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Entrepreneurial Success in a Failing
Economy

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The Formation of the Russian Cellular Industry: Entrepreneurial Success in a Failing Economy

We analyze the emergence of the cellular industry in Moscow and St. Petersburg in the context of Russia's post-socialist transformation in the 1990s. How could the cellular industry have succeeded in the period of a deep economic recession, weakened state, and immature markets? We identify the driving forces and key relationships that supported the fledgling industry. The primary role belongs to individual Russian entrepreneurs with a strong private interest in their businesses and ties to the state bureaucracy and to foreign investors with technological and managerial know-how and access to financial capital. The contribution made by Russian entrepreneurs was primarily institutional and directed towards the establishment of the favorable regulatory framework and development of patronage relationships with government officials. However, the resulting network, while based on short-term interests in profiteering, intertwined with a dense network of professional relationships based on long-term interests in technology and engineering, and this nexus stabilized the industry and facilitated its growth. Foreign telecom operators were more successful in Russia than foreign equipment manufacturers because the latter lacked expertise in cellular services and were interested primarily in exploiting new markets for its equipment, offering it to the Russian partners as an investment in kind, often overpriced and technologically outdated.

The Formation of the Russian Cellular Industry

The first mistake in public business is the going into it.

Benjamin Franklin

1. Introduction

Grigory Yavlinsky, the leader of the Russian liberal party “Yabloko,” once said that “it takes a determined entrepreneur to endure the bureaucratic maze, partly inherited and partly generated by the current Russian government” (Economic Newsletter, 2001). His statement represents the widely held view that private entrepreneurs drive economic and social progress in emerging economies, including Russia’s, while government acts as a major obstacle to this development (Schumpeter 1934; Puffer and McCarthy 2001). The shortage of entrepreneurs and overwhelming power of the corrupt state, complemented by the lack of foreign direct investments, create major hurdles on Russia's path to a well-functioning market economy.

In this regard, cellular telephony looks like an intriguing exception. In the 1990s, despite tight government regulation, the cellular industry’s customer base grew at an annual rate of 100% and higher (Handbook ‘Russia 2004’). At the same time, the Russian economy as a whole almost collapsed, with inflation reaching 1,000 percent a year, industrial production shrinking more than 40 percent and the national economy disintegrating into regional sub-economies (Gustafson, 1999; Puffer, McCarthy, Naumov, 2000). The cellular industry was the home of Russia's best entrepreneurial talent. One of the three major mobile operators, VimpelCom, was built from scratch and became the first Russian company traded on the New York Stock Exchange in 1996. Major players of the global telecom industry became investors in the Russian cellular market despite the weak economic institutions, in particular, their non-transparency, corruption, and inability to enforce property rights, which typically preclude foreign direct investments. The foreign direct investments in the telecom sector grew from \$520.3 million. in

1995 to 819.3 million in 1997, dipped to \$310-340 million in the aftermath of the financial crisis of 1998-99, but jumped to \$899 million in 2000, thereby quickly exceeding the pre-crisis level (Communications and Informatization in Russia 2001: 444).

As a result, by the year 2000 Russian society at large came to enjoy a service for which just a decade earlier the country did not have the technology, infrastructure, production base, or management skills to support. Does this mean that the telecom industry is an exception, a bright spot on the otherwise bleak picture of Russia's transition from socialism? We do not think so. Although systematic quantitative evidence is impossible to collect, numerous anecdotes in the mass media and our interviews with the industry's key executives suggest that the common diseases of the Russian economy did not bypass the telecom industry; graft and patron-client relationships are important components of doing business in this industry as in many others. We argue, however, that the cellular industry has four important features: complex technology, high fixed costs, economies of scale, and institutional novelty that dramatically alter the configuration and logic of the relationship networks in which it operates. To succeed, firms have to simultaneously navigate relationships in technological, economic, and political domains. In this regard, Russia's cellular market of the 1990s is different from its capital markets where the ability to intersect the economic and political domains is sufficient (Spicer and Kogut 2004). Indeed, no technological base is required to reap super-profits from privatization, federal government's financial obligations, and tax evasion schemes. Moreover, the intersection of the economic and political domains in the telecom industry is dramatically altered by the separation between regulatory and customer relationships: the state cannot be a dominant consumer of cellular services in the way it is a lucrative banking client.

The salience of the technological domain in the Russian cellular industry, with its emphasis on professional status and engineering culture, makes the industry's organizing logic somewhat similar to the well-studied organization of Silicon Valley (Saxenian, 1996). In

particular, it leads to a greater openness and a more meritocratic selection into the industry's social network for both Russian actors and foreigners. Cellular entrepreneurs still have to handle clientelistic relationships, but to survive, themselves, and satisfy their patrons, they also have to master a complex technology, build a vast customer base, and create from scratch workable institutional rules for a completely new industry.

To build our argument, we take advantage of the fact that the rising tide of the industry as a whole did not raise all boats. Some mobile operators succeeded while others failed; some state actions moved the industry forward while others caused confusion and resentment; some foreign investors earned healthy returns while others retreated in disappointment. This variation in outcomes gives us a chance to identify the actors and the relationships among them that were instrumental or detrimental to the formation of the cellular industry.

We focus on Moscow and St. Petersburg where the original model of the cellular market was conceived and implemented in 1990-2000, after which successful local players started expanding into other Russian regions, thereby opening a completely new chapter in the industry's development. The first Russian cellular service provider was officially registered in St. Petersburg in November 1990 and started its operations in September 1991. The first Moscow venture followed in December 1991. In 1992-1994 two more operators launched their services in each city. At the beginning, Russian cellular companies employed three different cellular standards: a pan-European analog standard (we will call it standard A), a pan-European digital standard (standard B), and an American analog (later converted into digital) standard (standard C). These six companies remained the sole significant providers of cellular services to the general public through the whole period of our study (see Table 1 for their market share).

