

# Open Innovation for New Drug Research in Indian Pharmaceutical Sector

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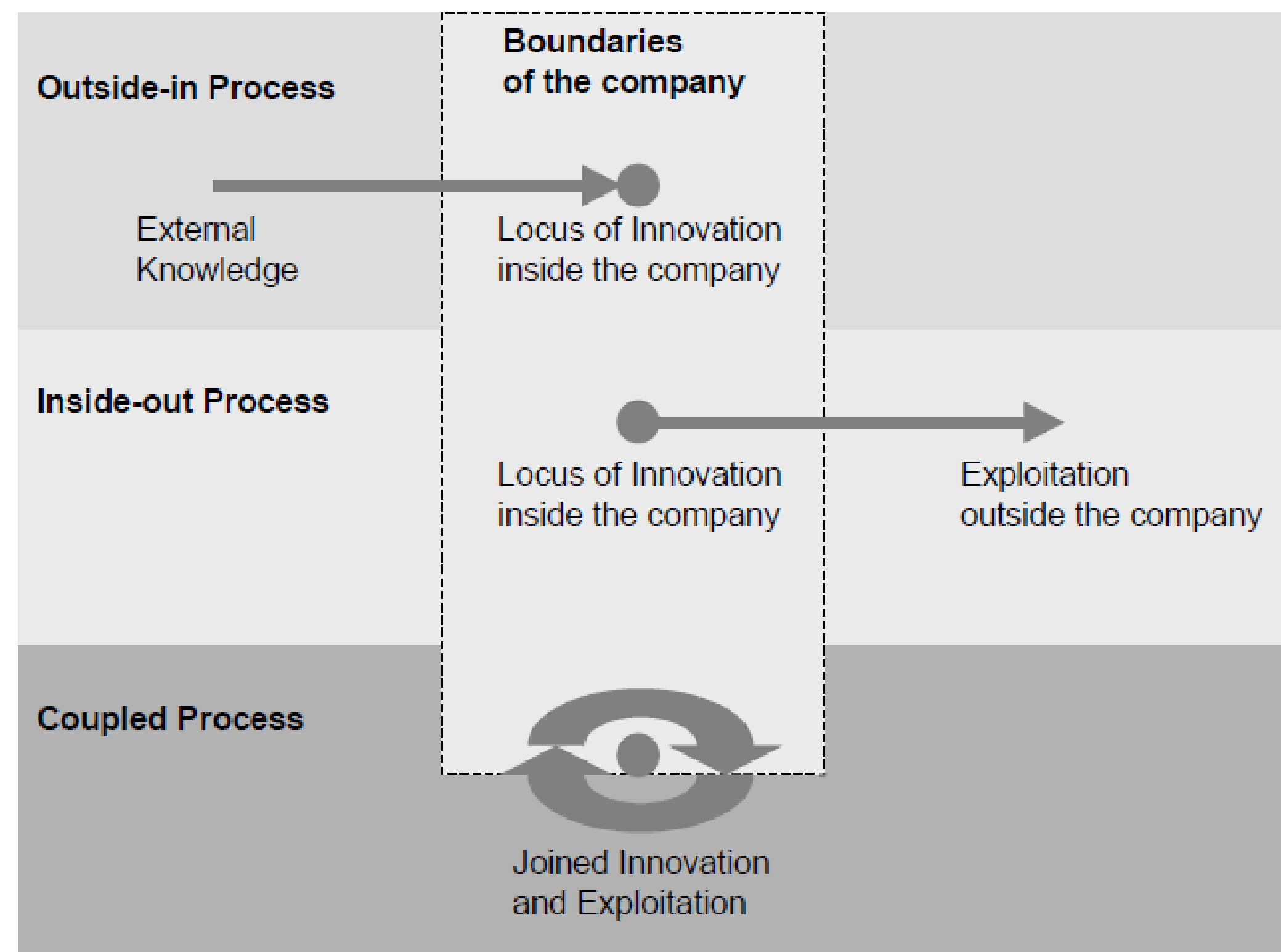
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## Introduction

The national environment in India for the pharmaceutical sector recently underwent changes with The Patents (Amendment) Act 2005, to comply with the TRIPS agreement leading to product patent protection. This has led to Government initiatives to support R&D and promote interlinkages between industry and academia. Globally, innovation ecosystem in recent years has morphed and seen a paradigm shift from a closed innovation in-house R&D model to more open approaches. In this context, the study aspires to gain an understanding of how the institutional and regulatory factors influence adoption of open innovation strategies at firm level and enables formation of innovation networks between universities, public research labs and firms in India.

