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Industrial modernization and business strategies in transition economies

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Proponents of neoliberalism stipulate the importance of market self-regulation, privatization, unrestricted free trade and reduction in government interference in the functions of markets. Institutional political economy proponents prescribe that economics cannot be divorced from the social and political context since the market itself is an institution, which is to say is politically constructed. Transition economies are economies that undergo structural transformations intended to develop market-based institutions. Out of all transition economies, Russia experienced a stark contrast between the sudden deregulation followed by the more gradual state-led transition to a market economy. This study finds that the shock therapy approach proposed by the neoliberal policy in the beginning of the Russian transition led to severe setbacks in the national innovation system of Russia in the 1990s due to inabilities of the society and organizations to function in a newly liberalized economy without strong institutional frameworks. In 2000s, the new government managed to centralize the power and established strong functional institutions that provided a more clear-cut business environment that supported firms. This resulted in alignment of business strategies from short-term-profit-seeking with a strategic path of trading in the newly liberalized economy towards more long-term investment strategies including vertical integration, modernization and R&D.

Introduction

The paper examines the trajectory of development of the national innovation system under a dynamic institutional context of an emerging economy. Emerging economies are often characterised by turbulent institutional environments. In the Russian case, much criticism as to the ‘shock therapy’ approach to transition as offered by supporters of neoliberal policy has been raised. The chapter divides the Russian transition into three distinct phases and proposes a set of strategies utilised by firms in both phases of the transition. An in-depth research shows that rapid and pervasive institutional shifts as witnessed in Russia in 1990s create unstable and volatile business environment that led to avoidance of long-term investments. This hindered firm growth and severely debilitated national innovation system of the country. With state guided strengthening of formal institutions, longer-term investment in key industries is witnessed. The question this chapter is mainly concerned with is ‘how do institutional shifts affect industries in terms of their decision to invest in innovation?’ Despite recent attempts at uncovering the phenomenon, the literature is somewhat deficient in conducting detailed empirical, especially longitudinal studies on how institutional change in emerging economies drive the evolution of their industries (Hoskisson et al., 2000) – especially countries whose institutions are opaque. Lack of transparency and openness in the Russian and CIS context is one of the reasons for scant research on these countries.

Russian transition has received some academic attention especially during the 1990s and was dubbed as the biggest failed transition experiment (Murphy et al., 1992; Stiglitz, 2003). A number of authors examined the Russian transition during 2000s when the government centralized control and enforced a number of reforms (Aslund, 2009; Goldman, 2008; Ledeneva, 2009; Puffer and McCarthy, 2011) with often divergent viewpoints on the governance quality. In the late 2000s Russia adopted ‘roadmaps’ to development of key strategic industries to regain competitiveness in S&T sectors and diversify the economy away from natural resource dependency. Due to relatively recent strategic developments, not much research touches these recent developments. To date, there is little written on the whole Russian path of transition in the academic literature. This chapter depicts key institutional reforms that took place in Russia since 1990s, structures the transition into distinct periods and

analyses the influence of the institutional changes on strategic choices of innovation-dependent, strategic Russian firms. The Russian pharmaceutical industry being one of the key industries is the subject of analysis through the various institutional reform phases. An extensive in-depth investigation into how firms and industries navigate through pervasive institutional transition is undertaken. This allows for a framework to be drawn, figure 1, highlighting the institutional change dynamics influence on firms and industries in transition economies. This study aims to contribute to research on transition economies through studying the effects of institutional reforms on strategic choices of firms. Thus, this chapter offers the break-up of the lengthy transition into three periods, depicts a comprehensive set of institutional reforms that took place in Russia and offers a taxonomy of strategic choices of Russian firms through the various stages of transition. Researchers would find it valuable to gain an insight into specific institutional changes and reforms through the transition and understand strategic directions of transition-economy firms.

This chapter serves the purpose of contextualising the transition into dichotomous periods in order to be able to distinguish performance of a key industry and firms within it. The chapter begins with a review of the relevant literature on institutions and their central place in development and progress. Next, it maps the key institutional changes that occurred in Russia and its effects in brief. Following this, the chapter will show the effects of this transition on the industrial capacity of the key strategic innovation-driven industry in Russia. The paper then describes and analyses the findings and provides a discussion and the conclusion with implications for policy makers, firms and research.

Institutional political economists

Institutions defined as “humanly devised constraints that structure human interaction” (North, 1990, p.3) include established and prevalent rules, norms, schema, and routines that structure political, economic and social interaction (Hodgson, 2006; Newman, 2000; North, 1991) and become accepted as guidelines for social behaviour (McCarthy and Puffer, 2016; Scott, 2001). Institutions are key factors behind accumulation, innovation and accommodation of change. North (1971) and Aoki (2007) offer that institutions are the rules of the game known by the players that share knowledge at an equilibrium.

Institutional changes vary from regulatory changes to all embracing ideological restructuring as in transformation from a communist to a capitalist state. Institutional theory investigates how institutions emerge, diffuse and become adapted over time. Scott (2001) further divided institutions into formal and informal. Formal being regulative in nature i.e. laws, regulations and rules set by authorized bodies such as governments, ministries, councils, supranational bodies and the like. Informal institutions divide into normative and cultural-cognitive. Normative institutions are created through players of a particular context forming norms, values, beliefs and actions that are prescribed upon individuals and organisations of the said context. Normative institutions establish expectations, and the rights and obligation system for groups and individuals (Chang, 2002a; McCarthy and Puffer, 2016). The cultural cognitive institutions refer to implicit, taken-for-granted assumptions that guide the behaviour of individuals or organisations (Scott, 2001, 2005). Cultural-cognitive institutions tend to endure and imbibe substantive path-dependent elements and is particularly important in transition and emerging economies since it views institutions beyond the more obvious regulative and normative ones, and is particularly important in addressing glaring weaknesses in those more formal institutions (McCarthy and Puffer, 2016). Such weaknesses have been termed institutional voids (Palepu and Khanna, 1998) which reflect the institutional deficiencies of formal rules-based institutions. Institutional voids were initially described as weaknesses in the transactional guidelines between buyers and sellers, but later works included voids in other formal institutions like government and related.

