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THE ROLE OF THE STATE AND ENTREPRENEURS IN TRANSNATIONAL DEVELOPMENT OF INFORMATION AND TECHNOLOGY SECTOR IN KAZAKHSTAN

МЕМЛЕКЕТ ЖӘНЕ КӘСІПКЕРЛЕРДІҢ ҚАЗАҚСТАННЫҢ АҚПАРАТТЫҚ ТЕХНОЛОГИЯЛАР СЕКТОРЫНЫҢ ТРАНСНАЦИОНАЛДЫҚ ДАМУЫНА ЫҚПАЛЫ

ВОЗДЕЙСТВИЕ ГОСУДАРСТВА И ПРЕДПРИНИМАТЕЛЕЙ НА ТРАНЦНАЦИОНАЛЬНОЕ РАЗВИТИЕ РЫНКА ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ КАЗАХСТАНА

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Abstract

This thesis is a qualitative study aimed to explore the extent to which the state and entrepreneurs impact the transnational development of the IT sector in Kazakhstan. In this study, I surveyed 42 IT entrepreneurs and interviewed 14 of them to understand what factors influence the transnational growth of the IT industry. These entrepreneurs have cross-border ties, consisting of professional and social connections abroad, and they represent the most prominent and growing IT companies in the country.

The main argument of this thesis is that the transnational growth of IT sector in Kazakhstan depends both on the state and entrepreneurs. They represent two driving forces for economic transnationalism, top-down and bottom-up, which I argue are mutually dependent. Based on the evidence gathered, I discovered three major factors in which the role of the state is significant. First, the government support is crucial for local IT companies to win the competition in domestic markets against foreign businesses. I argue that the government fails to coordinate activities of national corporations and biggest institutions, which happen to be the largest demanders of IT services in the country, to give preferences to local suppliers. On the other hand, the state provides incentives for entrepreneurs to work on innovative ideas by relocating financial resources into projects at the early stages of their development. However, in overall, due to inefficient bureaucracy, the state fails to address the biggest problem for the transnational development – to foster collaboration between the public and private sector.

On the bottom-up side of the transnational growth, entrepreneurs with transnational social ties contribute to the process in their own way. I argue that those links help to exchange knowledge and innovation, financial capital and expertise, IT services with the rest of the world thereby helping the local IT industry to catch up and to be aware of global

trends. At the core of transnationalism lies the idea of the mutual benefit of countries that engage in cooperation achieved through the ‘exchange’ of ideas, goods, services, and capital. While the role of entrepreneurs with cross-border social ties is primarily on the import side, the state has a greater influence on exporting resources abroad.

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This study was a great experience for me. I hope that the skills and knowledge I learned will help me in the future career and life. I want to thank all my mentors and supporters who were along with me during the journey.

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I also learned that the academic work could be very stressful at times. Despite all difficulties, I could endure related hardships. In this regard, I want to thank my mother and my friend Ainur Baimuratova, whose support I appreciate the most.

Chapter 1 Transnationalism and the Development of the IT Sector

The principal aim of this chapter is to introduce the reader to the context of the research. In recent decades, due to the evolution of communication and transportation technologies, the pace of globalization became rapid. Certainly, that fact has political and economic implications for nation-states like Kazakhstan. For a long-time, Kazakhstan has been a country with an economy highly reliant on natural resources. In the face of new challenges and opportunities posed by globalization, the state has to rediscover its role in the continuously evolving economic order of the world. The state's long-term strategy for economic development is a public affair, and it is well-documented in the ambitious plan called "Kazakhstan – 2050", where the government sets the goal to enter the list of 30 most economically competitive countries in the world by 2050. One of the cornerstones of this plan is the idea to diversify the local economy so that new emerging sectors would be able to export goods and services abroad. In the eyes of the government, the IT industry represents one of the main channels through which such economy diversification efforts should succeed.

All above said discussions in this paper entail two broad themes: transnationalism and roles of public and private sectors in economic growth. One of the core ideas in transnationalism is about the sustainable flow of material and non-material goods across borders. Nowadays, the state's ambitions to become one of the 30 most competitive economies is hard to imagine without liberalizing domestic markets and opening economic borders to the rest of the world. Therefore, we can reasonably assume the state aims to boost the transnational growth of the local industries (ability to export), including the IT sector. This kind of developmental strategy resembles the idea of economic transnationalism, but the one led by a nation-state.

The literature suggests there are two main driving forces of economic transnationalism: top-down (big corporations and companies) and bottom-up (small and medium-sized entrepreneurs). The research question of this thesis aims to understand the extent to which these two forces influence the transnational growth of the IT industry Kazakhstan. Indeed, economic transnationalism might be expressed differently depending on many regional factors. In some countries, bottom-up forces have a larger impact if healthy entrepreneurial culture is present, and many small firms that export goods and services abroad express transnationalism. In other countries, large multinational corporations might be the primary driver of the transnational development. In the case of Kazakhstan, the state is a strong actor as it controls biggest assets and largest institutions, and it is interesting to look at its influence on the transnational development of the local IT industry. Does it depend on the bottom-up forces in the face of entrepreneurs or it can launch own IT companies that would have exporting potential? Based on the evidence gathered, I argue that despite a state being an active economic actor, the transnational development of the IT sector is a complex phenomenon, and two factors are mutually dependent.

The next short section of the chapter defines key terms with which a reader might be unfamiliar. Further, I present the review of the literature. In particular, it has sub-sections related to *transnationalism, the role of the state in transnational growth,* and *entrepreneurship and migration*. Based on the insights outlined in the literature review, I proceed to discuss the research problem and the main argument in the following section. Then, the next section briefly describes significance and purpose of the study. At the end of the chapter, I lay out a roadmap for the rest of the thesis.

Definition of Key Terms

Entrepreneurs are those persons (business owners) who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.

Return migration is the voluntary or involuntary return of migrants to their place of origin.

Transnational ties represent cross-border relationships sustained by individuals, which usually have professional or social character.

Transnationalism is a set of supported transnational, long-distance connections. Apart from migrant populations, such cross-border ties are found within global corporations, social movements, criminal and terrorist groups, and media and communication networks (Vertovec 2004).

Cloud computing is a type of Internet-based computing that provides shared computer processing resources and data to computers and other devices on demand. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources (e.g., computer networks, servers, storage, applications, and services).

Outsourcing involves the contracting out of a business process (e.g. payroll processing, claims to process) and operational, and non-core functions (e.g. manufacturing, facility management, call center support) to another party (see also business process outsourcing).

Transnational development is the process in which economy or particular industry develops to produce and to export goods and services to foreign markets.

Literature Review

The main aim of this section is to introduce the literature that was the background for the study. It consists of three parts: *transnationalism, the role of the state in transnational development and globalization*, and *entrepreneurship and migration*. Transnationalism, which became a popular area of study in last decades, is a broad concept that has been studied by scholars from different angles. Due to the rapid pace of globalization and its influence on economic relations worldwide, ideas stemming from transnationalism influenced studies from the field of the international political economy too. Therefore, further, I review the literature that relates that has explored the role of the state in transnational development and globalization. An increased human mobility is another bold manifestation of globalization and transnationalism. Thus, in the last part, studies related to migrant entrepreneurs, mainly the US immigrants, will be discussed: what types of ventures do those immigrants create and how they relate to their countries of origin.

From each section of the literature, I took several major takeaways to construct the research question and the main argument. From the transnationalism literature, I borrow the binary categorization that relates to forces that drive economic transnationalism, bottom-up and top-down (Portes et al. 1999). Further, from the second part of literature review, which refers to the role of state intervention in the processes of economic transformations, the argument that stresses the importance of coordination between public and private sectors for the proper implementation of needed industrial policies in developing countries (Rodrik 2007). From the last part, I emphasize the common agreement among scholars that migrant entrepreneurs willingly use their transnational ties to advance their business interests.

Transnationalism

Scholars who study transnationalism use the concept in four general senses: cross-border activity, networks, de-territorialized world, and transnational values. The first refers to certain activities of immigrants such as the sending of remittances, correspondence, gifts, ownership of property in the country of origin, political activity, and various forms of professional and social networking (Basch et al. 1994). Second, Vertovec (1999) defines transnationalism as "multiple ties and interactions linking people and institutions across borders of nation states." In this view, transnationalism is used to describe a set of relations between immigrants and their countries of origin rather than merely transnational activities. Glick Schiller et al. (1992) claim that through cross-border activities immigrants become transmigrants who can "maintain, build, and reinforce multiple linkages with their countries of origin." The third use of transnationalism is more radical and refers to a de-territorialized world, where the power of nation-state to control movement of population, capital, and talents is limited (Kastaryano 2000; Ong 1999; Ong and Nonini 1997). The fourth use of the term relates to the discussion of transnational subjectivity. It refers to many people nowadays who have dual or multiple national loyalties, and often they claim that aim to advance global views and perspectives (Hannerz 1992). In response to the criticisms about transnationalism not being a new phenomenon, scholars have developed certain criteria for transnationalism: new types of movement or linkages (e.g. communication through the internet), a large scale of activity, continuity and high frequency that makes transnational activity routine and normative (Portes, et al. 1999). Portes, et al. (1999) also claim that without two conditions transnationalism couldn't emerge: advancements in communication and transport, and the presence of cross-border networks through which ordinary people can move and exchange goods and information.

Scholars also developed certain categories of transnationalism. According to Portes et al. (1999), there three main forms of transnationalism: economic, political, and sociocultural. Apart from these three categories, they suggested also a binary division: transnationalism from below and above. The first relates to routine behaviors of ordinary persons, while the second is about strategies and actions of influential organizations and companies. This binary division became very useful, because, for example, it has become clear that economic transnationalism might include both the activity of transnational corporations and cross-border actions of small and medium sized businesses. There is another three-way division of transnationalism: relational, legal, and experiential; although this categorization's keen interest is in matters of identity and citizenship (Ip et al. 1997). According to Vertovec, there are six main themes for transnational research: cross-border and global networks (diasporas and networks), consciousness and perspectives (world citizens), global culture and media, political transnationalism, economic interactions, and transnational social fields. The latter's particular interest is in discovering new localities and nodes within such areas, and it has been recently picked up by Glick Schiller (1992), Faist (1999), and Pries (2001). They call individuals who create such social fields 'transmigrants':

> Transmigrants … move back and forth between different places and develop their social space and everyday life, their work trajectories and biographical projects in this new and emerging configuration of social practices, symbols, and artifacts that span different places (Pries 2001).

From this part of the literature, two main points are of particular interest for this paper. As the central research question relates to the transnational development of the IT industry, which refers to economic transnationalism, I find it useful to employ the "top-down and bottom-up forces driving economic transnationalism" categorization suggested by Portes et al. (1999). The main subject of this study is entrepreneurs with transnational ties, to whom

I also refer as transmigrants throughout the paper because their activities and views often fit the definition cited above.

The Roles of State in Transnational Development and Globalization

In recent decades, the rapid pace of globalization contributed to the significant changes in the structure of the international economy. Scholars often associate the extreme mobility of capital and the great increase in global trade with advances in technology and diffusion of economic trends/policies across states. In developed countries, many politicians and business elites firmly believe that their economies are embedded in a wider global financial network. One of the key roles of the state relates to design policies that would define the extent to which the country fits this new globalized economic order of the world. The number of countries which indicated their willingness to open their economic borders to global markets had been steadily increasing in past decades. The movement of capital and goods across borders became easy and overall quality of life in the world increased substantially. Such liberalization of global markets provided significant returns for developing countries. Economists estimate many billions of dollars added to the GDP growth among countries that opened their borders to world market forces (Dobson and Hufbauer 2001; Soto 2000). There are also scholars who study negative aspects of economic globalization related to human security and instability (Kaplinsky 2001; Prasad et al. 2003, 2007).

But, some factors, which define whether a country would engage or resist to economic globalization are likely to remain constant in certain regions and domains. These factors are internal for each national polity; which include: the preferences of domestic actors (Frieden 1991; Hiscox 2002; Rogowski 1989), rent-seeking behaviors among developing governments (Alesina et al 1994; Chanda 2005; Leblang 1997), the partisan roots of financial and economic policies (Epstein and Schor 1992; Simmons 1994). However, some scholars

explore international sources that drive economic globalization that root in global politics and institutions. One of the prominent arguments related to global *policy diffusion*, which was suggested by Simmons and Elkins (2004). The authors argue that economic policies of a nation state are influenced not only by internal variables but by global factors too, mostly by international competition and socio-cultural relations with peer countries. The works of other scholars from the field of international political economy focus on the role of multinational corporations (Evans 1979; Milner 1988), foreign aid to developing countries (Becker 1987; Kaufman and Stallings 1989), and the politics of international banking (Cohen 1987; Lipson 1985).

