

Typology of R&D Strategies of Indian Firms in the Pharmaceutical Sector

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Les réseaux mondiaux d'innovation dans l'industrie pharmaceutique

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The presentation is based on the following papers.....

- Suma Athreye and Dinar Kale, Experimenting with strategy: Intrepreneurship in the Indian Pharmaceutical Sector (D.Kale@open.ac.uk)

My Papers:

- “TRIPS and its possible impact on the biotech based segment of the Indian pharmaceutical industry”, Economic and Political Weekly** Feb 12-18, 675-683, (Feb, 2005).
- “Who’s interested in biotechnology: R&D strategies, knowledge base and market sales of Indian biopharmaceutical firms” Research Policy vol. 31, 381-398 (2002).
- Biotech in post TRIPS India, Nature Biotechnology, Volume 23, no.1, 18-19, (Jan, 2005)
- “Rising to the technological challenge: Integration of biotechnology in the Indian Pharmaceutical Industry”, International Journal of Biotechnology, vol 3, no. 1/2, 95-115, (2001).

**A bit of history.....How did it all start?
A Policy Experiment that was a big
success : IPR Change in 1970**

- For Food and Drugs : Process patents and not product patents.
- = **Narrowing of the IPR system**
- Not viewed as likely to have impact by the multinationals who were the market leaders.
- Tremendous impact. Especially for the poor. Indian pharmaceutical developed. Fledgling Indian health care system developed.

THE TSUNAMI OF IPR = TRIPS

TRIPS constitutes a move opposite to that of the IPR changes in 1970.

~~Reverse Engineering = no incentives for being second innovator~~

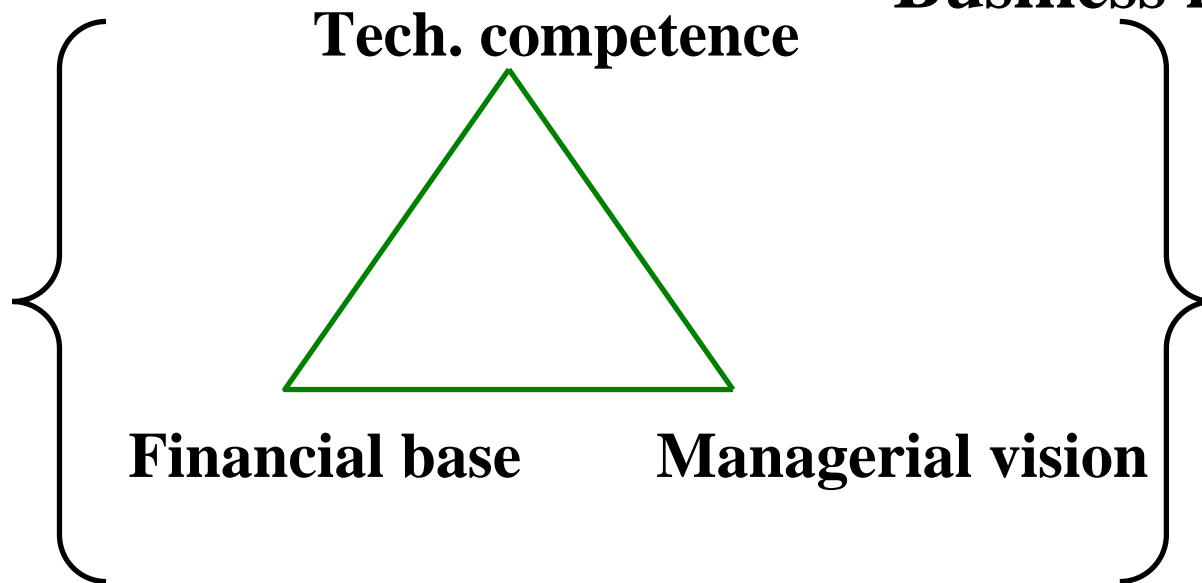
What about the positive incentives created for being a first innovator ??

What are the strategic options being explored by the top Indian pharma today?

Developing country hi-tech firms

- Problems having access to infrastructure.
- Non-Functioning networks between different types of economic agents.

