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Thaksin's Legacy: Thaksinomics and Its Impact on Thailand's National Innovation System and Industrial Upgrading*

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Abstract: Thaksin Shinawatra was one of the most powerful prime ministers of Thailand. Undergirded by a set of new policies termed Thaksinomics, great political power, his CEO style of management, and his intention to make Thailand a developed country, his administration could have been a formidable force in transforming Thailand's weak and fragmented innovation system into a stronger and more coherent one and in laying a long-lasting foundation for the country's technological and industrial upgrading, as experienced in Japan and the East Asian NIEs. Thaksin's administration paid much attention to the neglected meso and micro foundations of Thailand's competiveness. For the first time, Thailand had explicit vertical industrial policies that were tailored to specific sectors and geographical clusters. These policies pushed existing central and regional government agencies to adjust themselves accordingly. Thaksin's government also induced changes in the roles and behaviours of other actors in the country's national innovation system. Nonetheless the government, to a large extent, failed to make an enduring impact on industrial and technology upgrading. There are two key factors underlying this failure: (a) deficiencies of Thaksin's policies and implementation of those policies themselves and (b) resistance to changes by other actors in the national innovation system.

Keywords: Thaksin, Thaksinomics, national innovation system, industrial and technological upgrading policies, industrial cluster, Thailand

JEL classifications: O31, O33, O38, L52

1. Introduction

Non-mainstream economists generally agree that there should be a more "historically friendly" and holistic approach than the one offered by orthodox neoclassical economics to analyze why some countries were successful in the process of industrial development and technological catching up and

why others were not. Since the 1980s, the concept of a national innovation system (NIS) advanced by seminal scholars such as Christopher Freeman, Richard Nelson and Bengt-Ake Lundvall, has emerged as a useful analytical tool for this purpose. NIS is the interactive system of existing actors such as private and public firms (large and small), universities, government agencies and others, aiming at the production, diffusion and utilization of knowledge within national borders. Previous studies show that advanced countries historically have had capable actors and systemic linkages among them, resulting in intensive technological learning and forging ahead. By contrast, developing countries have had weak actors and fragmented systems leading to technological lag. Nonetheless, some late-industrialized countries such as Japan and the East Asian NIEs (Korea, Taiwan, Singapore and Hong Kong), which themselves were developing countries in the past, effectively developed national innovation systems enabling technological and industrial upgrading. Hence, they, to a large degree, succeeded in catching up with forerunner countries. One of the most important ingredients in successful NIS is government policies that can produce a long-lasting foundation for building a country's intensive technological learning capability. The experiences of Japan and the East Asian NIEs show that those policies and practices were laid down and sustained for a sufficiently long duration of time to produce learning processes in the national innovation system necessary for industrial and technological catching up. This will be further discussed in the article.

By comparison, the national innovation systems of less successful developing countries were rather weak and fragmented. Their policy formulation and implementation generally failed to induce continuous intensive technological learning. Either the policies themselves were misplaced or implementation of well-thought policies was ineffective. Thailand was one of those countries. Nonetheless after Thaksin Shinawatra became Prime Minister in 2001, there was hope among many people in Thailand that his administration could make significant changes. It is widely accepted that Thaksin has been one of the most controversial and publicized political figures of Thailand in the past 30 years. His brand of economics, known as Thaksinomics, has also somewhat influenced the policymakers and media in Southeast Asia. Even after being pushed out from office by a military coup in September 2006, his legacy continues to sharply divide Thai society to this day. For the establishment (royalty, military, bureaucrats, the old rich elite, and many intellectuals), Thaksin's regime represents a high degree of corruption, cronyism and gross violation of human rights, but for the poor and some intellectuals, Thaksin's policies have induced necessary and major reform in Thailand economically and politically. For them, the dual-track economic policy – the main thrust of Thaksinomics – put Thailand in the right

direction and has enhanced its international competitiveness as well as reaped the benefits of globalization, while empowering people at the grass roots and strengthening the domestic economy.

It is the objective of the article to examine Thaksin's legacy at length. The main research question is whether and to what extent Thaksin's regime (policies and practices) has produced a sustainable foundation for intensive learning capabilities necessary for long-term industrial and technological upgrading of the country. The study will examine the regime's key policies both in terms of content and implementation, and their impacts on key actors of Thailand's innovation system, namely government policy-formulating and policy-implementing agencies, private companies (including transnational corporations, large Thai firms, SMEs and start-ups), universities and public research institutes, financial intermediaries, industrial associations, as well as institutional contexts such as trust, entrepreneurship, and so on.

The outline of the article is as follows. Section 2 will present the concept of national innovation system (NIS) and policy framework for long-lasting industrial upgrading based on the experiences of Japan and the East Asian NIEs in building up technological and innovative capabilities. Section 3 will elucidate the policies and national innovation system of Thailand in the period before the Thaksin administration. Section 4 will examine the essence of Thaksinomics. Using the NIS concept and policy framework, we will evaluate the impacts of Thaksinomics on the long-term industrial upgrading in Thailand in Section 5. Finally, conclusions will be drawn in Section 6.

2. National Innovation System Concept and Policy Framework for Industrial and Technological Upgrading

The roots of the innovation systems (IS) concepts are based on Schumpeterian economics, emphasizing innovation and entrepreneurship, combining the essence of Charles Darwin's evolutionary theory and the importance of national institutions as propounded by Friedrich List's national system of political economy. The emergence of the NIS concepts, particularly in the industrialized countries in the Northern hemisphere, can be traced back to the work of Lundvall (1985, 1988), the national system of innovation or national policies of innovation and other works (see Freeman, 1987; Nelson, 1988). As mentioned earlier, the concept of national innovation system explicitly recognizes that technology development involves a complex interaction between many actors and many activities, all of which are influenced by a wide range of policies, incentive systems, cultural factors, and so on. Our analysis of the NIS in Thailand is therefore carried out by examining the roles, interaction and collective learning of the following main elements: government; university; private firms; private bridging organizations (industry,

trade and professional organizations); financial intermediaries/markets; and institutional context.

Though the concept initially originated in developed countries, it has been recently applied to analyze the situation in developing countries – the latecomers to industrialization. The concept of latecomer industrialization was first introduced by Gerschenkron in 1962. He stresses that the crucial features of the latecomer countries' development are different from those of the forerunner countries simply because they are late. Latecomer countries, he argues, are disadvantaged in their pursuit of industrial development compared with the forerunner countries because of a high degree of lag, especially in terms of institutions for development such as financial intermediaries. Nonetheless, they have advantages over the forerunner countries since they can utilize technological and institutional backlogs already created by forerunners, without necessarily creating those prerequisites indigenously. The contribution of the developing economy perspective on the NIS, therefore, would mainly focus on the latecomer factor in the innovation process.

