

## THE ROLE OF THE CITY STATE IN DEVELOPING AN ICT INDUSTRY: THE CASE OF DUBAI

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**Abstract:** Many developing countries have put in place strategic plans linked to information and communication technology (ICT) industry development. This paper presents a critique of the plans of the government of Dubai for its ICT industry and discusses some tensions and challenges presented by this transformation process. The analysis of the case is informed by the writings in political economy of Philip Cerny on the nature of the Competition State. Specifically, the extent to which Dubai exhibits the characteristics of a Competition State is evaluated across five key characteristics: the changing form and the function of the state; the nature of the policy agency; internationalisation of the policy agenda; proliferation of policy transfer and decline of social solidarity. Drawing on this theoretical lens and longitudinal qualitative data from multiple stakeholders, the paper critiques the policies and city state involvement in ICT industry development. The paper concludes with some implications for stakeholders in Dubai.

**Keywords:** Dubai, Competition State, ICT industry.

## THE ROLE OF THE CITY STATE IN DEVELOPING AN ICT INDUSTRY: THE CASE OF DUBAI

### 1. INTRODUCTION

Information and communication technology (ICT) industry development is acknowledged as an important engine of economic growth (Carmel 2003, Kambhampati 2002) and stakeholders in many developing countries have become active in setting development goals associated with this sector. Examples amongst others include Iran (Nicholson and Sahay 2003), Costa Rica (Nicholson and Sahay 2008) and Jordan (Al-Jaghoub and Westrup 2003). This paper is concerned with the role of the state in ICT industry development. There are competing views about the role of the state in a globalised world. Some researchers have argued that the state role is seriously curtailed (McKenzie & Lee, 1991; Ohmae, 1995; Reich, 1991); others have asserted that the role of the state is paramount to the success of any development initiative (Hirst & Thompson, 1999). A third school of thought has contended that even though the role of the state is changing and adapting to the forces of globalisation, the state will continue to play a vital role (Cerny, 2000).

Prior research (e.g. Carmel 2003, Heeks and Nicholson 2004; Schware 1992) provides models for ICT industry development that argue strongly for the important role of the state. These authors argue that for ICT industry development to take place, the state must provide an environment that encourages investment as well as the necessary telecommunications and transport infrastructure. The state through advocacy unites the public and private sectors, educates sufficient numbers of qualified graduates, forges appropriate changes to the legal framework and establishes an incentive environment that attracts investment. Prior empirical literature has focussed mainly on the national level of analysis, for example in Jordan (Al-Jaghoub and Westrup 2003), Ireland and India (Kamphampati 2002) but to date limited attention has been focussed on the role of the city state in ICT industry development<sup>1</sup>. The city as a level of analysis is pertinent when examined in relation to literature on the Global City (Sassen 1991) that exist as nodal points in the globalisation “space of flows” (Castells 1989).

This paper aims to improve our understanding of the challenges facing the state role in ICT industry development through a critical analysis of the Dubai case study. Our study is focussed on the following broad research question:

- What is the role of the state in developing an ICT industry in a globalised world?

Drawing on the theoretical work of Cerny (2000) and data from a longitudinal empirical investigation over several years, we contend that Dubai is transforming into a Competition State. Using the theoretical lens of Competition State, we evaluate and

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<sup>1</sup> We are grateful to Chris Westrup for this observation.

critique the plans of the government of Dubai for building its ICT industry and discuss some tensions and challenges presented by this transformation.

This paper is organized as follows: first we present the theoretical framework followed by the methodology. We proceed to the empirical case study data followed by discussion and conclusion.

## 2. THEORETICAL FRAMEWORK

We chose a theoretical framework derived from political economy (Cerny 2000) as an appropriate lens to inform and explain our findings. A precedent in the use of Cerny's writings on the Competition State in the analysis of ICT industry development is presented by Al-Jaghoub and Westrup's (2003) critique of Jordan's REACH initiative.