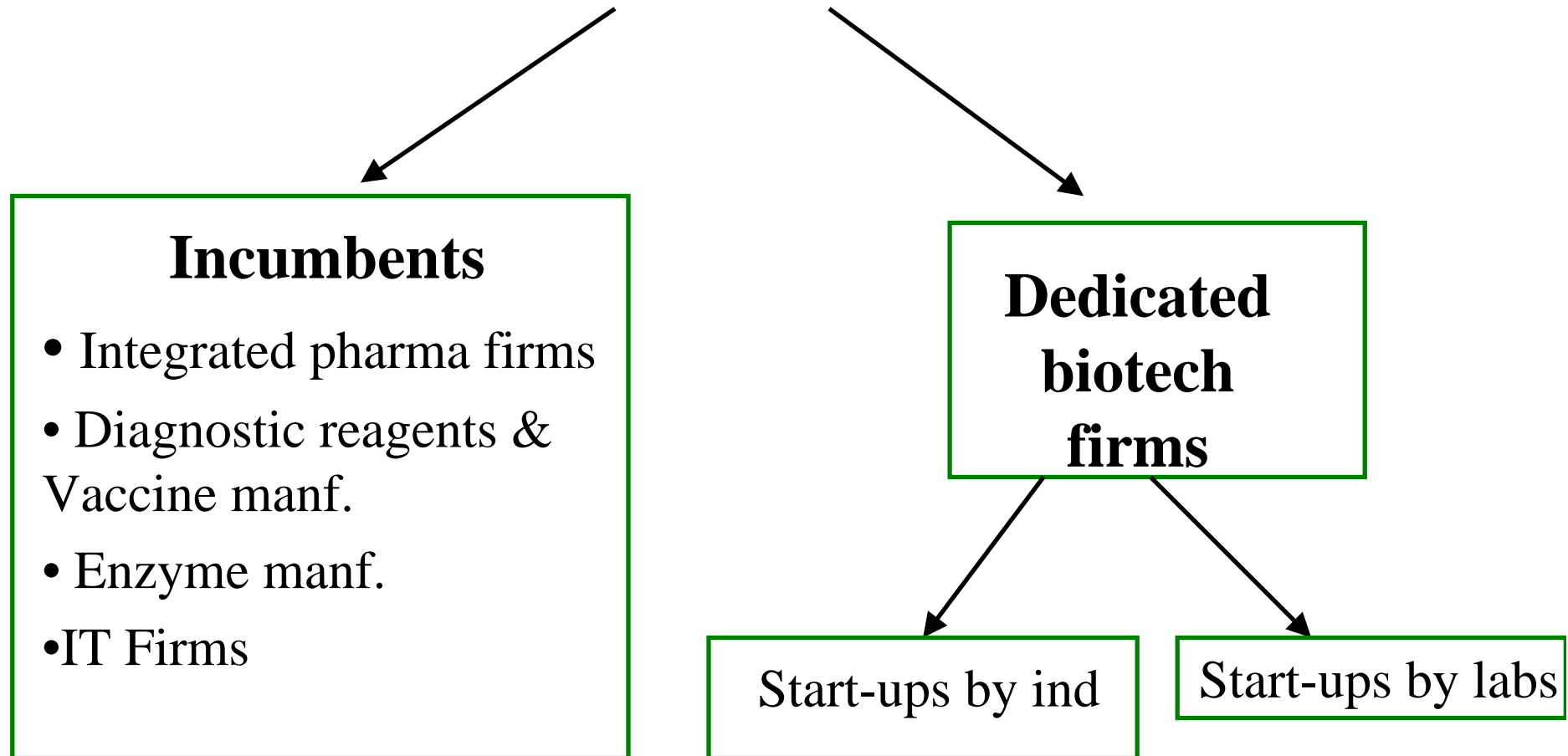
- Business model.