Ralph Miliband was some of the early Marxist economists to have initiated the discussion about the impact of the state in growth (development). Miliband (1969) looked at the role that a state plays in development through the Foreign Direct Investment (FDI). This idea is comparable to Ralph Miliband, Hermes, and Lensink (2003), who argued that FDI is an effective international system and a major catalyst to development. According to their work, the state has a role to come up with a transparent, broad, and effective enabling policy environment for investment. On the contrary, Stopford (1994) contended that the government needs to organize both the human recourses and institutions that can absorb the foreign direct investment.

Subsequent works on the role of the state expanded with Peters and Röß (2010) and Smallbone and Welter (2011), who focused on the relationship between the state and business. Peters and Röß (2010) first look at the trends in public policies which promote corporate responsibility (CR). Besides, they analyzed how the government can get involved in the private sector to enhance development. On the other hand, Buckland et al. (2006) argued that the government can promote development by creating a shared understanding of corporate responsibility among organizations and the broader public.

According to Aberbach et al. (2015), it is the responsibility of the state to come up with reforms that can be undertaken to promote development. This study aimed to look at the transformations that can help improve the capacity of the public sector in order to implement economic policies. Besides, Morse (2011) in another study related with the same conclusion that a state promotes development by providing resources, which the private individuals cannot manage to provide. Examples include city streets, security, and infrastructure. Bonanno (2004) also extended the same work, to investigate on how a state can impact transnational growth in a country. He found out that, through the taxation system, the state is able to raise resources that can help improve a country's infrastructure. Besides, in a market economy, the state can help minimize the cost and its activities that are imposed on the society (Hiratuka, 2008).

Hughes and Stewart (2009) critically analyzed how a state impacts development in regards to its role in the employment relations. The authors came up with the supposition that employment relations systems are deeply embedded in national rather than global institutions. Their findings were similar to the ideas of Hansen (2005), who examined how the laws passed and implemented by a state affect growth. According to Hughes and Stewart (2009), these laws impact the way managers, workers, and unions interact with each other. Such laws foster the employment relations, which in turn influence their productivity, impacting the development.

However, Tanzi (2000) took a Marxism structural position and studied the relationship between the state and the quality of the public sector. From his study, he emphasized the need for the government to eliminate corruption, which is a major hindrance for development. Therefore, it should not be mentioned among the state officials. Lozano (2012) had the similar view that it should facilitate maximum utilization of its resources in

the development of the public sector. Therefore, the ability of the government to fight corruption promotes growth in a country.

Sen, Stern, and Stiglitz (1990), aimed to analyze the various countries where the state has played a significant role in the development. They include Hong Kong, the Republic of Korea, Kuwait, Singapore, and the United Arab Emirates. Sen et al. (1990) highlighted that one common characteristic of the above-mentioned states is that all of them have had very strong policy interventions, particularly in health and infant care.

In this study, I shall assume that Kazakhstan doesn't resist to economic globalization as the government has explicitly stated its long-term ambitions for growth in the "Kazakhstan-2050." Scholars that study the effects of globalization on economies of developing countries pay particular attention to 'industrial policies' (Rodrik 2008; Imbs and Wacziarg 2003; Klinger and Lederman 2006). Once a developing state opens its economic borders and enters the global arena, despite gaining overall benefits, it must adapt to a new economic order. Each economy has own strengths and weaknesses as well as its own set of challenges and opportunities for the near future and therefore must discover its developmental strategy. Based on that knowledge developing states often engage in so-called industrial policies, "an attempt to 'distort' market forces: they reinforce or counteract the allocative effects that the existing markets would otherwise produce" (Rodrik 2008). Rodrik (2008) also argues that the strategic collaboration between the private sector and the government is crucial for success since tight international competition forces countries to implement policies that go beyond simple measures such as maintaining macroeconomic stability, ensuring property rights, and contract enforcement. Contrary to the logic of comparative advantage according to which states should specialize at fewer sectors of the economy, economists proved that the richest countries in the world also have the most diversified economies (Imbs and Wacziarg 2003; Klinger and Lederman 2006). Rodrik

(2008) argues that diversification cannot be a natural process, and the state intervention is needed for it to take place. There are two primary reasons: *information* (market cannot reveal itself the returns from investments in nontraditional activities) and *coordination* (between the top and down) externalities. The state has to assist to so-called 'self-discovery' of entrepreneurs when they experiment with new, non-traditional (for local economy) product lines to discover which of them would be profitable in the global economy. Usually, state alleviates such information externalities in the market by providing entrepreneurs incentives (subsidies, venture capital, etc.) to engage in new forms of business. On the other hand, when the scale of projects gets bigger coordination problems start to emerge, and the state has a responsibility to align institutions' efforts to achieve a common goal of top and bottom – diversified economy with sufficient exporting capabilities.

From this part of the literature, I took two major ideas. According to the first argument suggested by Rodrik (2008), in developing states, industrial policies should be implemented in strict collaboration with private sector. In some sense, this point converges with the dichotomy (top-down and bottom-up) suggested in the previous section on economic transnationalism. But, Portes et al. (1999) discuss economic transnationalism in general and don't explicitly address phenomenon regarding developing states or economic transnationalism led by a nation-state. Also, while constructing the main argument of the paper, I also refer to information and coordination externalities to the market suggested by Rodrik (2008).

Migration and Entrepreneurship

Many scholars have studied immigrant firms operating in the US, and they agree on that those entrepreneurs usually sustain strong ties with their countries of origin (Guarnizo, Sanchez, and Roach 1999; Portes, Haller, and Guarnizo 2002; Itzigsohn 2009; Zhou and Lee

2012). Those ties impact the performance of their businesses in the US and contribute to the development of business in the home country as well (Gans 1992; Landolt et al. 1999).

There are several types of enterprises created by immigrant entrepreneurs depending on what they do and scale of operation. Smaller ones, often labeled as a *circuit, cultural* or *ethnic enterprises,* are businesses in which entrepreneurs usually travel back and forth to make a profit on the demand for cultural and small products in diasporic communities (Portes and Yui 2013). Typical examples of these businesses are food stores, restaurants, selling newspapers and other cultural products. The scale of these activities often is smaller compared to the *return migrant enterprises* and *transnational businesses*. In the first case, migrants return to their countries of origin with capital, technical know-hows, and market insights, and form new ventures there that haven't existed there (Landolt et 1999). Transnational companies, in turn, are enterprises that are established in the country of origin but take advantage of the presence of large expatriate communities abroad (Minbayeva and Michailova 2004).

In general, we can divide transnational firms and migrant entrepreneurs into two types: first, companies initiated by migrants with limited education and resources, and second, those enterprises started by highly skilled migrants. Entrepreneurs from Latin America studied by Landolt et al. (1999), Roberts et al. (1999), and Itzigsohn (2009) belong to the first type. On the other hand, in the second category, there are migrants from countries like India, China, and Israel, who founded businesses related to information technologies, financial services, and large scale trading houses (Gold 1997; Hart and Acs 2011; Agarwala 2012). One of the main differences between two is their size and scale of operation. Usually, firms founded by highly skilled immigrants operate in mainstream economy and are not bound by ethnic enclaves.

Regardless of business type, entrepreneurs and their ventures largely depend on transnational social networks (Zhou 2004). In some instances, through appealing to shared identities, migrants can convince partners to take risk-taking actions across borders. For example, suppose there is a Chinese programmer who works for a big company in the US. On one occasion, he sees a significant opportunity for business in his home country, and he can launch his enterprise faster using his social capital (e.g. friends and relatives in China). In this way, migrant entrepreneurs can supplement the lack of money or other scarce resources with social capital. Moreover, the growth of business reinforces the strength of social ties and intensity of migration itself (Massey 1987; Guarnizo et al. 1999; Tilly 1990). Migrant entrepreneurs can also benefit from social capital indirectly. Through using transnational ties, some can get access to various forms of financial capital, labor force, and goods. Those relationships are critical to success and survival of migrant entrepreneurs as shows the empirical literature on businesses founded by Chinese, Korean, Indian immigrants in the US (Zhou et al. 2008; Agarwala 2012; Zhou and Lee 2012).

The main takeaway from the literature on migration and entrepreneurship is about the strength of transnational ties sustained by migrants. Both immigrant entrepreneurs and those who return to their country of origin usually benefit from their cross-border social relationships. Apart from the value that entrepreneurs create directly, they often possess individual skills and competencies, especially in IT entrepreneurship

Research Problem and the Argument

According to the literature review, scholars used the concept of transnationalism in different contexts, as well as they managed to categorize it in various ways depending on their research interests. The primary interest of this paper, however, is in the development of

IT sector in Kazakhstan. It worth noting that the choice of the IT industry was largely determined by the availability of contacts of IT entrepreneurs in Kazakhstan whom I recruited for interviews and surveys. This theme falls under the 'economic interactions' category of transnationalism, but, in addition to that, I would also emphasize the type of transnational social fields. Apart from economic factors such as taxes, state contracts, finances, I often refer to IT entrepreneurs as transmigrants outlined in the literature review. They create and develop social spaces and fields online, and actively exchange knowledge, insights, and even financial capital. Those transmigrants can be considered as a bottom-up force for the development of IT sector in Kazakhstan. In Kazakhstan, we can fairly assume that the government represents the top as it directly controls most of the assets in the country and largest institutions.

From the next section of literature review, it became evident that there are different factors both within a nation-state and from the outside world that define whether a country will resist or engage in economic globalization. For developing states like Kazakhstan, studies indicate that it is better to open its economic borders since it yields significant financial returns (Dobson and Hufbauer 2001; Soto 2000). But, once a state opens its economic borders it enters a global competition. Therefore it must discover its development strategy to fit properly into the world markets. A common suggestion would be to identify a comparative advantage and to concentrate on fewer sectors of the economy. Nevertheless, studies are showing that the more diversified economies, with wide ranges of goods and services being produced and exported, usually are associated with sustainable growth and high income per capita (Imbs and Wacziarg 2003; Klinger and Lederman 2006). The main takeaway from the literature is that the developing state should coordinate its efforts with the private sector to alleviate two major problems rising after market liberalization: information and coordination externalities (Rodrik 2008). Moreover, the author argues that in need of

additional effort required on behalf of the government that goes beyond simple macroeconomic policies and provide people in business and entrepreneurs incentives to engage in non-traditional activities.

Finally, the literature on migration and entrepreneurship gives us an important insight – migrant entrepreneurs usually tend to sustain strong social ties with their countries of origin. Immigrants in the US advance their business interests using different strategies along the way improving the economic situation in their country of origin. Moreover, in most cases, return migration takes place, and the sending country is even better off. In this sense, Kazakhstan is not an exception because it has its emigrant entrepreneurs sustaining social ties with the country, some of whom have plans to return. In this regard, the nature of social ties possessed by these individuals attracts interest.

Considering the preceding discussion, the research question for this thesis takes the following form:

What are the roles of the state and entrepreneurs with cross-border ties in the transnational growth of IT sector in Kazakhstan?

The literature on economic transnationalism suggests two forces drive transnational development, top-down and bottom-up. Therefore, in this study, I consider the government and entrepreneurs with cross-border ties, as two independent variables impacting the growth of the IT sector. First, Kazakhstan resembles Soviet-type economy, where most of the assets and largest institutions are under the control of the state. Therefore, the government in Kazakhstan can be considered as a major actor, a top-down force, which can potentially contribute to the growth of local IT sector globally. Its main aim is to diversify an economy, which has been heavily dependent on natural resources for a long time. The steadily growing IT industry is a potential opportunity for a developing country to reserve a niche in the future

global economy. As the sector evolves rapidly, new sub areas of IT emerge associated with the development of new technologies and the rise in demand for new goods and services. For instance, recently, the entertainment industry, which is associated mainly with games on different platforms (PC, mobile phone, and tablets), has shown a global rise in demand. In such sector, where humanly created content is at the center, initial conditions do not play too much role in the transnational development. On the other hand, breakthroughs in relatively new technologies such virtual reality or machine learning can happen in any part of the world. Therefore, small and medium sized entrepreneurs can be reasonably considered as a second, a bottom-up force, for the transnational development of the local IT sector. Usually, they aim to create businesses that are transnational, because the IT industry is free of certain national boundaries, and products and services there are for large audiences. Indeed, in recent decades the information technology sector can be fairly associated with the most of the companies which have gone transnational. Large corporations such as Facebook and Google state that one of their core missions is to make the world more connected. The same values are held by most of the entrepreneurs I've interviewed; they seem to be subjected to the so-called transnational subjectivity. Also, cross-border development entails access to foreign markets and opportunities to minimize the costs of production using outsourcing.

