

## Global Competitiveness Report 2004-2005: Detailed Report: Analysis of Results

After almost a decade (from 1996) of participating in the *Global Competitiveness Report*, and in light of the myriad policies and reform efforts that Jordan has embarked on, it is worthwhile to take a comprehensive overview of Jordan's position, and how it has changed in comparison to the rest of the world, and gain insight from other successful experiences.

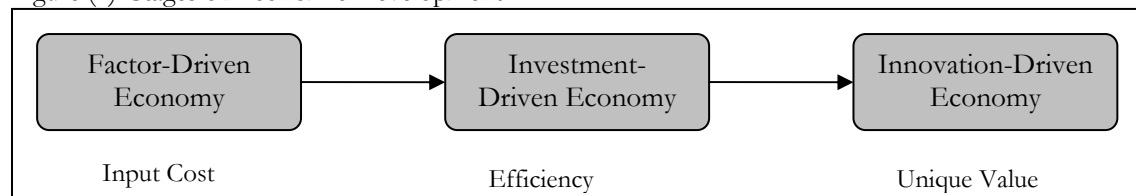
Also this year is a new flagship index based on three principles of competitiveness. It provides a new framework for evaluating the competitiveness of a nation, interpreting reform efforts in Jordan in this light might be worthwhile. This will allow for a prioritization of reform initiatives in different categories, by allowing us to quantitatively evaluate the effects of policies on raising GDP.

### Introduction: Summary of Methodology and Jordan's Results

The *Global Competitiveness Report*, prepared by the World Economic Forum, evaluates and compares the competitiveness of nations, in an attempt to ultimately shed light on the question of why some countries are able to grow on a sustained basis for prolonged periods of time, in the process pulling large segments of the population out of poverty, while others remain stagnant or see an erosion of living standards. Jordan has been steadily improving its position in many of the indicators, although a few danger zones still lie as obstacles in the country's development trajectory.

Jordan is considered a factor-driven economy, that is working to transition into an investment-driven economy. The stages of development are clustered as follows:

Figure (1): Stages of Economic Development



The report constantly updates its methodology to match the rapidly changing economic conditions. For this reason, the indicators evaluated by the report have changed significantly since last year to rest on three main indices:

- (i) **The Growth Competitiveness Index (GCI):** The GCI is composed of three "pillars" which are widely accepted as being critical to economic growth: the quality of the macroeconomic environment, the state of a country's public institutions, and a country's technological readiness. A heavier weight is given to the technology index in the more advanced "core" countries, and a lower weight in less technologically competent "non-core" economies such as Jordan. This year, Jordan's rankings are as follows:

Table (1): Growth Competitiveness Index

	2001	2002	2003	2004
<b>Growth Competitiveness Index (scores out of 7)</b>	<b>45/75 (4.24)</b>	<b>47/80 (4.07)</b>	<b>34/101 (4.58)</b>	<b>35/104<sup>1</sup> (4.58)</b>
Macroeconomic Environment Index	54/75 (3.69)	44/80 (3.83)	42/101 (4.03)	36/104 (4.29)
Public Institutions Index	28/75 (5.04)	40/80 (4.67)	20/101 (5.58)	29/104 (5.43)
Technology Index	54/75 (3.99)	51/80 (3.72)	48/101 (4.13)	51/104 (4.02)

Source: *Global Competitiveness Report*

- (ii) **The Business Competitiveness Index (BCI):** The Business Competitiveness Index (BCI) is a complement to the medium-term, macroeconomic approach of the Growth Competitiveness Index. It evaluates the underlying microeconomic conditions defining the *current* sustainable level of productivity in each of the countries covered. While the GCI captures the "dynamic" or "growth" determinants of productivity in a country, the BCI captures "static" or "level" determinants.

Table (2): Business Competitiveness Index

	2001	2002	2003	2004
<b>Business Competitiveness Index</b>	<b>47/75</b>	<b>53/80</b>	<b>41/80</b>	<b>43/93</b>
Company Operations and Strategy	56/75	59/80	57/80	54/93
Quality of the National Business Environment	47/75	48/80	41/80	40/93

Source: *Global Competitiveness Report*

- (iii) **The Global Competitiveness Index (LCI):** The Global Competitiveness Index, is a new analytical tool introduced. The concept of competitiveness analyzed by the *Global Competitiveness Report* has developed in that it involves static and dynamic components. For although the productivity of a country clearly determines its ability to sustain a high *level* of income, it is also one of the central determinants of the returns to investment, which is one of the central factors explaining an economy's *growth potential*. Given that productivity has both static and dynamic implications for a country's standard of living, an alternative (though almost identical) definition of *competitiveness* would be the set of institutions, policies, and factors that set the sustainable current and medium-term levels of economic prosperity.<sup>2</sup>

The *Global Competitiveness Index* is a new unified approach that captures both the microeconomic and macroeconomic foundations of competitiveness, as well as its static and dynamic consequences in a

<sup>1</sup> The United Arab Emirates and Bahrain are new countries measured this year, and entered into ranks 16 and 28 respectively, above Jordan, lowering its positions.

<sup>2</sup> Taken from commentary in *Global Competitiveness Report 2004-2005*.

single index which is set to become the "flagship index" of the *Global Competitiveness Report*.<sup>3</sup>