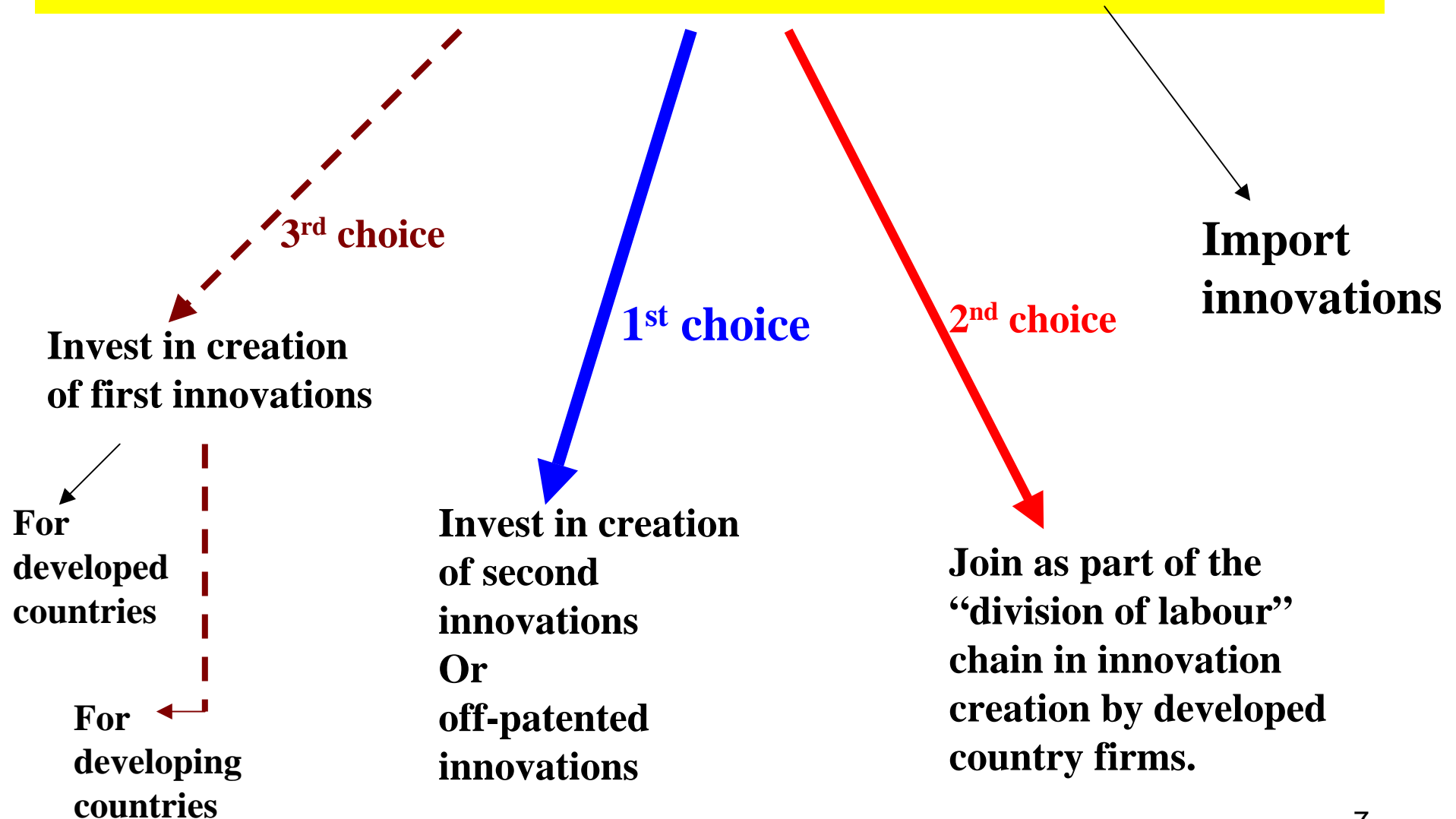
RESULT

- Greater Heterogeneity.
- Lesser number of specialized firms.