Cerny (2000) points out that the main challenge now facing governments around the world is their capacity to adapt to the external constraints and opportunities precipitated by processes of globalisation while maintaining a relatively effective domestic policy programme. In analysing these challenges, Cerny identifies three archetype forms of the State: Welfare, Development and Competition, the main features of which are summarised in Table 1. The welfare state's core function lies in its ability to insulate key elements from market forces through state provision. Another archetype form of state is the developmental state which focuses on economic development as its primary policy objective (Johnson, 1982). The development state does not simply regulate markets, but actively initiates and distorts them (Amsden, 1989; Wade, 1990).

| Type of State | Welfare state   | Developmental state  | Competition state   |
|---------------|---|--|---|
| State role    | -insulate key elements from market forces, while promoting other.<br>-champion local and to a varying extent MNCs<br>-extend aid to other countries | -strong control over the public and the private sectors<br>-champion local industry<br>-MNCs are controlled by the state | - Promote activities where the state capacities can be used to achieve competitiveness<br>-promote MNCs<br>-link with external actors such as international organisations, MNCs |

**Table 1. Welfare, developmental and competition states (Cerny 2000)**

The third archetype, the competition state is summarised in the five features given below:

**i. The Changing Form and Function of the State** - The competition state involves a restructuring and qualitative disempowering of the state in the face of globalisation and transnationalisation. The state loses some of its domestic intervention powers and promotes international competitiveness and enterprise.

**ii. The Nature of the Political Agency** - Rather than attempt to insulate the state from key international market pressure, the political actors in competition states embrace openness and marketisation. The state emphasises deregulation, liberalisation and endorses pro-market regulation and intervention. It supports, maintains and promotes trans-national and international governance structures at home and focuses on promoting integration to the global economy and accepting the importance of international competitiveness and customer choice.

**iii The Internationalisation of the Policy Agenda** - The creation of a competition state involves a policy agenda that seeks to provide the conditions that will help the state to adapt state action to cope more effectively with what it perceives as global realities. These policies include an emphasis on inflation and neoliberal monetarism. The economic policy of the competition state includes:

- Emphasis on the control of inflation or non-inflationary growth
- A shift from macroeconomic to microeconomic intervention in the form of deregulation and industrial policy
- The state does not intervene to maintain a range of strategic industries but emphasis is on diversified economy
- The state intervenes to enforce global, market-rational economic behaviour
- New regulatory structures are established, and there is a shift from the general maximisation of welfare within the nation (full employment, redistributive transfer payments, and social service provisions) to the promotion of enterprise, innovation, and profitability in the private and public sectors.

**iv. The Proliferation of Policy Transfer** - Policy transfer has become a key mechanism for delivering the policy agenda of the competition state through the elite structure of governance (new powerful agencies such as the central banks, the World Trade Organisation (WTO), and other authorities that are independent of the nation state have been formed). The state's loss of policy formation to international organisations is spreading globally. A reason for this is globalisation (e.g., through changes in the nature of geopolitics, political integration, the internationalisation of financial markets, and global communications) that has created new opportunities for policy transfer to international organisations. Secondly, the policy transfer is more likely to occur in an era of New Governance (Rhodes, 1996). Thirdly, the shift from traditional government to collaborative governance has increased the range of non- state actors involved in the delivery of public goods. Fourthly, key agents or agencies within the state have become independent such as the central bank that is independent of the state.

**v. The Decline of Social Solidarity** - The capacity of state institutions to embody communal solidarity gave the modern nation-state its legitimacy, institutionalised power, and social cohesiveness. The cumulative effect of these various pressures and processes is manifested in a redefinition of the boundaries of the political. The restructuring of the political arena has forced parties and governments to redefine their conception of the "social" and the "public" away from the traditional confines of the "modern" state. However, the battle for the hearts and minds of the people is a key problem for the

competition state because many of its key reforms rest on changing norms and values, and challenging the dependency culture of the welfare state.

These characteristics of the Competition State will be used to evaluate and analyse the role of the state in the case study of Dubai described in the next section.

