



**BC Cancer Agency**

CARE + RESEARCH

*An agency of the Provincial Health Services Authority*

# **Promising Solutions : Molecular Oncology and Personalized Medicine**

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# Can molecular sciences interpret the biological basis of variability of outcome:

- for an apparently homogeneous patient cohort?
- for an apparently homogeneous tumour type?
- for an apparently homogeneous tumour stage?

**YES**

- **Examples: lung, prostate, lymphoma, breast, ovary**
- **Limitations**
  - **Samples – size, composition, purity, preservation**
  - **Technology – consistency, transferrability, cost, time**
  - **Science – level of evolution**

Can the technology become clinically relevant?

**YES**

**Examples: next-generation sequencing, combined mutational & expression analysis**

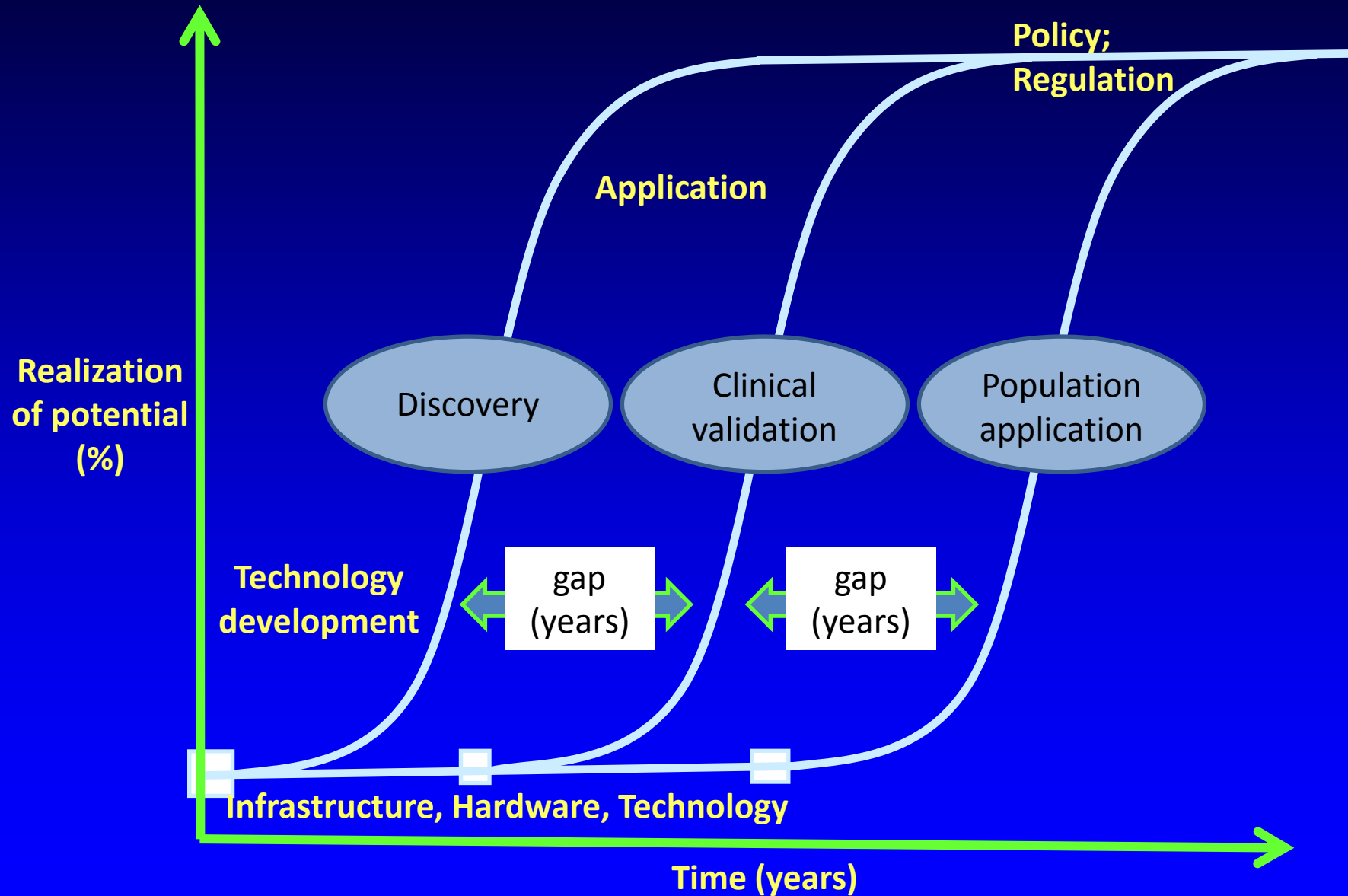
**Implications: predictive, prognostic, & personalized medicine**

