



# **Thailand's Pharmaceutical Innovation: Opportunities for Public-Private Partnership**

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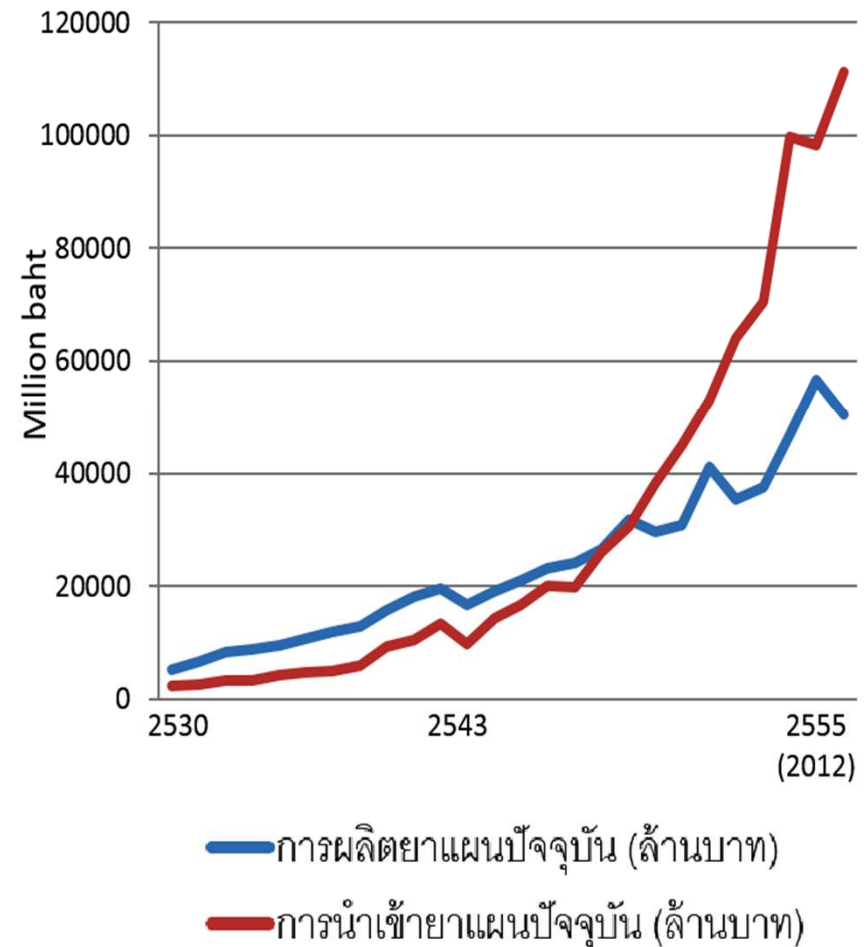
## Emerging market – Pharmaceutical R&D and Production

- Pharmaceutical spending was USD 281 billion in 2014
  - USD 195 billion in EU5 (Germany, France, Italy, the UK, Spain)
- Emerging markets will be important contributor to pharma sales growth, ~USD190 billion between 2015-2020.
  - Approximately 40% will come from innovation drugs.
- Increasing role in Pharmaceutical Production
  - Lower cost R&D
  - Early market access through local R&D
  - Regulatory requirements and moving towards global trials
  - Medical needs and preference are different from the West
    - Disease areas (infectious and non-infectious), and neglected disease
    - Efficacy and dosing
    - Patient and prescriber preferences
    - Towards personalized medicine

