2003 IPF Fellow: Dr. Ivan Tchalakov, Bulgaria

Fellowship Topic Area: State Capacity and the Leading Economic Sector in Post-Socialist Eastern Europe

Project Title: *Eastern Europe Economic Transition Policy Revisited: Neo-Schumpeterian Model*

Research Paper

The Neo-Schumpeterian Entrepreneurs in Two Sectors of Bulgarian Economy

List of boxes outlining typical profiles of innovative SME

Abbreviations

BAIT – Bulgarian Association of Information Technologies

BNAEOPC – Bulgarian National Association Essential Oils, Perfumery and Cosmetics

HIFPI – Higher Institute of Food Processing Industry

ICT – Information and Communication Technologies

P&C – Perfumery and Cosmetics

Summary: The research paper 1) elaborates a theoretical framework for the empirical study of the innovative SME in two sectors of Bulgarian economy during the 1990s – information technologies and pharmaceutical & cosmetics; 2) provides methodology of the field work, and 3) outlines the main research findings by combining secondary analysis of the relevant statistical, economic and sociological data with the analysis of the data derived from in-depth interviews with managers of the innovative SME. The research paper pays special attention to the role of technology and innovations in evolution of SME, putting them together with other macroeconomic, organisational and policy aspects of development. It maps out the two sectors by common set of typologies, which make possible their comparison and at the same time reveal specific profiles of innovative SME.

Our aim is the theoretical framework, data collected, and their analysis to be 'policy sensitive', i.e. to include the public actors (political institutions and governmental agencies, local government, branch associations and others) in the model and to enable subsequent public policy analysis and elaboration of policy proposals.

Part I. Theoretical discussion: the models of post-socialist economic transition

This part provides critical evaluation of the main economic models of Eastern European transition, offering a 'back-door approach' taken from actor-network theory and evolutionary economics – the neo-Schumpeterian approach. This methodology aims at 'thick' description of the relationships of firms in given economic sector with various actors they interact - industrial, financial, legal, political, central and local government, educational and others. Two other economic approaches in studying economic development, relevant to the project and which gained popularity in 1990s are discussed and juxtaposed with the findings of neo-Schumpeterian approach in order to elaborate an useful frame of empirical study.

The economic' models of the transition prevailing by the early 1990s can be broadly classified in two large groups - neo-classical liberal models and neo-statist models[1]. The traditional market -state opposition is characteristic of both groups. As Koleva pointed out, "… for the neo-liberalists, the state is an end in itself and is destined to be forced out of the field of economic activity and out of the theoretical schemes of analysis. (Kosolowski, 1992; Sachs,1996). Conversely, for the neo-statists the establishment of a powerful and coherent state is the sole alternative to the weak markets, an efficient means of resolving the problems they have generated, and a reliable tool for reforming the entire society. (Koleva 2000: p.11). The two approaches clashed during the first years of Eastern European transformation. However, the 'neo-liberal fallacy' (Hirszowicz, Mailer, 1994) was dominant, perhaps because it identified the triumph of capitalism with the triumph of the market. It took notice only of the market revolutions of Reagan and Thatcher (Stark, 1992), overlooking the industrial transformations in Germany, Japan and France, which were neither solely market nor hierarchical ones.

The neo-classical model(s)

In the years after1989 the fundamental idea of the transition in the Eastern European economies was the "progression from a command economy to an open market economy" (EBRD, 1994). The research program stemming from the neo-classical model was clearly outlined by Radosevic: "… The departing and ultimate states of this progression (transition) are assumed to be known. The idea underlying transition economics is that this progress can

[1] We should add here the model of Marxist's political economy, whose proponents initiated 'reforms' in socialist economies in the late 1970s; some of these economists still believed that the socialist economy could be gradually transformed in retaining some of its key features.

be measured and how close a country is to this ultimate state can be evaluated. The basic issues of such a research program are concerns focused around price and foreign trade liberalisation, bank reform, enterprise restructuring, and privatisation." (Radosevic 1997: 371)

Recently Janos Kornai summarised the neo-classical model and its policy implications:

> "… When the post-socialist transition began, the conviction spread among Western economists that it was indispensably necessary and sufficient to perform three great tasks in the East European region. However, it emerged that the `holy trinity' of stabilisation, liberalisation and privatisation was not sufficient after all (Italics mine - I.Tch.). Hardening the budget constraint is a task of equal rank with them..." (Kornai 2000: 1591)

Kornai clearly perceives the problems involved in what he calls 'soft budget constraint' in the inherited institutional structures and in the practical behaviour of the economic agents operating post-socialist economy[2]. His article provides evidences for the different paths each post-socialist country followed in 1990s, which hardly could be explained with the speed and ways the 'holy trinity' requirements have been introduced (see also Meske & Weber 2001:157-159). According to Kornai the earlier models of post-socialist economic transition failed to take into account the set of practical problems required for normal operation of a market economy:

> "…Once the laws are satisfactory, the key question is to ensure they are observed in a disciplined way. This requires that law courts administer justice quickly and efficiently and penalize breaches of contract and lapses of financial discipline. In warranted cases, courts have to declare firms insolvent, and if necessary order their liquidation. Lawyers are needed to represent debtors and creditors professionally, officials to implement court decisions and conduct auctions, personnel and institutions specializing in reorganization and liquidation, and so on. Socialist countries, before the start of the market-oriented reforms, possessed no trace of this kind of apparatus, which functions traditionally in developed market economies."

Kornai's policy conclusion is that of 'economic enlightenment':

> " …All economic actors have to undergo a patient re-education in the broadest sense. The earlier expectations of all those concerned have to be erased by consistent, principled practice, not just by rhetoric, and replaced by opposite ideas about how essential it is to preserve financial discipline." (Kornai 2000: 1596-1597)

Thus ten years later the role of government and legal system seems to be regaining its importance even among the liberal economists. The new post-socialist economy, they claim,

[2] The example given is Russia, where the 'holy trinity' requirements were rapidly introduced in the early 1990s: " The government carried out sweeping liberalisation near the beginning of the reform process. Privatisation was also early. Stabilisation was more protracted, but by the mid-1990s the inflation rate was falling conspicuously. *What was lacking above all was the set of institutional conditions required for normal operation of a market economy…* That is what is needed to make every bureaucrat in the administration and every actor in the economy take seriously such matters as contracts, obligations, debts, taxation and so on." (ibid.)

needs tough control coupled with continuous re-education to make people follow the rules prescribed by neo-classical economics.

Neo-statists models.

These models gained popularity after the mid-1990s, when the first failures of neo-classical liberal models became visible, together with growing disparity between different post-socialist economies. (Henderson, 1993; Kochanowicz, 1993, 1994; Amsden, Kochanowicz, Taylor, 1994) These authors saw the sources of the deep and prolonged crisis befalling on countries like Bulgaria, Romania and some others not in the speed and means by which 'Holy Trinity' principles were introduced but in the principles themselves. According to them, in the emerging markets in Eastern Europe the state must play "an absolutely central part in the formation of the new constellations of ownership and the new markets" (Block, in: Smelser & Swedberg 1994). In 1996 a study of Bulgarian economical sociologists concluded that "... there is no difference whatsoever between the previous planned economy and the present economic activity based on monopoly agreements between the (Mafia-like) economic groups and their masters" (Minev et all.1996: 244). The neo-classical principles, the authors claimed, made it possible for the former communist elite to peacefully transform its political and ideological power into an economic one. Instead of post-socialist entrepreneurs, the former Communist Party and high-ranking secret service officers came to dominate the economy[3]. Some classical sociological notions like "closed organization" (Parsons) and "anomie" (Durkheim, Parsons) have been revived to describe post-socialist transformation.

Similar ideas underlie the so-called 'bandit model' of the governments' role in East European economic transformation, a model defining the role of politicians and bureaucracies in post-socialist transition economies as "bandits" attempting to extract maximum resources from the public. This model introduces several variables in describing the process, such as the ability of the 'public' to resist, the time span of bandits' economic policy and the level of bandits'

[3] Some Bulgarian sociologists saw in the events of the early 1990s the final victory of the communist oligarchy over the civil society that had gradually emerged during the last decades of socialist economy. Since the mid-1970s, they claimed, Bulgaria (like Hungary) had gradually been moving towards decentralization and increasing autonomy of economic agents (even though in the strange forms of 'socialist corporations', 'worker collectives', 'co-operatives', 'personal owners', etc.). Small private property was recognized in 1978, and private farming and trade were thereby permitted. In 1987 small and medium private property was allowed in industry. By the late 1980s the growing autonomy of economic agents threatened the till then indisputable power of the closely related highest levels of communist party & state apparatus & secret services (socialist oligarchy). The events after 1989 were nothing but a major if risky step of this socialist oligarchy to regain control over the economy in using neo-classical ideology to mask the real economic process going on. (Donchev 1999; Chalakov & Kirov 1999, Minev & Jelyazkova 2000,)

internal cohesion (Olson 1995: 437--462). Recently Koford used this model to explain the dynamics of transition politics in Bulgaria, which showed heterogeneity of economic policy during the 1990s (a change from overtly bandit behaviour to 'Leviathan government') and growing ability of the 'public' to resist (Koford 2000: 307-338).

The 'statists' blamed neo-classical models as proposing too naïve a notion of liberalisation, equating it with lack of financial discipline and of legal control over economic activities. Under the slogan of "withdrawal" from the economy, the state practically refused to take responsibility for the efficient management of the still huge state property and left 'too much freedom' to the managers. This in turn enabled the former communist nomenclature to control the managers and to set mechanisms of 'sucking up' (de-capitalising) state property (Keremidtchiev 1993, Koleva 2000). Hence the re-establishment of a powerful and coherent state accountable to society was perceived as an efficient means of resolving the problems.

Technology in transition

Technology has never been at the core either of neo-classical or neo-statist models, mainly because it does not lie in the scope of the research programs stemming from these models. The models have shared a more or less common understanding about technology as exogenous to economic dynamics. Technical progress has been seen as a 'natural' consequence of market competition, although statist models tend to admit some S&T policy for compensating 'market failures', a policy in tune with the 'linear model' of innovation, dominant during the decades of socialist economy (Menske & Weber 2001: 160). There has been an implicit assumption that transition to market economy also involved transition from backward 'socialist' technology to the application of the modern Western (in our case computer and communication) technologies. As Kornai noted, the massive copying of Western technologies marked the overall development of the socialist economies, with the exception of military technology and some isolated cases (Kornai 1992, Revol 1994). Hence the collapse of the socialist economy was viewed as a victory of the more dynamic and innovative character of capitalism. The core of the problem was seen to lie not in technology but in the system of economy, which systematically suppressed introduction of technological innovations.

For almost 10 years in the bulk of literature on the economic transition of Eastern Europe, the problems of technology and innovation occupied a marginal place. However, in the late 1980s and early 1990s a number of studies appeared that laid the ground for the research of

the late 1990s. This research established an initial framework of comparison between inherited technological systems and those developed in Western countries, and made possible to trace its subsequent transformations (Handson & Pavitt 1987, Revol 1994, Radosevic 1995). Most of these writings, however, shared the dominant macro-economic approach, sometimes coupled with evolutionist notions of 'diffusion' or 'transfer' of technology. There were little empirical analyses of the technologies and innovations system at micro-level[4].

We have good reason to doubt the earlier research strategies. Today we could hardly support the claim that "the departing and ultimate states of this progression (transition) are assumed to be known" (Radocevic, cited above). That is why the next three sections of the chapter presents three other approaches in studying post-socialist transition, which unlike previous two, gradually emerged during the 1990s and gained popularity by the end of the decade. The common feature of these approaches is the engagement of their authors with intensive empirical study of the processes that took place in various Central and Eastern European countries, most of all Hungary, Poland and Czech republic.

Path-dependency and studying of techno-economic networks.

As Stark and Bruszt clearly put it, there is little sense in the idea of transition in the East European economies as a 'rational design of [new] economic institutions', simply because the capitalist economy and its institutions are not the outcome of a rational design (like the communist Utopia): "The origins of capitalism in the West were not by blueprint, its development has not been directed by conscious design...its processes for selecting technologies and organizational forms are governed more by routine than by rational choice" (Stark & Bruszt 1998, Introduction). If the transition to capitalism does not follow a pre-set pattern but is the result of interactions in which the designs of transformation are themselves transformed, shaped, and modified in response to and in anticipation of actions of different social actors, it is these interactions that have to be studied.

The evolutionist approach, based on the concept of path dependency, has the heuristic advantage of examining what is happening here and now as a constant activation of the existing (available) organizational forms, institutional mechanisms, social relations and

[4] The concrete studies in this period focused on the transformation of the large military-oriented R&D sectors and academic research establishments (Gummet et all 1994), on the effects of brain-drain of East-European R&D scientists and engineers on their national innovation systems (Bobeva et all 1996), on impact of foreign investment on technology transfer between the countries. (Biegelbauer & Pribersky 2000), etc.

products, used by the actors to answer immediate practical dilemmas" (Hausner, Jessop, Nielsen, 1995; Stark & Bruszt 1992, 1996). According to David Stark

> "…the true strength of the concept of path dependence… is precisely its analytic power in explaining outcomes where strategic actors are deliberately searching for departures from long-established routines and attempting to restructure the rules of the game. Actors who seek to move in new directions find that their choices are constrained by the existing set of institutional resources. Institutions limit the field of action, they preclude some directions, and they constrain certain courses. But institutions also favour the perception and selection of some strategies over others... The exploitation of existing institutional resources is a principal component of the apparent paradox that even (and especially) instances of transformation are marked by path dependence" (Stark1992: 20-21; see also Spenner, Suhomlinova, et all. 1998: 602).

Stark's arguments find support in the notion of construction of markets, which opposes the traditional treatment of the market and the state as independent entities and emphasizes the constitutive nature of the relations between them (Block, in: Smelser & Swedberg 1994). According to this notion, modern economy inevitably includes different combinations of actions of the state and the markets. Fred Block argues that a coherent whole called 'free market capitalism' is non-existent and the market societies differ from one another in the way their economic institutions are structured. The definite differences between the East European countries show that at every single moment of transition the societies have a wide spectrum of choices to combine markets and actions of the state.

Industrial upgrading model

The ideas of Gary Gereffi, developed in the studying of industrial transformation in Latin America and East Asia during most part of 20th century are very close to the ideas of path dependency and the importance of government institutions in this process. (Gereffi and Wyman 1990) His model aspire for a 'multilevel analytical framework', where the systemic macroeconomic variables (both at 'world-system' and national level) interact with political, economic, and social *institutions* and *organisations* which differ across the countries and regions, hence preserving enough space for the economic, political and social actors to influence the 'upper' macroeconomic variables.[5] When analysing industrial transformation, Gereffi claims, we need to take into account the multitude of causal chains or "causal complexity" of the development patterns at hand: "…it is the intersection of various

[5] "…The framework is *hierarchical* in that the primary direction of causality is from international structures to a variety of of conditions at national level; to institutions and organizations at the subnational level; and finally to ideologies, values, and so on at the cultural level which most directly motivates the behavior of individuals. *All these level are subject to some degree of choice and change over time, however, and there often is reverse causations…from the lower levels to the upper ones*[italics mine – I.Tch.]." (op.cit. p.370)

conditions in time and space that produces a given outcome. Several different combinations of circumstances might produce the same emergent phenomenon, so there may be no necessary or sufficient conditions for an outcome of interest." (ibid.) In every particular period of time *the specific trend in world economics* (direction and volumes of foreign trade, foreign aid, FDI and foreign loans), the *specific inter-states constellations* (prevailing hegemony) should be taken into account when analysing *country-specific factors* such as resource endowments and domestic size markets. And all this in turn should be juxtaposed to the key *role of state institutions* able to "generate and implement developmental strategies and specific policies"; to the *'style' of local bureaucracies*; to *the impact of the exiting economic and social organisations* such as local firms, transnational corporations, and state owned enterprises; to conclude with the "*set of historical, cultural, and social network dimensions* that cut across."

Insisting on the complexity of the analysis of developmental patterns, Gereffi points to specific *indeterminacy* that exists in interaction between different levels. For example "outer [world-system and national] structural boundary conditions help us understand why certain phases of development must come to an end, but they do not explain the *choice* of a new strategies that will replace those that are no longer viable." (Gereffi and Wyman 1990:379) Hence the role of the state and other powerful social actors need to be taken into account, together with prevailing economic and political ideologies. In this point the *notion of "development strategy"* is especially important, reflecting specific roles the governments, firms and social coalitions in shaping patterns of development in capitalist 'newly industrialized countries'. It does not designate a "comprehensive economic blueprint or grand design of industrial development… often… crafted for the consumption of international organisations and lending institutions", but rather a "…*more or less accurate post-hoc interpretations of previous trial-and-error experience* (italics mine – I.Tch.), and then attempt to distil general principles and concrete lessons on the basis of this reconstructed logic." (ibid)

Studying empirically patterns of industrial development in Latin America (Mexico, Brasilia, and Argentina) and East Asia (Taiwan and South Korea), several different industrial "strategies" have been identified – (*primary) commodity export orientation, primary import-substitution industrialisation (ISI), secondary ISI, export-oriented industrialisation* (EOI)*, heavy and chemical industrialisation* (HCI). But even falling under the same general type during given period of time and outlining specific regional similarities, no countries revealed

exactly the same path of development. It is precisely the interplay between geopolitical factors, legacy of cultural heritages, existing political regimes, government policies, domestic institutions, local class structure, capacities of protest and mobilisation, etc. that shape unique paths behind the "manufacturing miracles" of Taiwan and South Korea, or Mexico and Brazil.

The merit of the 'industrial upgrading model' is precisely in appeal to interdisciplinary approach, the conscious effort to use different data sets ranging from macroeconomic statistics, through social structural analysis and policy analysis, to the 'thick' ethnographic/anthropological descriptions. The integrated approach leads to some especially revealing outcomes, such as the rich *notion of network*, which unlike most of development research is not limited to the "…mapping trade, aid, and lending patterns among nation-states… [But] nodes can just easily be industrial firms or individuals, such as policy makers or workers". There are traditional merchant and financial networks, but also "networks of producers and distributors… that gain information about production techniques, market conditions and other issues", sector- or product-specific networks, variations in structure of subcontracting and marketing (for example Taiwanese networks of SME linked by "personalistic ties based on mutual trust and reciprocity help to reduce otherwise high level of uncertainty and facilitate flexibility to decision-making", versus South Korean "*chaebols* subcontracting relations with much smaller firms or acquire such firms as part of their vertical integration process"). Or the networks helping "policy-relevant knowledge' to circulate within and among agencies and nations. (Gereffi and Wyman 1990:391-393) Yet the authors points that "…idea of networks ties offers a useful investigative tool, but not a theory per se. By linking the concepts of network analysis with more established perspectives, future research can profitably address a wide range of issues related to contemporary industrialisation". (ibid, p.394)

I would like to conclude the brief overview of "industrial upgrading model' noting that it is inherently comparative one. The comparison is used both as helping better understand data collected and as rising new theoretical challenges. Which in turn encourage interdisciplinary approach as a way to cope with wide range of alternative explanations revealed during the comparison.

Sectoral approach to "late development"

This approach[6] became prominent in late 1990s with the discussion among Hungarian scholars about what they call "the end of transition". In recently published article one of the leading Hungarian political scientist Béla Greskovits stipulates that:

> "… The new reforms in the second half of the 1990's appear to be less effective levers of economic restructuring than the measures implemented earlier in the decade. Rahter than bringing about radically new structures of economic activities, these efforts, in their scope and impact, essentially reflect the influence of these structures that emerged by the middle of 1990's… I propose that there is powerful logic to the post-socialist experience, which originates in the *type of integration into global economy.* In turn, integration types can be traced to the major activites maintained or taken up during the 1990's. More specifically, *it is the attributes of the leading sectors through which the national economy has been tied to the global economy, which have shaped the chances of efficient restructuring and sustainable development*." (Greskovits 2003: 1-2) [7]

The sectoral approach was developed as an attempt to explain the uneven development of some Third World countries.[8] That is why it is worth to be applied to post-socialist transition, because although ex-socialist countries were better industrialized and developed in comparison with most of the Third World countries, their reintegration to global economy created fairly similar effects. Below I will present briefly the main elements of this approach ('the model's bare bones' as defined by M. Shafer) and then will consider Greskovits' typology of the emerging East-European capitalism.

The most important feature of sectoral approach is that similarly to the neo-statist model it takes seriously the role and capacity of state in steering economic restructuring. It stresses the need to empirically study the variety of constellations that bind domestic and international arenas and where the state is only one, if of key importance, actor:

> "… State's capacity to get ahead depends on the attributes of the leading sector through which it is tied to the international economy: light manufacturing, mineral extraction, peasant cash crop production, or industrial plantation crop production. *Particular sectoral attributes result in distinct international market structures, each of which rewards different kind of actors, presents different opportunities and risks, and demands a different strategy*. They also

---

[6] It has been proposed by Michael Shafer in his famous book on *Winners and Losers. How Sectors Shape the Developmental Prospects of States*, 1994, Ithaca, New York, Cornell Univ. Press

[7] The beginning of this discussion could be traced in 1996 with J. Kis paper on "Transition is Over" (Beszélö, III.1.6. August/September 1996, 4-11). Interestingly enough, similar discussion heated Bulgarian academic and policy circles six years later - in 2003. This fact illustrates the significant differences in the time-span of economic and political reforms in Eastern Europe – unlike Hungary, Bulgaria experienced rather prolonged initial period, which lasted till the end of 1996. The radical reforms that took place in Hunary in 1989-1990 have been carried out in Bulgaria after 1997!

[8] For the predecessor of M.Shafer model see his notes at page 3 of his book, where he mention authors like Alexander Gerschenkron, James Kurth, Jeffrey Paige and others. He clearly relations his model both with neoclassical and neo-statist approaches, as well as with theories of dependent development.

> influence firm's ability to pursue the required strategies and state's capacity to act." (Shafer 1994: 3)

The model defines the state as an actor in the process of economic restructuring via his notion of 'stateness'. It is hard to define the state as single actor, it has many divisions, some of which with conflict aims. Hence not the state but the 'stateness' is at stake – "the extent to which, and the conditions under which, it is possible to give explanatory weight to the state" (Shafer 1994:5). The author defines *three elements of stateness: autonomy, absolute capacity* and *relative capacity.*[9] The autonomy measures the extent to which "state is not merely an arena for conflict, but is distinct from non-state actors", and outlines "the conditions under what autonomy is possible". According to Shafer the attributes of given leading economic sector make easier for the state to emancipates itself from the powerful economic and social groups, while the dominance of other sector make it difficult. The sectoral attributes determine also "how much societal pressure state must bear".