From a cultural-cognitive perspective, it is reasonable to question whether chaotic economic transition can allow economic actors to make sufficient sense of their situation that they can act coherently under conditions of uncertainty (Puffer et al., 2016; Thagard, 2000) The very concept of an economy in transition presupposes that both where one is coming from and where one is heading toward are known in advance. Implicitly underpinning the concept, then, is an assumption of convergence in which ideological and other impediments to economic development are removed so as to allow an emerging economy to join those that have successfully industrialized. The convergence hypothesis,

however, takes the formalization of institutions as a natural goal to aim for in the process of modernization.

Institutional change often takes the form of “serial replacement,” in which institutions repeatedly undergo abrupt and wholesale transformation. Gradual change is most appropriate in a strong institutional environment (such as those in most advanced industrialized democracies), in which the core rules of the game (i.e., political regime, legal system) are entrenched and actors expect that existing rules will endure and be regularly enforced. In weak institutional environments, in which actors do *not* necessarily expect existing rules to endure (and may expect them to fail) *displacement*; or the “removal of existing rules and the introduction of new ones” (Mahoney & Thelen, 2010: 15-16) may be expected. Emerging market firms battle the pressures of the rapidly changing economic, political, cultural and technological changes or institutional displacement characterised by uncertainty and volatility which make long term investments in innovation and upgradation difficult (Lall, 1992).

In a context of contradictory and unsteady reforms, institutional voids develop, particularly in the regulatory domain as establishment of rule-based institutions and norms take longer to develop. Institutional voids are described as weaknesses in the transactional guidelines between buyers and sellers, but later works included voids in other formal institutions like government and related bureaucracies, the courts, and law enforcement bodies (Puffer et al., 2010). Informal institutions can become salient in rapid transitions, when regulatory and normative institutions have yet to develop. Resulting uncertainty and instability leads to a reliance on informal institutions such as networks (Ahlstrom and Bruton, 2006; Boisot and Child, 1996; McCarthy and Puffer, 2008). For example, utilizing social capital through networks to facilitate such necessities as obtaining licenses or permits to build facilities, winning government contracts, and securing financing from government-owned banks.

In a call to prevent institutional voids developing, Kuznetsov & Kuznetsova (2003) call for the state to perform the pivotal role of driving the process of institutional change because “the ‘natural’ evolution of institutions is not an option as this would mean ignoring available international experience and

wasting time and resources rediscovering institutions that have already proven their worth in countries with greater market experience” (Kalantaridis, 2007). The argument is that a strong state – which enjoys legitimacy and holds a clear vision of the institutions required for growth – can act as the driver of change. This is similar to the view of institutional political economists who maintain that actors need to be galvanised together to lead changes that are intended (Chang, 1995).

Prevailing institutions in previous era can shape future institutional arrangements, through path dependence (Sonin, 2013). Indeed, the state as an institution in its current form (post-socialist state) has been shaped, in large part, by the one that preceded (socialist state) through the pervasive influence of enduring elites and is an embedded element of the wider institutional setting, rather than an external agent driving change (Kalantaridis, 2007). Hanson & Teague (2005) argue relationship between state and big business is such that state power is increasingly used to ensure big business support for the party of power and existing policy, a view advanced further by Yakovlev (2006). In other words, state policy does not exist in isolation of the interests of different groupings – including groupings that are part of the state (Kalantaridis, 2007). Entrepreneurs and other economic actors can influence institutional change through direct attempts to set the course of the political and legal environment (Kalantaridis, 2007).

Hoskisson et al. (2000) suggest narrowing the discussion through institutional theory lens due to idiosyncratic nature of each country context as the theory looks at the relationship between the imperfections in the systems and organisations that operate within them. The literature on Russian and CIS firms and environments tends to lean towards institutional discussions. The widely referenced Peng & Heath (1996) paper finds institutional constraints influencing firm growth in transition economies and show cultural cognitive based network-based institutions to be the most viable option for sensemaking by enterprises. Empirical evidence suggests that entrepreneurs are able to provide meaning (interpret) to the superimposed market institutions upon the original institutional setting. Due to relative high levels of ambiguity and structural uncertainty, cooperation between and strong relationships with key stakeholders (buyers and suppliers) emerge as a means of enforcing contracts, given the weakness of formal institutions (Kalantaridis, 2007). Indeed network capitalism is the

dominant perspective when analysing Russian firms' strategies (Danis et al., 2009; Ledeneva, 2009; Michailova and Worm, 2003; Puffer and McCarthy, 2007). Faced with institutional upheaval where capital markets were undeveloped and government support dissipated, firms tend to downsize or restructure (Filatotchev et al., 2000). A study into environmental scanning in the Russian transition showed the most effective means of coping is to disregard the pace of change and complexity and to focus instead on what is deemed most important to organizational survival (May et al., 2000). The preferred method of expansion by Russian firms whether domestically or cross-border is through acquisitions (Bertrand and Betschinger, 2012).

Puffer & McCarthy (2011) draw conclusions on unsustainability of the current informal institutional framework that is prevalent in Russia. Ledeneva (2009) proposed the emergence of the super state centralization that is prevalent in Russia and CIS countries and the inherent risks and drawbacks that it brings. Here it is argued that this power centralization has a potential to drive key strategic industries and economic development as witnessed in emergence of Asian biggest industrializers such as Japan, Korea, Taiwan, Singapore and recently China (Amsden, 1997; Lall, 2013; Wade, 2003). An analysis of the Russian transition and the influences of the institutional shifts on the national innovation system are discussed next.