Table (3): Global Competitiveness Index

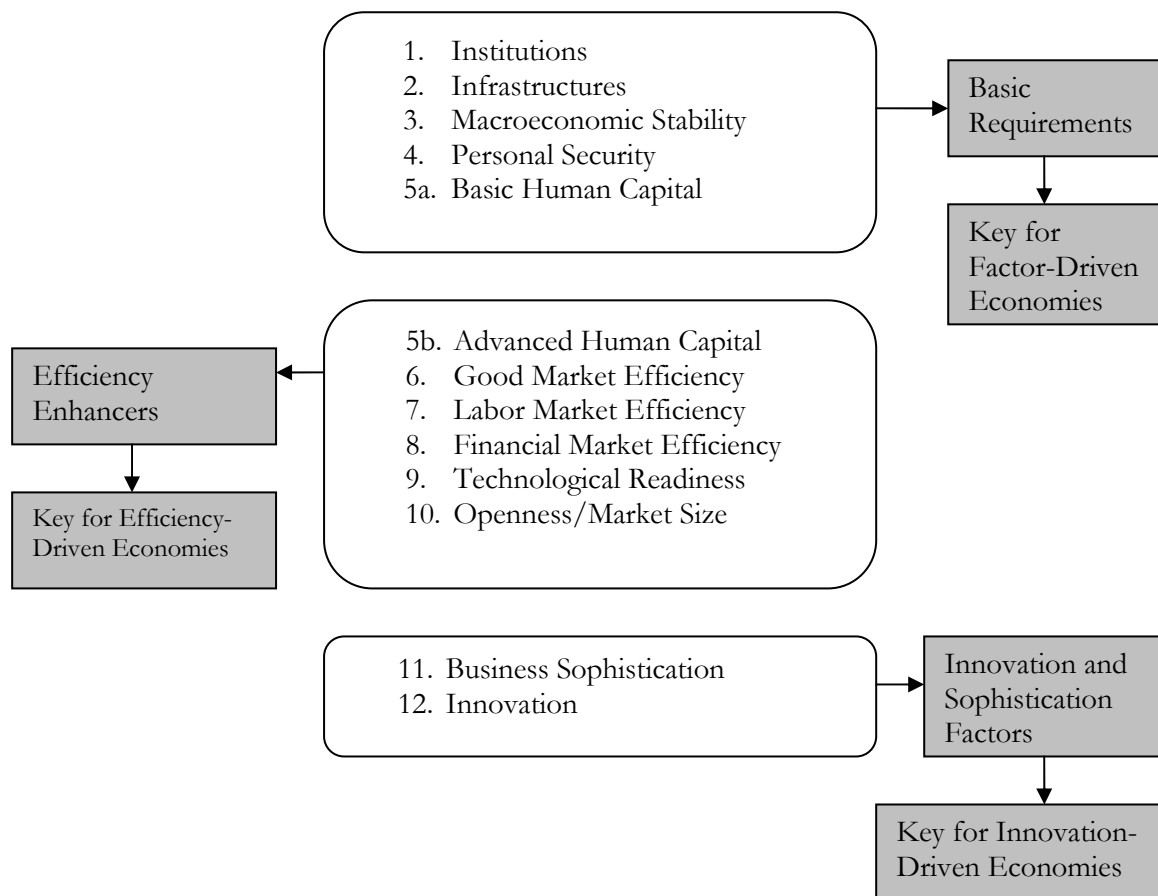
	Overall Index		Basic Requirements		Efficiency Enhancers		Innovation Factors	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
<b>Jordan</b>	<b>4.32</b>	<b>28</b>	<b>5.25</b>	<b>26</b>	<b>3.49</b>	<b>45</b>	<b>3.04</b>	<b>51</b>

Source: *Global Competitiveness Report*

## Details of Jordan's Position

In the 2004 *Global Competitiveness Report*, Jordan's strengths remain in the growth competitiveness index, over the business competitiveness index. However, as the new framework for the report includes a comprehensive index, that is underlined by the principle that the micro-, and macro-economic, factors are inseparable, the framework used to analyze Jordan's position will be based on this approach, as well as the natural progression of a country from a factor-driven, to an efficiency-driven, to an innovation-driven economy.

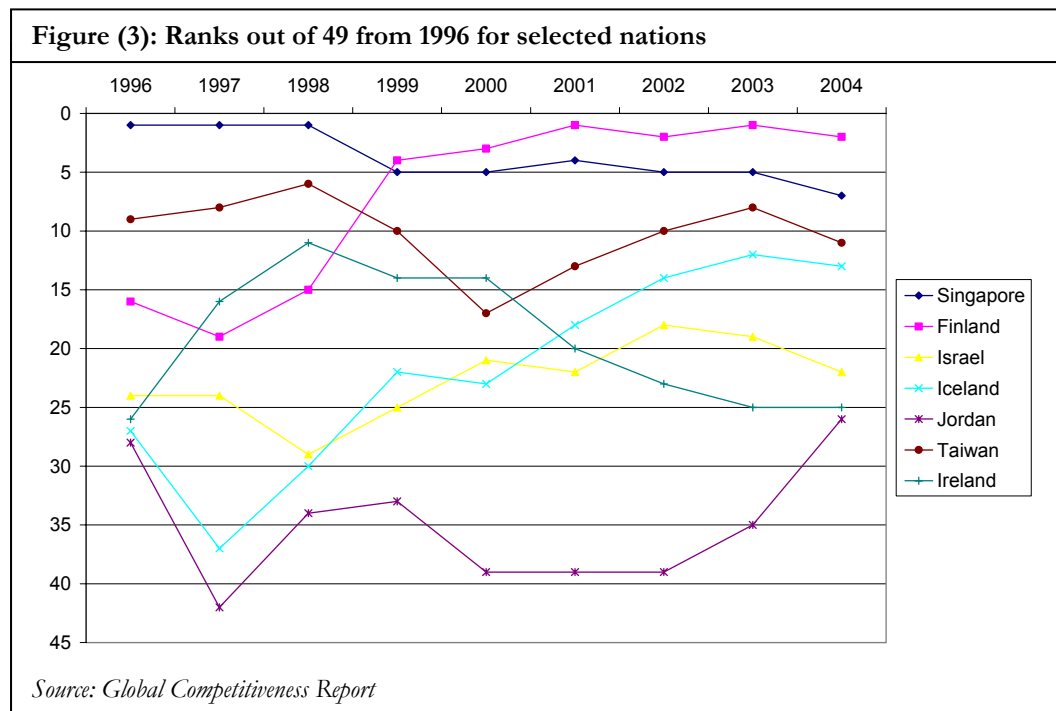
Figure (2): The Twelve Pillars of Competitiveness



Source: *Global Competitiveness Report*

<sup>3</sup> For a more detailed breakdown of this index, and the principles of its foundation, please see Appendix

Starting from a more historical perspective, taking a sample set of seven countries, and tracking their progress from 1996-2004, amongst the initial 49 countries<sup>4</sup>; we see that in 1996, Jordan, Iceland, Israel and Ireland were all clustered in a relatively close range. By 2004, while Jordan's position has been growing exponentially from 2001-2004, the range is much bigger. This gives rise to concerns that Jordan is lagging in its potential growth in certain categories, and that in certain situations it still has a lot to learn from other nations' experiences.



While Jordan has been growing, the country has not as yet achieved a "level" leap that puts it on par with the competitiveness of other nations, compared to when it began. However, with the growth rate the chart indicates amongst the sampled 49 nations, there is hope of this occurrence in the near future.

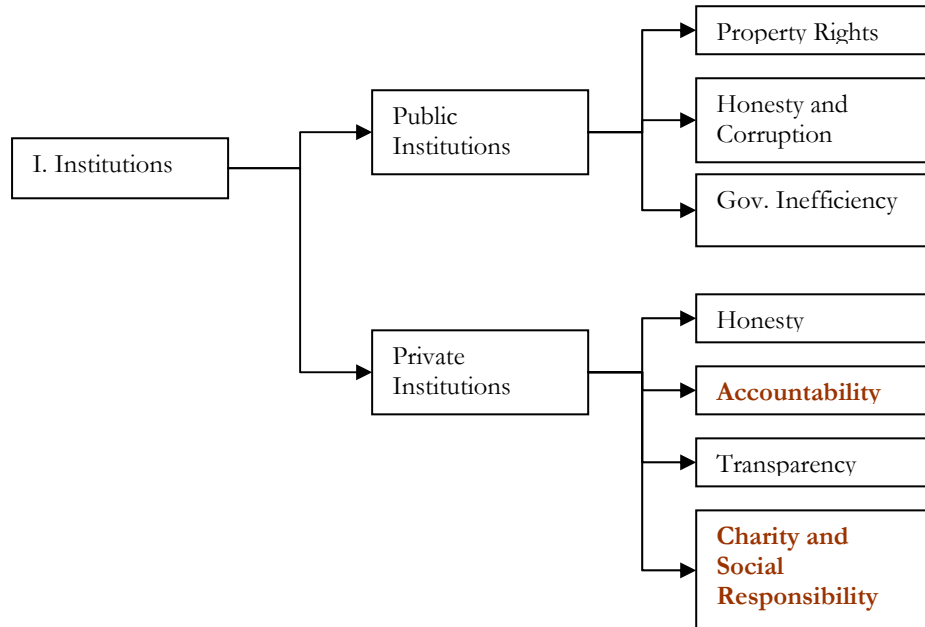
With the new comprehensive competitiveness framework this year, it is much easier to pinpoint exactly where Jordan's weaknesses lie, and which countries it should look towards for potential policies that may improve its rankings.