### **3. METHOD**

The research method adopted is that of interpretive case study (Walsham 1995) which has involved semi structured interviews with various stakeholders in the Dubai ICT industry milieu. Interviews and repeat interviews allowed for the collection of in-depth information on the complex interaction between the state, internal and external stakeholders in the industry. In addition many official and unofficial documents concerning the ICT industry in Dubai were examined. There was no apriori theoretical framework to aid data collection, instead interviewees were asked to explain their involvement in the ICT industry development and were encouraged to critically analyse the developments from their perspective. These stakeholders included people from academia; Dubai Internet City (DIC) officials; e-government, e-commerce, and e-learning officials; local ICT companies; multinational companies (MNCs), and international organisations such as UNDP. Thirty interviews were undertaken by one of the researchers who is multilingual and has lived and worked in Dubai all her life enabling the collection of much contextual information. This first round of interviews took place from January to March 2002 and an additional 25 repeat follow up interviews were undertaken in 2007. The first round of interviews formed one of the author's previous doctoral fieldwork on a closely related topic. The subsequent interviews were guided by the research questions outlined in this paper. The earlier interview data was reanalysed and enabled collection of data on the events and changes over the five year period. Interviews were recorded (with permission) and transcribed verbatim. Data was analysed by reading and re reading transcripts and summarising the themes of the interviews. The current theorisation of the data evolved as a result of ongoing reading in relation to the themes identified.

### **4. CASE DESCRIPTION- DEVELOPING DUBAI'S ICT INDUSTRY**

Dubai is the second largest city in the United Arab Emirates (UAE), a country in the Arabian Peninsula with rich natural resources in oil and gas. It is highly urbanised and has a GDP per capita of \$24,000. The country has a population of 4.5 million; Dubai's population is 1.4 million, of which about 80% is comprised of expatriates or foreign workers and majority of these expatriates are unskilled workers employed in the construction and retail industry (Muysken and Nour, 2006). Dubai is the business centre of the region. In 2000, Crown Prince Sheikh Mohammed bin Rashid Al Maktoum drew up a plan that articulated the initiation of a knowledge-based economy that would be driven by the ICT industry.

Dubai's approach to planning for the knowledge-based economy directly and indirectly involves ICT industry development. The knowledge based economy is a term that describes trends in advanced economies towards greater dependence on knowledge,

information and high skill levels, and the increasing need for ready access to all of these by the business and public sectors. The Dubai plan is divided into three “Horizons”. Horizon one is labelled: “Doing what we do best, better.” In other terms, the industries in which Dubai excels, such as trade, logistics, tourism and transportation can be further strengthened to improve their positions regionally and globally. The focus of the second horizon is to: “Apply the core competencies to new areas.” To achieve this, trade, logistics, and transportation will support the rising industries, such as ICT industry, media, and finance, all of which are ICT enabled. The third and perhaps most difficult horizon requires: “Seeding investment for future competencies.” Building on the success of the two previous Horizons, the returns are to be utilized to build research and development facilities to explore the emerging sectors of biotechnology, pharmatechnology, nanotechnology, and wireless technology.

The strategy for building a knowledge-based economy using ICT initially had the following ambitious targets for 2010: Achieve a GDP of US\$ 30 billion; achieve a per capita GDP of US\$ 25,000; attract foreign direct investment (FDI) equal to US\$ 4% of GDP; strive for the knowledge-based economy to reach 25% of GDP, with the overall service sector representing 70% of GDP; establish a free and open market regulated to ensure competition; and transform at least 15 Dubai-based businesses into market-shaping regional/global corporations (TECOM, 2003).

The government promoted the vision that Dubai can use ICT to transform a relatively small city with limited oil reserves to a major regional cluster by embracing an open market economy, encouraging foreign direct investment (FDI), and becoming the city of choice of the best and the brightest knowledge workers. The plan envisioned that the ICT industry will generate thousands of skilled jobs; transfer the economy into one that is knowledge based, with ICT as the focal point; and use ICT initiatives to diffuse ICT in all sectors of the economy to increase the general competitiveness of all industries.

Government policy towards ICT industry development is two-tiered. The first tier is concerned with building the ICT industry capacity by educating and training the national workforce, attracting substantial expatriate knowledge workers; and collaborating with multinational corporations to establish an ICT industry for services and software development that contribute to economic growth. The second approach is to diffuse IT use in all sectors of the economy for socioeconomic development initiatives such e-learning and e-government.

The UAE’s succession to the WTO in 2001, as well as the government’s active endeavours to build an ICT industry and attract direct foreign investment to Dubai, set the stage for the government’s major investment in Dubai Internet City (DIC) and other initiatives such as e4all.