Russia's attempted laissez-faireism of the 1990s: Pharmaceutical industry

The shock therapy caused the collapse of the value chain of the functioning industry as institutes and firms struggled to survive in the new unsupported environment. Earlier, the Soviet State disintegration led to the disruption of trade between the 'bulk substance' manufacturing enterprises located in Russia and the finished goods pharmaceutical companies in the newly separated countries. Among other factors in decline of domestic manufacturing were financial constraints, asset stripping by management, and opening up to FDI and imports (Balashov et al., 2009; Chibilyaev, 2011; Dorofeev, 1995; Sidorov, 2008). The problems of soviet industry was however deeper, and can be traced to the existing formal structures that predominated in Soviet times, wherein the organizational separation of applied science from enterprises and the presence of bureaucratic barriers meant that scientific research was out of touch with innovation activity (Filippov, 2011a; Gokhberg, 2004). Elements of

the NIS—the scientific and technological sphere, enterprises, innovation infrastructure—existed in isolation from each other. The institutional structure of Russian science, have never been conducive to efficient integration of science into the market environment. domestic science was distinguished by three specific characteristics: it was very large; it was centrally directed; and it was almost 100 percent government financed (Gokhberg, 2004). Such was the state of the country’s scientific system when it encountered market reforms, The economic mechanism by which scientific research institutes and design bureaus operated then was primarily aimed at stimulating scientific activity, but not innovations (Gokhberg, 2004). The imbalance between them had a negative effect on the productivity and quality of research, as well as on the technological level of manufacturing and other sectors of the economy, the state of production facilities, and, in the final analysis, on the competitiveness of domestic products (Gokhberg, 2004).

The most prospering firms were ones that found new ways of entrepreneurship as trading and distribution of imported medicines. For example, Protek, a pharmaceutical company established in 1990 began as an importer of Hungarian goods and later shifted to specialization in medicines to meet the acute demand for quality medications. Through connections in Hungary the entrepreneurs started distributing medicines in Russia eventually becoming the biggest wholesaler of pharmaceuticals by 1998 and one of the top twenty performing companies in Russia. In its wake, another organisation, Pharmstandard took advantage of the unstable environment by leveraging connections with power brokers. Some enterprises that managed to opportunistically align their strategies with market demand duly backed by owner’s capital became engaged in acquisitions and take overs. The importance of knowing the right people meant access to auctions and the right to bid for vouchers or shares of companies. Likewise, - Biotec, utilised its CEO’s connection with the government to fill the gap left by the rapid disintegration of supply-chains of medicines to government-run hospitals and the military. The first manufacturing investments were made in 1996 to a packaging and market distribution of mostly foreign medicines plant called MFPDK Biotec. Biosintez being one of the rare survivors of the Soviet to Russian transition, had gone through major changes from originally established as a substance manufacturer in 1951 to one of the leading ready-to-use drug

manufacturers. In the 1990s, even after the loss of its main customer base in other CIS states, the company tripled the portfolio of medicines in five years by providing cheap day-to-day generic medicines to satisfy the demand of the population.

In the shock therapy years, Russian business leaders preferred to make as much short-term profit as possible at the expense of long-term investment in their productive facilities and innovation (Estrin and Prevezer, 2011; Filippov, 2011b). This inclination to avoid long-term capital investment is due to uncertainties about the future. Limited competition in the domestic market also reduces the push for efficiency through investment in innovation (Filippov, 2011a). Insufficient investment in innovation also indicates a lack of trust in the Russian business environment, a lack of management expertise inside Russia, or even belief that competitive products often do not guarantee sales (Filippov, 2011a).

Pharmaceutical industry during institutional strengthening: 2000-2008

The financial crisis of 1998 gave Russian manufacturers an edge over imported medicines in that local manufacturers were able to produce and distribute cheaper non-branded generics (Balashov, 2012; Trofimova, 2006). By diversifying the economy the administration intended to boost the export of goods other than raw materials, replacing them with Russian-made items, and stimulating the high-tech sector (Yegorov, 2009). Import substitution was intended to divert capital from the raw-material sector to the processing industries and attract FDI (Bevan et al., 2004).

Leveraging factor costs and strong domestic demand, three major pharma companies, Protek, Pharmstandard and Biotec were able to establish their own production bases that guarantee higher profit margins rather than wholesale distribution that required little specific knowledge. Due to weaknesses in their own research & development capabilities, companies engaged in extensive acquisitions of soviet-developed formulas and other firms that possessed the rights to these. In 2005 Protek upgraded its manufacturing from a packaging and distribution contractor into a full scale GMP and ISO standards compliant manufacturing facility. Protek became one of the top five domestic pharmaceutical manufacturers in Russia with continuous improvement in innovation and efficiency establishing production of high-quality substances in 2003 and acquiring a biotech company, Protein-

Contour in 1998. As well, it established links with several government research institutes in production of innovative clinical immunology products.

Similarly, Pharmstandard invested in production facilities of much needed cheaper generics in early 2000 and gained economies of scale that resulted in increased competitiveness. It also began a series of acquisitions, most notably Masterlek, which had several successful drugs such as Arbidol that became number one sold drug in Russia for several consecutive years. Finally, a takeover of a Cyprus registered firm, Donelle, in 2009 which owns an extremely successful antianxiety medication Afobazol concluded the end of the successful decade for Pharmstandard. The new program of additional medicinal supply in 2005 by the government saw Biotec growth spike to 75% in one year through its government relations.

Successful government tenders and cooperation allowed Biotec to purchase supplier factories- Biosintez and Marbiopharm in 2005. With the new-found success, the company immediately invested in modernization of newly acquired factories to the strict GMP standards that coincided with the needs of the company to increase its foreign presence.