# Thailand's Pharmaceutical – Demands

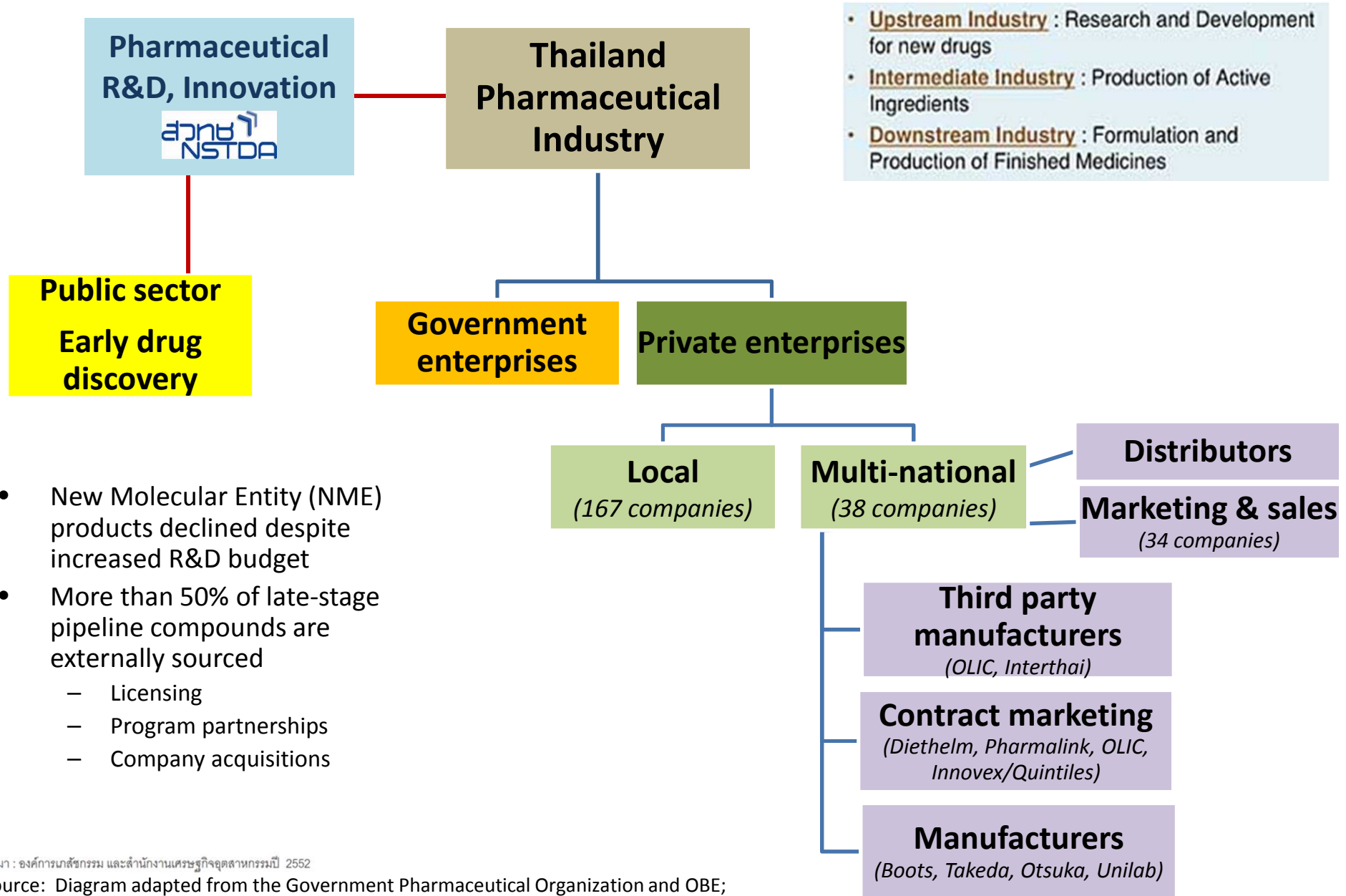
- Universal Health Coverage and other insurance schemes cover all Thai citizens (~67.7 million)
- Medical hub – serving more than 2.1 million foreign patients
- US\$ 658 estimated per capita spending on healthcare
  - 4.6% GDP (~14% national budget), more than many European countries
- Thailand Pharmaceutical product market at ~150 billion THB (15% annual growth)

Value of manufactured and imported medicines for healthcare in Thailand from 2530 to 2555



# Thailand's Pharmaceutical – Opportunities in R&D and Production

- Export ~13.9 billion THB v Import ~62.9 billion THB
- Local industry produces a wide range of drugs for human and veterinarian sector. Mostly generic drugs, **with increasing trend for new medicines.**
- GPO manufactures ~300 pharmaceutical-related products, focusing in formulation of antiviral and cardiovascular drugs.
- Moving towards Pharmaceutical Inspection Cooperation Scheme (PICS) and GMP standards.
- Member of Pharmaceutical Product Working Group (PPWG) under ASEAN Consultative Committee on Standards and Quality (ACCSQ) to harmonize regulatory requirements for production and distribution



## NSTDA – Driving Drug R&D Innovation

- Investment in R&D
  - Human resources
  - Infrastructure
  - Research grants – Cluster and Program Management Office
    - NSTDA Chair grant
    - Wildly Important Goal (WIG) grant
- Strategic partnership
  - MRC - NSTDA - TRF “National Strategic Diseases of Thailand”
  - BIOTEC-Novartis Partnership in Drug Discovery since 2005
  - NSTDA-Medicines for Malaria Venture (MMV), LSTMH (UK), and Monash University (Australia)
    - **P218 discovery: the first drug candidate invented by Thailand’s researchers to enter clinical trial**



**THANK YOU FOR YOUR ATTENTION**

Pharmaceutical  
R&D, Innovation

Thailand  
Pharmaceutical  
Industry

- **Upstream Industry** : Research and Development for new drugs
- **Intermediate Industry** : Production of Active Ingredients
- **Downstream Industry** : Formulation and Production of Finished Medicines