In fact, most developed countries of today such as the United States, Western European countries and Japan were developing or latecomer countries in the past, at a time when Britain was the forerunner in terms of industrialization. Latecomer advantages, together with state intervention, were crucial factors that enabled these countries to catch up with the forerunner. The infant industry promotion strategy was, for example, heavily used by the United States during the 19th century to the extent that the eminent economic historian Bairoch (1993) once called it "the mother country and the bastion of modern protectionism". The average tariff rates on manufactured products were 35-45% and 40-50% in 1820 and 1875 respectively. These were significantly higher than other countries at the time. In addition, contrary to the *laissez-faire* doctrine, institutions played very important roles in advancing technological development and innovation in the United States even in the 20th century. Federal and state research funds contributed significantly to the growth and product or process innovations in agriculture and related manufacturing industries such as food processing and farm machinery and equipment. Aircraft and electrical machinery sectors were major beneficiaries of military R&D. The large procurement from the military and space development organizations such as NASA was vital in the early years of new product development in the electronics sector. The emergence of biotechnology-based pharmaceutical industry since the 1990s was also importantly attributed to the close university-industry research collaboration (Mowery and Rosenberg, 1993).

Following in Gerschenkron's footsteps, several NIS studies focusing on individual countries were conducted. In 1987, Freeman was the first to

explicitly use the concept of NIS to study the economic performance of post-war Japan. Most of the scholars engaged in this type of study concentrate on how institutions and systems were built and shaped to produce intensive learning which facilitated technological catching-up processes in newly industrializing economies in Asia, namely, Korea, Taiwan and Singapore (see Kim, 1993; Hou and Gee, 1993; Wong, 1995, 1999). What made these countries different from many less successful catching-up countries are not only considerable investments in physical and human capital, as suggested by neoclassical economists and the World Bank, but also their learning capabilities in identifying, adapting and operating imported technologies (Bell and Pavitt, 1995).

Learning capabilities of NIEs were built and enhanced. Firms in those countries were active and purposeful in accumulating their capabilities in absorbing, understanding, mastering and upgrading technologies (Hobday, 1995; Kim, 1997; Matthews, 2007). Equally important, institutions especially government policies were formulated and properly implemented to encourage those firms to develop their indigenous technological capabilities. Several scholars (see for example, Johnson, 1992; Amsden, 1989, 2001; Wade, 1990; Chang, 1994; Lall, 1996; Shin, 1996) have critically examined how specific policies in the areas of trade, investment, competition and education were introduced to support the process of technological capability accumulation. Nonetheless, the most systematic framework for analyzing technology policies in these countries is proposed by Lall and Teubal (1998). They contend that effective policy interventions have to (a) be highly context specific, that is, being geared to the technological endowment of each country and to the capabilities of its government and business sector; (b) evolve over time as capabilities developed; and (c) involve stakeholders in the policy process. According to their framework for market-stimulating technology policies, there are three levels or phases of policies. At the national level, the objective is to set national objectives and decide upon the trade-offs between them. At the priority-setting level, the direction of policies, and so interventions needed, has to be guided by a vision of future scientific, technological and industrial development. Policies at this level can be broadly divided into two types: horizontal policies aiming at stimulating generic technological activities and vertical policies aiming at targeting specific technologies, clusters and industries or regions. The latter concerns specific programmes or policies designed and implemented by the government to fulfil its priorities (see Table 1). A very interesting point illustrated by Lall and Teubal is that broad and generic policies are essential but not sufficient to strengthen firms' technological capabilities, and subsequently countries' competitiveness, policies addressing problems in specific industries, clusters and technologies are necessary supplements.

Table1: Lall and Teubal's Framework of Market-stimulating Science and Technology Policy

Level 1: National
1.1 Setting national objectives, economic and non-economic
1.2 Implementing policies on: macro-economic management; broad improvements in labour and capital markets; legal framework and regulations; trade arrangements; strengthening administrative capabilities of government
Level 2: Strategic priority setting
2.1 Developing and defining a vision for national S&T policy
2.2 Setting strategic priorities within industry and technology and coordinating activities
2.2.1 Horizontal priorities: identifying socially desirable technology activities
Promotion of horizontal technology absorption and diffusion
Enterprise-level R&D in general
Technology infrastructure and links with industry
Human resource development for technological development
2.2.2 Vertical priorities: identifying nuclei for strategic promotion
Broad categories of sectors to be encouraged
Sectors that are of particular importance because of supply linkages and externalities
Activities that are significant for export competiveness
Industrial clusters or districts (own their own or as suppliers to large firms)
Regions
Generic technologies, e.g., which provide inputs for a broad array of sectors/activities
Level 3: Specific programmes/policies
3.1 Generating the portfolio of programmes/policies to implement priorities (with resource allocation among components)
Functional policies
Horizontal support programmes
Vertical support programmes (of nuclei)
Design of new institutions
3.2 Coordination and coherence of policies & programmes
Design of new programmes/modification of existing programmes (restructuring/improvement, termination and follow-up)
Programme implementation, together with policy experimentation, learning and government capability development

Source: Adapted from Lall and Teubal (1998).

The national vision and strategies of Japan and the East Asian NIEs were somewhat different. For example, Korea relied less on foreign direct investment (FDI) but it pursued a sustained drive to create giant private conglomerates (*chaebols*) to internalize markets, lead heavy industry and create export brands. Taiwan also depended less on FDI. Instead, it heavily supported the creation of indigenous capability and upgrading of SMEs. The Taiwanese government also pushed local technology diffusion and targeted and orchestrated high-tech development. Singapore, on the other hand, relied heavily on FDI, but it aggressively targeted and screened transnational corporations (TNCs) and directed them into high value-added activities. Nonetheless, Lall and Teubal argue that these countries managed to not only formulate a national vision and set horizontal and vertical priorities, but also systematically formulate, coordinate and execute policies and supporting programmes to achieve their vision and priorities. Table 2 summarizes some successful policies used by Japan and the East Asian NIEs during their

Table 2: Examples of Horizontal and Vertical Technology Policies in Japan and the NIEs during Their Catching-up Period