#### **4.1 Dubai Internet City**

The government of Dubai made a strategic decision to develop a vibrant IT industry by partnering with the private sector. DIC was conceived with the mission of creating an infrastructure and environment for global ICT companies to invest in Dubai. In 2000,

Sheikh Mohammed bin Rashid Al Maktoum allocated a free zone for ICT companies to develop software and IT services for the vast region extending from the Middle East to the Indian Subcontinent. The government of Dubai formulated the business plan for DIC with the help of consultants Arthur Andersen and McKinsey. The government of Dubai gave multinational corporations (MNCs) and many small and medium-sized companies lucrative incentives to invest in DIC, including ready to operate, fully serviced office space with advanced digital voice and high-speed data services at competitive rates; exemptions from personal income and corporate taxes for 50 years; 100% foreign ownership; repatriation of profits; and protection of intellectual property (DIC, 2001). UAE is a signatory to all WTO initiatives on Intellectual Property protection and leads the Arab World and the Middle East, including Turkey and Israel, in deterring electronic piracy. The government uses this feature as a means to promote the city and attract ICT MNCs (Madar, 2003).

A new agency responsible for ICT, Dubai TECOM, was established in 2001 to oversee the expansion of DIC and the formation of new entities such as Dubai Media City (DMC) and Knowledge Village. DMC was built to attract media companies that were involved in media and music production, broadcasting, and publishing, all of which are intensive users of ICT. The Knowledge Village was to house Universities and other organisations that would improve the skills of the labour, managerial, and technical workforce and R&D, especially for DMC and DIC. Some 180 companies had signed up as tenants when DIC first opened in October 2000, including such MNCs as Microsoft, Cisco Systems, IBM, HP, Dell, Siemens, Sun Microsystems, and Sony Ericsson. TECOM initiated an electronic transaction and commerce law for the Emirate of Dubai in 2002 to facilitate e-commerce and accept electronic transactions and electronic signature in legal disputes. In 2007, DIC had an international community of 1,000 ICT companies, including MNCs as well as local and regional companies engaged in software development; web-based design, consultancy, education and training, sales and marketing and back office operations. These companies employ more than 10,000 knowledge workers (DIC, 2007).

#### **4.2 Initiatives to Encourage IT Use**

DIC is representative of Dubai's plan to develop the ICT industry. Although the ICT industry is primarily driven by the private sector, government involvement is instrumental in providing the physical infrastructure and favourable investment conditions.

The government of Dubai plans include wider diffusion of ICT use to all sectors of the economy and among the citizens. The government initiated large investments for e-government, e-learning, and e-commerce initiatives throughout the city in the belief that ICT will play a major role in improving the effectiveness and efficiency of services provided by public and private organisations in Dubai. A major e-learning initiative is the IT Academy initiated in 2001. This targeted all high school students in Dubai's public schools, where the majority of national, low-income students are educated, to teach basic and advanced courses in IT. The government has stipulated that the school system and local universities should increase broadband access and improve IT literacy among the student population.

The government of Dubai introduced “e4all” initiatives in 2002. This aims to increase the awareness and willingness of the public to improve their “e-skills” in an effort to upgrade Internet literacy in Dubai (Dubai e-Government, 2005). For example, Cisco and Dubai Women’s Higher Colleges for Technology established a centre to improve the technical skills of women in networking and ICT. A digital home and small-business project was set up to increase technology awareness and encourage entrepreneurial activities among students who may not have had the opportunity to work outside their homes otherwise. The impetus behind increasing the diffusion of ICT is to build a highly skilled workforce that will accelerate the demand for IT products and services, which will in turn create demand for the companies in DIC.