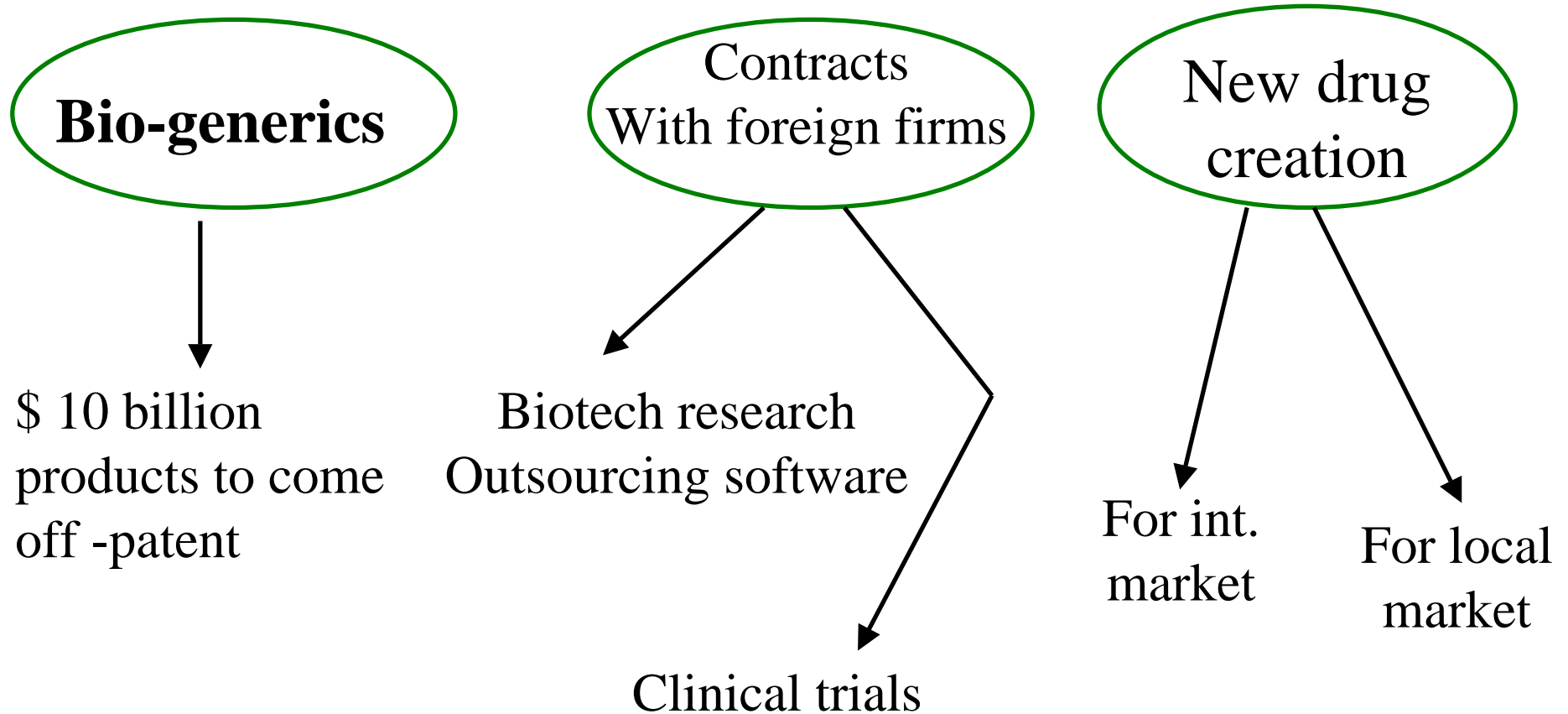
Types of Indian firms in the pharmaceutical sector



