

11. Middle East, Africa, and South Asia

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This breakout group was confronted with a challenging and diverse set of world regions and cultures. Our assignment comprised countries in:

- *Africa*: There are considerable distinctions to be made between South Africa and the remainder of sub-Saharan Africa;
- *The Middle East and North Africa (MENA)*: The predominantly Islamic cultures of the Gulf Arab countries plus Iran, and the countries of North Africa. Included in this region is the more industrialized country of Israel;
- *South Asia*: The predominant countries (in terms of population) are India and Pakistan, but this region also includes Sri Lanka, Bangladesh, Bhutan and Nepal.

The general regional characteristics of these countries – making very general characterizations, for which significant exceptions exist – are that they contain a large fraction of the world’s population; their institutions (especially governmental and commercial) are often weak, putting a big premium on individual leadership to make up for deficiencies in institutional strengths; and there exists a problematic nature to a number of societal values (e.g., relating to cooperation among – and recognition of the rights of – ethnic or religious minorities).

General Observations

We began by listing a set of general observations related to information and communication technology (ICT) that distinguish this region from others:

- *Absorptive capacity*. Factors such as price, technological complexity, and dependency on reliable infrastructure services are especially important in determining the region’s ability to absorb new ICT artifacts and services.

Any one of the above factors, among others, may preclude the ability of countries and cultures within the region to adopt and spread an ICT technology to the point where it makes a real difference in the lives of ordinary citizens.

- *Defining "access."* Too often, there is casual talk of a region's "access" to technology, when it is merely a purchaser of artifacts and services made by, and imported from, others. Unless key components of information and communication technology, artifacts and services are "home-grown," then there is unlikely to be the positive contributions to jobs, education and training that can flow from developments and production stemming from the continuing information revolution. Buying artifacts and services imported from others is the poorest form of "access" – a form that should not lead to complacency or satisfaction.
- *Connectivity, authority, and hierarchy.* There may be relationships among these three concepts that assist in analyzing the factors affecting a country or region. For example, with high connectivity and high degrees of authority in a country, a flattened hierarchy may result. With high connectivity and medium authority, you might have a virtual hierarchy. With high connectivity and low authority, network forms of organization predominate. With low connectivity and high authority, one would expect strict hierarchies. With low connectivity and low authority, one approaches anarchy. In general, the concepts of connectivity and authority create a two-dimensional space within which one might plot points having different forms of hierarchy depending on their position within that space. In very general terms, the Middle East has a strongly hierarchical structure. South Asia primarily has flattened hierarchies. Sub-Saharan Africa is closer to a networking model, with tribes forming the nodes of the network.
- *Altruism.* The policies of OECD (advanced industrialized) nations toward this region should include the concept of altruism, in addition to their standard focus on their own self-interest. The national GDP and yearly individual average income within many countries in the region, compared with those of the rich industrialized nations, is such that the industrialized nations must look beyond "business as usual" in fostering ICT usage and benefits within the region. For an investment that might be trivial for an OECD nation, entire countries might be "wired" to provide country-wide access to wireless communications, or to allow store-and-forward voice messages to be transmitted and received in any village.
- *"NASDAQ Becomes Nirvana."* It was mentioned that in India, in particular, the goal of many of the new ICT entrepreneurs is a listing of their newly-

formed company of the NASDAQ stock exchange – a sign of “making it” as well as the potential wealth resulting from an IPO offering. The attraction of such Western images, institutions, and procedures should not be underestimated in the region; in fact, if it is difficult for entrepreneurs in the region to obtain such recognition, they may well contribute to a brain drain from the region of precisely those relatively young, educated, and motivated individuals that could contribute most to regional growth and prosperity.

- *Scalability.* Various of the ICT goods and services might not scale well within the region in question: For example, when a society (e.g., in sub-Saharan Africa) is composed substantially of small villages, it cannot necessarily support the type of information goods and services that larger cities and urban areas can. There are natural and economic limits to ICT diffusion that must be understood.
- *False extrapolation.* There is often a temptation to observe the adoption of various ICT goods and services by a small elite within a country, and extrapolate from that “small n” to the “large N” of the nation’s whole population – especially when it is much easier to observe and communicate with the elites within urban or suburban areas. Just because 5% of the population of a country uses cell phones, PCs, the Internet, or whatever, does not mean that the country is at the beginning of “take off” into rapid growth and adoption of that technology. The adoption curve could well taper off at 10%.

Issues to be Addressed

Given the highly diverse and complex nature of the many regions and cultures within the area of the world assigned to this discussion group, we discussed the tensions and issues that any analysis must confront. These include:

- *Technology vs. society as the driver.* In some countries, cultures and regions, one can imagine technology as a driving force: e.g., as new satellite broadcast options become available, they **will** change the information citizens access and what they’re informed of. In other countries or cultures, it may well be the case that society (or at least the leadership) retains firm control of information/communication technologies, artifacts and services – perhaps with the concurrence of a majority of citizens – and diffusion of new ICT options remains quite strictly controlled. One analysis or set of conclusions cannot fit all cultures and countries within the region in question.