For each of the twelve pillars below, Jordan's **major strengths** will be highlighted in the diagrams in blue, and the **major weaknesses** in red.

<sup>4</sup> These 49 countries in 1996 accounted for 94% of the world's economic output, 93% of total world exports in goods and services and absorb 5% of the world's total foreign direct investment.

# I. Basic Requirements

## (1) Institutions



Within the "institutions" category, we see that while there is certainly room for improvement in all categories, the danger zones only exist in the private institutions. This lapse is not only a burden on the private sector, and remains a government responsibility to help improve, as it reflects on the overall business environment of the country. The McKinsey Quarterly found that institutional investors in emerging market companies would be willing to pay as much as 30 percent more for shares in companies with good governance. Furthermore, the study showed that companies with better corporate governance had higher price-to-book ratios, demonstrating that investors reward good governance. On average worldwide, family owned businesses last only until the 3<sup>rd</sup> generation before falling apart. This means that many Jordanian family companies are in danger of being faced with the downside of the natural life-cycle of the firm.

Box (1): Corporate Governance Laws
<p>The Corporate Governance Laws include the following:</p> <ul style="list-style-type: none"> <li>- Securities Law No. 76/2002</li> <li>- Companies Law No. 22/1997</li> <li>- Rules and regulations of the capital market institutions</li> <li>- Banks Law</li> <li>- Insurance Supervision Law No. 33/1999</li> <li>- Privatization Law</li> </ul>

Within these family companies, the major issues relating to accountability include: a lack of comprehensive legal framework; inadequate regulators; auditing and accounting shortcomings; a lack of public awareness and education; and an inadequate corporate governance code.

Currently, in Jordan, there are several initiatives ongoing to improve this issue:

- Global Corporate Governance Forum (GCF)
- Center for International Private Enterprise (CIPE)

- Al-Urdun Al-Jadid (UJRC)
- Jordan Association of Auditors

Looking at the progression of Corporate Governance issues, we see the following trend for Jordan:

Table (4): Efficacy of Corporate Government Percentiles

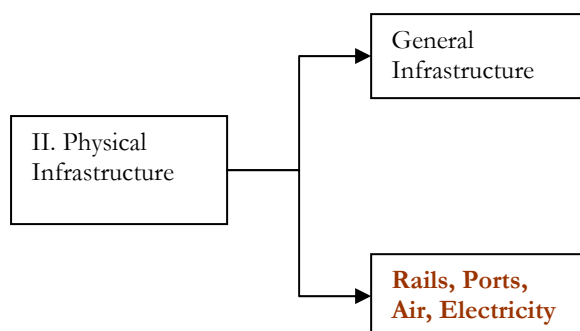
Year	1998	2000	2002	2004
Rank	38/53	49/59	64/80	63/104
Percentile*	28 <sup>th</sup>	17 <sup>th</sup>	40 <sup>th</sup>	39 <sup>th</sup>

\* 99<sup>th</sup> is the highest percentile

Source: Global Competitiveness Report

We see that there is progress on this front, though not fast enough to make foreign investors, or even international firms convinced of the quality and levels of professionalism amongst Jordanian companies. In 2004, in the Efficacy of Corporate Boards category, Jordan received a rank of 63/104. As a benchmarking effort in this category, Israel received a rank of 30/104 in 2004, and in 1998 it received a rank of 37/53, where Jordan was only at 38/53 showing significant progress over Jordan.

## (2) Physical Infrastructure



The main areas of weakness are in the areas of ports (57/104), electricity (35/104), and telephone lines (69/104).

Rankings in Port Infrastructure, compared to Israel:

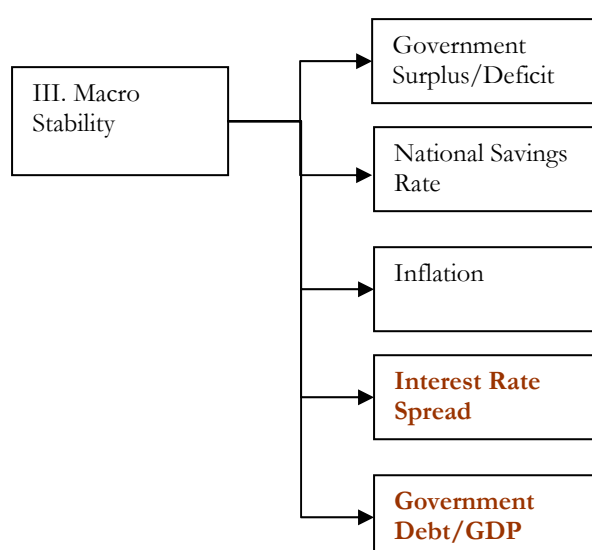
Table (5): Port Infrastructure Rankings

	Jordan	Israel
1998	23/53	22/53
2004	57/104	27/104

Source: Global Competitiveness Report

Jordan has not taken adequate advantage of its geographical position as a potential distribution center. Even domestic producers in Jordan often find it both cheaper and more efficient to export via Haifa, not via the port of Aqaba. Concentrating on transforming Jordan's geographical comparative advantage to a competitive advantage is essential.

### (3) Macro Stability



The Government Debt/GDP ratio is a significant indicator in the GCR. Reverting to the GCI to gain a more holistic view of the situation, we see that the overall macroeconomic index is as follows:

Table (6): Growth Competitiveness Index Breakdown

	2004 (out of 104 countries)	2003 (out of 101 countries)	2002 (out of 80 countries)	2001 (out of 75 countries)
<b>Growth Competitiveness Index Rank</b>	<b>35</b>	<b>34</b>	<b>47</b>	<b>45</b>
<b>Macroeconomic Environment Index Rank</b>	36	42	57	54
Macroeconomic Stability Subindex Rank	13	39	40	46
Government Waste Rank	27	18	40 <sup>5</sup>	-
Country Credit Rating Rank	66	59	58	55
<b>Public Institutions Index Rank</b>	29	20	40	28
Contracts and Law Subindex Rank	23	15	27	21
Corruption Subindex Rank	36	33	54	37
<b>Technology Index Rank</b>	51	48	51	54
Innovation Subindex Rank	47	47	57	60
ICT Subindex Rank	57	46	50	52
Technology Transfer Subindex Rank	22 <sup>6</sup>	28 <sup>7</sup>	30 <sup>8</sup>	29 <sup>9</sup>

Source: Global Competitiveness Report

On the macro-economic level, we seem to be steadily improving on all fronts, as shown by the progress from 2001 to date. The two indices that fall below the rest, dragging the overall rating down are the Country Credit Rating Rank, and the

<sup>5</sup> This was called the "Government Expenditure Rank" in 2002

<sup>6</sup> Out of 79 non-core innovators

<sup>7</sup> Out of 77 non-core innovators

<sup>8</sup> Out of 56 non-core innovators

<sup>9</sup> Out of 51 non-core innovators

Technology Index Rank; composed of the depressed Innovation Subindex, and the ICT Subindex Ranks.