## 5. ANALYSIS

Dubai’s quest to build an ICT industry, detailed in the initiatives above, manifests characteristics of the Competition State identified by Cerny (2000). These are summarised in Table 2 below and discussed further in the critique to follow.

| Characteristics of the competition state           | Example from Dubai case   |
|--|---|
| 1. The changing form and the function of the state | The state has championed the ICT industry and provided the infrastructure.  |
| 2. The nature of the policy agency                 | The state has liberalised the economy to encourage ICT investment, gave MNCs tax holiday for 50 years, placed no restriction on expatriate knowledge workers and deregulated the local telecom provider.  |
| 3. The internationalisation of the policy agenda   | The state attracted foreign direct investment by attempting to control inflation, diversified the economy with limited concerns for developing indigenous ICT industry; building partnerships and establishing new organisations such as TECOM.   |
| 4. The proliferation of policy transfer            | The UAE is a member of WTO and is signatory to all initiatives on IP protection. Copyright laws are enforced. The ICT industry planning is formulated by international agencies and consultants.  |
| 5. The decline of social solidarity                | Local ICT companies receive no financial or technical assistance from the government. They compete with MNCs to hire knowledge workers and have limited access to educational and training system. Unemployment is high among young nationals particularly among the female population. |

**Table 2. ICT Industry development and the Competition State in Dubai**

The main focus of the Competition State is to promote economic activities at home and abroad enabling the firms that operate within the state to be competitive in the global market (Characteristic one). The Dubai government has formulated a strategy to build an ICT industry and use ICT in all core industries so that Dubai can become more competitive in the international marketplace. This is captured in the mission statement of DIC:

*The mission of Dubai Internet City is to create an infrastructure, environment and attitude that will enable ICT enterprises to operate locally, regionally and globally, from Dubai, with significant competitive advantage. (www.dubaiinternet.com)*

The private sector was invited to invest in this sector after the state took the lead. The government vision for the ICT industry is to transform Dubai to a knowledge based economy that will provide employment for nationals and create local ICT companies with a global reach. However, several industry participants and observers contended the focus on ICT for three reasons: i) unavailability of skilled local knowledge workers, ii) the presence of large numbers of unemployed unskilled foreign workers and; iii) a lack of history of science and technology infrastructure in the country to service and sustain an ICT industry. Other interviewees questioned the timescales. A Chief Executive officer of Tejari, a Dubai based business-to-business marketplace stated:

*There are those who think innovation will come out of DIC from day one. I believe it will take at least five years before we will see any innovation. CEO of Tejari*

Other critics expressed the view that DIC is “no more than another real estate project” with limited capability to build an ICT industry. Additionally, there was resentment that the government is “putting the local business community at a disadvantage” by offering free zone status to MNCs. Free zone status allows MNCs to bypass the local and federal regulation for foreign companies operating in UAE which requires a minimum of 49% national ownership. This appears in opposition to the government’s intention to build “local and global partnerships”. The CEO of DIC told us:

*Strategic partnerships with industry leaders are key to establishing DIC as this region’s robust technology backbone and we are therefore very pleased to partner with Microsoft in our joint vision to transform this region’s economy into one that is knowledge-based.*

The competition state is based on the ideology of the neoliberal state, where the state promotes the process of openness, deregulation, and liberalisation. Deregulation involves discarding old regulations and embracing new ones that are often designed to enforce the global regulations of international organisations. The government has actively encouraged FDI from ICT MNCs by liberalising the local economy. In DIC, foreign companies are given 50 years tax holiday, unlimited restriction to import foreign knowledge workers and there are no limitations on the types of activities companies engage in. There is no mandate for DIC based companies to form the partnerships with

local ICT companies or perform value adding research and development activity in Dubai as envisioned in the third planning Horizon.

The government plan promotes the notion that a cluster of global ICT companies will produce local ICT companies that will become global within a decade from inception of the plan. However, a clear strategy to achieve this goal has not been articulated. The strategy appears beneficial to MNCs and other foreign companies with the capabilities to produce ICT products and services for the local and regional markets. Most Emiratis are not benefitting because the companies in DIC are authorized to import expatriate knowledge workers and are not mandated to hire nationals. We were told:

*DIC did not apply a quota for hiring local UAE employees; we want the best person regardless of nationality (HR Director, DIC)*

The government defend this action by arguing there is lack of highly skilled nationals to populate the job openings in DIC. The shortage of skilled national workers is attributed to the deficient educational and training system which is a serious impediment to the ICT industry. Muysken and Nour (2006) argue that the large number of unskilled expatriate workers and poor educational facilities in the UAE has the effect of poor provision for training, low skill levels and deficient transfer of knowledge. UAE spends only 1.32% of GDP on education, lower than many other countries (McCaleb 2005). The average 2000-2 GDP spend of 132 countries was 4.9% (Nationmaster 2009). These problems have been recognised by the government of Dubai, which set up a new authority for education and training for the Emirate of Dubai in 2007 but the effectiveness of this is yet to be demonstrated.