The favourable economic growth and strengthened institutional frameworks were the key factors behind the growth of the industry that grew on average of 18 percent in the period 2001 to 2010. The companies having found a great potential of the market and confident forecasts invested in modernization of the existing capital and practices. Firms further engaged in heavy acquisitions of patented formulas from the Soviet research as well as acquisitions of companies that had such assets and/or capabilities. Investments into their own R&D remained non-existent or minimal due to greater benefits gained from modernization and acquisitions.

Strengthening formal institutions, along with being a key strategic industry in Russia, meant the pharmaceutical industry faced complete overhaul especially in the late 2000s (Table 1). Major changes included strengthening specifics of operations by introducing “On the circulation of medicines” in 2010, replacing an outdated 1998 legislation–“On medicines” (State Duma, 2010). Introduction of new bodies including Roszdravnadzor in 2004 responsible for licensing and control of

drugs in the country, Department of State Regulation of Medicines responsible for registration of new medicines, Rospatent that is given clearer responsibilities and powers (Balashov, 2012). Further, the government supplied on average of 3.6 percent of GDP to the industry in the last three to four years, which amounts to \$1.8 billion US annually (Peterburgskiy pravovoy portal, 2015).

Pharmaceutical industry during state-led industrialization: 2009 to present

In 2009 the Ministry of Health introduced ‘Strategy of pharmaceutical industry development up to 2020’. The strategy is essentially one of many that were introduced by the various ministries by the end of 2000s to develop innovativeness of and import substitution by domestic products (Makarkina, 2013). This phase can be termed as the beginning of guided market or state capitalism (Klochikhin, 2012) in Russia. It also marked the end of the availability of Soviet off-the shelf formulas creating the need for import substitution. The government began to encourage cluster creation, private research institutes and dedicated industrial bodies working closely with pharmaceutical companies.

Table 1. Formal institutional formation in the Russian pharmaceutical industry

Institutional voids of 1990s	REGULATIVE institutions introduced in 2000s
Unclear legislation	Legislation introduced in 2010–‘On the circulation of medicines’: <ul style="list-style-type: none"> · Fixed guidelines for registration of new medicines including steps and timeframes · Enhanced monitoring and reporting of safety and use of medicines · Vital and Essential Drugs (VED) –a fixed price and availability for key medicines
Unclear delegation of responsibilities between government bodies/ Unclear governing authorities on all levels / Lack of knowledge of the procedures	<ul style="list-style-type: none"> · Ministry of Industry and Trade (MIT) takes over control of medicines and medical equipment including licensing of the manufacturing facilities · Creation of Roszdravnadzor in 2004, comparable to FDA in the USA and EMEA in Europe–aligning and streamlining the system of licensing and control in one institution · Department of State Regulation of Medicines becomes responsible for registration of new medicines · Ministry of Health and Social Development (MOH), MIT and Ministry of Justice responsible for transfer of practices to GMP standards · Ethical approvals of the new medicines in oncology, sedative and psychotropic medicines.

	<ul style="list-style-type: none"> · Rospatent updated in 2004 ensures protection of the intellectual property · Industry standards introduced: ‘Quality standards for medicines. Basic provisions’; ‘State Information Standard of Medicines. Basic provisions’; ‘Rules of wholesale trade in medicines. Basic provisions’; ‘Rules for the formation of lists of medicines dispensed without a doctor's prescription’; ‘State Register of Medicines. General requirements’; ‘Rules for the Formation of the List of Essential and Essential Medicines’; ‘Instruction on a medicinal product’; ‘The passport of the drug. General requirements’; ‘Pharmacoeconomic research. General requirements’; ‘Medicines. The procedure for determining the expiration dates’.
Lack of specialised personnel	<ul style="list-style-type: none"> · MOH makes mandatory for all students of medical and pharmaceutical educational bodies to undergo compulsory internship in the relevant field
No GMP standardization	<ul style="list-style-type: none"> · Industry standard: ‘Rules for the organization of production and quality control of medicines (GMP)’ · MIT as well as the State Institute of Drugs and Good Practices form a team of over 300 professionals that check for conformance to GMP standards since 2009
No collaboration between academia and the industry	<ul style="list-style-type: none"> · Abolition of the law that stated any patents developed in collaboration with a government institute belonged to the State in 2010
Lack of national support programs	<ul style="list-style-type: none"> · Additional medicinal supply (DLO) program introduced in 2005; replaced by Regional Medicinal Supply worth almost \$3 billion and serving over four million patients; other regional programs serving almost nine million people in 2011 (Balashov 2012) · Seven Nosologies program started in 2008–medicines for patients with rare diseases
Lack of government support for ailing industry	<ul style="list-style-type: none"> · MIT invested \$122 million, 2011–2015 · Introductions of regulations against imported goods such as exclusion from tenders if at least two domestically produced alternatives are available in the country; 15% discount compared to existing domestic analogues if produced outside Russia; a maximum annual increase of 6% on VEDs compared to inflation rate increase for domestic manufacturers · Up to 50% reimbursement of clinical trials and/or procurement of capital machinery if new development streams are made within the first three years domestically · Reimbursement of a part of expenditures for setting up production of the full cycle, i.e. from substance to the Ready-to-Use (RTU) product. · Russian Industry Development Fund–subsidized loans at 5% interest rate, \$15 million in 2015. · As part of the Strategy 2020 the MIT is intendant to support 20 innovative drug and medical equipment centres. · Cluster creation–favourable conditions including preferential customs and tax regime, allocation of land, assistance in training of qualified personnel, among others. Planned government expenditure on 13 clusters amounted to \$180 million since 2011. · Government supplied on average of 3.6% of GDP to the industry in the last three to four years, which amounts to \$1.8 billion annually.
	NORMATIVE institutions introduced in 2000s
Lack of specialised personnel	Creation of new disciplines–industrial pharmacy, introductions of postgraduate training programs for validation and quality audits. Extensive exchange programs.