The capacity of state to act as an actor is the other key element. The author distinguishes between *absolute capacity,* defined as "the extent to which the state has the authority and means to extract and deploy resources; and technocratic, meritocratic, and internally cohesive bureaucracy; and effective monitoring and regulatory capabilities", and *relative capacity*, which "reflects the balance of its resources and institutional capacity, augmented by those of its allies, and the resources and capacities for collective action of the actors it confront." (Shafer 1994:7) The capacity to act evolves over time – the balance of forces between state and his allies and confronting actors may change, as well as state's internal coherence and integrity. This is especially true in the period of radical economic and political transformations, as the post-socialist transition exemplify it. Here too the dominance of one or another economic sectors plays an important role, because it heavily influence both absolute and relative capacity of the state.

Next to the state in the sectoral analysis are *individuals*[10] and *institutions*. However, it deals less with individuals, considering their preferences and motivations as always related to individuals' location in the political economy. Here again the economic sectors play major

[9] Taken together, these three elements answer the following question: Can state formulate policy goals independent of particular groups within its own society? Can the state change the behavior of specific group? Can the state directly change the structures of the society ih which it operates? (ibid)

[10] Shafer defines individuals as '*rational in minimal sense*' – that they are able to more or less consistent behaviour and that they are *self-interested*, i.e. they share basic motivations like 'desire to earn more, work less, live better; to stay in business and turn a profit; or to stay in office and win peace, prosperity and glory". (Shaffer 1994:9)

role: "…wages, conditions of employment, and opportunities for advancement vary by sector as do, by extension, workers' policy preferences. Similarly, the characteristics of the firms and the challenges they face vary by sector as do business people's policy preferences." (Shafer 1994:9-10). So it is not individuals as such, but their ability to act collectively, "the organisations and institutions they make - or fail to make", that matters. The sectoral characteristics shape organisations and institutions – the relative dominance of one or another economic sectors results in different types of organisations and institutional set up.

How the sectoral approach could be applied in explaining various paths of economic development and the state capacity to intervene? In his 'bare bones' description Shafer outlines *two polar ideal types*, which he calls *high/high* and *low/low* sectors. They provide the endpoints of a continuum, where other intermediary types could be located.[11] The continuum and its pole are defined by seemingly pure economic reasoning – by simultaneous interaction of four variables – *capital intensity*, *economy of scale*, *production flexibility*, and *asset/factor flexibility*. The author stresses the first two variables as core of its model, while the other two are composite because they in sense combine the elements of the core variables. He provides detailed definition of each of them[12] and shows how they determine the international and domestic dimensions of sectoral environment. Without going further in the details of sectoral approach and concrete analyses the author has carried out (manufacturing miracle of South Korea, Sri Lanka's tea and Costa Rika coffee specialisations, cooper industry in Zambia), the best way to understand the potential of the model is to look at its application to the analysis of post-socialist transition.

In applying sectoral analysis to the post-socialist economic transition Béla Greskovits focuses on the export of the region to the world marked at the beginning and at the end of 1990s.

[11] There are two constrains of the ideal model – that "that sectors has an optimal, or at least typical, *economic* organization and pose distinctive economic challenges to all producers and states; that states with similar sectoral bases face similar *political* constrains when they address these challenges, do similar institutional positions, and arrive at similar policy outcomes." (Shafer 1994:22)

[12] To but I briefly *capital intensity* designate capital costs of start-up, production, research and development, inventory, and distribution" and is closely related with other characteristics such as fixed costs, technical complexity, management professionalism, and work force skill levels. The *economy of scale*, the extent to which efficiency demands large scale production also affect all aspect of economy activity in given sector, bearing on the size and geographical concentration of facilities; size, concentration and stability of work force and specialized infrastructure needed. *Production flexibility* reflects the degree of short-term market vulnerability of the sector, i.e. it is the sector characteristics that mediate firms and state capacity of action to market shifts. The last variable – *assets/factor flexibility* reflects the efforts needed given sector to be restructured, the "long term difficulties of reallocating of resources" (i.e. large heavily concentrated industry with specialized technology and unique skills of the work force and management is much difficult to restructure than the opposite is the case). (Shafer 1994:23-24)

Each of ex-socialist countries being relatively small (except Russia and to some degree Ukraine and Poland), their leading economic sectors are also *major export industries.* In addition to that "…they have to rely on the developed world in their need for capital, technology and global entrepreneurial skills including design, global input sourcing, and marketing access and knowledge." (Greskovits 2003: 3) Hence the analysis of export statistics, together with the analysis of foreign direct investments make possible mapping of these countries according the degree and type of their involvement in global economy. According to Greskovits the export specialization in Easter Europe is "…much more than just commerce. It also denotes *specific roles and configurations of production, firms structure and management, innovation, marketing, labor skills, unionism, and state assistance,* underlying the pattern of global integration (italics mine – I.Tch.)." (ibid)

Table 1 - *Major export industries in the post-socialist East in year 2000*

(% of total export in current USD)

	Resource-based industries	**Capital-intensive basic manufacturing**	**Capital and skill-intensive complex manufacturing**	**Labor-intensive manufacturing**
East-Central Europe	17	18	36	26
Southeast Europe	30	15	12	41
Baltic States	44	12	19	27
Russia & the Western CIS	64	11	10	11
Central Asia	68	5	3	11

(Source: Greskovits 2003: 13)

By the end of 1990s the export specialization and type of the leading sectors established have resulted into specific types of capitalism, the four main categories being *national large-scale* and *national small-scale* capitalism*, foreign-led large-scale* and *foreign-led small-scale* capitalism. These four "ideal types" catch important characteristics of post-socialist transition and help the understanding of local variations of the paths each country has followed – for example to explain why "…East-Central specializes in industries heavily using foreign capital, technology, and skilled labor, such as car and car parts, electrical and electronic machinery, consumer durables and computers… [while] Southeast Europe has become a clothing, footwear and furniture belt of Western Europe." (Greskovits 2003: 2)

Greskovits outlines *four polar types* of leading sectors are correspondingly *national heavy* industry*, national light* industry, *transnational heavy* and *transnational light* industry. He argues that "…heavier a leading sector is, the less flexible its business and labor are, and more difficult will be its restructuring agenda. Conversely, the lighter a leading industry, the more flexible its key actors are, and the easier is for them to undertake the restructuring project.[13] Moreover, the state, the third critical factor will typically find it more difficult to assist the efforts of heavy, than of light, industries. [On the other hand] …the core difference between national and transnational leading sectors lies in the asymmetry between foreign and local agents' capacity to foster national development, and the degree of their reliance on, and commitment to, such a cause." (Greskovits 2003: 4)

When given post-socialist economy is dominated by inflexible export oriented resource based or basic mass manufacturing industries, possessed by the corresponding *national heavy bourgeoisie*, according to Greskovits this often means the existence of "inward-looking sectoral state bureaucracy that is captured by this bourgeoisie and lack developmental capacity". These industries also presuppose large and well-organized work force, which form an alliance with national heavy bourgeoisie in their demand for protectionism and subsidies from the state. Opposite to this the *national small-scale capitalism*, based on export-oriented light industries domination, offers more promising pattern – it makes easier for the state to resist business influence, to upgrade its own developmental capacities and allied with the most flexible small-scale national firms to adopt successful strategy for development and restructuring.

The other main actors, the multinational companies usually have better access to global market, as well as technology and know-how in comparison with local firms. They are also more mobile, possess sophisticated management and are better equipped to face the uncertainties and market shifts. However, their engagement in and their impact on the local economies vary significantly: "…in complex manufacturing industries, where technology is usually controlled by large, vertically integrated transnational corporations, a major takeover may result in the lasting presence of a key agent of change in the national economy. Furthermore, the related *decrease of the threat of capital flight improves national bureaucracy's capacity to influence the terms of cooperation between transnational and local firms* (italics mine – I.Tch.)." (Greskovits 2003: 5) This is not the case with transnational

[13] This reflect the variations in four key variables specified by M. Shafer - capital intensity, economy of scale, production flexibility, and asset/factor flexibility – and their influence on state autonomy and ability to act.

companies in the light industries like clothing and footwear, which "typically do not own their production facilities but control access to global marketing knowledge and networks of commerce and design". From the point of view of M. Shafer variables these sectors are flexible, better respond to global market shifts and easy to restructure, but Greskovits calls transnational firms in light industries 'heavens of migrant capital" with little engagement with local producers and with limited perspectives for long-term cooperation with the state during the restructuring process. That is why the trans-nationalization of the leading light sectors "…turns the logic upside down and endows (at least certain types of) transnational heavy leading sectors with more promising potential than most transnational light industries". (ibid.)

The notion of *developmental coalition* reflects the main advantage of sectoral analysis providing a tool for an organic integration of economic and policy aspect of development. The developmental coalition consists of "…the most capable elements of domestic business and labor with those fractions of transnational capital that are most committed to the cause of national development, and most ambitions and capable groups of state bureaucracy." (Greskovits 2003: 6) Hence it is the leading sectors that tie together state institutions with local and transnational firms, workers unions, and other relevant social actors in long-term strategies and commitments for restructuring. The leading sectors also surfaces the different interests and the existing or potential long-term conflicts and traps for development.

Outlining the research framework: The Neo-Schumpeterian approach

The brief outline provided above shows the richness of theoretical approaches in studying post-socialist economic transition. This outline, short as it is, already presuppose an implicit framework, that takes into account the multidimensionality of the processes going on in the countries like Bulgaria after 1989, as well as the importance of the prehistory of changes - the late-socialist "path" they have been a part of. That is why each of above theoretical approaches has important contributions to our project. The problem is that *most of them underestimate the role of technologies, human competencies and knowledge infrastructure in this process*.[14] It should be stressed that the evolutionist approach and the concept of 'path

[14] The last two approaches – industrial upgrading model and secotral analysis – seem to be more aware about this aspect of economic transition. Also, during the last several years there appeared some studies of technology and innovation systems in transitional economies that might be considered a sign of change. They analyzed the efficiency of innovation systems and dynamics of endogenous technology innovation during the transition (Radocevic 1997; Cox, Gummet , and Barker (edc.) 2000; Paasi 1998; Perez-Sebastian 2000;), the emergence and development of technological partnerships and alliances between Western and Eastern countries (Hagedoorn and Sedaitis 1998; Sagowski 2001), role of trade liberalisation for closing the technology gap between post-socialist and developed countries (Kandogan 2001), R&D policy implications stemming from the

dependency' had emerged in the works of R. Nelson, C. Freeman, S. Winter, G. Dosi and others as an attempt to bring back technology and innovation into the economic analysis. Its merit consisted in the better understanding of the zone of mutual adaptation between economy and technologies, introducing the notions of 'coupling' or 'adjustment' between technology and the markets. However, the evolutionary approach still has problems with explaining the mechanism of coupling - the distinction between radical and incremental innovations and the 'long waves' model gave only a partial solution (se Callon & Law1989). The more recent attempts to explore the "institutional embeddedness of economic changes" are evidently a step to approaching this problem (see Coriat & Dosi, in Dosi and Nelson (eds.) 1995). Stressing technology, we should not take path dependency as "…mere institutional rigidification of the initial game rules" (North 1990), or even as the material lock-in discussed by David (David 1984). Rather, it should be considered as "… a process of deploying and unfolding heterogeneous arrangements, in which one finds knit together not only technology but also forms of organization and governance, relations between firms and public authorities, both local and national, associations and clubs, research centres …and so on." (Callon 1998: 49)

Our research hypothesis is that the rules of the markets and their organizational modalities depend not only on national institutions and political strategies for economic developments but in equal measure on the ways (forms) of mobilising technologies, on the very nature and content of these technologies. One of the consequences of this approach is to reject the idea that post-socialist economic transition can be described by means of universal models. Instead, we need to take into consideration particular configurations in which the emerging markets are embedded[15].

If we stress the (still neglected) role of technologies while at the same time rejecting the idea that real markets can be described by means of universal models, then how could we study relationships between the actors in post-socialist economies? - The answer is that at the initial stage of analysis we should refuse to build models and prefer to study empirically emerging configurations in focusing on the interactions between economic agents, leaving it to them to

process of integration of CEE countries to EU (Menske and Weber 2001), case studies on the development of new private high tech firms (Tchalakov 2001). Some of these studies, however, need to be critically evaluated in the light of the outlined approach.

[15] Recently Michel Callon suggested abandoning the very notion of 'economy of transition' and attempting to analyse economic markets in Western and Eastern Europe with the same analytic tools. (*TACTCIS Consolidated Report to European Commission* (2001), CSI-Armines report)

describe the 'actor-worlds' they are living in. Starting our project almost an year ago we thought worth to reject temporarily the remedy Janosh Kornai proposed for coping with the unsatisfactory level of understanding of post-socialist economic transition: "…It needs interdisciplinary research to link theories of economists, political scientists and sociologists and create new, common theories that explain the situation" (Kornai, 2000) with the 'back door approach' of actor-network theory (ANT) as outlined by Bruno Latour, slightly re-phrasing it:

> "Instead of a powerful synthesis or an overarching metatheory, Michel Callon and I believed it possible to approach the same task through the back door, so to speak, by looking for the weakest possible infratheory… [Its] vocabulary does not aim at describing or explaining but at creating the relativist space in which the actors themselves may be deployed." (Latour, 1993:1) *Only after we reach this relativist space and get access to the proper accounts of the economic actors* we are at the stable ground to use (and judge between) the multitude of interdisciplinary resources described above. [16]

In the turbulent context of past-socialist economy, when the old economic system no longer exists, but the new economic order is far from settled, the relativist space we are aiming at is 'ontologically valid' in a sense. It corresponds to the profile of actors' activities, which in their uncertain and highly risky environment rarely follow 'canonical models'. Stark and Bruszt call this a specific form of organisational hedging. In transformation economies, they wrote,

> "…Firms have to worry not simply about whether there is demand for their products, or about the rate of returns of their investments, or about the level of profitability, but also about the very principle of selection itself… Because there are multiple operative, mutually coexistent principles of justification according to which you can be called to give account of your action, you cannot be sure what counts. By what proof and according to which principle of justification are you worthy to steward such and such resources? Because of this uncertainty, actors will seek to diversify their assets, to hold resources in multiple accounts…To gain room for manoeuvre actors court and even create ambiguity. They measure in multiple units, they speak in many tongues." (Stark 1998: 134-135)

[16] This the notion of network we share was designed in the early 1980s "…as a critical tool against notions as diverse as institution, society, nation-state and, more generally, any flat surface…[it] means a series of transformations - translations, transductions - which could not be captured by any of the traditional terms of social theory" (Latour 1999: p.15-16). According to Latour, it has recently become a "pet notion of all those who want to modernise modernisation". With the new popularisation of the world network, he wrote: "it now means transport without deformation, an instantaneous, unmediated access to every piece of information. That is exactly the opposite of what we meant. What I would like to call 'double click information' has blunted the last bit of the critical cutting edge of the notion of network" (ibid).

Part II. The research methodology

This part elaborates the Neo-Shumpeterian approach to the post-socialist economies which helps researchers to distance from the existing models of transition, while at the same time emancipates the local economic agents and gives them the floor to describe the "world of transition" they were living in during the last almost fifteen years. It focuses on "post-socialist firms" as key economic actors and the study of their relationships with other agents (both inside and outside the economy) as an entry point to describe the dynamics of transition process. Five main domains of firms' relationships are defined, which have to be studied empirically.

The post-socialist firms

The concrete version of the *actor-network theory* ("weakest vocabulary possible") that we develop proceeds from the assumption that the key units of analysis are to be *the firms* in the field of advanced communication technologies and telematics (ACT&T). There are several theoretical arguments for this choice.

First, the firm is one of the tree fundamental elements of capitalist economy, together with the *market* and the *federation of firms:* "… Profit-oriented firms have always been the main instrument of the capitalist economy for production and distribution of goods and services, as well as for programming (planning) of the future production and distribution" (B.Coriat & O. Weinstein 1995: 190-1991). The neo-classical notion of the firm-point ('black hole') has now been replaced by sophisticated theories in which the firm is viewed as a *complex organisation* consisting of groups with different interests, as well as a *complex institution* (legal body) with functional and operational units and managed by multilevel managerial hierarchy. As such, the firm maintains contractual relationships with *suppliers* and *distributors*, with its *customers* and *employees*. The firm is also the place where new technologies enter capitalist economy: "…modern firms is an organisational form which responds to the fundamental changes in production and distribution resulting from the new sources of energy and increasing application of scientific knowledge and industrial technology." (Chandler 1990: 418)

Second, the notion of firm provides the necessary uniformity and '*commensurability'* both inside and between the relativist spaces. This is due to its ability to cover almost the entire spectrum of economic agents in a given sector - from micro-firms of self-employed individuals to the large multidivisional firms and local branches of multinational

corporations.[17] This is a result of a historically established *set of proper attributes of the firms*, which determine their location in the "topology" of the given industrial sector. They serve as *systems for classifying* firms' activities (production, assembling, trade, etc.), of firms' concrete products and services, technology specialisation, etc. *It is in these characteristics* that *technology and economy merge in an inseparable unity*. Although they seem to be individual attributes of the firm, in fact they are all relational characteristics, because they make comparison of the firms possible. They create the 'infrastructure' of markets relationships and enable their 'disentanglement'. Often these attributes result from the interplay of the classification activity of the actors themselves and of economic science (see Callon 1998, Introduction).[18]

Third, our choice is determined by the fact that the emergence of post-socialist firms is one of the most significant signs of transition. There is a very important aspect in the claim, that "…*enterprises in the Western sense did not exist in socialism*. These, basically production and non-business units were part of the hierarchy. Business functions like marketing, finance, and R&D were rudimentarily developed 'in-house' or were entirely 'outsourced', either to ministries or to other organisations (foreign trade organisations, branch institutes, industry directorates)." (Radocevic, 1997) The post-socialist firms that succeeded the former industrial organisations, as well as the newly established ones, had to develop a series of new skills and organisational capabilities in order to respond to the challenges that the emerging markets were imposing upon them.

Domains of firms' relationships to be studied

The studies of post-socialist transition presented above, together with some recent findings of the analysis *of techno-economic networks* (TEN), might help in defining the relativist space so as to account for the relationships of post-socialist firms. In a recently published volume, a group of French sociologists and economists point at two important aspects of TEN: the *heterogeneity of the actors* involved and the *role of the intermediaries* in their relationships. According to the authors, "…economic activity, like scientific and engineering

[17] The 'firm' is also a *rhetorical tool* that the economic actors are using to define themselves (a tool similar to 'foundation' for non-government organisations); it is a form of maintaining their identity in the course of interactions.

[18] In describing the firms the science of economics also uses a number of *universal economic characteristics*, such as legal form, ownership/control share, turnover, year of establishment, nationality, etc. We used these characteristics, together with the set of attributes specific for the ACT&T sectors, at the last stage of data treatment as *'passive' (projected) variables* in multiple correspondence analysis for the identification of the firms' network profiles (see section 2.3. below).

research or political actions, mobilizes an increasing variety of heterogeneous actors entering in the changing relationships of competition/collaboration and having their own, sometimes mutually contradictory, goals, projects and interests… It is worth analysing the firm itself as a network where the different constitutive activities - ranging from the [product] design to the marketing - interact constantly and without predefined order. The firms' 'internal' networks also extend in the outside world in various directions: to the domain of scientific research, to advertising and the media, to the different partnerships between firms themselves. (*Les réseaux et coordination* 1999: 4-5) We shall consider the last point, the directions of 'outward' relationships of the firms, so that our relativist space will encompass not only the economic domain proper, *but also all heterogeneous flows of interactions* in which the post-socialist firms are embedded and which constitute their identity.

The second aspect of TEN accounts for the way these heterogeneous interactions are defined, providing clues for their differentiation. The role of the intermediaries was already a central one in classical Marxist political economy, and Marx himself studied the various forms of mediation between production, distribution and consumption (to recall his famous Introduction to *Economic-philosophical manuscripts,*1857-58), including the circulation of money. But there are multiple mediators in the relationships between heterogeneous actors in the network: "The forms of collaboration and engagement in relationships… are materialised in an assembly of intermediaries which are not limited to material and commercial goods. The notion of intermediary denotes everything that is circulating between the actors and that constitutes the forms and the matter of their relationships." (Les réseaux et coordination 1999: 5). The authors distinguish four categories of intermediaries: *codified information* (texts in the broad sense of the term), *technical objects*, *money* (in its different forms), and the *individuals themselves* (competent human bodies). Without these intermediaries, they claim, the actors remain 'isolated and dispersed, deprived of identity'. [19]

Hence the post-socialist firms appeared immersed simultaneously in several heterogeneous 'regimes of circulation', centered on specific intermediaries. In fact each of these regimes forms a network of it's own, which could be analysed separately in defining the specific domains of the firm's external relationships:

[19] Here are a few examples. A firm ceasing to provide its goods and services disappears from the world of its previous customers; the firms being declared insolvent become non-existent on the financial markets; when the head-hunters succeed in attracting the best engineers of a small high-tech firm, its future became problematic likewise.

1) First, there is the *circulation of economic goods* (of the firms' own products and/or services), which forms the relationships with customers and clients as well as with business partners.

There are many choices that the firm can make in this regime: to sell directly or through intermediaries, to provide or not to provide maintenance of the sold goods (if such is needed), how to better master the existing technologies and introduce new ones. The firm has to decide when and how to launch its new products/services, how to make them stand out more visibly among those of the competitors, etc. Answering these challenges involves choosing between various types of customers and establishing relationships with different types of business partners (for supplying components and raw materials, in design and R&D, maintenance, marketing, and advertising). Most of these choices are closely bound to the nature of the goods or services that firms are providing, for example, to computer hardware or software, to Internet services or traditional phone services, etc.

2) The *circulation of money* is the next important regime that determines a specific domain of the relationships.

The access to bank credit (to the financial market in general) is a key characteristic of modern capitalist economy. As Schumpeter put it long time ago "…without credits, the structure of modern industry is impossible, since credits make the individual relatively independent from inherited ownership, and the gift of modern economic life rides on the success of its debts." (Schumpeter 1934: 70) This regime is structured by the circulation not just of money but especially of what Schumpeter called "free purchasing power" (in various concrete forms) to designate the intermediary that the entrepreneurs need in order to launch innovation. The neo-classical and 'neo-statist' models, discussed above, both unequivocally stressed the role of the bank system in post-socialist transition. During the first years of transition the 'emancipation' of credit from the successors of the former administrative system became one of the main 'battle fronts' against the ex-socialist oligarchy.[20]

3) The third domain comprises human resources relations.[21] The latter is defined by the established *regimes of circulation of people*, i.e. of human beings with 'incorporated

[20] See Winkler 2000, Chalakov & Kirov 2000

[21] We decided not to consider circulation of information (codified texts) separately from the circulation of technical objects: in the R&D activities of firms that were studied little, if any, basic research was conducted. As Romer pointed out, R&D consists essentially in embodied knowledge/incorporated skills. The share of codified knowledge is relatively low due to problems with its capacity to be appropriated (Romer 1993; for an extended discussion on Romer and the opposite hypothesis of Dasgupta & David, see Callon 1996 and 1999). From the

skills' and 'embodied knowledge', acquired after years of specialised training or experience in research, production and/or marketing.

