



Pharmaceuticals

C L U S T E R

NATIONAL COMPETITIVENESS TEAM

Ministry of Planning

Outline

✓ **Role in the Jordanian Economy**

Significance to Consumer

Current Strategy

Cluster Map

Key Issues

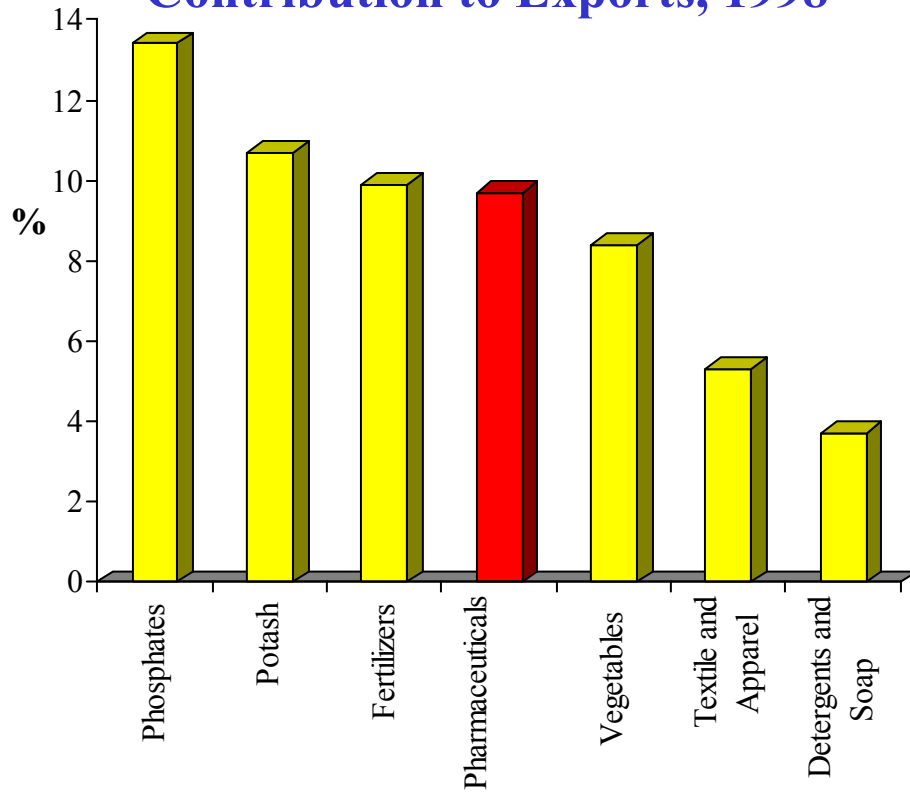
Competitive Diamond Model

Future Strategy Options

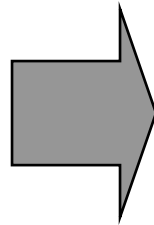
Industry Overview

- The Pharmaceutical industry has been of great significance to Jordan over the last three decades:
 - **7%** of manufacturing **GDP**
 - **3.4%** of manufacturing **employment**
 - **9.6%** of total **exports**
 - Third largest exporter in Jordan
 - Over 70% of its total production is exported.
- The industry remains relatively small, with a total of 17 companies, three of which have yet to produce a product
- Most companies produce generic medicines and patented medicines without license agreements from the foreign patent holders
- The actual capital investment in this industry exceeds US\$ 400 million.
- In 1999, Jordan joined the WTO: Pharmaceutical companies fear the issue of compliance with international standards of intellectual property rights.

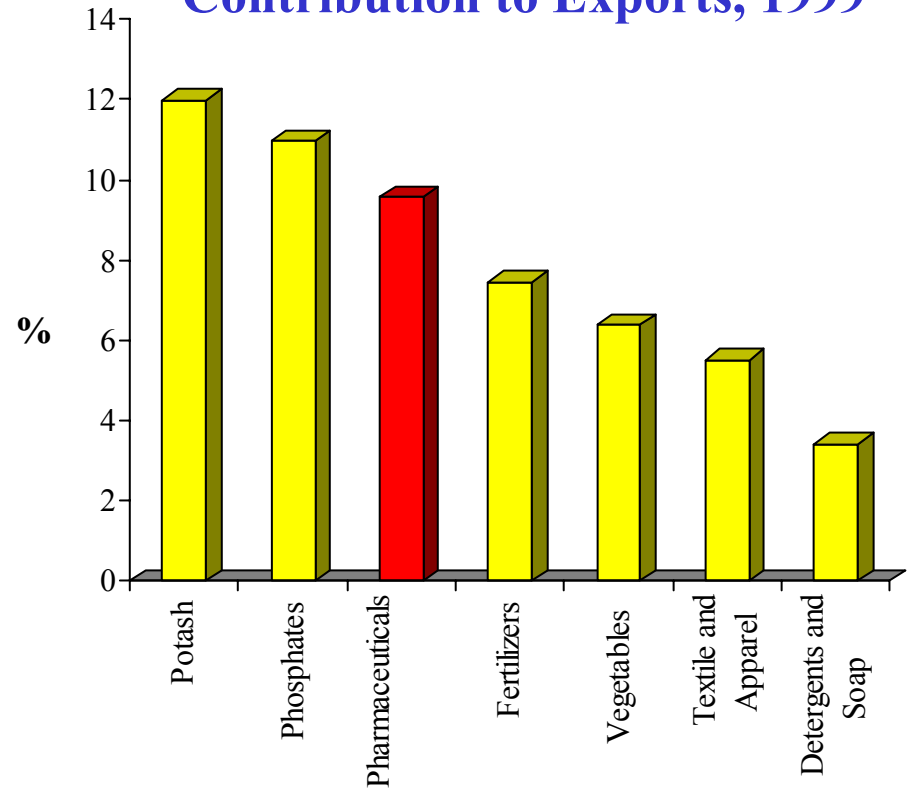
Contribution to Exports, 1998



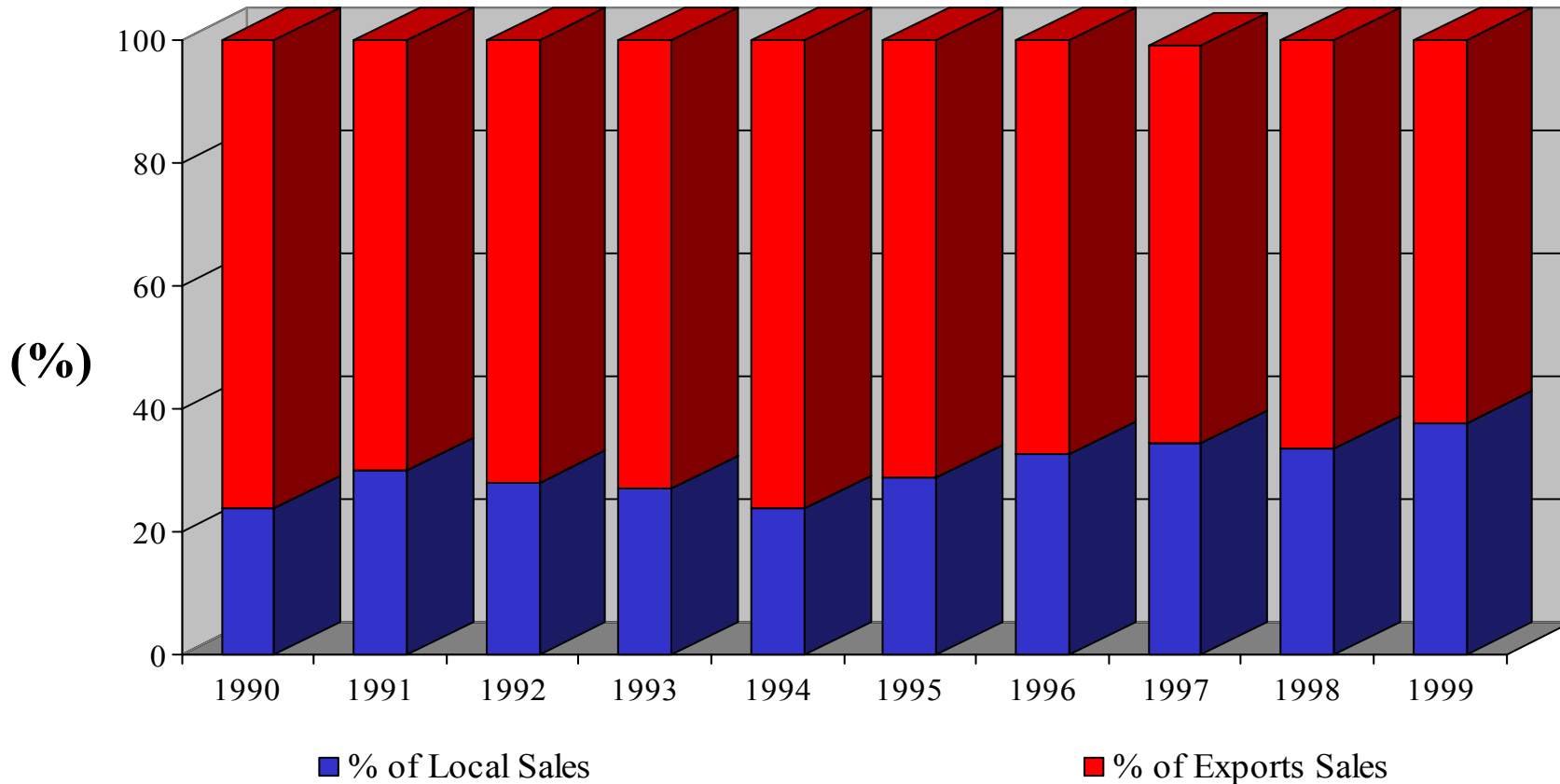
Source: Central Bank of Jordan, Monthly Statistical Bulletin, May 2000