Public sector  
Early drug  
discovery

Government  
enterprises

Private enterprises

Local  
(167 companies)

Multi-national  
(38 companies)

Distributors  
Marketing & sales  
(34 companies)

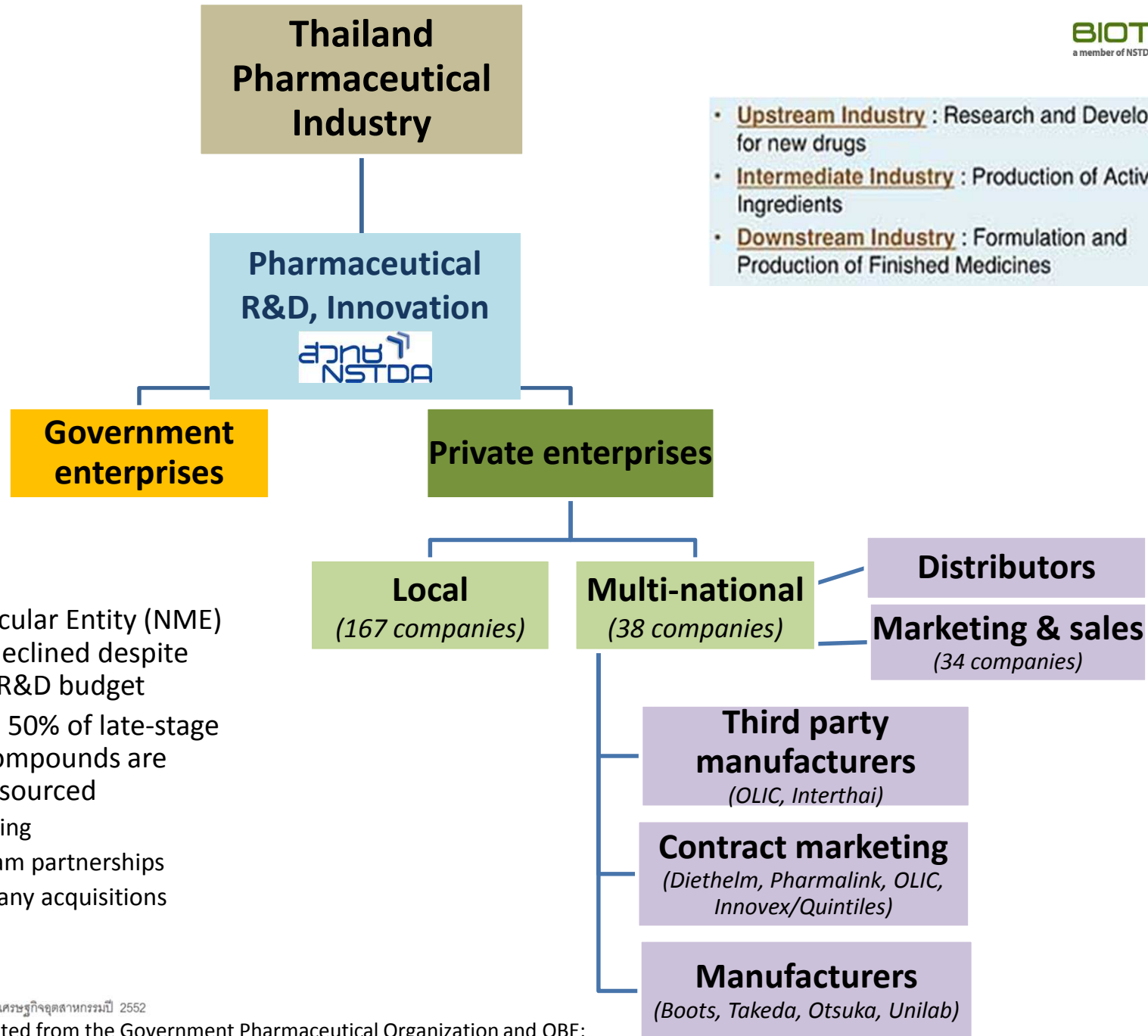
Third party  
manufacturers  
(OLIC, Interthai)

Contract marketing  
(Diethelm, Pharmalink, OLIC,  
Innovex/Quintiles)

Manufacturers  
(Boots, Takeda, Otsuka, Unilab)

- New Molecular Entity (NME) products declined despite increased R&D budget
- More than 50% of late-stage pipeline compounds are externally sourced
  - Licensing
  - Program partnerships
  - Company acquisitions





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- **Intermediate Industry** : Production of Active Ingredients
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Source: Diagram adapted from the Government Pharmaceutical Organization and OBE; EvaluatePharma database, Feb 2007 and May 2002, McKinsey analysis; GPO and