but policymakers pursued both wholeheartedly (Schürmann, 2001).

Then Foreign Minister, now President, Toomas Hendrik Ilves advocated for European Union membership, identifying accession negotiations with the EU as a means for, "shedding the absurd moniker of a 'former Soviet republic'" that belonged to the "second tier" of nations. As a small country on the geographic edge of Europe, Estonia had to be concerned with the development of its international image.

> "We are widely recognised as a rapidly developing small country and as a result, we are taken seriously on the international arena. In the coming years, our most pressing goal will be to consolidate this positive image. In my opinion, the most obvious and simple way to do this is to join the EU."(Toomas Hendrik Ilves, Minister of Foreign Affairs of Estonia, 1999)

In Dec. 1997, Estonia, "was considered to be the best prepared of the Baltic states for [EU] membership" (Larrabee, 2003). All Baltic States followed the standard *acquis communitaire*

protocol. "Formal accession negotiations started with Estonia on 31 March 1998" and with Latvia and Lithuania two years later. Estonia's advantages at the beginning of the accession process (in 1997) in comparison to its Baltic neighbors included: "rapid, coherent, and continuous reform processes; high rate of integration with the EU; privatization practically completed; a solid legal basis; strong banking sector; and very high confidence of foreign investors" even amid a high trade deficit (Streimann, 2007). Negotiation of the 31 chapters of the *acquis* began with the, "so-called 'easy chapters'" leaving discussion of taxation and energy issues to 2001 under the Belgian EU Presidency (Elsuwege, 2008).

Formal accession occurred in 2004 alongside Latvia, Lithuania, and seven other Central and Eastern European states. The six-year process was not uninvolved or simple, but was not particularly politically charged. The European functionalist and integration ideals permitted EU enlargement to new member states, symbolizing a unification of Europe after decades of an east/west divide. Estonia met membership requirements and received sustained domestic support for accession; as a result, beyond technicalities and minor opposition to EU norms in tax regime and energy policies, Estonia's EU accession was part of a broader strategic policy of European unification.

3.2 Joining the NATO Alliance

Consideration of Estonia as a NATO member was also a question of global political strategy, but one that was, at first, a security calculation that was not positive for Estonia. With a new, post-Soviet Russia emerging and Estonia's recent history as part of that Union, skepticism of Russia's continued interest in the Baltic region remained when Estonia joined NATO's Partnership for Peace program in 1994. Estonia sought protection under NATO's collective security architecture. NATO membership would permit power sharing and the benefits of collective defense, against a potentially hostile Russia. Estonia's ambitions were clear:

> "NATO is the exemplar, the quintessential example" of liberal institutionalism, "of how egoistic states can overcome the most difficult of collective action problems—security. If each member state were seeking to obtain this goal unilaterally, it would bear enormous costs" (Pease, 2003).

But accepting the Baltic States, formerly part of the Soviet bloc, into NATO—an organization largely assembled to counter the USSR during the Cold War—would be a tenuous experiment in post-Cold War western relations with Russia. There was an ongoing potential for "Russian military intervention in the Baltic States" or "an explosion of the Kaliningrad situation" (Seidelmann, 2002). Swedish Prime Minister Carl Bildt wrote in *Foreign Affairs* that Baltic admittance to NATO would be a litmus test of the new Russia and her policies (Bildt, 1994). Bildt argued against the continued opposition to NATO enlargement in the late 1990s, which was, "consistent with Russian policy toward the Baltic Sea region."

Given the Russian consideration, NATO enlargement was not inevitable. Baltic "desire to rejoin the West, including its premier military alliance, was a powerful reinforcement in terms of validating their western credentials" (Asmus, 2002). NATO accession would signal the, "return [of CEE] to the European family" (Arbatova, 2004). Nevertheless, only the Nordic states were the sole supporters of Baltic entry in all rounds of enlargement, which "was a matter of moral sympathy as well as strategic interest"—a greater physical line of defenses between Northern Europe and Russia was in line with Nordic interest (Asmus, 2002). Estonia and other Baltics were not invited to start membership negotiations in the first post-1989 enlargement at the Madrid Summit in 1997 (Norkus, 1998). The Clinton Administration, "consciously used the carrot of potential NATO membership as a 'golden carrot'". The Administration encouraged states in CEE to institute political and economic reforms, while setting the international political groundwork for NATO expansion. U.S. Secretary of State Madeleine Albright said in 1997:

> "The new NATO can do for Europe's east what the old NATO did for Europe's west: vanquish old hatreds, promote integration, create a secure environment for prosperity, and deter violence in the region where two world wars and the cold war began" (Albright, 2007).