The Country Credit Rating is taken from *Institutional Investor*. In terms of the hard data, Jordan ranks as follows:

Table (7): Country Credit Ratings 2003 (used in 2004 GCR):

Country	Credit Rating
Singapore	86.4
Finland	92.3
Israel	58.0
Iceland	76.3
Jordan	41.2
Taiwan	75.2
Ireland	90.9
Egypt	42.1

Source: *Institutional Investor*

According to *Institutional Investor*, the best rating, 100, would represent the countries with the strongest debt service capacity and the lowest possibility of defaulting on their debt. A rating of 0, the worst rating, would represent countries with the weakest debt service capacity and the greatest possibility of default. In other words, these ratings are proportional to expected collection. Jordan's rating has improved from 38.6 in 2003.

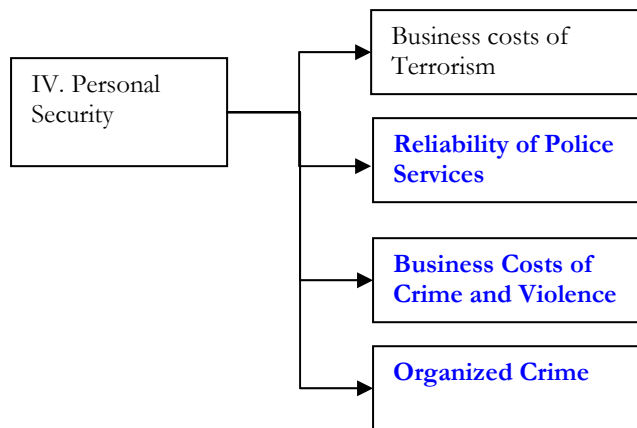
The interest rate spread is also viewed unfavorably by the Jordanian private sector, indicating that when available, loans are expensive for businesses, and so the cost of capital is high. The interest rate spread is directly related to demand for loans. The banks set the rate based on their break-even point given their demand for loans. The higher the amount of loans supplied, the lower the interest rate is able to fall. And even though banks often aggressively advertise to find new clients, given the lack of low-risk loans demanded (and low number of loans given to SMEs with little credit history), banks are unable to lower the rates sufficiently. If more loans were able to be given out, then the breakeven interest rate could be spread more evenly over those amounts, and therefore the average interest rate could fall. There are examples of other countries that have improved substantially more than Jordan in this respect:

Table (8): Interest Rate Spread

	1998	2000	2002	2004
<b>Jordan</b>	19/43	44/59	56/102	58/104
<b>Egypt</b>	27/43	21/59	35/102	51/104

Source: *Global Competitiveness Report*

#### (4) Personal Security



In terms of personal security issues, Jordan scores in the top ten of the world's nations in certain categories. This should be highlighted in investment campaigns. Jordan's reputation may be marred by investors equating the country to its more violent neighbors. Jordan indeed, could be marketed successfully as the "safe-alternative" to manufacturing in many of these countries.

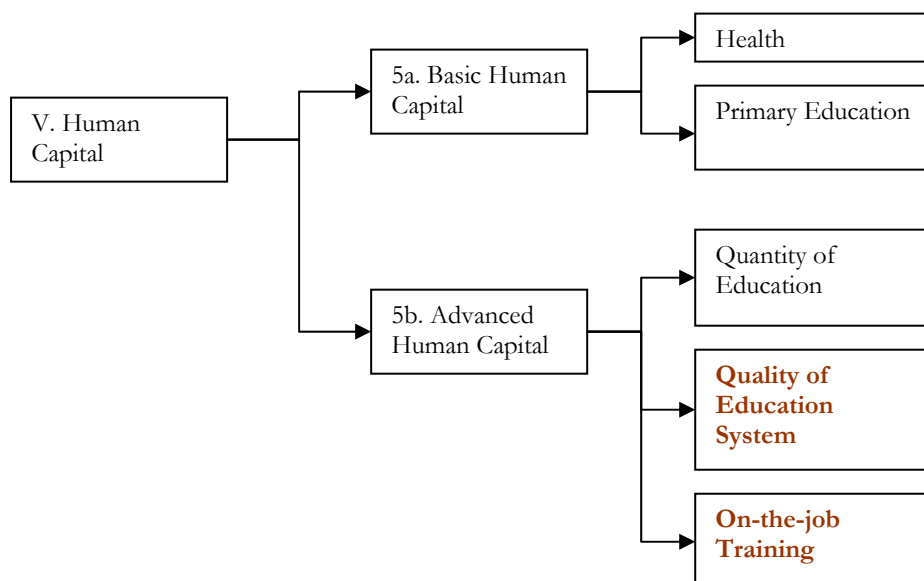
Table (9): Personal Security Rankings

Personal Security	Rank
Reliability of police services	8/104
Business costs of crime and violence	10/104
Organized crime	5/104

Source: Global Competitiveness Report

## II. Efficiency Enhancers

#### (5) Human Capital



The GCR depends on both hard quantitative data, and qualitative data, taken from executive surveys. The results indicate only the *perceptions* of these investors, which may in fact reflect reality, or on the other hand simply a lack of awareness of a certain situation. In either case, this indicates an actual need for change, or the promotion of certain policies via an awareness campaign to the public.

In terms of human capital, specifically concerning the quality of the educational system, especially if labor quality is to be used as a marketing point, the strength of the educational system should be a sensitive issue. Specifically, there are two indicators that keep Jordan's rank low. These are "internet access at schools" (40/104), and the "quality of management schools" (67/104). While these ranks may not necessarily be accurate in reality, given government efforts of connecting schools to the internet, they do show a lack of awareness amongst its citizens of these policies, since the perception is that the government is not effective in these areas.

The issue of underdeveloped management schools can be first attributed to the lack of demand for professional managers, but also to the lack of focus that is placed on this field of education within universities.

The unavailability of decent on-the-job training initiatives (63/104) is also a factor attributed to holding down Jordan's overall score on human capital. The main reason for the lack of existence of such programs is the Brain Drain that plagues firms (Jordan scores 64/104 in the category of Brain Drain), whereby it is not worth their while to invest in employees since their turnover is high. Additional incentives on the part of the government should be thought of in order to help reduce this burden, and help improve on-the-job training efforts (e.g. additional tax deductions) keeping down brain drain through government support efforts.