**Limitations: cost, timelines, utility, magnitude of benefit, transferability to clinical medicine, 'readiness' for adoption by clinical medicine**

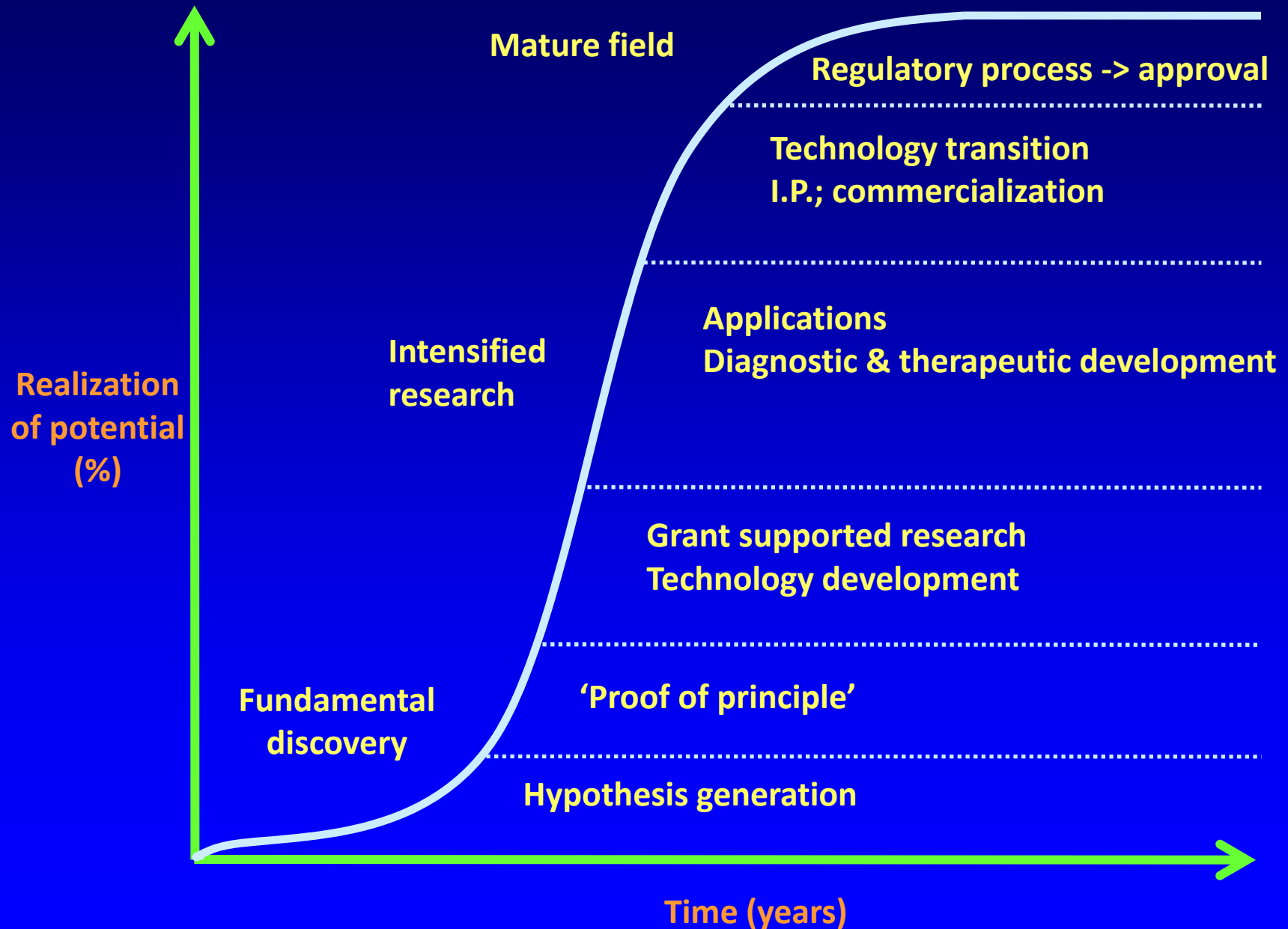
Can we address the transfer of  
molecular science to the clinic?