Most NATO members (including the five major Allies - US, Britain, Germany, France, Italy) considered the Baltic States, "unready and provocative for Russia." The Estonian government was an effective lobbyist in Washington, DC and joined Latvia and Lithuania in excellent presentation of, "their countries as the underdog in a David versus Goliath struggle

with Moscow" (Asmus, 2002). The Estonian government put forward an articulate and well-organized annual formal application to NATO's Membership Action Plan (MAP), conducting well-organized policy coordination and publication of annual updates on defensive capabilities and developments. Estonia's response to the MAP, known as the Estonian Annual National Programme, described the status of economic, cultural, and military systems. In 1999, the document assured NATO that Estonia was a, "modern information society" and in the 2001-2 edition, the ICT sector features prominently in the economic policy priorities section, describing the availability of public Internet access points throughout the country, the prevalence of Internet-connected computers in secondary schools, and the Prime Minister's Internet-based—or paperless—cabinet meetings.

The agreement to include the Baltic countries came in Prague in November 2002. "NATO Heads of State and Governments agreed to extend membership invitations to seven countries—Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia." Estonia had met the requirements for invitation, having increased the national defense budget "from 1.6 percent of the GDP in 2000 to 1.8 percent in 2001" to 2 percent in 2002 (Larrabee, 2003). But an invitation to join was "only the beginning…

> NATO need[ed] to ensure that the process of democratic consolidation in the Baltic states remain[ed] on track and there [wa]s no backsliding between Prague and final ratification. At the same time, NATO need[ed] to ensure that the Balts receive[d] a credible Article 5 commitment" (Larrabee, 2003).

With the threat of an active NATO-Russian conflict downgraded in the early 2000s, "the political payoff of restoring the three Baltic States to the West ultimately outweigh[ed] their limited military contribution" (Michta, 2006). "They have sought to enhance their value to the Alliance by developing specialized capabilities in certain areas." For Estonia it was a minesweeping unit and contribution to the NATO-led efforts in the War on Terror (Larrabee, 2003). Estonian policy planners had additional ideas for further contributions.

3.3 ICTs as Soft Power

Estonian technology development, by supporting the overall economic and political situation of the country, made Estonia an attractive new EU and NATO member. The Economist Intelligence Unit characterized Estonia's e-government motives partially to earn EU membership "points" (Economist Intelligence Unit, 2004). Estonian officials feel they were the "good student" in the class of new EU members (Estonian Foreign Policy Expert, 2010). If Estonia was the "good student" in the EU, e-government and ICT expertise was its "extra credit." Estonia's ICT capabilities were not the principle cause of Estonia's success in the accession processes, but were relevant in Estonia's ability to offer itself as an example of a modern, tech-driven nation that belonged to the western, liberal tradition.

Officials believe it is due to Estonia's sound Estonian monetary policy that the country will join the euro zone in 2011. Estonia is also lobbying to become the home of the new European Union Information Technology Agency and is one of two nations under consideration.[15] What began as ambitions for domestic ICT gains amounted to international opportunities for Estonia to contribute to topical policy debates on e-government and cybersecurity.

The security opportunities NATO presented its members are theoretical in that throughout the Cold War, Article IV or V, was never invoked.[16]

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[15] Estonian policymakers point out that new EU agencies are set to be built in the new EU member states, but that France hopes the agency will take shape within its borders. As of this writing, no agreement or decision on placement has been made.

[16] Article IV calls for member action should the territorial integrity of any member be threatened. Article V is the principle of collective security: "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them… will assist the Party or Parties so attacked by taking…action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area" (North Atlantic Treaty Organization. (1949, April 4). *The North Atlantic Treaty.* Retrieved from http://www.nato.int/cps/en/natolive/official_texts_17120.htm). For an Estonia fearful of neighboring Russia, these clauses of the North Atlantic Treaty are most important.

> "With the entry of the Baltic states into NATO, there is a danger that the United States will essentially regard the Baltic problem as 'fixed' and lose interest in the region. Thus, the Baltic states will need to find a new way—a new strategic agenda—to keep the United States engaged at a time when U.S. attention and resources are increasingly focused on issues outside of Europe…The Baltic states need to find ways to contribute to the broader security agenda" (Larrabee, 2003).

The Baltic governments made clear progress in military reform and political support for NATO membership in MAP, but could, "only do so much. They were judged successful enough to be admitted to NATO, but in order to become meaningful contributors, the Baltic States need to leverage their assets carefully" (Michta, 2006). Estonia chose cybersecurity.