- *National vs. regional focus.* There are perhaps 20 to 40 countries within the discussion group's purview. For some, the most appropriate analysis is at the country level (e.g., because of strong and distinctive leadership, or distinct policies, within that country). Other groupings of countries (e.g., "Gulf Arab states") might form regions within which some general observations or analyses will hold.
- *Societal structure vs. individual as driver.* In some countries or regions, the institutions and structure of the society will largely determine adoption of ICT. Elsewhere, an individual (e.g., as entrepreneur) can make a substantial difference within an entire country. (Examples in our discussion were cited of persons who had returned to their home country, such as Kenya, and started an Internet Service Provider (ISP) company there that changed the complexion of ICT access within the country.)
- *Enclave economies: isolated or linked.* Within many countries in the region, some enclaves of information/communication technology have grown – some very successfully. (The Bangalore region of India is a strong case in point.) Whether those enclaves affect the entire country or larger region, or remain isolated – perhaps more in contact with Silicon Valley than with neighboring cities – depends strongly on whether individual enclaves within a country become linked with each other, thereby spreading the knowledge, the access, and the opportunities. An analysis of ICT diffusion within a country or region should take this factor into account.
- *Building and testing models.* It would be an interesting exercise to build a heuristic model containing a number of rules regarding the rate, type, and form of ICT developments within a country or region/culture. That model could help predict ICT-related developments given a number of relevant inputs. If such a model were constructed, it might be applied to the period of this present analysis (1999-2003), so that its worth as a predictive model might be assessed by the end of the analysis period.

Change Drivers – The Four Cs

What are the key factors that determine the adoption of, and substantial access to, information and communication technologies within a country or region?

Our discussion began with the equation:

$$\text{Structure} + \text{Leadership} \rightarrow \text{ICT Outcome}$$

By that was meant: the two predominant factors leading to a particular ICT outcome are structural factors within a society, plus leadership (normally by a

country's leaders, but which could be supplied by individual entrepreneurs and change agents within the country or region). We then grouped the key "change drivers" leading to ICT outcomes into four categories, which can be described by the mnemonically useful rubric: Culture, Competence, Control, Capital.

Culture

Within the category "culture" we include such factors as:

- *Language.* Is the language of the country one of the most world's prominent? If so, many software packages, help manual translations, and so on will be translated into that language, due to the substantial market to be gained. Are many of the country's citizens bilingual? If so, is that second language English (within which so much of ICT and Web information is provided)?
- *Nationalism.* Is the nation or region strongly nationalistic, thereby tending to resist "foreign" influences such as provided by information and communication originating elsewhere?
- *Stratification.* Is the culture of the country or region highly stratified, so that ICT penetration and usage within one stratum is not likely to strongly affect others?
- *Legal framework.* Does the country have a stable, viable legal framework, within which such concepts as intellectual property rights, privacy, and patents can be protected?
- *Vertical authority relationships.* Are the dominant authority relationship vertical (e.g., as in highly hierarchical companies), or does the culture foster small, networked, cooperative arrangements among firms?
- *Trust.* Can business relationships be easily developed outside of tribes, families and other strong social institutions – based on trust relationships? ³⁷
- *Meritocracy.* Can individuals within the culture succeed based on the merits of their ideas and work, or is success determined by other factors?
- *The concept of information.* What is the concept of information within a society? For example, is it assumed to be a public or private good? If public, then it is difficult to establish property rights to information, which might in turn slow entrepreneurial activities in the ICT sector. If private, then information might be controlled by private-sector organizations in a manner that is monopolistic or otherwise harmful to the society as a whole.

³⁷ For much more discussion of the key role of trust in the development of commerce within societies, see Fukuyama (1995).

Competence

In defining the ICT competence within a society, we included such factors as:

- *Education.* Is education in computer- and communication-related technologies widely available within the country? Is access to such education available based on merit and competence?
- *Training.* Can citizens obtain training in ICT technologies, so that they can provide goods and services needed within the society itself, without needing to rely on outsiders for production, maintenance, and user help facilities?
- *Sophistication of ICT use.* Are citizens of the country mere consumers of the technology and its artifacts and services, or do they produce those goods and services as well?

Capital

Is adequate capital available for the establishment of new ICT-related business ventures within the country? Such capital might include:

- *Internal.* Sources within the country or region itself that provide needed capital for ICT businesses.
- *External.* Is the country or region viewed as a good investment by external parties, so that investment capital can flow into the area? (This of course is at least partly determined by other factors mentioned in this section, such as whether intellectual property rights are honored within a stable system of law.)
- *Physical.* It is important that such infrastructure services as electric power and telecommunications are available, stable, and provided at reasonable cost.

Control

The form of control within a country or region is important in determining the spread of ICT within the area. Factors include:

- *Agency of control.* Is societal control lodged primarily in a government, the military, religious organizations, or the private sector? Differing agencies have different agendas and priorities that in turn affect the area's interest in obtaining and utilizing various information/communication technologies.

- *Form of control.* Is the control that is exercised restrictive and constraining, or promotional and guiding?