Table 1 about here

Our analysis of the industry is based on 15 interviews with key industry participants conducted on site in Moscow and St. Petersburg between December 2002 and March 2004, government statistics and legal reports, the companies' annual reports, and other publications. The respondents included the former Minister of Telecommunications of the Russian Federation, founders and CEOs of cellular companies, executives of Western operators and shareholders of cellular ventures based in Moscow and St. Petersburg who also held executive jobs at the respective companies themselves. Collectively the respondents worked at all six ventures or were directly linked with them through their parent companies.

The presentation follows closely the logic of the argument. First, we propose a typology of actors involved in the development of the Russian cellular industry in the 1990s and present theoretical perspectives from which their interests and behavior can be understood. Next, we analyze the interactions among the key actors in the cellular markets in Moscow and St. Petersburg in search for networks behind the industry's success.

2. Entrepreneurial Actors

We define an entrepreneur very generally as a person or organization that founds a telecom business, holds a substantial ownership stake in it and exercises effective control over the firm. In other words, we insist on both partial ownership and control as the key defining features of entrepreneurship. The separation between ownership and control creates a well-known principal-agent problem (Arrow, 1985), which has particularly severe consequences in post-socialist markets where private property is just beginning to be institutionalized. Therefore, whether an entrepreneur is in control of his stake or not determines his ability to enjoy benefits of ownership.

Although entrepreneurs traditionally mean individuals, the modern literature on entrepreneurship extends its focus from individuals to organizations that get involved in entrepreneurship by directing their members to start new businesses. In a recent study, about a quarter of Americans who tried to launch new ventures reported that they did so for their current employer (Thornton, 1999). Likewise, our exploratory analysis finds two major models of entrepreneurship in the Russian cellular industry: individual and institutional.

Under the **individual model**, a few people conceive the new business as a state, private, or mixed-ownership enterprise but in any case end up as shareholders either directly or through some more sophisticated schemes. Under the **institutional** model, an organization initiates the new business. Although specific managers represent it, there is a key difference from the individual model: these managers do not hold a stake in the company while the organization does. In a non-transparent post-socialist economy, ownership and control are exercised in a variety of ways that are difficult to capture with a small predetermined set of indicators. For example, a new venture may be formally owned by some incorporated entity while an in-depth investigation finds that entity to be nothing more than a shell company for a person or group of people. We had to delve into the intricacies of specific business ventures to understand who

actually owns and controls the mobile operators in Moscow and St. Petersburg. To identify the actual entrepreneurial forces behind each business, we start with the ownership structure (see Table 2) and then determine who among the owners exercised control.

Table 2 about here

A few trends in the ownership structure are clear. First, each firm has a foreign co-founder. Second, four out of six firms list as a co-founder a local traditional fixed-line operator. Third, the founder of one company, PSC, is the St. Petersburg local/regional government, while four firms list various state organizations (State Institute of Radio and TV, Railway Ministry, Ministry of Foreign Affairs, etc.) as their owners. Finally, the presence of somewhat strange and generic firm names such as "Eye Microsurgery - MobileCom," LLPs, and AOZTs, indicates the possible involvement of individuals whose interests such companies usually represent. Thus, the state, traditional operators, foreign investors, and individuals deserve further consideration as the potential candidates for the entrepreneurial role.

2.1 Individuals

Schumpeter (1934) and his followers portray entrepreneurs as heroic figures who single-handedly find creative solutions to unique technological and organizational challenges (Tushman & Anderson, 1986). The likelihood of success is associated with such personality traits as the need for achievement, risk-taking, innovativeness and problem-solving abilities, aspirations for leadership (Brockhaus and Horwitz, 1986; for review, see Aldrich, 2003; Low and MacMillan, 1988; Shaver and Scott 1991).

From where could such actors come to the Russian cellular industry? A plausible answer is from the existing telecom industry. Although it was impoverished in advance of the market

reforms (see section 1.4 for details), the industry could contain individuals capable of striking out on their own. They could divert their organization's assets as a substitute for initial capital as well as rely on its political clout. Another group of potential entrepreneurs included business savvy members of the state bureaucracy who could leverage their public position in the pursuit of private business ventures (Nee, 1989; Walder, 2002; Peng 2001; Puffer and McCarthy, 2001). Being tightly regulated, the Russian communications industry offered ample opportunity for such undertakings. Finally, the decline of the military-industrial complex freed highly qualified engineers, educators, and researchers who were eagerly seeking opportunities to make a living and could easily grasp new communication technologies.

MSC is a poster child for the individual model of entrepreneurship in the Russian cellular industry. Two industry outsiders, a Russian and foreigner, created the firm from scratch in 1993. A few years prior to that, the Russian co-founder united a group of engineers and scientists from the defense industry into a cooperative, the only legal form of private business enterprise during Gorbachev's perestroika. As the military-industrial complex was losing funding and status, the group was desperate "to put their brains to productive use" (Respondent #12). They had tried many business ideas from speeding radar detectors to satellite television before bumping into a foreigner with experience in both manufacturing and operating cellular equipment. Joining forces, both entrepreneurs became deeply involved with the new business from day one and managed to overcome barriers normally insurmountable for outsiders, such as the lack of capital and a license to provide cellular services.

The founder of PSA and PSB leveraged his position as a senior manager of a traditional state-owned fixed-line operator:

"He created a job for himself at a fixed-line operator: Vice President of International Relations. At that time, it fit the general Party line of liberalizing the

economy and bringing in foreign investors. He used that job to build contacts with Western operators, who later became investors in new ventures. He created a whole range of joint ventures in St. Petersburg, half of them have survived and are very successful today" (Respondent #7).

The entrepreneur took equity positions in both cellular ventures, but never assumed any operational responsibility, keeping his job at the fixed-line operator. His key position with the company, initially state-owned and later privatized on his initiative, guaranteed both ventures access to the local fixed network and numbering and transit capacities at low costs.