## Conceptual Overview

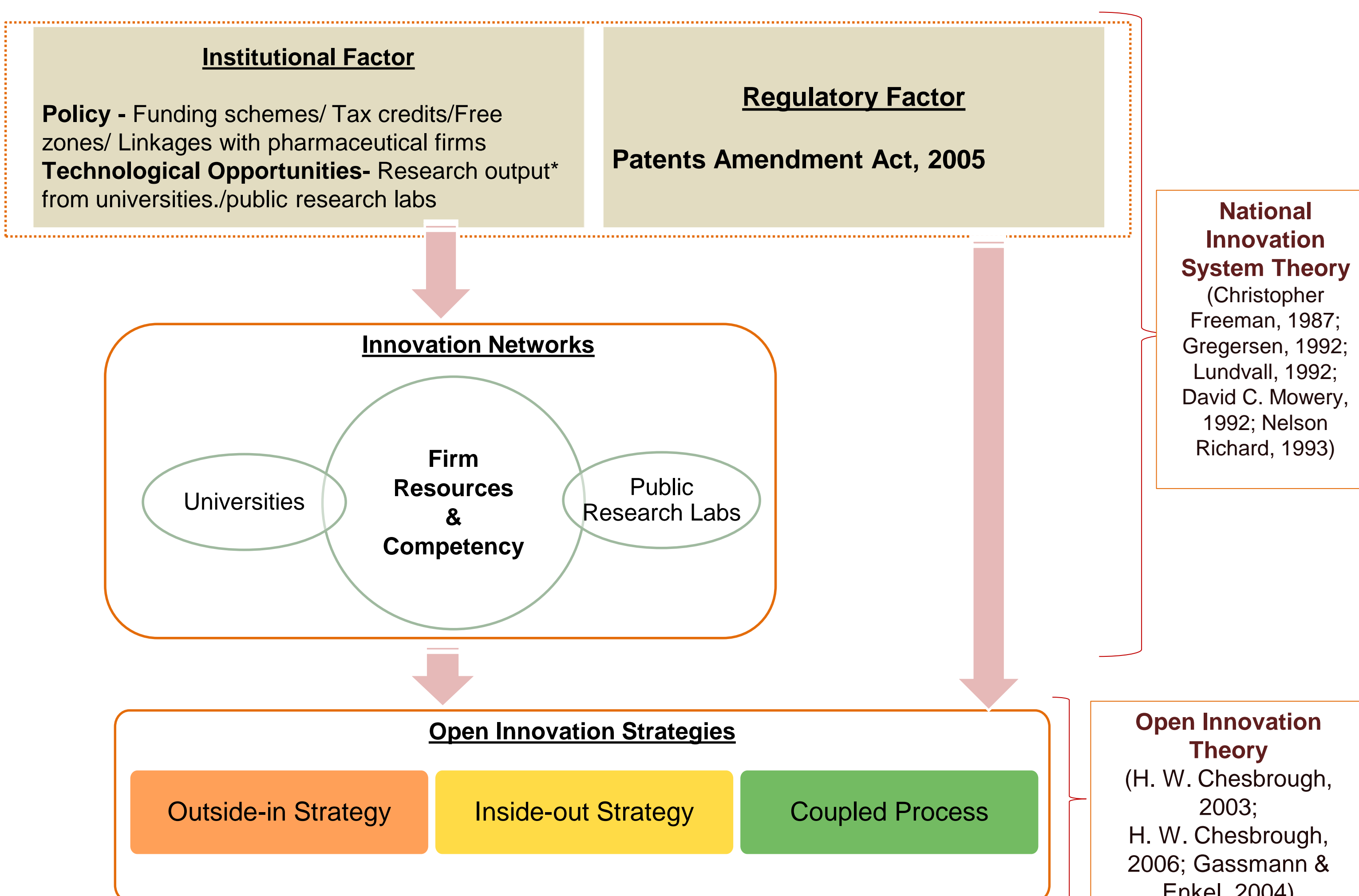
The study aspires to have a national context to understand the nuances affecting the formation of the innovation networks in the light of the theory of national innovation system (NIS) (Christopher Freeman, 1992; Lundvall, 1992; David C Mowery, 1992; Nelson Richard, 1993).