Horizontal Policies	Examples
Grants to support R&D in business enterprises	Singapore & Korea
Support for cooperative pre-competitive consortia	Japan & Taiwan
Promotion of technology transfer	Japan & Korea
Broad technology support for SMEs	Japan & NIEs
Vertical Policies	**Examples**
Subsidization and credit allocation for capital-intensive investment	Japan, Korea & Taiwan
Restriction of FDI to build local capabilities	Japan & Korea
Targeting strategic technologies for promotion in national laboratories	Japan & NIEs
Targeting enterprises for R&D support in particular technologies	Japan & Korea
Intervening in technology transfer processes to build specific capabilities	Japan & Korea
Guiding or subsidizing TNCs to enter targeted activities or to conduct R&D	Singapore
Providing subsidized credit for upgrading selected activities	Korea & Taiwan
Subsidizing joint R&D by enterprises and institutes in specific areas	Korea & Taiwan

Source: Summarized from Lall and Teubal (1998).

catching-up phase. A more detailed discussion on these measures will be carried out in Sections 3 and 4 where we will compare these measures with those adopted by Thailand.

3. National Innovation System and Policies Concerning Industrial and Technological Upgrading before Thaksinomics

This section will analyze Thailand's policies for industrial and technology upgrading before Thaksin came to power. It will shed light on the state of the country's national innovation system by examining roles and linkages of important actors: government, firms, university and research and technology organizations, private bridging organizations, and financial intermediaries and markets.

3.1 Government: Technology and Innovation Policies before the Thaksin Government

Before the government of Prime Minister Thaksin Shinawatra (January 2001-September 2006) took office, the scope of S&T policy in Thailand was rather narrow. It covered only four conventional functions, namely, research and development, human resource development, technology transfer, and S&T infrastructure development. This was because S&T policy formulation processes were captured by scientists who subscribed to the so-called linear model of innovation. According to this model, private firms are "users" of S&T knowledge mainly produced by government agencies and universities (see Arnold *et al*., 2000). There was no articulate national innovation policy. Though the word "innovation" was mentioned in several national plans, it was not whole-heartedly incorporated into the scope of S&T policies (see Lauridsen, 2002). As such, the dominant orientation of policy and resource allocation for building industrial technology development capabilities since the 1960s has been on the capabilities and resources of scientific, technological and training institutions such as government agencies, universities and public laboratories (accounting for more than 90% of the government's R&D budget) that were supposed to undertake technological activities on behalf of firms. Conversely, policy measures and resource allocations designed to strengthen the technological learning, technological capabilities and innovative activities of firms themselves were rather minimal and ineffective (Arnold *et al*., 2000: ix).

In addition, unlike Japan, Korea, and Taiwan, S&T elements were not part of broader economic policies namely, industrial policy, investment policy and trade policy and, to a lesser extent, education policies (see Intarakumnerd *et al*., 2002). Industrial policy in Thailand was for decades heavily influenced by

the World Bank's "market-friendly" approach to industrialization. Given the inclination of many leading Thai technocrats – who controlled key economic ministries especially the powerful Ministry of Finance – towards neoclassical economics, policy was limited to the so-called functional or horizontal interventions such as promoting infrastructure, supporting general education, and general export promotion (World Bank, 1993). Past policies did not pay enough attention to the development of indigenous technological capability as an integral factor in the process of industrialization (Sripaipan *et al*., 1999: 37). The promotion of foreign direct investment (FDI) was aimed primarily at generating inward capital flow and employment. Unlike Singapore where FDI was specifically used to upgrade local technological capability (see Wong, 1999), there was no explicit and proactive link between promoting FDI and upgrading local technological capability in Thailand. Trade policy, the most important instrument in Thailand being tariffs, was not used strategically to promote technological learning such as in the NIEs (see Amsden, 1989; Chang, 1994; Lall, 1996). Instead, trade policy was very much influenced by macroeconomic policy, for instance, to reduce domestic demand for imports at the time of balance of payment deficit. The Ministry of Finance, the dominant agency which controlled policy, had little knowledge or experience with industry and industrial restructuring (Lauridsen, 2000: 16-20).

Moreover, industrial policy in Thailand was limited to so-called functional intervention such as promoting infrastructure building, general education, and export push in general. There were virtually no selective policy measures, such as special credit allocation and special tariff protection, targeting particular industries or clusters. The exception was the local content require-ment in the automobile industry, which was rather successful in raising the local content of passenger vehicles to 54% in 1986 (see Doner, 1992). Interestingly, with the exception of the automotive industry, there was no reciprocal performance-based criteria (such as export and local value added and technological upgrading targets) set for providing state incentives such as in Korea or Japan (see Johnson, 1982; Amsden, 1989; Evans, 1989, 1998; Chang, 1994; Lall, 1996). Investment promotion privileges, for example, were given without setting performance conditions. The intention to attract foreign direct investment and promote export overshadowed the need to develop local initiatives and indigenous technological capabilities. As a result, linkages between transnational corporations and local firms were also weak. Unlike Taiwan, governmental protection and promotion, without strengthening the absorptive capabilities of Thai suppliers, also left a profound impact on the weak technology and suppliers' network of industries (Vongpivat, 2003).

In addition, many government policies and initiatives failed to be implemented because of the absence of well-defined functional diversity

and specialization among government agencies; the generally ineffective involvement of private sector industrial stakeholders; the weak or non-existent capacities in the key ministerial agencies to formulate and implement and monitor and evaluate science, technology, and innovation policies; and the absence of a suitable supra-ministerial body to guide, facilitate and coordinate the development of the science, technology and innovation environment in Thailand (Arnold *et al*., 2000).

3.2 Private Firms

Several studies of Thai firms conducted since the 1980s state that most firms have grown without deepening their technological capabilities in the long run and that their technological learning has been very slow and passive (see Bell and Scott-Kemmis, 1985; Chantramonklasri, 1985; Thailand Development Research Institute, 1989; Dahlman and Brimble, 1990; Tiralap, 1990; Mukdapitak, 1994; Lall, 1998). The World Bank's study (see Arnold *et al*., 2000) confirms this long-standing feature of Thai firms. Only a small minority of large subsidiaries of transnational corporations (TNCs), large domestic firms and SMEs had R&D capability, while the majority struggled with deficient design and engineering capability. For a very large number of SMEs, the key concern was about building up more basic operational capabilities, together with craft and technician capabilities for efficient acquisition, assimilation and incremental upgrading of fairly standard technology. The slow technological capability development of Thai firms stands in contrast to Japanese, Korean and Taiwanese firms. Firms in these countries moved rather rapidly from being mere imitators to innovators. As early as the 1960s, Japanese firms became more innovative, invested heavily in R&D and relied less on the importation of foreign technologies (Odagiri and Goto, 1993). In general, firms in Korea and Taiwan, where industrialization (beginning with import substitution) started more or less in the same period as in Thailand, were more successful in increasing absorptive capacity (of foreign technology) and deepening indigenous technological capabilities in several industries (see for example, Amsden, 1989; Kim, 1993, 1997; Lall, 1996; Hobday, 1995). In the electronics industry, for instance, Korean and Taiwanese latecomer firms were able to climb the technological ladder (from simple assembly to own design and R&D) by exploiting institutional mechanisms and acting as manufacturing and designing subcontractors of TNCs in the West which helped them acquire advanced technology and access demanding foreign markets (see Hobday, 1995).