2.2 Western Telecom Companies

In the late 1980s - early 1990s, when the mass cellular industry became a reality, Soviet manufacturers of telecom equipment harbored plans to produce base stations and mobile phones. However, they never moved beyond the planning stage and the economic crisis of the 1990s buried those plans for good (Campbell, 1995). Therefore, it is prudent to assume that the cellular technology is completely exogenous to the evolution of the cellular industry in Russia. Potential Russian entrepreneurs watched developments in the West and sought ways to bring them to Russia. Naturally, Western telecom companies were best positioned to undertake such transfers, as their resources and expertise far exceeded those of their Russian counterparts. The high fixed costs of cellular businesses made their involvement in Russia an imperative. The real question is why Western telecom companies would rush to enter the Russian market under seemingly unfavorable institutional conditions. To answer this, we have to understand the goals such investors strive to achieve that in turn are shaped by their identities.

The identities of investors in emerging markets and industries vary; venture capital firms, banks, individual investors, and corporations provide capital to fledgling businesses. Academic

research focuses almost entirely on start-up investing by specialized venture capital firms (for review, see Gompers and Lerner, 2001), while the other alternatives mentioned above remain poorly understood, despite their significant contribution. In particular, so-called "corporate venture capital", i.e., start-up investments by established non-financial firms, amounted to about \$16 billion or 15% of the entire U.S. venture capital market in 2000 (Dushnitsky and Lenox, 2003). Since Western telecom companies became the early investors in the Russian cellular industry, the concept of corporate venture capital requires further elaboration.

According to Chesbrough (2002), corporate investments in new ventures can be classified by the investment objective and link of the start-up to the corporation's operational capability. Investment objectives can be strategic, when a firm wants to increase revenues or profits of its business, or financial, when a firm is primarily looking for attractive returns. The link of a start-up to its investor's operational capability can vary from "tight," whereby the start-up makes use of the investor's manufacturing plants, distribution channels, etc., to "loose" whereby it functions completely independently. Chesbrough argues that corporate investments should not be justified by the need to diversify and stabilize revenues and profits, because "shareholders could diversify their own portfolios and did not need corporations to do it for them" (Chesbrough, 2002). Companies are better off undertaking investments in start-ups to accelerate the strategic growth of their own businesses.

This reasoning assumes that a corporate investor's objectives are always aligned with the goals of the investment's recipient. The reality does not necessarily support such an assumption. Studies of the fledgling electricity industry in the United States of the late 19th century show how electric equipment manufacturers had to become in-kind investors in cash-starved central electric stations in order to sell them their product. The arrangement put manufacturers in a precarious position, for as investors and co-owners, they had to do everything in their power to ensure a central station's success. As manufacturers, they were interested in selling their equipment to any

party willing to buy, including isolated stations that produced electricity on industrial and residential premises and vigorously competed with central stations as an alternative organizational form (McGuire and Granovetter, 1994). To protect their interests, central station managers sidelined manufacturers within the two national trade associations and drew the industry's boundaries in such a way that excluded both manufacturers and isolated stations. Manufacturers had to withdraw their investments in central stations completely.

In post-socialist markets, the identities and strategic interests of potential investors are a subject of continuous concern. Therefore, it is puzzling that they attract little attention in the literature on foreign direct investment which focuses on the economic, political, and social characteristics of host countries (Meyer, 2001) and socio-cultural relations between the home and host countries (Bandelj, 2002). In the context of the Russian mobile industry, foreign manufacturers of telecom equipment and mobile operators are the two major types of corporate investors whose experiences turned out to be strikingly different. While the former exited rather quickly, the latter remained engaged in the long run.

Under the institutional model, potential foreign investors relied on pre-established ties to Russian authorities, in particular, the Telecommunications Ministry. A major US operator (USO further below) started its collaboration with the Soviet government in 1988 with a Trans-Soviet Line project - a fiber-optic line, which was supposed to connect North America and Europe. The US government under the ConCom regulations later blocked the project, but the initial contacts were established and allowed the Operator to explore other opportunities, including cellular telephony:

“Even though we were not ultimately successful in the execution of the TSL project, it was a platform, which gave us enormous credibility and positioning to look at other business opportunities" (Respondent #4).

Not surprisingly, USO became the first foreign entrant to the cellular industry as a co-founder of PSA. However, a similar move in the Moscow market to establish MSA initially stalled. While St. Petersburg traditionally enjoyed some autonomy and was allowed to experiment with risky or suspicious initiatives, Moscow in the late 1980s was under the close watch of the central government whose bureaucracy had very little enthusiasm for private enterprise (Respondent #7). Western European telecom operator, EO1, with access to the Ministry sought a similar license. The two investors agreed to work together and, to overcome the bureaucratic resistance, solicited help from one of the first entrepreneurs of Perestroika "who had nothing to do with the telecom, but had a high social profile and enjoyed direct ties to Gorbachev" (Respondent #8). That person agreed to participate in founding MSA and became instrumental to winning a license from the Ministry. At the same time, he remained just a passive minor co-owner without any kind of control over the company and therefore cannot be characterized as an entrepreneur by our definition.

Three foreign partners entered the market with some help from informal private contacts. In the first case, a Russian social scientist residing in a Scandinavian country offered a consortium of Scandinavian operators (SO) an introduction to the top management of St. Petersburg's traditional fixed-line operator. The invitation was accepted and eventually resulted in the establishment of PSB in which the intermediary retained 1.5% stake. The second case involved a Russian immigrant in the US with strong personal ties to St. Petersburg's government who brought to the city the CEO of one of the major American manufacturers of telecom equipment (USM). The two sides negotiated the incorporation of PSC, in which USM contributed capital through an investment firm specifically created for that purpose by the intermediary. In the third case, a Lebanese trader assisted an American entrepreneur (USE) in gaining access to a top-secret defense conglomerate in Moscow. Such an event could have only

happened in the context of Gorbachev's policies that encouraged the conversion of the Russian defense firms to civil uses. At a management meeting devoted to conversion, USE met his future Russian partner in MSC. Unlike in the first two cases, the intermediary did not get involved in the partnership.