No collaboration between academia and the industry	As part of Pharma 2020, MIT is funding construction of new biomedical centres of the Moscow Institute of Physics and Technology Kazan and Ural Federal Universities, Volgograd Medical University are constructed, laboratories of the Saint-Petersburg Chemical and Technological Academy are reconstructed since 2011
Lack of government support for ailing industry	Significant boost of formal and informal support for the strategic industry by the government ARFP and AIPM are legitimate lobby groups that closely collaborate with the government.
Political connections necessity	Less dependency on political connections. More arms-length transactions.
Little social medicine support programs	National Drug Insurance scheme which makes the government a huge consumer for the largest companies Introduction of Vital and Essential Drug lists
Brain drain	In-house training, government lobbying for an education boost and reverse brain drain by the largest companies
Avoidance of long-term investments	Modernization, internalization, acquisitions & collaborations for innovativeness and sustainability
CULTURAL-COGNITIVE institutions introduced in 2000s	
Barter trade	Prevalent reliance on transparent monetary transactions
Consumer preference of imported medicines	Increasing consumer support for domestic products
Short-term prospects	Increased attention to modernization, innovation and general long-term sustainability
Consumers rely on generic medicines and traditional methods of therapy	Consumers realize the need and benefits of innovative medicines

Protek rapidly expanded its production base returning higher profit margins of up to thirty percent. In 2011, it made acquisitions of AnviLab with a portfolio of forty-two trademarks, thirteen inventions and eleven contracts. With acquisitions and scale building Protek became a vertically diversified pharmaceutical company.

Working closely with the government in R&D and distribution of drugs within the vital list of medications it ensured alignment of its production lines, strategies and operations with the current institutional environment. Similarly, Pharmstandard invested in further stages of development of potential breakthrough medicines such as treatment of HIV with a legacy of formulas from public research institutes (Sheridan, 2010). The biggest innovation push was establishment of an R&D facility NauchTekhStroy Plus in 2010, involved in developing human antibodies and other pharmaceutical innovations. A year later Pharmstandard also invested a key stake in a scientific

research centre – Generium, an international biotechnology centre as part of the Strategy 2020 program to increase market share of domestic drugs, decrease imports and gradually increase the share of innovative products from the current 30 percent compared to generics. The focus shifted from production of over-the-counter (OTC) drugs to government procurement, contract manufacturing, sales of equipment, and prescription medications as these became priority. The company spun-off the OTC part of the company for increased efficiency of separated parts due to specialization and attractiveness to investors.

A senior executive from Pharmstandard: “Over the past several years it became increasingly unprofitable to concentrate on the production of cheaper medicines. So, we inevitably had to maintain production competitiveness through the production of a more sophisticated, more R&R intensive medicines to remain competitive. Unfortunately, the old established facilities were not sufficient in producing high-end pharmaceutical products. And we made investments into Generium”.

Biotech became fully involved in government schemes as three-fourths of its production were devoted to essential drugs for the Russian markets. The most prominent government supported production project is the investment of over sixty million USD together with Polish Biokad into a new 5,000 sqm Insulin production plant.

In the beginning of the program, 2011, out of 567 vital and essential drugs (VED) only ninety-three medicines (16.4 percent) were manufactured locally. By December 2014 out of 608 VEDs, 413 (68 percent) were local. Government push for localisation of production resulted in a wave of inward FDI by Big Pharma companies from AstraZeneca, Novartis and Novo Nordisk that established wholly-owned subsidiaries. Notable foreign and local collaborations included Abbott and Veropharm, GlaxoSmithKline and Binnopharm, Pfizer and ChemRar, Merck and Akrikhin, Roche and TeaRx that localized production and collaborations in Russia (Van Arnum, 2011; Phillipidis, 2011; Rubin and Blackbeard, 2013; Stanton, 2015). The government introduced various schemes in preferential treatment of local producers in government procurement programs. It also created clusters with preferential policies in terms of tax, and reimbursed companies for innovation and modernization

investments. More importantly, it integrated academic and industry collaboration and communication with the industry to promote development. It is difficult to predict whether the comprehensive government support will enable the industry to become globally or at least regionally competitive. The interviewed officials and archival research shows an increase in industry confidence in the short-to-mid-term future.

In the pharmaceutical industry, after the 1998 crisis, the government introduced first instances of import substitution. Recognising the critical need for strengthening formal institutions the new ruling party supported domestic manufacturing industry in order to gain self-sufficiency in medicines. Accordingly in 2005 it invested four times the previous years in contracts with manufacturers. General favourable economic situation of 2000s and improvements in formal institutions resulted in an average growth of ten to fifteen percent per year (double of the world average) (Balashov, 2012).

The strategy for the pharmaceutical industry development aims to increase the market share of domestic producers to fifty percent in value terms (from the current twenty percent), and gain an eight-fold increase in exports compared to 2008. More ambitious is Russia's target of increasing the share of innovative products to sixty percent in value terms, and providing safety in supply of VEDs as well as increase the production of substances within to supply fifty percent of ready-to-use medications and eighty-five percent of VEDs (Ministry of Industry and Trade of the Russian Federation, 2009). The case studies further emphasize a general increased inclination to invest in R&D facilities, sponsoring clinical trials of potential breakthrough medicines, enhancing technological capabilities and rapidly expanding local share of the vital medicines. Some key indicators of the Russian pharmaceutical industry during state-guided transition are provided in table 2.