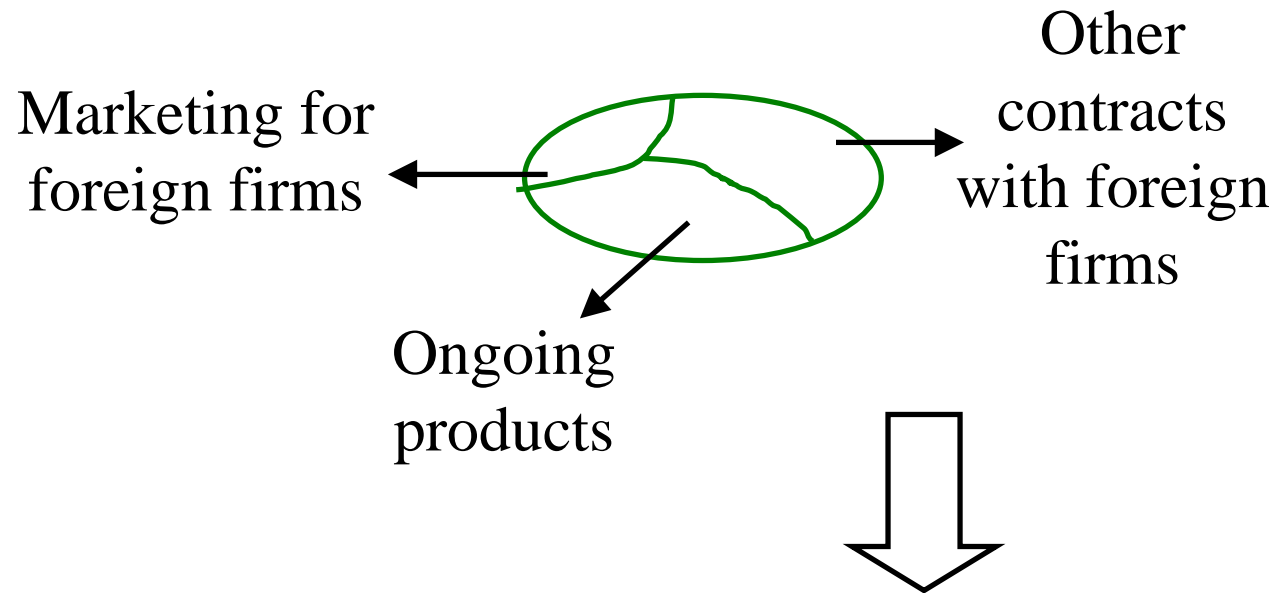
Response of Indian firms to TRIPS



Positioning of Indian firms (1/2)



Positioning of Indian firms (2/2)



**Finance research through revenue
from products that will
go off-patents**

Four case studies

Name of the firm	Year of establishment	Degree of diversification	Business focus	
Ranbaxy Laboratories	1962	**	antibiotics	
Dr. Reddy's Laboratories Ltd	1984	**	Cardiac, Anti-inflammatory	
Wockhardt	1959	***	vaccines	
Nicholas Piramal (I) ltd	1988	****	Respiratory drugs	

Top ten pharmaceutical companies in India in 2000

No	Company	Value (\$US million)	Market share
1	Glaxco – Wellcome	17.98	5.7
2	Cipla	14.79	4.7
3	Ranbaxy	12.57	4.0
4	Hoechst Marion Roussel	8.68	2.8
5	Sun Pharma	7.90	2.4
6	Zydus Cadila	7.50	2.4
7	Knoll Pharma	7.26	2.3
8	Wockhardt- Merind	7.07	2.3
9	Pfizer	6.74	2.1
10	Nicholas Piramal	6.56	2.1

Top ten pharmaceutical companies in India in 2000

Firms	a. Turnover (\$US Million)			
	2000	2001	2002	2003
Ranbaxy	435.46	584.04	735.37	793.48
DRL	350.06	360.87	417.91	427.55
Wockhardt	156.75	167.90	204.09	275.43
NPIL	123.17	203.78	200.67	305.48
Firms	b. Total number of employed			
	2000	2001	2002	2003
Ranbaxy	5784	6424	6297	6797
DRL	2100		5500	5852
Wockhardt	2300	2700	2805	2928
NPIL	3600		4036	5880
		3840		