The presence of brokers is consistent with the individual entrepreneurial model of organization building (Burt, 1992). However, the minor contribution they actually made departs from that model to a substantial degree. None of the brokers played any visible role in the development of the companies they helped conceive. The most consequential aspect of their involvement is the choice of a foreign partner. However, the founding entrepreneurs took on the brokerage role linking different constituencies. The American founder of MSC brought in \$12 million raised from US institutional and private investors to buy out a hostile shareholder and recruited an American marketing expert to develop the company brand, which later became its major competitive advantage (Respondent # 15). SO brokered supply contracts with Scandinavian equipment manufacturers (Respondent #1).

The strength of the operational link between a foreign investor and the subject of its investment varied by the type of the investor. Telecom operators entered the Russian market with the strategic goal of global expansion of their core business; the cofounders of MSA, PSA, and PSB fall into this category. They brought an operation and marketing expertise that Russian companies did not have. The group of manufacturers of telecom equipment included the cofounders of MSB and PSC who were primarily interested in developing new markets for their products and making financial gains.

A comparison of MSC and PSC explicitly shows the drawbacks of investor-manufacturers and the benefits of investor-operators. USE, the foreign investor in MSC, was a manufacturer and an operator at the same time, an entrepreneur who had a small manufacturing company in the US and a small cellular network in Latin America. Initially, he planned to

capitalize on these skills separately by lending his equipment to MSC, which would focus on providing a service, and running his own distribution network. The distribution network failed for reasons unrelated to this paper. The equipment, three secondhand base stations and a mini-switch, turned out to be grossly inadequate for the requirements of the Moscow market. However, as an entrepreneur at large rather than the owner of a specific business, he was not irreversibly committed to his identity as an equipment manufacturer and to the original business model. He quickly converted the equipment already installed from a loan to an investment, merged his fledgling distribution network into MSC, forged a close partnership with the Russian entrepreneur, helped MSC acquire necessary equipment from a major European manufacturer, and found a marketing expert who developed MSC's brand. In fact, marketing and branding rather than equipment became USE's key contributions to the success of MSC:

"The CEO and his men laughed when I suggested that the company needed a brand, but we managed to change all that and he [the CEO] calls it a "revolution in his mind" (Respondent #15).

This is exactly what PSC's foreign investor USM could never have done, since its business identity was firmly linked to equipment manufacturing. Hesitant to commit significant financial resources, it offered an investment in kind in the form of its own equipment. This limited PSC's choice of vendors and indirectly increased their cost of capital:

"They [manufacturer-shareholders] achieved their major objective: they sold their equipment and made the company fully dependent on them...they did not allow us to borrow to finance the network's expansion and did not want to supply their base stations free of charge." (Respondent #6).

In a less dramatic form, the story about equipment dumping repeated itself in the case of MSB. The difference was that its foreign investor, an equipment manufacturer (EM), recognized its limits and from the beginning involved its close ally, a telecom operator (EO2), as a partner and eventually transferred its stake to that company. Overall, our evidence strongly suggests that, as foreign direct investors, equipment manufacturers are detrimental to fledgling cellular operators.

2.3 The state

State policies are crucial for economies with little tradition of entrepreneurship. Evans (1995) offers a typology of the roles the state plays in creating the environment conducive to entrepreneurial undertakings. In a custodian role, the state regulates entrepreneurial activity through legislation, licensing, and the supervision of market competition. As a demiurge, the state itself creates, owns, and runs new businesses. The midwifery and husbandry roles entail facilitation of entrepreneurial activities through education, training, creating favorable conditions for foreign direct investments, and other promotional policies. Evans finds that the midwifery and husbandry roles are the key determinants of the success of the information technology industry in Brazil, India, and South Korea.

The state's propensity to play these roles depends on its internal structure and relationships with entrepreneurial elites and society at large. With regard to these factors, Evans distinguishes predatory and developmental states. The former "lack the ability to prevent individual incumbents from pursuing their own goals. Personal ties are the only source of cohesion, and individual maximization takes precedence over pursuit of collective goals" (Evans, 1995). To achieve their goals, entrepreneurs within the same industry engage in a competition for the preferential treatment by the state within the logic of patron-client relationships (Eisenhardt

and Roniger, 1984; Walder, 1986). Since the state bureaucracy can arbitrarily pick and choose winners and losers, the emerging industry is unlikely to fully develop its potential.

In contrast, the internal structure of developmental states is close to a Weberian bureaucracy. Bureaucrats are recruited according to meritocratic criteria and enjoy clearly outlined career prospects within the state hierarchy. This in turn fosters commitment and corporate solidarity, which help the state apparatus to achieve autonomy vis-a-vis entrepreneurs. Autonomy is complemented by "a concrete set of social ties that bind the state to society and provide institutionalized channels for the continuing negotiation and renegotiation of goals and policies" (Evans, 1995). The combination of autonomy and embeddedness in concrete social relations is the essence of the developmental state.

Using Evans' typology as a baseline, we evaluate the internal structure and composition of the state bureaucracy involved with the cellular industry, its relationships with entrepreneurs, and the joint impact of these two factors on the actual contribution of the Russian state to the industry's formation.

In the Soviet Union, the government combined regulatory and production functions in the telecom industry within the Ministry of Telecommunications. The Ministry defined the normative framework, issued licenses, and enforced regulations, and at the same time directly managed companies by giving production targets, allocating resources, and hiring or firing managers. It ran thousands of state-owned companies providing a whole spectrum of telecom services from satellite communication to short-wave radio communication. The Ministry had formidable, albeit often troubled, international contacts including leading European producers of telecom equipment such as Ericsson, Siemens, and Alcatel. It was an active member of the International Union of Telecommunication.

With the economic and political reforms of the late 1980s and early 1990s, the situation began to change as the Ministry lost its grip on the operating companies, which were first

incorporated and later privatized. However, the state maintained a substantial stake in most of such companies and had multiple levers to exercise control, primarily through regulation and ownership. In the international arena, "the Ministry had relations with 180 countries and was very close to the global telecom markets" (Respondent #10).