Contribution to Exports, 1999



Exports vs. Local Sales



Source: Drug Directorate, 1999

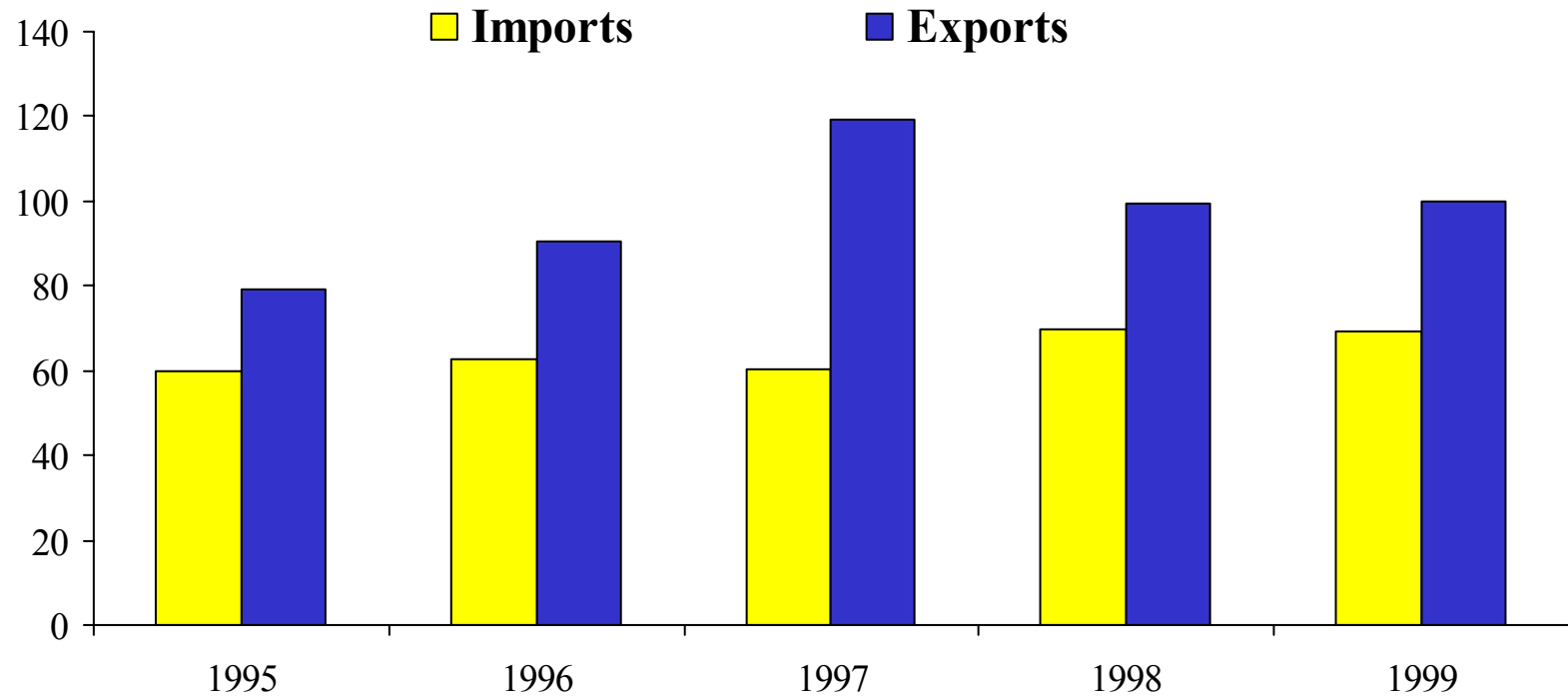


The Pharmaceutical industry is export-oriented; the industry has been able to sustain over 70% of its total production as exports.

Trade Balance

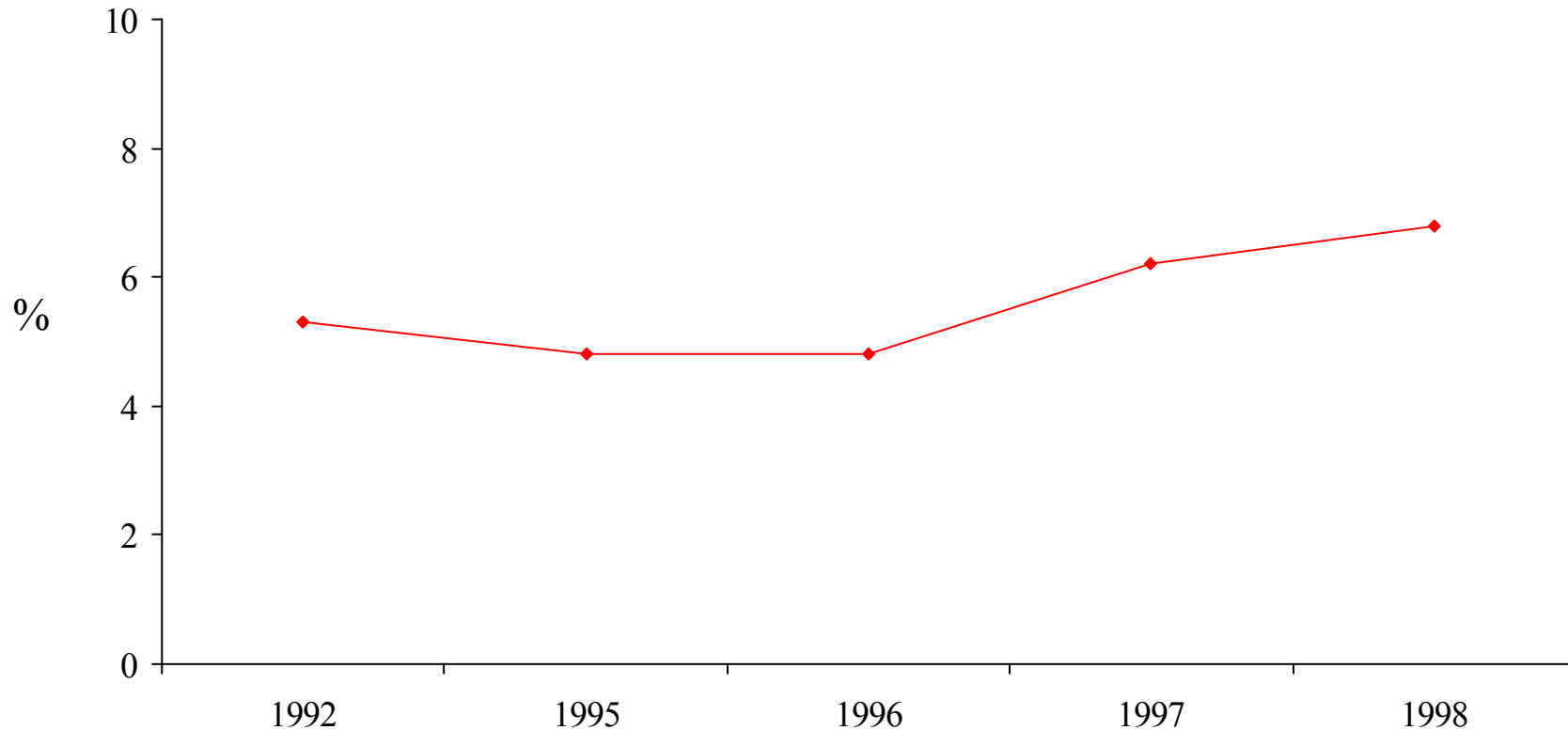
Exports vs. Imports

JD million



Source: Drug Directorate, 1999

Contribution To Manufacturing GDP

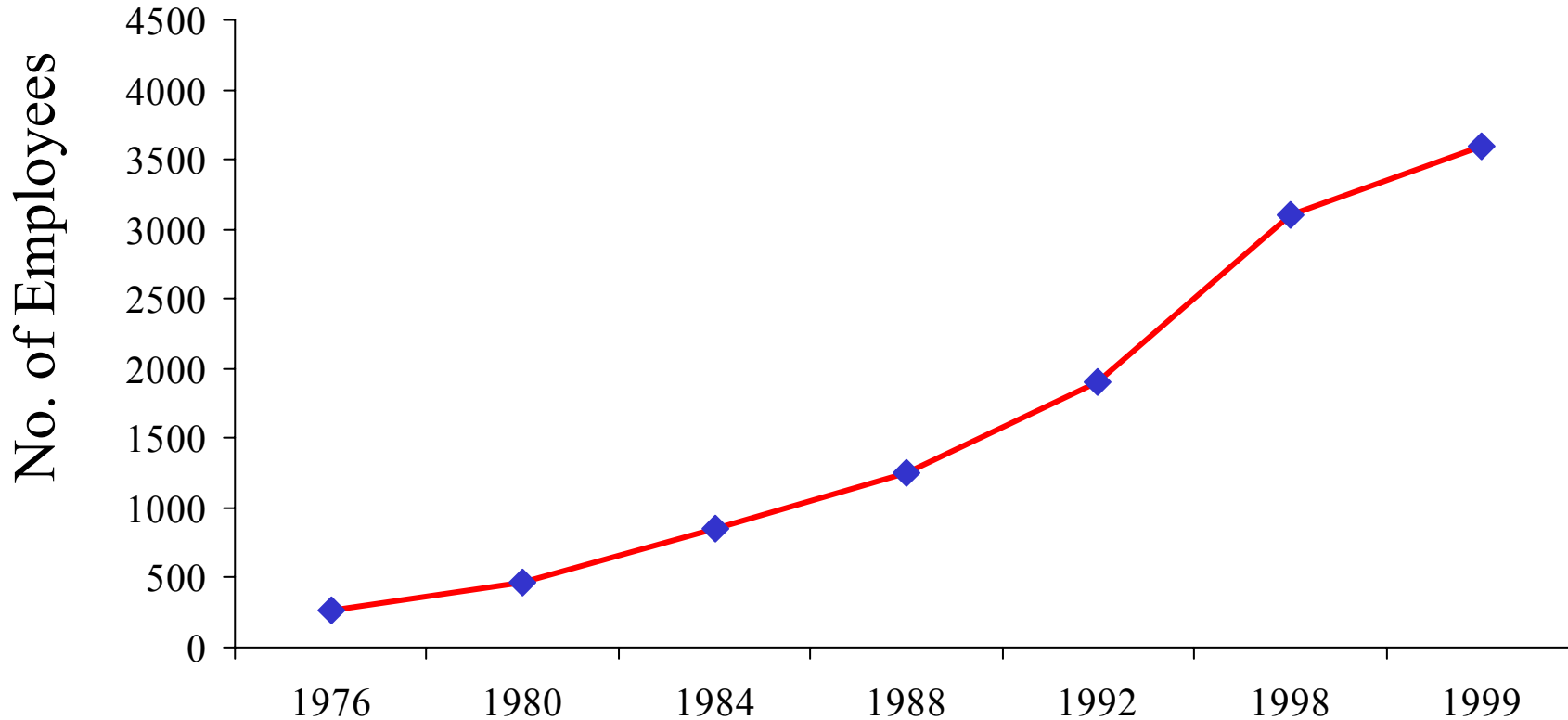


Source: Department of Statistics, Industrial Survey, Various Issues.



Although total manufacturing GDP is a relatively small percentage (12%) of Jordan's total GDP, the pharmaceutical industry represented almost 7% of total manufacturing GDP in 1998

Growth of Employment



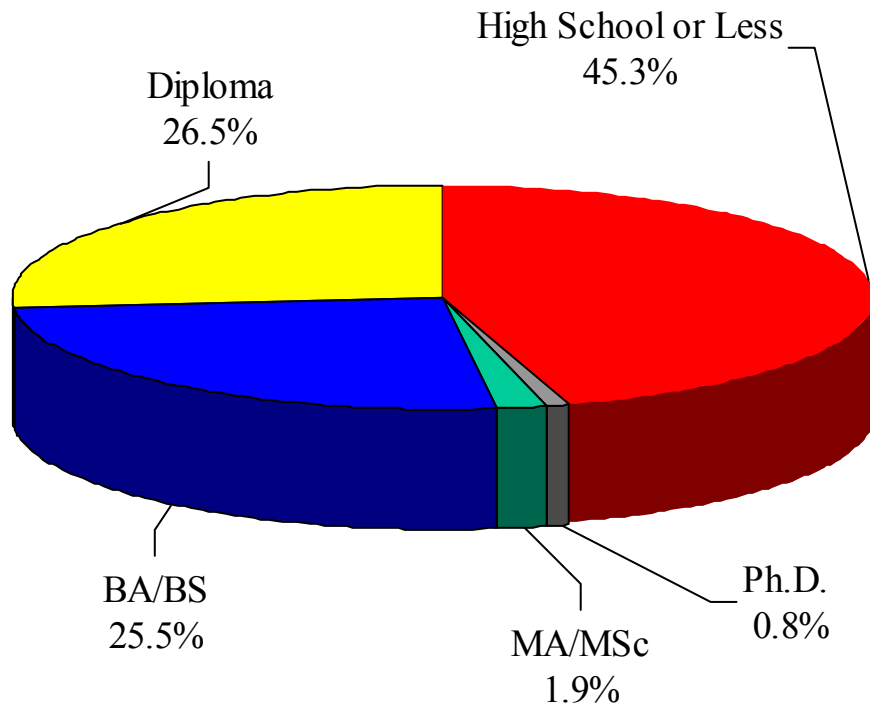
Source: Naseem Rahahleh, pharmaceutical industry in Jordan