As we see, I use the concept of transnationalism for two purposes in this thesis. The first relates to the dependent variable, the local IT sector, where the transnational development describes its growth (economic transnationalism) (Portes et al. 1999). Then, I use entrepreneurs with cross-border ties (bottom-up) as one of the independent variables along with the impact of the state (top-down). Those entrepreneurs represent the primary source of evidence, and they fit well into the definition of transmigrants who travel back and forth and create cross-border social fields which facilitate the exchange of knowledge, innovation, and expertise.

All above said, the main argument of this paper is that transnational development of IT sector in Kazakhstan happens through both channels, top-down (the state) and bottom-up (entrepreneurs), and two efforts from two levels depend on each other. Since the transnational growth of the IT sector is a complex phenomenon and players on the global market are strong, the state support is crucial for entrepreneurs from developing countries like Kazakhstan. Particularly, the state has a capacity to address information and coordination problems rising when new market opportunities emerge (Rodrik 2008). The major information problem relates to a so-called process of 'self-discovery' of the private sector (Hausmann and Rodrik 2003). To discover new potential niches in global economic supply chains, entrepreneurs should experiment with new product lines to determine which of them are profitable in local economic conditions. It might also include borrowing technologies and innovation from abroad and adapting it locally if costs are optimal. But, it happens that entrepreneurs simply don't have enough information to know exactly which niche will be profitable. Therefore, the state, especially if it is a developing one, has a responsibility to sponsor and to promote such 'self-discovery' of entrepreneurs and to take associated financial risks. Due to the complexity of global markets and foreign competition, there are also coordination externalities for the local economic industry to be competitive. The government shows its willingness to help and to support local entrepreneurs, but its actual policies and institutions are weakened by its bureaucratic slowness, lack of transparency, and overall inefficiency. All these deficiencies within the state bureaucracy make coordination between public and private sector inefficient. Apart from coordination between the top (the state) and bottom (entrepreneurs) (Rodrik 2008), I also argue that there is the coordination problem within the top. Evidence shows that the government cannot adequately give preferential status in acquiring state contracts to local suppliers.

On the bottom-up side of the transnational development of the IT industry in Kazakhstan, the focus is on entrepreneurs' cross-border relations. Based on the evidence gathered, I argue that there are three main channels through which cross-border relations facilitate the transnational development of the local IT industry: *knowledge and innovation*, *outsourcing*, and *access to finance*. The first is crucial for creating new goods and services, and consequently for the creation and filling new business niches. The second, outsourcing, which means delegation of certain tasks within an organization to third parties because they can do it more efficiently and cheaper; is an important determinant of the extent to which local IT companies both large and small are competent in optimizing their business processes. The global competition forces them to be more resource efficient, and if local businesses aim to grow transnationally, it is an imperative for them to do outsourcing in the most efficient manner possible. Usually, well-functioning financial systems provide money to the most productive units and allocate associated risks in the best possible way so that it boosts development and growth (to finance 'self-discovery'). I argue that entrepreneurs' transnational ties serve as an alternative channel for pulling capital to the development of the local IT sector. I also argue that in each of these domains the flow happens in both directions simultaneously: from Kazakhstan to abroad and from overseas to Kazakhstan. At the core of transnationalism lies the idea of the mutual benefit of countries that engage in cooperation achieved through the 'exchange' of ideas, goods, services, and capital. While the role of entrepreneurs with cross-border social ties is primarily on the import side, the state has a greater influence on exporting resources abroad.

Significance and Purpose of the Study

The importance of this research is twofold, practical and theoretical. Kazakhstan's economy depends heavily on prices of natural resources. Recent drops in oil prices since

2014 have shown that reliance on resources is neither safe nor sustainable. The government's agenda for economic diversification can no longer exist on paper only. Initiatives taken by the government show that IT industry became one of the top priorities. For instance, Prime Minister, Bakytzhan Sagintayev recently had two consecutive meetings with representatives of the IT sector and visited San Francisco to negotiate opening a representative office Kazakhstani institutions aimed to assist IT start-ups and projects in Silicon Valley (TechGarden 2016). Therefore, the results of this study will be beneficial for policy makers. The tasks accomplished in this research, cannot be easily replicated by the government itself, due to its bureaucratic slowness and detachment from realms of IT industry. The evidence gathered, and analysis presented in this paper should help the government to design and to improve existing policies related to information technology sector and innovations in general. On the other hand, IT entrepreneurs, who participated in the study, might also be interested in the findings of this study. Several respondents already asked to send them a copy of the final draft, because they acknowledge that despite their insider position, they cannot always see the bigger picture of what is happening in the market. Being aware of major trends and themes in the IT industry of Kazakhstan should positively affect their performance too.

Apart from the practical significance, this study has substantial implications for the academic community too. Findings of the study contribute to the literature on economic transnationalism. According to Portes, et al. (1999), top-down forces of economic transnationalism usually are represented by large multinational corporations and organizations and rarely by the state. It can be applied for the IT sector too because companies such as Microsoft, Google, and Apple became transnational long ago and had cross-border operations and related influence. However, the role of the state, the economic impact of which might be enormous in some countries, has rarely been mentioned in the literature. Also, this study takes advantage of the analyzing how recent technological

advances such as cloud computing facilitate transnationalism, particularly their effects on the development of transnational social fields.

The rest of the thesis continues as follow. In Chapter 2, I present the research design used for this study. There, I discuss problems and insights which emerged while gathering and analyzing the evidence. In chapter 3, I present the overview of the IT sector in Kazakhstan. It consists of sections that discuss recent tendencies, the policies of the government, export and import analysis, and expenditures on the IT industry. Further, Chapter 4 presents factors related to the first independent variable, top-down force, the state. I divided into three sections, *state contracts, financing innovation and 'self-discovery,'* and *bureaucracy*, each describing the role of the government in the transnational development of the IT sector in suggested domains. I argue that inability of the government to coordinate activities of institutions it controls (such as banks, ministries, and national companies) represents the coordination problem within the top. Local businesses should get preferential access to state contracts to get valuable capital and to start exporting goods and services abroad. Further, I discuss the role of the state in supporting and financing less mature IT companies (mainly start-ups) and projects, often referred to innovative projects. Entrepreneurs in this category are necessary for diversification of economy since they explore new market opportunities and test new product lines, thereby engaging in the so-called process of 'self-discovery' of the private sector. The market doesn't reveal to these entrepreneurs which of their ventures will succeed, what is described by Rodrik (2008) as an information externality. Usually, the state's role is to relocate financial and administrative resources it possesses to alleviate such kind of problems. But, in the next section, I argue that bureaucratic deficiencies of the state agencies, namely slowness and lack of transparency, make that and the other efforts to promote the growth of the IT sector less efficient. It represents typical coordination problem between the top-down and bottom-up forces, as

bureaucracy represent primary channel through which two sides collaborate and provide feedback to each other's activities. Throughout the paper, I repeatedly refer to the meetings between the prime-minister Bakytzhan Sagyntayev and prominent IT entrepreneurs in the country (other ministers had a similar meeting as well). From my perspective, there are two bold implications from the fact that the top governmental executives in the country meet-up with entrepreneurs directly: the IT sector is one of the top priorities on development roadmap, and there are no other reliable channels for collaboration. Ideally, an efficient bureaucracy provides reliable means for collaboration between private and public sectors if their interests are aligned. Then, in Chapter 5, I discuss the second independent variable, bottom-up forces, the effects of entrepreneurs with cross-border ties to the transnational development of the IT industry in Kazakhstan. It also has three sections labeled as the *knowledge and innovation, outsourcing,* and *access to finance.* I argue that in each of these domains the flow of goods and services naturally happens in both directions: from abroad to Kazakhstan and back from it. At the core of transnationalism lies the idea of the mutual benefit of countries that engage in cooperation achieved through the 'exchange' of ideas, goods, services, and capital. While entrepreneurs contribute more to the import side of the equation, the role of the state is more significant at giving back to the global community. Chapter 6 is a concluding part in which I summarize the main argument along with the key findings of the study.

Chapter 2 IT Entrepreneurs in Kazakhstan

This chapter's main aim is to introduce the research design of the study as well as to discuss major problems and insights I've encountered while gathering the evidence. In the first section, I describe the methods for data collection and associated ethical considerations. The next section discusses population sample, where I present arguments to justify the use of purposeful sampling. The last part presents data analysis strategy and coding of the evidence used in this research.

Methods

Online surveys and in-person interviews were the two primary methods of data collection. Surveys consisted of 15 questions taking approximately in 10 minutes. At the end of each survey, there was an invitation to participate in an in-depth interview. Also, there was a field at the end where a respondent could enter the contact information of another potential participant.

One of the primary objectives of the online surveys was to measure general characteristics of the sample such as age, geographical residence, and education level. Also, polls gave the date about the sizes of the entrepreneurs' businesses. Most of the questions in the online survey were closed-ended questions. Specific questions asked respondents to indicate rough estimates of their revenues and the number of employees. I used the Google Forms as a software tool to design survey questions and to structure the answers. The program gave the online link for sending it to potential respondents. The main disadvantage of the evidence from surveys was that the extent to which it would help to answer research question was limited. Though there were several open-ended questions in the online survey, respondents either skipped them or gave very shallow answers.

On the other hand, the in-person interviews were a more efficient tool for gathering in-depth evidence to answer the research question. Follow-up questions asked during the interviews provided a better understanding of the respondents' answers. Interviews were a more time-consuming method for data collection than online surveys. Nevertheless, the evidence from interviews was comprehensive and included valuable insights.

The evidence from secondary data sources was mainly used to close the emerging gaps after interviews. For instance, during an interview, respondents could mention some state programs or private initiatives about which I had very little or no information. In such cases, necessary information was retrieved from the internet. There are many public reports and news articles that discuss various initiatives and programs in which I was interested.

There are always ethical considerations with studies that involve interaction with human subjects. In our case, respondents are entrepreneurs, who work in the business sphere primarily. Their main concerns should be related to their firms and ventures. Respondents may have different reasons for not willing to share information about their activities. For instance, stories might hurt their reputation or indirectly affect their businesses. I fully understand participants' concerns and potential risks, so I gave all respondents informed consent form to sign before an interview. This form was approved by IREC (Institutional Research Ethics Committee) of Nazarbayev University, and its main aim is to inform respondents' that the information they share will stay confidential and pseudonyms will replace their names. Original transcript for informed consent form can be found in the Appendices section.

Population and Setting

I used the internet as a primary search tool to recruit participants for this research. Two popular social networks, Facebook and LinkedIn, were used both to recruit respondents and to send a link to the electronic survey. In-depth interviews were conducted both via Skype and in person when possible.

In this study, we are interested in how transnational ties of entrepreneurs impact the growth of Kazakhstan's IT sector. The sampling strategy used in this study is purposive sampling, which reaches the goal of recruiting entrepreneurs with transnational ties (Patton 2015). Perhaps, the most common form of purposive sampling strategy is snowball sampling. "By asking several people who else to talk with, the snowball gets bigger and bigger as you accumulate new information-rich cases" (Patton 2015, p. 298). In our case, entrepreneurs tend to know other entrepreneurs very well, and they willingly gave references to other potential respondents. The first initial contacts based on Facebook/LinkedIn were selected through analyzing the information available online on the presence of transnational experience. Usually, potential respondent's transnational experiences became evident through examining their biographies, previous job descriptions, photos and blog posts. Usually, respondents either worked or studied abroad and in some cases worked for IT companies that operate globally. During interviews, respondents said they sustain good relationships with their former colleagues or classmates.

The definition of entrepreneurs might be vague at times, and many people can label themselves as entrepreneurs. In our study, we are interested in most successful entrepreneurs with established ventures and businesses. Therefore, there was a problem of filtering out right kind of entrepreneurs (real and established entrepreneurs from a myriad of 'aspiring,' 'weak' or 'cheap-talk' entrepreneurs). Technically, young and inexperienced 'startup guys' are also entrepreneurs, but we were interested in those who were mature enough and had already

generated considerable value for the society. Some of the selected entrepreneurs are already expanding their operations abroad, while others have such plans soon. Typical destinations for expansion include neighboring countries in Central Asia and Russia. Some respondents have started ventures in distant countries like US, Malaysia, and Indonesia. I have also looked at how frequently entrepreneurs and their ventures were mentioned in the media and social networks. Usually, the most successful entrepreneurs have a large digital footprint due to the needs of their businesses such as marketing and public relations, customer engagement, online community development.

