

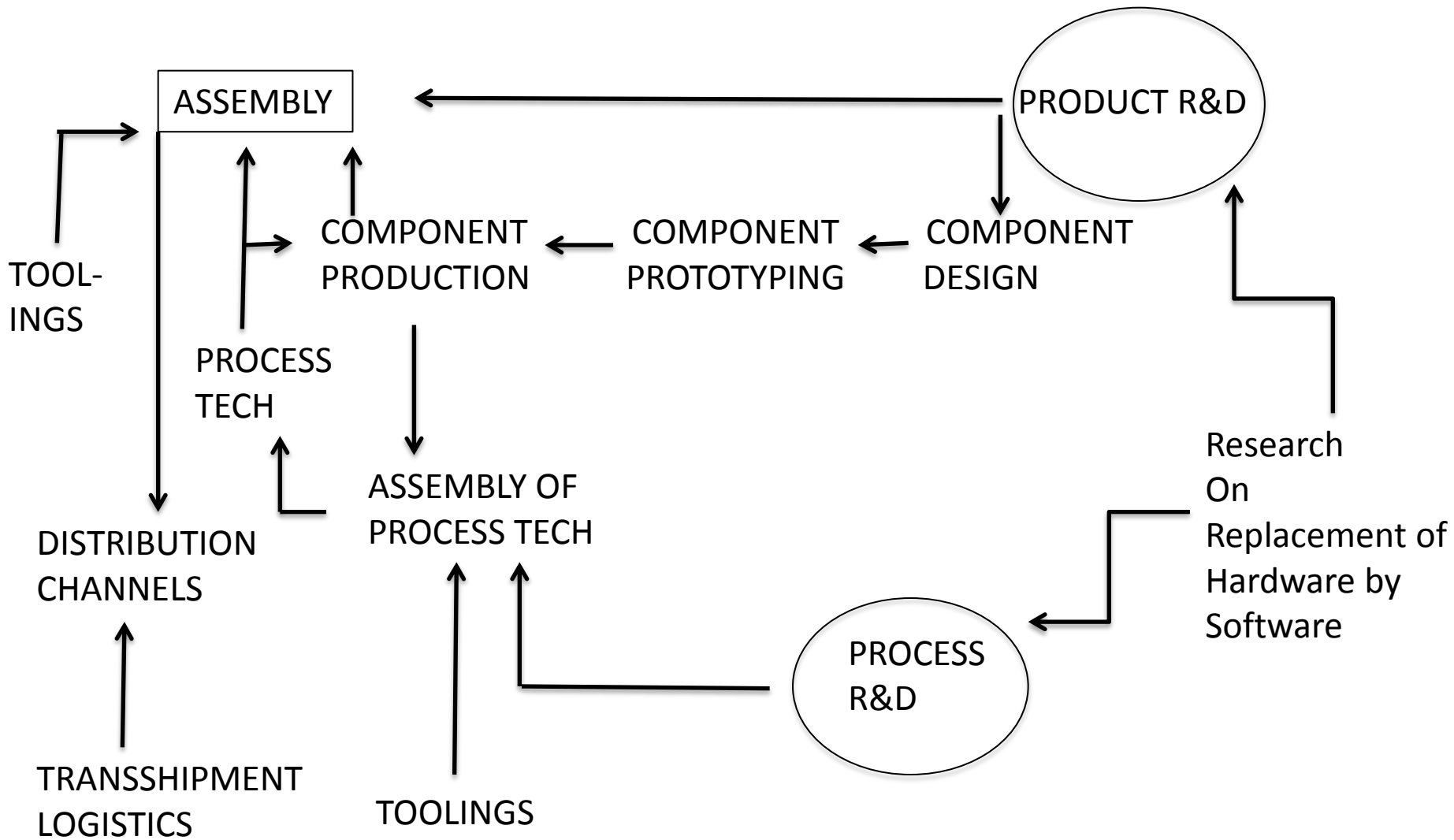
# Pivoting Manufacturing Policy Differently

Pankaj Chandra

# Manufacturing Future

- Indian manufacturing traverses the whole continuum of capabilities - wholly modern to wholly backward
- Where manufacturing is going:
  - Aesprionics - SKL Medtech - Chapparel Steel
  - Bolt - LMMS of World Vision - PBW
- Some recent markers of Indian manufacturing
  - Low on “Short Cycle Technologies” (Lee, 2013)
  - Nokia & Foxconn Debacle
  - New Manufacturing Initiatives: defence (investments & offsets), talent, tech capabilities

- Distance from global supply chains & production standards is high
- Weak ties between firms
- Gains in Productivity largely driven by equipment rather than innovation in products, processes or practices
- Enabling Institutions missing: where are the following?
  - Office of Tech Diffusion (??)
  - Office of Commercialization of Technology (DSIR/DBT?)
  - Office of Manufacturing Data & Productivity (NSC?)
  - Office of Advanced Engineering & Research (CSIR?)
- Where is manufacturing education?
- Incomplete Manufacturing Ecosystem



Can policy nudge Indian manufacturing to develop deep tech capabilities?

# Three Strategy Debates in Indian

## Manufacturing: why do we do what we do and how we do it?

- Mass production (large volume) vis-à-vis high variety production
  - Roles of small, medium & large
- Labour driven vis-a-vis capital intensive manufacturing
  - Debate is actually on low versus high valued add
- Low-tech versus vis-a-vis hi-tech manufacturing
  - Product replacement & new offerings will ensure that either we decide to become a producer of new/advanced technology or remain just a consumer of products (perhaps new to India)

**Table 2: Comparative Picture of Global Manufacturing Peers, 2011 (in per cent)**

Country	Share of Manufacturing in GDP	Share of MHT in Total Manufacturing	MHT exports as total exports	Share of total exports in world exports
China	34.1	40.7	59.9	14.6
S. Korea	27.7	53.4	71.8	4.3
Thailand	36.6	46.1	58.0	1.5
Japan	20.5	53.7	79.0	6.0
Germany	19.2	56.7	72.0	10.4
India	14.9	32.2	27.0	2.0

Source: Economic Survey, 2013-14; page 172

# Fulcrum of new Indian manufacturing policy

## 1. Science & Technology Driven Entrepreneurship

– Three ideas need to fuse:

- mashups

(manufacturing is about Science, Skills & Safety),

- new kinds of incubators & translators for manufacturing, and

- new types of clusters: competitive network of collaborative firms

(come with their ecosystem)



## 2. Innovation Across the Supply Chain: unbundle & focus

- Manufacturing supply chain assets consist of
  - the Product (comprising Product Design, R&D and Patents)
  - Technology (comprising Process Engineering and Patents),
  - People (comprising Skills including Problem Solving abilities, conflict resolution, and industrial relations),
  - Factory (comprising Layout, Process flow, materials coordination, conversion & productivity)
  - Supply (raw material, intermediates, technology, equipment & practices) and
  - Distribution & Marketing
- Re-look at the product mix, build process flexibility (can become the “Manufacturing Laboratory to the World”), structure roles of small & large: product producing firms vs. processing firms

### 3. Cross-Over Productivity

- IT and building dynamic capabilities
- Coordination is better in Clusters
- Incentives linked to productivity gains
- Advanced manufacturing skills

### 4. New Generation Enabling Institutions

Thank You