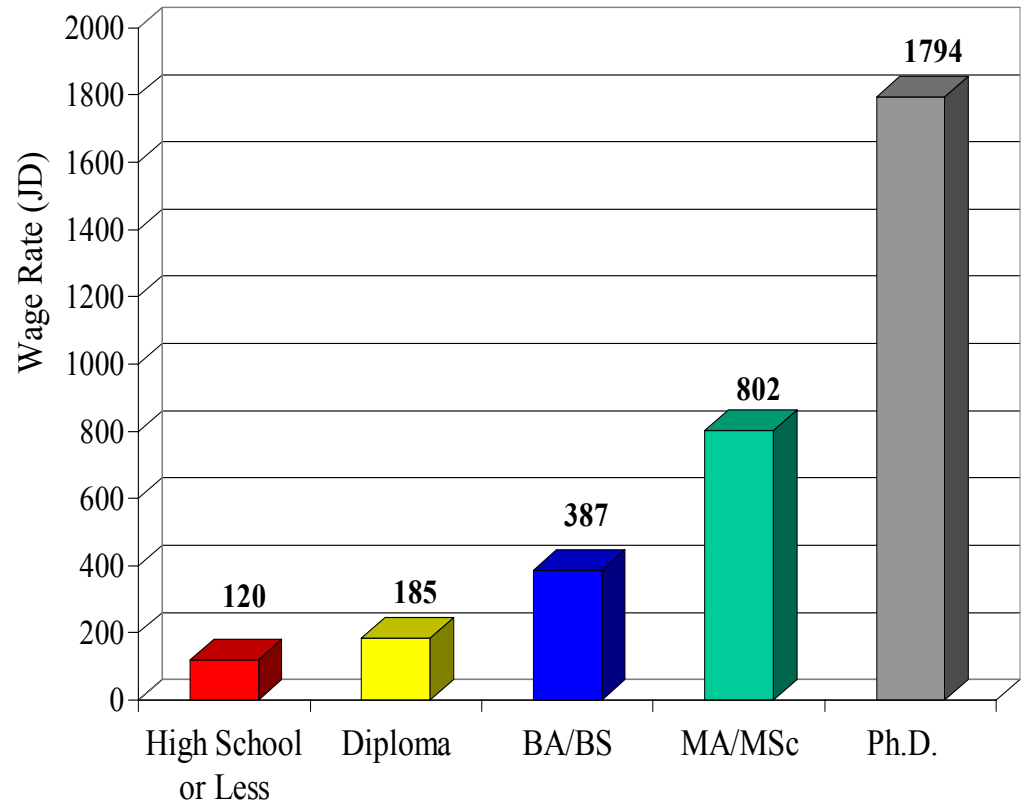
The pharmaceutical industry is considered an important source of employment. In 1999, the industry employed 3.4% of total manufacturing employment

Qualifications vs. Wages

Distribution of employees* according to academic qualifications, 1998

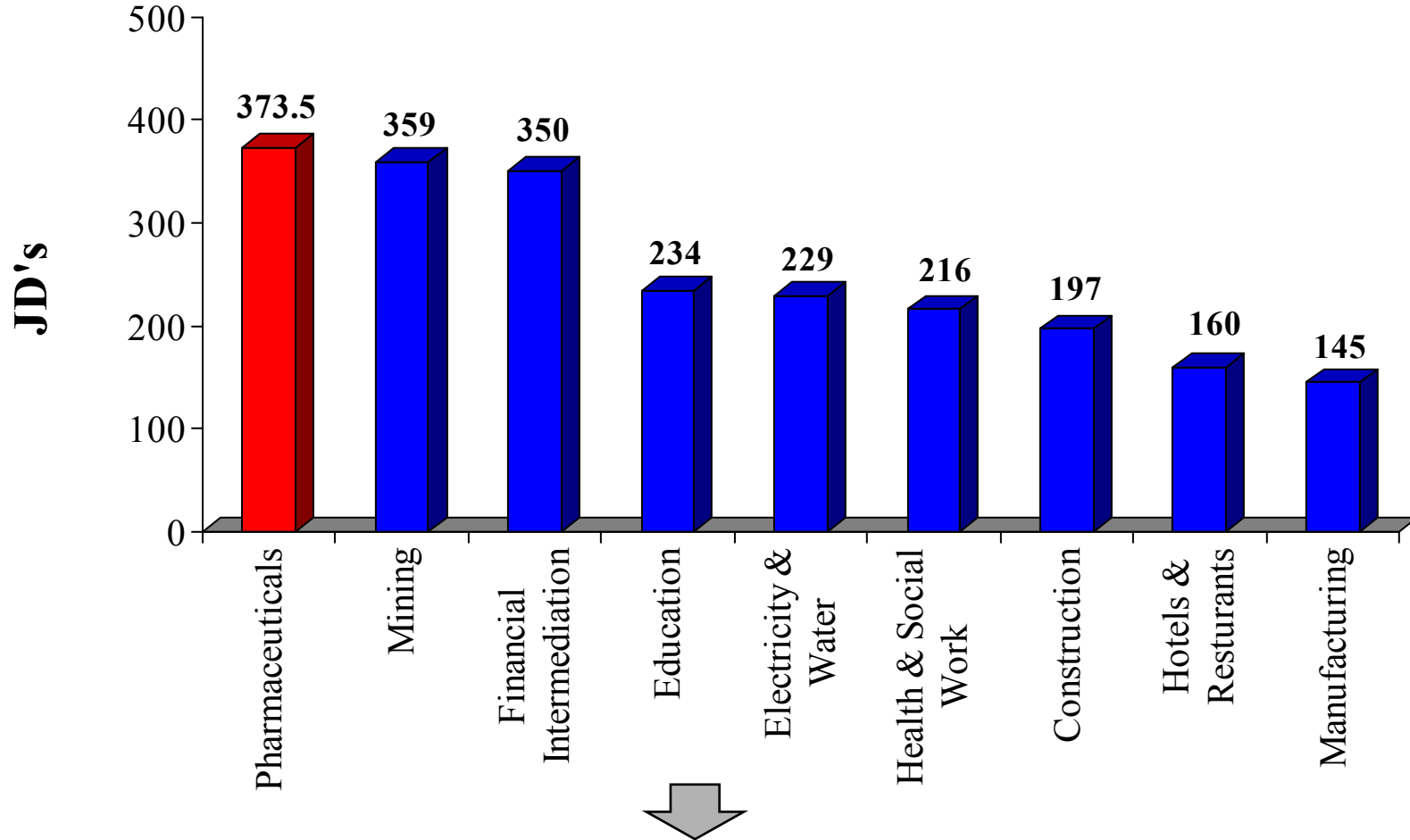


Wage rates for employees according to academic qualifications (JD)



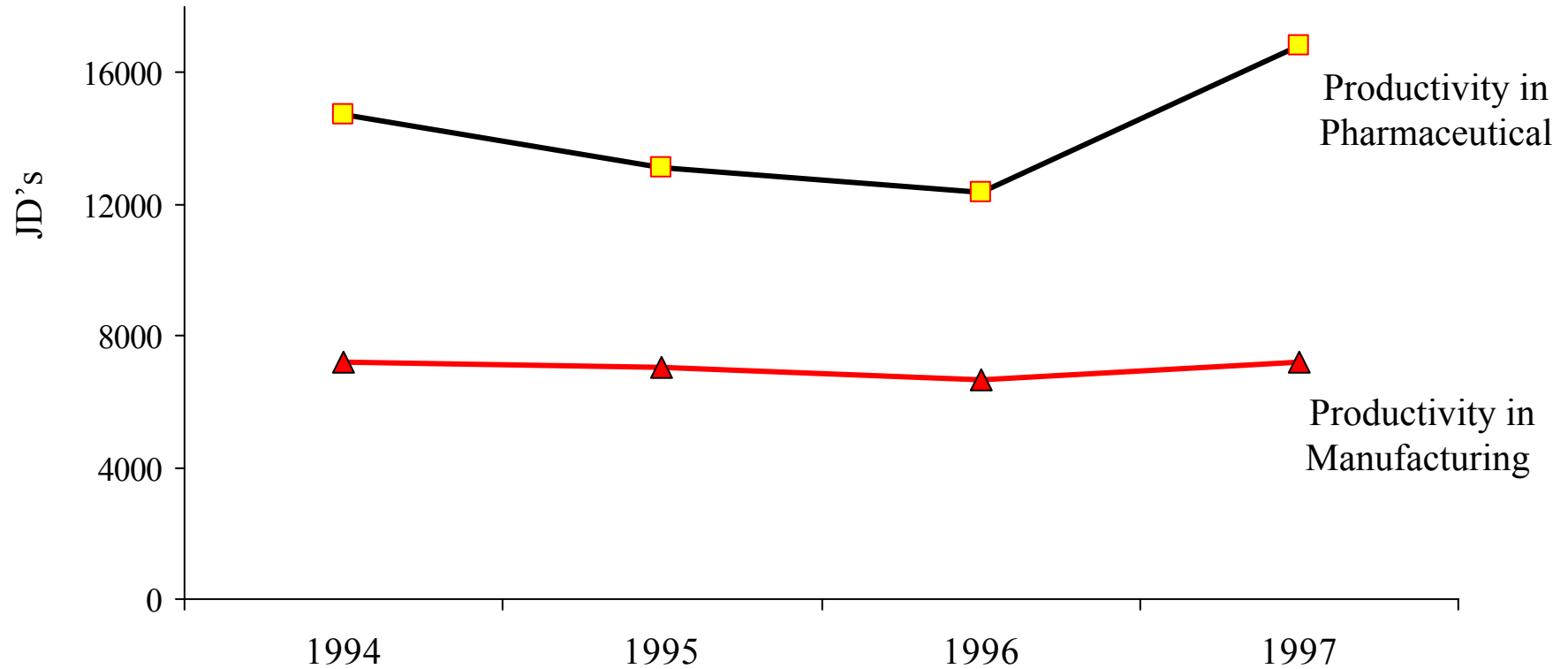
*Total number of employees 3098

Average Monthly Wages Per Employee in JD



Pharmaceutical industry is considered the highest paid industry in terms of wages. The average wage of employees holding high school degree and less is higher than the GDP per Capita for year 1997

Productivity in Manufacturing industry vs. Pharmaceutical industry



Productivity in the pharmaceutical industry scored high in comparison to productivity in the manufacturing industry