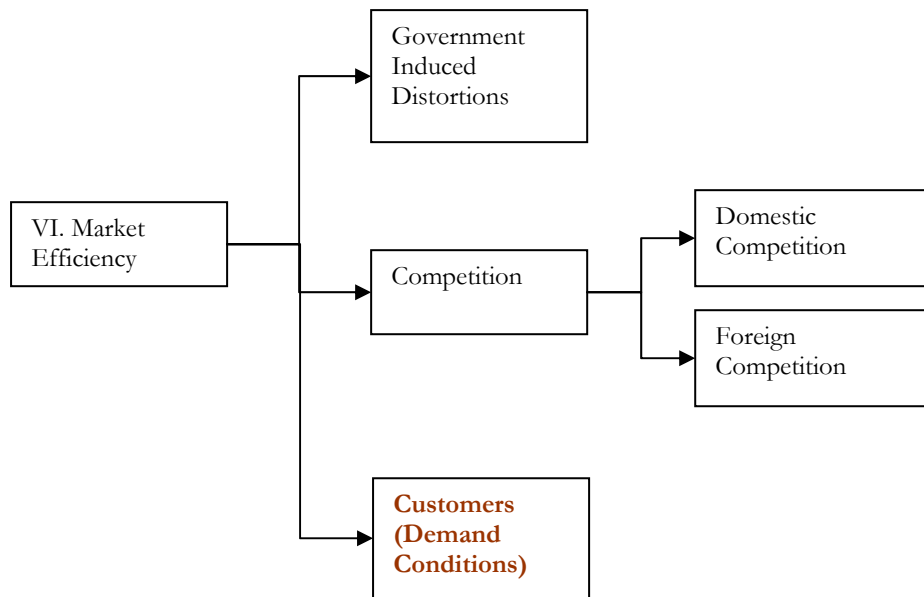
In terms of on-the-job training, it might be worthwhile to learn from Egypt's experience:

Table (10): On-the-job Training

	1998	2004
<b>Egypt</b>	45/53	49/104
<b>Jordan</b>	42/53	63/104

Source: *Global Competitiveness Report*

## (6) Market Efficiency



It is noticeable worldwide, that unless an industry has a strong domestic market base, its ability to test products, grow its technology and marketing techniques, and build up its manufacturing capabilities is always limited. As Michael Porter points out, contact with a strong consumer base is critical to a firm's growth success. It is not simply a question of limited market size, as is the case in Jordan, but rather customer sophistication, on the one hand, and degree of customer orientation amongst firms on the other.

In Jordan, both these factors are low. Buyer sophistication remains at 59/104. In 2003 this rank was higher at 48/102. Tracing the rank historically, we find that Jordan has always occupied a relatively low position of 51/59 in 2000.

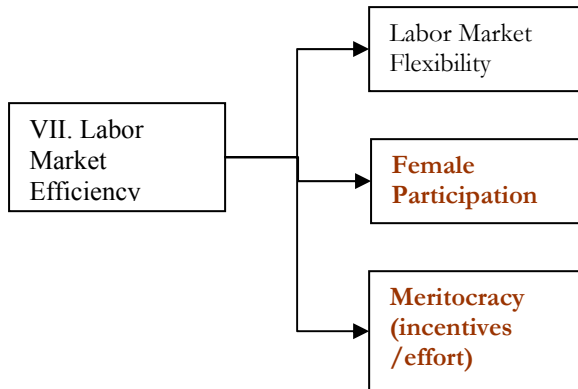
Helping to build up an educated customer base, with more sophisticated demands, will help firms to adjust and tweak their products which will in turn help them to become more competitive. Increasing the capacity of institutions such as the Consumer Protection Association would help to this end. On the opposite side, the degree of customer orientation (56/104) is also low. For a country highly dependent on the service industry as the major contributor to GDP, this situation requires attention. What the government can do in this respect, is to offer the consumer extra rights, which will force firms to turn their attentions more closely to their demand base. Building up a sophisticated consumer base is the cultural shift needed to push local companies to improve their services, and innovate to please their constituents. While the overall trend has shown improvement, this increase has been limited:

Table (11): Customer (Buyer) Sophistication

	1998	2000	2002	2003	2004
<b>Ranks</b>	41/53	51/59	63/80	48/102	59/104
<b>Percentiles</b>	23 <sup>rd</sup>	14 <sup>th</sup>	21 <sup>st</sup>	53 <sup>rd</sup>	43 <sup>rd</sup>

Source: Global Competitiveness Report

## (7) Labor Market Efficiency

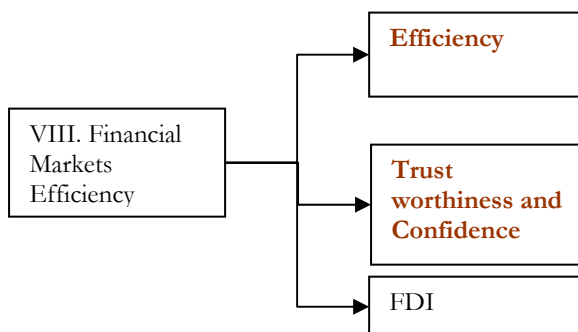


Whereas the male participation rate is 64.2% for the entire population (taken from the Human Resource Indicators, 2002), the female rate was only at 12.3%. This figure is especially low; however, recent manufacturing experiences such as the textile industry have been increasing the role of women in the workplace.

Meritocracy in Jordan's private companies remains relatively low. Pay linked to productivity (or incentive pay) does not seem to exist in many of the companies, even manufacturing firms. Since many firms are family run affairs, there seems little incentive or real career path for many of the employees within the company, which leads to low loyalty towards the firm, and a disincentive to work hard to succeed.

It has become necessary to raise the level of performance and management in Jordanian firms to a world-class standard, both to benefit the local economy, and as a marketing tool to attract foreign investors. Increasing the existence of incentive based reward schemes might also help battle certain phenomenon like Brain Drain whereby workers will feel comfortable and rewarded for their efforts.

## (8) Financial Market Efficiency

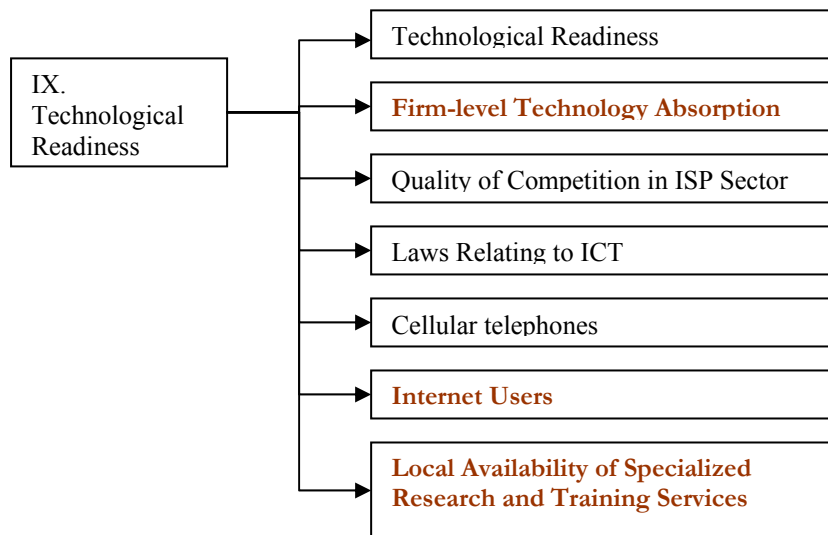


Within the "Efficiency" indicator, both financial market sophistication (48/104), and ease of access to loans (46/104) are not high scorers. However, the indicator that really drags down the overall rating is the lack of "venture capital availability"

(71/104). Venture capital funds are financing for start-ups which are considered high risk projects. These projects cannot be funded through conventional means such as bank loans, and require a very sophisticated investor who can spread risk out adequately between them. The incubator facilities that currently exist are not venture capital funds (which really measure society's financial tolerance for innovation given the risk of absolute failure).