For these reasons, the Ministry of Telecommunications became a magnet for foreign companies interested in the development of cellular telephony. The service was unfamiliar in the Soviet Union; only the very top Communist elite had access to its Soviet predecessor, the Altay system. This exclusivity was one of the reasons why foreign investors faced resistance from the Soviet Ministry of Telecommunications:

"...we had a terrible time convincing Gennady Kudriasov [the Minister of Telecommunications in 1989-1990] ... that cellular would ever have a market in Russia. We had to take him to the United States and show him some of our cellular operations to really get him convinced" (Respondent #4).

"When we went to the Minister, he said that it is not what they need here in Russia: 'Cellular is not for us. We already have everything we need' ...we were working very hard to get in" (Respondent #8).

The evidence at our disposal suggests that it was not the Ministry itself, but foreign investors in collaboration with the top management of the traditional fixed-line operators in Moscow and St. Petersburg who pushed the cellular industry to the forefront of the Ministry's agenda. The first cellular licenses were issued in the summer of 1991 and in February 1994 the government produced the first comprehensive document outlining a regulatory framework for the nascent cellular industry. The document was entitled *The Conception of the Development of*

the General-Use Mobile Ground Networks in Russia Until 2010 and formalized the status quo that emerged in the industry by that time. It recognized two federal standards, A and B, for the general market and upscale market, respectively. The choice of these particular standards was driven primarily by their European origins, since the government saw one of its priorities in achieving the compatibility of the Russian cellular network with the networks of other European countries. The adjective 'federal' implied that a license holder was allowed and expected to eventually build a national network.

By that time, the Minister, himself, as well as some other people at his branch of power, recognized that cellular telephony represented a potentially promising opportunity to promote their image as "reformers" and "builders of the market economy" and consequently began to listen with an increased interest to what the operators had to say. At that juncture, important two-way relationships between the Ministry officials and incumbent and aspiring cellular operators began to develop. The bureaucrats became interested in the fast development of the industry and saw the potential for political support from the growing entrepreneurs. Meanwhile, the entrepreneurs continued to need the regulators to facilitate their business.

MSC story is exemplary in that respect. Initially, the Ministry planned to issue only one license per federal standard in each administrative region of Russia. In Moscow and St. Petersburg, they went to MSA, MSB, PSA, and PSB, the joint ventures of the traditional state-owned fixed-line operators. The emerging market structure did not leave any space for the telecom industry's outsiders such as MSC and PSC. This is when institutional entrepreneurship became a key factor.

MSC's CEO invested all his energy and charisma to change the rules:

"I waited for almost a month in the Minister's reception room, but he would not see me. I went to see his deputy, the meeting lasted 5 minutes and he said: 'No, the issue is closed.'

We then came up with the idea of using the theme of military conversion, checked with

the generals, and found some frequencies there. I went back to the Ministry asking to support unemployed military researchers who wanted to develop cellular telephony" (Respondent #12).

"They would show him the door, he'd be back through the window the next day. Finally, he found some guys within the Ministry who saw the potential and helped him to get to the Minister" (Respondent #15).

The entrepreneur and his new-found supporters at the Ministry came up with the idea of a regional standard and justified its introduction by the need to saturate the cellular market quickly. Indeed, standard C, lobbied for by MSC, was older and more developed than A and B, which implied substantial savings on equipment and installation. The regional standard was defined very broadly: any mobile technology but A and B would have qualified. While issuing regional licenses, the Ministry was required to take into account the operators' ability to use Russian equipment, the development of federal operators, and the wishes of regional governments (Respondent #5).

The third requirement followed logically from the concept of the regional standard. At the time, separatist tendencies in the Russian federation were gaining momentum, so the central government could not alienate regional administrations further by denying them the right to control an issue deemed regional. By its decision to share the control over standard C licenses, the Ministry signaled its compliance with the declared power-sharing principles of the Russian federalist state. From the vantage point of the businesses, however, benefits were uncertain while difficulties were immediately felt.

To gain the consent of the Moscow regional government, MSC turned to the financial-industrial group most closely associated with the mayor of Moscow (further FIG) for help. This

decision, dictated by short-term considerations, led to long-term problems. The FIG helped with the license, but quickly recognized MSC's potential and in a non-transparent deal took over the majority stake in the company, bypassing its founders. The entrepreneurs realized that they were risking losing control over their business in the best case and being merged with FIG's controlled MSB in the worst. They engineered a sophisticated buy out scheme involving American private and institutional investors to persuade FIG to give up its stake in MSC. One of the participants recalls:

"Just before we closed the deal, they realized that \$12 million was too low. But we had already anticipated that, and by the time they tried to change, the shares were in the escrow account. That taught me a lesson that allowed me to identify early the single weakest point for a Russian businessman: greed. It was tremendously strong in those days, and still is tremendously strong"

(Respondent #15).

MSC succeeded in keeping its independence, but hurt many feelings in the process, as well as created potential enemies.

The emergence of PSC is an example of the state as a demiurge at the local level. The St. Petersburg government conceived PSC as a counterweight to the growing market power of the traditional operator, which controlled both PSA and PSB. A widely known proponent of free markets, the late mayor Anatoly Sobchak realized that in Russia a real competitor is not defined by the lack of formal organizational ties to the other market players. One has to ensure the absence of any informal personal ties. Therefore, he invited to be the CEO for the new venture an industry outsider with some background in general management and previous experience as a theatre director. The newly appointed CEO did not receive a stake in the venture. Moreover, as it

turned out, the complete lack of ties to the telecom and adjacent industries led to problems with hiring qualified personnel, getting access to the fixed network on competitive terms, and resolving numerous technical and logistical issues. According to one of the insiders: "He (the CEO) graduated from the drama school. I think he had too little business experience, not to mention an absolute lack of telecom experience...It was very difficult for him in the industry, which is a closed old boys' network" (Respondent #5). In 2002, the St. Petersburg government sold its stake to a Russian entrepreneur with no interests in the cellular industry.