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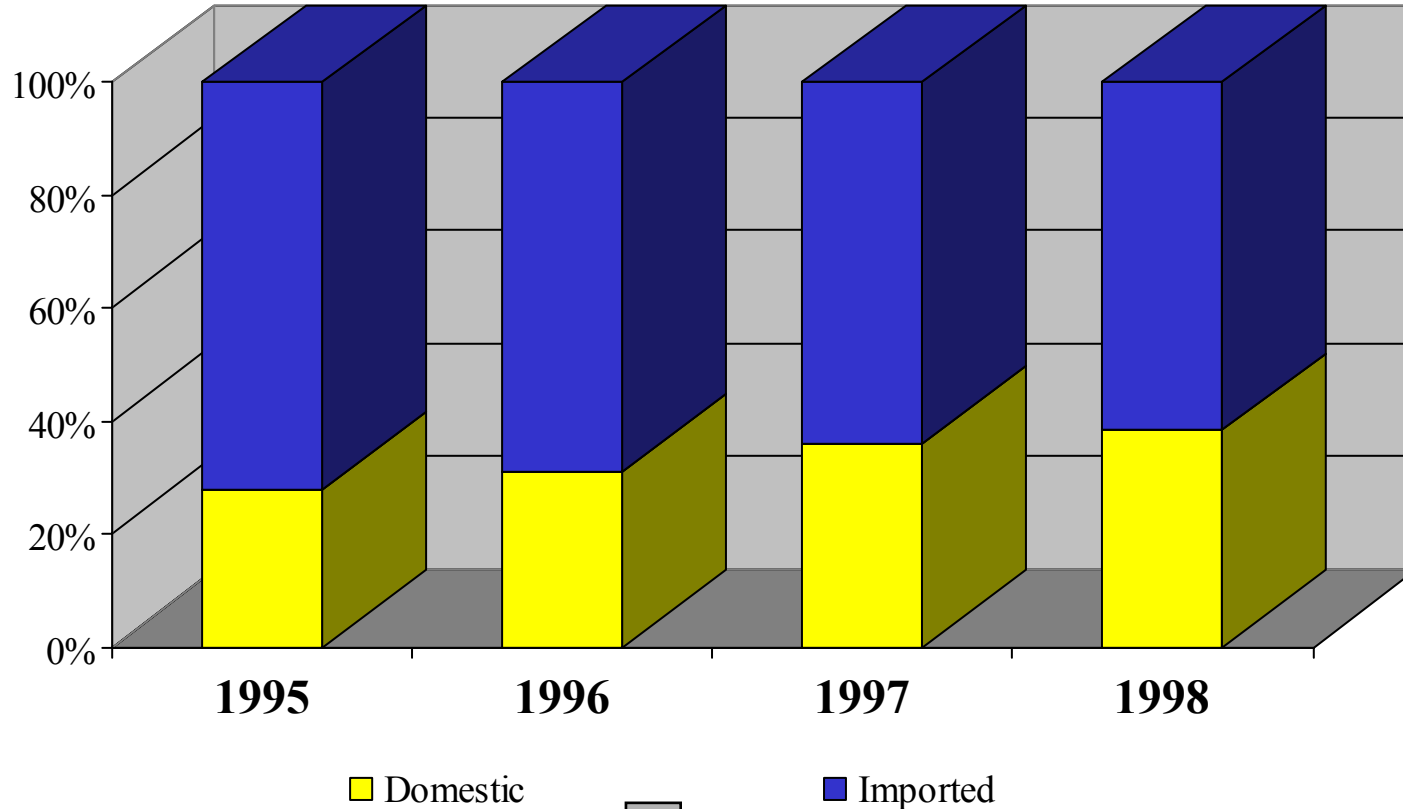
Competitive Diamond Model

Future Strategy Options

Ability to Serve Local Demand

Pharmaceutical Consumption

Domestic vs. Imported



Domestic firms meet more than **45%** of quantities demanded locally. Domestic products, however, only cover **33%** of the value as imported drugs are more expensive.

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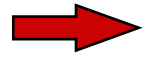
Key Definitions

Patented



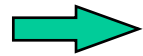
Sole production rights go to the inventor

**Reproductions
of in-Patent**



**Producing patented drugs without
the agreement of the inventor**

Generics



**End of patented period,
restricted drug can now be produced
by any manufacturer**

Under License



**Producing patented or generic
drugs under contract
of multinationals**

Structure of the Jordanian Pharmaceuticals Industry

Companies established before 1980

4 Co.

90% of Production

94% of Exports

Companies established after 1990

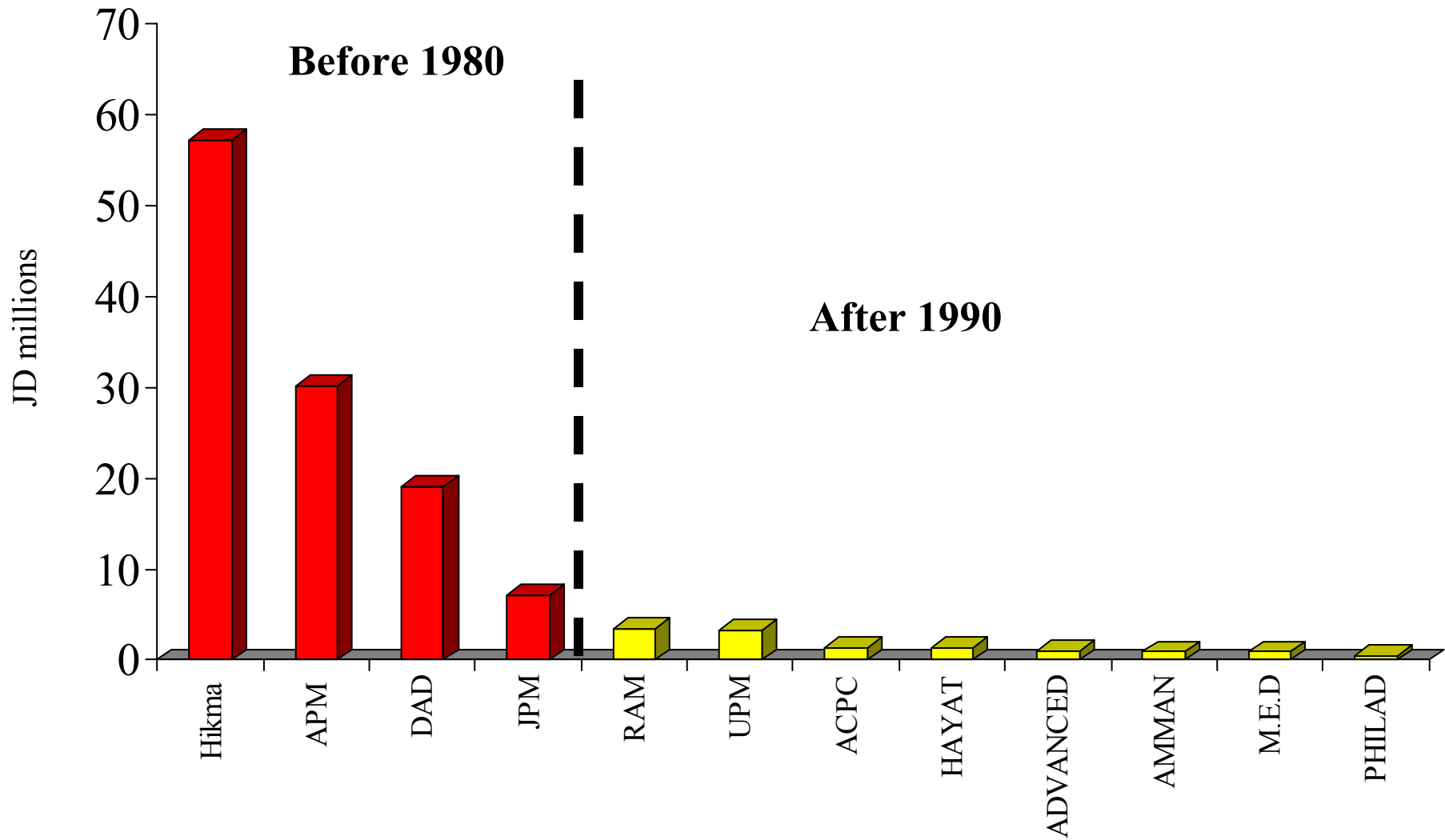
10 Co.