Thailand and Korea Innovation Surveys both conducted in 2002 (Brooker Group, 2003 and STEPI, 2002) illustrate the differences in terms of innovative capabilities of these two countries. Companies in Thailand lag

far behind companies in Korea with respect to innovation. More than 40% of Korean firms carried out innovations against just above 10% in Thailand. It is striking that a much higher share of companies in Korea carried out product innovations. This could be an indication that Thai companies were at the stage where they preferred to use their resources to improve the production process rather than the product itself, which in turn could hint at a subcontracting-based economy. At the same time very few companies in Thailand were engaged in both product and process innovation, which was very common in Korea. This reflects the more advanced innovative behaviour of Korean companies.

Moreover, the horizontal relationship between firms in the same or related industries is viewed as rather unimportant by the surveyed firms. Co-operative consortiums among firms, such as those found in Japan or Taiwan, to research particular technology or products are very rare in Thailand. Moreover, as the intra-firm technological capabilities themselves are weak, the innovation-centre interaction generated from such links is, therefore, limited.

3.3 Universities and Government Research Technology Organizations

In terms of R&D, the contribution of universities to gross expenditure on R&D (GERD) is around 31% against 44% from the private sector, 22% from government, and 3% from non-profit organizations in 2003. A survey of R&D outputs of specialized R&D units in universities and public research institutes between 2002 and 2004 was conducted by the National Science and Technology Development Agency. It shows that R&D outputs have been increasing year by year. Nonetheless, in terms of contribution to technological progress of firms, the role of universities in Thailand was quite limited. From the Thailand R&D/Innovation Survey 2002 and Korean Innovation Survey 2002 (Brooker Group, 2003 and STEPI, 2002), it can be seen that universities and research institutes were regarded as considerably more important sources of information by Korean firms than by Thai firms. In general university-industry linkages in Thailand were weak. Thai firms did not regard university and public research institutes as important sources of information and knowledge. They did not collaborate closely with local universities and public research institutes. They also regarded technical support from local universities and public research institutes as being relatively weak. Thus, most university-industry collaborative projects were limited to consulting and technical services. More advanced projects were far from plentiful. Inter-firm relationships with customers, suppliers and parents/associated companies were much more important both in terms of sources of knowledge and actual collaboration in innovation projects (Schiller, 2006). The irrelevancy of Thai

universities to industry is quite different from the Japanese case, for example. In the early period after WWII, Japanese universities acted as gatekeepers introducing, assimilating and implementing advanced imported technologies (Goto, 2000: 107).

Similarly, technological activities of public research technology organizations (RTOs) mainly focused on R&D and providing technical services such as testing and calibrating, not particularly on assisting firms to build up their internal technological capabilities especially non-R&D capability such as technology assimilation, adaptation, designing and engineering, which were the technological thresholds typically faced by most Thai firms. In this aspect, Thai RTOs behaved differently from their Korean and Taiwanese counterparts in the 1970s and 1980s, a period during which the three countries were more or less at the same level of development. The Korean Institute of Science and Technology (KIST) and Taiwan's Industrial Technology Research Institute (ITRI), for example, emphasized institutional and technical support for industrial technological capability development within firms, such as helping them to solve their operational problems (see Hobday, 1995). Taiwan was very successful in using RTOs to facilitate technology diffusion to support indigenous firms, mostly small and medium enterprises (SMEs). ITRI, in particular, has been widely credited with helping to create and advance the semiconductor industry in Taiwan through a well-planned strategy of assimilating foreign technology and transferring them to local enterprises through spin-offs. The success of this strategy depended on careful long-term planning, vision at the top, and existence of abundant high-quality engineers (Wong, 1999).

3.4 Private Bridging Organizations

This section analyzes the roles and capabilities of non-profit organizations such as trade and industrial associations in supporting technological capability development and innovation activities of firms. Where innovation support was concerned, there were only a small number of these organizations disseminating knowledge and promoting the innovation capability of firms.

In Thailand, the Federation of Thai Industry (FTI) and Thai Chamber of Commerce (TCC) have been the most powerful private-sector organizations. They exert a strong influence on the government's economic policies. They can pressure government to induce policy changes. Most of their activities, however, aim at the protection of their short-term interests and gaining leverage in negotiations with government (Laothamatas, 1992; Phongpaichit and Baker, 1997a: 150), such as export quotas, import levies, and tax regime. Before the Thaksin government, FTI and TCC were not very active in promoting the innovation capability of Thai firms. History does matter as well.

Their members came from commercial capital rather than industrial capital (Samudavanija, 1990: 275). Therefore, they paid more attention to short-term commercial gains rather than long-term capability development.

FTI and TCC voiced their needs and concerns in the Joint Public-Private Consultative Committee (JPPCC), in an attempt to avail themselves of investment privileges and commercial advantages (Phongpaichit and Baker, 1997b). The roles of this committee were very prominent in the mid-1980s when the idea of "Thailand Inc.", aspired by the government during that period, was popular. Since then, both FTI and TCC have represented the interests of the private sector in several national-level committees. The importance of the JPPCC, nonetheless, has substantially declined.

With regard to trust building among members, which is a kind of social infrastructure from which knowledge diffusion and innovation emanate, FTI and TCC have not played a significant role. They could create a certain level of trust among members by congregation, exchanges of ideas and opinions and sharing information among members. In general, trust gradually emerged from joint activities such as marketing campaigns and trade fairs. However, the internal organizations of FTI and TCC were politically divided. For example, since TCC proliferated with a growing number of provincial members, the organization has been more divided and fragmented because of regional power politics (Phuchatkan, 1992). The provincial chambers alleged that Bangkok-based business groups manipulated TCC (Chotiya, 1997: 258-259).