The findings presented in this section suggest that Western operators and Russian entrepreneurs led the central government (Ministry of Telecommunications) in shaping the cellular industry. Emerging industries often benefit from reactive rather than proactive regulatory policies of the state, because such policies leave space for businesses' spontaneous and flexible response to unforeseen circumstances. In our case, institutional entrepreneurship (Aldrich and Fiol, 1994) created favorable conditions for greater competition. However, the same institutional entrepreneurship molded a new regulatory role for local governments, which overall became detrimental for businesses affected.

2.4 Traditional Fixed-Line Operators

While mobile phone services are new to Russia, phone services in general are not. They constituted a major industry of the former Soviet Union, although its civilian component was treated as a poor relative to the state and military. Socially, the industry was very closed. To support the vast phone network, workers had to maintain a mobile lifestyle which was easier if their spouses worked for the industry as well. Exposed to such a lifestyle from an early age, the children of its workers often followed their parents' path. Institutions of vocational and higher education subordinated to the Ministry of Communications facilitated the formation of intergenerational dynasties.

This social structure began to crumble at the late 1980s. Russia's opening to the West attracted foreign telecom companies which saw immense opportunities in revamping the country's dilapidated civil communications infrastructure. This coincided with the influx of highly qualified individuals from adjacent industries, the military and the security apparatus which had gone into a tailspin under the pressure of economic reforms. The industry had no choice but to open up to this flow of new entrants who pursued commercially viable projects in the areas of cellular telephony, the internet, and fiber-optic technology.

At first glance, the position of the traditional phone operators was dominant. They controlled the obsolete, heavily regulated and subsidized communication network of residential and business customers that new profit-oriented entrants needed access to. As a precondition, traditional operators demanded, and were granted, a major ownership stake in the new ventures. The ownership data on cellular companies in Table 2 confirm that. The traditional operator in Moscow (further MTO) had at least 20% stakes in MSA and MSB, another 23% stake in MSA belonged to Moscow's long-distance and international carrier (MLIO). The pattern is even more obvious in St. Petersburg where the traditional operator (PTO1), owned more than half of PSA and three other traditional operators (PTO2, PTO3, PTO4) owned about 45% of PSB.

The traditional operators had neither skill nor expertise to effectively manage their assets and therefore could not play the entrepreneurial role. In fact, the way they became co-owners of cellular companies indicates that entrepreneurship was not their goal in the first place. The control motive looks more plausible as the initial goal, since the implications of the cellular industry's emergence and development for the whole telecommunications sector were highly uncertain. At the same time, the traditional operators' subsequent actions point to the complete lack of will to exercise control. They opportunistically converted their monopoly power in the fixed-line phone sector into cellular assets which they neither needed nor knew how to handle.

3. Networks and the Formation of the Cellular Industry

In Section 2, we characterize each individual and organizational actor's role in setting up new businesses in the cellular industry. Here, we focus on the relationships among these actors that make their businesses work.

A comparison between very similar MSC and PSC clearly demonstrates that the crucial resource contributed by Russian individual entrepreneurs was the skill of building relationships in the corridors of power. To obtain strictly rationed radio spectrum for its cellular business, MSC had to "clear radio frequencies" with the military, which controlled most of the radio spectrum since the Soviet times. The "clearing" involved extensive research and lobbying of the top military officials. According to the founder of MSC, who had some initial ties in the military from his days as defense researcher, he "spent days and nights taking saunas and drinking vodka with the generals" to get much needed frequencies while his company "invested millions of dollars into test flights and other actions demanded by the military" (Respondent #12). He built relationships that lasted many years and allowed the company to solve many crucial technical problems. His power networks included high-level government officials, top-ranked military, and people from the local government. According to one Western executive, "no foreign investor could have succeeded in that role" (Respondent #1). It's interesting to mention here that the founder-CEO of MSC ended up resigning from his job, after 10 years of service, when he felt he could no longer perform that function:

"He was great with the first (post-Soviet) generation of the bureaucrats. He did things nobody could have done. He was pretty good with the intermediate generation, but he just could not cope with the new guys. They are younger, smarter, they would just not listen to him" (Respondent # 15).

The founder of PSA and PSB enjoyed close industry ties from the Soviet days and made sure his competitor (PSC) did not develop them. To a large extent, lack of patronage at the central government level as well as within such important State or semi-State constituencies as military and fixed line operators pre-determined PSC's troubles: it had a limited spectrum, it could not convert into the digital standard, and it had to buy numbering capacity at artificially high prices.

The vast literature on personal relationships in socialist and post-socialist economies of Russia, Eastern Europe, and China characterize businesses' relationships with the state as a competition for favors driven by the logic of clientelism akin to corruption (Ledeneva, 1998; Walder, 1986; Yang, 1994). If so, the Russian cellular industry appears pretty similar to banking, vividly described by Spicer and Kogut (2004), and simply reinforces the long-held view of the Russian post-socialist transition as a total failure. However from a consumer's perspective, the cellular industry of the 1990s is a resounding success. Between 1992 and 2003, it emerged from scratch to serve about 31 million customers or roughly one fifth of the Russian population (Handbook 'Russia 2004'). This striking difference from banking requires an explanation.

Our interviews with the industry's key individual and organizational players point to a number of the industry's features that shape the pool of actors and relationships among them. First, the cellular business carries high fixed costs that discourage seekers of quick profit from getting involved. Second, financial constraints prevent the state from investing in the industry. As the banking industry shows, the budget is an easy and attractive target for misappropriation and theft (Spicer and Kogut 2004).

Most importantly, the industry is technologically complex and thereby relies on engineers with strong professional identities shaped by values different from, if not opposite to, profit making. The initial intention of MSC's Russian co-founder to focus entirely on building and operating a cellular network and to leave the provision of the service to his American counterpart

clearly indicates the strength of such identities. MSC's engineers were interested exclusively in solving technological problems, sometimes at the expense of the bottom-line:

"The concept of service was totally foreign to them {Russians - auths.}, the engineers could shut down the system if they wanted to do some checks...."