- **The 'components' of the transfer**
- **The cost and the 'business case'**

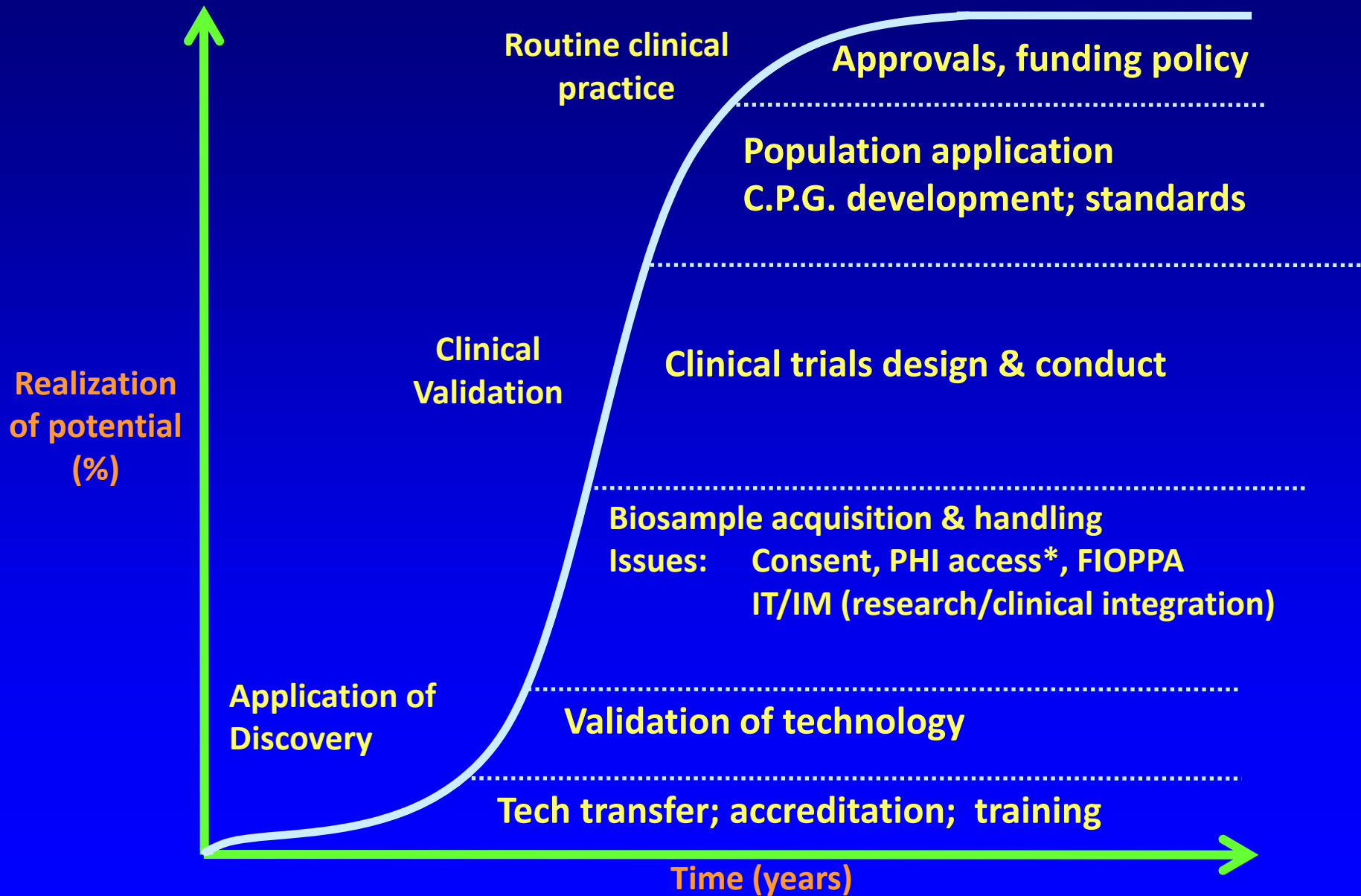
# Knowledge application – ‘preparedness’