3.5 Financial Intermediaries

Several industrial development banks were set up to provide long- and medium-term finance. The four most important ones were the Industrial Finance Corporation of Thailand (IFCT), SME Bank, Small Industry Credit Guarantee Corporation (SICGC), and Innovation Development Fund (IDF). Some of these financial institutions were not well known to private firms and they did not operate efficiently because of chronic bureaucratic red tape. While the maximum loan limit under the programmes was rather low, the interest rates imposed were not so different from those charged by commercial banks. The application procedures were complicated and time-consuming. This discouraged firms, especially SMEs, from seeking institutional loans and forced them to take loans from informal sources where they could obtain credits more quickly.

Regarding the capital market, there was no stock market especially established to promote such high-tech start-ups like those in Japan (JASDAG, NASDAQ-Japan, and MOTHERS), Korea (KOSDAQ), and Taiwan (TAIDAQ and TIGER). The Market for Alternative Investment (MAI) was a business unit of the main market, the Stock Exchange of Thailand (SET). It was

set up in 1999 as a new secondary market for trading SME shares. MAI's requirements for initial public offering have been adjusted to allow SMEs flexibility in entering the capital markets. However, this market was not specifically aimed at promoting knowledge-intensive start-ups. Moreover, in the opinion of many SMEs, the MAI requirements tend to disqualify most small and medium-sized enterprises because they fall below the minimum capitalization level. As a result, there are too few outstanding shares to trade adequately on the market (Freeman, 2000).

In 1994, the Thai Venture Capital Association (TVCA) was set up in view of the importance of macroeconomic fundamentals to provide firms access to finance. Compared with Taiwan, Thailand's venture capital was lagging both in terms of growth of the venture capital industry itself and the impacts on financing innovation and emergence of knowledge-intensive start-ups. Venture capital investment in Thailand tended to finance firms at an expansion or mezzanine stage, not in the early start-up phase like in Taiwan (see Taiwan Venture Capital Association, 2003).

To summarize, Thailand's national innovation system before the Thaksin era was weak and fragmented. Private firms were passive and slow in technological learning. Government policies were limited to market-friendly intervention, and their implementation was ineffective and incoherent. Education institutes were fairly isolated from industry. Financing mechanisms for innovation were inadequate. Trade/industry associations were incompetent and politicized. The institutional context was unsupportive in stimulating innovation. The situation had been perpetuated for the past 50 years after Thailand seriously embarked on industrialization.

4. Ideas behind and Main Thrusts of Thaksinomics

The media and academics in Thailand and Southeast Asia labelled Thaksin Shinawatra's distinctive economic policy as Thaksinomics, which literally means the economics of Thaksin. Thaksin himself gave the credit to President Arroyo of the Philippines, who possesses a doctorate degree in economics, as the first person to coin the term Thaksinomics (Phongpaichit and Baker, 2004). Using different perspectives, several academics have attempted to analyze the essence and ideas behind Thaksinomics. Academics such as McCargo and Pathmanand (2005) have reviewed Thaksin's speeches and found that his ideas seem to constitute a series of bullet points held together by a certain thematic thread, but which are essentially incoherent. There are clear influences of management textbooks including a range of buzz phrases. Likewise, Rangsan Thanapornpun (2004), a leading Thai economist, argues that Thaksinomics cannot be considered a new school of thought in economics, since it does not offer any theory or philosophy in explaining

economic behaviours, phenomena or theoretical problems. Nonetheless, it offers a set of policies. Dual-track policy is the main thrust of this new policy menu. The Thai government tried to enhance international competitiveness of the nation by strengthening the "external" side of the Thai economy, namely, export, foreign direct investment and tourism. At the same time, it attempted to increase the capabilities of domestic and grass-root economies by implementing projects such as the Village Fund (1 million baht to increase local capabilities of each village), a three-year debt moratorium on farmers' debts, One-Village-One-Product Project (supporting each village's champion product), and the People's Bank (giving loans to underprivileged people with no requirement of collateral). Thanapornpun also considers Thaksinomics as a "political brand name" invented by Thaksin's supporters to help him gain popularity and become a charismatic leader of Southeast Asia. The aforementioned new grass-roots-supporting policies, in particular, are populist policies aiming at winning votes from the rural poor. This belief was shared by several academics and politicians from opposition parties.

Albeit inconsistent and evolving, Thaksinomics represents a sharp shift away from the neoliberal model towards the developmentalist view that government should play a more active role to protect and promote firms and sectors in its catching-up efforts to overcome the disadvantages of competing against more advanced economies (Phongpaichit and Baker, 2004). It is in line with the notion on the roles of government in a latecomer context stressed by Gerschenkron and practised by Japan and NIEs as already described in Section 2.

The Thaksin government publicly announced the national goal of eradicating poverty within eight years or two terms in the office and taking Thailand to a developed country status. Unlike its predecessors that paid most attention to macroeconomic stability, the government focused more on enhancing meso- and micro-level foundations for international competitiveness. The high priority of the competitiveness issue on the government's agenda was illustrated by the establishment of the National Competitiveness Committee chaired by the prime minister. Importantly, it was the first time that the Thai government had formulated serious selective policies addressing specific sectors and clusters. The government identified five strategic sectors on which Thailand should concentrate its efforts: automotive, food, tourism, fashion, and software. Clear goals were assigned to these five clusters: Kitchen of the World (food), Detroit of Asia (automotive), Tropical Fashion of Asia, World Graphic Design and Animation Centre (software), and Tourism Capital of Asia. Building innovative capabilities of the Thai nation was highly regarded as a very important factor in increasing and sustaining its international competitiveness. "Innovative nation with wisdom and learning base" was one of seven of Thailand's Dreams articulated

by the government. To make this dream come true, several strategies were devised. These included continuous investment in R&D and technology, conducive environment for attracting and stimulating innovation, high accessibility to knowledge and information across the nation, fluent English as a second language, cultivating a strong learning basis such as passion for reading and better accessibility to cheap but good books (see Phasukavanich, 2003). Equally important, the Ten-Year Science and Technology Action Plan (2004-2013), approved by the Thaksin Cabinet, projects an ambitious vision that the Thai knowledge-based society will be able to compete internationally. It particularly placed the concept of a national innovation system and industrial clusters at the core. The scope of the plan was much broader than the aforementioned four functional areas of S&T policy (research and development, human resource development, technology transfer, and S&T infrastructure development). Measures to stimulate innovations and to strengthen the national innovation system and industrial clusters are explicitly highlighted.