Post-socialist firms, like any capitalist firms, cannot avoid entering in specific relations with their *own employees* and with the actors who train the specialists needed by firms. As in the other two regimes, the circulation of 'able bodies' defines its own agents, i.e. higher education institutions, research organisations, but, increasingly, fellow firms as well. It is no coincidence that in the ACT&T sector an employee possessing a certificate from Cisco or Microsoft is valued higher than those having diplomas from some prestigious universities. This dimension is likewise closely related to the R&D activities of firms.[22]

Yet these three regimes are not sufficient to describe the richness of the relationships in post-socialist technical-economic networks. The studies of transition that we examined in the first part witness the importance two other fields of firms' relations: the *legal framework* and relations with *public powers*.

4) The *legal framework* behind all interactions of firms should be defined as another distinct domain. The firms we want to study maintain various types of *legal relationships embedded in their concrete interactions with other agents* - customers and business partners, government institutions, legislative bodies, etc.

T*he legal framework* and practical steps for its implementation as well as the institutional arrangements related with this process guarantee the sustainability of various regimes of circulation. To quote Kornai again, it is "…what makes every factor in the economy take seriously such matters as contracts, obligations, debts, taxation and so on" (Kornai above). But are there any specific intermediaries here? And if so, is this too a 'regime of circulation'?

A possible answer comes from the initial idea of the notion of network (see Latour cited above) - *this is the domain where every particular form of interaction is 'translated' as*

---

case studies and interview we obtained little evidence relevant to the significance of circulation of codified knowledge (mostly related to software and problems of intellectual property rights) in firm relations. The results would have been different, however, if we had studied research laboratories.

[22] Each economic system possesses its own regimes of circulation of competent human bodies. When in the late 1960s Bulgaria decided to specialise in electronic industry, a government decree arranged for 20 top graduates from the corresponding specialities at the Technical University of Sofia to be employed directly at the famous Central Institute for Information technology (CIIT). The prescription lasted for more than two decades and has led to truly elite R&D establishment. In early 1990s former CIIT members could be found in prestigious IT companies in USA and Canada. They formed also some of the most successful private IT firms in Bulgaria. Now some of these firms, especially in software, are closely related with IT professors at those and other technical universities (or sent some of its employees as part-time assistant professors there) to pick up the best students already in earlier stage of their education. (See more in *TACTICS Final Report*, Bulgarian historical report section.)

related to (falling under) some 'generally defined cases' or 'exemplar solutions'.[23] This 'disentangles' the economic relationships, makes them manageable and predictable. But this is a difficult, laborious endeavor and it presupposes constant daily efforts of numerous specific actors. One of its results is ascribing 'authorship' to the intermediaries circulating in the other regimes (for example, in order to guarantee that only Cisco will issue its certificates, that an established trade mark will not be used by competitors, to certify the origin of the products, etc.). This is a kind of infrastructure work that allows tracing the author of every mediated interaction, and his/her responsibilities for the decision taken and/or action performed.

Hence it is not the abstract legal rules that should be studied but the set of firms' relations structured by those rules. The most important are *property rights* relations (Alchian 1987, Barzel 1989, Hart et Moore 1990). The transformation of property rights in post-socialist countries has been remarkably studied by David Stark and Laslo Brutz, who have shown that specific conditions of the post-socialist economic and political situation modify the abstract rules and create new 'indigenous' forms of property rights, such as 'recombinant property' (Stark & Brutz: 1998). Alongside the property rights are *tax* and *custom*s *relationships*, as well as *labour relationships.* The appropriation of technology in turn is mediated by *standards and licensing regimes*. Some industrial sectors are strongly influenced by environmental legislation.[24]

5) *Relationships with public powers and state institutions (*or the 'bandits' of post-socialist transition,' as Olson put it*)* are the other important domain of firms' relationships; a field emphasized in studies of transition.

The relationships with the state and its institutions had been the core of the former economic system of administrative co-ordination. Numerous studies of post-socialist economy have shown that various post-socialist political elites (the former communist nomenclature, newly emerged political parties, etc.) and state bureaucracies are among the main actors in the economy (Konings 1997, Avramov 1999, Olson 1995, and Kornai 2000). With the collapse of entire industrial branches, the State (including state-owned enterprises) continued to be

[23] As regards legal practice, there are for example the famous verdicts of the US Supreme Court on specific cases related to such *interpretations* of the laws that 'preserves their spirit' and which are used in subsequent legal practices as a kind of standard or guide for judging similar cases.

[24] Not all of the legal relationships proved to be of importance with regard to our study. For example, we left out the environmental aspects of firms' activities, the advance communication technologies being relatively less harmful to the environment. Similarly, we decided not to include specific questions about labour relationships, with the exception of brain drain.

among the biggest customers for a large number of goods and services, including those in the field of advanced communication and information technology. State institutions mediate most of the resources for modernization and restructuring that come through various international and bilateral programs. This is especially true for EU pre-accession programs, affecting most of the East European countries. That is why this field may rightfully be defined as a separate domain of firms' economic relationships.[25]

Outlining strategic profiles of the firms. The method of indirect network analysis and the need of time-dimensional data

With the outline of above five domains, the task of constructing the relativist space is accomplished in its most difficult part. Focusing on the post-socialist firms as key actors of economic transformation, we designed a tool to account for their relationships with other agents in the economy and outside it and which captures the heterogeneous nature of transition.

The next step we had already undertaken in the framework of the project TACTCIS where a representative survey with IT companies in Bulgaria, Macedonia and Romania was carried out. It consisted in delimiting a finite number of relational characteristics/variables that sufficed to describe each of the five domains. These variables were considered a concrete embodiment of the relativist space we are aiming at, in which the actors could position themselves. *Serving as axis of the constructed relativist space*, the variables make possible the comparison between different countries (or between the economic sectors). The goal was achieved by positioning of a sufficient number of IT firms to obtain different configurations of relationships or *network profiles* of firms' strategic relationships. In the study we have developed an *indirect method for network analysis*[26], where instead of describing the concrete networks of firms' relationships, we highlighted groups of firms in the samples, that were *similar in the structure of their relationships* with economic actors in the five domains defined above, which we called *network profile*. (For more detail see Tchalakov 2002, available also in *'Publications'* section at www.policy.hu/tchalakov).

[25] We measured the presence and type of relationships with different levels of public power (parliament, government, local governments), as well as those with various state offices. A number of concrete indicators (some of them falling under the above four domains) also measured the relationships with the state as customer, as owner, as a setter of standards, as a provider of educational services.

[26] The method was designed in close collaboration with Michel Callon and Philippe Laredo during the meeting for critical discussion in early November 1999, held in CSI, Ecole des Mines, Paris.

We believe that method of indirect network analysis is a useful research instrument in studying economic transformation, and our results have clearly demonstrated this. Yet as we already pointed out in the initial IPF project proposal, the problem is that *network profiles, received by the method of indirect network analysis, are static*. They are not time-dimensional. To develop the *Neoschumpeterian model of economic transition* as complimentary to the existing approaches to post-socialist transitions described above, we need data about *real paths of development of innovative SMEs in the country in at least several sectors of the economy.* We need to trace the "carriers" of Neoschumpeterian SMEs, i.e. to collect 'time dimensional" data about the evolution of firms' economic indicators (product specialization, turnover, market shares, control shares, staff dynamics, R&D indicators); about the ways the firms are coping with technological, political, institutional and market uncertainties during the period of economic transition; about the major turning points in their development, management strategies, lasting partnerships, and dynamic of their relationships with public powers, financial and legal institutions, etc.

At this stage our goal is to first focus on Bulgarian case and to conduct comparative analysis of the patterns of innovative behavior of Bulgarian SMEs in *different sectors* of the economy. We have chosen two such sectors – *information & communication technologies* and *perfumery & cosmetics*.[27] They are similar in their business structures – both are dominated by SME, they are both related with production base of late socialist economy (most of their founders came from former large state-owned enterprises and their R&D establishments), etc. Yet they differ in their technologies. This makes possible to weight the relative role of these technologies among other factors in firms' economic development.

List of literature

Amsden A., Kochanowicz J., Taylor L. (1994). *The Market Meets Its Match: Restructuring the Economies of Eastern Europe*. MA: Harvard University Press, Cambridge.

Avramov, R., (1999), *Introductory paper*, in: Stephan Bochev, The birth of the capitalism in Bulgaria, Institute of Liberal Studies, Sofia

Biegelbauer P., and Andreas Pribersky, (2000), The Impact of Foreign Direct Investment on the Knowledge Base of Central and Eastern Europe, session reports at 4S/EASST Conference, 2000, Vienna, Austria

[27] Already in the beginning of the fieldwork it became clear that pharmaceutical industry and perfumery and cosmetics are quite different – they differ in their internal organizations, technologies used, standards and regulations, business relationships, etc. In fact they appeared to be two distinct business communities and getting access and study of both of them did not fit to the time schedule of the project. So your decision to focus only to perfumery & cosmetics.

Block, F., (1994), 'The Roles of the State in the Economy', in: N. Smelser and R. Swedberg (Eds.), *The Handbook of Economic Sociology,* Princeton Univ. Press, Princeton; Russell Sage Foundation, N.Y.

Bobeva et all, (1996), Europe's Integration And The Labour Force Brain-Drain (comparative study in 16 East-European Countries, COST

Callon , M. (1992), "Sociologie des sciences et économie du changement technique: l'irésistible montée des réseaux technico-économiques", *Les réseaux que la raison ignore*, Paris, l'Harmattan.

Callon M. (Ed.) (1998). The Law of the Market, Blackwell, New York.

Callon M., Law J. (1989). On the construction of Sociotechnical Networks. In: *Knowledge & Society: Studies in the Sociology of Science Past and Present*, Vol.8, p.57-83.

Callon, M. and J. Law, (1989), 'La protohistoire d'un laboratoire', in: M. Callon (ed.) *La science et ses réseaux*, La Découverte, 1989

Callon, M., (1996), Les statuts économiques des activités de recherche et développement, in: Representer Hybrider, Coordiner, CSI-Ecole des Mines, Paris

Callon, M., (1999), Les réseau forme émergente et comme modalité de coordination: le cas des interactions stratégiques entre firmes industrielles et laboratoires académiques, in: *Réseau et coordination,* Economica, Paris

Chalakov, I. and V. Kirov, (2000), - Risk Capital and Innovative Entrepreneurship in Bulgaria. In: Jelio Vladimirov (ed.) Contribution of Social Research to the Economic and Social Recovery Policy, Sofia: Sofiiski Novini Edition, pp. 158-171;

Chandler, A., (1978), The Visible Hand: the managerial revolution in American business, Harvard University Press, Cambridge MA

Coriat, B. and Giovani Dosi, (1995), The institutional embeddedness of economic change: an appraisal of the 'evolutionary' and 'regulationist' research programs, in: G.Dosi and R.R. Nelson (edc.) Innovation, Organisation and Economic Dynamics, …

Coriat, B. and O. Weinstein, (1995), Les nouvelles théories de l'entreprise. Le livre de Poche, Paris.

David, P.A., (1984), 'Clio and the Economics of QWERTY', *American Economic Review* 75 No.2

Dobrescu E. (1996). Transition economy - a weekly structured system, *Romanian Economic Review,* 40, No.2 (July-December), 111-120.

Dontchev, S. (2000) - Industrial restructuring and transformation of society, in: *Soziologicheski Problemi,* No.2/2000 (in Bulgarian)

Dosi, G. and C. Freeman, (Eds), (1988), *Technical Change and Economic Théory*. London&New York., Pinter Publ.

EBRD, (1994), Transition Report 1994, London

TACTCIS CD-ROM, (2001), http://www.isomatic.co.uk/tactics.htm

Gereffy, G. and D. Wyman, (1990), *Manufacturing Miracles. Paths of Industrialization in Latin America and East Asia*, Princeton, Princeton University Press

Greskovits, B. (2003) - *Beyond Transition: The Variety of Post-Socialist Development*, paper presented at the Workshop "Sectoral Approaches to Late Development", June 14-15, CPS-CEU, Budapest, Hungary

Gummet, Ph. et all., (1994), Military R&D after the Cold War: Conversion and Technology Transfer in Eastern and Western Europe, Kluwer, NATO Series 4, Vol.6

Hagedoorn, J. and J. Sedaitis (1998), Partnerships in transition economies: international strategic technology alliances in Russia, in: *Research policy 27*, pp.177-185

Handson, P. and K. Pavitt, (1987), The comparative Economics of Research Development and Innovation in East and West: A Survey, Harwood Academic Publishers, N.Y.,

Hausner J., Jessop B., Nielsen K. (1995). *Strategic Choice and Path-Dependency in Post-Socialism: Institutional Dynamics in the Transformation Process*. England: Elgar, Hants.

Henderson J. (1993). Against the Economic Orthodoxy: On the Making of East Asian Miracle. *Economy and Society*. 22, 200-217.

Hirszowicz, M. and A. Mailer, (1994), The Withering Away of the State - A neo-Liberal Fallacy, in/ *Polish Sociological Review*, 3 (107)

Kandogan Y., (2001). *Technological Progress Through Trade Liberalization in Transition Countries*, Department of Economics, University of Michigan & Mendoza College of Business, University of Notre Dame, JEL Classification: F14, O33 (Internet publication)

Keremidtchiev S. (1993). Les premiers pas de la privatisation en Bulgarie. *Revue d'Etudes comparatives Est-Ouest*. 3-4, 237-255.

Kis J. (1996). Transition is Over, in: Beszélö, III.1.6. August/September 1996, 4-11

Kochanowicz J. (1994). Reforming Weak States and Deficient Bureaucracies. In: Nelson J. M., Kochanowicz J., Mizsei K., Munoz O. (Eds.). *Intricate Links: Democratization and Market Reforms in Latin America and Eastern Europe*. Transaction Books, New Brunswick, 195-227.

Kochanowicz J.(1993). Transition to Market in a Comparative Perspective: A Historian's Point of View. In: Poznanski K. (Ed.). *Stabilization and Privatization in Poland: An Economic Evaluation of the Shock Therapy*. Kluwer, Boston, 233-250.

Koford, K. (2000), Citizen restraints on "Leviathan" government: transition politics in Bulgaria. European Journal of Political Economy Vol. 16 (2) pp. 307-338

Koleva S., (2000), The state and the development of telecommunications and telematics in the economies in transition (the case of Bulgaria, Macedonia and Romania), in: *TACTCIS Theoretical Papers,* TACTCIS CD-ROM (see www.isomatic.co.uk/tactics.htm)

Konings J. (1997), Firm growth and ownership in transition countries**.** Economics Letters Vol. 55 (3) pp. 413-418,

Kornai J. (1992). The Socialist System. Political Economy of Communism NJ: Princeton University Press, Princeton.

Kornai J., 2000. Hardening the budget constraint: The experience of the post-socialist countries, in: *European Economic Review* Vol. 45 (9), pp. 1573-1599

Kosolowski R. (1992). Market Institutions, East European reform, and Economic Theory. *Journal of Economic Issues*. 26 (3), 673-705.

Latour, B., (1993), A "matter" of life and death - or should we avoid hylozoism, CSI Ecole des Mines, mimeo

Latour, B., (1999), 'On recalling ANT', *The Sociological Review,* Blackwell, Oxford (UK) and Malden (USA)

Menske, W. and K. M. Weber (2001), European Union enlargement: economic restructurinng in candidate countries and the role of technological change and education, in: *Science and Public Policy*, vol.28 (3), pp.154-168

Minev & Jelyazkova (2000), Bulgaria: the Birth of Capitalism and Economic Rationnality?, *Sociological Problems* No.3/4, 2000 - Special volume on 'European Trajectories of Economic Transformations' (in Bulgarian)

Minev D., Fotev G., Gerov K., Vendov A., Hodja Y., Peikov T. (1996). *The Bulgarian economy: Reforms, changes, perspectives*. Poligraph Ltd., Sofia, (In Bulgarian).

Murrel, P. 1990 *The Nature of Socialist Economies. Lessons from Eastern European Foreign Trade*. Princeton: Princeton Univ. Press

Nelson R., Winter S. (1982). *An Evolutionary Theory of Economic Change*. Cambridge University Press, Cambridge.

North D. C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge Univ. Press, Cambridge

Olson, M., Jr., (1995), Why the transition from communism is so difficult. *Eastern Economic Journal* 21, 437--462

Paasi, M., (1998), Efficiency of innovation systems in the transition countries, in: *Economic Systems* Vol. 22 (3), pp. 217-234

Paris minutes, TACTICS methodological meeting at CSI, Ecole des Mines de Paris, February 2000)

Perez-Sebastian, F., (2000), Transitional dynamics in an R&D-based growth model with imitation: Comparing its predictions to the data, in: *Journal of Monetary Economics,* vol.45 (2)**,**

Radosevic, S., (1995), Science and technology capabilities in economies in transition: effects and prospects. Economics in transition 3 (4), 459-478

Radosevic, S., (1997), System of Innovation in Transformation; from Socialism to Post-Socialism, in: Charles Edquist (ed.), System of Innovation, Pinter, London & Washington

Réseau et coordination, (1999), Michel Callon, Patrick Cohendet, Nicolas Curien, Jean-Michel Dalle, Françoas Eymard-Duvernay, Dominique Foray, Eric Schenk, Economica, Paris

Revol, H., (1994), Les enjeux de coopération scientifique et technologique avec les pays de l'Est, Rapport - Office parlementaire de politique technologique et scientifiaue, France

Romer, P.M., (1993), Implementing a national Technology Strategy with Slef-Organising Industry Investment Boards, in: *Brooking papers: Microeconomics 2*, pp. 345-399

Rosenberg., N., (1976), Perspectives on technology, Cambridge Univ. Press, Cambridge

Sachs J. (1996). *Reforms in Eastern Europe and the Former Soviet Union in Light of the East Asian Experiences*. MA: National Bureau of Economic Research, Cambridge.

Sagowski, B., (2001), Towards market repositioning in Central and Eastern Europe: international cooperative ventures in Hungary, Poland and Czech Republic, in: *Research Policy 30*, pp.711-724

Sahal, D. (1985). Technological guidposts and innovation avenues, in *Research policy*, N° 14

Schumpeter, J., (1934), The Theory of economic development. Harvard Univ. Press, Cambridge, Massachsetts

Shafer M. (1994). Winner and Losers. How Sectors Shape the development Prospects of States, Cornell Univ. Press, Ithaca and London

Smelser N., Swedberg R. (1994). *The Handbook 0f Economic Sociology*. Princeton University Press, Princeton; Russell Sage Foundation, New York.

Spenner K., Suhomlinova O., Thore S., Land K., Jones D. (1998). Strong Legacies and Weak Markets: Bulgarian State-owned Entreprises during Early Transition. *American Sociological Review*. 63 (4), 599-617.

Stark D. (1992). Path Dependence and Privatization Strategies in East Central Europe. *Eastern European Politics and Societies* 6, 17-51.

Strak D., Bruszt L. (1998). *Postsocialism Pathways. Transforming Politics and Property in East Central Europe*. Cambridge University Press, Cambridge.

TACTCIS Consolidated Report to European Commission (2001), CSI-Armines report

Tchalakov I., (2001) Instead of diffusion: The mutual construction of users of advanced communications services in Bulgaria and of their service providers, paper presented at *3rd International Summer Academy on Technology Studies* - July 2001, Deutschlandsberg, Austria (http://www.ifz.tu-graz.ac.at/sumacad/)

Tchalakov I., (2002). Towards a Neoschumpeterian Model of Post-Socialist Economic Transition, in: *Sociological Problems*, Special Issue 2002, LIK Publishing House, Sofia, pp.115-128 (available at www.policy.hu/tchalakov)

Part III. Research findings - Innovative SME in Bulgaria after 1990

Introduction

The results of the fieldwork will be presented in two steps.

The first step comprises this third and last part of our Research Paper. The part is structured in the form of several typologies, which outlines the profiles of innovative SME we have studied. These typologies are based on principles derived from theoretical framework and research methodology. Yet in the first step we focus more on the 'content' of the firms' economic activities and pay special attention to technology component. Each type could be considered as *result of particular choices* and as a *specific strategy* followed by the firms' managers in response to the economic situation they have been working in and relevant to the resources they have had at their disposal. They are results of the indigenous way of reasoning of the interviewed managers. Because similarly to us, social scientists, they are also reflecting on their own and of their colleagues experiences, framing them in their indigenous way as "ad hoc' theories about the development of the sector and the best practices to follow. What is more important, however, is not so much the origin of the types we are presenting, but the fact *that these types are interrelated in specific profiles*, so for examples export-oriented firms usually maintain significant R&D activities and are usually funded by people coming from R&D establishment of former state-owned enterprises. Some of these profiles appeared to be common for both sectors studied, while others are sector-specific. This is the reason to present the findings separately for the two sectors - information & communication technologies (ICT) and perfumery & cosmetics (P&C). We were able to outline several different *paths* the studied innovative SMEs have followed after 1990, or - if we look at these path from the managerial point of view – several different *long-term strategies* of these firms. Our conjecture is that we observed rather "paths" than "strategies", because in most of the cases the entrepreneurs (firms' managers) *opportunistically responded to the dynamic changes in their internal and external environment*. Their firms also appeared immersed into coalition and networks that have been constantly in move, sometimes jointly responding to the challenges, sometimes breaking their alliances and partnerships and taking their own way of behavior.

The second step will be carried out in our Policy Paper. Based on research methodology and data collected, we will outline there our vision about economic and political situation in Bulgaria in the eve of 1989 and the blueprint that set the main parameters of transition

process and which steered it till almost till the end of 1996. Hence the second step pay special attention to the missing actor in the first step – the post-socialist state, the political and economic elites whose struggles marked the dynamics of macro-economic and societal changes. We will define our policy hypothesis and then will test in against the findings in two sectors. The lessons from this testing will lay the ground of our concrete policy project.

Our hope is to prove that the "policy" that stems from micro-economics, i.e. the real experience of innovative entrepreneurs following way of their own finally could be put on the same footing as the policy designed in the 'highness' of the political elites. There are hidden actors to emerge, which search their own ways of expression.

* * *

Let us take the first step now. There are two ways of reading the ICT and P&C sections that follow:

First, the reader could go directly to the boxes where the selected cases are given as exemplifying the specific profiles of information & communication technologies (ICT) or perfumery & cosmetics (P&C) companies.

Second, it could first read the different typologies, which split the population of firms according to different methodological principles and describe the analytically derived groups. The author contends that both ways of reading should be tested, the later being more helpful in designing eventual policy strategies for the sectors.