Overall, 42 entrepreneurs took part in the survey 14 of whom agreed to participate in an in-depth interview. The response rate to took part in the study was relatively high. I send invitations to 126 entrepreneurs who have been qualified as successful entrepreneurs with transnational relations. I assume that a small-n is no problem because the population itself is likely to be small. In many occasions, participants recommended people with whom I had already contacted.

As mentioned before, particular effort was made to filter out and to recruit the most successful IT entrepreneurs in Kazakhstan. Many of them tend to know each other very well, who indicate that they occasionally discuss common challenges and opportunities related to the development of IT industry in Kazakhstan. All respondents have been abroad, 30% for primarily business purposes, 20% for education, 30% for work, and 20% for travel. On average, they spent 2.4 years abroad. The respondents' age ranges from 24 to 39 with the mean of 27. 70% of respondents reside in Almaty, 25% live in Astana, and 5% in other cities. 90% of respondents are male, and 10% are female. Most of these respondents run active and well-known businesses in Kazakhstan's IT sector. Some of them represented governmental and semi-governmental institutions aimed to assist small businesses and start-ups in the IT

industry. On average, interviewees had 7-8 years of business or management experience in IT sector. They employed or managed in some way more at least ten employees each.

Data Analysis Strategy and Coding

One of the main challenges to starting the analysis was the lack of structure and connectedness of the gathered evidence. Such diversity of the raw data is not surprising because respondents often represent different areas of the IT sector and each has own perspective. To address this problem, I used a two-level coding strategy (Saldana 2015).

After each in-depth interview, I transferred related notes and scripts to the electronic format and added necessary clarifications from secondary sources to terms I was unfamiliar with. Information from all interviews, surveys and secondary sources was combined into one electronic file. Then, a free online software *Text Analyzer* was used to conduct the First Cycle In Vivo Coding Method (Saldana 2015). The aim was to determine keywords and phrases that appeared most frequently. Those keywords and phrases appeared as *word clouds*. Throughout the process commonalities and trends have developed, which I logged into a separate journal for later reference. Once I obtained categories of the most frequently appearing words, I turned into a Second Cycle Pattern Coding Method (Saldana 2015). In this stage, I reduced the number of labels developed in the first stage by merging labels with close meanings and grouping them around major themes.

In the first stage, 13 labels were obtained that included *tax, bureaucracy, lack of transparency, property rights, access to finance, innovation, state contracts, cloud computing, outsourcing, education, human capital, technical know-hows and expertise, venture capital*. In other words, these are the words that were mentioned the most during interviews and open-ended survey questions.

In the second stage, I decided to divide variables into two major groups, the government, and entrepreneurs. The idea for such binary categorization came from both the literature on economic transnationalism (Portes 1999) and from the interviews. It is stressed that for the transnational development of the Kazakh IT sector the effort from both groups is needed. These groups can be considered as agents of two forces, bottom-up (entrepreneurs) and top-to-down (state), which drive the local development of the industry. In addition, different variations of two factors, *bureaucracy* and *financing*, appeared exceptionally a lot, together comprising more than 50% of the word cloud. Therefore, I decided to include them in both categories.

In the final version, the number of variables was reduced from 13 to 6. The main reason for that was overlapping meanings and themes in some of them. For example, the context in which variables such as *taxes, lack of transparency, and bureaucracy* indicated inefficiency in the institutions controlled by the state. Then eight variables were grouped into to two groups each representing a distinct perspective to answering the central research question:

- The government: *state contracts, financing innovation and 'self-discovery,' bureaucracy*
- Entrepreneurs: knowledge and innovation, outsourcing, access to finance

Chapter 3 IT Sector in Kazakhstan

The Information Technologies sector implies the manufacture of hardware and equipment for communication, production of software and delivery of appropriate services. The IT industry occupies a significant share in the economies of Organization for Economic Co-operation and Development (OECD) with approximately 8.6% of the value added in the business (OECD, 2012). The sector is of extreme importance to the economy as it benefits it thanks to enhanced competitiveness and increases in faster rates of production. The ICT sector in Kazakhstan accounts for 6% business value added and is mainly represented by telecommunications, which stands for 83% of the field (Decree of Government of Kazakhstan, 2010), in contrast to the figure of 57% in OECD nations (OECD, 2010). The Kazakh government has expressed its intention to stimulate the development of ICT stressing on information technology. The goal set by the government was high: in the course of the period 2010-2014 the average annual growth was aimed at 18% (Decree of Government of Kazakhstan, 2010).

ICT Development: The Kazakhstani Government's Objectives

The development status of ICT in Kazakhstan is fairly low. In order to offer solutions to this issue the Kazakh government has developed plans for the sector. The contribution of the ICT sector to the total business value added in the country was 6.3% in 2006 (UNCSTADStat). Kazakhstan occupied a lower position compared to the majority of OECD nations as well as Eastern European and Commonwealth of Independent States (CIS) economies (Table 1). Apart from that, there is a significant difference in the structure of the ICT sector in Kazakhstan and the global average (Figure 1).

Table 1. Contribution of the ICT Sector to the Total Business Value Added of Selected Countries

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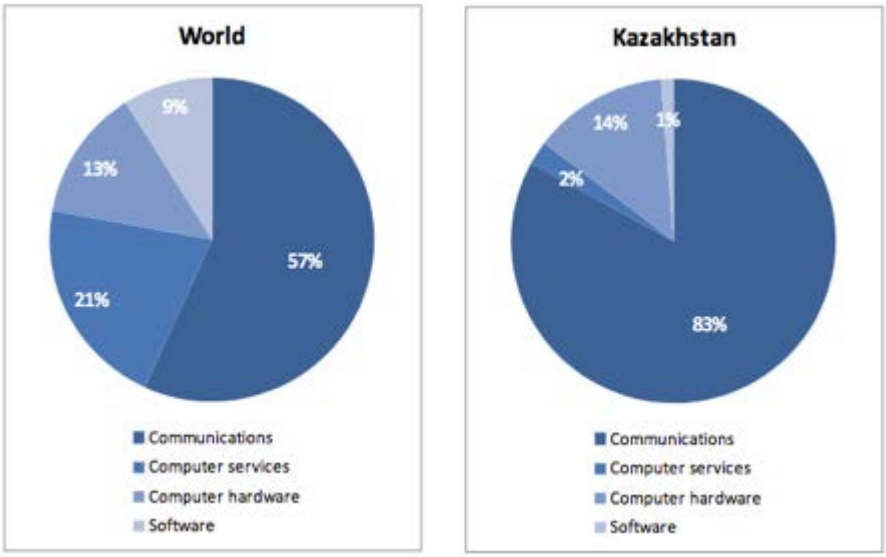
Country	ICT producing sector as % of total business value added	Last available year
Hungary	9.9%	2008
Estonia	9.8%	2004
Romania	9.8%	2005
Lithuania	9.4%	2004
Latvia	9.0%	2005
Czech Republic	9.0%	2008
Slovakia	7.5%	2008
Kazakhstan	**6.3%**	**2006**
Poland	5.7%	2008
Russian Federation	4.9%	2008
Azerbaijan	2.4%	2006

Source: UNCSTADStat.

Figure 1. Distribution of ICT Expenditure in the World and in Kazakhstan



Source: OECD 2010.

The distribution of expenditure on ICT in Kazakhstan reflects the ICT market development in the nation. First, fast pace of mobile telecommunications development

illustrates the degree of technology ‘jump.’ The mobile communications coverage comprises 95%, while landline coverage is 25% (Decree of Government of Kazakhstan, 2010). Second, the sector of IT services is underdeveloped, which is characteristic of developing economies, since quality level of services reflects a sophisticated phase of ICT market development. Third, the country is catching up in IT infrastructure and equipment. Fourth, the split of spending on the sector sheds light on extremely inadequate expenditure on software. This fact may direct at primordial level of the ICT industry development and the scope of piracy in software (OECD, 2013).

Consequently, the demand for the ICT services and equipment is almost entirely satisfied by imports. Concerning the IT hardware, the 2010-2014 ICT Programme of the Kazakh government demonstrates that the portion of the Kazakh content stood at 3% of the value of commodities put for sale in the country in 2010. The share of Kazakh content in IT services, which usually tend to be more local, amounted to only 30% (Decree of Government of Kazakhstan, 2010).

The government has set high objectives in order to improve the ICT industry. As can be seen on the Figure 2, by the year 2014 the ICT Programme expected the turnover value of the sector to be KZT 172 billion and 3.8% of GDP. This comprised 18% of compound annual growth rate (CAGR) in the course of 4 years. In addition, the portion of the Kazakh content was required to reach 10% in IT equipment and 80% in the field of IT services. As it is reflected in the same figure, almost all of the measures were also anticipated to improve substantially.

Expenditure on IT

In 2015 the total amount of money spent on information technology in Kazakhstan comprised KZT 375.6 billion. Compared to 2014 the total spending on the IT sector grew by 37% and by 43% in comparison with 2011 based on the data by the Statistics Committee of the Ministry of National Economy. Top three entities included purchase of IT hardware (32.6%), online payment services (19.7%), and acquisition of software (18.4%). This trend is observed both in the private and government sectors. In 2015, contrary to 2014 the portion of the third-party services decreased substantially from 20% to 9.7%. Unfortunately, the expenditure on domestic IT systems decreased as well and comprised modest 0.9% of the total amount. It is believed that the trend will pertain mainly because of the new law 'On Information,' which implies that the companies owned by the state are to gradually switch to service mode in terms of IT. Instead of developing their own information infrastructure, governmental organizations will rely on IT services delivered by third-parties (Kazakhstan Institute for Strategic Studies, 2016).

Key Players in the IT Market

Kazakh IT sector is heavily occupied by foreign corporations (Forbes.Kz, May 2014). In the PC market, they are predominantly represented by HP, Lenovo and Acer. Software is mainly provided by Microsoft, SAP, and Oracle. The main actors in the market of consulting and network integration are Russian and Chinese companies, particularly Jet Infosystems, NVision, and Huawei. Consulting and software services mainly operate on the products by IBM, Oracle, and SAP (Kazakhstan Institute for Strategic Studies, 2016)

Export and Import

Analysis of data by the Committee of Statistics of the Ministry of National Economy reveals that in 2015 there was a rapid decrease in performance: fourfold decline of export in comparison with 2014 from USD 2990.2 to 1938.3 million, following a constant growth from 2011 through 2013. Meanwhile, the import had been oscillating: USD 84.6 million in 2011, USD 171.8 million in 2013, USD 401.6 million in 2014 and a twofold decline to USD 104.3 million in 2015. This observation can be attributed to the fact that the country's IT sector is dependent on macroeconomic indicators. Putting it differently, a persistent significant imbalance of the export-import ratio in the IT sector had been observed. Thus, in 2014 the import volume surpassed export by 7.5 times and by 18.5 times in 2015 (Kazakhstan Institute for Strategic Studies, 2016).

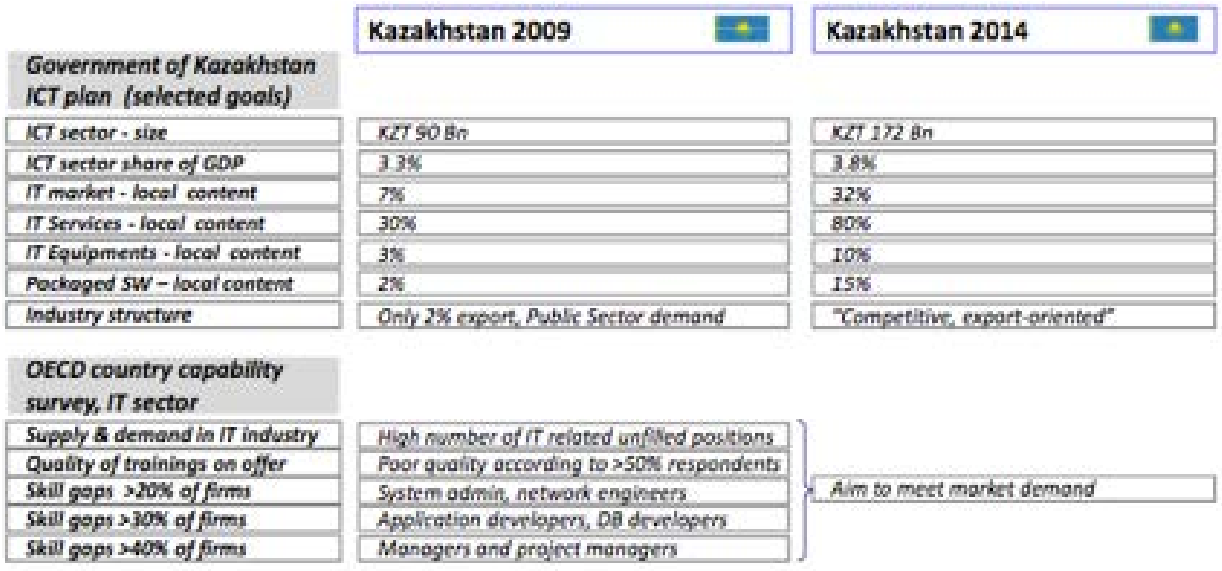
Data reveals that the manufacture in the IT industry had been following a positive trend in general by 2015. Growth of the annual industrial production amounted to approximately 25%. Nevertheless, the progression of manufacture in different IT fields was uneven. For instance, the production of communications hardware had the highest growth rate, while the manufacture of electronic components demonstrated slower growth. The trend for production of consumer electronics had been steep. Apart from that, the manufacture of personal computers and auxiliary hardware demonstrated a decline (Kazakhstan Institute for Strategic Studies, 2016).