3 Co.
Start-ups

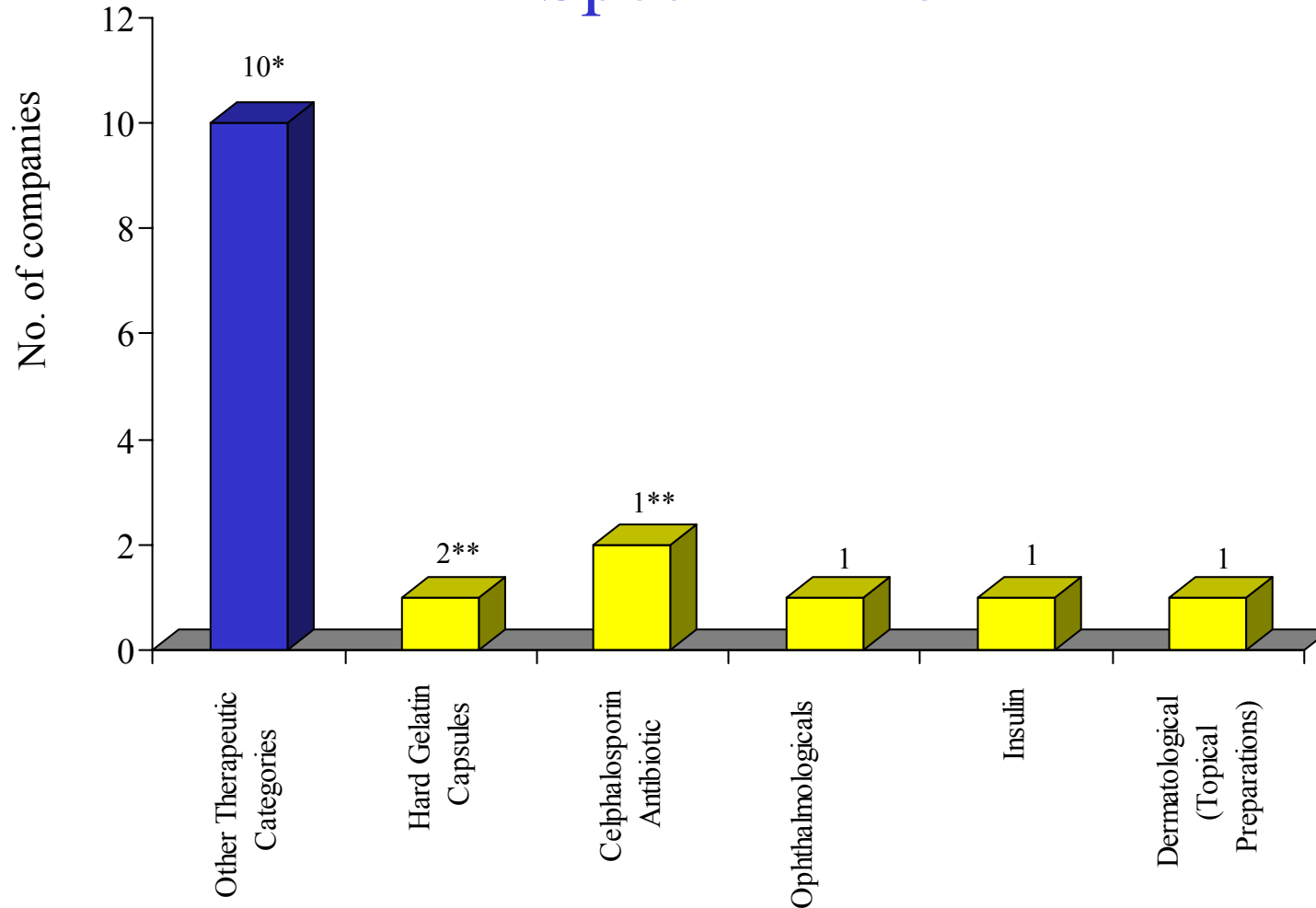
10% of Production

6% of Exports

Total Sales by Company, 1999



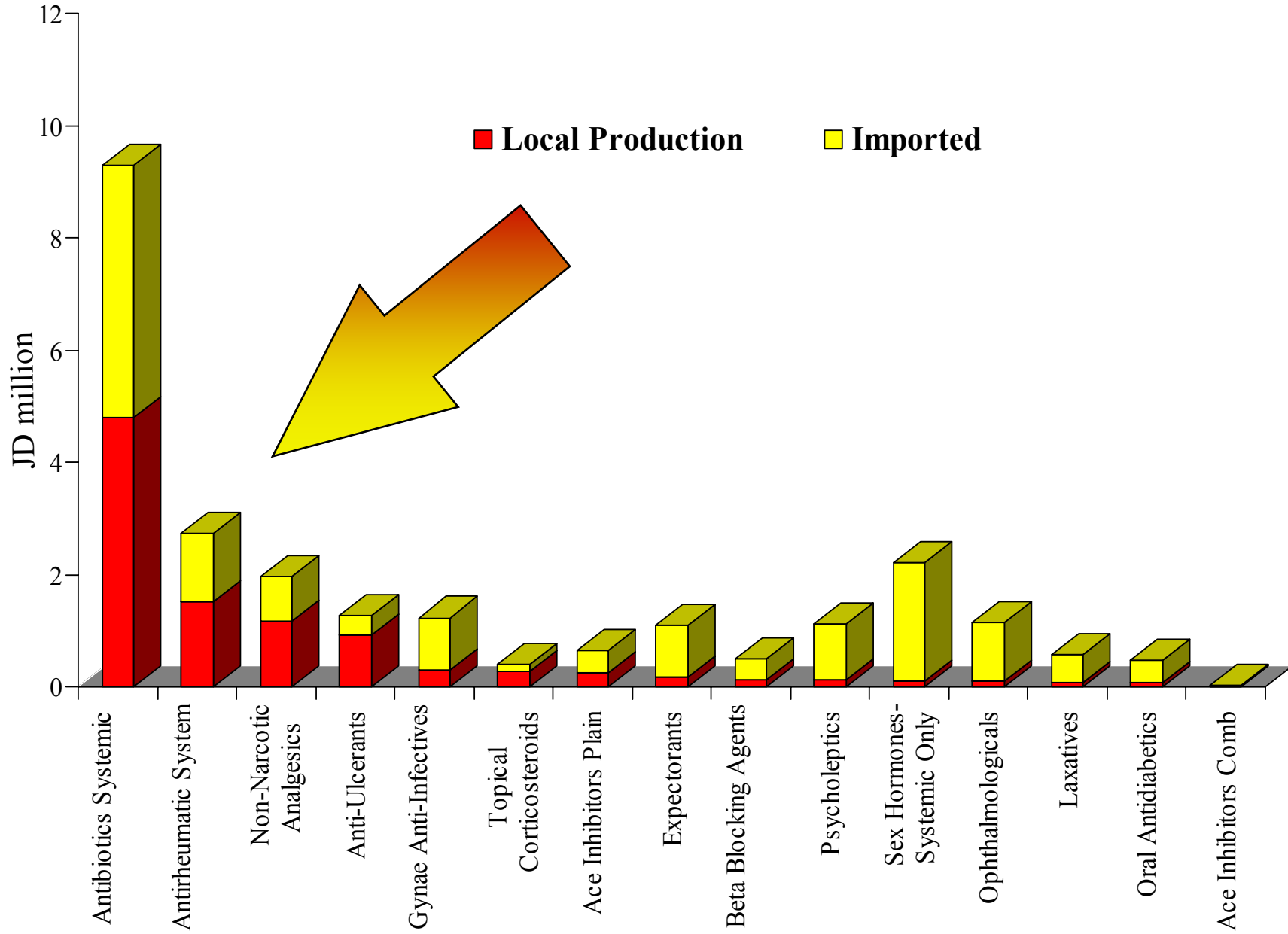
Pharmaceutical Companies according to Specialization

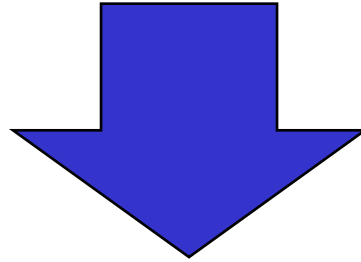


* : Ophthalmologicals and Topical preparations are produced by some of the ten other therapeutic categories

** : Hard Gelatin capsules and Cephalosporin Antibiotic companies are intermediate industries

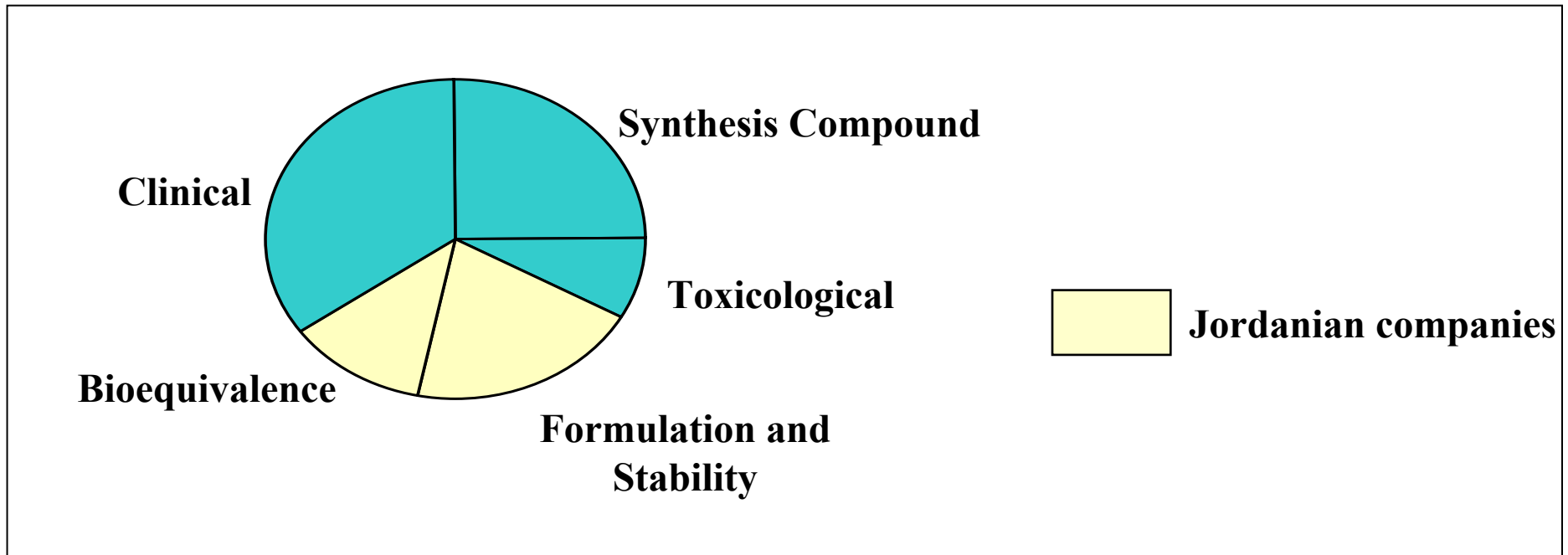
Product Concentration





- Most Jordanian pharmaceutical companies focus on **the same product categories, mostly reproductions of in-patent.** A result of high profit margins and high local demand.
- Industry product concentration has led to **product overlap, high domestic competition and excess production capacity.**

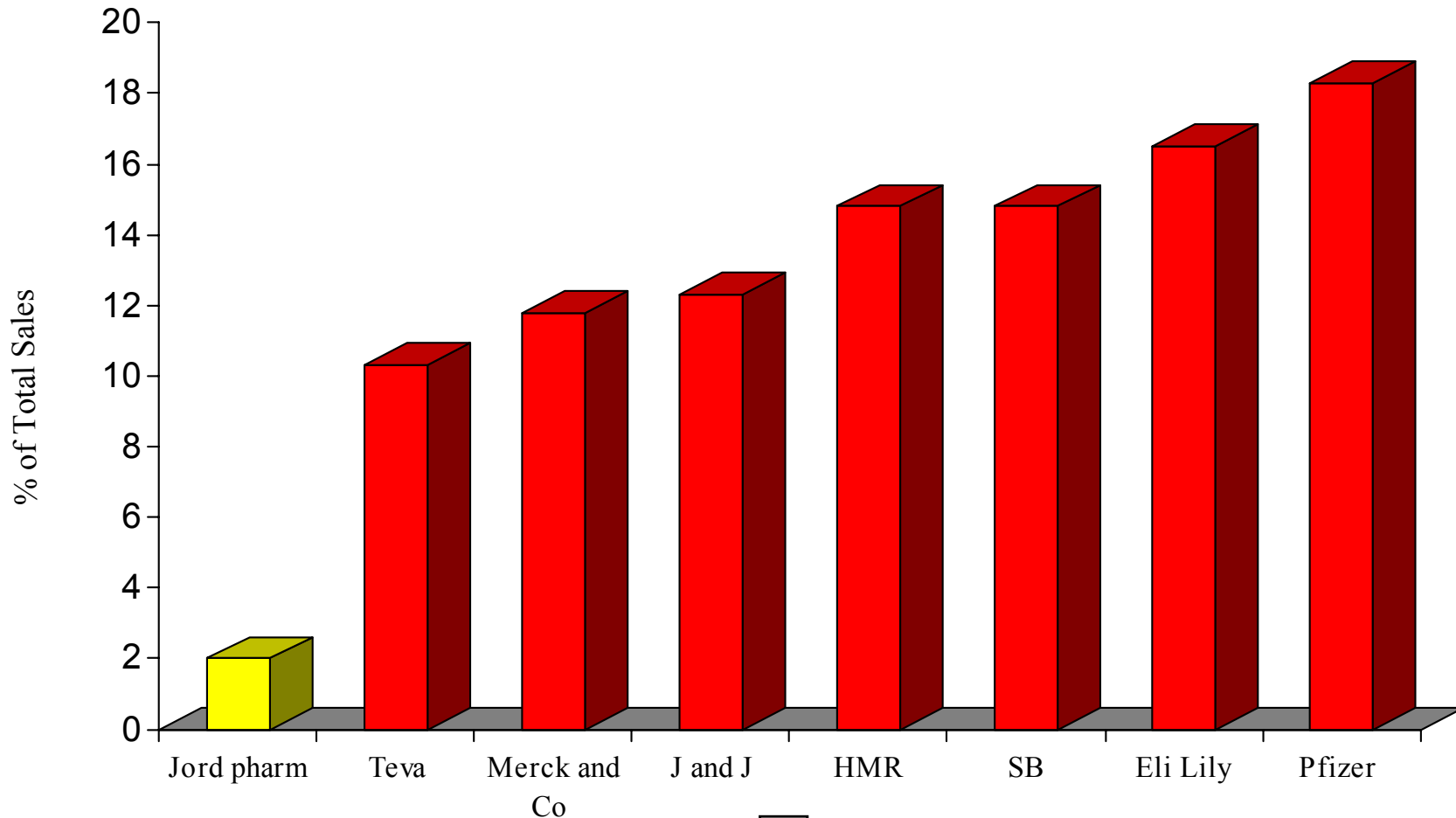
R&D: International vs. Jordanian Comparison



- **Jordanian pharmaceutical companies** conduct research in only two areas: formulation and stability studies, and bioequivalence studies.
- **Most leading pharmaceutical companies** conduct research in five areas, including the critical and complex synthesis compound, toxicology and clinical studies. It is in these areas that most of the drug development occurs.