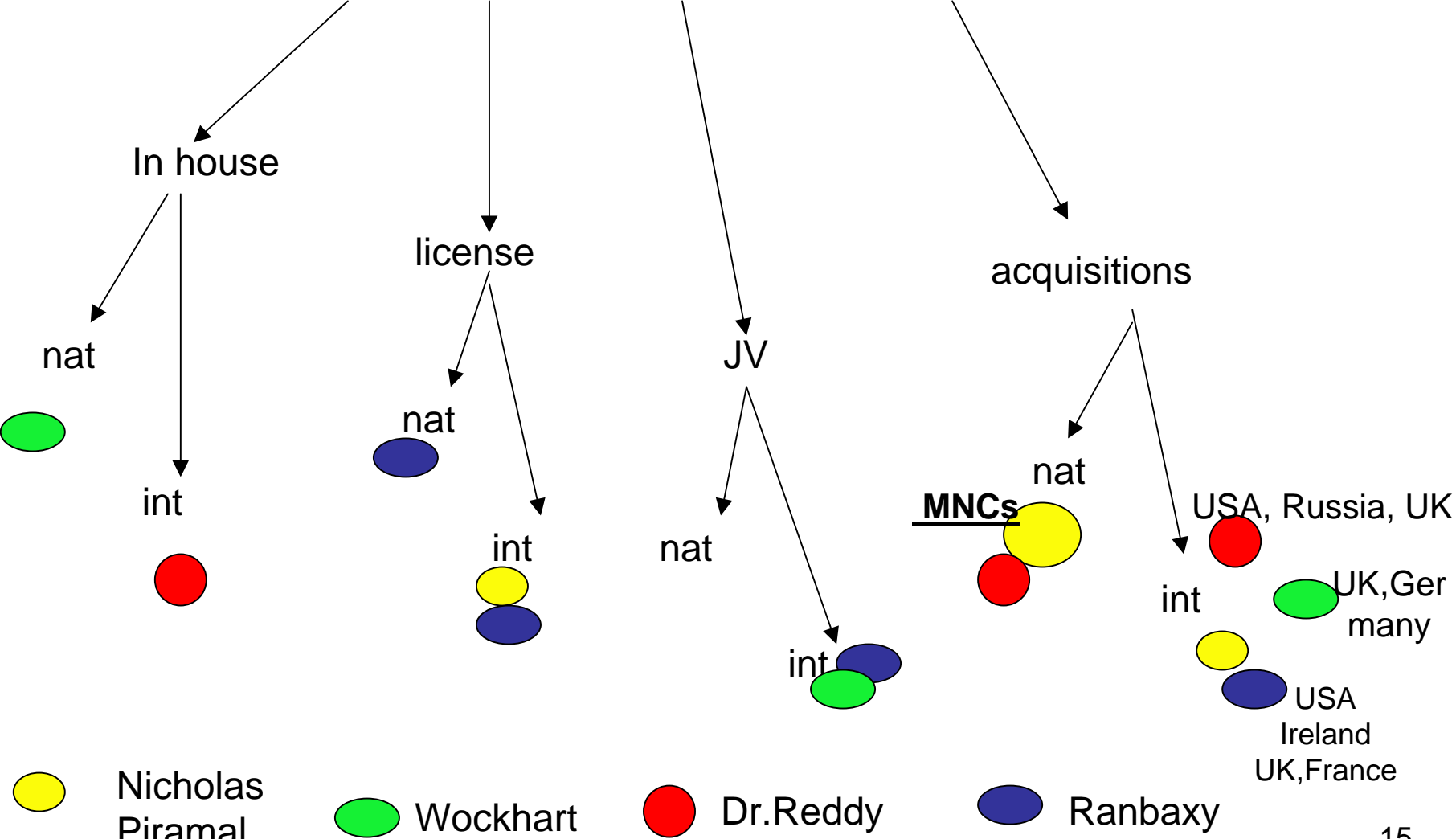
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