In light of the above-mentioned observations, the sector of e-commerce was growing at faster rates. The most rapid development in the sector was demonstrated by travel segment, which includes purchase of railway and air tickets, and booking of accommodation. Retail, mobile and utilities purchase, tax and fines payments were the other rapidly developing segments (Kazakhstan Institute for Strategic Studies, 2016).

Recent Tendencies in the IT Sector

Complex measures are being taken to develop the ICT sector in Kazakhstan by the government (see Figure 2 below). It is apparent that there is a need for IT specialists for the development of the sector. In order to tackle the issue the International Information Technology University (IITU) was launched in 2009 by the initiative of the President Nursultan Nazarbayev. Major representatives of IT industry, including the National ICT Holding Zerde, contribute to the design of the programs for ICT specialists by assisting in developing the training curricula, list of demanded majors in the ICT industry, and by complying training programs with international standards in the field (EECA Cluster 2014).

Figure 2. The ICT Industry in Kazakhstan, 2009 and 2014



	Kazakhstan 2009	Kazakhstan 2014
Government of Kazakhstan ICT plan (selected goals)		
ICT sector - size	KZT 90 Bn	KZT 172 Bn
ICT sector share of GDP	3.3%	3.8%
IT market - local content	7%	32%
IT Services - local content	30%	80%
IT Equipments - local content	3%	10%
Packaged SW – local content	2%	15%
Industry structure	Only 2% export, Public Sector demand	"Competitive, export-oriented"
OECD country capability survey, IT sector		
Supply & demand in IT industry	High number of IT related unfilled positions	Aim to meet market demand
Quality of trainings on offer	Poor quality according to >50% respondents	
Skill gaps >20% of firms	System admin, network engineers	
Skill gaps >30% of firms	Application developers, DB developers	
Skill gaps >40% of firms	Managers and project managers	

Source: Decree of Government of Kazakhstan, 2010.

ICT in Kazakhstan involves four tracks of professional pursuit. The first activity is information technology, which implies software design, and support and service of ICT

hardware. The second one is manufacture of microprocessors and electronics. The third pursuit is production of automated and robotized systems, and their support and service. The fourth one is communication, which includes manipulation with information (EECA Cluster 2014).

The ICT sector has long ago transformed into one of the key factors of economic prosperity in the world. Global share of ICT goods made 12% of the total trade in products and 20% in emerging economies in 2010. Kazakhstan took 49th position out of 155 nations in the ICT development index in 2012. On the Global Information Technology Report 2013, the country ranked 43rd out of 144 nations according to the degree of development in ICT (EECA Cluster 2014). Furthermore, the United Nations recognized Kazakhstan as a leading nation in e-government implementation along with Singapore (United Nations E-Government Survey 2012: E-Government for the People). The Networked Readiness Index (NRI) reports that Kazakhstan improved its performance on fundamental ICT indicators. The NRI examines the scope of ICT development and is composed of a number of parameters. In 2014 Kazakhstan was ranked 38th out of 148 countries, as opposed to 43rd position in 2013 (EECA Cluster 2014).

The National ICT Policy

In 2013 Kazakhstan launched the governmental Program ‘Informational Kazakhstan - 2020’ (see Figure 3 below.). The main emphasis of the document was that ‘in the period of implementation of the Strategic Plan - 2020 there will be accelerated diversification of the economy through accelerated industrialization’ aiming to improve the performance of the economy. A number of fields including oil and gas, agriculture, pharmacy, and others are anticipated to be developed. Apart from that a special focus is put on the development of the

industry ‘economy of the future’, which will predominate in the global economy in the upcoming decades: clean energy, biotechnologies, and ICT (EECA Cluster 2014).

Figure 3. Major ICT Policy Documents of the Kazakhstani Government

Main policy documents concerning ICT policy adopted/published since 2010-2011

Title of document	Date	Organisation responsible	Legal Status
On creating special economic zone "Park of Innovation Technologies"	2011	Ministry of transport and communications (MTC of RK)	Government Decree № 193
Program for Information and Communication Technology Development in the Republic of Kazakhstan, 2010 - 2014.	September 29, 2010	Ministry of Communications and Information	Government Decree № 983
State Programme "Information Kazakhstan - 2020".	January 8 2013	Ministry of Transport and Communications	Government Decree № 464

Source: EECA Cluster 2014.

The Program lays ground for citizens to acquire information technology skills through online education and continuous training, to work on remote, and to access healthcare services. In addition, in order to transform the Kazakh economy into competitive one, the Program intends to introduce ‘intellectual systems’ into the key sectors of the economy. Supposedly, the governmental Program ‘Informational Kazakhstan – 2020’ will become the eventual phase of progression of Kazakhstan into informational society, as the main objective of the Program is ‘making conditions providing conversion of Kazakhstan to informational society.’ The major tasks include ‘provision of public management system effectiveness, availability of innovation, information and communication infrastructure, creation of the informational environment for social-economic and cultural development of society, and development of local informational space’ (Informational Kazakhstan – 2020 State Program, 2017).

The program consists of two steps: the first step is to be carried out between 2013 and 2017, whereas the second step is to be realized in 2018-2020. As it is stated in the Program (Informational Kazakhstan – 2020 State Program, 2017), by its completion, it is expected that the country will reach these 13 target indicators:

1. In 2020 in the Doing Business rate by the World Bank Kazakhstan must be among top 35 countries;
2. In 2020 in the UN e-Government Index the country must among top 25 nations;
3. Kazakh households must be provided with access to ICT infrastructure by 100%;
4. The number of internet users should be 75%;
5. Digital TV coverage must be 95%;
6. The share of ICT in the GDP of the country must be 4%;
7. The share of healthcare organizations connected to the universal healthcare network must be 100%;
8. The share of research entities connected to the universal national scientific network must be 100%;
9. The level of ICT literacy should be 80%;
10. The share of online mass media must be 100%;
11. The share of online Kazakh stores to the total revenue of products and services purchased electronically must be 40%;
12. The share of governmental services delivered electronically must be 50%;
13. The share of governmental services delivered electronically to the total amount of services delivered traditionally must be 80%.

The government pays substantial attention to the improvement of ICT infrastructure in industrial entities, developing robotized manufacture processes in the fields with elevated

risk to human life, development of automated systems in the industries, and introduction of other innovations in industrial enterprises in close cooperation with local research entities and academic institutions. Moreover, industrial businesses are encouraged to implement energy-efficient ICT in the manufacture process by utilizing subsistence instruments within the law of the Republic of Kazakhstan ‘On the state support of industrial innovation’ (EECA Cluster 2014).

Infocommunication Development Fund

In July 2012 corporate fund ‘Infocommunication Development Fund’ was launched under the patronage of the Ministry of Transport and Communication of Kazakhstan, the National Infocommunication Holding Zerde, and with the contribution of the major Kazakh telecom providers including KazakhTelecom JSC, KCELL JSC and Kar-Tel LLP. The Fund is non-governmental and does not pursue any commercial or political purposes. Its main objective is provision of development of the country’s IT sector by elevating the quality of research, corporate research and development, introduction of initiatives and tools for monetization of innovative ideas and venture funding. Also, the Fund is committed to delivery of financial support for various start-up ideas, stimulation of start-ups in IT, fostering of domestic competency and funding of strategic research and development projects. Apart from that, the Fund holds annual conference Astana Smart Technology Exhibition (ASTEX) to develop the domestic IT market. ASTEX is considered as the main platform for cultivating cooperation with international players (EECA Cluster 2014).

Chapter 4 How Does the State Impact the Transnational Development of Local IT Companies?

The development of the IT industry is a task of strategic importance for developing countries like Kazakhstan. It is a way to integrate into the global economy in the future, when stocks of natural resources, especially oil and gas, as well as the demand for them would inevitably decline. For success, state policies and the bureaucracy should be efficient and reflective upon the needs of IT companies and entrepreneurs. One respondent suggested "we can draw an analogy between the global competition in the IT sector and the FIFA World Cup (soccer championship). Entrepreneurs and IT companies represent their countries and create kind of a national team. The role of government is to coach that team. It defines tactics and bonds the team, and success of the team, for the most part, depends on the effectiveness of coach's actions." It means that the government and entrepreneurs should coordinate their efforts to win the global competition in the information and technology industry. Through this metaphor, the interviewee shares with us a vision, through which he believes local IT companies can grow to the transnational level with the state support and guidance. It is consistent with the argument from the literature, according to which strategic collaboration between private and public sectors is crucial for industrial growth (Rodrik 2008).

In this chapter, I aim to discuss how the government can boost or hinder transnational expansion of the local IT companies and entrepreneurs. It is divided into three sections according to the major themes: *state contracts, financing innovation and 'self-discovery'* and *bureaucracy*. Each of these topics represents a domain in which the role of the state is significant. In the first section, I argue that there is the coordination problem within the top. Evidence shows that the government cannot adequately give preferential status in acquiring state contracts to local suppliers. In the next section, I discuss the state's effort regarding less mature companies, often regarded as start-ups. Entrepreneurs in this category usually don't

have a steady income or fully developed business models yet, but their activity is crucial for the transnational growth of the IT industry as they are part of so-called 'self-discovery' process. At this stage, their goal is to discover new potential niches in global economic supply chains. To achieve that entrepreneurs' ideas should be innovative, while the state's role is to take financial risks of such activities. In the final section, I argue that the state's policies and institutions are weakened by its bureaucratic slowness, lack of transparency, and overall inefficiency. All these deficiencies within the state bureaucracy make coordination between public and private sector inefficient.

State Contracts

The first potential way the state can affect local companies' access to abroad markets relates to domestic markets. It is highly unlikely for a company to expand transnationally without winning the competition on the local market. In this regard, respondents mentioned state contracts and public procurement systems in Kazakhstan. Several respondents claim that the presence of large transnational IT corporations in Kazakhstan, which usually have a reputation and significant financial/technological resources, hinders the growth of local IT companies. Those companies have access, sometimes even preferential access, to state contracts. In addition to state contracts, participants claim that foreign corporations provide IT services to large financial institutions and national infrastructure providers who are for the most part controlled by sovereign wealth fund "Samruk Kazyna." On the turn, the government directly appoints top managers of the wealth fund and potentially has a significant influence on its decision-makings.

In Kazakhstan, demand for IT services and products is high as everywhere else in the world as large organizations aim to transform their operations, and consequently, to reduce

operational costs. Respondents agree that the demand, for the most part, is supplied by foreign and transnational companies. One respondent, who represents Association of IT Companies in Kazakhstan (AITCK), thinks that this is the biggest obstacle to the development of the industry because without the government's support it is tough to win the competition for state contracts with large transnational IT companies. "It is quite ironic, that the government, which puts the development of IT in the country on the agenda a lot, does not bother itself with giving priority access to state contracts to local companies," says one respondent whose firm specializes in providing IT services to large businesses.

The main reason for the superiority of foreign companies over local businesses then lies in the availability of financial capital. One of the respondents says that domestic firms lack resources to provide complex solutions, unlike foreign companies who can attract capital from abroad. One way to solve this problem is to ask for support from the state, so it can coordinate its institutions to start giving state orders and large public procurements to locals. Several respondents, who specialize at government procurement, claim that state orders priority should be granted to the local companies because the primary fuel for the development of IT sector is capital, most of which are consolidated in hands the state-owned institutions and enterprises. "The large contracts usually go to big business, while we (local businesses) are left with smaller contracts," says one of the respondents. AITCK has worked in this direction for 13 years, and now has over 200 companies registered which can provide competitive solutions and services in the market. The biggest challenges for such enterprises are the small scale of operation (often they cannot provide complex solutions) and absence of a reputation. On the other hand, for state-owned businesses or ministries, it more efficient to rely on one big company rather than to contract with several local suppliers.