Both section for *ICT* and *P & C* firms are structured in the following way:

1) Typology by origin of firms and their founders

- Firms that originated from structural units in former large socialist enterprises and their R&D institutes
- Joint ventures of large Western multinational firms
- Firms created by new-comers in the sector

2) Typology by forms of ownership & management

- Firms managed individually by their owners
- Firms managed jointly by co-owners (partners)
- Firms managed by appointed manager and/or board of directors

3) Typology of the firms by export orientation

- Firms working entirely for the local market.
- Firms with a considerable share of export

4) Typology by degree of specialization

- Narrowly specialized firms
- Firms with a wide range of products and services only in the sector
- Firms that diversify their activities by working simultaneously in several sectors

5) Typology by products / services offered

- According to the dominant technology they use
- By type of product (original, licensed or standard)

6) Typology by level and share of r&d activities

- High-tech firms (firms with serious investments in R&D and staff qualification)
- Firms with R&D as an auxiliary activity
- Firms without R&D activity

The research report concludes with a section that compares findings in the two sectors, the most important common and specific problems of innovative firms there, and provides the link to the policy paper.

Section 1. Innovative SME in the sector of information and communication technologies

For the purposes of IPF project the author has contacted ICT companies he has been working with earlier in the framework of comparative study of the development of ICT sector in Bulgaria, Romania and Macedonia. Hence some aspects of the information needed for the present project was already available. Other important aspects, however, had to be collected anew, since the preceding study was oriented most of all towards establishment of actual situation in the three countries rather than to collect data about the individual paths each company has followed.

Bulgarian IT industry by the end of 1980s

> According to the official financial statistics for the year 1989, electronics and telecommunications technology accounted for 25 percent of Bulgarian industrial production, and the main part came from the eight large vertically integrated production organizations, while in the field of R&D, there were five main institutes, assisted by an interdisciplinary Coordinating Center in the Bulgarian Academy of Sciences. In this branch a total of 130 000 people was working, 8 000 of whom were highly qualified engineers. According to independent sources, in the financial year 1989 about 95 percent of the total production in this sphere was sold on the COMECON market, mostly to the USSR. In the last years of the 1980s, Bulgaria became the leading supplier for Soviet scientific-research and industrial institutes for 5th generation computer systems for scientific studies and projects. Moreover, Bulgaria covered a large share of the Soviet market for PCs.
> *(From: Run, R. and Utt, R (1990),* Bulgarian Economic Growth and Transition Project*, National Chamber Foundation, Washington, p.22-1)*

A list of 30 relevant Bulgarian firms was made of which 11 agreed to be studied as cases. These were *Abacus Trade Ltd*., *Bioteam Software Ltd., Naturela, Orbitel, Risk Electronics, PROEL, Centre for Telematic Services at Bulgarian Telecom (BTC), GUCIS (Joint venture of Global One and BTC), Mobiltel* (GSM operator). *Елматех* (индустриална автоматика). Later, two of the case studies were not undertaken. After the initial friendly contacts, the *Centre for Telematic Services at Bulgarian Telecom (BTC)* requested official permission from mother company Bulgarian Telecom to be given, which never came. Also, after several polite talks with the first private GSM operator in Bulgaria *Mobiltel*, our proposal for case study was kindly rejected.

For the purpose of the analysis and for confidentiality reasons in the text below the firms will be named in capital letters from A to H.

i) Typology by the origin of firms and their founders

Firms based on structural units in large research institutes

These are firms in the field of electronics, created in the early 1990s from institutes of the Bulgarian Academy of Science (BAS) or industrial R&D units of the large state-owned enterprises.

At the end of the 1980s the Bulgarian electronics industry was undergoing large-scale restructuring. It controlled nearly 40% of the former COMECON market in this sector and had at its disposal an industrial and research potential that was enormous for the scale of Bulgaria (cf. BG Historical Report). Enormous investments (hundreds of millions of US dollars) were made in new fields such as 5th generation computers (parallel processors), systems for teleprocessing (Telematics), optical technologies (CD-ROM), etc. Serious R&D activity began in the field of computer networks and the Internet. These new products were intended for the market of the then existing COMECON but could not compete with the equivalent developments of the advanced Western countries. The break-up of COMECON and the changes in the early 1980s and early 1990s brought the Bulgarian electronics industry to the verge of a large-scale crisis. The COMECON market had disappeared and the local one was stagnating. Along with this, the leading Western producers in the field of electronics and telecommunications were penetrating the East European markets, including that of Bulgaria. In the course of just a few years most Bulgarian electronics plants stopped production, whilst the financing of R&D in this field was also discontinued.

Five of the ten firms under study were created on the basis of structural units in the large research institutes in electronics (BAS or industrial R&D units - CIIT). Our data show that this was not a coincidence but a result of conscious policy on the part of the management of R&D centres in electronics, who saw in this the only possibility for preserving the resources and human potential under the new circumstances. This process was facilitated in 1987, at the time of the former Communist regime, by the introduction of elements of market economy in the socialist economy (Decree 57) and the formation of small private firms in this sector. The TACTCIS survey has shown that nearly 2/3 of the Bulgarian firms employ personnel that previously worked in the electronics industry.

Box 2: *Firm A, IT company with changing profile*

Firm A was established in 1990 by a former R&D engineer from CIIT (the main research centre of the Bulgarian electronic industry). In 1992 the owner of the firm moved to the USA, creating a highly successful computer company providing various type of services to the US market (trading hardware, ISP services, specialised ISP software, etc). The US firm has become the parent company of Firm A. A new professional manager from the former electronics industry was appointed while the owner's sister (construction engineer) joined the firm as financial manager and head of its newly established *Petrol department*. A former colleague of the owner from CIIT was also invited as senior manager for the IT activities.

Firm A uses the services of an accounting firm and has two departments:

- *Information technology department*, operating in the main field of the firm (with 10 to 20 staff which vary during the years). The subject of activity of the computer department was building LAN/WAN networks, delivering complete computing machinery and projects, including software projects. The firm participated as subcontractor in several large-scale network projects - *University Internet project* (Internet network for ten universities in Bulgaria -1993-1994); *National System of Medical Urgency*, which integrated computer database, voice messages by telephone and radio in a single interactive system (1995-1999), etc.

- *Petrol derivatives department* (only three staff), which was supplementary. The firm supplied the so-called black fuels for enterprises that had no petrol stations. This activity played a crucial role for the financial solvency of the firm, providing fresh financial resources when bank credits were practically inaccessible. Also, it proved a very positive asset during the period of hyperinflation because they operated with their own resources and did not incur significant losses as a result of the devaluation of the national currency.

Firm A's development passed through the following stages

- *First stage (1990-1996)* - the firm was a wholesale importer delivering complete computer equipment. The company found a niche in the field with *average types of computer* - non-assembled, neither 'yellow', nor bearing an established trademark, produced by the *DTK Company*. Their technical parameters satisfied even the most choosy clients in Bulgaria. Another field was multimedia. Until 1996, 60% of the sales were multimedia products (in 1991 the firm became the first distributor in Europe of *Creative* (now world leader in multimedia). This continued until 1996 with the crisis of bank system in the country (the main customers), since when the wholesale business has been steadily going down (including multimedia products, whose share slumped from 60% to 5-6%). Some of the employees left the company.
- *Second stage (1997-1999)* - firm as computer network builder. There was an upsurge with networks because prices went down. It proved much cheaper to connect two computers by means of two LAN cards and cable than buy diskettes and operate with them - some of the simplest LAN cards cost less than USD 20 ! The firm was prepared for this change because it has been designing local networks since 1992, some of it employees being *accomplished network specialists* with rich experience from the former state electronics industry. It was one of the first importers of Novell software for local network management of large-scale organisations, main customers being the banks, the Bulgarian Civil Aviation and Sofia airport.
- *Third stage (1999 till now)* - alongside traditional activities the firm entered Internet business providing domain names, Web-design, specialised ISP software, etc. Also it mediated in hiring of computer specialists to work in US. This was related with profound changes in management of the firm, a new general manager and IT department manager being appointed.

Our case studies enables to trace several different trajectories of development of these firms:

- *Slow decline*. An example of this kind of development is firm P, created in 1991 on the basis of the respective department in CIIT by 10 partners/co-owners and 40 other persons.

The firm rented the workspace and equipment that it had used previously and also took over the large existing contract for production and supply of a microprocessing system for Russia, a contract worth tens of million dollars. The contract was undertaken with colleagues from the neighbouring department of the Institute, which also broke apart as the private firm P2[28]. After this contract, the firm attempted to continue as a high-tech R&D firm, concluding contracts with Western R&D firms (UK universities, German firms) and with local partners (BTK). These efforts proved unsuccessful. We could say that, due to its specialised staff and specific technological potential, the firm has an ever narrower circle of clients in the stagnating Bulgarian and East European markets, whilst it lacks the traditions, resources and contacts for penetrating the Western high technology market. It has gradually been abandoned by its best specialists and by some of its partners/co-owners. In 1999 it had a staff of 8 people and 4 co-owners. It was only lately that it moved on to fields not related to R&D, such as selling electronic components, Internet services, distributing DAEWOO-TELECOM office exchanges, etc. These activities have stabilised the economic condition of the firm, although at a lower level.

- *Powerful expansion after an initial period of insecurity, trials and errors*. Firm B was created in 1992 by two former colleagues in a computing technology institute at the Bulgarian Academy of Sciences. It was at first a small company specialising in assembling computer hardware, maintenance of computers, and production of software. Initially the entire staff was from the Bulgarian Academy of Sciences. The first two years were very difficult and without significant growth. Early in 1994 the first successful contact was made with Siemens for development of specialised software in the field of industrial automation. The development of software for Siemens was constantly expanded and by 1999 it had reached about 90% of turnover. In this 4-year term the development of software became a basic activity of the firm. It increased the staff and sales volume to several times the original size. In 1997 the firm diversified its activity and part of the profits were invested in the purchase of an Internet supplier, who became one of the leaders in Bulgaria. Investments are constantly being made in technological renewal and R&D.

- *Initial successes and rapid growth (till the mid-1990s), followed by internal conflict*. Firm R was created in 1990 by a group of researchers in the Institute of Computing Technology, Cybernetics and Robotics at the BAS, most of whom were from the same department. From

[28] Unlike the firm P, firm P2 is today one of the most successful firms in the field of systems integration and large high-speed computer network in Bulgaria.

the very start the firm specialised in computer hardware assembly, supplying computers and computer components from leading world firms. It also developed computer systems in the field of computer graphics and multimedia. In 1994 serious conflicts arose between the partners and some of them separated to form several new firms. The present owners and one of the founders of the firm managed to keep the name and part of the assets of the firm and practically had to start all over again, joining with a new partner. Today the firm is one of the leading hardware firms in the country, offering high-class computers and peripherals to corporate clients and professionals. Its computers are developed by the firm itself or by leading world firms like COMPAQ. The firm has a network of offices and dealers throughout the country, as well as a daughter firm dealing in import and wholesale of electronic components and peripherals.

- *Sustainable development over the entire period, dynamic adaptation to the uncertain economic and technological conditions over the entire period* Firms A and N. After their typical start in the field of computers, peripherals and standard software, both firms have displayed an admirable flexibility during the entire period being studied.[29] In both cases their adaptability involved the development of capacities in the field of building computer networks and penetration into new fields with the diversification of the business.

Joint ventures of large Western multinational firms

Here we have a typical start with a serious investment by an American multinational telecommunications company. The business dynamics of the firm felt the double influence of changes in the strategy of the mother firm and the situation in the country. In this case the multinational company maintains an office in the country and also controls the joint company it formed with the Bulgarian Telecommunications Company. The American firm plays a particularly important role in transfer of technologies and know-how and raising the quality of the telecommunication services it provides to the standards in developed countries. The American manager worked for several years in Bulgaria and a number of Western consultants spent shorter periods here. More than 10 Bulgarian engineers passed different periods of training in the firm's main US office. Another important consequence is the firm's strict compliance with the law, something not typical even for the state-owned Bulgarian firms, and its constant pressuring the local authorities to improve the laws and legal practices according

[29] It is notable that until 1997, when the government made an agreement with Microsoft and began a campaign for legalising sales, it was a common practice of nearly all computer firms in the country to supply unlicensed software as part of the computer systems they sold.

to EU standards. Changes in the multinational company, and the fact that it united its business in Europe with the businesses of two other large European companies, had no practical effect on the local firm G2, which simply registered over again.

Box 2: *Firm G2, an ACT&T Joint venture*

The firm G2 appeared as a successor of firm S, a joint venture between the Bulgarian Telecommunication Company (BTC) and one of the largest US communications companies operating worldwide, created in 1993. It was the second such joint venture in Eastern Europe (after those in Russia). The S firm managed to build up, and put into operation in a short time, *a new Bulgarian public data communications network* that complies with all international standards. Via this network Bulgarian users were provided with modern, advanced technology solutions for their data communications needs. An automated system for information collection and processing was established.

In 1996 the US partner combined its experience, expertise and resources with two of the biggest European advanced communication companies into a new multinational company G, where each partner was presented with equal share. The aim was to simplify global communications services for business, telecom carriers and consumers. The new firm took over all activities of the US partner in Europe. Hence the same year firm S was re-registered as firm G2, again as a joint venture with BTC. BTC holds 40% of the shares. In the mid-1990s the firms helped create a similar joint venture in Turkey, providing technical assistance and training. In 1999 a similar activity was undertaken in Macedonia.

In 1999 the firm had 20 staff in four departments, marketing, technical units (X.25, Internet, Frame relay,), administration, and book keeping. The firm provides 24-hour maintenance (Help desk), 7 days a week. The General Manager was appointed by mother firm G. He reports once a year to the General Assembly of shareholders.

Firm G2 is one of the four licensed telecommunication operators in the country, together with BTC and two mobile phone operators. It provides its users with the capability to use both key global services of G Company network, its value-added services and also G's Internet services. This included a large portfolio of services, such as messaging between computers (electronic mail), Store and Forward Fax and telex services, etc. The G-Bulgaria network nodes throughout the country provide reliable connection between clients' hosts or personal computers and their partners' equivalent systems, regardless of their location worldwide. The initial big investments were still not recovered and until 1996 the firms registered losses and only went into profit since 1997. The most profitable domestic activity is Internet services. However, the firm also serves all activities of the mother firm G in and via Bulgaria.

By 1999 the G-Bulgaria public data network comprised four primary nodes and five secondary nodes. The firm provided the following group of services: X.25 and X.75 data transmission services access to Internet and X.400 electronic mail. Since 1996 the firm became one of the biggest ISPs in Bulgaria. Initially it worked as a Tier 2 ISP. Since 1999 it entered the end-user market, providing the second (after BTC) single national-wide phone number for Internet accesses at the price of city call. In the Tier 2 market it competes with other big ISPs like BTC, firm O, Firm B, etc. The firm designs and hosts Web sites for its clients. Since 1999 it also offers ISDN.

In 1999-2000 the firm built the first two Frame Relay and one ATM points in the country and offers advanced service based on it, e.g. Intranet, Virtual Private Network (VPN) and city VPN.

The main customers for these advanced communication services have been offices of multinational companies in Bulgaria. Internet services are used both by private persons and SMEs as end users and by Tier 3 ISPs throughout the country. In 1999 the firm paid about DM 1 billion to BTC for its services and DM 500 millions taxes.

Firms created in the second half of the 1990s by young people

These are firms, which are not directly connected with the electronic & telecommunications industry. For example *Firm O* differs sharply from the firms described above. We could say it exemplifies a *new generation of ICT firms*, founded by young people who had studied economics and had accumulated business experience of their own during the years of transition. In addition, the effect of investments for developing the electronics industry over the past decades becomes evident in this case, although at a different level. The founders began their career in the field of information technology in the Youth Clubs for Scientific and Technological Creativity formed and supervised by the former Communist Youth Organisation. In these clubs, financed by the state, specialists were trained following preliminary plan requirements for creating the human potential needed in computing industry. The most talented of Bulgarian youth were recruited here. During the last ten years of transition, although these clubs have long since been disbanded, the contacts and partnerships created there have remained a resource of business in the new conditions of the 1990s.

Box 3: *Firm O, leading ISP in Bulgaria*

Firm O was founded in 1997 as a *Limited Liability Company*. The firm is the property of 'Bulgaria Telecom' Ltd. and a Bulgarian supplier of telecommunication equipment. The ownership is entirely private of Bulgarian origin. The basic field of activity is supplying Internet capacity. The firm operates with 2 international lines, a satellite and a ground line. It is directly connected with a first-class supplier (Tier 1) in the USA and Europe called UUNET. This qualifies the firm as an importer of Tier 2 capacity. Initially the firm does not provide switched access to the end users and the firm's clients are Internet suppliers of Tier 3 class, as well as corporate clients (most of them software firms and state institutions). The firm also buys capacity from the Bulgarian Telecommunication Company (BTC) via optical cable. In late 1999 the firm had 13 full-time employees. It uses the services of a law firm and an accounting firm.

In the first years the firm had grown by 500%, reaching a market share of 25%. It won popularity due to the quality of provided services; guaranteed capacity, round-the-clock monitoring of the network, service prices differentiated according to the consumer, assigning the necessary IP addresses free of charge, etc. In early 2000 the firm became a *Share Holding Company* and the Bulgarian venture capital fund ECM- BPPF invested USD 1 million. Since mid 2000 the firm has entered the end users market.

The firm O impressed us by the age of its managers. The CEO and vice president were at age of 27, while the technical director was 21 years old. The present CEO had the initial idea of creating the firm. For the purpose he created the firm 'Bulgaria Telecom', together with a classmate and friend, now vice president of the firm O. The two financed their own survey of the Bulgarian market, basing their plans on it's results. They found sources of finance from 'MN Com Ltd.' and individual sponsors.

The CEO graduated from the English Language High School in Sofia. Enrolled as a student in the Technical University and the University of Home and World Economy, he interrupted his studies describing them as "*a waste of time"*. In the early 90s he began his career in a foreign trade firm, exporting products from the Bulgarian chemical industry. In this period he accumulated his basic experience in organising business relations with foreign partners, as well as sizeable contacts with national business and political elite.

The vice president possessed serious experience in the field, if young - he was active member of Bulgarian branch of FIDU NET (www.fidunet.org), a global amateurs network based on a unique protocol; this network preceded TCP/IP. Then he became Technical Director in one of the first Internet Service Providers in Bulgaria and left two years later after a series of conflicts with the owner because of "*…constant compromising on quality. This was not the Internet! We were lying to people and they had no idea what was happening.*" Early in 1997 he sold his 50 % share of the firm and became co-founder, together with the present CEO, of 'Bulgaria Telecom'.
The Technical Director is 21 years old. He graduated from a Sofia vocational high school of electronics. Currently he is studying in the Technical University of Sofia, Department of Informational Technologists. Prior to Firm O he worked as administrator for various ISPs. Despite his youthful age, he is a well-known and respected specialist in the Internet sector.

A telling fact is that the creators of this firm began by carefully planning their long-term strategy and looking for innovative forms of financing, unlike the firms in the first group. Their behaviour differs substantially from those of the managers of other firms, expressed in a typical statement by the President of firm R: "*...long-term strategies are out of the question in the current situation. We are just surviving at present, and the situation changes from day to day, so do the laws, and one cannot plan strategies*".

ii) Typology by forms of ownership & management

Most of the firms are collaborators of the former R&D research centres in the electronics industry and they were all formed through partnership (co-ownership) by as many as 10 or more co-owners. Typical for these firms is the impermanence of the initial partnership (firms R, P), which quickly fell apart or underwent significant changes whereby new firms were created or the property was regrouped in the hands of one to two former partners who directly managed the firm. A variant in this category is shown by firms A and N. Although they were created and controlled by a single basic owner, these two firms engaged former colleagues in their business, offering them the opportunity to enjoy property rights (as managers, heads of departments or of daughter firms, etc.)

Young entrepreneurs who had acquired their business experience in the 1990s created a firm that exemplifies *the new type of ICT firm*. It began as a partnership and this co-operation was preserved during the first three years, although the ownership of the firm was significantly restructured by the entrance of a risk capital fund in the firm. This led to a more complex structure of property rights. The CEO and a vice-president now manage the firm, whilst at the same time each department manager has significant autonomy in decision-making in his respective field. Along with this the strategic decisions are discussed with the Board of Directors, where all owners are represented. The CEO makes a yearly report on activity.

In the *firms entirely owned (or with a control share of ownership) by large foreign investors* we see the kind of management structure that is typical for large Western joint stock companies. For example the *firm G2*, a joint venture of US multinational company and BTC, is structured according to the established corporate rules: CEO, heads of departments, and Board of Managers, where all partners are presented. The US company's country manager for Bulgaria is head of the Board and responsible for exercising control on G2.

iii) Typology of the firms by export orientation

Orientation to the local market or to export is a dynamic value that can change in the course of business activities. Some of the firms were initially oriented to the local market and later established contacts with foreign partners, thereby considerably increasing the proportion of their exported products and services. Others inherited the glory, human resources and sophisticated technology from the top research or production units of former state owned IT industry, together with last lucrative orders from [still] COMECOM partners. However, they did not managed to adapt to the new, more competitive and risky environment, and gradually declined. Most of them decreased or ceased their R&D activities.

Firms working entirely for the local market

From the very start, *firm A* concentrated on a specific niche in information technologies (hardware): "…The company has a niche in the field of information technologies. These were average type computers, non-assembled, neither yellow nor bearing an established trademark. However, their technical parameters satisfied even the most demanding clients in Bulgaria. The producer was the DTK Company. Actually, we were its first official distributor in this country" (from the interview with the IT manager of firm A). Subsequently, this activity was complemented by sales of various types of hardware connected with the multimedia; constructing computer networks (LAN/WAN) and offering systemic solutions. In the second half of the 1990s the firm moved into medical Telematics and realised a large project with the French firm SAGEM.

Firm R has a similar profile, specialising in hardware, supplying systems solutions and offering a wide range of computers and computer accessories. Unlike firm A, this firm is oriented to so-called high-class computers (their own or from large Western firms), meant for more demanding clients such as corporations or small office / home office (SO/HO) clients. The firm invests considerable effort in providing quick and high quality maintenance for its products.

Firm N, a third firm oriented to the local market, initially followed the same strategy. It became a dealer for large companies such as HP, Microsoft, IBM, and Cisco, supplying their products on the local market. The firm also developed and built computer networks. The sale of hardware and software gradually became a separate sector of its activities and the firm moved into the field of Internet services, becoming one of the largest suppliers of such services in Bulgaria. These three activities combined to form a specific configuration of know-how, making the firm very competitive on the local market. It won several large orders (mostly from state firms and institutions) for building computer networks within the country, combining hardware provision, systems solutions and Internet technologies.

The fourth firm, G2, specialised from the very start in providing advanced communication services on the local market and servicing the subdivisions of the large multinational firms operating in Bulgaria.