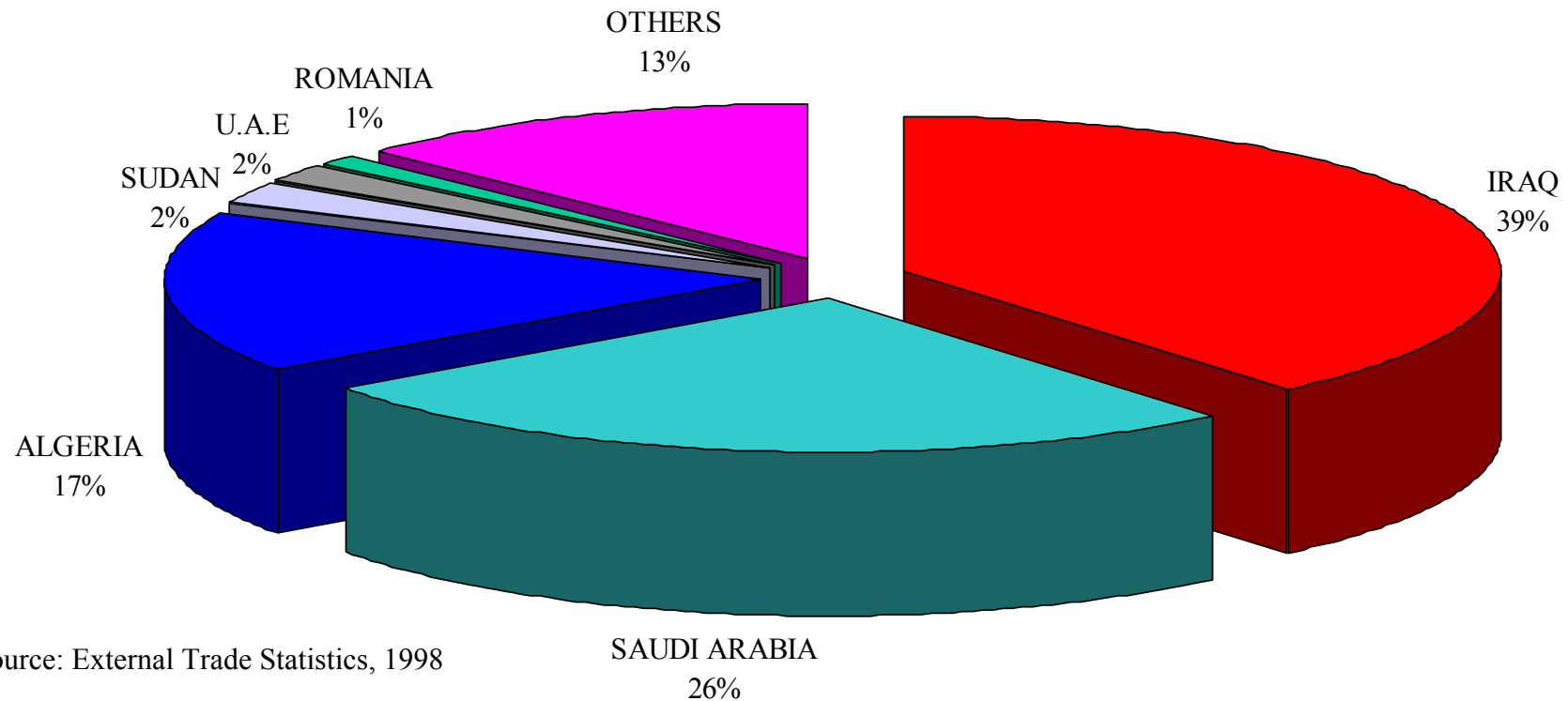
R&D Levels

Jordanian Average vs. Leading Multinationals



Most of Jordan's research in pharmaceuticals is focused on developing new formulas for existing patented drugs whereas multinational R&D aims at developing new patented drugs.

Export Destination of Jordan's Pharmaceuticals Industry, 1997

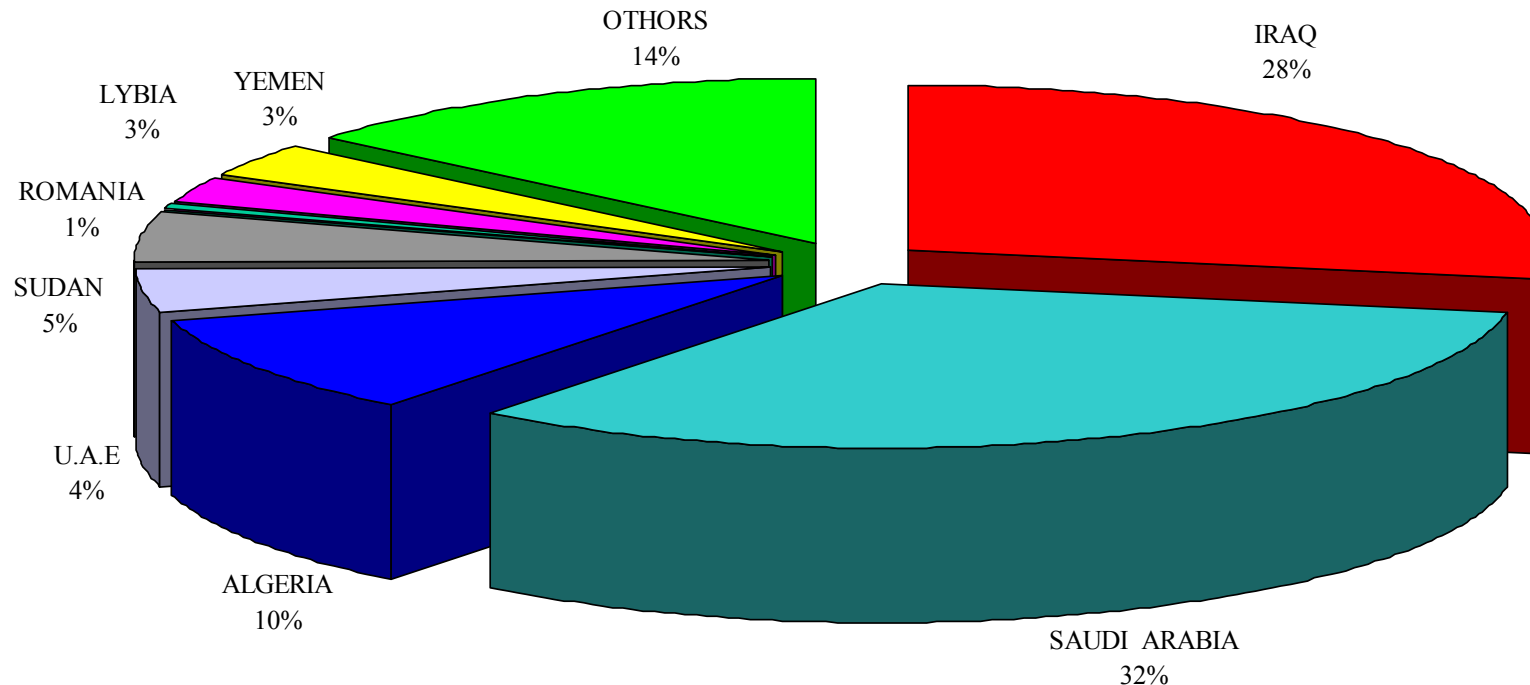


Source: External Trade Statistics, 1998



**Jordan exports almost 70% of its total pharmaceutical production:
82% of these exports are to three Arab markets.**

Export Destination of Jordan's Pharmaceuticals Industry, 1999



Source: External Trade Statistics, 2000



Exports to the same three Arab markets declined from 82% in 1997 to 70% in 1999. The instability of these markets led to.....

Relocating Production

- To Arab countries through partnerships with strategic endogenous partners, as a safeguard against political instability and barriers to trade.
 - **Saudi Arabia** gives Jordanian companies access to the Gulf.
 - **Algeria and Tunisia** gives access to North Africa.

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INPUTS

Active and Inactive
Ingredients

Distilled Water

Electricity

R&D

Capital

Labor

Machinery

PROCESS

Synthesis
Compound Studies

Toxicological
Studies

Clinical Studies

Formulation and
Stability Studies

↓
Pharmaceutical
Manufacturing

↓
Bioequivalence Studies

↓
Packaging

↓
Marketing

RELATED AND SUPPORTING

Cardboard
packaging

Plastic
packaging

Cap
Industry

Glass
Packaging

Labeling

Printing

Hard gelatin
capsules

Package
designers

Doctors

Hospital

Wholesaler

Pharmacies

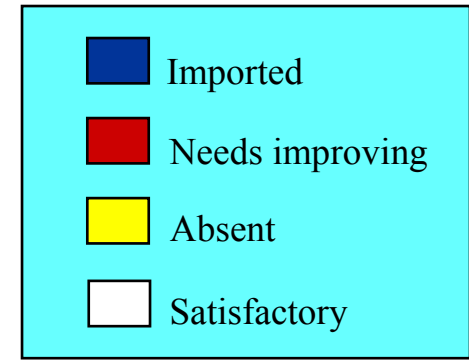
Transport

University/
Research

Loan
Guarantee Corp

Min.of Trade
Brand Registration

Min. of Health
Quality Regulations



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Key Issues

Firm- Level

- **No shared future industry vision**
- **Weak focus on R&D**
- **Lack of intra-industry cooperation**

Industry- Level

- ✓ **Trade liberalization/ Patent Laws under TRIPs**
- ✓ **Price controls**
- **Weak links between industry and academia**

Key Issue:

Patent Law

Criteria to Measure the Progress in Intellectual Property Rights Protection



**Pharmaceutical
Product Protection**

**Compulsory
Licensing Limited**



**Twenty-Year
Patent Term**

**Patent Term
Extension**

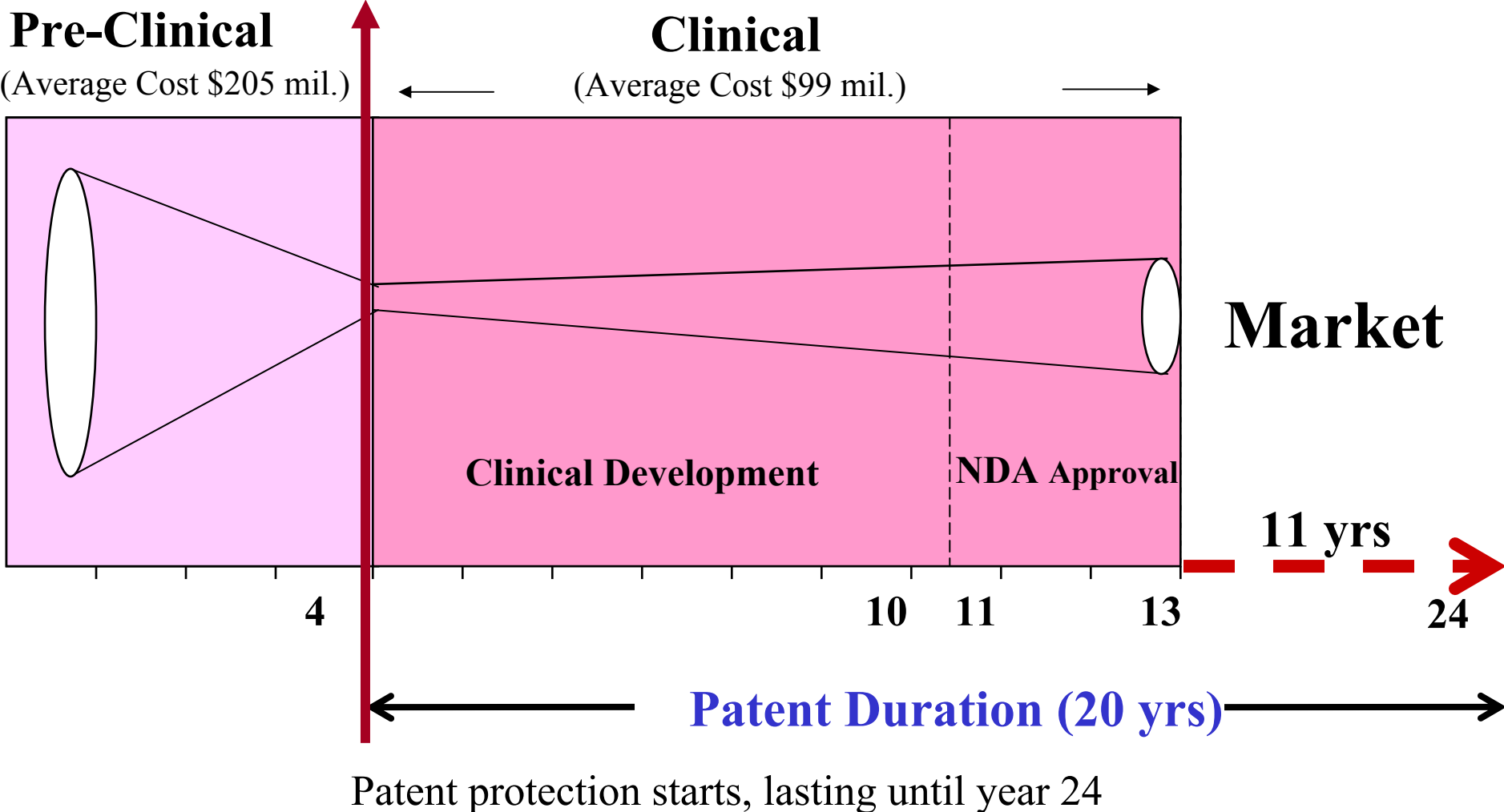


**Pipeline
Protection**






Source: Phrma Publications Industry Profile 1998

The 1995 TRIPs agreement includes all of the above provisions except the existence of a pipeline for drugs