The stark difference between the Thaksin government and its predecessors is that Thaksin himself and key persons around him responsible for economic development were not conventional economists. They subscribed to the tenets of management science, especially that of the American business school. For instance, they view a country like a company where the prime minister is its Chief Executive Officer (CEO). To work more effectively like a company, reform of the government bureaucracy was carried out. The introduction of the CEO management style aimed to integrate related government policies under clear leadership at the levels of department, ministry, and cabinet. Also, a performance-based management (PBM) system which clearly delineates contractual relationships and delegation of authority in the bureaucratic lines of governance was put in place.

Another famous management concept vigorously promoted by the Thaksin government was the cluster concept. Studies of clusters have a long history. Alfred Marshall's contribution in 1890 in his famous "Principles of Economics" was a starting point – although he used the term "industrial districts". Marshall theorized and emphasized the dynamics of external economies associated with learning, innovation and increased specialization. Nonetheless, it was the management guru Michael Porter who popularized the concept of clusters. According to Porter (1998), industrial clusters are geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standard-setting agencies, and trade associations) that combine to create new products and/or services in specific lines of business. Clusters emerge and develop because geographical proximity among firms promotes interactive and collective learning and

generates positive externalities for participating actors. These benefits attract similar and related firms and other actors because they also want to take part in the interactive learning that takes place.

During the rule of the Thaksin government, Porter and his team were commissioned to study two clusters as examples for development of the concept: one involved shrimps while the other concerned tourism on Phuket Island. The National Economic and Social Development Board (NESDB) were subsequently, responsible for the overall cluster policy of the country. It made significant attempts to diffuse the concept to various government and private-sector agencies by organizing seminars and workshops in the main regions of Thailand. It commissioned another study to undertake a cluster mapping of Thailand, namely, identifying significant agglomerations of firms that function or have the potential to function as clusters in various geographical locations throughout the country. As a result, several implementing government agencies such as the Department of Industrial Promotion and sectoral-specific institutes under the Ministry of Industry (Thai Automotive Institute, Thailand Textile Institute, National Food Institute, Electrical and Electronics Institute and so forth), National Science and Technology Development Agency under the Ministry of Science and Technology, Office of SMEs Promotion and others tried to develop their own cluster projects in their responsible areas (Intellectual Property Institute, 2003).

The Board of Investment (BOI) under the chairmanship of Dr. Somkid Jatusripitak, Deputy Prime Minister and Thaksin's economic tsar, substantially changed its policy by paying more attention to issues underlying long-term competitiveness of the country, namely, development of indigenous technological capability and human resources. A special investment package promoting skills, technology and innovation (STI) was initiated. Firms are eligible for one or two years of extra tax incentives if they undertake the following activities in the first three years: spending at least 1%-2% of their sales on R&D or design; ensuring that at least 5% of their workforce comprise scientists or engineers with at least a Bachelor's degree; spending at least 1% of their total payroll on employee training; and spending at least 1% of total payroll on training the personnel of their local suppliers. The flourishing of cluster concept also affected investment policy. In 2004, BOI initiated another set of investment packages for specific strategic clusters such as hard disk drives and semiconductors. Eligible firms in these sectors were not only final product makers but also suppliers in the value chain. This indicates a major shift in the focus of investment policy measures from giving incentives for individual projects, which might not be related to each other, to using incentives to strengthen clusters as a whole.

The cluster concept was used as the main industrial policy of the Thaksin government at national, regional and local levels. At the national level, it was

used to strengthen advanced industries both in services and manufacturing such as the automotive, textile and garment, software and tourism industries in order to create coherent and innovative industrial clusters. At the regional level, Thailand was divided into 19 geographical areas. Each area had to plan and implement its own cluster strategy focusing on a few strategic products or services. It was supervised by the so-called "CEO Governors" who were authorized by the central government to act like provincial Chief Executive Officers (CEOs). At the local level, the cluster concept was applied to increase the capacity of the grass-roots economy in the name of "community-based clusters", especially to help the One-Village-One-Product Project succeed.

In a nutshell, the cluster concept was introduced to address coordination failures and to stimulate knowledge flow and linkages among actors in the innovation system, which were the major problems before the Thaksin government came to power as illustrated in Section 3. It aimed to strengthen inter-firm collaboration (between producers, customers and suppliers) and the relationships between firms and universities/public research institutes at sectoral, regional and local levels.

Together with these cluster initiatives, the Thaksin government tried to build S&T infrastructure in provinces outside Bangkok by initiating a plan to set up regional science parks and incubators in the north, northeast, east and south. These regional science parks and incubators were established on university campuses to act as intermediaries between local universities and local entrepreneurs and promoters of new knowledge-intensive companies.

Furthermore, at the level of individuals and firms, the Thaksin government attempted to make Thais more entrepreneurial. It encouraged them to change their attitude from being employees of government or big corporations to self-made entrepreneurs. The Ministry of Industry resolved to produce 5,000 new entrepreneurs per year. As a result, financial incentives, technical support and training courses were provided by government agencies and education institutes to individuals who wanted to be entrepreneurs and to start new businesses. Table 3 summarizes the main thrusts of the Thaksin government's policy based on Lall and Teubal's (1998) framework for analysis.

5. Impacts of Thaksinomics on Thailand's Long-term Industrial Upgrading and National Innovation System

As mentioned earlier, the Thaksin government has made significant changes in policy paradigms in the government sector. For the first time, Thailand had targeted goals and policies for specific sectors and clusters. Government policy measures became more sector- and/or cluster-specific. For instance, industrial consultancy services operated by NSTDA under the Industrial Technology Assistance Programme (ITAP) only targets skill-intensive and

Table 3: The Thaksin Government's Policy Framework

Level	Aspects	Main Thrusts of Government Policies
1: National objectives	Setting National objectives	• No poverty within 8 years (2 terms) • A First-World country in less than 20 years • Innovative nation with wisdom and learning base
2: Strategic priority setting	Defining vision for national S&T policy	• Thai knowledge-based society able to compete internationally
	Horizontal priorities	• Promotion of creative entrepreneurs, innovative firms and start-ups • Development of technology infrastructure for industrial support • Increase number of researchers, scientists and technologists per capita
	Vertical priorities	• Kitchen of the World • Detroit of Asia • Tropical Fashion of Asia • World Graphic Design & Animation Centre • Tourism Capital of Asia • 19 geographical clusters • One-Village-One-Product Project
3: Specific policy programmes	Functional policies	• BOI incentives for development of skills, technology and innovation • New entrepreneurship-supporting schemes
	Vertical policies	• BOI cluster incentives • Regional science parks and incubators
	Coordination and coherence of policy programmes	• Weakly enforced and inconsistent in general • CEO Prime Minister/CEO Governors
	Implementation, policy learning and government capability development	• Limited monitoring, evaluation and learning • Performance-based budgeting and contractual-based relationship in and between government agencies

Source: Author.