Box 4: *Firm B, leading software company in Bulgaria*

The firm was set up in 1992 as a small company specialising in computer hardware assembly and maintenance and software production. In the beginning almost all its employees were from the IT research institute of the Bulgarian Academy of Sciences (BAS). In early 1994 this activity was further promoted when the firm signed its first contract with *Siemens Electrocom Gmbh* (formerly AEG Electrocom Konstantz, Germany). Today it specialises in office and industrial automation software and 90% of its software products are earmarked for export to foreign markets. The customers in Bulgaria are the Ministry of industry, Commission of securities and stock exchanges and different private companies both large and SME. To keep its position in the rapidly developing market firm, B invests seriously in the qualification of the staff and the technological facilities. It also maintains its own R&D facility. Since April 1997 the firm has been a member of the ORACLE Alliance.
In 1997 the firm bought the *S Net* Company which had already established itself on the Bulgarian market as an *Internet provider*. As a Tier 3 provider it is a leader among the private Bulgarian Internet providers. As a daughter company, *S Net* is fully integrated into the structure of firm B and possesses *two branches*. The first branch deals with installation, design and development of integrated Internet services in one of Bulgarian provinces, whilst the other branch is an engineering company specialised in design and maintenance of satellite communication stations and wireless connections in Bulgaria and in neighbouring countries.
The firms' staff has grown constantly since 1994 and now exceeds 100, divided into departments that are common for *S Net - Software (*the largest one), *R&D* (managed by vice-president), *Hardware facilities maintenance, Quality assurance check, Marketing, Administration* (including book keeping), and *Sales section* integrated into all these departments.
In the autumn of 2000 firm B sold its S*pectrum net subsidiary to a big Austrian Internet firm.* The USD 5 millions transaction was considered as one of the biggest foreign investment in the Internet sector in Bulgaria.

Firms with a considerable share of export

The ICT firms export in two main directions – to developed Western markets or markets of neighbouring countries and former Soviet republics. The most typical case is the above-

mentioned *firm B*, which over a period of 8 years became one of the leading developers of *office and industrial automation software* in Bulgaria, exporting over 90% of its production to Western Europe. The firm E, providing *engineering services in the field of industrial automation (design, equipment and software),* exports about 10% of products and services in the region (Greece, Serbia & Montenegro, Macedonia), as well as to Russia and Ukraine.

iv) Typology by degree of specialisation

Here we may provisionally define three categories of firms:

Narrowly specialized firms in a given field

This registered specialisation is either from the very beginning of firms' existence or acquired later, after a certain evolution. Only *firm O* (providing Internet services) definitely falls in this category. Initially the *firm P,* specialising in R&D, also belonged to this group but it has now diversified its activities. After selling its ISP subsidiary to an Austrian firm in 2000, *firm B* (office and industrial automation software) may also be placed in this category.

Diversification of the products/services offered may be considered the most popular and successful strategy of ICT firms in Bulgaria in the 1990s. With the exception of firm O, practically all studied firms applied this strategy! The next two groups could be regarded as subgroups of this category:

Firms with a wide range of products and services only in ICT

Five of the studied firms fall into this category. The case of *firm R* is the most representative because from the very beginning the firm specialised in what we called *wide profile computing technology*, providing a wide range of hardware and software products, network solutions and maintenance.

In the case of *firm B* diversification is actually an investment strategy. Following a scheme similar to that of venture capital, the firm invests its profits from the basic field of activity in office and industrial automation software. It purchased the controlling stocks in the already established ISP and then expands its activity. After three years a successful exit from this investment was made, the ISP division being sold to a Western firm at several times the price.

In *firms N and P*, similarly to *firm A* moving into new fields in the sector proved a profitable survival strategy in the critical periods for the firm, when income from its usual activities sharply decreased. This was the case in hardware sales of firms N and A. Both these firms

made the provision of network solutions one if their main activities and firm N also went into the Internet business. Expanding the scope of their activities, the firms N and A managed not only to preserve but also to improve and develop their capacities and know-how and increased the volume of their sales. Unlike these firms, firm P pursued a 'survival strategy' by downsizing both its technical facilities and personnel and losing some of its core competencies (see Box 5*)*.

Firm G2 displays the basic meaning of the strategy of expanding the scope of provided ICT products/services made possible by increasing technical capacity and expertise. During the first year of its existence, the firm enlarged the public data network it operated both spatially and technologically (increasing the number of nodes and introducing fibre optics and new advanced data transfer protocols). It also improved the technical and marketing expertise of its employees. Leaning on these capacities and pressed by the need of higher returns of the investments made, firm G2 entered the Tier 2 and Tier 3 Internet business, introducing special services for Bulgarian corporate and SO/HO clients. The firm entered e-commerce, provided consulting and expertise for other firms. All these activities were in addition to its main task, which was to serve multinational clients of the mother firm G in Bulgaria.

Box 5: *Firm P, from space shuttle subcontractor to local ISP & dealer of hardware*

Firm P was established in the spring of 1991 as a high technology firm, specialised in R&D. It originated from the 'Parallel processors' Department of the former Institute of microprocessor systems (IMS), a branch of the famous CIIT. The entire staff of the department of around 40 people went to work for the new firm. At that time the parallel processors were build by specialised integrated circuits called 'transputers', which were imported from Western countries, while the parallel processor systems were designed in Bulgaria. This was a rather complicated task as it involved the development of relevant algorithms, compilers and programs based on the principles of parallel computing. In the '80s and early '90s the main customers were the military and some research laboratories in the field of nuclear physics, meteorology, space research, etc. Initially the new firm worked almost entirely for the Bulgarian military industry. The first big order for the new private firm, however, was in 1991-1992 from Russian Space Corporation *Energia.* The project was undertaken in collaboration with another Bulgarian firm that also originated from fellow department of CIIT. Its value was USD 28 million.

Hence before and during the first years after 1989 the firm has been working at the highest technological level. However, with economic crises in both Bulgaria and the former Soviet Union, by 1993-1994 these orders ceased completely. During that period the firm tried to work with Bulgarian plants, introducing specialised computer systems, provided consulting, etc. In 1992 it signed a contract with BTC for a computer system to check for technical failures in the automatic telephone switches. When an American colleague saw what they were doing, he declared in public "…the P's people use computer systems for space shuttle flight control to operate 1928 model automatic telephone exchanges." The work with BTC started and stopped several times with every new government until one day the firm gave it up.

In 1993-94 and 1995 firm P tried to work with Western partners. It developed a system jointly with English and Bulgarian universities for teaching students parallel programming. But nothing ensued

after the end of the project. Form P also worked together with a German company on a system of virtual reality to be exported to the USA and other countries. The Germans failed to reach an agreement with their American partner and nothing came of it.
Firm P's experience is indicative of developments of R&D in Bulgaria where, as a whole, few firms managed to do research in the 1990s. When profits went down, people started quitting. Consequently, from 40 people in 1991, by 1999 there were only 8 of still working with the firm. Initially 10 partners owned the firm but by 1999 only four remained. Some of its good professionals moved to AVI (Canada), CORELL (USA), etc.
During the 1990s the firm re-oriented its work. It found a niche in corporate communications, adding special design to serial Daewoo-Telecom digital switches so that they are able to support ISDN channels. After a year of negotiations the firm won a contract for selling Daewoo switches in the Bulgarian market. They carry out other activities too, such as designing specialised hardware, applying new operational systems (Linux) because of the problem with licensing Microsoft hardware in the country, providing Internet services for neighbourhood offices, Web page design, trading electronic components commissioned by German producer, etc.
But there is not much left from the previous scale of research. Two years ago the firm ceased making strategies. Conducting R&D in the field of high technology needs both serious investment and careful planning. Now they have no money and most of the people have left, the strategy, if it can be called such, is to survive.

Firms that diversify their activities by working simultaneously in the ICT sector and outside it

This is an extreme strategy and is applied only in two of the firms that were studied, *firm A* and *firm N*. In the latter this occurred after a certain period of time and in a neighbouring field (sale of household electric appliances).[30] So we may consider this type of diversification to be an extreme alternative that best reveals the tensions in the sector that resulted from the difficult economic conditions in the 1990s. This includes the loss of the previous markets, the great insecurity and rapid business dynamics and the hostile competitive and institutional environment. A typical example is firm A. It not only extended its chosen niche in hardware sales (the so-called middle range of computers), by adding the sale of multimedia products, peripherals and network designs, but went into the *petrol derivatives* business. It found in the new field a stable and considerable financial source during the hard years of high inflation and practically inaccessible bank credit (due to the exceptionally high interest rates and the size of required securities).[31]

The availability of such a financial resource is especially important for hardware commerce on the local market because hardware is bought with hard currency on international markets

[30] In the sector as a whole this extreme variant was not a rare practice: for instance one of the largest Bulgarian hardware firms created and successfully develop a daughter firm that was the largest local representative of the French automobile company Renault. According to reports, in the year 2000 the sales of the automobile firm exceeded for the first time the sales of the main firm!

[31] In the 1990s the petrol derivatives trade proved to be a far more stable and less risky market compared with computer business.

and is sold in BG currency on the local market. The continuously high inflation rate throughout the period 1990-1997 was constantly melting away the profits as the rising rate of exchange brought the sum in local currency close to or even lower than the sum expended in hard currency in order to buy the product. One of the solutions to the problem was in the 'dollarisation' of the market, i.e. conduct financial operations on the local market *in hard currency*. Indeed, during most of the 1990s computer firms sold their products and services in dollars although the law formally prohibited this. On the other hand, as most of the end users received their income in local currency, every sharp rise of inflation led to temporary stagnation in sales of computer technology, especially among SO/HO clients. Another solution was simply not to pay the required custom duties, used since the 22% VAT tax was introduced in 1995. This tax put firms in a very disadvantageous position but the firms with connections with the customs and tax administration were easily able to make large profits under these circumstances. In our interviews we registered several typical cases, such as that of the aeroplanes loaded with computer technology landing illegally at a small airport near one of the large Bulgarian cities. The situation changed as late as 1997 when a monetary board was introduced and when the high customs duties on computer equipment were abolished. However, the practice of not paying VAT continued, especially among private firms, while the cargo terminal at Sofia Airport is known among the firms in the sector as the 'black hole' because of the continuous theft there of packages containing computer technology. Eventually, the goods somehow make their way to the market.

Box 6: *Firm N, advanced communications company*

The company was set up in October 1991. The owner and founder of the firm was a specialist at CIIT - the main research centre of Bulgarian electronic industry, with good contacts in former Soviet Union. The second in rank, trade director, joined the firm in 1992 as PhD and assistant professor in industrial automation at the Technical University in Sofia.
From the very beginning the firm has aspired to promote standard world acknowledged producers in the local market. Its portfolio included products of HP, CISCO, Microsoft, Lucent, etc. The company passed through the following stages:

- *First stage (1991-1992)* - establishment of the company, first trade contacts with HP and Microsoft. First successes with HP products in terms of know-how and a market quota. The company was still comparatively small and oriented to mass consumers.
- *Second stage (1993-1994)* - a good period witnessing a boom in sales; business partner of IBM since 1994, the company concluded the biggest ever deals with IBM in Bulgaria. In 1995 the contacts with IBM were suspended (no details provided).
- *Third stage (1995- mid-1997)* - collapse of the bank system (banks were some of the main clients), heavy odds against the company. The firm decided to specialise in providing *network solutions based on complex know-how*. In 1996 it started contacts with CISCO Systems. Early in 1997 the company became also an *Internet service provider*.

- *Fourth stage (mid-1997 till now)* - the contacts with the partners (HP, CISCO, Microsoft) developed successfully. In 1998 the company made contract with Lucent as a *system operator for structural and cable systems*. As an ISP it collaborates with three of the 10 leading companies in the world (UUNET, Laurent Lorain, Cable Lineless).

Now the company deals with corporate customers from almost all branches of the economy - *industry* (one of the biggest chemical plants 'Solvey Sodi'), *transport* (Bulgarian Fleet), *state administration* (subcontractor in major project of the Interior Ministry), *science and education* (ISP of the Bulgarian Academy of Sciences), etc. The company works also with smaller plants and enterprises that have been purchased by foreign owners.

The company has 150 personnel, its own units and daughter partnerships in 9 of the biggest cities in the country. The owner does not hesitate to promote young people in key positions, e.g. in 1999 the Projects department manager was aged 26. The training of specialists was also a landmark in its development. The company's specialists attend training courses of their major partners HP and CISCO and sit for exams (once in 3, 6 months or a year) in order to get certificates.

Firm N is a technology-oriented company that rather seeks to resolve a specific problem of the client than to provide standard solutions. However, it does not invest too much in R&D, although some innovations have been made in the sphere of Internet Services and CISCO network technologies. The company became the local consultant of CISCO concerning homologation of its products in Bulgaria. In late 1999 the founder of the firms was killed. A few months later it changed its name and launched a promotion campaign.

v) Typology by products / services offered

By dominant technology

Firm A concentrated its IT activities from the very beginning on a specific niche; the distribution and maintenance of the so-called average type of computer (produced by DTK Company). To this was added trade in multimedia systems and peripherals, together with creation of the first local computer networks for the rapidly developing financial sector. In the second half of the 1990s the building of a specialised computer network became firm A's major field of activity. The evolution of the *firm N's* product strategy was similar. The only difference was that after 1995 the firm entered Internet business and became one of the biggest Internet service providers in Bulgaria.

Firm R is perhaps the most conservative in its product strategy. During the entire period of its existence it has combined production of computer systems under *its own registered trade mark* with selling high class computers and software from world manufactures for predominantly corporate clients. Also, it made constant efforts in improving the maintenance of the products and providing first class service (this is typical for firm N too). Curiously enough, this stable and very effective strategy is presented by the firm president as an 'opportunistic strategy' and even as "…lack of any strategy at all, simply a way to survive"!

Firm B represents another path of product development. It began in 1992 as a multi-profile hardware firm similar to A, N and R but gradually specialised in office and industrial automation software. Firm P followed the reverse path. It begin as a high technology R&D firm specialising in design and production of parallel processors for the former Soviet and East European market and gradually reduced the level and scope of its activities to the small multi-profile IT firm.

Firm O, as well as firm G2, specialised from the very beginning in the field of advanced communications. Firm O emerged as a Tier 2 ISP and stays constantly in the Internet business, following (and promoting) its development in the country. It entered the end user market, designing its own Web portals (hit.bg), expanding the scope of its Internet services and preparing for entering the e-commerce (e-pay) business. Firm G2 began by serving mother firm G operations in Bulgaria but, together with improving its technical facilities and know-how, it expanded the range of services offered to data transmission, e-mail, Tier 2 and Tier 3 ISP, VPN, etc.

By type of product (original, licensed or standard)

The only firms, providing their own *original products & services* are *firm R* and *firm B*. The first sells its own computer systems under a registered trademark and the second develops original software. Firm R combines this with selling standard or licensed products from leading firms, whilst firm B provides standard Internet services through its subsidiary. Firm P belonged to this group till the mid-1990s when it still produced original parallel processors and software. However, in the second part of the 1990s firm P lost a critical part of its technical capabilities and expertise and now it offers standard and licensed products.

All firms, with the exception of *firm B,* offer standard products on the market. These are all firms selling hardware and software (*firms A, N, P,* and R). Internet and telecommunication providers offer standard and licensed services (*firms O, G2, N, B and P).*

There are products and services that are difficult to define unequivocally as one of the above categories. The most important of these are *network solutions*, i.e. design and building of computer networks for specific clients. This service always includes a specific type of engineering that is difficult to define as ‘standard’. Each computer network is unique, albeit constructed from standard hardware and software modules. The case with the Medical Telematics project of firm A is a typical example. This is the adaptation of the nationwide computer network to the parameters of dominant analogue telephone exchanges, requiring

redesign of the supplied standard hardware and software, leading to a series of original technical decisions. The multinational firm G implements a proper name for this type of services, *special design request* (SDR). According to the manager of *firm G2,* SDR is a procedure that is relatively rare in the G practice in developed Western countries but is used much more often in Eastern Europe (See more below in the *R&D typology* section.)

Box 7: *Firm R, import & assembly of high quality hardware*

The firm was founded in 1990 by the current president together with several colleagues, all being senior researchers at the Institute of Applied Cybernetics and Robotics at the Bulgarian Academy of Sciences. It was an *association* until 1994, when serious conflicts arose between the partners. The firm split up and part of it preserved the name and the offices with the shares held by the current president and vice president of the firm (the president holds the control share). The firm was registered as a Limited Liability Company. A Managing Board including president and vice president manages the firm. The Office Manager runs the head office.

- Distribution of computer systems and software from leading world producers (COMPAQ, Microsoft, NOVELL, Fujitsu, etc.);
- Production, sale and maintenance of computers (including industrial computers, servers, and computer notebooks) with the registered *RISK Profiline*^{TM}; graphic and multimedia systems;
- Design and installing local computer networks, training courses in administration of computer networks;
- Maintenance of computers throughout the country with calls in Sofia answered within 2 hours, elsewhere in the country, within 4 hours time.

About 50 people work in the main office in Sofia. Some of the firm's engineers possess certificates from NOVELL, Microsoft and Compaq. There are 6 offices (with 1 to 6 people staff) and 9 dealers throughout the country. The firm owns also a daughter company *Computer Products* as distributor of components and peripheral devices used by the dealer network.
The president and vice president manage the firm. It has four departments: *commercial, production, structural cable designs (networks), and technical maintenance,* as well as *administration and bookkeeping* unit.
The basic clients in the country are *public institutions* (National Assembly, State and Military Reserve Administration, Customs Administration, Sofia Municipality, Bulgarian National Radio), *large state firms* (Bulgarian Telecommunication Company, Kozloduy Nuclear Power Station, National Electric Company), *banks, multinational companies operating in Bulgaria* (Newspaper group WAZ - Bulgaria, Macdonald's, XEROX Bulgaria, Pirdop Copper Mines, SOVEI-SODI, etc.), some of the biggest *Bulgarian private companies* (*Mobiltel GSM operator, Domain Boyar Winery,* etc). The firm has a meagre presence on the SOHO market due to two main reasons. 1) it offers trademark technology with guaranteed quality but more expensive and 2) it charges VAT (which is not the case for most of the competitors in the SOHO market).
Part of the competition strategy of Firm R is stable presence and advertising in the specialised press. It also maintains a Web site with abundant information about the firm's services and products, a 'red line for emergency contacts' with the maintenance department, etc. Firm R is the second Bulgarian IT firm certified according to the quality standard ISO9001.

Similar patterns are found in hardware. Firm N managed to change core software in CISCO products offered to the Bulgarian market and make them to correspond to Bulgarian standards. *Firm P* re-designed the DAEWOO standard office telephone exchanges to support ISDN channels, making them sell better in the Bulgarian market. Each firm interviewed told

similar stories. Hence out of the ordinary division *original-licensed-standard* products and services there exists a large space for adaptation re-design, etc. and this seems to be a common practice in Eastern Europe. We believe that one of the reasons is the high professional skills and expertise, inherited from R&D centres of former electronic industry, coupled with this industry specific culture of 'reverse engineering'.

These last remarks lead us to the last axis of comparison between the cases studied.

vi) Typology by level and share of R&D activities

High-tech firms

These are firms with serious investments in R&D and staff qualification (above 20% of their turnover). There are four firms in this group - *firm B, firms G2 and* and partly *firm P*. Firm P was established as a high technology firm specialising in R&D but in the second half of the 1990s it practically ceased to undertake R&D. In the beginning it possessed the highly qualified staff and sophisticated equipment inherited from the Bulgarian electronics industries' former biggest research establishment. With the dismantling of the former COMECOM market, coupled with economic crisis and massive brain drain of the best scientists and engineers to the Western countries, the firm found itself in a very difficult situation. The lack of contacts with the Western market and the lack of management skill to identify and respond to the needs of the Western clients caused additional difficulties. Hence in a few years the firm lost its most qualified personnel and technical capabilities and now R&D accounts for a much smaller part of its turnover.

Firm B produces original software predominantly for Western firms like Siemens (Germany). According to the firm's manager, as a supplier to a highly competitive market the only solution for the firm is to offer a cutting-edge software based on its own R&D efforts. The firm constantly updates its computer and communications equipment (both for its Software and Internet divisions) and has established its own R&D departments headed by the vice-president. It invest also constantly in the qualification of it staff. However, all this became possible due to the stable relationships with Western clients, based on the firm's reliable high quality products at a competitive price. The firm never uses credit for its R&D, which explains its meagre R&D efforts till 1994, the period before first big orders from Siemens.

The *firm G2* provides advanced communication services to domestic and *G Company* multinational clients. Its uses advanced technology provided by its mother company G. Hence we should take the R&D efforts together, because they provide interesting description

of the process of diffusion of advanced communication technology. The two boxes below reveal complementarities of the R&D efforts of the two firms at global and local level:

However, for domestic clients, who have neither enough experience nor resources, this is not an easy business. Here the role of *incremental, user-friendly innovation* plays a crucial role. Below we provide an extract from the interview with the G2 Marketing & Sales Managers, describing this type of innovation:

Box 8: *Special Design Request (SDR) as firm G2 R&D strategy*

"Firm G2's priority is to serve the big multinational companies coming into Bulgaria. As far as the Bulgarian companies are concerned, we are applying a procedure called *special design request* (SDR). It is well known to the West and it means designing a special type of service to the client's unique requirements. In Western countries this is a relatively rare procedure because most of the clients receive standard services. However, this is not the case in Bulgaria. Here a kind of 'enlightenment' is needed in order for new services to penetrate into local business.
In Bulgaria our firm G2 applies the standard list of services provided by G Company and we keep them as G's registered trademarks. The big multinational firms know these services but *for Bulgarian clients we use a kind of translation*. This translation contains more narrative than the original and it includes a number of additional services that are our own G2 design. However, very often clients say that none of the services in the list suits their needs. For example there is a standard service, providing *Frame Relay* connections between firm's offices in the country and abroad. We possess a *Frame Relay point* in Sofia but no network in the country simply because this is a very expensive service and we have few clients. That is why we do not provide this service in Bulgaria as standard.
However, we have technical, organisational and financial capacities to respond to such a demand even with present resources. We created a backbone of high-speed digital connections, renting 2 Mbit/s connections from the BTC Digital Optical network and adding the necessary equipment at certain points. Hence we possess a kind of network, if not Frame Relay, with multi-protocol transmission environment. Having these facilities for every concrete demand we are able to design specific telecommunications environments and thus serve our clients. That is why when I say that we are ready to create Frame Relay networks for our Bulgarian clients, it does not mean that we are creating the network physically but it will be *a virtual new service based on our primary services*. In fact we already have such clients. For example this service has already transformed some regional ISPs into national ones. We build virtual country networks for these ISPs, so that now they are able to sell their Internet services everywhere in the country.
The SDR usually develops in the following steps: *first,* we talk with the client to understand the needs and problems. In Bulgaria there are many clients coming to us ready with their decision about the concrete services. But they do not how this service is used.- For example a manager of small firms with a single office in Sofia came to us demanding Frame relay, simply "to be connected with the world". But he did not know that this service presupposes at least two established points and when I asked him for the second point he asked me to make him a proposal. That is why it is important for us to know exactly what kind of problems our clients want to solve. Because we are in the better position to decide which service corresponds exactly to their needs. As a *second step* we ask the clients to write an *initial technological requirement*. On the base of this requirement we prepared a *preliminary offer*. So after the client is a little technology literate as a result of our efforts, we ask him for a *written demand* in two directions; to our technical staff for technical design and to our financial department. Then, *thirdly*, we order from our equipment suppliers because we are not selling directly the hardware and software but only the completed services.
Hence the SDR gives a complex elaborated solution and not something ready made. My own eight years experience is telling me that all new communication technologies are coming to the domestic user in similar way."