Drug Development Pipeline



Criteria to Measure the Progress in Intellectual Property Protection

	Pharmaceutical Product Protection	Compulsory Licensing Limited	
	Twenty-Year Patent Term	Patent Term Extension	
	Pipeline Protection		

Differing Perspectives on Patent Laws under TRIPs

Multinationals

Non-abiding countries are suffering from:

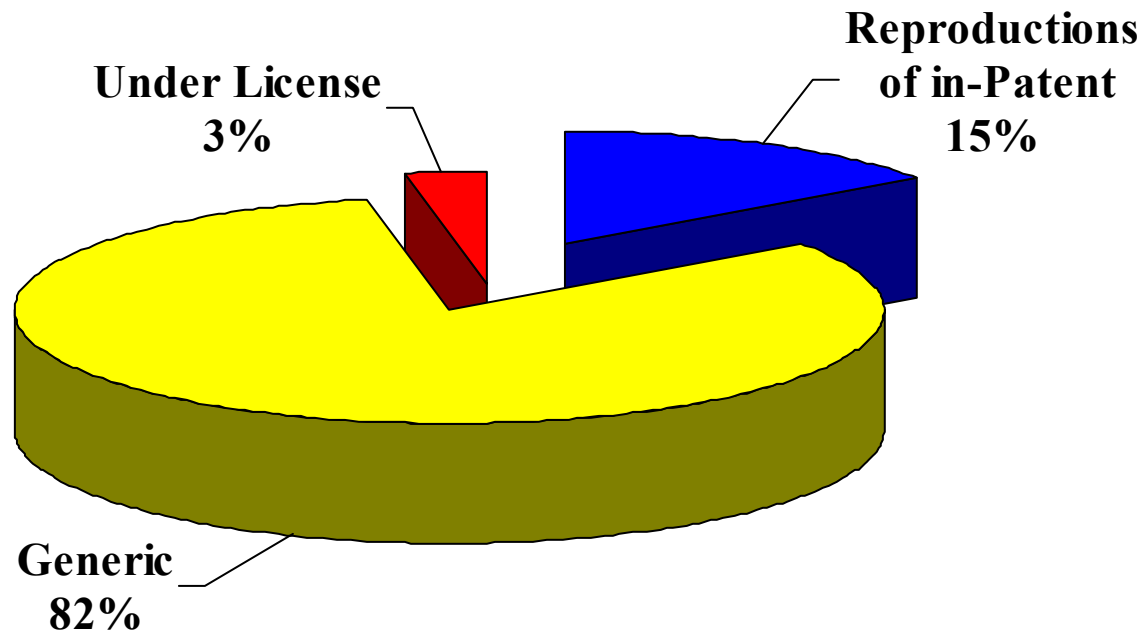
- Minimum foreign direct investment in the pharmaceutical sector
- Low quality technology transfer
- Inclusion in the US “priority watch list”
- Exclusion from the list of beneficiaries from the GSP
- Delays in obtaining newly invented foreign drugs
- Limited R&D in local pharmaceutical companies
- Reputation as imitators

Local Producers

Jordan will witness, by abiding,

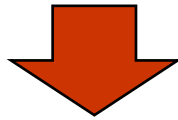
- Minimum foreign direct investment, a result of Jordan’s unattractive small local market valued at US\$159 million only
- 30% average increase in the prices of patented drugs
- Significantly reduced profit margins or increased bankruptcies of some pharmaceutical companies

Effect of the International Patent Law on the Local Industry



International Patent Law will force firms to restructure and invest in R&D. It will also push them to attract multinationals to produce under-license.

However, TRIPs is not the only obstacle facing pharmaceutical industry, standards and technical barriers are obstacles as well.





Yet, TRIPs is not a real obstacle since accessing the WTO offers significant potential benefits to Jordan, including:

- Access to new markets
- Increase of attractiveness to strategic partners
- Creating incentives to upgrade quality and standards
- Supplying the means for challenging the USA and Germany to open their markets for Jordanian products

Current situation of TRIPs Protection

Country	Level of Protection	Barriers to entry	Market lost
Egypt	Lack of meaningful protection : duration of patents too short. Legislation emerging with effective patent protection, but not passed	Rigid price Control System	One of largest markets in the Middle East/North Africa but exact size still undetermined
Bahrain	Some legal protection. Registration of patents in UK necessary	Rigid price Control System	Piracy not significant, thus not much room for increased exports
Lebanon	At crossroads, not much piracy now, but also not safeguards	Rigid price Control System	Market of tens of million of dollars
Oman	No legal protection. Few gov't. efforts	Rigid price Control System	US\$10 million to US\$15 million
Qatar	No legal protection Gov. buys pirated copies	Gov't. denied tender offer to US bidder	US\$ 5 million to US\$10 million
Kuwait	No legal protection. piracy increasing	Rigid price Control System	Large market (\$110 million)

 : priority watch list

 : watch list

Country	Level of Protection	Barriers to Entry	Market Lost
Israel	Considering amendment to patent law that would allow Israeli companies to export patented products before their patents expires	None	Undetermined but could be significant as regional supplier of pharmaceuticals
Turkey	New patent laws will not offer effective protection. Falls well short of TRIPS standards in numerous areas	Regional allow copied products to pass using tests from original product	Approximately \$70 million annually
India	Indian patent Act of 1970 only provide seven years for process patents, which is so short that the patent "protection" will expire even before the relevant product is ready for market launch.	Drug prices fixed by the Govt. using outdated cost data, High import tariffs, Difficult for companies to open 100% owned subsidiaries.	Loss of about \$500 million, including copies domestically and their export.
Jordan	Jordanian government has been considering new legislations to provide adequate pharmaceutical patent protection.	Rigid price Control System	Loss of about US\$ 5-25 million



: priority watch list



: watch list

Key Issue:

**Government
Price Controls**

Influence of Government Price Controls on Local Sales

- The government has effectively used the private sector to subsidize drug costs.
- Government sets price ceilings on domestic and imported products.
 - Local prices are generally **25-35%** below those of similar imported products.

Influence of Government Price Controls on Exports

- Export markets (primarily in the Gulf) set prices based on the prices in the Jordanian market. Local price controls therefore subsidize export prices.
- Reviews of locally produced medicine prices are infrequent whereas import prices are reviewed periodically to adjust for exchange rate fluctuation.



Government pricing policies force price competition rather than product differentiation.

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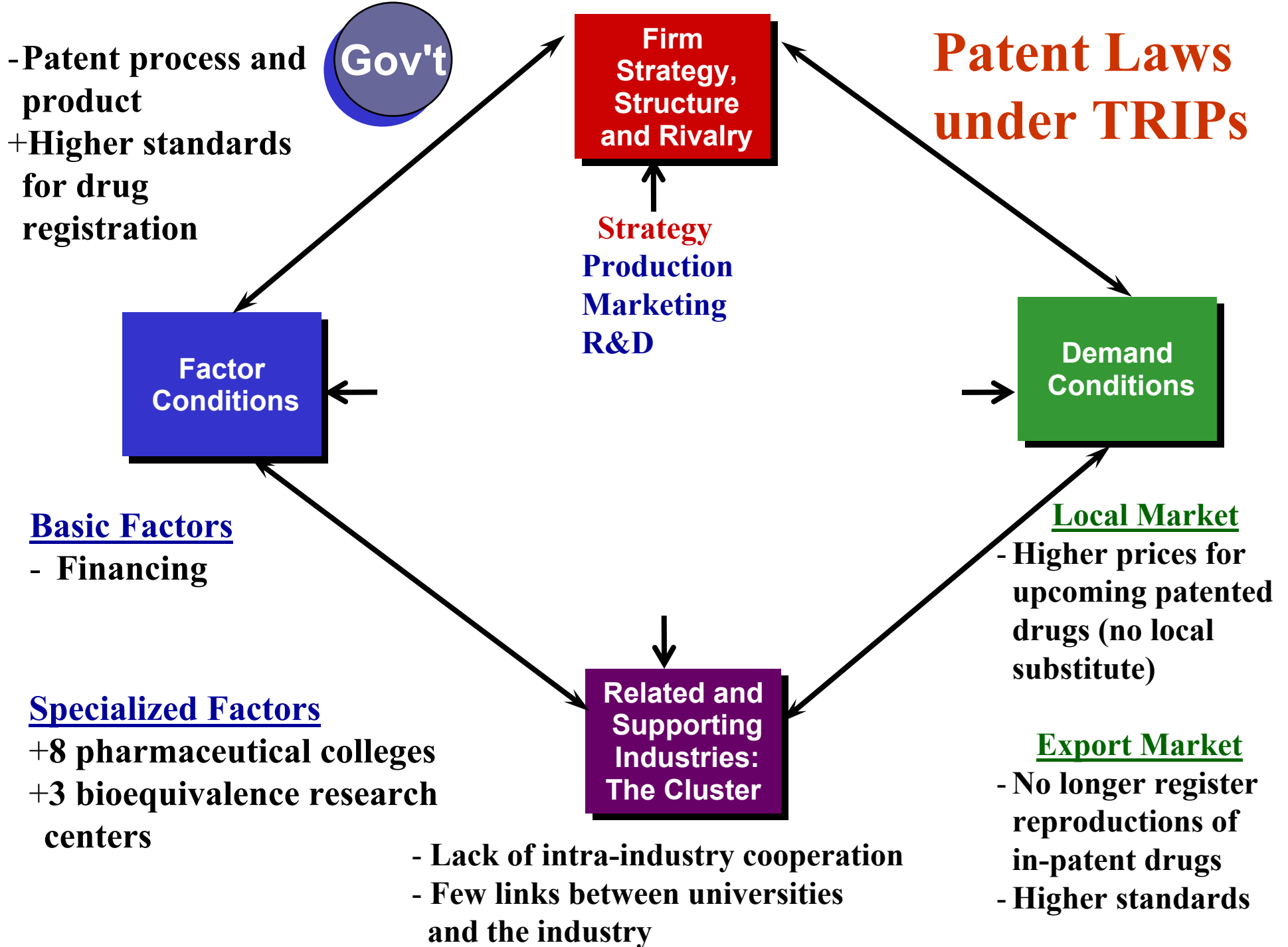
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Firm Strategy, Structure and Rivalry