(Respondent #15).

To overcome such an attitude, the Russian co-founder "once issued a firm-wide decree obligating all employees to love their customers" (Respondent #13). The complete arrogance regarding marketing and service coexisted with the highest regard for engineering skills which became the firm's crucial advantage in the early years of the industry's development. This is how one of the respondents describes MSC's response to the unauthorized access to its network:

"They paid hackers to find a way to penetrate their network and then searched for a defensive algorithm. It is peculiar that the solution found was later sold for big money to the West to be used on more developed networks. The engineering team was completely home-grown and its skill level was in no way inferior, and in many aspects superior, [to the level of its Western counterparts]. The equipment available limited its potential..." (Respondent #13).

Technology-driven interactions formed numerous relationships within and between organizations as well as between organizations and the state. The emerging network was resistant to the penetration of strangers with short-term commercial interests and violent means to promote them. Such personalities received various derogatory labels. Since the industry is

traditionally linked to state enforcement and security agencies, it had means to respond to any criminal violence. As a result, such violence was minimal.

The technological sophistication of Russian entrepreneurs turned their relationships with Western partners into more of a two-way street. The Russians were still more dependent on their foreign counterparts than the other way around, but they contributed to the relationship above and beyond managing patron-client relationships with the state, a task conventionally expected from Russian partners in joint ventures. This was not widely appreciated:

“Our Western partners pursued a very strange strategy of recouping their investments as soon as possible. They believed that the risk was too high and so they tried to extract from the firm everything they could within the first year or two... Russians are quick learners; their technological and intellectual foundations are sufficiently solid. Within a year to a year and a half, they figured out the market value of, for example, a billing system and realized that the price charged by their parent company was 300-400% higher -- a straightforward rip off of the firm's financial resources accompanied by an attempt to mislead the partner... The Russians learned from the foreigners, and they also came up with a kind of cultural excuse for certain practices: It's the foreigners who taught us to be so non-transparent and non-cooperative with regard to partners. Maybe, how they behaved was normal international practice for dealing with primitive markets, and with people who yesterday worked at state enterprises and knew nothing about financial controls and market prices...” (Respondent #7).

In this particular case, the Western telecom executives' decision to brush off their Russian partners' technological and intellectual potential and instead treat them as immature and

inexperienced junior partners who could easily be taken advantage of, was a failed strategy. Despite enjoying the first comer's advantage and a long history of relationships with the Ministry of Communications, the Western co-founder had to withdraw from Russia.

4. Discussion

The double-failure of economic reforms and the state is the leitmotif of the literature on Russia's post-socialist transformation. Yet, this literature cannot explain Russia's successes, however limited in scope they are. The cellular industry is one such success, and it materialized despite the ills that the industry shares with the Russian economy at large. This paper offers an explanation.

We show that the cellular industry's main challenge was institutional rather than technological in nature. In order to succeed, new ventures had to have strong support at different levels of the state hierarchy: the central government (Ministry of Telecommunications), local government, military that controlled radio frequencies, and incumbent fixed line operators. That support came either from the participation of firms' founders in the state bureaucracy and adjacent markets or from mobilization of preexisting or newly established contacts of the patron-client character.

Spicer and Kogut (2004) promote a similar argument for the Russian banking sector and specifically emphasize that one does not need relationships going back to the Soviet past to make the patron-client logic work. Findings from our research fully support this insightful comment and add to it two points. First, business relationships are full of distrust even when the partners signal their affection for each other through socially accepted rituals. Second, personal networks are not an alternative to immature institutions; they are a part of those institutions. As a result, knowing the rules and rituals of the game of personal relationships becomes a crucial entrepreneurial asset; to a substantial degree, being an entrepreneur means being a network

entrepreneur who intuitively recognizes a structurally advantageous position of bridging otherwise disconnected people, and is skillful in mobilizing the discovered social network towards the provision of material, financial, and human resources necessary to achieve his business goals (Aldrich and Zimmer, 1986; Burt 1992). The key to successful mobilization is multifunctionality defined as the ability to simultaneously act in multiple domains: economic, political, and social.

Relationships between cellular ventures and their supporters in the corridors of power took on many characteristics of patronage networks, irrespective of when those relationships emerged (before or during the time of the industry development) and whether the patrons had or did not have a stake in the company. The state bureaucrats and managers of incumbent fixed line operators provided opportunities for the ventures to develop their business and gain material wealth (licenses, spectrum frequencies, access to the numbering capacity, etc.) in exchange for resources to support their political careers as well as share in the material gains, the latter usually disproportionately small in comparison with the gains of the entrepreneurs themselves (Respondent #12). The relationships were continuous rather than transactional and required a significant investment of time and effort on the part of the entrepreneurs.

The Russian state as an institution reacted to entrepreneurial initiatives rather than independently defined the rules of the game. The industry as a whole benefited from such dynamics, because it provided space for spontaneous development, which is a must for fledgling industries full of uncertainty. Moreover, it is advantageous that the state could not get involved with the industry as its customer since such an involvement in other industries often led to the misappropriation and outright theft of state resources. The baseline typology of the state's roles in the economy (Evans, 1990) does not foresee the customer role, which may be crucial -- not just in a negative but positive sense. By being an exemplary customer, the state can affect market

prices and enforce quality standards and ethical norms. The discovery of this role is another contribution of the paper.

In the long-term, the state's proactive behavior may have adverse consequences, because it motivates entrepreneurs to join the state bureaucracy themselves without severing the ties to their businesses, taking patronage to the extreme, when a government official basically patronizes himself as a private entrepreneur. At the early stage, this tendency did not affect the industry's competitiveness, but as the trend towards consolidation strengthens, there is a danger that the winners will be handpicked by self-interested parties within the bureaucracy rather than determined through fair competition in a level playing field. The Russian banking sector suffered from the similar negative dynamics in the first part of the 1990s (Spicer and Kogut, 2004).