Firms with R&D as an auxiliary activity

There are three firms in this group, *firm N, firm A,* and *firm R*. All these firms are selling standard hardware and software produced by world manufacturers. Also they all design computer networks. Firm N provides Internet services in addition. These firms possess no special R&D departments, and their R&D efforts appear as complementary to these main activities. The cases we registered are the following:

a) In one of its big Telematics projects *firm A* has adapted the standard equipment provided by its Western contractor to the level of a Bulgarian telecommunications system. They redesigned some crucial pieces of hardware and software, making them more reliable and resistant to the harsh telecommunications environment.

b) Selling standard CISCO network equipment, *firm N* found that it does not correspond to Bulgarian National Standards and redesigned key properties in its kernel. The changes have been accepted by CISCO, which make them standard. While the firm N was selected as a partners in homologation of CISCO products in Bulgarian market.

c) The R&D efforts of *firm R* are related to the computer systems it produces under registered trademark, both notebooks and desktop PCs. Although they are assemblies of standard components, the design of these systems requires specific efforts such as simulation of the system, testing, etc. The firm's engineers also designed the special equipment needed for simulation and testing. In fact the founders of the firm possess rich experience in the field and are known as some of the best designers of computer systems (PC and mini computers) in the former state electronics industry. They are among the first in former COMECOM to build the testing devices (called 'programators') for mainframe computers and PCs. Also, the firm has produced special devices for video control under contract with national TV.

According to the firm's manager, the design of some computer networks under the special demand of the clients also leads sometimes to R&D, albeit on a smaller scale.

Firms without R&D activity

Firm O is the only firm that did not declare R&D activities. It is important to point out that *this is the only firm whose younger staff possess no R&D experience*. Also, as a new ISP it prefers to follow the mainstream with standard services, investing heavily in maintenance and

operations to satisfy its clients. Firm O is monitoring closely the activities and services provided by firm G2, its main rival at the Bulgarian corporate market. As the marketing manager of G2 put it, "…firm O responds to every new service of ours with their version and always at lower price."

Besides firm O, some of the firms listed in the other two groups have also downsized their R&D efforts. Both *firm P* and *firm R* now conduct R&D activities at a level that is negligible in comparison with their initial R&D potential. The reasons have been summarised by the *firm R president* in the following manner: " … *Nobody is paying for R&D now in Bulgaria*. The old industries are ruined and the country simply has no need for industrial R&D. For almost a decade we have had no industrial clients for our R&D products. In the early 1990s my firm possessed a serious software team. However, no one in the country needed advanced software. The team left the country long ago and now leading world companies employ these people. We also had an important R&D activity in hardware, simply a kind of inertia from our previous work at BAS R&D institutes. For a few years we continued doing R&D but this was just for the sake of the work itself, without any clients. And if some clients appeared, they paid very little (funny money). The R&D became a burden that the new private firms in the sector could not afford. It requires high qualified staff whose labour is expensive, sophisticated and expensive equipment, etc., that is very difficult for a small private firm to maintain alone." (From the interview)

Section 2. Innovative SME in the sector of perfumery and cosmetics

The critical part of the data about innovative SME in the sector of perfumery and cosmetics – interviews with firms' managers - was collected during the period of September 2003 - February 2004. It became possible due to the collaboration with the *Bulgarian National Association of Essential Oils, Perfumery and Cosmetics (BNAEOPC)*, as non-governmental organization of the firms in the sector. With the help of *BNAEOPC* officials we prepared an extended list of firms relevant to our project – i.e. those engaged in production, with large share of original products in their list, and having R&D activities. When discussing the list, it appeared that more than 90% of firms in the sector are concentrated in the region of South-Central Bulgaria – north from famous "Valley of Roses" in the foothills of Balkan Mountain to the south at small Rodhope town of Rudozem near Greek border.[32] In addition to that, practically the entire Bulgarian production of essential oils (rose, lavender, and salvia oils) is located in the region due to its specific climate. The Plovdiv's *Higher Institute of Food-Processing Industry* (HIFPI) up until very recently was the only educational institution providing university training in the field of perfumery and cosmetics. Till the early 1990s in Plovdiv existed the biggest R&D center in the field – *The Research Institute for Perfumery and Cosmetics* at the former state combine under the same name. Hence it is not at random that *BNAEOPC* was located in region's main city of Plovdiv – as far as I know, this is the only branch association in Bulgarian whose headquarter is out of the country's capital Sofia.

All these circumstances determined our choice for conducting the fieldwork in this region. The initial list comprised 24 innovative firms, of which 13 agreed to be studied as cases. In addition to that, during the interviews managers pointed out two other innovative private firms as worth to be studied. With fellow managers' recommendation we easier accessed these firms, so the final list comprised 15 firms. Personal interviews with managers or head of R&D departments have been conducted. When possible, we collected some written documents about their activities (product lists, advertising materials, booklets presenting the history of the firms, etc.). We searched also some of the firm's web sites. Only one interview was done via e-mail.

From the studied firms seven have their headquarters in Plovdiv - *Rosa Impex, Refan, Superfinish 2000* (these three are among top 10 in sector), *IMPO, Tives Cosmetics, Lotos,*

[32] Only a few big companies remained out of the region - *Aroma* in the capital Sofia, *STS Holding Group* in the town of Gabrovo, *Fresh Up Cosmetics* in city of Varna, and *Lavena* in town of Shumen.

Interobmen. Two firms - *Gea* and *Rosabul* were situated at town of Karlovo, "Rose Valley" region, *Rosabul* being presently the biggest producer of rose oil in the country. We studied three companies at southern part of the region in the town of Rudozem - *Rubella* (former state-owned enterprise that have been privatized in 1997 - one of the largest in the sector), *Vea* (one of the first private firms in the country), and *Aphrodite* (a family firm established in 1995, a kind of spin-off from *Rubella*). The last three firms were *Evterpa Cosmetics* at town of Chirpan (50 kilometers east from Plovdiv, a one of the high-growing firms in the sector); *Max Prodis* in the capital Sofia – it was recommended by *BNAEOPC* officials because of its' newly build production facilities (several millions USD investment). The firm *Enio Bonchev Ltd.* is also located in Sofia, but their main productions cite is in the *Rose Valley (*Karlovo region*)*.

Only two of these firms big enough to go beyond the classifications of SME – the former state-owned firm *Rubella* with 400 employees, and *Rosa Impex* with 200 employees. All firm were private firms, *Rubella* being the only former state-owned company privatized in 1997. For the purpose of the analysis and for confidentiality reasons in the text below the firms will be named in capital letters from *A* to *P*.

Box 9: *Firm E, the revival of old family business*

The firm E was established in 1992, when the of old facilities of the famous Bulgarian essential oils company nationalized in 1997 have been restituted. The firm was founded in 1909 and until its nationalization it was well known in western market of essential oils. The old facilities for oils extraction had been in operation till 1967 and then turned in museum. They were given back to the ancestors of the former owner, which made significant investments restore the production in 1993. During the first years the good relationships with the director of then big state-owned essential oils helped the production to be sold aboard under state firm's quotas. Later the new firm established own commercial contacts.

The production of essential oils being rather conservative business, the main effort of the company have been directed to keep the quality of its main products (oil and levanter oils and waters) and improve efficiency of their production. The biggest challenges have been the sharp decline of row materials in mid 1990s (rose and levanter flowers). That is why in 1999 the firms created its own rose rose and levanter plantations, meeting lot of difficulties in buying appropriate land, in planting the plants and assuring its growth. Hence the firm managed to close its production cycle in production of row material, their processing and selling exporting the final products via its own commercial network. In 2001 new and more efficient production facilities have been introduced.

The firm E trade representative in USA has special merit for its successful development, another important factor being the positive attitudes of the local authorities and management of the state-owned enterprises in the sector during the first years of its existence. Today the firm is among the biggest Bulgarian producers of essential oils, exporting its entire production in leading perfumery and cosmetics firm in Europe, USA, Japan and Australia.

i) *Typology by the origin of firms and their founders*

Firms that originated from structural units in former large socialist enterprises and their R&D institutes

We discovered among the studied P&C firms fairly similar patterns to those found in ICT sector. Till 1989 the sector of perfumery and cosmetics (P&C) comprised several large companies, initially integrated at *Pharmachim Co.* – one of the largest state combines in Bulgaria, which covered both pharmaceutical and P&C industries. In the early 1980s the P&C companies was separated into new industrial combine under the same name. Its headquarter was in city of Plovdiv – a rare case for the centralized administrative economy. The main research establishment in the sector – Institute for perfumery and cosmetics was also located there, at the territory of one of the biggest enterprises *Alen Mack.* It maintained close relationships with Plovdiv's *Higher Institute for Food Processing Industry* – the only university training specialists in the field. Not surprisingly *eight of the studied P&C private firms have been founded by leading specialist at former "Perfumery & Cosmetics" combine – managers or R&D experts*. The former managers of a plant supplying P&C industry with tubes, cans and other packaging materials created another of the studied firms, which rise the share to about two thirds. According to the interviewed managers this share is even bigger among the P&C trade companies – those specializing in distribution and sells of the products. It became clear that by some reason an important part of former economic nomenclature has left state-owned enterprises in the sector by early 1990s and established its own private firms. The state-owned P&C enterprises inherited from the socialist period have been privatized only after 1997.

According to the period of their creation these firms could be divided as follows:

1) *Late socialism firms,* namely private or semi-private firms established in 1988 in the framework of the attempts to reform the administrative economy from above. The legal base for creation of these new economic agents was the famous *Decree No.56* from 1987, which endorsed the establishment of private firms under certain conditions as complimentary to the dominant forms of socialist ownership. The manager of one of the studied firms has proudly pointed out that this was the second private firm in Bulgaria

Two firms felt in this group. Their owners had really become one of the first private entrepreneurs in the conditions of reforming socialist economy in late 1980s. That this why we have found rather specific strategies and patterns of behavior, especially during the initial

period of their existence, which reproduce in a sense the economic 'logic' of the late socialism. These entrepreneurs had decided to focus on the activities that are complimentary or not covered by the existing state-owned giants in the sector (both had as initial specialization packaging technologies for P&C industry); both firms were related and tolerated by then industrial and political rulers (at regional and national level) and relied on their help in critical moments – one of the firm was created as a joint venture between several Bulgarian private individuals and Italian partners[33], while the other firm managed to hire production facilities, equipment and qualified staff from the state-owned enterprises in Plovdiv. Something in the very behavior of our respondents during the interviews resembled the stile of the former socialist industrial managers, not always in a negative connotation – discipline, determination, vigor, and clearly established hierarchies, good skills in organizing mass large volumes production… But also stress on the contacts with political authorities and deep conviction that the "state" should play bigger role in the economy, that it is responsible for creation of 'favorable economic environment", that it should "protect" the domestic industries, etc. One of these firms practically ceased to exist in 1997.

Box 10: *Firm B, the "late socialism" entrepreneurs and pitfalls they passed*

The firm B was created by cadres of former nomenclature in cooperation with Western (Italian) partners. It took a specific niche in the Bulgarian P&C industry – luxurious cosmetics and packaging. The founder of the firm have been at key positions in local and regional administration in Central South Bulgaria, the center of P&C industry of the country.[34] He was well established not only in the region, but also among the top political and state nomenclature. In the second half of 1980s he was dismissed from his positions, but preserved good contacts with the ruling elite. His specific position partly explains why he was able to react so rapidly to the changing economic environment in late 1980s and together with some friends to create in early 1988 the second private company in Bulgaria (few months after private ownership in industry was partly legalized by communist government *Decree No.56*).

The new firm started without capital, without production facilities, but they had their contacts with those holding political and economic power of late socialist Bulgaria. First activity the partners ventured was lucrative trade with (mostly Western produced) item, confiscated by Bulgarian customs, and with home appliances – all highly valued goods in Bulgarian "economy of deficit" (Kornai). These trade activities were hardly possible if not backed by the contacts and protection from those in power. The same referred to the Italian partner who jointed the firm without problems[35]; to the permission they get easily for their new production site; to the loans taken from state controlled banks to buy equipment, etc. The money accumulated from the trade had also been invested in new production facilities and purchase of up-to date technology, provided by the Italians. The new firm benefited from the availability of qualified workers and R&D personnel in region.

[33] The entire foreign trade in the country till 1989 was under control of security services.

[34] In the interview he said: "I personally as a major, together with the chef executives of state combine "Perfumery & cosmetics" in Plovdiv have built in early 1980s the newest P&C plant in Bulgaria…"

[35] It was still Could War and foreign economic relationships were still under strict control of special services.

The first products – luxury lipsticks - appeared eight months after the new investment have started. They were unique product for Bulgarian P&C cosmetics, approaching closely the level of produce in Western firms. In addition, the new firm offered special packaging technology, aimed to satisfy the needs of state-owned P&C giants. So with firm's well-prepared business plan and guaranteed markets it was expected to be a smooth start. It was planned part of the production to be exported to the West by the Italian partners to cover the bank loans taken for the equipment. At the same time the friends from Ministry of Chemical Industry and state combine "Perfumery and cosmetics" gave their assurance to buy the rest of the produce.

However, nothing worked as planned. Firstly, the Italians retreated saying the Western market is saturated with such kind of products.[36] Then came the autumn of 1989 and political changes in the country – the ministries have been changed, the state combines found themselves in new situation… The previous contracts and agreements have been shaken. So the firm had to marketing their products anew.

Here the old 'connections' from being once in power worked again – this time abroad. The founder of the firm, now chief manager, came to his friend in the government of Russian Federation, and arranged a meeting with representatives of P&C industry and trade (among them deputy prime-minister, seven CEO of state combines) where he presented the products new firm - lipsticks, rouges, compact powders, mascara. "Unbelievable! You are making all this in Bulgaria?" - was the first reaction. Then came the fist contracts, which guaranteed full load of the firm for years ahead. Up until 1997 the firm was exporting every month goods valued more than USD $ 200 000 for Russia. Their products became popular in Bulgaria too, and have been exported in some Balkan and NIS countries.

The firm B soon reached more than 120 employees, new machines have been installed, new products entered. They disposed with their own transport for the workers, developed social program, and helped the local authorities. It seemed that the future is shining again.

During the most of 1990s Bulgarian P&C sector was developing very dynamically. With economic crisis the purchasing power of population was diminishing narrowing the market of luxurious cosmetics. "New rich" preferred to buy prestigious brands of bit multinational firms. This made firm B very dependent from Russian market. In addition to that since mid 1990s the firm has begun to experience the competitive pressure of newly emerging 'second generation' private firms. These firms together with state P&C plants still in operation began to compete firm B at the niche of luxurious cosmetics, at which initially it was the only Bulgarian producer. With the opening of foreign trade it was not difficult to import the special packaging from leading Western producers at competitive price.

So the firm B management faced new challenges. But their "style" presupposed good relationships with those in power and seemed to rely on their protection. This increased administrative costs of the firm, and made it vulnerable to radical changes in political power. The heaviest blow came in 1997 when custom duties for P&C import in Russia – firm B main market – increased over 30%. Early in the year Bulgarian socialist party (ex-communists) was dismissed from power by conservative Union of Democratic Forces. Old state administration has been replaced top to bottom with new people. According to the manager, the combined effect of these two events was devastating for the firm. In the interview he blamed the new democratic government for not helping Bulgarian P&C exporters and even in imposing conscious barriers in economic relationships with Russia. The pro-Western regional authorities were also blamed for obstructing promising deal with Chinese representatives. All this is in sharp contract with the accounts on these events taken in the interviews with other P&C entrepreneurs, which has pointed their conscious distancing from any government that has been in power after 1990.

Comparing these interviews we have found another interesting fact – unlike other firm, in firm B we did not get too much information about innovation activities. It seemed that after initial investments in new technology and guaranteed market they had during the first years reduced the pace of their R&D activities. In early 1990s some key R&D specialist left the firm – they went to the competitors or established their own small companies, taking with them the know-how, accumulated in the firm. In

[36] Again a comment from the interview: "It appeared that their interest was to sell us their machines, nothing more. They why they were fired as partners, but the equipment had to be paid…"

1996 the firm was hit by collapse of banking system, when 16 commercial banks was closed. The firm B shares in one of them, valued BGL 2.5 millions (USD 1 million) evaporated.

Desperate attempts to find solution of the problems did not bring results. The firm was left by some of its experienced workers, which moved to the competitors. With growing difficulties, some of the partners and co-owners also withdrew.

In 1998 the firm practically seized its production, released the employees, and since then it is in 'stand-by' mode, without duties, not in bankruptcy, just frozen…

Now, reflecting on the data, it seems to us that the 'trust' – in relationships between partners, between management and firms' employees, between firm and its partners – was a scarce commodity in the firm. As it was scarce in socialist society we all lived till 1989.

2) Firms established during 1991 and 1992 as a consequence of the straggles between political parties (or various clans inside these parties) to control the state-owned enterprises. (till 1997 the Bulgarian state owned more than 70% of industrial property).

The decade of post-socialist economic transition in Bulgaria was marked by the ongoing straggle of political elite (the "bandits" of post-socialist economic transition as Mansur Olson has put it) to control the economy. The first step of every new government was to fire the directors of state owned enterprises and to replace them with their people. Immediately after the changes in 1989 the existing management has attempted to organize the production under new condition of decentralization and removal of direct party control. Under growing difficulties, especially after dismantling of COMECOM in 1991, the P&C sector preserved its position at local market and especially in the countries of former USSR. Up until early 1997 Bulgarian P&C firms controlled about 70% of Russian market of the products, selling large volumes also in Ukraine, Byelorussia, and Central Asiatic republics. This was a very different development compared with situation in IT sector, where by 1993 Bulgarian firms were practically missing in Russian market. But this determined the interest of Bulgarian political elites towards the sector – they did not allowed privatization there up until 1997. By appointing submissive managers and by improving various *rent-seeking and assets-scrapping techniques* the state-owned P&C firms became one of the sources that enriched new Bulgarian oligarchy that emerged after 1989.

Well, many of former socialist managers did not suit such an economic policy and they had been fired. They left, however, with their expertise, with their managers' know-how, with their contacts with local and foreign suppliers of components, and with their partners in former COMECOM countries, especially those in New Independent Sates that emerged after USSR. Some leading R&D specialist on those state-owned firms also appeared useless –

together with the dismantling of former state combine "Perfumery and Cosmetics"[37] the biggest R&D center of sector, Institute of perfumery and Cosmetics in Plovdiv, was closed too. The R&D investments were not a priority in the new *rent-seeking and assets-scrapping strategy:* "When I was to change from my position as head of R&D laboratory with that of technician at the production line, I realized that my place is not it this firm anymore", remembered on of the interviewee, now heading R&D department of big private company. It was the union between the fired managers and the dissatisfied R&D specialists from the big state-owned P&C enterprises that has led to the establishment of some of the most successful new private firm in the sector.

Box 11: *Firm G, the small is beautiful!*

The firm G was founded in November 1992 by the former CEO and his two deputies at then big state P&C company, town of K. in "Valley of Roses". Together with another three partners from country's capital Sofia they begun to import consumer goods for sell in local market. In 1994 they decided to come back to the field they knew best – production of perfumery and cosmetics. With the time the partners from Sofia gradually withdrew.

Their first products were different types of shampoos. They designed the composition and produced it under LON at another town, which was transported in big canisters to K. to be packaged by hand at rented production space. The barely have machines, but there was plenty of cheap labor. Having no enough capital to build their own production facilities, they had to move several time from one rented premise to another, sometimes only few months after they have refurbished it. The state firms at which they rented facilities have been privatized, and those selling the firms often did not care about the renting contracts or at least to warn them on time. These moves caused lot of trouble to the new firm - machinery was broken and even stolen, orders were not executed on time, and with every replacement they had to waste time at various state offices to get the necessary permissions (P&C production is under special control for hygiene, fire, etc.). The high inflation at the end of 1996 (in one month only the inflation was 3000%!) nullified firm's savings for investment. At one point it was at the edge of bankruptcy…

After they were forced to move the production for the third time, the partners decided that it is vital to have their own facilities. With lot of efforts they managed to acquire credit from *Biochim Bank* and bought a convenient building from former cooperative farm in a village 10 kilometers from the town. It was a good deal – the building was in very good conditions, and the village was with convenient road and railway transport. They renovated the shop hiring special architecture. There were three

[37] Dismantling vertically integrated structures (combines) of former socialist economy was the first step in new rent-seeking and assets scrapping techniques – instead of powerful group of some 15 to 20 plants having their own foreign trade and R&D units and disposing with enough resources to defend themselves and to define their own long term strategies, "cutting the heads " – i.e. liquidating the higher levels made the now 'independent' enterprises easy pray for the new oligarchs. We should keep in mind difference between Russian and Bulgarian oligarchy – the later did not went to sell directly the state-owned industrial to the private individuals. Up until 1998 the rent seeking, techniques presupposed for the state to preserve the ownership of these enterprises and they were 'exploded' by bind a small private firms to the input (exclusive rights to supply row materials – usually at higher than market prices) and to output (exclusive rights to buy the produced goods or services – usually at lower than market prices). The precondition for this strategy to be applied was submissive managers of the state-owned firms and control over the syndicates. This meant also lack of any long-term strageries for these plants – deprived from investments in new technology and new products, they were simply suck out until the (often hidden) owners of the small "input' and 'output' companies became rich enough to venture into new businesses.

laboratory planned, special sanitary rooms for workers, several production premises, etc. Finally they move their machines at save place, and were able to think about the future.

The main asset of the firm was their R&D capacity – for a firm of 10 people having two R&D specialists means a lot. These were one off the partners (deputy manager on R&D at former state plant with more than 30 years experience) and her younger colleague, also very talented applied researcher. In 2001 the younger collage left the firm to found its own company. However, there was a newcomer to replace it – one of the partners' daughter, who has just graduated 'perfumery and cosmetics' at HIFPI in Plovdiv. [38]

Similarly to firm E, firm G's R&D team developed several brand P&C products (for example series shampoos with natural ingredients, series of cosmetics for tired legs, etc.). The good sells make easier serving the credit, and development of new products. With the help of American government program *Jobs*, supporting small businesses in new democracies in South-Easter Europe, they bought special machinery for production of 'white cosmetics' – toothpastes, creams, hair dyes, etc. The firm got low-interest credit from *Jobs* with the obligation to hire two workers and they did it. The equipment helped the firm to reduce transportation costs and increased their quality control, made them more flexible. They introduced toiled milk, later new creams appeared. By the time of our visit they had more than 80 items in their list – practically one new product in every month or two!