The concept for a cybersecurity center in Estonia predated the, "conveniently-timed cyberwar" in April 2007. Estonian policymakers capitalized on what senior defense advisors have called the "dark side" of the country's dependence on digital services in 2008, obtained accreditation from NATO for a center for scholarship and analysis of cyber conflict outside of Tallinn, and began lobbying for sponsoring nation support amongst the NATO allies.

Estonia was an early battleground for the control of digital territory when its services were attacked in April 2007 amid the bronze soldier statue crisis. A group of protestors, mainly Russian-speaking youth, emerged as a bronze statue of a Soviet-era soldier was moved from the center of Tallinn to a resting place outside the city. While the live protests were erupting in the center of Tallinn, a denial-of-service attack was rendering Estonian banking and government-hosted sites unreachable. Estonian officials and policymakers responded, deploying a Computer Emergency Response Team (CERT) and making arrangements for alternate servers to host the affected websites. Culprits of the attacks remained unnamed, but suspicions abound that Russia, at minimum, provided the attackers with safe harbor. Estonia made international news, and local journalists called it the, "story of a lifetime" for the young nation (Journalist, 2010). In the aftermath of the 2007 attacks, Estonian policymakers identified the gaps that led to the intrusion and assembled a comprehensive domestic cybersecurity strategy, which serves as a model for other governments and international efforts on the topic.

Estonia's economic gains in technology aided the country's agency within the EU and NATO and allowed Estonia to take a leading role on issues of e-government and cybersecurity. Innovation-driven economic growth was not the principle force behind Estonia's accession into the European Union or NATO, but Estonian ICT success acts as an intervening variable or the basis for meaningful contribution to the country's transition and engagement in international organizations.

4. *Implications of the Estonian Case*

Through ICT development Estonia gained relevance, or a comparative advantage, in world affairs. This research provides one example of a small, emergent state, which through ICT specialization, capitalized on the opportunities of a liberal international system.

The role of the state is imperative in Estonia's ICT and political development story, but it is not the most important actor in future economic and political policies: now a member of the EU and NATO, Estonia relinquishes significant political decision making to EU and transatlantic bodies and a debate within Estonia ensues as to whether state support is necessary for continued innovative growth. Estonian success is based upon the right "recipe" of government involvement in economic policy, from privatization schemes to ICT support in education. The Estonian case suggests an individualized approach to ICT growth, liberal economic policies, and foreign policy, with government as policy planner and chief communicator, yet not responsible for all elements of policy implementation. In foreign affairs, Estonian diplomats are able to speak with authority on economic progress, e-government, and cybersecurity concerns. The story of "E-stonia" implies a modern and adaptable place. To the extent that foreign policy should promote foreign investment, the e-concept is a successful one. Within international political institutions, including the EU and NATO, Estonia's experience acts as the basis for ongoing work in e-government and cybersecurity, both in physical location for centers such as the EU IT Agency and the NATO

Center of Excellence, and in policy and norm development.

The Estonian case is relevant for developing nations with limited resources in their decisions regarding the value of ICT investments, specifically whether ICT investments can offer benefits beyond the pure economic. The Estonian example shows positive international political advantages of bridging the so-called "digital divide", beyond those in the economic sphere. Similar tests might be conducted in Korea or India, for example, to further determine the importance of Internet and ICT-based development in world politics and to isolate the regional variables at play in Estonia's development.

The Estonian story of growth in ICTs and international organizations features a strong Scandinavian influence. Firms from Finland and Sweden dominated Estonia's early transition financial services market and FDI inputs were highest and most sustained from Scandinavia. Estonia's place within a Nordic ICT cluster corresponds to its social orientation towards Scandinavia rather than Eastern Europe. Though replicating Finland's success in Nokia remains the goal of Estonian innovation policies, Estonians are looking beyond the Baltic and Northern regions. Estonian ICT blogger Toivo Tänavsuu writes, "the Estonian vision for 2030 should be to outperform Singapore. Our foreign policy should shift to foreign economic policy. So that when we provide civil or military support, we have to consider how this benefits our companies" (Tänavsuu, 2010). Regionalism was essential to Estonia's transitional growth and is the basis for ongoing participation in the global economy.

According to Nye, "under these new information age conditions of alternative sources of news, increasingly the soft sell may prove more effective than a hard sell" (Nye, 2004). ICT specialization has been Estonia's preferred soft power tool, and as international economics and politics incorporate the increasing importance of ICTs, Estonia maintains an advantage.

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