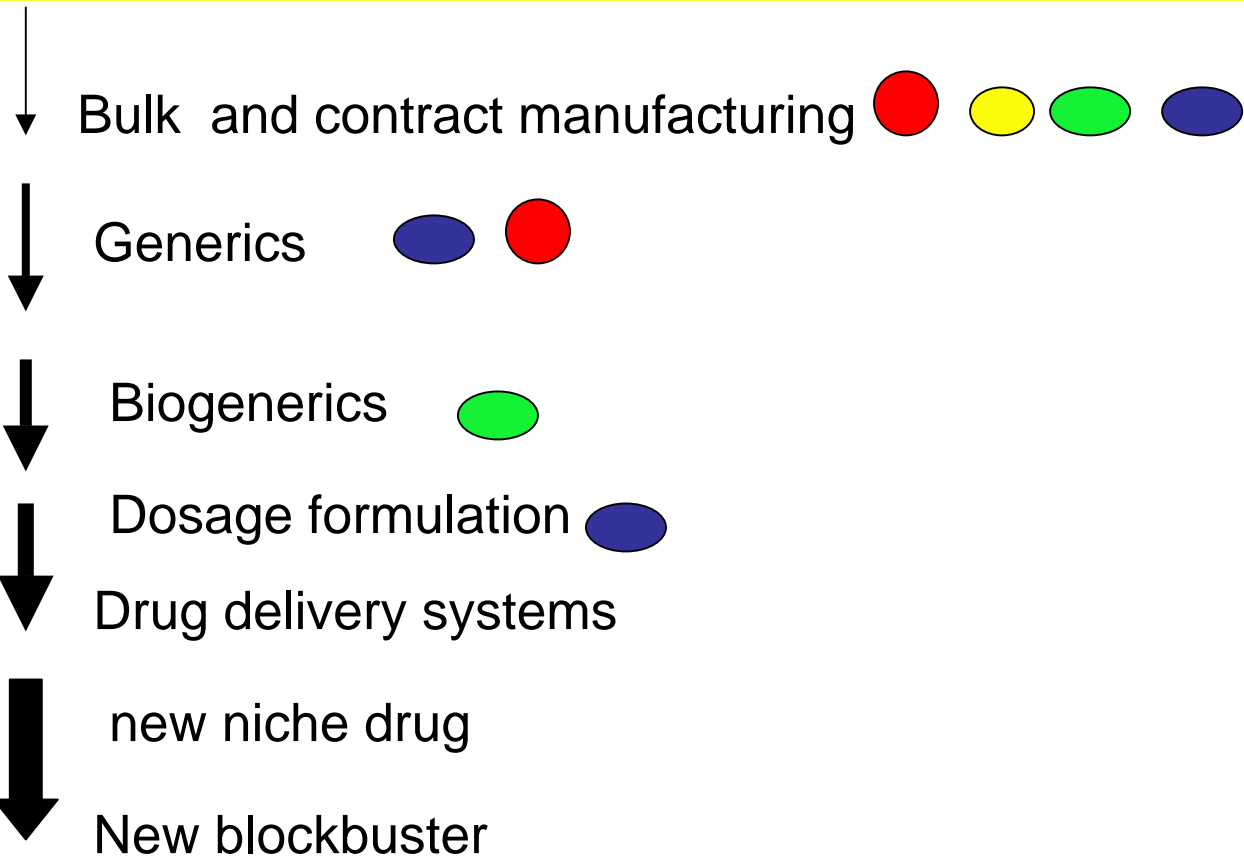
Major Innovation Achievements