Table 2: Size and growth rate of Russian pharmaceutical market

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Trend
Pharm industry growth rate, %	10	16	19	27	35	28	6	25	18	9	12	12	7.8	Average growth rate 17%, exceeds world average
Total size, USD billion	3.84	4.46	4.99	5.27	8.35	10.7	11.4	13.61	16.87	21.56	23.26	25.38	27.37	Continuous growth from \$3.84 to over \$27 billion
Domestic production, USD billion	1.09	1.08	1.23	1.31	2.12	2.60	2.82	3.35	3.35	4.19	6.2	7.53	n.a.	As above
Domestic producer's growth in %	24	-11	16	14	28	18	8	22	29	33	48	21	n.a.	Government support in later years results in rapid growth
Export in USD, '000s	n.a.	309	309	330	638	583	Russian producer's competitiveness drives export							
Domestic share of total in %, monetary value	n.a.	24.2	24.6	24.8	25.4	24.3	24.7	24.6	26.4	26.7	28	27	n.a.	Expected to rise dramatically as number of contracts are established with local manufacturers
Average price per pack, USD	n.a.	0.97	1.07	1.27	1.63	2.1	2.4	3.07	3.73	3.77	4.23	4.47	n.a.	Price increases above the inflation rate show evolution of the Russian pharmaceutical market

Sources: Exportery Rossii (2014); Finansovaya gazeta (2012); Kunev & Kuneva (2014); Parfenteeva (2012); Pharmstandard (2014); RosnanoMedInvest (2012).

The strategic choices through the three periods of institutional transition are summarized in table 3.

Table 3- Strategic choices in adaptation to institutional changes

	Pharmstandard	Protek	Biotec
<p>1990-1999- Shock Therapy Institutional instabilities</p> <p>No government intervention</p> <p>Strategic path: Imports and trading – prospecting, networking and key competence focus</p>	<p>Short-term investments in trading pharma products & concentrate on meeting demand for cheap medicines.</p> <p>Minimal innovation- modernization of existing investment</p>	<p>Wholesale distribution of medicines.</p> <p>Establishment of a packaging facility, first investments into production-oriented supply chain follows Russia’s import substitution initiative of 1999.</p>	<p>Supply state organisations - reliance on political connections and access into the state supply system.</p> <p>Establishment of a packaging facility in 1996.</p>
<p>1999-2009 Government introduces import substitution for strategic industries and hastens formal institutional development</p> <p>Strategic path: Vertical integration and expansion – acquisitions, internalization and modernization</p>	<p>Acquisitions of pharmaceutical factories, company registered in 2004 and engagement in manufacturing and diversification.</p> <p>Through connections company becomes the leading pharmaceutical firm</p>	<p>Establishment of Protek-SVM in 2001 to supply Russia’s need for pharmaceutical substances.</p> <p>Establishment of main manufacturing wing Sotex, to become a vertically integrated firm</p> <p>Acquisition of Protein-Contour into a promising stream of pharmaceutical industry-biotechnology 2008.</p>	<p>Investment into a basic production facility of disinfectants, Biodez in 2001</p> <p>Vertical integration by purchasing suppliers- Biosintez and Marbiopharm</p> <p>Initiation of large-scale modernization of plants.</p>
<p>2009-on going First industry-specific strategy to 2020- measures in favour of domestic goods, introduction of price ceilings for vital and essential drugs, heavy investments to strengthen R&D and the industry</p> <p>Strategic path: Innovation – public-private-partnerships, modernization, R&D</p>	<p>Increased participation in government tenders, reduction in OTC specialisation.</p> <p>Modernization and compliance to GMP standards as part of the requirement for WTO.</p> <p>Concentration on government contracts and R&D.</p>	<p>R&D expenditures increase into innovative medicines</p> <p>Manufacturing wing the fast-growing segment with the rate of 17% (2014).</p>	<p>In 2010 started production of substances according to the modern standards.</p> <p>60 million USD invested in modern Insulin production plant in 2016 to satisfy growing market demand government demand for VEDs</p>
<p>Prospects for the future</p>	<p>R&D expenditure increases, innovative collaboration increases; reverse brain drain of researchers for Generium; state cooperation.</p>	<p>Increasing R&D investment in the Northern Cluster¹; continuous upgrades of efficiency and management; expansion in services and further diversification.</p>	<p>Aggressive competition in export markets and expansion; dominating in insulin production; active government collaboration in 7 Nosologies program².</p>

¹ Pharmaceutical cluster initiated by Sotex in collaboration with Moscow Institute of Physics and Technology and KhimRar for development of a broad spectrum of medicines

² "Seven Nosologies" is the most funded program for the purchase of expensive drugs in Russia. The project started in 2008 as a solution to the problem of lack of funds in the "Additional pharmacological support" program (Russian abbreviation: DLO). The "Seven Nosologies" includes diseases with most expensive treatment: haemophilia, cystic fibrosis, pituitary dwarfism, Gaucher disease, myeloid leukaemia, multiple sclerosis and immunosuppressive therapy for organ transplant patients.

Discussion

The shock therapy transition in the 1990s and the unsteady record of reforms that followed failed to transform a formerly command and control economy into a market based one. The sudden and rapid liberalisation resulted in numerous institutional voids that were quickly ‘compensated’ by widespread networking, corruption, shadow, and barter economy (Estrin and Prevezer, 2011; Helmke and Levitsky, 2004). The Russian transition recession was particularly harsh in depth and duration. De facto decentralization led to considerable local resistance in some regions to market reform, splashing the political map with large areas of unreformed institutions (Granville and Leonard, 2010). The period covered, 1998–2008, saw the beginnings of strong recovery from a decade-long post-Soviet recession. Recovery has improved the potential for technological change.