In terms of ease of access to loans, there are several factors influencing this decision. A large number of SMEs in Jordan, have no financial records. Moreover, many lack the ability to provide a detailed feasibility study when applying for a loan. Coupled with the risk-averse nature of the management of many Jordanian banks, this makes the accessibility to loans more difficult.

### (9) Technological Readiness



This category can be split into two main sections:

- (i) Government efforts at promoting technology: In terms of government prioritization of ICT (17/104), and its success at promoting it (9/104), Jordan ranks highly. In the laws relating to ICT this score drops (35/104), and in terms of "internet access at schools" Jordan's rank is low (40/104).
- (ii) Citizen and business acceptance of technology: Amongst companies, the urgent need for internalizing technology has not yet risen. Coupled with the fact that FDI does not transfer adequate technology (CMT operations within the QIZs, for example) (62/104), the technological progression of companies has been stunted. Indeed, company spending on research and development is also low (65/104). While survival as a factor driven economy allowed for this sort of behavior, transition into higher value-added economies requires this investment, whether on the level of innovative services, or independence from the burden of intellectual property rights in manufacturing firms. The

SME dominated economy however, will be unable to bear the burden of research on the company-level. On the level of the individual, in terms of personal computers, Jordan ranked (66/104).

Historically in this category, Jordan has been improving. In 2000, in terms of personal computers Jordan ranked in the 15<sup>th</sup> percentile. In 2004, our rank has improved to the 36<sup>th</sup> percentile, still not in the top 50<sup>th</sup> percentile (necessary for a country that considers the IT industry as a potential source of economic growth). On the fronts of company spending on R&D Jordan while still low, has been improving. In terms of FDI and Technology Transfer, it appears that there is a perception that foreign firms are progressively using Jordan less and less for higher value-added products, and instead, (maybe as a result of Jordan's marketing campaign abroad itself), simply for taking advantage of its trade relations and low-wage labor, without any real spillover effects in the country.

Table (11): FDI and Technology Transfer Percentiles

	2000	2002	2003	2004
<b>Rank</b>	53/59	40/80	65/102	62/104
<b>FDI and Technology Transfer</b>	10 <sup>th</sup>	50 <sup>th</sup>	36 <sup>th</sup>	40 <sup>th</sup>

Source: *Global Competitiveness Report*

As FDI increases, and as firms engage more and more heavily in international trade, technology absorption has increased. This is reflected in the increasing percentile value achieved by Jordan:

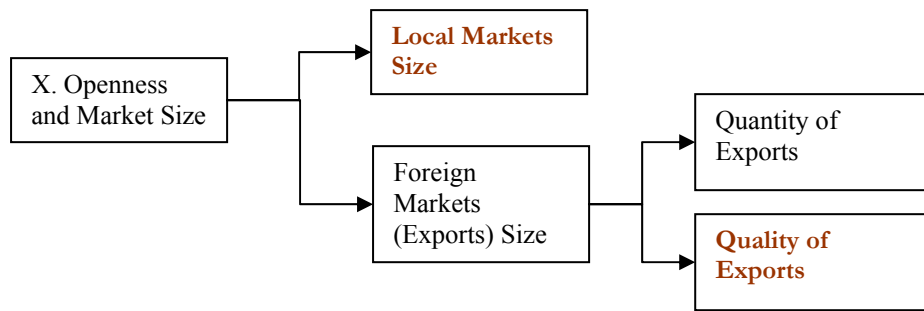
Table (12): Firm level absorption

	1998	2001	2002	2004
<b>Rank</b>	39/53	50/75	47/80	46/104
<b>Percentile</b>	26 <sup>th</sup>	33 <sup>rd</sup>	41 <sup>st</sup>	56 <sup>th</sup>

Source: *Global Competitiveness Report*

In terms of the availability of specialized research and training services, in 2002, Jordan's rank in this category was 52/80. In 2004, the rank is at 53/104. While Jordan's rank improved in terms of percentile, more effort is required to move it forward on this scale. Research services are essential in terms of properly understanding the market, and so in this sense are linked to customer sophistication. Training services are needed to work closely with the private sector to provide skilled workers. Coupled with the low score in the on-the-job training category, this situation requires a remedy in order to provide companies with sophisticated employees.

## (10) Openness and Market Size



In the quantity of exports category, Jordan ranks at 35/104. In the quality of exports however, which is split into the two indices of "nature of competitive advantage" and "value chain presence", Jordan ranks at 42/104, and 46/104 respectively. These low scores encompass a lot of the systematic disengagement from strategic planning that companies engage in. Rather than targeting higher value-added products, firms compete directly with lower-end products that benefit from large economies of scale in East Asia and so are unable to compete effectively. The lack of value-chain presence also means that the value-added reaped by Jordan (whether in the final stages of packaging, or the refinement of certain natural resources) is not achieving its true potential.

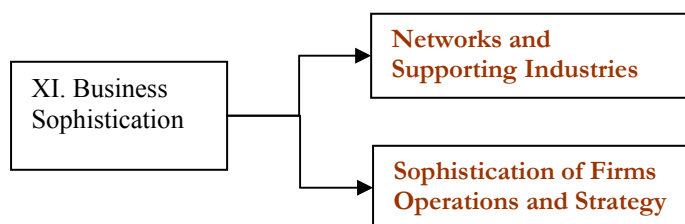
Table (13): Quality of Exports Rankings

	1998	2000	2002	2004
<b>Nature of Competitive Advantage</b>	40/53 25 <sup>th</sup>	52/59 12 <sup>th</sup>	35/80 56 <sup>th</sup>	42/104 60 <sup>th</sup>
<b>Value Chain Presence</b>	-	31/59 47 <sup>th</sup>	42/80 48 <sup>th</sup>	46/104 56 <sup>th</sup>

Source: Global Competitiveness Report

## III. Innovation and Sophistication Factors

### (11) Business Sophistication



This lack of value-chain presence is also reflected in the nature of clusters that have developed in Jordan. These indicators, previously grouped under the "Business Competitiveness Index" are amongst the most lagging in Jordan. In terms of the cluster concept, the networking and supporting industries are split into three main indicators. The first is the local supplier quantity (49/104), then the local supplier quality (56/104), and finally the state of cluster development (65/104).