The paper identifies a network that counterbalances the most extreme manifestations of patron-client relationships. It is a network of engineers (often with a shared work history in the telecom industry) formed around the search for solutions to technological problems. The network, which constituted a substantial part of the industry's social fabric, created a high entry barrier to the outsiders, preventing excessive criminalization of the fledging cellular companies. Thus, the industry's key relationships engaged the technological domain in addition to the economic and political ones. In this regard, the industry's network somewhat resembles the network of entrepreneurs in Silicon Valley (Saxenian, 1996) which explains the industry's developmental potential. It is interesting to notice, however, that in some Russian regions outside Moscow and St. Petersburg, where traditional fixed-line operators were much smaller and general engineering culture much weaker, newly formed cellular companies became highly criminalized and managed for the immediate cash profits. It had forestalled capital investment and significantly altered their long-term growth.

Neither individual Russian entrepreneurs nor the state could provide the financial capital and managerial expertise necessary to run cellular businesses. This is where the role of foreign

investors became salient. While the literature on foreign direct investments focuses predominantly on the economic and political environments in host countries and the relationships between donor countries and host countries, we show that characteristics of donors are equally important. The involvement of major foreign telecom equipment manufacturers negatively affected their Russian subsidiaries. Their investments often took the form of overpriced and outdated equipment and were not accompanied by managerial expertise in running cellular services. Both these factors put the Russian cellular companies created by the manufacturers in a disadvantaged position vis-à-vis the competitors that were co-owned by foreign telecom operators. The foreign investors, especially operators, who took an active part in organization building, had a strong positive impact on the emerging culture of Russian cellular companies, which is more transparent, customer, performance and development-oriented than that of other Russian industries.

In addition to the findings presented above, the robustness of our conclusions is supported by the remedial actions undertaken by some early industry laggards. MSB ended up with a major manufacturer (EM) as a foreign partner and the traditional fixed-line operator (MTO) instead of a local entrepreneur, which forestalled its development at the early stage. However, in 1995 the same business group that helped jumpstart MSC (FIG) took a major stake in MSB by acquiring shares from the incumbent fixed-line operator (MTO), which that group has already controlled. Simultaneously, the European operator (EO2) and co-owner of MSB purchased the stake of the European equipment manufacturer (EM). The new ownership structure of MSB corresponded closely to the successful model described in this paper. The company turned from a sleepy engineering house into an aggressive market player with often ruthless, but always dynamic and creative tactics. It eventually overtook MSC as the Moscow market leader and later moved on to become the largest national operator in Russia. The SPC attempted to move in the same direction and at the same time: a European operator (EO1) with a

stake in MSA bought out the American manufacturer (USM). However, the city remained a shareholder for a long time and the company did not attract entrepreneurial talent. SPC kept struggling, even though it managed to survive the 1998 financial crisis, and remained a low-cost niche player in St. Petersburg.

One can argue that we cover a very short early period in the development of the cellular industry; some factors we discuss have long-term implications that will determine the industry's structure. The short-term versus long-term considerations are important at an abstract theoretical level, but provide little guidance to empirical research. Businesses often act myopically, but this does not necessarily mean that they are doomed to failure in the long run . First, multiple new factors come into play over longer periods and may counteract the long-term effects of preceding factors. Most importantly, there is nothing that automatically prevents organizations from addressing the long-term implications of their actions when those implications surface. For instance, MSC's pick of standard C, determined by necessity rather than free choice, turned out to be beneficial at the early stage, but exhausted its potential by 1998. By then, MSC had a vast customer base and strong patronage networks, which helped it to obtain a new license for standard B.

Our findings may not be representative for other businesses. The main distinctive features of the telecom industry are technological sophistication, high fixed costs, and a high level of state regulation. These factors make the economic, political, and technological dimensions crucial determinants of the industry's structure. More research is required to explore the sources of variation across industries.

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Table 1. The Relative Market Share of Cellular Operators in Moscow (with Moscow region) and St. Petersburg (with Leningrad region) (%)

		1993	1994	1995	1996	1997	1998
Moscow market	MSA	100	74	41	22	18	14
	MSB			10	22	30	45
	MSC		26	49	56	52	41
<u>St. Petersburg market</u>	PSA	95	48	31	29	34	27
	PSB		29	53	47	49	63
	PSC	5	24	16	24	17	10

Sources : company reports.

Table 2. The Ownership of the Cellular Operators in Moscow and St. Petersburg (some names have been disguised)

		Founding Date	Owners	Stake %
Moscow	MSA	1/29/1992	Traditional operator (MTO)	23.5
			Traditional operator (MLIO)	23.5
			Foreign operator (USO)	22
			Foreign operator (EO1)	20
			LLP "Eye Microsurgery – MobileCom"	8
			State Institute of Radio and TV	3
	MSB	10/28/1993	Foreign Operator (EO2)	35
			Traditional Operator (MTO)	20
			Russian business group (FIG)	19.1
			Foreign manufacturer (EM)	10
LLP "Vast"			4.9	
Central Comm. Station (Railway Min.)			3	
AOZT "GDSR"			4	
Moscow	MSC	7/28/1993	Radio Institute	11.9
			Interstate AK "Vympel"	10.0
			All-Russia State Radio and TV Comp.	4.3
			Information Transfer Center of MID	0.4
			LLP "Dondo"	6.6
			LLP "KB Impulse"	6.6
			JSC "Region"	6.6
			JSC "Rocico"	6.6
			USE controlled investment fund	47.0
			St.Petersburg	PSA
Foreign operator (USO)	42.5			
PSB	6/17/1993	Foreign operator (SO)		49
		Traditional operator (PTO2)		17
		Traditional operator (PTO3)		14
		Traditional operator (PTO4)		14
		AOZT "Contact-S"		3
		AOZT "West Link"		3
PSC	11/16/1992	Foreign manufacturer (USM)		60.6
		St. Petersburg Property Committee	39.4	

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