# Knowledge creation – ‘discovery/research’



# Knowledge transfer – clinical application



## The Cost and the 'Business Case' Breast Cancer : BC – 2007/08

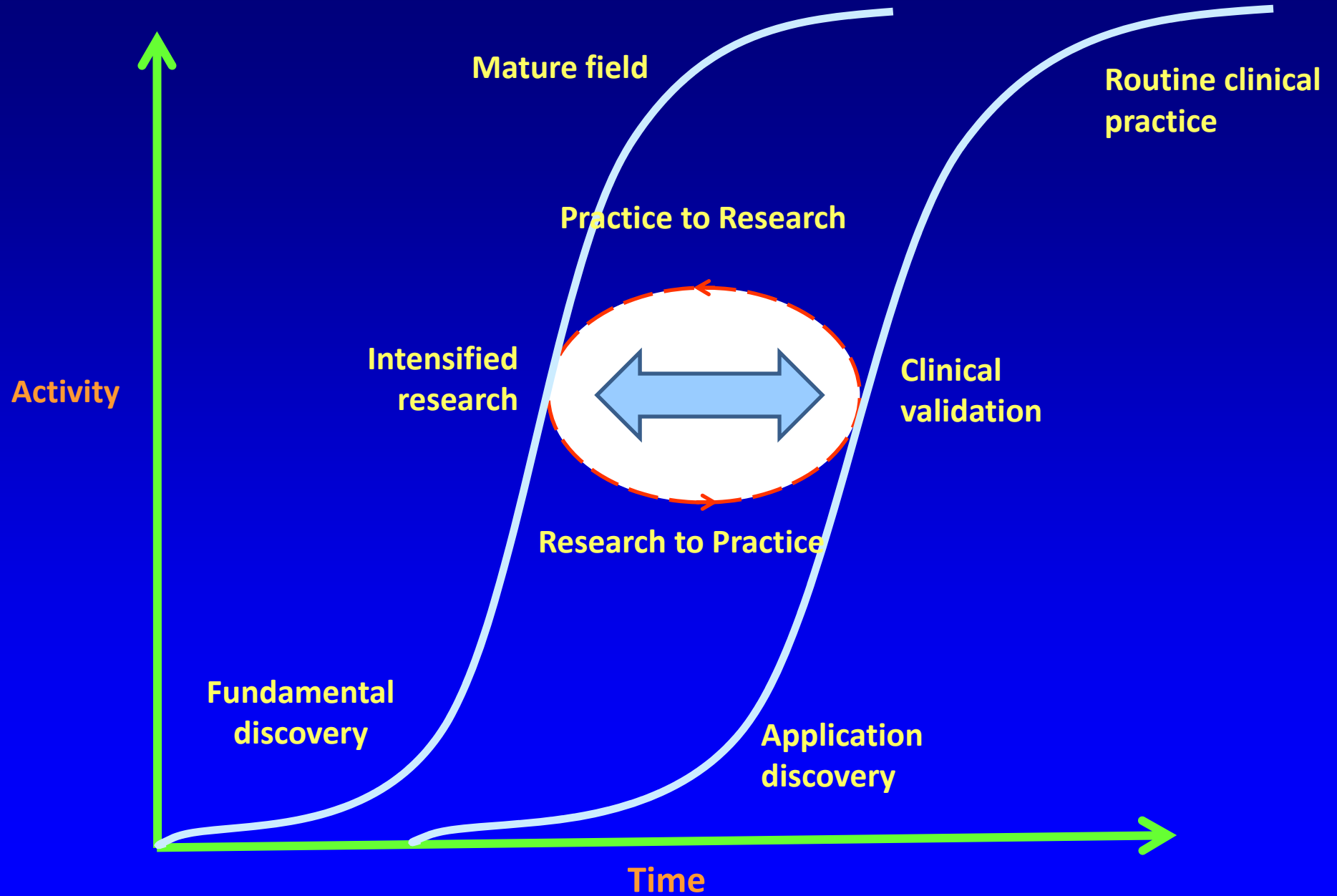
New cases of breast cancer p.a	2700	
Early stage, node negative (63%) pa	1701	
Cost of systemic therapy for breast cancer p.a	33M	
Cost of radiation therapy for breast cancer p.a	8M	
Cost of treatment per case	15,185	
1701 cases -> molecular signature @ \$1000	1.7M	
1701 cases -> functional response analysis @ \$1,200	<u>2.04M</u>	
	<u>3.74M</u>	incremental cost
Avoidance of non-surgical therapies – 30%	510	
Cost avoidance of 'molecular' triage	<u>7.74M</u>	cost avoided