It seems that the government has recognized this challenge. Recently, Prime Minister Mr. Bakytzhan Sagintayev had two consecutive meetings with representatives of IT industry

in Kazakhstan. I interviewed several entrepreneurs who were at the meetings, and they said the government official promised to take measures to solve the problem related to state contracts. Most recently, Mr. Sagadiyev, Minister of Education in Kazakhstan, had a meeting with representatives of 130 IT companies from Kazakhstan. Participants discussed many issues, and most notably an arrangement was reached that the nationwide system for grade tracking of secondary schools' students "Kundelik" would be provided by a local IT company. One respondent indicated that more meetings with a similar agenda are expected to be held with the heads of KazPost (national postal delivery company) and Ministry of Information and Communication of Kazakhstan.

To sum up, the growth of local IT companies heavily depends on how well they can compete in domestic markets at the first place. As the state, directly/indirectly controls largest corporations and institutions in the country, it can have an influence on them to provide preferential access to state contracts for local IT companies. Although those local businesses are smaller in scale than their foreign competitors, they can be considered as mature companies. However, there is another category of entrepreneurs, who specialize working with start-up companies. As global practice shows, in the long-run, the growth of IT industry largely depends on how well start-ups, primary drivers of innovation and technological advancement, are supported and most notably financed by larger institutions.

Financing Innovation and the 'Self-discovery.'

The state is highly interested in investing in promising IT projects with the hope that some of them will grow into truly transnational companies. One of the respondents says that it was difficult to predict from where the next big company will emerge. Despite the lags in the development of proper infrastructure and lack of resources, developing countries could be

a host for big name IT companies too. Most notably, initially small and underestimated startups like Skype from Estonia and the World of Tanks from Belarus gradually have become globally dominant companies in their respective fields. Such global asymmetry in the IT sector makes investing in startups more than reasonable in countries like Kazakhstan. Apart from the government initiatives, interest in IT projects in Kazakhstan is rising on behalf of private investors both from within the country and abroad. The role of the state in providing incentives for such private investors is also not the least.

Two leading public institutions are responsible for investing money into strategic sectors of the economy, “National Managing Holding Baiterek” (Baiterek) and the Ministry of Investments and Development of the Republic of Kazakhstan (MIDRK). In each of these institutions’ official mandate, investments in IT sector is a top priority. Baiterek has a subsidiary organization called National Agency for Technological Development (NATD), where the IT industry is even more highly prioritized. Since 2010, NATD gives grants annually for innovative projects in IT. In 2014, in partnership with Islamic Corporation for Development (ICD) and Lancaster Group NATD created an international venture fund. It indicates a strategy to allocate not only state money but tries to attract foreign investments too. In the face of a recent economic downturn in Kazakhstan, such approach seems proper.

Apart from directly allocating money from the budget, the state has a capacity to provide incentives for private investors too. The size of the private investments might vary from the savings of a household to large assets of private banks and investment funds. One of the most mentioned factors during interviews in this regard were proper laws and policies that defend investors’ property rights, lower taxes on profits, and administrative barriers to start a business. Respondents who are at the meeting with the prime-minister claim that the government recognizes mentioned problems, and have already strategies to overcome those obstacles. One of the promising events relates to the creation and further development of the

Astana International Financial Center (AIFC). It would be an exclusive economic zone similar to one in Dubai with tax lifts, financial and administrative assistance offices. Dubai International Financial Center (DIFC) has been initiated back in the 2000s, and since that the government there established other satellite institutions such as Dubai Courts, one of the principal aims of which is to protect property rights more vividly. Apart from significant similarities between planned AIFC and DIFC, several public statements, as well as multiple visits to Dubai, have been made by the government and president Nazarbayev personally, all of which somewhat indicate that the policies being implemented there were chosen as the role model for development in Kazakhstan. It seems to be the right thing to do taking into the account the fact the system implement in Dubai showed significant results. About the IT sector, B2G (business to government) model thrives as many private companies provide goods and services to Smart Dubai agency which aims to increase the quality of life in Dubai through implementing IT solutions in many areas.

Long-run strategies are subtle, but, in reality, what matters the most is the need to implement positive changes in the short-run, using feedback from investors and entrepreneurs more efficiently. The general notion of financing innovation by the state in Kazakhstan that I had from interviews can be best described as ‘ineffective.' Participants shared different stories about the delays related to red tape and useless spending of the money in state-led institutions responsible for allocating money. Usually, those stories were about applications for grants, their experiences in business incubators and innovation parks. One respondent, a story about how he won $20 000 grant on the startup, show Atameken Business Channel (state-owned media company aimed to promote business and entrepreneurship among youth) but had to wait nine months to get money. The problem, in this case, relates to the fact that the all winners had to wait until the show would be broadcasted on TV to get their prizes.

Apart from that, there were many complaints about lack of transparency and slowness. In general, experienced entrepreneurs and people in business already recognize such bureaucratic delays when the issue of financing is on the table, and take it into account while planning their actions. As we see, in the next chapter, deficient bureaucracy is a wider topic that goes beyond state-institutions to finance innovation, and reasonably limits the transnational growth of the IT sector.

Bureaucracy

In the interviews and surveys, respondents' views about the role and effectiveness of the state in supporting small businesses and startups in IT sectors diverge into two groups. One group agrees that the strategy taken by the state is right, and time is needed for results. Another group of respondents sees all the institutions and programs sponsored/initiated by the state as having titular character (window-dressing) and related to corruption in extreme cases. Regardless of how they view general aims and tools of the state in supporting small businesses and startups, both groups point out the inefficiency of bureaucracy and lack of professionalism among the bureaucrats. Apart from slowness, respondents complained a lot about the lack of transparency in institutions such NATD and innovative technologies park "Alatau."

Even though, some respondents positively reflected on the business incubators and accelerators aimed to assist and to commercialize IT start-ups. Prominent examples are Astana Business Campus in Nazarbayev University and Al-Farabi Technology Park in Kazakh National University. Almost all big state-owned universities, as well as private ones such as Kazakh-British Technical University, have their business incubators. Such pattern among universities which is in line with the strategy of targeting youth in business and

entrepreneurship propaganda shows that the order from above initiates these business incubators rather than being an independent initiative. Nevertheless, there are also independent/private business incubators such as “N17R” and “MOST.” I interviewed representatives of both, and they indicate that they had cooperated with state-business incubators on some occasion. They say that effectiveness of business incubators under the patronage of the state varies, and in many cases, local managers lack knowledge and experience.

There are also larger institutions separate from universities that include Almaty Tech Garden, Astana Innovations, National Chamber of Entrepreneurs “Atameken,” and National Agency for Technological Development. The same problems are present there, namely bureaucracy and lack of transparency. One of the respondents, who founded a well-known IT company, shared his impressions of a meeting with representatives of Astana Innovations, the large state-owned company operating since 2011. He was skeptical about this institution and says that they have many projects labeled as ‘smart’ such as smart bus station, smart street lighting, smart schools, smart Wi-Fi, etc. There is little about these projects that can be considered innovative. Moreover, most of these projects are at the early stage and remain significantly underdeveloped. “When presenters are asked about the projects they cannot give concrete answers, and feels much like window dressing,” says the respondent. According to him, this institution will remain ineffective until it starts working with private entities.

To sum up, the government realizes the need to assist the development of IT sector and relevant policies are in place. Transparency and open dialogue with entrepreneurs are required to make these systems useful. Meetings between IT contractors and different government officials, including the prime minister, are promising. However, those people represent high-ranking officials, while the real problem is at the bottom of the bureaucratic

pyramid. Therefore, professionals who would execute those policies correctly and dialogue between them and representatives of IT sector are an extreme need. When officials talk to a prime minister more than with bureaucrats themselves, that makes communication and cooperation between the state and the area ineffective and slow. Some of the respondents suggest that cooperation should be horizontal rather than vertical as it is now, and refer to successful models in other countries. It means that the state should invest resources to improving the quality of bureaucratic apparatus to increase its effectiveness and transparency.

Chapter 5 How Do Entrepreneurs' Cross-Border Ties Impact the Transnational Development of the IT Sector in Kazakhstan?

The focus of the previous chapter was of the state-led factors that influence the cross-border development of the local IT industry in Kazakhstan. The effects of the state represent a top-down force that drives the transnational growth of the IT sector in Kazakhstan. On the turn, this chapter aims to explore a bottom-up side of the transnational development of the IT industry in Kazakhstan, primarily focusing on the effects entrepreneurs' cross-border relations. Based on the evidence gathered, there are three main channels through which cross-border relations facilitate the transnational development of the local IT industry:

- *Knowledge and innovation*, which is crucial for creating new goods and services, and consequently for creation and filling new business niches;
- *Outsourcing*, which means delegation of certain tasks within an organization to third parties because they can do it more efficiently and cheaper; is an important determinant of the extent to which local IT companies both large and small are competent in optimizing their business processes. The global competition forces them to be more resource efficient, and if local businesses aim to grow transnationally, it is an imperative for them to do outsourcing in the most efficient manner possible.
- *Access to finance* represents the third factor crucial for the growth of the local IT sector. Usually, well-functioning financial systems provide money to the most productive units and allocate associated risks in the best possible way so that it boosts development and growth. But, as I argued in the previous chapter, the state despite having grave and adequate long-run intentions to promote innovation in the country, it's institutions aimed to finance such vision lack efficiency and suffer from ineffective bureaucracy. In this

chapter, I argue that entrepreneurs' transnational ties serve as an alternative channel for pulling capital to the development of the local IT sector.

I also argue that in each of these domains the flow naturally happens in both directions: from abroad to Kazakhstan and back from it. At the core of transnationalism lies the idea of the mutual benefit of countries that engage in cooperation achieved through the 'exchange' of ideas, goods, services, and capital. Entrepreneurs with cross-border social ties can be regarded as one of the bold manifestations of globalization and transnationalism. While entrepreneurs contribute more to the import side of the equation, the role of the state is more significant at giving back to the global community.

Knowledge and Innovation

As I mentioned throughout the paper, the transnational growth of the information technology sector means local companies expanding their business activity beyond domestic markets and entering global supply chains. For that end, local IT entrepreneurs need technical expertise, organizational models, best practices, and business insights from global and other regional markets. I shall refer to these resources broadly as 'knowledge and innovation' further, as this definition best captures all the things, transfer of which is facilitated by entrepreneurs' transnational ties and the state, which help to advance a business.

Entrepreneurs usually acquire social relations while working or studying abroad, and once they return to Kazakhstan permanently or on occasion, those links become transnational. Of course, return migrants bring back knowledge and innovation with them, but I argue that those resources continue to flow long after that. Nowadays, it became increasingly easy to sustain social ties at long distances thanks to advances in communication. While interviewing

entrepreneurs, I discovered that for highly skilled Kazakh immigrants in developed countries like US working in the IT sphere it is typical to share their experiences and insights with counterparts in the homeland. It is also usual for many of them to return and to start their own business in Kazakhstan as many of participants in this research have done.

I obtained details of how the flow of knowledge and innovation occurs when interviewed the entrepreneur who decided to return after four years of studying and three years of working for a company with a big name abroad. In Kazakhstan, he started a company which teaches computer programming and robotics to children at the age between 12 and 18. Even though his company doesn't have ambitions to expand globally and is merely a local business (despite entrepreneur's believes that social returns from the venture are significant), he has helped local entrepreneurs in the development of their businesses using social ties he possesses with abroad. For instance, once he contributed to the organization of master class by an acclaimed expert in internet marketing for local IT companies. In another occasion, he helped to the startup team from Almaty with their business trip to Silicon Valley. He says that all sorts of efforts related to helping local entrepreneurs to gain technical knowledge and insights from abroad occur through informal channels. When I asked about other Kazakh migrants who still work in big IT companies or returned, he says that those whom he knows are always open to assist young aspiring entrepreneurs from Kazakhstan.

The same type of transnational ties also helps to export innovation and knowledge from Kazakhstan. As one respondent shares, innovative ideas should be polished and observed from many angles before they will evolve into a full business model. For that end, it is crucial for local companies not to be isolated from the outside world and to have an opportunity to collaborate with counterparts from different parts of the world. IT companies

that aim to grow transnationally should have access to foreign markets in the early stages of the development to incorporate feedback as much as possible.