Table 4: Main Differences in Science, Technology and Innovation Policies before and during the Thaksin Era

Policy Paradigm/Instruments	Before Thaksin Era	During Thaksin Era
Type of intervention	Market friendly/ horizontal	Vertical (sector and cluster specific)
Level of intervention	Mainly macro	Macro/meso/micro
Alignment of economic and STI policies	Fairly separated	Better alignment
Mental model of STI policies	Linear model of innovation	More systemic approach
Key STI policy instruments	• R&D budget for university/research institutes • R&D tax incentives • Building up S&T manpower • S&T infrastructure • Linear technology transfer mechanism	• Geographical cluster initiative • Sectoral-specific government supports • Government-owned venture capital • New entrepreneurship development programme • Regional incubators/ science parks

Source: Author.

technology-intensive firms, not labour-intensive ones. During the rule of the Thaksin government, the programme was restructured and strengthened to be more sector-specific, along the lines of the government's sectoral initiatives. The main differences in science, technology and innovation before and during the Thaksin era are summarized in Table 4.

Moreover Thaksinomics impacted on other actors interacting with the government. The roles of the business associations, for example, were affected. The Thaksin government thought that Joint Public-Private Consultative Committee (JPPCC) was rather passive and, finally, changed the style of its operation from large assemblies that took place sporadically to less formal meetings every Friday. This new form of informal meetings between the Prime Minister and the private sector led to clearer national strategic goals guided by more up-to-date concepts such as supply chain management and industrial clustering. The private-sector organizations began to acknowledge the importance of clusters and tried to use the cluster concept to formulate and implement their strategies. The Thai Chamber of Commerce and Federation of

Thai Industries started to carry out their activities cluster-wise and reorganize their internal organizations according to clusters (Intellectual Property Institute, 2003).

Similarly, public RTOs and universities were also under pressure from the Thaksin government and the Budget Bureau to increase their revenue, hence reducing their reliance on the national budget. They were forced to become more relevant to industrial needs in order to earn extra income. In the past few years, some Thai public universities attained autonomous status. The idea was to take them out of the bureaucratic system and allow them more financial freedom. Most of their budget is still subsidized by the government but they are expected to generate relatively more income from other sources, especially from the private sector. Therefore, they have to conduct research and other activities, which are more relevant to industry. Recently, universities have made inroads into obtaining more industry sponsorships and to forge links with industry through establishing collaborative R&D, training activities, and linkage mechanisms, namely, technology and business incubators, technology transfer departments, technology licensing offices (to license out intellectual property acquired as a result of their research) and science parks (see College of Management, 2003; Schiller, 2006).

The advent of the Thaksin government and its interaction with other actors of the NIS had, to a certain extent, inspired systemic learning, that is, changes in behaviours of those actors. It also set up well-defined national goals, articulated clear visions and formulated horizontal (activities) and vertical (sectors and clusters) priorities, namely, Levels 1 and 2 of Lall and Teubal's policy framework. Some policies responding to such priorities were initiated, as mentioned earlier. Nonetheless, the implementation and coordination of such policies (Level 3 of the framework) were far from successful for the country's long-run industrial upgrading. The Thaksin government largely failed to ensure consistency and continuity of those policies and to set up mechanisms to enforce, monitor and evaluate the outcomes of those policies (see Table 3). On the one hand, the strong centralization of power and the CEO style of management gave Thaksin's government the opportunity to push harder for the implementation of policies for industrial upgrading. On the other hand, the discretionary power of the government and, especially Thaksin himself, led to policies being captured by particularistic interests, policy unpredictability, ad-hoc decision making in favouring politicians' pet projects, and policy rhetoric rather than concrete results (Lauridsen, 2008).

The failure of the Thaksin government is also partly attributed to the fact that in spite of the introduction of a new paradigm in favour of a system of innovation at the top level of the policymaking process (i.e. Thaksin, key economic ministers, and senior advisors), the middle and bottom levels were,

to a large extent, locked in the old paradigm. Many senior policymakers in STI policies, for instance, were still the same old group of scientists or their successors who strongly believed in the linear model of innovation. They might have familiarized themselves with the new concept and started to use new terms such as innovation systems, clusters, innovation networks, linkages and so forth. Nonetheless, during STI policymaking, they still put emphasis on research and development within public research institutes and universities and exploited existing research capabilities and outputs to solve the problems of private firms, which were still mainly regarded as "users" of knowledge and technologies (Intarakumnerd, 2006a).

In practice, policy measures to enhance technological and innovative capabilities of firms and to solve systemic failures such as creating intermediaries, linkages, and institutional context (for instance, conducive intellectual property regime, trust, entrepreneurship) were given much less priority and fewer resources. For example, the total R&D expenditure by the public sector (including government agencies, public research institutes and universities) was around US$262 million in 2005 (NSTDA, 2006). On one project, approximately US$22 million per year was spent to build seven centres of excellence mostly for providing S&T manpower at the postgraduate level (Office of Higher Education Commission, 2006). By contrast, public subsidy for the payment of private firms' consultancy fees in the ITAP programme – one of the most outstanding programmes to enhance technological capabilities of private firms and to mitigate systemic failures – was less than US$1 million per year (Suprattaraprateep, 2007). At the same time, for many government officials in economic ministries, the neoclassical economic paradigm primarily continues to direct the rationale for government intervention. Initiatives to solve systemic failures, such as providing needed grants or direct subsidies as extended in the East Asian NIEs to help private firms increase their technological capabilities, were opposed on the grounds of market distortion (and inducing corruption).

Cluster policy, one of the spectacular key policies initiated during the Thaksin era, is a good example. In reality, there were several shortcomings in its implementation:

- Confusion of the cluster concept itself. Different government and private-sector agencies had different understandings of the cluster concept. Some considered a cluster as an industrial sector with no specific geographical concentration in mind. For them, a sector covering the whole country was a cluster. As a result, each agency implemented a cluster strategy according to its understanding.
- Fragmented implementation. Cross-ministerial policy coordination has been a major problem in Thailand. Although the cluster policy was assigned as a strategic government policy and the National Economic and

Social Development Board oversaw the supposedly integrated national cluster strategy, the implementation was still incoherent.