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It was noted that, of all the possible country attributes listed above (within our “Four Cs” categories), certain attributes may have differing importance at different stages of ICT development within a country. Figure 11.1 illustrates one possible set of such differences (provided only as an example, until further analysis can be done) at three different parts of the familiar “S” curve of technology adoption.

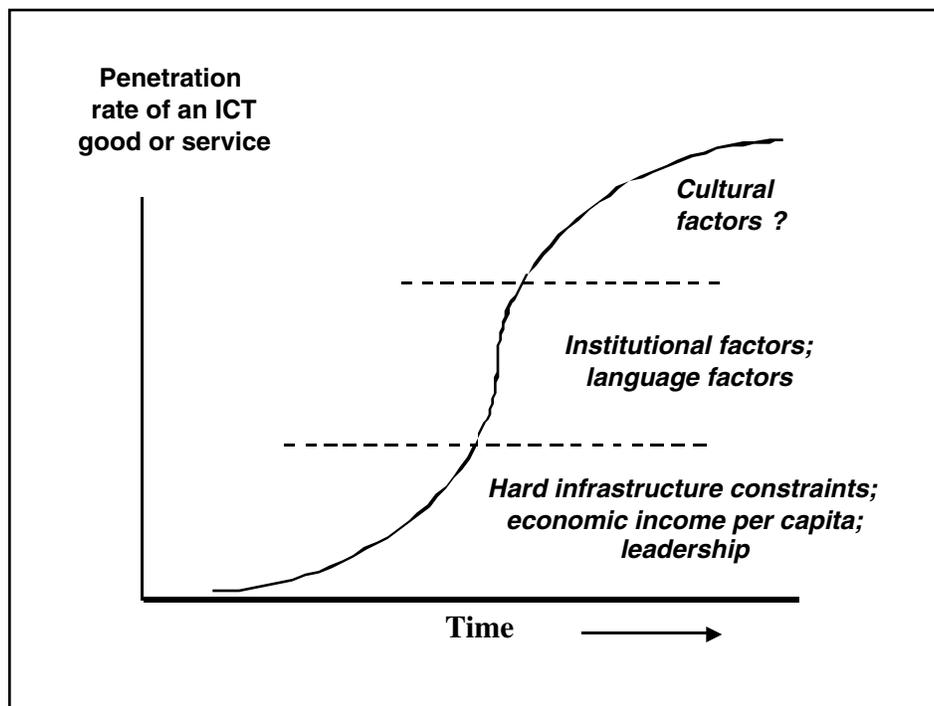


Figure 11.1 Country Attributes May Have Differing Importance at Different Stages of Development

Using the categories developed and defined above, Table 11.1 presents the groups initial, illustrative assessment of these factors for the key countries in the region under consideration.

Table 11.1
Assessment of Countries in Africa, Middle East, and South Asia

	<i>Culture</i>	<i>Capital</i>	<i>Competence</i>	<i>Control</i>	<i>Overall</i>
Africa	-	/	/	-	1
S. Africa	/	+	/	/	2.5
Congo	-	-	-	-	0
Mali	-	-	-	-	0
Nigeria	/	/	/	-	1.5
Near East	/	+	/	/	2.5 *
Israel	+	+	+	+	4
Iran	/	+	+	/	3
Syria	/	/	/	-	1.5
S. Arabia	/	+	/	-	2
Iraq	-	/	/	-	1
South Asia	/	/	/	+	2.5
India	+	/	/	+	3
Pakistan	/	-	-	-	0.5
Bangladesh	/	-	/	+	2

The legend for the above table
(used to determine overall scores in the rightmost column):

+ = 1; / = 0.5; - = 0.

This table provides a rough visualization of a possible model. Scorings are approximate at best. The asterisk on the overall score for the Near East is a reminder that the score is skewed by Israel. More likely outcomes for the Islamic Middle east (Arab States plus Iran) is 1,5. For the Arab States alone, it is 1.0.

Technology Issues

The breakout sessions were asked to develop a set of issues or questions to be addressed in the second conference in this series, one more oriented toward ICT trends over the next 10 to 20 years. During our discussion of technology issues, the following basic recommendation emerged: *The technology conference should spent half its time away from high technology, concentrating instead on appropriate technologies for regions such as Africa, Middle East/North Africa, and South Asia.*

This recommendation resulted from our assessment that – for this region in particular – it is vital to consider technologies that are readily absorbable. For example, important technologies over the next decade or two might be those based primarily on radio and wireless, rather than those requiring an elaborate fixed telecommunication infrastructure. Also appropriate would be technologies not requiring much capital, such as software development. A third potentially important factor would be “assistive” artifacts that provide user-computer interfaces not requiring keyboard access or other skills not widespread in the region; technologies such as voice recognition and language translation might allow any regional citizen to approach a kiosk or public access terminal, state a request, and get an answer — possibly an answer that taps onto the increasingly rich resources of the Internet and the World Wide Web, even though that citizen was not fluent in English or one of the other predominant languages on the Web.

However, one of our participants cautioned against generalizations that are too broad, saying: “Don’t patronize the region, by concentrating only on cheap technologies. Costs will come down.”