Current Strategies:

Production

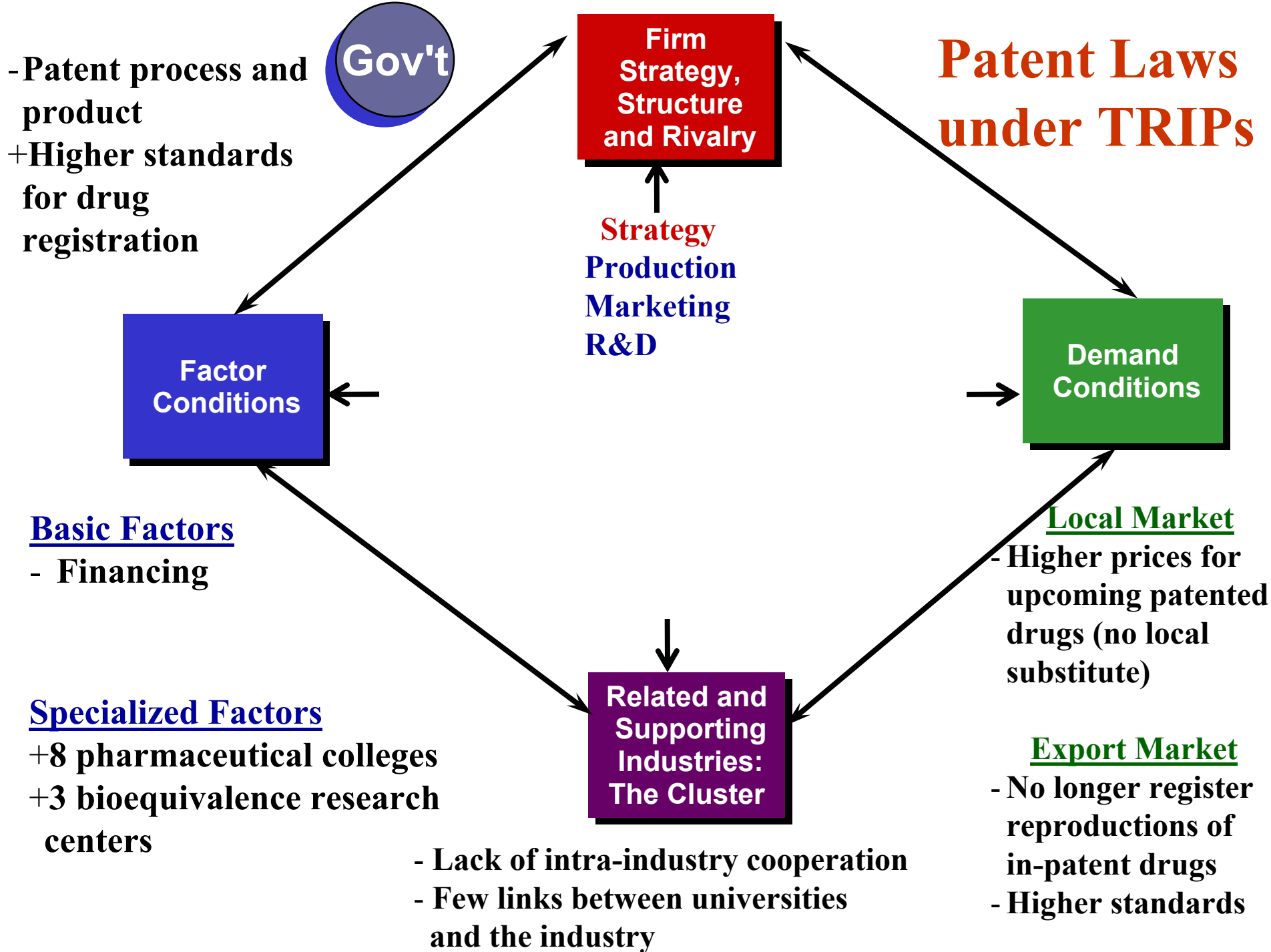
- +Fulfill new international production standards
- +Strategic partnerships for production under license

Marketing

- +Building factories in large regional export markets
- +Entrance into new markets
- +Generic products registration in the US

R&D

- +New product lines (herbal, dermatotherapy)
- +Entrance into biotechnology



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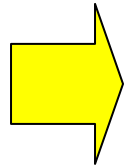
Future Strategy Options

Future Strategy Options

Jordan's Situation

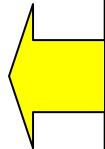
Option I

**Do it
Ourselves: To
be innovative
leaders in terms
of inventions,
creativity and
value added.**

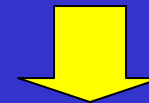


**We can do minor R&D
to:**

- **Improve delivery mode**
- **Reduce development and manufacturing time of generics products**



- Little capital is available for investment in R&D.
- Weak enforcement of intellectual property rights (i.e. patents) in Jordan which may be a disincentive to drug development.
- “Doing it ourselves” will take time and with the imminence of the WTO and EU regulations, Jordan does not have very much time.
- Weak local research institutions and capabilities.
- **It is almost impossible** for the pharmaceutical industry, given the present inadequacies and established habits, to become an innovative world leader in the short run.



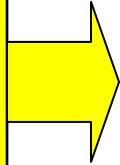
- + Jordan can capitalize on local diseases and herbal products for which it has knowledge.
- + Jordan has some good drug development expertise due to the production of generic drugs.
- + Some Jordanian companies were able to develop their own original products. They were patented in Jordan and registered in foreign countries.

Future Strategy Options

Jordan's Situation

Option II

Strategic Partnership:

- Joint Ventures/ under License
 - Subcontracting production of patented and generic drugs
 - Co-marketing and distribution agreement
- 

- The only partnership that currently exist is under license agreements.
 - Jordanian companies have limited under license agreements due to small local market size compared to other regional markets such as Egypt and Saudi Arabia.
 - Currently, there are no partnerships or joint ventures aiming at strengthening the capabilities of Jordan's R&D.
- 

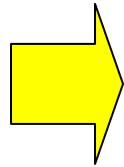
This option might be visible due to:

- No longer small markets.
- Jordan's action plan regarding TRIPs.
- Good reputation of Jordanian pharmaceuticals industry.

Future Strategy Options

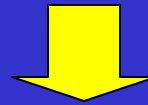
Option III

**Buying the
Know-How**



Jordan's Situation

- Know-How is expensive.
- Jordanian companies are under-capitalized.



- However, it might be easier to buy the know-how than 'do it ourselves'.

Future Strategy Options


Option IV

**Cost
Leadership
Strategy**



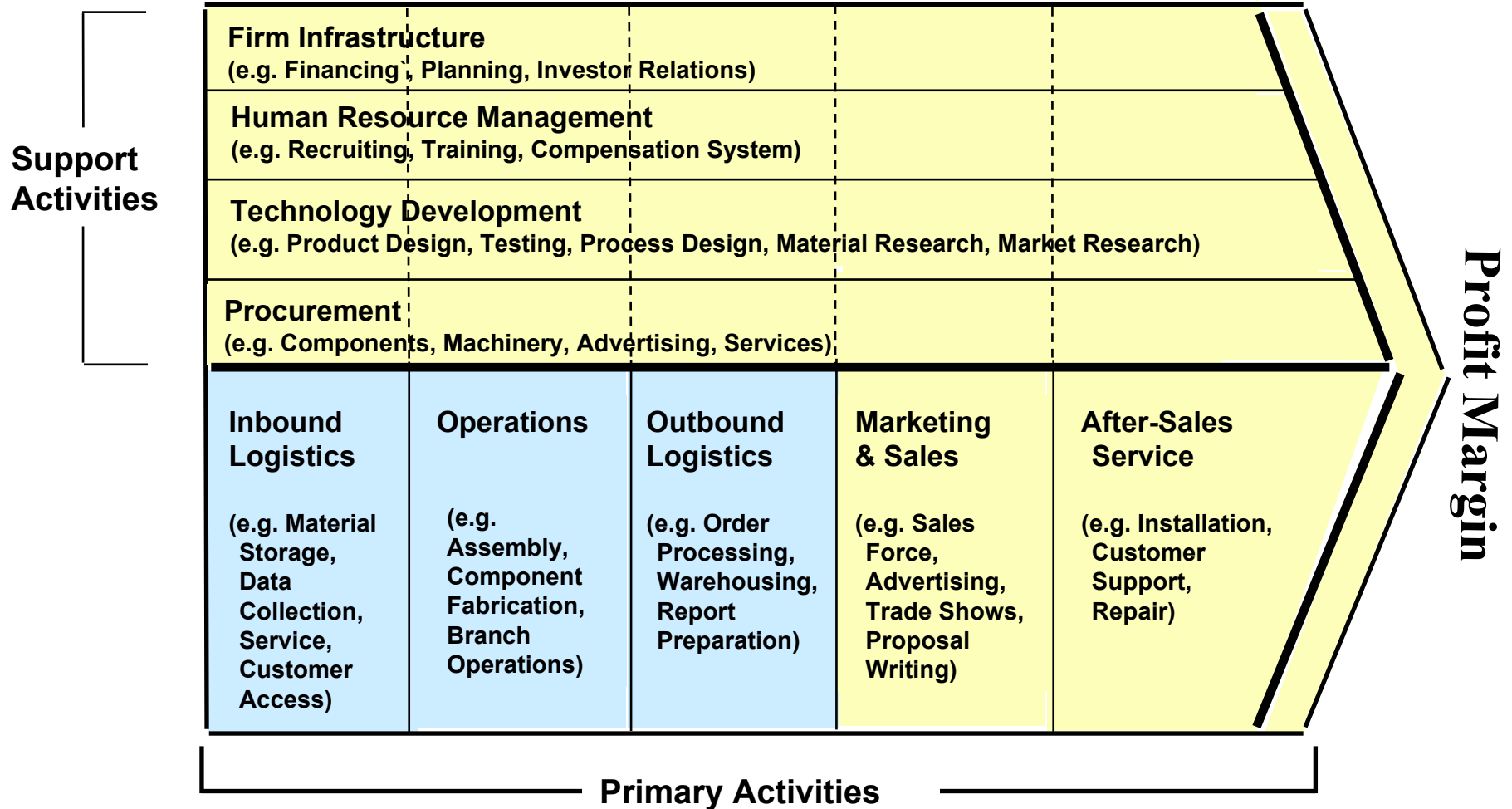
Jordan's Situation

Jordanian industry should review the value chain (all the stages of the good or service) of its products and focus on increasing efficiency in any or all the stages of production. And, thus become a low-cost producer.



It is probably the more feasible competitive strategy

Value Creation



To create a more value-oriented chain, companies should focus on improving their efficiencies in distribution, marketing, and sales.

Future Strategy Options

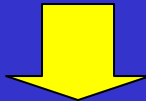
Option V

Early
Adoption of
International
Patent Law



Jordan's Situation

Jordanian industries might negotiate with foreign companies for the early adoption of international patent law in exchange for specific concessions.

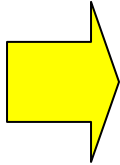


JUSBP, BST, and USAID may help and facilitate such initiative.

Future Strategy Options

Jordan's Situation

Other Options

- Shifting from Hardware to Software mentality
 - Collaboration between industry and academia.
 - Intra-industry cooperation
- 

- Stop building factories and invest in technology and marketing.
- Establish an advisory committee for pharmaceutical colleges and focus on more specialization in pharmacology departments.
- Enhance intra-industry cooperation through....

Through....

- Formulating a shared strategy, to upgrade the industry as a whole including supporting industries.
- Encouraging specialization in existing pharmaceutical companies to reduce product overlap and meet local demands on new product lines.