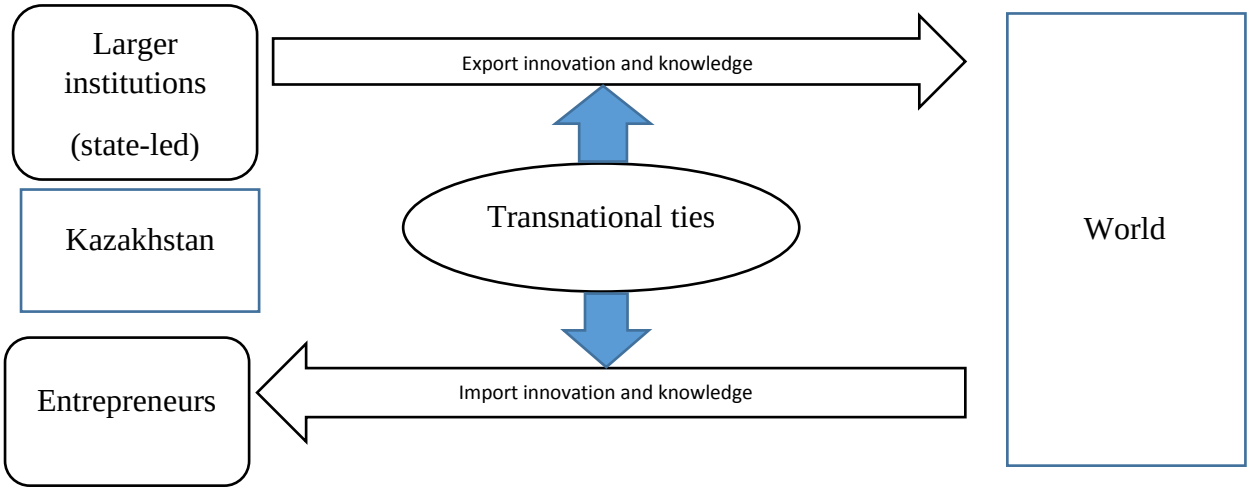
However, to develop and to nurture such knowledge and innovation sufficient financial and administrative resources are needed which entrepreneurs themselves often lack. Of course, through their social ties they can facilitate the outflow, but without the state intervention, both quality and quantity of innovations transferred abroad to be tested and evaluated would be limited, says one participant. At the time when I interviewed him, he was in the midst of the IoT project (IoT – internet of things, the field of IT, primarily aimed to provide smart solutions to household routines such air conditioning, entertainment, kitchen and other). He says that the project included collaboration with two state-led institutions, NATD and PIT (Park of Innovative Technologies) in Almaty. While the first covered financial aspects of the project, the second provided a workplace, team, and administrative support. He claims that through social ties he acquired while studying Ph.D. abroad, he could get helpful feedback and further develop the product.

Other participants also agree with that there are many institutions and initiatives led by the government to boost innovation. For example, apart from two big technological parks in Almaty and Astana, there are smaller regional facilities near each major university in the country, all of which pursue one big goal – to support/motivate prospective youth showing a willingness to engage with innovative projects. The government has also established startup competitions (ABC quick start, Atameken) are held annually as well as institutions (Atameken, NATD, Astana Innovations) that continually accept project proposals countrywide. Nevertheless, respondents agree on that the local IT industry in the current stage of development cannot always provide adequate feedback to projects. “Innovation is not a result; it is a constant process of ongoing improvements over hypothesizes about problems and solutions on them. If a company has a limited perspective, it’s hard to imagine

that venture growing internationally," says one interviewee, who implies that truly globally innovative, and therefore competitive projects, must expose the ideas to the others as much as possible.

In short, I argue that on the export side of the knowledge and innovation exchange with the world, the role state is to boost innovation, but the further development largely depends on the extent to which projects will be developed using feedback from abroad markets. Therefore, transnational ties possessed by entrepreneurs helps both to import and to export knowledge and innovation. The Figure 4 below summarizes the argument the best:

Figure 4. Transnational Ties and Exchange of Knowledge and Innovation



Outsourcing

The second channel through which entrepreneurs' cross-border social relationships influence the transnational development of the IT industry relates to a global tendency to outsourcing. One can define outsourcing as a business strategy aimed to cut costs through transferring routing activities to the external suppliers. With the development of cloud computing technologies, outsourcing business activities became cheaper and available. These

new technologies can help business owners to reduce the number of employees who do accounting, payroll processing, distribution, and many other essential functions. Computer programs that are cheaper, faster, and more reliable gradually replaces such employees. In some cases, entire firms can do IT outsourcing, and they usually specialize at one task. One entrepreneur says that “sooner or later, outsourcing to IT companies will be a necessity for small businesses if they want to stay on the market, rather than a privilege of a small group of informed early adapters as it is now.” At the core of the cloud computing lies the simple idea of using the Internet to access remote servers where managing, storage, and the processing of data is automated. In short, the rapid developments in cloud computing gradually reduce various barriers and make it easier to do outsourcing business remotely. That, in turn, creates significant opportunities for Kazakhstani IT companies to do outsourcing of various operations of small businesses and large organizations abroad. The contribution of transnational ties of entrepreneurs in this regard is twofold. First, for smaller firms and IT freelancers, such relations can provide access to foreign markets and attract potential customers from abroad. Second, larger businesses that provide more complex solutions might outsource some of their activities abroad, to countries with cheaper human capital such as India and China.

The first way relates to attracting customers for IT outsourcing services from abroad. One respondent who did IT outsourcing both for small businesses and large organizations in Kazakhstan and elsewhere claims that opportunities to find potential foreign customers online are ample, but without a solid reputation, it is difficult to do business in this field. Web sites such as UpWork, Fiver, and Freelancer represent a new online marketplace. These platforms allow customers to find potential contractors. The diversity of tasks advertised on these websites is great, and it is not limited to pure IT (programming, design, or data science), but also include operations such as bookkeeping, personal assistance, and translation. Initially,

freelancers, who work independently, filled those marketplaces. Later, entrepreneurs have emerged there, who saw a business opportunity and had begun creating teams to do more outsourcing than a regular freelancer. Knowledge of IT gradually became an advantage, because it turned out that most of the tasks can be automated using rapidly developing cloud computing technologies. In most cases, clients who are happy with the service become their regular customers. However, competition in the marketplaces is tight, and it is tough for newcomers to attract customers. Experienced freelancers and entrepreneurs already have good reputations and large customer base. Although there are different strategies to enter the outsourcing market, it was difficult to do that in the absence of networks that provide the few first customers. The respondent I interviewed claims that he could successfully enter the market mainly due to the availability of social relationships to experienced freelancers. They helped him to attract first clients, and after that, he could gradually expand the customer base abroad.

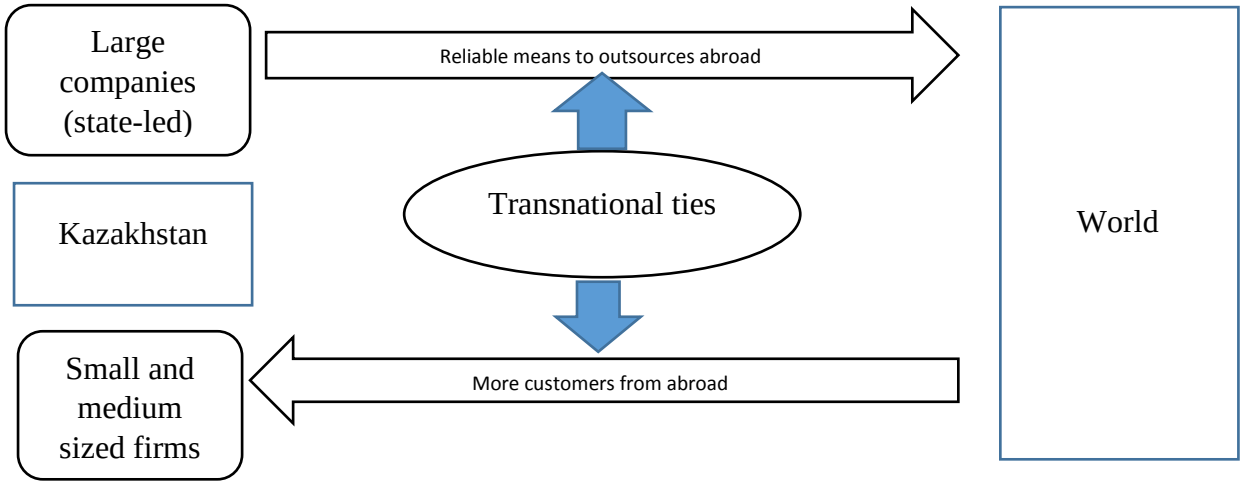
One of the respondents claims that Almaty, the largest city in Kazakhstan, has a great potential to become a regional IT outsourcing hub. The participant, whose firm specializes in the development of mobile applications, games, and artificial intelligence, claims that the ratio of cost of living to the cost of hiring a developer in Almaty is advantageous for his business. With a relatively small team of 7-8 professionals, his venture could be based in many other places, including Silicon Valley or Israel, but they have chosen to stay in Almaty because savings on human capital costs outweigh better infrastructure or easier access to investments in other places. The participant says that because he can outsource cheaper than his competitors in developed countries the scale of his business grows and he plans to focus more on outsourcing in the future.

Apart from small and medium sized businesses, big corporations and institutions also need outsourcing to optimize their operations. In Kazakhstan, for instance, Samruk-Kazyna,

state-led institutions that control largest assets in the country, is in the midst of implementing structural transformation using recent development in IT both within its head company and subsidiaries. When customers for outsourcing are big business like this, there is not as much flexibility as with small businesses regarding the task specifics. Therefore, if a company wants to delegate certain tasks abroad, it should find reliable contractors. As in the case with small businesses, transnational ties help to find reliable means to outsource abroad. But, now those cross-border relationships would be used to find executors, not clients. One participant, whose firm specializes in outsourcing for bigger companies, shared a story when he served as a middleman between a local bank and foreign company. His business couldn't do the task by itself because of significant scale of operation. Participant claims that he frequently travels to China where he sustains stable social ties with superior outsourcing firms.

To sum up, technological advancements, particularly in cloud computing, allowed to do outsourcing for various types of businesses worldwide. That opens new opportunities for local IT companies as they can supply with IT services big and small businesses abroad. On the other hand, big corporations and institutions led by the state can demand larger outsourcing tasks from elsewhere. The intensity of outsourcing happening through Kazakhstan can be a substantial measure of an extent to which the local industry fits the global chains of supply of IT services. I argue that cross-border social ties possessed by entrepreneurs facilitate this process. The figure 5 below summarizes the relationship discussed so far, the best.

Figure 5. Transnational Ties and Outsourcing



Access to Finance

In recent decades, the IT industry has become an attractive and promising niche for investors globally. The number of institutions that specialize in financing IT-related projects is growing in Kazakhstan too. The reason for that lies in the low rate of success generally and the patience needed from investors to see actual financial profits from promising projects. This section discusses how entrepreneurs' transnational ties enhance the cross-border development of the IT sector through providing access to financing. As in the previous section with outsourcing, transnational social relations affect both directions of 'exchange.' First, cross-border relationships can help to attract foreign capital to invest in prospective projects domestically. Second, transnational social relationships contribute to investing in promising projects abroad, thereby expanding the influence of investors from Kazakhstan.

Kazakhstan has sufficient stocks of human capital and is gradually developing a right ecosystem for developing innovative projects. But, not many investors are aware of Kazakhstan's potential. Many respondents who were abroad and negotiated with IT investors say that they usually have very little information about the country. That makes getting

financing from problematic because investors are not willing to take risks if they don't have enough information about the country where venture would start.

Nevertheless, some entrepreneurs from Kazakhstan have attracted capital for their businesses. One method was to use professional reputation, acquired through not-IT businesses, to convince investors abroad that projects in Kazakhstan are worthy of considering. One such entrepreneur used previous experiences with agricultural projects to build a good reputation and transnational connections. Through these links, he could create international venture fund called Asadel that aimed to invest in IT projects from Central Asia. It is assumed that those who provide good returns on investments will acquire reputation and transnational ties to investors abroad and be more successful getting future funding. Another type of entrepreneurs who can use cross-border ties to attract capital to Kazakhstan is return migrants who worked in IT companies and start-ups abroad. They use their professional ties with former employees or directly with investors to finance their projects in Kazakhstan. Some of the entrepreneurs I've interviewed used this option and successfully attracted capital for their projects in Kazakhstan. They also helped to younger entrepreneurs from Kazakhstan by organizing meetings for them with foreign investors.