Name of the firm	
Ranbaxy Laboratories	Ranitidine (=Glaxo's Zantac) 1988 Eli Lily's Cefaclor (crossed 70 patents) patent expired in 1992 costs= 2\$
Dr. Reddy's Laboratories Ltd	Generic fluoxetine = Eli lily's Prozac Generic for Ibuprofen
Wockhardt	Biogenerics Wosulin (human insulin), hepatitis vaccine, erythroprotein
Nicholas Piramal (I) ltd	Nothing in particular

Globalisation of knowledge acquisition...

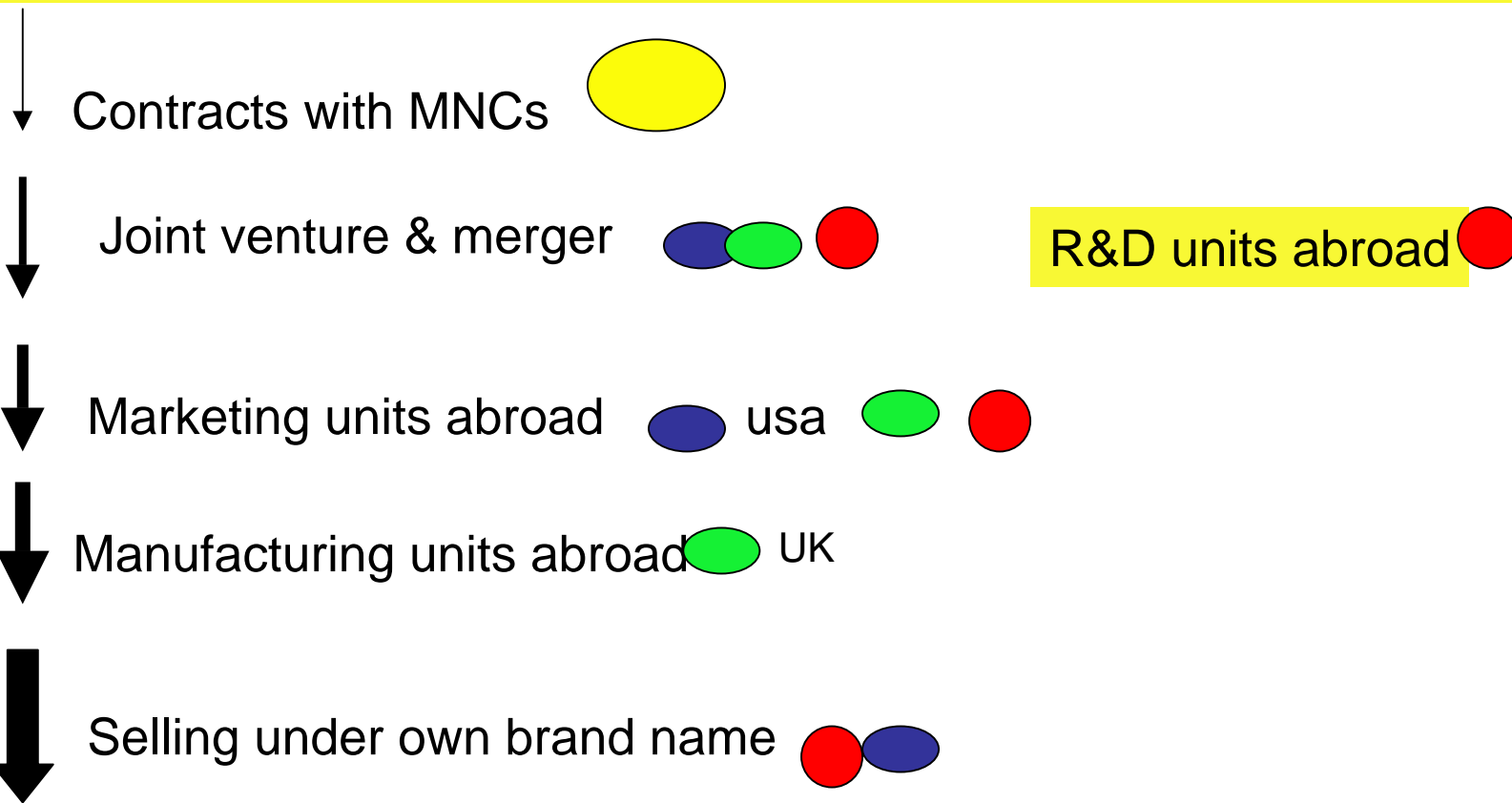






Knowledge intensity...



● Nicholas Piramal ● Wockhart ● Dr.Reddy ● Ranbaxy

Global Penetration of brand...



 Nicholas Piramal  Wockhart  Dr.Reddy  Ranbaxy

The route to finding the treasure...

- No one route.....
- No dominant business paradigm yet....
- Any bandwagon effect? Not so much.
- What about the other way around? Western Firms in India....Not so much activity except in contract research.....
- Globalisation is surely to continue further.
- Has been some degree of shake-out in Indian pharma sector, but no dramatic closing down like in other Asian countries like Thailand.