The ICT industry hires a very small number of UAE nationals in technical jobs with potential for skill transfer. The third planning Horizon is unlikely to be met as inadequate facilities and lack of incentives to improve leads to low levels of research and development. Activities undertaken in the DIC cluster do not comprise of research and development (R&D) and most of the DIC based companies activity consists of sales and marketing. This can be explained by lack of research undertaken in the Arab world more generally which accounts for a meagre 0.2% of GDP (UNDP, 2005; Multinational Monitor, 2004) and correspondingly very little R&D is undertaken in UAE. By comparison, in 2005 the OECD average R&D expenditure accounted for 2.5% of GDP.

Under pressure from the major MNCs in DIC and in line with the recommendation of international agencies, the government deregulated the local telecommunication provider, Etisalat. Investment in telecommunications is regarded as an important factor in assisting ICT industry competitiveness and there is evidence that private investment in some cases has improved efficiency and pricing (Heeks and Nicholson 2004). In Dubai, the deregulation of Etisalat is controversial because although there were benefits for individual consumers and the private sector, it ended Etisalat's contribution to the federal budget that funds critical developmental project such as education and social service provisions.

The above examples demonstrate the role of the state has been to provide leadership and incentives to the ICT industry. A quote from the CEO of Dubai media city sums up the dominant perspective of minimal state intervention:

*The moment you start interfering in the market and start to mandate you create inefficiencies. This sort of business (ICT sector) will move rapidly elsewhere as there are several pillars around the world. (CEO of DMC)*

This quote is indicative of the belief in market supremacy and that the role of government is in providing incentives and an environment conducive to ICT growth in the marketplace. The Dubai competition state has moved away from protectionist policies favouring national companies and fostered the adaptation of policies mandated by international organisations. An example is the government of Dubai's signing of WTO protocols on all initiatives related to intellectual property protection. To encourage MNCs to invest in DIC, the government provided the legal infrastructure to provide 100% foreign ownership and changed local laws so that foreigners could own homes in Dubai. It has passed electronic transaction and commerce laws to enhance ICT diffusion in the private and public sectors. In recent years the government has introduced laws where the influence of the MNCs is illustrated in a quote from an interview with a country manager of a major MNC based in Dubai. He told us:

*Although the UAE and specifically Dubai have started to develop an IT sector, one of the few laws on IT are the copyright laws. These have been passed due to the pressure and strong lobbying of the multinational software companies in this sector. (Country Manager, MNC)*

The decline in the role of the state in social solidarity is demonstrated by the increasing discontent of the local indigenous companies. The ICT infrastructure for DIC and e-government are purchased from MNCs. Local companies are denied the opportunity to improve their technical capability because the government as a signatory to WTO may not favour local ICT companies.

As well as the dissatisfaction of local firms, another challenge faced by the government is to provide meaningful jobs for the Emirati people. In recent times, the number of young graduates unable to find jobs has increased and the official statistics published by the government estimated unemployed graduates at 43000, mostly comprised of women. This is a high number in proportion with the small indigenous population (TANMIA, 2006). This poses a major challenge for the government and will continue to a source of political instability in Dubai. This concern is captured by the quote below from an educator:

*Companies come here to sell their software, and that does provide our students with opportunities for learning. But I don't think that these corporations have the long-term interests of the country in mind, and in that sense, the government policies must not be driven by the companies that come and set up in free zones, It must be driven by the needs of the country. (Professor at the Higher Colleges of Technology).*

## 6. DISCUSSION AND CONCLUSION

The research question of this paper is concerned with improving our understanding of the role of the state in developing an ICT industry in a globalised world. We discussed the plans by which the government of Dubai is building its ICT industry and critiqued them using the theoretical framework of Cerny (2000). A theoretical contribution of the paper lies in the application of the lens of Competition State as a useful framework for critique of ICT industry development. The lessons from the Dubai case will be relevant to many countries in the region with similar demographic and institutional characteristics embroiled in implementing an analogous ICT industry development strategy.