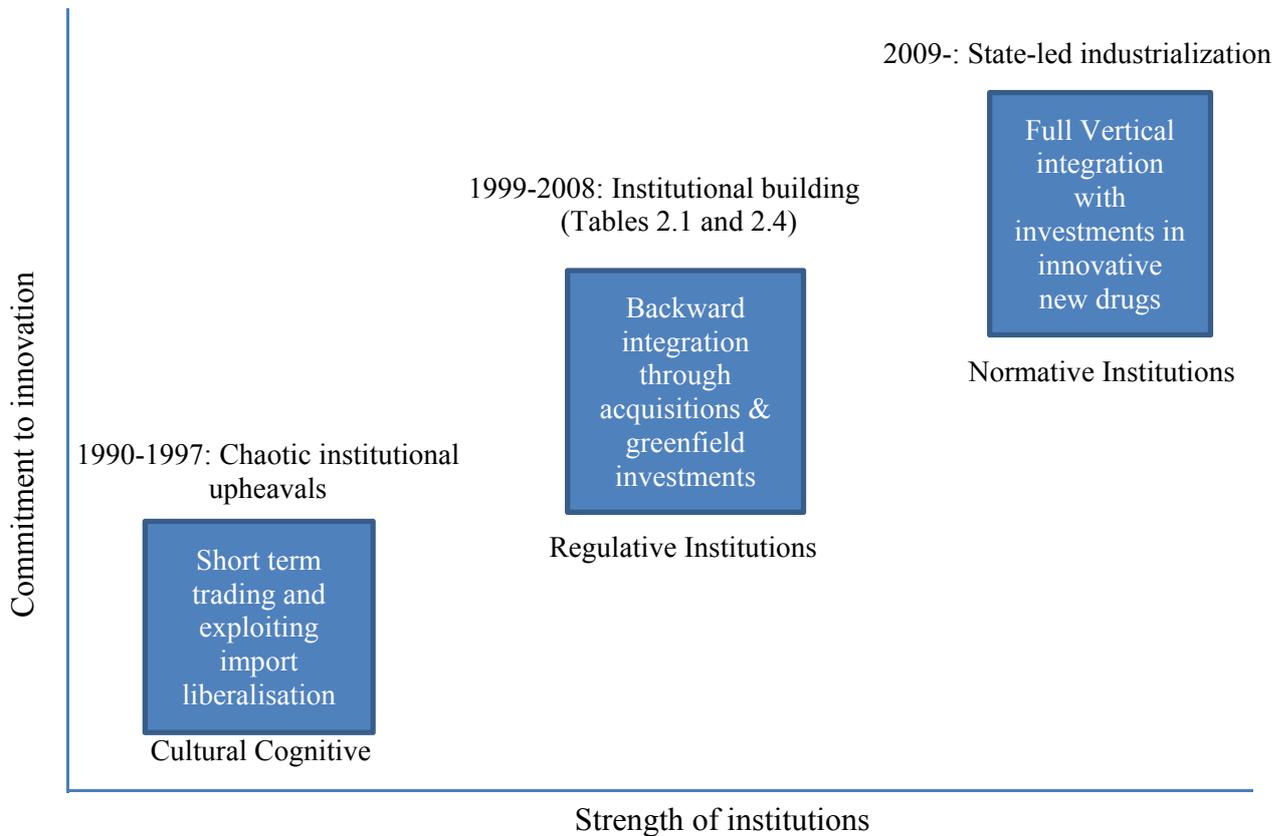
Literature suggest that successful firms adjust to the environment within which they operate along the lines of the contingency theory (Eisenhardt & Martin, 2000; Teece & Pisano, 1994). This effectively means that drastic institutional shifts cause uncertainty that lead to opportunistic short-term pursuits to satisfy immediate demand. Institutional volatility also means keeping investments minimal and lack of innovation by firms. The formal institutions that are so supportive for entrepreneurship in developed economies are sorely inadequate in transition economies like Russia and China (Golenkova and Igitkhanian, 2008; Meyer and Estrin, 2001; Peng, 2003; Puffer and McCarthy, 2011). Institutions in Russia are not fully developed in the sense of Western economies or others like Japan (Puffer et al., 2010). In the absence of enforced formal institutions and lack of property right protection, firms and other bodies created informal ties that provided some sense of security and legitimisation of transactions.

Other countries in the BRIC have managed to balance adoption of select parts of the Washington Consensus template while defending and often reinventing the relevance of state-led development policies (Ban and Blyth, 2013). Brazil’s policy elites ‘grafted’ Washington Consensus institutions onto pre-existing traditions by gradual crafting of a so-far sustainable alternative to the Washington Consensus that recovers the importance of the state in development. Deregulation was only

selectively pursued in the case of the financial industry and, in defiance of the Washington Consensus (Ban and Blyth, 2013). Like Brazil, India also institutionalized a hybrid form of economic governance that lies between the Washington Consensus policy paradigm and domestic institutional imperatives. The actual institutionalization of these ideas by India's state was negotiated with a coalition of industrialists, professionals and farmers, whose political power filtered out some of the key elements of the Washington Consensus (labour deregulation, the removal of farm subsidies, the liberalization of the retail sector and of sectors considered strategic) (Ban and Blyth, 2013; Lee and Mathews, 2010). In China correspondence between the Washington Consensus and Chinese policy goals and instruments registers several important local deviations in such areas as exchange rate policy, capital controls, selective privatization and an industrial policy centred on state-owned industrial champions (Ban and Blyth, 2013; Huang, 2010).

Does the evidence fit in with theory propounded by (Williamson, 1975) that firms vertically integrate in the presence of uncertainty and high transaction costs? This chapter argues that behind Williamson's theory of transaction costs, institutions were a given and that firms that went on to the decision to internalise did so only on the basis of residual institutional weaknesses presented with. Western institutions are generally built on the basis of trust in the government, regulatory agencies, and especially the judicial system, as well as other formal institutions. Formal institutions reduce transaction costs by enforcing contracts and property rights, which obviates the need to incur the costs of building relationships of trust among individuals, organizations, and firms (Uzzi, 1997). However, in the event of random and chaotic institutional upheavals, for Williamson's hypothesis that organisations increase investments to internalise markets to bear out is that both formal and informal institutions have to be present for further innovation to occur. The evidence points to Russian pharmaceuticals industry going through dynamic changes from short term arbitrage based opportunistic trading to more long-term investments in plants, technology, human capital development and still further into innovation –in line with Russia's institutional strengthening.