Source: Gassmann, Oliver, & Enkel, Ellen. (2004)

The major underpinning of the open innovation concept is that the in-house R&D structure is slowly getting replaced by network-based R&D firms specifically those engaged in new drug research. It would be interesting to know whether open or closed approach is predominant in Indian pharmaceutical firms undertaking innovation and how the institutional and regulatory environment affects such strategic decisions.

## Proposed Framework of Study

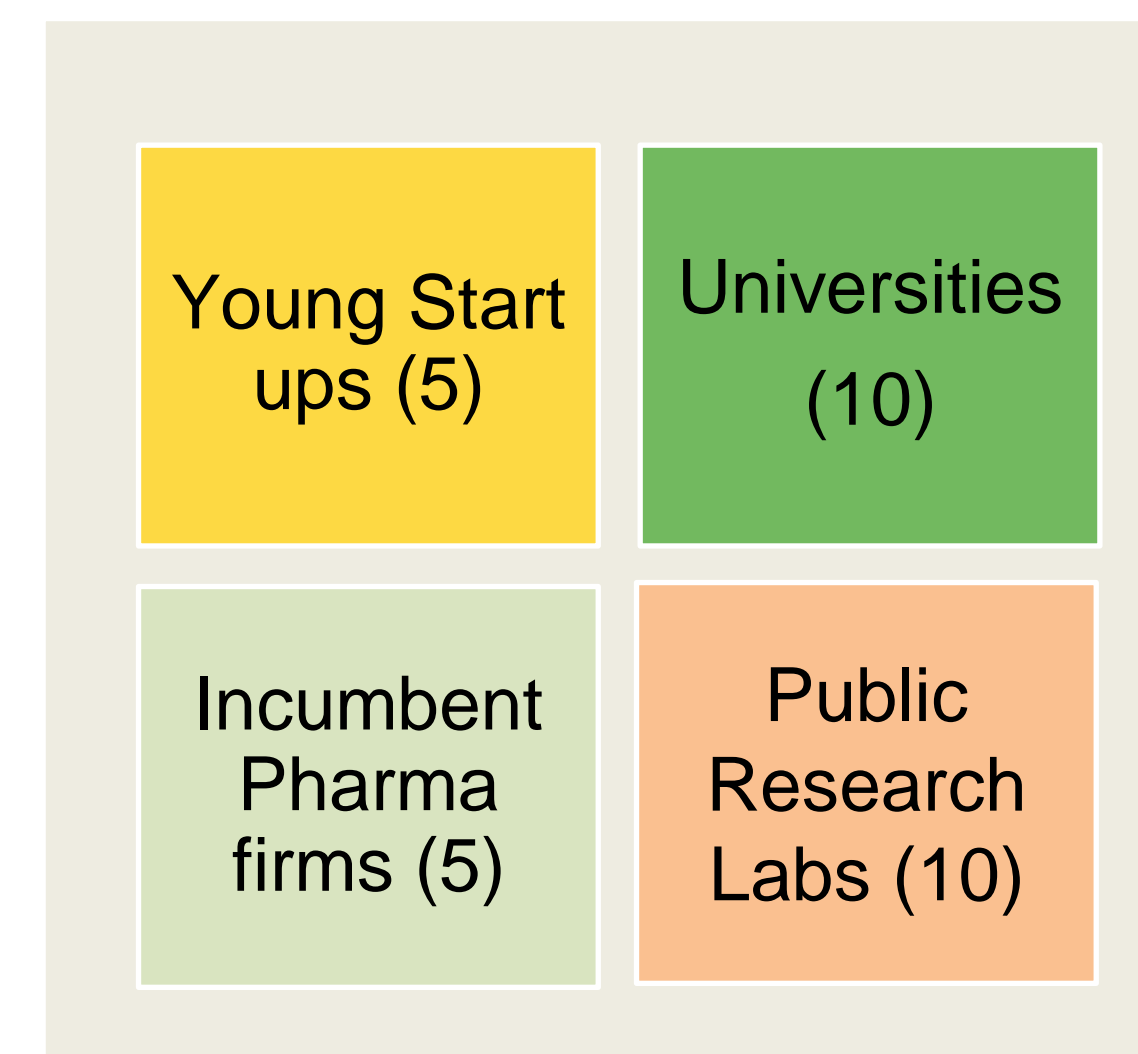


\* Pipelines, patents/ Research publications

The main research questions of the study are:

1. How does the institutional environment affect formation of networks between innovating institutions?
2. How does the patent regime affect the formation of innovation networks?
3. Is there an effect of patent regime in adoption of open innovation strategies?