Dubai's plans for the ICT industry are concerned with building an ICT-producing and an ICT-using industry and the state continues to be actively involved in this pursuit. Attracting investment, encouraging the export of DIC's initiatives, and becoming competitive in the international market are some of the state's core objectives. Although it has been argued that the role of the state has become diminished in a globalised economy (McKenzie & Lee, 1991; Ohmae, 1995; Reich, 1991), Dubai's ICT industry shows a continuing state role. The role of the state in Dubai is visible and provides the leadership, sets the policies, builds partnerships, and meets the requirements of some of the stakeholders in the industry. The state has emphasised the role of providing the conditions for competitiveness and underpinning the market. The analysis revealed that policymaking for ICT industry development adopted by the city state of Dubai is committed to competition state policy direction.

We posit some implications and recommendations for various stakeholders: academics, international organisations, policy-makers and those involved in ICT industry development (consultants, lobbyists etc). Firstly, the development of the local ICT industry, a feature of the strategic plan, appears to be failing as these firms are unable to compete or build capability alongside MNCs. The requirements of international organisations such as WTO and removal of other regulations thus allowing 100% foreign ownership has created an environment where local firms are unable to compete due to tax free status proffered to attract MNCs. Local firms do not experience technology transfer from MNCs and the development of these local firms is also hampered by the strength of the MNC lobby that continues to influence government policy in its favour. Secondly, a further challenge is in the weaknesses in education for capacity building for research and development and employment of local nationals in the ICT industry. The MNCs are not encouraged to employ, develop and train local staff and are reliant instead on expatriate labour. Employment prospects for Nationals in the ICT industry are weak supported by unemployment figures. When these factors are coupled with a tendency for the DIC based MNCs to not engage in research and development activity then the sustainability of the industry cluster is debatable. Support functions such as sales and marketing may be relatively footloose and susceptible to ease of movement to other sites in the region. International organisations argue that FDI from MNCs are the source of innovation and transference of know-how, technology, and skills to developing countries (UNCTAD, 2003). Hence, FDI has gained significance from the point of view of its capacity to

transmit technology knowledge and novel management techniques. MNCs are considered leaders in producing innovations of commercial significance. This makes MNCs a potent vehicle for transferring technology (Carr, Markusen, and Maskus, 2001). However, some empirical studies examining the impact of FDIs on international technology transfers have shown a negative relationship between FDIs and the total factor of productivity of domestic plants (Aitken and Harrison, 1999). The example of Dubai demonstrates that dismantling of control systems by developing countries through liberalisation policies to attract FDI does not always help in promoting technology and transferring skills. The mere presence of FDI in Dubai has not significantly changed the situation of technology knowledge and the gains to be derived from it. Thirdly, the problem of unemployment in Dubai has posed a major challenge for the government and will continue as a source of political instability accentuated by a vicious circle presented by reduced contributions to education and social security budgets following deregulation of Etisalat.

The policymakers in Dubai may consider four key areas of recommendation that emerge from our analysis relating to education, FDI and R&D and promoting local companies. The lack of training programmes for university students in the ICT industry could be addressed by establishing a link between ICT companies and universities so that final-year students can train with these companies. University education could be made more relevant to the needs of the market by company representatives developing curricula alongside academics. No comprehensive plan at the federal level to address the deficiencies in the education system exists (Madar, 2006). Allocation of funds for R&D may help reduce current dependence on foreign import technology. Government may take a lead in the creation of a directive that fosters R&D in basic and applied research, especially in new technology that has a proven efficacy that can be used to produce ICT products/services that are needed locally and regionally. Our final recommendation relates to promoting local companies. The Dubai government has a role to play in providing local ICT companies with access to technology and assisting in the negotiation of collaboration or joint ventures with MNCs. The government also could support local companies' incentives to invest in R&D and provide markets locally for these companies' products and services.

Future work could focus on two areas: firstly, comparisons between Dubai and other cities in the UAE and regional context could improve our understanding of where or how policymakers in Dubai could make changes to accommodate the weaknesses identified in this paper. Secondly, this paper does not directly draw on theoretical frameworks focusing on the sustainability of competition state policies in developing ICT industry capacity. Further longitudinal research in Dubai focusing on sustainability will improve our understanding of the long term effects of these policies.

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