- Lack of champions and trust in the private sector. Firms in the same cluster usually see others as competitors; it is quite difficult for them to collaborate. The overseas-Chinese Thais, the dominant group of entrepreneurs in the country, collaborate more with firms in the same family clans than with outsiders (see Intarakumnerd, 2006b).
- Limited support from the local governments. Unlike other countries, local governments in Thailand have a short development history. Until recently, the local government had very limited roles and budget. In the course of time, even though their roles and budgetary authority expanded, local government administrators neither have an understanding of nor do they pay attention to the cluster concept.
- Limited linkages between private firms and university and public research institutes as knowledge providers. The relationship between firms and university and public research institutes in Thailand is relatively weak. It is based on private relationships rather than organizational ones. Most of them were ad hoc and concentrated on training and consultancy rather than long-term collaborative R&D. Therefore, universities and government research organizations are not usually agents in clusters. The knowledge flows from them which could help to revitalize firms in clusters are quite limited.

The policies of the Thaksin regime also had negative impacts on the innovation system. The major impact is pervasive corruption. It not only increased the scale of old types of corruption like bribery, but also induced new ones such as "policy corruption" (implementing government policies that are beneficial to the ruling party's financiers), corruption involving conflicts of interest (such as concluding trade agreements that benefit businesses owned by core party leaders or their relatives), "access corruption" (unequal access to government data and state mechanisms which are used to benefit politicians' cronies), and so forth (Boonmi, 2006). Many people, especially the middle class, not only believed in the allegations of corruption but they were also appalled by the allegations. This adversely affected trust among actors in the NIS, as they doubted the real intention of Thaksin's policies and were less willing to collaborate. This is one factor responsible for the failures that arose after the implementation of well-intentioned policies. For example, the 1.8-billion-bhat Bangkok Fashion City project, a huge project under the targeted fashion sector, aimed at transforming Bangkok into a regional fashion hub at a par with Paris and Milan by focusing on raising international awareness of Thai design and skills. Although a few local manufacturers were able to gain international recognition of their brands, the project was

criticized for lacking transparency, for benefiting a few entrepreneurs and for wasting too much money on luxurious trips and exhibitions. Many manufacturers were either reluctant to join or were cut off from the project. By mid-2005, only seven out of eleven projects under the campaign had started (Lauridsen, 2008). At the end, the military and other establishment forces whose economic and political interests had been hurt by the Thaksin administration's policies used corruption charges and other alleged acts of mismanagement and abuse as a pretext to oust the Thaksin government by staging a coup in September 2006.

6. Conclusion

Thaksin Shinawatra was one of the most powerful prime ministers of Thailand. Unprecedentedly, he completed a full term and, subsequently, in the second election, was voted back to the office to head a single-party government. Altogether he was prime minister for almost six years. With such great political power, his CEO style of management, and his intention to make Thailand a developed country, his administration could have been a formidable force in transforming Thailand's weak and fragmented innovation system into a stronger and more coherent one, and it could have laid a long-lasting foundation for the country's technological and industrial upgrading, as experienced in Japan and the East Asian NIEs.

Passive and slow technological learning of firms, ineffective and incoherent government policies, isolated education and training institutes, technologically unsupportive and risk-averse financial institutions, incompetent and politicized trade/industry associations and an unfavourable institutional context had been perpetuating circumstances for the past 50 years of Thailand's industrialization before Thaksin came to power. Unlike previous governments, his administration paid considerably more attention to the meso and micro foundations of the country's competiveness. For the first time, Thailand had explicit vertical industrial policies that were tailored to specific sectors and geographical clusters. These policies pushed existing central and regional government agencies to adjust themselves accordingly. Some policy measures which were especially important for industrial upgrading at the firm level, for example, the Industrial Technology Assistance Programme (ITAP), have been restructured to be more specific in serving government targeted sectors. The Thaksin government also induced changes in the roles and behaviours of other actors in the Thai NIS. It pressured universities to conduct more research and become more relevant to industry. It initiated policies that encouraged Thai firms to move faster in developing their own technological and innovative capabilities. It worked closer with private-sector linkage organizations. It tried to stimulate entrepreneurship in the Thai society.

Nonetheless, unlike Japan and the East Asian NIEs, the Thaksin government, to a large extent, failed to set in motion an effective and long-lasting learning process in the country's national innovation system and its pursuit of successful industrial and technological catching up. There are two key factors underlying this failure: (a) the deficiencies of Thaksin's policies and implementation of those policies themselves and (b) the resistance to changes by other actors in the national innovation system. The Thaksin government largely failed to ensure consistency and continuity of those policies and to set up mechanisms and institutions to enforce, coordinate, monitor and evaluate the outcomes of those policies. Thaksin and his key ministers and close aides were preoccupied with grand visions and the big picture and neglected to pay sufficient attention to issues engendered in institutionalization and sustainability of those policies. As a result, several policies were short-lived and only served rhetorical purposes. In addition, the long-term industrial upgrading policies were largely compromised by the idiosyncratic nature of the policymaking process during the Thaksin era which was largely based on the discretionary power of the government and, especially Thaksin himself. This led to policies being captured by particularistic interests, policy unpredictability, and ad-hoc decision making in favouring unsound pet projects. One key lesson learnt from the Thaksin era is that, despite sound policies, the importance of stakeholder engagement and support in policy and programme formulation to ensure subsequent smooth implementation cannot be under-estimated. The significance of administrative capacity to ensure effective translation of policies and programmes – for example, clear understanding of concepts – cannot be ignored. Good policies need capable administration to implement them. Policy formulation has to go hand in hand with capacity building of implementing administration.

The deficiencies of the Thaksin administration alone cannot explain the inability to formulate and implement sustained industrial and technological upgrading policies. There were at least two groups of people who were so influential in the process of making and implementing policies concerning industrial and technological upgrading long before and even during the Thaksin administration, as explained in Section 3.1: (1) the neoclassical economists-cum-bureaucrats in key economic ministries, who strongly opposed state intervention (especially selective and vertical industrial upgrading policies) and (2) the scientists-cum-policymakers in charge of formulating science and technology policies, most of whom strongly believed in the linear model of innovation and paid a lot of attention to science-push policies which emphasized R&D and S&T human resource development. The opposition posed by these two groups – direct or subtle – led to the failure to transform official policies into practice and perpetuated the old paradigms.

Notes

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