## Methodological Approach: Multiple Case Study Design



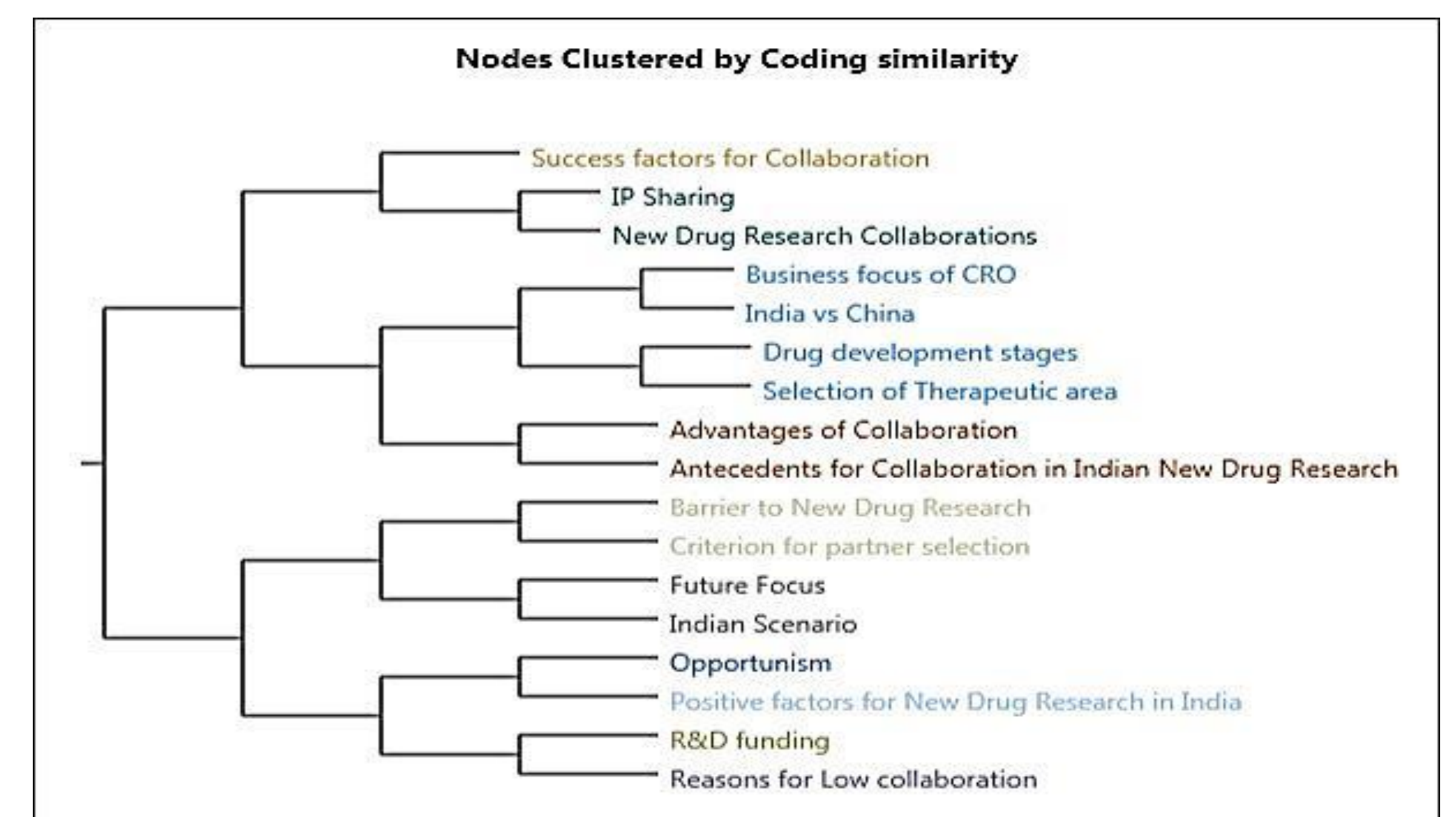
Source: Yin, R. K. (2009)

- The primary method of data collection is interviewing; this is supplemented by observations and elements of ethnography.
- The main method of analyzing the primary data is a variant of qualitative content analysis.
- Secondary data sources are used to corroborate the primary research findings through: 1. Citation Analysis 2. Patent Analysis 3. Pipeline Analysis 4. Collaboration and Alliances Data.