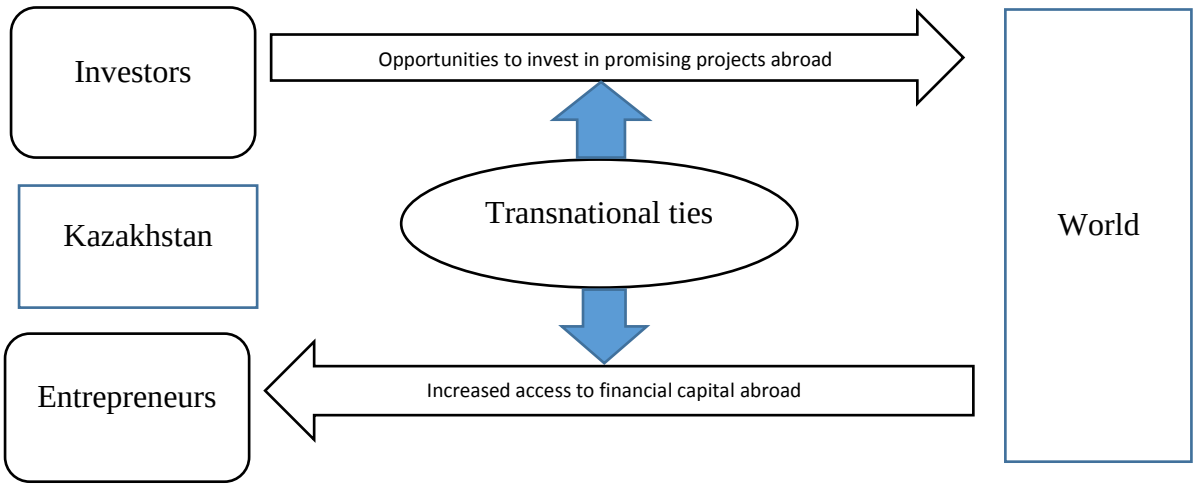
Popular Kazakh entrepreneur and philanthropist Margulan Seisembayev recently shared a post on his Facebook page about signing an official memorandum with partners in Singapore, according to which, the capital of Asadel Venture Fund would be equal to $50 million. This fund will invest in IT companies and startups in the CIS and Central Asia, and Mr. Seisembayev will be the managing partner and chairman of the investment committee. 50% of funds will be invested in IT ventures related to transport and logistics, 15% in IT retailing, 15% in fin-tech, and 20% in other IT related sectors. The investments range from $500 000 to $5 million per company (shares from 5% to 49%).

There is also a trend among IT entrepreneurs who have already succeeded in their sub-sectors to invest in start-up projects. Some create their venture funds to invest in IT startups, where they either administer activities by themselves or hire professionals and consultants. Others do it in less formal ways by spending money directly, ‘from their pockets.' One such entrepreneur claims that it is a common practice to relocate some proportion of the capital they earned to investment activities. He says that “In our team, we invest into areas that cordially different from our specialization for two reasons: first, to learn about other technologies and to get insights, which possibly would help in our business, and second, obviously for financial reasons, you never know how big one particular project might grow, therefore, sometimes it is kind of gambling for a big pot.” Of course, investing in IT start-ups is rather different from gambling, and some successful entrepreneurs have a more professional attitude to it because some say that they have plans to abandon their current projects to be a venture capitalist full time.

The second way in which transnational ties of entrepreneurs boost opportunities for financing goes through the provision of access to Kazakh capital to promising startups and projects abroad. One category of entrepreneurs do not struggle too much to obtain investments for their projects. On the contrary, usually, investors compete to acquire a share in their companies because they believe that the probability of success is very high. These types of startups are acclaimed by tech and entrepreneurial community at the early stage of their development. Several other criteria make a startup exclusively attractive to investors who include the first profitability, potential to disrupt the industry (usually those who already acquired considerable community of customers), winning at startup competitions judged by tech experts (i.e. TechCrunch, Ycombinator), and extraordinary skills and wealth of experience of members of a team.

In short, entrepreneurs whose startups are already acclaimed, and as one respondent says ‘destined to succeed,' have an opportunity to choose investors for themselves. One important factor during such decision-making process is the reputation of the investor. Investor showing willingness to participate in the future development of a company might be a private and public institution (venture funds) as well as a wealthy individual entrepreneur (angel investor). “First of all, entrepreneurs should look at the portfolio of a potential investor: what are companies that have been invested before, how have they been treated by the investor, what are their core values,” says one respondent who had such experience once after he won startup competition in Europe. “However, in most cases, promising entrepreneurs accept the offer from investors with whom they feel socially comfortable. And that strategy proves to be right because, in the long-run, as the company grows, it is important for an entrepreneur and an investor to sustain friend-like relationships between each other,” continues entrepreneur. For any entrepreneur, to choose an investor, it is important decision to make because that person or institution will be his long-run partner. Therefore, it is the right strategy to rely on information from your social network.

Figure 6. Transnational Ties and Access to Finance



In this chapter, I argued that transnational social ties possessed by entrepreneurs facilitate the cross-border growth of the IT industry. I also claimed that 'exchange' with the outside world is crucial for such growth because as notions of globalization and transnationalism suggest the progress is a collective endeavor and not a zero-sum game. Every country or region can contribute to it and discover its place. Of course, there might be some competition along the way, but in the end, it would reveal the most efficient producer. Despite that the nation-state can significantly boost innovation by financing start-ups and education, the further development of the industry largely depends on the extent to which projects and products will be exposed to feedback from abroad. Therefore, transnational ties of entrepreneurs help both to import and to export knowledge and innovation. The role of the state is greater is on the export side as it possesses necessary resources to develop innovation within the country, while entrepreneurs are good at borrowing from abroad.

Technological advancements and globalization allowed exchanging not only innovation and knowledge but entire business activities through outsourcing. I argue that it opens new opportunities for local IT companies as they can supply with IT services large and small businesses abroad. On the other hand, big companies and institutions led by the state can demand more challenging outsourcing tasks from abroad. Again, this is a two-way game, and the intensity of outsourcing happening through Kazakhstan can be a substantial measure of an extent to which the local industry fits the global chains of supply of IT services. I argue that cross-border social ties possessed by entrepreneurs facilitate this process.

Finally, the third channel through which transnational ties facilitate the growth of the local IT sector relates to financial capital. I argue that those cross-border ties help to attract capital from abroad on the one hand and to provide an opportunity for Kazakh capital to be invested in prospective ventures abroad on the other.

Chapter 6 Conclusion

The main argument of this paper is that transnational development of IT sector in Kazakhstan happens through two channels, top-down (the state) and bottom-up (entrepreneurs). I also argued that these two levels depend on each other in various ways.

Before going to foreign markets and exporting goods and services abroad, local IT companies and entrepreneurs should win the competition in the domestic market with foreign companies. By winning the competition in the domestic market, they will acquire necessary resources to expand their businesses abroad. The state controls biggest assets and largest institutions in the country. Therefore it controls the demand for IT services in a major way. But, I argue that there is the coordination problem within the top. Respondents who competed with foreign companies claim the government cannot adequately give preferential status in acquiring state contracts to local suppliers. On the other hand, the government prioritizes the IT sector and views it as a possible solution to the economic diversification problem. To that end, it actively supports innovative projects or startups. Since the transnational growth of the IT sector is a complex phenomenon and players on the global market are strong, the state aid is crucial for entrepreneurs in this category. According to the literature, when countries try to seek new market opportunities there are two common externalities: information and coordination. Information problem relates to a so-called process of ‘self-discovery’ of the private sector. It means that entrepreneurs should experiment with new product lines to determine which of them are profitable in local economic conditions. It might also include borrowing technologies and innovation from abroad and adapting it locally if costs are optimal. The government in Kazakhstan adequately addresses this problem and promotes such ‘self-discovery’ of entrepreneurs and takes associated financial risks. It does so through institutions established primarily to that end such as NATD and Baiterek as well as a separate ministry (Ministry of Industrial Development), all of which aims to support financially and

by other means innovative projects. However, the state cannot adequately address the second problem - coordination between public and private sector. Inefficient bureaucracy in institutions mentioned above as well as in many sub divisions and initiatives in them prevails. That makes collaboration between the top-down and bottom-up ineffective.

On the bottom-up side of the transnational development of the IT industry in Kazakhstan, entrepreneurs' cross-border relations contribute in its own way, but again the role of the is also important. Based on the evidence gathered, I argue that there are three main channels through which cross-border relations facilitate the transnational development of the local IT industry: *knowledge and innovation, outsourcing,* and *access to finance*. The first is crucial for creating new goods and services, and consequently for the creation and filling new business niches. The second, outsourcing, which means delegation of certain tasks within an organization to third parties because they can do it more efficiently and cheaper; is an important determinant of the extent to which local IT companies both large and small are competent in optimizing their business processes. The global competition forces them to be more resource efficient, and if local businesses aim to grow transnationally, it is an imperative for them to do outsourcing in the most efficient manner possible. Usually, well-functioning financial systems provide money to the most productive units and allocate associated risks in the best possible way so that it boosts development and growth (to finance 'self-discovery').

I argue that entrepreneurs' transnational ties serve as an alternative channel for pulling capital to the development of the local IT sector. I also argue that in each of these domains the flow happens in both directions simultaneously: from Kazakhstan to abroad and from overseas to Kazakhstan. At the core of transnationalism lies the idea of the mutual benefit of countries that engage in cooperation achieved through the 'exchange' of ideas, goods,

services, and capital. While the role of entrepreneurs with cross-border social ties is primarily on the import side, the state has a greater influence on exporting resources abroad.

Appendix

Interview/Survey Consent Template

I am a graduate student in the Department of Political Science at the School of Humanities and Social Sciences of Nazarbayev University. Before we begin, let me describe what this study is about. After I've described the study to you, you can decide whether you would like to participate in this interview. This study will look at whether transnational ties of entrepreneurs have a positive impact on Kazakhstan's IT sector. I am interested in the extent to which experience, knowledge and professional networks gained abroad help highly skilled return migrants to launch IT-related ventures after returning to Kazakhstan. Finding of this research would be helpful for identifying consistent patterns and insights, what in turn could possibly open new ways for initiatives both from private sector and the government.

I am doing this research for academic purposes and I will use information from this interview for my thesis project only. Participation should take about 25-30 minutes. Participation is voluntary. You will be asked to answer the questions related to my topic. There are no risks expected that are greater than you would normally encounter in your daily life. The group data will be analysed only. Your individual data will not be associated with your name in any way and will be kept confidential. You will not be penalized in any way for deciding to stop participation at any time. If at any time you would like to stop participating, please tell me. We can take a break, stop and continue at a later date, or stop altogether.
Do you have any questions? If you have questions later, you may contact me or my advisor at the Political Science Department.
Are you interested in participating in this study?

YES [ ] NO [ ]

Participants Identification Code (not name):

Interview Questions Sample

1. Do you have any professional connections abroad? Do they help you in any ways to conduct your business in Kazakhstan?
2. What are advantages and disadvantages of doing business in Kazakhstan?
3. Why did you decide to return to Kazakhstan? Was entrepreneurship a primary reason for returning?
4. Do you think that you have any competitive advantage over other entrepreneurs in Kazakhstan who haven't been abroad? Please, explain why.
5. What are your long-term goals about doing business in Kazakhstan?
6. Do you enjoy specific governmental policies aimed to boost entrepreneurship in Kazakhstan?
7. If you were a governmental official whose main responsibility was to boost entrepreneurship activity in Kazakhstan what you would suggest?

Survey Questions Sample

1. How old are you?
2. Have you been abroad? If yes, please indicate in which countries have you been and for how long have you been? Please also indicate the purpose of your residence abroad (travel, work, or study)
    - Yes, _____
    - No
3. Do you engage in any entrepreneurial activity now?
    - Yes
    - No
4. How many ventures have you founded/co-founded in last 5 years?
5. If you are engaged in any entrepreneurial activity now, please indicate on which stage your venture(s) is (are), and the number of ventures corresponding to each category (if more than one).
    - Startup, _____
    - Small business, _____
    - Medium sized business, _____
    - Large business, _____
6. On which type of business do you specialize?
    - B2B (business to business)
    - B2C (business to customer)
    - Both
7. In which areas your venture(s) operate (i.e. education, entertainment, service and etc.)?
8. Can you briefly describe the target audience of your ventures?

9. Have you attracted any external investments to your venture(s)? If yes, please can you indicate the source (i.e. angel investments, grants, crowdfunding and etc.) and the amount in US dollars?
    - Yes, _____
    - No
10. How many employees do you have in overall?
11. Please, briefly describe the value your business(es) create(s)
12. How you would rate the 'ease of doing business' in Kazakhstan? (the higher score indicates higher rate of easiness)
    - 1
    - 2
    - 3
    - 4
    - 5
13. Have you participated in any events/contests organized by the government aimed to boost entrepreneurship in last 5 years? If yes, please indicate in which events you have participated.
    - Yes, _____
    - No
14. Do any governmental regulations or institutions help to do your business in Kazakhstan? If yes, please indicate them.
    - Yes, _____
    - No
15. Do you plan to leave Kazakhstan for business purposes in the near future?

    Yes No

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