Issue: How are the 'avoided' costs accrued and captured?

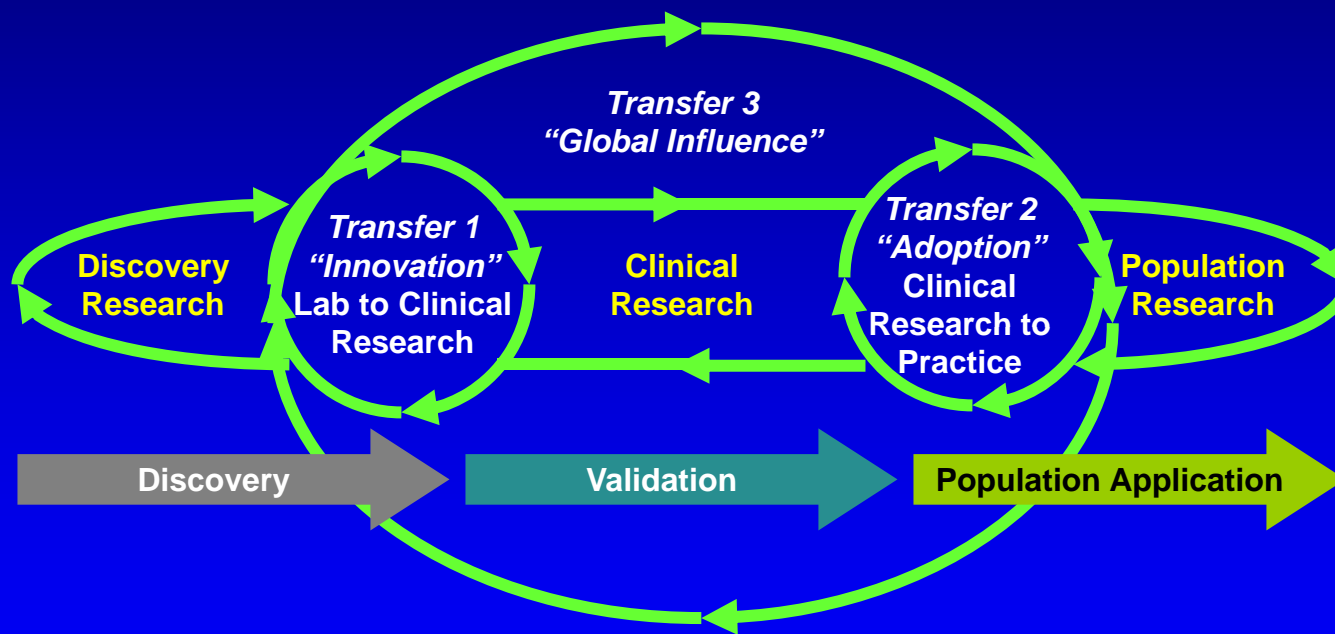
# How do we 'close the gap'?

- **Anticipate & address 'hurdles'/system 'impediments'**
- **Organization structure – integration of research and practice**
- **Motivation – culture of knowledge translation**

# The Knowledge Translation Gap



# Organization Structure : Integration of research and practice



# How do we 'close the gap'?

- Anticipate & address 'hurdles'/system 'impediments'
- Organization structure – integration of research and practice
- Motivation – culture of knowledge translation
  
- **Incentives – reward 'transfer'**
- **'Sharable' infrastructure, expertise, technology, and personnel**
- **The 'business case' is a key element of 'preparedness' for knowledge transfer**
- **Strategic investment – intellectual, financial, resources, commercialization**