In the interview the entrepreneurs worried that they rely only on their own resources, which slow down the development of the firm.[39] They had to spend money for security guards to protect their property – few years ago one of the firm's minibuses was stolen. It was fully loaded, which cost them a lot. Good money are paid to industrial designers for packaging of every new product – in perfumery and cosmetics people say "the packaging sell the product".[40] But entrepreneurs bugger worry is illegal copying of their most successful product. Pirates hit several times the firm – they produced same looking products with lower price, flooding their markets. Since sometimes it is not easy to make difference between original and fake products, in case like this in few months the sells felt down in order of magnitude (10 times and even more)! BNAEOPC tries to help by enforcing some rules of fair play, but there is little effect of these efforts until the legal system is not working.

Because firm G concentrated its activities on local market, it was less hit by the decline of Russian export. Domestic market, however, is saturated, the competition is high, and some firms are unable to survive. That is why the export is considered as crucial - the interviewed stressed it is not anymore only Russian and other NIS markets that are targeted: "Some colleagues now are attempting export to Croatia, Czech republic – these countries have no strong domestic production and Western products usually are at higher price categories. We should revive our markets in Arab countries were we have

[38] How the innovations are born? – It differs… Sometimes it comes from the customers, sometime it might come from the ingredients we are using, as was the case with like our whitening cream. I so the publication of this ne active substance and said to myself "I can do something interesting with it!" But the idea might come with your planning – for example I am developing a series of products for the legs. I still consider the series uncompleted. I am reading specialized literature, I am thinking – so there might be products for tired legs, to warm the legs, etc. I have planned to complete this series adding new products. I think about packaging, about prices, what type of customers to serve. Then comes the real development – sometimes you have 400, 500 components available for given product, and you need only 40 or 50. Which components to choose, in what proportion? – This is the creative process. But often the best products are not best selling ones. Few years ago I designed a series of shampoos which I consider as one of my best achievements – a combinations of excellent new substances, developed by Western firms with some traditional herbs extracts. We achieved reasonable price, nice packaging. Yet they are not selling well…

[39] I was told about their former colleague from the former state plant has started with a P&C firm that was smaller and at much lowers technological level. Yet after a partner financially strong enough joined him, they made big investments and now their firm is flourishing.

[40] It is important for the firm to have its own stile in packaging. But often the top designers work for several firms simultaneously. So even if their products are really good, they are very similar. We attempted to work with one good designer, but at one point he wanted too much. Now we have three designers, searching for different solutions. Maybe one day we will choose only one of them, but now we make them compete…

good positions before. I am sending sample of our produce to every one who requested it – even at such incredible places like Afghanistan, Malta, Lebanon…"

Their dearest hopes are to develop production facilities soon enough in order to respond to the standards required in European Union. The partners like their business: "I've been in it since 1967, should be retired, but I am still working with passion. So why not to sell one day in EU countries?"

The firms that have been created independently by R&D specialist in former socialists enterprises and R&D centers appeared to be less successful. Three from the firms studied fall in this group and they all passed by series of difficulties until finally establish their niche in the market. None of them managed to grow to a big P&C firm. The initial profile of two of these firms witness the level of complexity of Bulgarian P&C industry by the end of 1980s. Their managers claimed that they have decided to leave the state plant and to create their own private company with explicit idea to specialize in engineering and R&D – i.e. to create high-tech firms selling new products and providing consultancy to the newly emerging private companies and old state plants they expected to be privatized soon. Unfortunately the specific economic conditions in Bulgaria during the most part of 1990s prevented such a strategy. In addition to that the big Western producers of components entered the local market. Together with their products they offered know-how and formulae for production of basic P&C compositions (shampoos, shower gels, toilet milks, various kind of creams, etc.). Very soon the new 'high-tech' P&C firms had to launch their own production in order to survive. But there was economic rational in the initial idea – some of the leading R&D specialists did apply it, of some ten years later. We were told that one of the top expert has established very successful 'laboratory', i.e. private firm offering complex consultancy services in desing of new products and their production. Among her clients were not only local firms, but most of all newly established private P&C firms in Russia and some other NIS countries.

3) "Last generation" private firms. Among the cases there is one firm established in 1995 and it differs from the other two types. It was created by the family, where both the husband and his wife have been working initially in *Rubella.*

During early 1990s the husband was production manager in the still state-owned firm, while the son was studying "perfumery and cosmetics' at the Higher Institute of Food Processing Industry in Plovdiv. At the end of 1994 both the husband and his wife moved in two different private firms producing cosmetics for export (Russia). The accumulated some small capital and when the next year the son graduated, they decided to establish their own private firm. Today this is a small, but well established in Bulgarian market firm whose brand *Aphrodite* is a sign of high quality products.

Joint ventures of large Western multinational firms

Unlike IT sector we did not found *joint ventures or branches of large multinational firms producing end P&C product in Bulgaria*. The big Western P&C firms have their distribution networks but not production facilities in the country. According to BNAEOPC the production firms in the sectors comprise local SME together with few large firms, all controlled by national capital.

Yet the foreign firms are present – the biggest world producers for components and active substances for P& are well established in the country. In fact their markets are the local SME and large firm, which buy and put their products into their P&C compositions. Pracitally all interviewed managers, especially those of small private firms, stressed the imporatance of these multinationals not only as supplier as top quality components and chemical substances, but also as providing consultancy and know-how to the local firms in producing basic P&C products.

Another form of presence of foreign capital is LON production. These are large Western commercial companies and chains ordering P&C products to the Bulgarian producers. Local firms call them 'our investors', which usually come with strong requirements about the quality and price parameters of the product they order. They also define the packing of the products and put their own brand name on it. Usually the local specialist design the several alternatives of the products aimed and 'investors' make the final selection and volumes to be produced.

Firms created by new-comers in the sector

This is the most interesting group in our analysis. It is among this group where we discovered entrepreneurs that are closer to the neo-Schumpeterian type. There are six firms studied and they all emerged between 1990 and 1993. Four of them emerged as firms whose initial business was trade (P&C or other products), one was created from the very beginning as production firm, and one was created by the ancestors of the owner of big essential oils firm, nationalized in 1947 and whose property was restitute in 1992.

Two of the studied firms have begun with successful commercial activities in other sectors (for example petrol derivatives) in early years after 1989. They accumulated significant financial resources, which later have been invested in P&C sectors as one of the fast growing

sector in early 1990s. They applied typical managerial approach buying the necessary equipment and hiring P&C specialist (both easily available) to start their production.

The other two entrepreneurs have begun from the very beginning with trade of P&C products. Although they too have no special knowledge and skills in the sector (one of them was medial doctor), they managed to establish lasting contacts with producers and commercial partners in the country and abroad and acquired the basic knowledge about the specificity of P&C markets – the demand of various types of products, the clients' preferences in different price groups, etc. Soon they too begun to copy the approach of the Western 'investors' of LON production in Bulgaria – they too learned to define the parameters of P&C products they need and to order them to local producers. At one point their experience and their capital, triggered by the some conflict with unreliable producer pushed them to venture into production themselves. This was facilitated by some peculiarities of R&D process in the sector we will discuss below.

The case of the firm established by the ancestors of large essential oils firms before the socialist period and whose property was restituted in 1992 is described in special box. We should mention here the devotion of one of them, the grandson of the owner, who left his previous occupation and devoted his time in restoring the glory of the old firm.[41] The timely help of the managers of state company "Bulgarian Rose" in restitution of the property, in opening production and in providing quotas for export of rose oil was crucial for the successful start of the new-old company.

The last firm in this group was created in March 1990 by young medical doctor and his family. It is a good example of the spirit of new innovative Bulgarian entrepreneurs in the sector.[42] Starting with hand-produced shampoo in the basement of the family house, today this is one of the fastest growing with about 50 employees, new production facilities and selling their products both at local and foreign markets.

[41] *Enio Bonchev Ltd* holds the name of his founder who after graduating business school in Lyon, France established the firm in 1909. Before WW II he has established partnership with leading perfumery houses in Europe at the time – *Yardley, Shiris, Sunlight*, etc.

[42] There is another entrepreneur that share a number characteristics with this one and we will talk more about him below at R&D typologies..

Box 12: *Firm E2, from a small family firm to one of the rapidly growing P&C companies*

The firm was set up in March 1990 as a family company, which was run by a young medical doctor. In the beginning only three people worked in it – the founders themselves who had invested the family savings and the money borrowed from friends to start the business. The firm was accommodated on the ground floor of their big house not far from a small provincial town. The first products were hair shampoos produced by hand from basic recipes of the Western suppliers of raw materials. The packing was bought in the nearby city of Plovdiv.

Their first success was a hair shampoo, which soon established itself on the market and started bringing in profits. As a result, they could expand their trade activity, hire workers, launch new products and buy equipment. What is more, they built new premises and created their own laboratory. Bulgarian cosmetics sold well on the Russian market until 1997 and proved a significant factor for the advance of the firm. During that period their export would sometimes come up to 80%. The soaring inflation up to 1997 enhanced the competitiveness of the firm's produce on the international market in terms of prices.

Today 46 people work in the firm and produce more than 90 items including original perfumes. Special attention is paid to innovations to which the manager himself is personally committed. A small team of well-trained experts – chemists and biologists, create and launch the new products. The firm maintains relations with scholars from the Institute of Agriculture and the Higher Institute of Food Processing Industries in Plovdiv. The owner says that he draws a great deal on the experience of Western companies and therefore, often travels to different European countries to buy equipment and familiarize himself with the organization of work in kindred companies. However, he prefers to purchase Bulgarian made equipment because to quote him: "I want to promote the Bulgarian producers, i.e. money should circulate among ourselves. This will make us stronger.*"*

The path of development: "In the beginning the development of the firm was uneven and we had ups and downs. I think *these changes of fortune were because we lacked experience and knowledge of economy as a whole. We did not know enough about marketing, the market and the laws of production.* True, the old socialist structures had advantages but proved inapplicable under the new circumstances. The situation stabilized not until several years ago and we made an internal arrangement. In particular, each one of the team was made responsible for a specific sector – production, distribution, administrative matters, storage, etc. Until then we had not been able to employ specialists. If we wish to win through and organize things in a proper way, we have to involve brains and talent, i.e. people who are well educated and self-possessed, preferably between 30 and 35 and with a strong sense of responsibility. Such people are prudent and concerned about their future. And we try to explain to people that the future belongs to private companies.

I must tell you that in the beginning our workers' reasoning was not correct. Now they take things as they find them and know that they have to work, take the responsibility and be uncompromising. They must be aware that they make their living in the firm and must therefore put their hearts in their work and attend to the customers' needs. Today the workers have a much stronger sense of duty. In the past 14 years we grew in experience as businessmen and so did our workers. We have not reached the top yet but we make constant progress."

The main asset – know-how: "I often travel abroad and I am proud to say that we are significantly advanced in terms of organization and way of thinking. You might have limited funds, but it is far more important to identify the problems and resolve them. *Frankly speaking, we followed events in 1995, 1996 up to 2001 and 2002, traveled to the West, but failed to understand them. This was a kind of insight - sometimes people tend to overlook the main problems, they are "watching but not perceiveing"*, so to say. While the source of perplexity may be the staff, the equipment or the market. The most important thing is to find the know-how. As soon as we introduce know-how at a certain level, the firm starts developing very fast... New products are important, but also i*t is the know-how in the organization of production that brings in money.* Restructuring may yield handsome revenues. We realized that for many years we had been in the wrong not to change a certain sector and not to invest in it. Only several moves are enough to help us recover our energy. Therefore, the know-how in the management and restructuring of a company is really important.

We are very happy when we manage to produce a new item whose parameters do not differ substantially from the parameters of a famous Western product. Then we put it up for sale and we know instantly whether people like it. They start praising its qualities and this is a good reward for our efforts. This is what makes the firm move forward and have fine prospects. Then a customer will see our products in the shop and will say: "Indeed, the things which this firm produces, are not really bad". This is very important for us!
The future: "We started our business by producing hair shampoo in the ground floor of our house. We never imagined that one day we would build a factory where many people would work for a living and provide for their future. *What is required is courage, nothing else – we are intelligent and robust people – we are a bit late but fully determined to move forward. Last year we had 30% growth, this year we plan to increase it to 50%.* We are doing well in business. The macroeconomic situation is favorable. I have friends who have achieved 200% economic growth. In the shoemaking industry, for instance, they have tremendous success in marketing the produce. Their motivation to work is commendable. This makes us confident that the small enterprises have a great future in store for them."

ii) Typology by forms of ownership & management

The case we studied are relatively small firms – only three of them possess more than 100 employees, most of the others having between 10 and 50 people in staff. Few of them are diversifying their production in other sectors creating daughter companies. All this reflect in relatively simple structures of ownership and management we have found.

Firms managed individually by their owner

Most of the firms are personally managed by their owners (or those having largest shares). These the four firms created by entrepreneurs that are newcomers in the sector, plus the two engineering firms established by R&D specialists in former state-owned enterprises. Only in the two biggest firms there are appointed operational managers, which report to the owner. In these firms the owner deals with the strategic management, including R&D activities and hiring new employees. In one of the firms the owner (having degree in economics) hired production and innovation managers, while he concentrated on marketing and distribution.

Firms managed jointly by co-owners (partners)

There are two groups of firms under this type that partly coincide with typology of the firms originating from former big state-owned enterprises.

Two firms created in 1988 form the first group. Their key characteristic is that during the initial period is that *different co-owners provided different types of resources they needed to survive among dominant state and political structures of late socialism – contracts with industrial ministries and state combines, positive attitudes of local party and state authorities, the access to foreign trade, etc.* These initial resources, although transformed,

continued to play important role in firms' development almost till 1997. For example one of them[43] was established by group of Bulgarian private individuals with Italian partner who provided the necessary equipment. All Bulgarian partners had previously or possessed at that moment some positions in party and state administration. One of them – former state official at regional level - played leading role in the new venture and he remained as managing director of the firms till today. Yet his power was limited by the other partners – in the interview he pointed as strategic mistake the refusal of his proposal from the earlier period to include with minor share one of the big P&C state firms. This prevented new firm of having powerful ally interested in their products, which proved to be crucial after 1990 – with the political changes the existing contracts with Ministry of Chemical industry and state combine "Perfumery and Cosmetics" were disbanded. The firm felt under exclusive dependence of its Italian partner when the later did not managed to provide the vital export of their product the firms was at the edge of bankruptcy. The Italian partner was excluded and only personal contacts of the managing director and one of the partners with Russian P&C industry saved the firm. But it never reached the planned volumes and scale of production.

The other firm in this group also emerged as partnership among several industrial managers in the region of Plovdiv and two of them became co-managers. After successful development of its main activity – production of aluminum tubes (cans) for P&C industry, the firms established subsidiary in home chemistry and cosmetics, and later created biotechnology firm in soybeans.

The other group co-owners' firms was created during the period of 1992-1993 by managers and R&D specialists that had left the big state-owned P&C firms. They are four in number and for them the partnership was a way to unify their limited capital as well as because of the complimentarily competencies. One of the most successful firm started by three people and which now more than 200 people staff was partnership between form deputy manager of state combine "Perfumery and cosmetics" and chief accountant of the combine. Later the firms joined the leading R&D expert from the combine's research center, if only as high paid employee. According the managing director and owner of the control share the collaboration between these three people rocketed the company in few years only among the biggest in the sector. This meant combination of successful strategic management (managing director),

[43] Producing luxury packaging in so-called 'colored perfumery' – lipstick, make-up, eye-shadow, etc. – that missed in list of state P&C firms at that time.

strong R&D sector providing constant renovation of firm's products and skillful finance management.

The success of another studied firm resulted from similar partnership between top management of the big state P&C company, all the three fire in 1992 with another three partners in capital Sofia, that provided financial resources and foreign trade contacts. Other firms emerged as family firms or firms between relatives (father and his son together with two colleagues of the son). In all these case from the very beginning or soon after first years one of the partners took leading position and became managing director. Practically in all cases some of the partners has left the firms, but surprisingly enough such events have been registered in much lower scale in comparison with ICT sector.

Firms managed by appointed manager and/or board of directors

There is only one firm in this group and this is the former big state firm specialized in toothpaste production, which was privatized in 1997. The new owners were two partners possessing one of the biggest P&C trade companies. They bought also another big state company in the county capital. Few years later the tensions between the two partners increased and the new holding was split so one of them became exclusive owner of the toot-paste firm. His headquarter in is country's capital Sofia, so the appointed manager with two deputies (one for distribution and one for innovations) manages the production firm.

iii) Typology of the firms by export orientation

All studied firm are exporting export of had been expiring their products. However, four of the firms stopped their export few years ago and now operate only at domestic market. That is why before outline of our typology we need to clarify the dynamics of Bulgarian export of P&C products during 1990s.

Similar to the export of electronic production, the main market of Bulgarian P&C till 1998 were the former COMECOM countries and especially former Soviet Union. However, unlike electronics where Bulgarian producers have been replaced by cheaper and better quality electronics of Western and Far East countries already in 1991, P&C industry preserved its presence in these market till now and decline of its export emerged only after 1997. So during he most of 1990s Bulgarian producers controlled almost 70% Russian market of P&C goods. After the economic crises in Russia in the fall of 1997 the country raised the custom duties for csometics and perfumery with 30%, which significantly reduced competitivness of the

import. For example the Bulgarian import of P&C in Russia decreased twice between 2000 and 2002, and more than three time for the rest of NIS.[44]

Nevertheless in 2001 Bulgaria hold 3% of world export in P&C, while the sector hold 1.6% of the total Bulgarian export for the same year. The other directions of Bulgarian export next to Russia and other NIS are countries in South-Eastern Europe (Romania, Serbia & Montenegro, Macedonia, Albania) and all these countries together form about 80% of the export of P&C goods. Western Europe holds 4% of Bulgarian P&C export. In general fro 2002 the country has exported P&C goods in 65 countries for about 60 million dollars. (See appendix *Perfumery and Cosmetics*)

So comparing the situation with those in ICT sector we could conclude that the same situations is repeated but with 10-years delay. As result of high custom duties, the presence of large Western P&C firms and development of local P&C firm now the share of Bulgarian P&C goods in Russian market is 1.5% - a decline of more than 40 times! Yet we have some reasons to consider such a conclusion premature – facing rising custom duties, some Bulgarian firms built their own production facilities in Russia and other NIS, providing only expertise and know-how. Also, this ten-years delay make possible for the new private firms to grow and better adapt to the market environment (local and international). As seen from the interviews, most of them are more optimistic for the future of their business in comparison with their colleagues from ICT sector.

The situation in sub-sector of essential oils is completely different! Due their exclusive quality because of specific climate in "Valey of Roses", the Bulgarian essential oils have guaranteed export of about 1500 kilograms for rose oil (above current level), with similar perspectives for other products (levanter, salvia and other oils, etc.). The main problems companies are facing here are related with decline of rose and other plantations during the 1990s because of land restitution – they dropt from 2 500 ha in 1990 to 1 325 ha in 2001! In same 2001 BNAEOPC together with Ministry of Agriculture launched a five-year program for planting about 200 ha new rose plantation annually. The new private firms in the sector are also planting their own rose and levanter gardens.

[44] Export of Bulgarian P&C for Russia in 2000 – 42 693 tons or USD 75, 4 millions; in 2002 г – 26 726 tons or USD 53, 4 millions. Export in other NIS countries for 2000 was 11 516 tons or USD 19,9 millions; in 2002 - 4 575 tons or USD 8,3 millions. All data taken from BNAEOPC annual report in 2003.

Box 13: *Firm R, newcomers entering a highly conservative traditional business*

There are two processes behind the establishment of the firm R1, also specializes in the production of essential oils: *land restitution reform that begun in 1990* and business activities of the owners during 1990 –1991 in field of *petrol trade*. The firms emerged as kind of family-friendship – father, his son and two closer friends each of them possessing 25% of the shares. During the studied period the father was chef manager ('first among the equal", as he said) because of his experience as manager of large state-owned transportation firm.

In the turbulent year of 1990 when the country stopped payment of its foreign dept and for few months a sharp shortage of petrol was felt, this team ventured into business of petrol derivatives and made huge profit successfully exploring liberalization of the foreign trade and their contacts with major transportation firms in the country. Later this type of business was concurred by semi-criminal structures related with former party nomenclature and special services, until the bug multinational firms entered here in the second half of 1990s (Shell, Lukoil, OMV, etc.). So after the first successful gains the partners have been pushed out of the business. At the same time restitution of land gave the family back more than 20 ha land in northern Bulgaria, which they exchanged for the land in the "Valey of roses" region, Southern Bulgaria. And they were already looking for launching new business with the money won by petrol trade. It happened that in the village they exchanged the land there was an old rose oil refinery that was closed few years ago. So one day after a talk with the village major father came to his partner and said: "I found the golden hen for our money!"

That is how they venture in the essential oil business, being absolute newcomers. However, they all degrees in economics and had already acquired vital skills to work in marked environment. The subsequent development is nice example of their ability to play with the uncertainties they met and to successfully pursuing their business objectives.

They right choice to one of the first to invest in essential oil business in the period of decline of this state-owned business and dismantling of the socialist cooperatives managing the rose plantations. Second, building a new factory and creating more than 15 new jobs in the village with the period of mass unemployment in country just started, the founders of the new firm gained respect and friendly attitudes of local people. Some of them with experience in rose cultivation and extraction of rose oil became employee in the new firm. They also hired a retired production engineer from the big state essential oils refinery from the neighbor town. Later younger specialist came too. The company was among the first to plant new fields with roses and levanter. They started in 1995, when many plantations were destroyed – after restitution of land most of the new owners were unable to cultivate them or transformed these plantations into arable land. At the same time, however, they did not abandoned completely their old business, preserving several gas stations in some other big towns in the region, which provided them with continuous, if small, cash flow.

All this help the company to face unexpected blow it received in the very first year of production – it was cut from access to world markets after still existing state monopoly refused to provide quotas for export: "You did not asked us when you built your plant, why should you give you from our quotas?" said the people from Department No.5 at state combine "Perfumery and cosmetics", who still possessed exclusive rights to export. So for more than two years they barely managed to export some minor quantities and at one point has accumulate several hundreds of kilograms (one kilogram rose oil costs $ 4 500).

Yet they kept working, planting new plants, expanding the list of their products, traveling abroad in search for trade partners. Finally the spell was broken and big money came. They diversified buying hotels in prestigious resorts. Their last project is a biotechnological complex in nearby village – they bough 10 hectares land and now are building facilities for all-seasons production of vegetables with green houses, refrigerators, evaporators, small electric power station on natural gas, etc. "Money have turn", one of them said.

Firms working entirely for the local market.

Only four of the 15 firms we studied are working exclusively for the local market, but two of them had exported in Russia before 1998. All firms in this group are producing in the lower price categories, often working for local commercial chains (some of them branches of multinational companies like *Metro, Billa*, and others)

Firms with a considerable share of export

The remaining 11 firms are exporting their products and for cosmetics' companies the share of export varies from 20% to 80% of their production.