For each sector strategy that is put forward, there must be an effort made to concentrate on the enhancement of related and supporting industries.

In terms of the sophistication of firms and operations and strategy, there are several key indicators worth mentioning:

Table (14): Firms Operations and Strategy Rankings

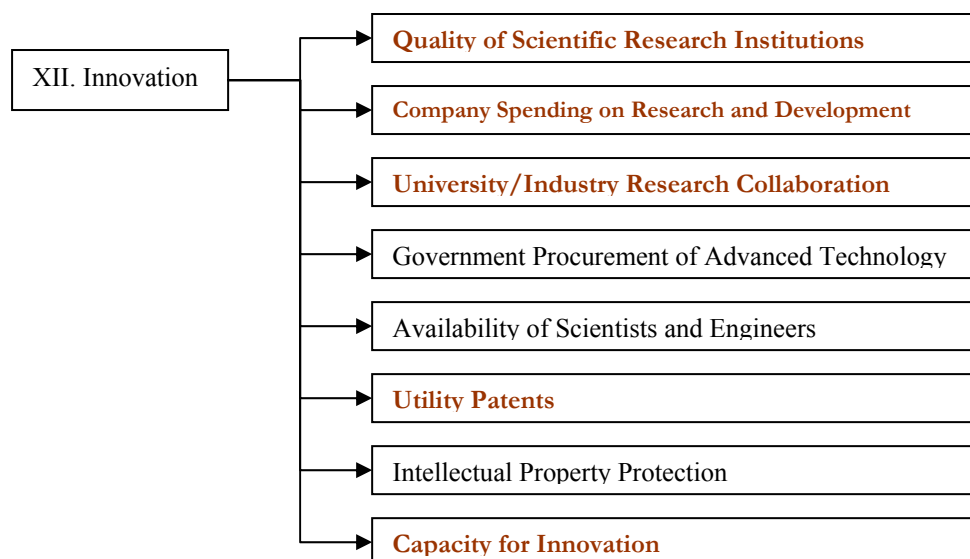
	2000	2002	2004
<b>Production process sophistication</b>	39/59 34 <sup>th</sup>	56/80 30 <sup>th</sup>	56/104 46 <sup>th</sup>
<b>Extent of marketing</b>	52/59 12 <sup>th</sup>	71/80 11 <sup>th</sup>	76/104 27 <sup>th</sup>
<b>Control of international distribution</b>	-	43/80 46 <sup>th</sup>	40/104 62 <sup>nd</sup>
<b>Willingness to delegate authority</b>	55/59 7 <sup>th</sup>	61/80 24 <sup>th</sup>	70/104 33 <sup>rd</sup>
<b>Reliance on professional management</b>	58/59 2 <sup>nd</sup>	74/80 8 <sup>th</sup>	79/104 24 <sup>th</sup>

*Source: Global Competitiveness Report*

We can see that Jordan's position has been steadily improving, however, it remains the worst scoring indices for the country. The idea is to help Jordanian companies reach to world-class standards. In terms of reliance on professional management, or the willingness to delegate authority, the indicators relate back to the corporate governance overhaul necessary. The extent of marketing ties into customer sophistication as well.

Clusters are known as the "incubators for innovation" they can innovate more rapidly because they draw on local networks that link technology, resources, information and talent. The lack of ties currently present requires government support, in terms of joint research initiatives, to help break down barriers between companies.

## (12) Innovation



While the availability of scientists and engineers remains high (17/104), the other factors receive low scores:

Table (15): Technology and Innovation Rankings:

	1998	2000	2002	2004
<b>Quality of scientific research institutions</b>	38/53 28 <sup>th</sup>	52/59 12 <sup>th</sup>	54/80 33 <sup>rd</sup>	43/104 59 <sup>th</sup>
<b>Company spending on R&amp;D</b>	-	50/59 15 <sup>th</sup>	68/80 15 <sup>th</sup>	65/104 38 <sup>th</sup>
<b>University/industry research collaboration</b>	39/53 26 <sup>th</sup>	-	60/80 75 <sup>th</sup>	47/104 55 <sup>th</sup>
<b>Government procurement of advanced technology products</b>	-	-	62/80 78 <sup>th</sup>	39/104 63 <sup>rd</sup>
<b>Availability of scientists and engineers</b>	-	-	22/80 73 <sup>rd</sup>	17/104 84 <sup>th</sup>
<b>Utility patents</b>	-	-	44/80 45 <sup>th</sup>	66/104 36 <sup>th</sup>
<b>Intellectual property protection</b>	-	27/59 54 <sup>th</sup>	35/80 56 <sup>th</sup>	28/104 73 <sup>rd</sup>
<b>Capacity for innovation</b>	-	-	56/80 30 <sup>th</sup>	63/104 39 <sup>th</sup>

Source: *Global Competitiveness Report*

The quality of scientific research institutions (43/104), university-industry collaboration (47/104), and utility patents (66/104) are also low. However, the basic availability of scientists and engineers is not the problem (17/104), it is a question of channeling their abilities to best help establish the technological readiness required for moving from a factor-driven to an efficiency-driven economy.

Company spending on R&D is one of the lowest scoring indicators. This lack of spending ties into the progress companies think they will get from the research. This requires both an increase in government support, as well as build up of customer sophistication and their demands from the company. In order to progress from a factor driven to an investment driven economy, this situation must be remedied.

## Overall Review

There were 12 main problematic factors that businessmen listed in this year's GCR as the highest impeding business; they were in order of importance given by survey respondents:

1. Access to financing
2. Inefficient bureaucracy
3. Inadequately educated workforce
4. Tax rates
5. Tax regulations
6. Poor work ethic
7. Policy instability
8. Restrictive labor regulations
9. Inadequate infrastructure
10. Inflation
11. Corruption
12. Government instability

When considering the priority to change however, it is worthwhile to consider which of these factors most affect GDP growth. To this end, the top 15 factors of the bivariate regression results with the dependent variable 2003 GDP per capita (PPP-adjusted) were calculated, and listed in order of importance to GDP in both low-income, and middle-income countries. This gives us an indication of which (stand-alone) factors most affect the gross domestic product. In other words, this allows us to somewhat prioritize government policies that should follow up investor comments on the obstacles they are facing.

Table (16): Problems most affecting GDP in low-income and middle-income countries:

	<b>Low-income country</b>	<b>Middle-income country</b>
1	Patents per million population	Production process sophistication
2	Extent of bureaucratic red tape	Local supplier quality
3	Tariff liberalization	Capacity for innovation
4	Quality of electricity supply	Presence of demanding regulatory standards
5	Extent of branding	Tariff liberalization
6	Quality of public schools	Quality of scientific research institutions
7	Venture capital availability	Stringency of environmental regulations
8	Extent of marketing	Local supplier quantity
9	Production process sophistication	Company spending on research and development
10	Extent of locally based competitors	Local availability of specialized research and training services
11	Local availability of specialized research	Efficacy of corporate boards

	and training services	
12	Capacity for innovation	Reliance on professional management
13	Local supplier quality	Venture capital availability
14	Breadth of international markets	Willingness to delegate authority
15	Port infrastructure quality	Centralization of economic policy-making

Source: *Global Competitiveness Report*

Tracing back historically, the most deeply rooted problems in Jordan are: poor access to finance, particularly the limited venture capital availability; the lack of marketing and branding strategies for firms; the lack of specialized research and training facilities coupled with a poor work ethic; the low capacity for innovation; and the poor port infrastructure.