Figure 1- Russian institutional development and commitment to innovation



Stable and effective market institutions encourage sustained investment in physical and human capital and better technologies (Acemoglu et al., 2006; Acemoglu and Robinson, 2002). Effective institutions provide stimuli to technical change (Nelson and Winter, 2002; North and Wallis, 1994). The state-led industrial policy managed to reverse the trend of ailing Russian pharmaceutical industry. The recovery is somewhat patchy, but there are positive developments within the industry in developing generics and VEDs. It remains to be seen whether the country will be able to create an innovation based pharmaceutical industry. Nevertheless, domestic manufacturers realise that sustainable development increasingly relies on innovative products hence many companies place their resources into pharmaceutical clusters and invest into R&D. The prevalence of government relations remains the key to competitive advantages of domestic enterprises.

This study posits that political control and creation of strong formal institutions before liberalization were the key to development. Markets do not spontaneously occur and self-regulate but are products of political and social processes (Kogut and Spicer, 2002).

The Russian phases of development highlight the relevance of IPE perspective as an alternative to the neo-liberal policy approach, (Chang, 2002) and offers the prospect of bringing institutions into the analytical core of our understanding of markets and business organisations. The IPE alternative emphasises the role of institutions in affecting individual actions. IPE sees institutions not only as constraining individual behaviour but also as constitutive of human and organisational motivations. The argument has parallels with the evolutionary approach or the gradualism argument that attributes Asian catch-up and development to guided market and government-led transformation. In recent years there has been increasing criticism of and concern with the validity and ethical acceptability of many of the neoliberal premises and assumptions, the most prominent being the Post-Washington Consensus (Stiglitz, 1999b), BeST Consensus (Lee & Mathews, 2010, Huang, 2010), and third way development (Giddens, 2013). While varying in their thrust these works are unanimous in their agreement about the importance of the state taking the leading role in establishment of institutional mechanisms that guide industries to gain capabilities. Undeniably, strong formal institutions need to be established setting the rules of the game for markets to perform.

The empirical evidence suggests the three periods of transition had distinct implications for firms. This study is rare in comparison of the three phases of transition that took place in Russia. It shows that formal institutional formation had a central role in creating better business environment that spurred long-term visions of companies domestically and consequently positively affected industrial and economic development of the country.

Through case study and archival research supported by literature this study posits that this framework can be generalized to the paths in other paternalistic CIS countries exhibiting similar transformations including Ukraine, Kazakhstan, Uzbekistan, Georgia, Belarus and others (EBRD, 2009; OECD, 2014). The proposed framework needs to be further tested and confirmed. The following chapters discuss in detail the proposed strategic choices and the industry implications and empirically demonstrate the validity of these findings.

Conclusion and implications

The study explored the influence of institutional shifts innovation strategy of emerging market firms in a transition economy. Successful catch-up of firms in emerging markets and developing economies depends on innovation. Competitive firms are the ones that invest heavily into R&D and become proactive in following the dynamics of the institutional environment.

This research is one of the rare case study analyses of transition economy firms. It throws new light on current business environment in Russia, and how institutions have changed over time to require the 'players' to align to the new rules of the game. Rapid shifts create institutional voids that firms struggle to fill. Research into other industries and data analysis is required to fully understand the impact of the institutional changes and developments on EMFs. This area is under-researched due to a number of factors, one of which is the lack of transparency and data availability in the country.

The study makes three interrelated contributions to the literature on transition economies. First is the proposition that a well-designed IPE system is fundamental to the progress of strategic industries such as pharmaceuticals. It is the introduction of strong functional institutions followed by public-private partnerships that leads to growth and development of these industries. Second is the account of institutions introduced by the government towards businesses and the pharmaceutical industry, table 1. Finally, a documented look on strategic choices of firms during the three distinct phases of the transition is proposed.

This study expands on these arguments by showing that there is a greater development of formal institutions in the past several years and posits that informal institutions were a necessary step for the actors of these institutions to make sense of the environment and create competitive advantages.

For practitioners, the study's findings are instructive insofar as it uncovers how successful Russian businesses operate when faced with major challenges in the institutional environment. How to find the right recipe for the optimal balance of factors influencing institutional equilibrium is a moot point. In the literature, there are discussions of whether transplantation of successful practices from other countries or gradual development of a unique set of practices are the answers. Transplantation is

generally the case of cost effective and time saving method to achieve development (Mamadouh et al., 2002) but seldom works as institutions are a complex set of formal and informal constraints which are varied across countries (Dellepiane-Avellaneda, 2010; North, 2006; Roland, 2004). Dramatic changes of fast-moving institutions in an unfitting socio-cultural context often result in rejection of such changes and hence instability. The other approach to institutional change is knowledge accumulation and development of a unique set of practices dependent on informal and formal constraints within a country. In the long-run each country develops a set of slow-moving institutions and it is imperative to match the fast-moving institutions to the more culturally embedded ones.

The decline of competitiveness of the ex-Soviet science and technology sectors may indeed be attributed to an institutional framework that was incapable of handling the internal stresses and strains brought on by rapid liberalisation. Development policy was constrained heavily by political struggles within the state in the 1990s. In the final analysis, markets are political constructs, whose rules, norms and practices are formalised through balancing various forces and through the supporting role of policy and non-market institutions. Will the current government be successful in diversifying the economy? From the developments traced so far, Russia has only begun to create capacity for a viable industrial manufacturing structure, even though it means going back to autonomous type development experience and has some way to go before it becomes a truly dynamic and innovative economy.

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