We has found a big variations in the dynamics of their export during studied period (1990-2003). The years between 1994 and 1996 marked the export peak for the entire period. With the grow of experience and investment in new technologies the private firms increased the quality of their products and enriched their product lists. For example with its new hair dyes at competitive price one of the firms realized sells at Dutch market. Other firms exported some products in USA, Australia, and even Far East. We have recorded one R&D specialist talking about modifications of their products to better respond the local markets – that physiological differences in the skin and hair of northern people require certain compositions, while those in Australia and southern regions – different compositions…

The big challenge for entrepreneurs we interviewed was the country entrance in EU planned for 2007. This accession process has shaken already legislation for health standards, patenting, manufacturing practices, etc. At presents some bigger firms are introducing GMP standards (Good Manufacturing Practices), which appeared to be rather costly and troublesome process. We have found also interesting variations in opinions – for example the managers of the 'first wave private firms (established before 1989) stress the necessity of government support in this process. The new private entrepreneurs from early 1990s have their own fears (they are interested in more technical matter such as quotas for P&C product negotiated with European Commission, whether the terms of the introductory periods are sufficiently enough, etc.), but at the same time most of them are excited from the challenge. Here is a typical statement:

> "... Our firm is growing very fast now. Obviously we are on the right track… I thing we are to be one of the serious player in Bulgarian market. This is certain. As far as the export is concerned, almost everything depends on our entrance in EU, on their requirements. Many things will be in move until that happen. This is also a policy problem… [Whether] Bulgarian P&C will be present at EU market? At this point my answer is 'not' rather then 'yes'. But for

> the local market I am pretty sure that there will be Bulgarian P&C firms… What is need is courage, nothing else! We are also intelligent people, healthy and hard working… Maybe we are late a little bit, but there is time to catch."

Typically for the sub-sector of essential oils firms, the two studied firm here are exporting their entire production abroad. Since year 2000 the export gradually has recovered after sharp decline in mid-1990s. Immediately after 1989 in addition to reduced volume of row materials (rose and levanter flowers) due to dismantling of socialist cooperative farm and prolonged restitution of the land, significant barrier to the emerging private refineries of essential oils was the state monopoly on the export – to exported, the oils need to be certified for quality and the only institution issuing such certificates was the laboratory at the state combine "Perfumery and cosmetics" which also determined the export quotas::

> "When in 1993 we destined our first rose oil, the export was controlled by Department No.5 at state combine "Perfumery and cosmetics". In the beginning they did not allowed us to export our oil – "You did not asked us when you built your plant!", they said. During the next years they gradually agreed to ed some small quantities, 10-15 kilograms, just not to give up the ghost completely. Because already in f1993 we produced 160 kilos, so the oil was stored. But it is a lasting product, nothing happened to it. Few years later the prices grew up and we sold it all. A Frenchman, who was buying oils for French P&C industry came to as saying: "Why you colleagues are blackmailing you that you are not professional? Could you give me some oil for testing?" So he sent our oil for testing and then came and bought everthing we had. He liked our oil, that it was pure natural product, without any 'improvements'. Next year he said, that the quality is the same as previous year and since then he said: "You don't need to send your oil to laboratory in Sofia. I am going to buy it directly from your plant!" That is how we gain his confidence."

This problem disappeared after 1997 with privatization of the state firms in the sector. Today the entire production of essential oils is in private hands and government laboratory in Sofia took equal stand to all producers.

iv) Typology by degree of specialization

The division of labor and specialization in the P&C sector has some peculiarities. In general, there is a division between those producing essential oils and their derivatives, those producing cosmetics, and those who specialize in perfumery. However, there are fewer firms that stay in only one sub-sector.

The more important division between the firms is according the technical complexity of their products. In cosmetics at lowest lever are make-up removals, followed by hair shampoos, toilet milks, various types of eau-de-cologne and aftershaves, the more complex production of creams, to come to the heir dyes as one of the most sophisticated product. The overall

opinion of interviews managers was that firms producing hair dyes form the elite club of P&C sector.

Production in perfumes, especially development of original brands, is considered also as very complex one. It requires not only mastering certain technologies (including quality control of components), but the creative work of special designers. According to Prof. Dimitrov, head of "Perfumery & Cosmetics" department at HIFPI-Plovdiv, distinguished expert and generally recognized as teacher of generations of P&C, the good designers of perfumery are those "who are able to compose an aroma melody the same way the musician compose and sound melody". That is why they are rare and highly prized specialists in the sector "numbering the fingers of a hand". They are as rare as are the firms that managed to create and to impose on the market their original bands of perfumery. Of course, this refers to 'real' perfumery. We registered many firms with LON production of perfumery for Western and Russian trading firms, but this is under ready-made designs and receipts.

Having in mind all this we nevertheless could apply the typology used in ICT sector.

Narrowly specialized firms

There is no narrowly specialized firms among those we studied. The production list even of the smallest firms number more than 10 products, while the biggest firms practically cover almost entire spectrum in given sub-sector (essential oils, cosmetics or perfumery).

The essential oil firms could be partly named under this category, although one of the two firms declared that for certain period it also produced some basic cosmetics. What we meant, however, is the narrowing of the production list of these firms after the severe shortage of row material during the most part of 1990s. The annual report of BNAEOPC for 2002 stated that while in 1990 the firms were producing more that 50 aroma products (essential oils, concretes, 'absolu', rezinoids, natural waters from different flowers, extracts, etc.), in 2002 their number decreased significantly and some products practically disappeared – menthe oil, salvia oil, chamomile oil, etc. There is not production of rezinoids. In the interviews we made in the autumn of 2003, however, the two essential oil firms reported enlargement of their product list just with those products, declared as 'missing' in BNAEOPC report. In addition to their main business, extraction of oils, these firms are planting their own gardens with essential oil cultures. They describe this as an attempt to "close the production cycle', but in fact this is integration of two types of production – agriculture and processing of the

row materials to final products. Because the rose oil production is lucrative business, we will one of the firms diversifying in other sectors.

Firms with a wide range of products and services only in the sector

There are eight firms (in addition to two essential oils firms) which could be defined as producing large list of P&C products. Three firms cover practically the entire sub-sector of cosmetics, plus one that soon will catch them. According to interviews, maintenance of large production list is result of strong competition in the sector, which force the firms to constantly renovate their products and to enter new fields ("practically every month we have to put a new product in the market", said on of the manages).

Interesting enough, the biggest firm we interviewed specialized initially in toothpaste production. As one of the largest state firm in the sector, at the end of 1980s it became one of the biggest producers in the former COMECOM. When it was privatized in 1997, the now owner launched a large diversification program and soon the firms ventured into new fields – special cosmetics, hair shampoos, hair dye, etc. According to the manager the large production profile provides flexibility and increase firm's competitiveness.

What was said for the biggest firm refers to the smaller ones too. They constantly enrich their production list limited only by their technological resources and know-how – as we said, at this stage only four of studied firms are producing hair dyes, and one was under preparation.

Firms that diversify their activities by working simultaneously in several sectors

Almost half of the firms could be defined as diversifying outside P&C sector. Three of the smaller firms expanded with low-technology products in the neighbor sector of household chemical products (dishwashing liquids, shoe dyes, etc.). This should be also considered as aiming to increase firms' flexibility in volatile markets.

Three other firms deserve special attention. One of the essential oil company mentioned above (initially trading with petrol derivatives) invested part of revenues into other high-profit activities. The owners have bought two hotels (at Black Sea cost and at renowned ski-resort) and since last year they are building large complex in food-processing industry worth several million euros. The firm that emerged in 1988 as main producer of aluminum packaging for P&C products later entered cosmetics itself, and during the last years they developed facilities in sector that is relatively underdeveloped in the country – biotechnological products base on soybeans. The third company is one of the fastest growing among the studied, which at present conduct preparations to launch production of some basic

P&C components which is now entirely in the hands of large multinational firms. The manager said he is considering this new venture as real challenge and of he succeed he will be able not only substitute some of his suppliers, but to became supplier to other P&C firms. Although this might be considered as staying in the sector and not diversification, the synthesis of P&S components is actually high-tech chemistry with multiple applications.

v) Typology by products / services offered. Level and share of R&D activities

The specific characteristics of P&C sector as highly competitive and high speed of renovation of products require to take the last two axes of comparison –according to *type of products& services offered* and according to *the scale of R&D activities.* In P&C sector – to put aside the very conservative essential oils business – to be present in the market means to be able to develop your own original products and to constantly renovate them. Hence we were surprised to find practically in every one of the firms we studied specialists in R&D, while half of them possessed their own R&D departments. Everywhere among the new private firms we recorded the same story that after the initial period hand production of relatively simple products their first task was to build a laboratory with the money gained, then to hire good specialists (in those created by new-comers) and to launch development of original products.

For example one of the firms pointed as main reason for its successful start creation of then unique for the Bulgarian market product – a pearl shampoo that was real commercial success, imposed the firm's name and bring them significant profit. The in-house R&D facilities and laboratories are needed also to test the quality of the supplied components, to study the effects of their interaction in designed compositions, etc. This is a critical condition for the quality of production, especially under the severe price competition. Often the 'investors' (those ordering LON production) first fix the price of the future product, so the designer has to select components not exceeding the price per unit and then to achieve the maximum effect of their combination. In many cases the higher quality is achieved with less rather than more components, but the key is how to select them and in what proportions. That is why having own laboratory and experienced R&D specialist is vital!

All this said, we should keep in mind what does it mean R&D in the sector of perfumery and cosmetics. It is divided in two clearly defined levels:

- *Invention of basic ingredients and active substances* that are used in creation off various P&C final products. This is really a global market controlled by big multinational firms and most of them have their offices in Bulgaria. Their research laboratories employ tens and hundreds of R&D specialists, who work for years and spend millions of dollars in developing new chemical and biotechnological substances, new technologies and basic compositions for these products[45]. Till 1989 there was only one large Bulgarian company specialised in this field, which closed its R&D centre in early 1990s and then slowly 'degradeed' to the ordinary P&C products. This is the reason why practically the entire Bulgarian production of essential oils is exported – these are one of the basic inputs for the multinationals' high-tech components and substances;

- *Design of concrete P&C products.* The local firms – bigger or smaller – design their own products, often helped by the world producers of ingredients with standard formulae, compositions and know-how.

In this sense the distinction between "original" and "standard" products in P&C sector is often not clear enough. In practice every product is offered as "original" in order the corresponding firm to distinguish itself from its competitors. However, it is clear that often behind the large variety of P&C products from specific type stays the same basic formulae, provided for free by a multinational company supplying the key ingredients. Copying and falsifying of popular P&C product was another common practice, although it diminished last years (partly due to the measures taken by BNAEOPC). Although the country has adopted EU laws for intellectual and industrial property, the ineffective and corrupted legal system still impede the successful fighting of these practices.

This structure of R&D process in P&C sector facilitates the spread of LON production, which is also well established among the firms we studied. Four of the studied firms have been working on LON orders during the last years. One of them even emerged to secure specific LON order – as an investment of Bulgarian P&C commercial company together with its international partners. The managers consider the LON production for the hypermarkets' chains as one of the ways for Bulgarian P&C firms to enter European market.

Given the availability of basic ingredients and active substances in the local market, the basic formulae and consultancy provided by their producers, it is clear that main precondition for a

[45] Such was for example the active substance in famous *Head & Shoulders* shampoo, which is now standard ingredient in the products of local P&C companies all over the world.

given firm to enter this market is hire qualified personnel – technologists and designers of P&C products. This explains why the most successful private companies are those created by managers and R&D experts from former large state-owned P&C companies (or those who have hired such specialists). We have found also that buying specialized R&D consultancy services is well established practice in the sector. Researchers from HIFPI or Agricultural University in Plovdiv, from Higher Institute of Chemical Technology or Bulgarian Academy of Sciences are hired under contract for solving specific problems in production or elaboration of new products. For example Prof. Dimitrov we sited above has designed personally some of the most successful series of P&C products by some private companies. R&D consultancy is provided also by few specialized R&D firms created by leading P&C experts in late 1990s.

High-tech firms (firms with serious investments in R&D and staff qualification)

Five of the studied firms pay special attention to R&D – they possess their own R&D departments, some with up to 10 researchers and technicians. In three firms the owners directly monitor R&D activities, while in other two firms heads of R&D departments are members of the managerial team. Special care is taken to preserve the secrets of the newly elaborated products, they pay for patents and other forms of legal protection. Yet they suffer from ineffective legal system, which is still unable to penalize those who steal the intellectual property.

These innovative firms invest in new equipment and in providing up-to-date information for their researchers. Every one of them – even those located in small towns (one in village near small provincial town) have regular Internet. Their specialists often travel abroad to conferences, conventions or other events, buy literature. Two of the owners mentioned that they usually take some of their R&D specialist when they travel abroad for contracts, new technology, etc.

This explains also the case of 'head-hunting' we observed during the interviews, i.e. the competition for top specialists is among the strongest![46] According to the entrepreneurs there is enough specialists having special qualification in P&C (graduated by special high schools or universities)[47]. What is missing are specialists with good practical experience – to become good R&D specialist takes years apprenticing at some expert in firms' labs – and these

[46] "We have some of our leading R&D specialist visited by head-hunters, we are doing the same with specialists in other firms…", confessed one of the managers.

[47] Since mid 1990s two universities and one college are training P&C specialists in Bulgaria.

specialists are subject of competition. We registered some case were leading experts have been invited to work at R&D departments in Russian or Turkish firms.

Firms with R&D as an auxiliary activity

There is another five firms falling under this category. These are smaller firms without separated R&D units. Their new products usually are created by one or two R&D specialist. Sometimes these are among the founders and owners of the firm. They work in close collaboration with multinational companies supplying ingredients and active substances ("they often give us free consulting, provide formulae and literature", said one of the interviewees). These firms also hire under short-term contracts academic researchers or buy consultancy from R&D firms.

Firms without R&D activity

There are four firms in this category – two essential oils' firms (as we said this is a rather conservative type of business), and two small firms producing basic cosmetic compositions. We should add to these one of the two 'first generation' private firms established in 1988, which since 1998 has experienced constant decline and at the moment of the interview has frozen its activities.

Conclusion

In the conclusion we compare the findings in two sectors of *ICT* and *P & C* firms and provide the link to policy paper. The comparison is structured in the following five points, according to the main axes of the typology we worked above.

- *The origin of the owners.* We have found that in both sectors managers and R&D specialists of former large state-owned companies have founded most of the innovative SME. In ICT sector the peak of newly firms established by this category entrepreneurs was in 1990-1991, while in P&C sector it was in 1992-1994. In P&C sector the most successful firms have been established by the former managers in cooperation with R&D specialists. This was not the case in ICT sector, where the R&D specialists took the lead. Unlike P&C sector, where a number of prosperous and innovative firms have been established by newcomers, in ICT sector there are fewer successful entrepreneurs that came from other fields. One of the reason for this is the lower 'entrance barriers' in P&C sector, where it is easier for a newcomer with appropriate background to acquire the fundamentals of perfumery and cosmetics and by hiring relevant experts to develop successful businesses. The joint ventures with foreign companies are rare in both sector. Yet in ICT sector – especially in communications and software – there are some companies with foreign shares.

- *The integration to world market and it influence to the relative shares of private and state owned firms.*

A) In ICT sector, the former large electronic industry has completely collapsed by the end of 1991, leaving a space for number of newly emerged SME. Most of them were engaged with import of hardware and software, assembling hardware and providing services for the local firms and public sector. Bulgarian ICT sector has lost its foreign markets in former COMECOM countries early in 1990s, the software and industrial automation being the only sub-sectors that managed to integrate in the World market if at much lower scale. All big multinational ICT companies have established themselves in Bulgarian marked, taking lion share of corporate orders, sometimes in cooperation with local firms. Only few state-owned firms in ICT sector, together with few new private firms, managed to produce low-tech hardware for export in the region and NIS (for example cashiers). But little has remained from the previous glory of Bulgarian electronic industry and now

the sector comprises micro, small and medium enterprises. None of the previous big state plants from IZOT state combine remained – most of them have been closed, and opnly few continued their existence as private medium-sized companies.

The dynamics of ICT sector during the period, however, was dictated by the Internet revolution that sparkled in early 1990s. Like everywhere in the world, it helped a number of new companies emerge, providing services and related hardware. Spread of Internet, especially after 1994, and related spread of various corporate and public computer networks provided niches for local SME, which experienced substantial growth.

B) The situation of the sector of perfumery and cosmetics was very different. It never lost completely the markets of former COMECOM, and till 1997 controlled more than 70% of Russian P&C market. Although the state combine "Perfumery and cosmetics" was dissolved in 1992, the big state plants continued to work till 1997-98, when most of them have been privatised. Until the economic crisis in Russia in 1997 and subsequent rise of custom duties for P&C products, Bulgarian P&C industry was in constant growth. New private firms emerged in several 'waves' and began to compete successfully state plants both at local and foreign markets. *Because of the state-owned plants were still profitable, they were subject of rivalry between various political clans fighting to impose their partisans at managerial positions, the later usually following rent-seeking and assets scraping strategies*. By the end of 1990s this has led to bankruptcy most of state-owned P&C plants which finally have been privatised. This was not the case in ICT industry, where big state plant simply disappeared in early 1990s. We should discuss these issues further in our policy report. The political struggles in P&C sector forced number of talented managers and R&D specialist to leave and to found their own businesses. These processes eventually have changed the overall structure of P&C industry, which at present combines several large firms (both newly emerged and successors of former state giants), number of high-growth medium firms and more than 100 small and micro firms.

- *The degree of specialisation.* The two sectors differ in their degree of specialization. ICT sector is more fragmented. Firms here are clustered for example among eight technology profiles (sometime combining two or three of them - hardware, software, computer networks and internet communications, telecommunications, industrial automation, telematics, computer services). There are important differences between Internet Service Providers and specialized software companies, those focusing on industrial automation,

and firms selling standard hardware. This makes difficult identification of interests and that is why at present there are three ICT branch association – *Bulgarian Association of Information Technologies (BAIT* – the oldest and biggest), *Bulgarian Association of Software Companies (BASCOM)*, and *Bulgarian Internet Association (BINA)*.

The P&C sector lack such specialization - here even small firms possessing the necessary equipment are able produce items from the entire spectrum of cosmetics. Of course there are 'elite' areas such as development and production of basic components (deserved for large multinational firms), development of brand perfumery, and conservative businesses like essential oils production. This observation is related with higher share of P&C firms diversifying their produce in other sectors (packaging technologies, household chemistry, biotechnologies, etc.). A common pattern found was diversification in highly profitable sectors (fore example, trade – even with petrol derivatives) as precaution against inflation, uncertain baking system and volatility in the sector.

- *R&D activities.* In both sectors practically all R&D activities have moved from government industrial research institutes to private firms. Only a small fraction remained in academic institutions. This transition was marked with reduction and even disappearance of some core R&D capacities, necessary for carrying out strategic (fundamental) research. Today in Bulgarian ICT industry practically there are no units able to carry out research in various fields of microelectronics – integrated circuited, magnetic and optical storage, parallel processing, artificial intelligence, etc. Similarly, in P&C sector the strategic research in developing new active substances and ingredients and their production practically disappeared. They were replaced by big multinational companies selling such substances and ingredients to the local marked. At the moment of the study there is no Bulgarian P&C company conducting research or producing basic substances. It is worth to bring these issues into policy debate.

- *Unfair competition, violation of the laws of intellectual property and role of branch associations.* The new private firms in ICT sector faced serious challenges in early 1990s when numbers of violations of the laws and fair play have been registered. At that time Bulgaria still considered itself as producer of IT hardware and maintained relatively high taxes on the import of such goods. This opened the door for mass illegal import that hurt seriously the correct firms. This and other similar events has led to the establishment of *BAIT* (in 1993), which in two years managed to convince the government to lift the

import taxes for hardware, stopping in this way the illegal traffic. The association took measure to improve the business ethics, developed special programs and during the years became real partner of the government, expressing the interests of ICT community. Later software companies have established their own associations *BASCOM* and after some period of 'cold' co-existence now the two associations maintain very good relationships and coordinate their activities. In late 1998 some of the largest Internet service providers established their own association *BINA*.

The P&C sector experienced similar path of business partnership, but it took 10 years until the establishment of *Bulgarian National Association Essential Oils, Perfumery and Cosmetics* (BNAEOPC).[48] We should discuss the reason in our policy paper, but it is sufficient to say that *this form of business partnership does not appear until the sector was not completely privatised*. For the short period since its establishment, *BNAEOPC* have carried out several successful initiatives in raising awareness of public power about the specific problem of the sector. It established real collaboration with relevant ministries. One of the important fields of *BNAEOPC* activities was support for introducing standards for quality (ISO 9000-2001) and good laboratory and management practice (GLP/GMP) among the P&C firms as precondition for selling their products at EU countries. It also helped the member firms in their participation at international fairs, specialised exhibitions and conventions, etc.

Yet successful policy of branch associations need to maintain the balance between two polar visions we recorded in our interviews, between the *difficult task of defining the common ground for collaboration*:

> " …We have our meetings when we have to report some activities, to vote on the budget, etc. But this is still far away from what I mean under 'association'. The *real* association is based on common interests. If BNAEOPC member have such a common interest, there will be association. However, we still did not go beyond the differences of our interests. The welding is missing – we are in competition, this is normal. But such an association should defend our more general interests, our higher interests, whose we all will vote 'for'. We need a kind of thrust, motivation, and we need to talk on much more serious matters. These are fundamental

[48] There is interesting difference in the way BAIT and BNAEOPC emerged. In BAIT case the initiative came from group of private entrepreneurs, who knew each other from state combine IZOT where they all had been working in. Some of them had some experience in "industrial branch associations" established in early 1980s by reformist economic nomenclature. Others have been working as IZOT trade representatives in countries like Japan, USA, UK, all having strong branch associations in the field. So they created a structure similar. In BNAEOPC case, which allied much more heterogeneous community of private firm, a *mediator was needed.* Prof. Dimitrov, the head of P&C department at HIFPI using his standing and excellent reputation in P&C community managed to link together the P&C entrepreneurs with different origin, background and specialisation and helped by small core of collaborators convinced them in the need of association.

> issues, related with the economy as such, with the future of making business in Bulgaria. Till now we have our meetings, but we never commented on such issues. I thing *this is what make you like those you are competing with, to feel a kind of communion with him.* And this might be done only by an association and by a common interest."

And *providing condition for the indigenous corporate business to emerge in the country*:

> For me 'association' means someone to buy his competitor… We are still young firms; every one of us feels attachment to what he has created during these years. This feeling is not shed yet, and at this stage such expansion will be difficult in Bulgaria. Maybe we need one or even two generations to pass until these feeling fade away and people here start talking the language of business and money. Then it might be possible for someone to buy his fellow company and so to make the association. This is the true form of association… In the period of globalization we all are living in, we see how the big corporations merge, one buying the other.

The five points we summarized our findings are limited to the key economic issues in development of the innovative SME in the two sectors. One important issue – role of the state and political elites as actors in the process of economic transformation and their influence on the innovative entrepreneurs in the studied sectors was consciously left out. It will be clarified in the introduction of our *policy paper* and related texts – here the reader will find also the arguments why we it is not the state which is primary actor we targeted our report, but branch associations of the firms in the sectors of ICT and P&C.