These problems also happen to carry a large contribution to GDP, especially when moving from a low- to a middle-income economy that is less focused on simply exploiting comparative advantages. And many of these problems happen to be systematic shortcomings faced by Jordan.

Unmistakably, Jordan has been improving its position steadily in the Global Competitiveness Report, however there is still much room for improvement, especially in assuring those components essential for a transformation to higher stages of development, as laid out by the *Global Competitiveness Report's* framework. In order to fully work on dealing with some of these issues, it is worthwhile, as a future effort, to research and learn from the policies followed by countries that were in a similar position to Jordan in the years 1998-2000, and how they remedied the situation to develop beyond Jordan's position today.

## **Appendix 1: Global Competitiveness Index (LCI)**

This index is based on three main principles:

### **Principle 1: Productivity is Complex: Twelve Pillars of Competitiveness**

The determinants of competitiveness are complex. This complexity is captured in 12 pillars:

#### **Subindex 1: Basic Requirements**

##### First Pillar: Institutions

The institutional environment forms the framework in which private individuals, firms, and governments interact to generate income and wealth. This involves the concept of property rights. The importance of institutions is not restricted to the legal framework. It also involves government attitudes toward markets and freedoms and the efficiency of its operations, as well, as private sector institutional issues such as corporate governance.

##### Second Pillar: Physical Infrastructure

It goes without saying that private firms cannot operate satisfactorily in an economy where it is hard to transport factors of production, final goods, or services, and where it is hard to communicate and exchange information.

##### Third Pillar: Macro Stability

An economy cannot grow unless the macro environment (in terms of issues such as inflation or external debt) is stable or favorable.

##### Fourth Pillar: Security

Wealth and prosperity cannot be created if the safety of managers, administrators, employees, and even customers cannot be guaranteed because of military conflicts, terrorism, organized crime, or political and economic kidnappings.

#### **Subindex 2: Efficiency Enhancers**

##### Fifth Pillar: Human Capital

Human Capital has two important components. The first is *basic human capital*, which consists of the basic requirements for a human body to function and be productive (i.e. health); and basic education in terms of literacy and primary schooling.

In more advanced economies, good health and basic education are not enough for citizens to earn a decent living. Advanced education, and flexible skills need to be acquired.

##### Sixth Pillar: Goods Market Efficiency

Goods market efficiency is needed at three levels. Efficient markets require non-disruptive public interventions, or inefficient procedures that distort conditions. Market efficiency is driven by business competition. Market dominance by one or a few firms generate inefficiencies. Market efficiency depends on demand conditions such as customer sophistication, customers who accept poor treatment by firms tend not to impose the necessary discipline on companies for efficiency to be achieved in the market.

##### Seventh Pillar: Labor Market Efficiency

The efficiency of the labor market includes not only public actions (taxes, transfers, regulations, etc.) but also private practices (labor-employer relations). The systematic promotion of relatives rather than workers with superior qualifications, or the payment of wages that are not related to productivity, tend to have perverse effects on the productivity of the economy.

#### Eighth Pillar: Financial Market Efficiency

An efficient financial sector is needed to allocate the resources saved by a nation's citizens to its most productive uses. A proficient financial sector channels resources to the best entrepreneurs. A modern financial sector develops products and methods so that small investors with good ideas can implement them. A well-functioning financial sector needs to provide risk capital and loans, and be trustworthy and transparent. Financial market efficiency also involves the presence of foreign financing availability.

#### Ninth Pillar: Technological Readiness

Whether the technology used has or has not been invented within its borders is immaterial for our purposes. The central point is that the firms operating in the country have access to these advanced products and blueprints.

#### Tenth Pillar: Openness and Market Size

The size of the market affects productivity because large markets allow firms to better exploit economies of scale. In the era of globalization, exports have become a substitute for domestic markets, especially for small countries. This pillar measures both domestic markets and international trade.

### **Subindex 3: Innovation Factors**

#### Eleventh Pillar: Business Sophistication

Economic development usually requires increasing degrees of business sophistication. One form of sophistication is the formation of clusters (which help with efficient access to specialized suppliers, employees, information, and training, as well as increasing the capacity for productive growth and opportunities for innovation). A second form of sophistication is through more complex operations and strategies. This involves the use of marketing or branding, the utilization of superior distribution systems, access to advanced technologies, and the introduction of modern business organizational forms.

#### Twelfth Pillar: Innovation

In the long run, standards of living cannot be expanded without technological innovation. Innovation is particularly important for economies as they approach the frontiers of knowledge, and the possibility of copy and imitation tend to disappear.

These pillars are evaluated separately, but this should not obscure the fact that they are not independent, and relate to, and reinforce, each other.

### **Principle 2: Stages of Development**

The second principle is that economic development is a dynamic process of successive improvements, in which economies find increasingly sophisticated ways of producing, and competing. In other words, the process of economic development evolves in *stages*.

The most basic stage is the *factor-driven stage* where firms compete in terms of prices. Firms take advantage of their cheap factors (including low-cost labor and cheap unprocessed natural resources). In this stage firms produce commodities and other simple products originally designed in other countries.

The second stage is the *efficiency-driven stage* where efficient production practices become the main source of competitiveness. The quality of an economy's products (not only the price) and the effectiveness of the production process determine the productivity of firms in this phase.

The third stage is the *innovation-driven stage* where successful economies can no longer compete in price (or even in quality because prices are so high). In this phase businesses need to increase their sophistication by organizing in clusters and opting for advanced and superior operations. Institutions and incentives supporting innovation become the central part of economic competitiveness.

The LCI is composed of a mixture of these factors as follows, with the  $\alpha$ 's given weightings according to the country's development stages.

$$\text{LCI} = \alpha_1 \times \text{basic requirements} \\ \alpha_2 \times \text{efficiency enhancers} \\ \alpha_3 \times \text{innovation factors}$$

### Principle 3: Transitions

The third principle on which the new LCI index is founded is that, as economies develop, they move from one stage to the next in a smooth fashion, rather than abrupt jumps, with the weightings for  $\alpha_1$ ,  $\alpha_2$ , and  $\alpha_3$  as follows:

	Basic Requirements	Efficiency Enhancers	Innovation and Sophistication Factors
	$\alpha_1$ weight	$\alpha_2$ weight	$\alpha_3$ weight
Factor-Driven Stage	50 percent	40 percent	10 percent
Efficiency-Driven Stage	40 percent	50 percent	10 percent
Innovation-Driven Stage	30 percent	40 percent	30 percent