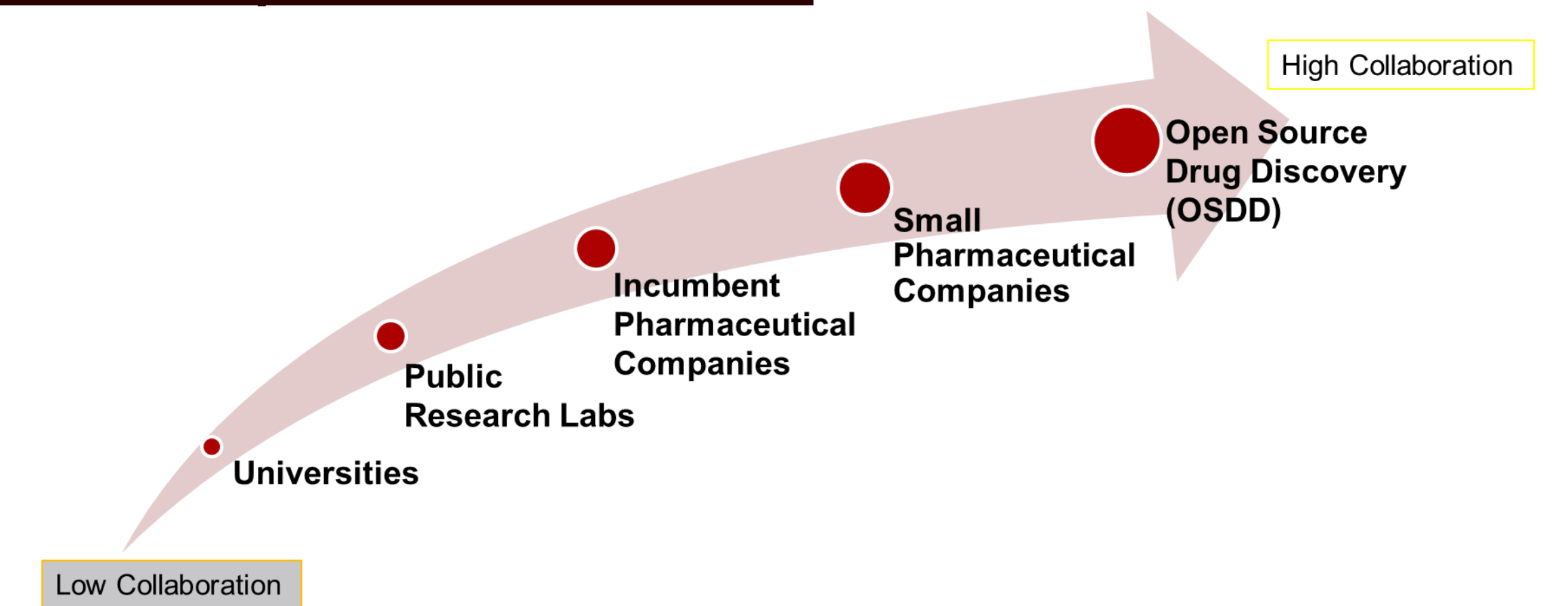
Unit of analysis: firms, universities and public research labs involved in research of New drugs (small molecules).

## Emergent Themes from Pilot Case Analysis

12 semi structured interviews were conducted with employees from incumbent pharmaceutical firms, universities and public research labs and government departments. Selection of pilot cases was based on convenience, access and geographic proximity. Qualitative analysis of interview transcripts revealed several emergent themes which need to be probed further:



## Preliminary findings reveal low intensity of collaboration between firms-universities-public research labs



"How many IITs are there at Delhi, Bombay, Madras, Kharagpur these are the high profile ones. Have they formed a network amongst themselves for drug discovery so far?" – R&D Director, Company A

"Historically we love working in isolation we work in silence. If you look at Indian classical music. Do you see any orchestra? but look at the western classical, everybody has to play in unison so that you build up something" – R&D Director, Company B

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