



How to Cross the Border from R to D?

The example of conception of new medical devices

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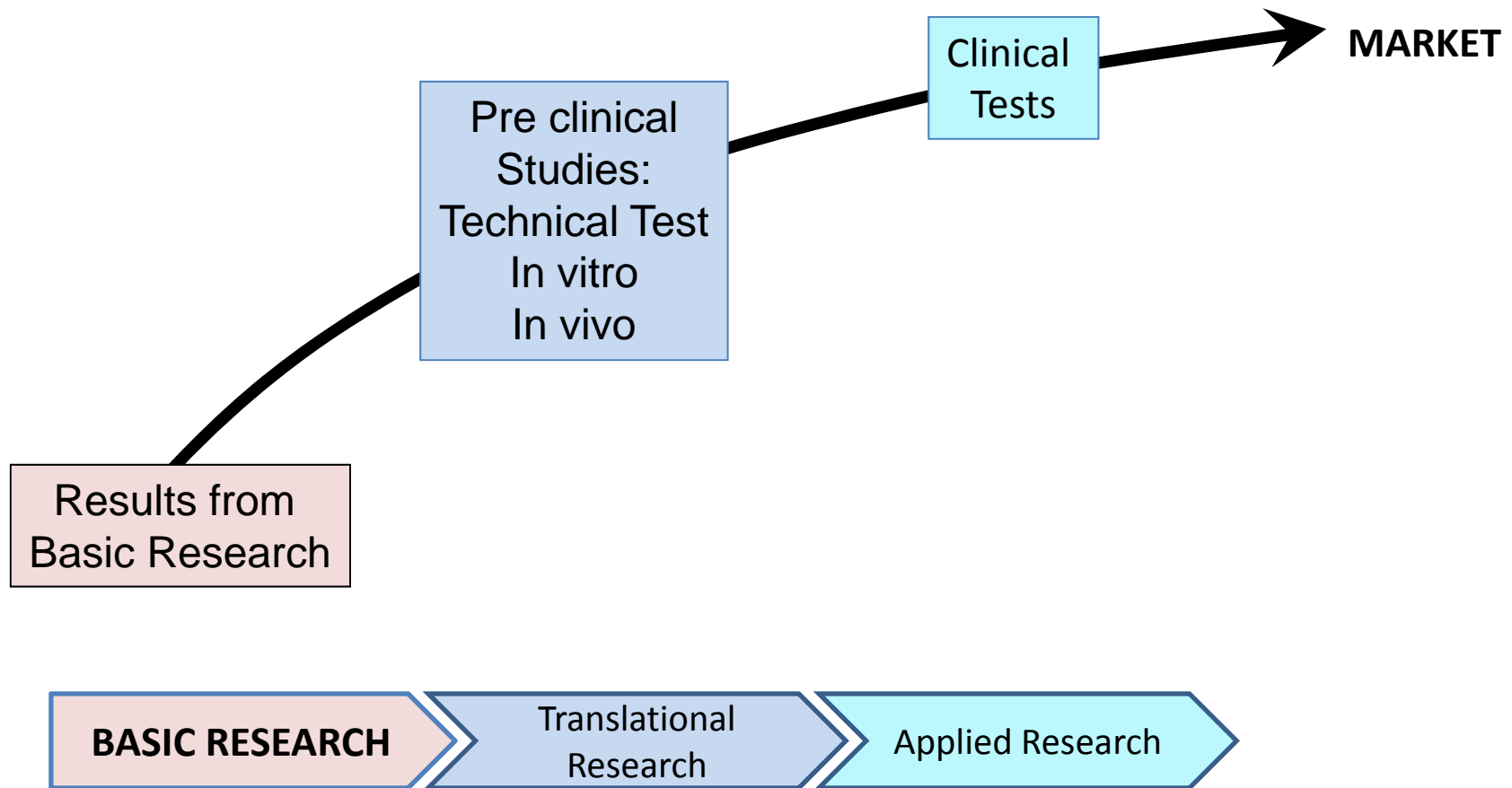
Translational research

Traditional definition from Wikipedia :

*“**Translational research** is scientific research that helps to make findings from basic science useful for practical applications that enhance human health and well-being”*



Initial Translational research Model for Health





Approach by technics

How to catch an image ?

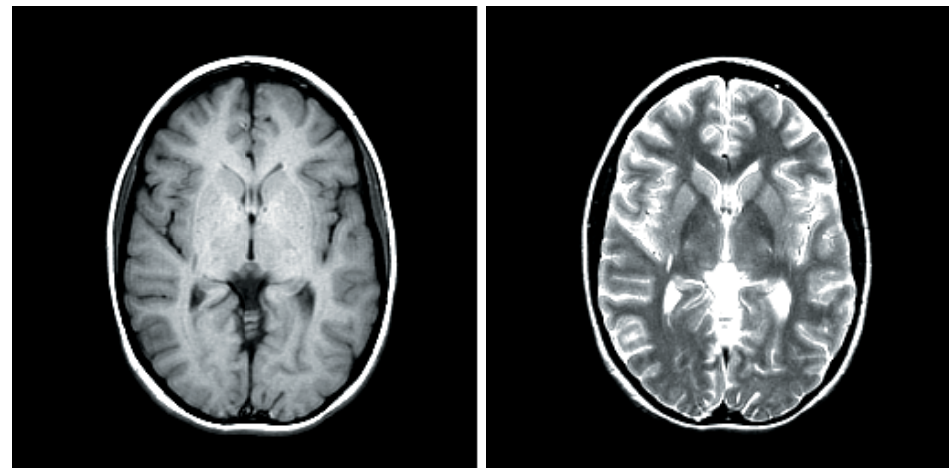
Speed translation

- ❖ *November, 1895*
William Roentgen “discovered” X-rays.
- ❖ *February, 1896*
X-rays were being used clinically in the US.



Slow translation

- ❖ *1922*
Theory of the "spin" of particles, Stern & Gerlach
- ❖ *2000*
MRI in current clinical practice





Approach by needs

How to catch an image ?



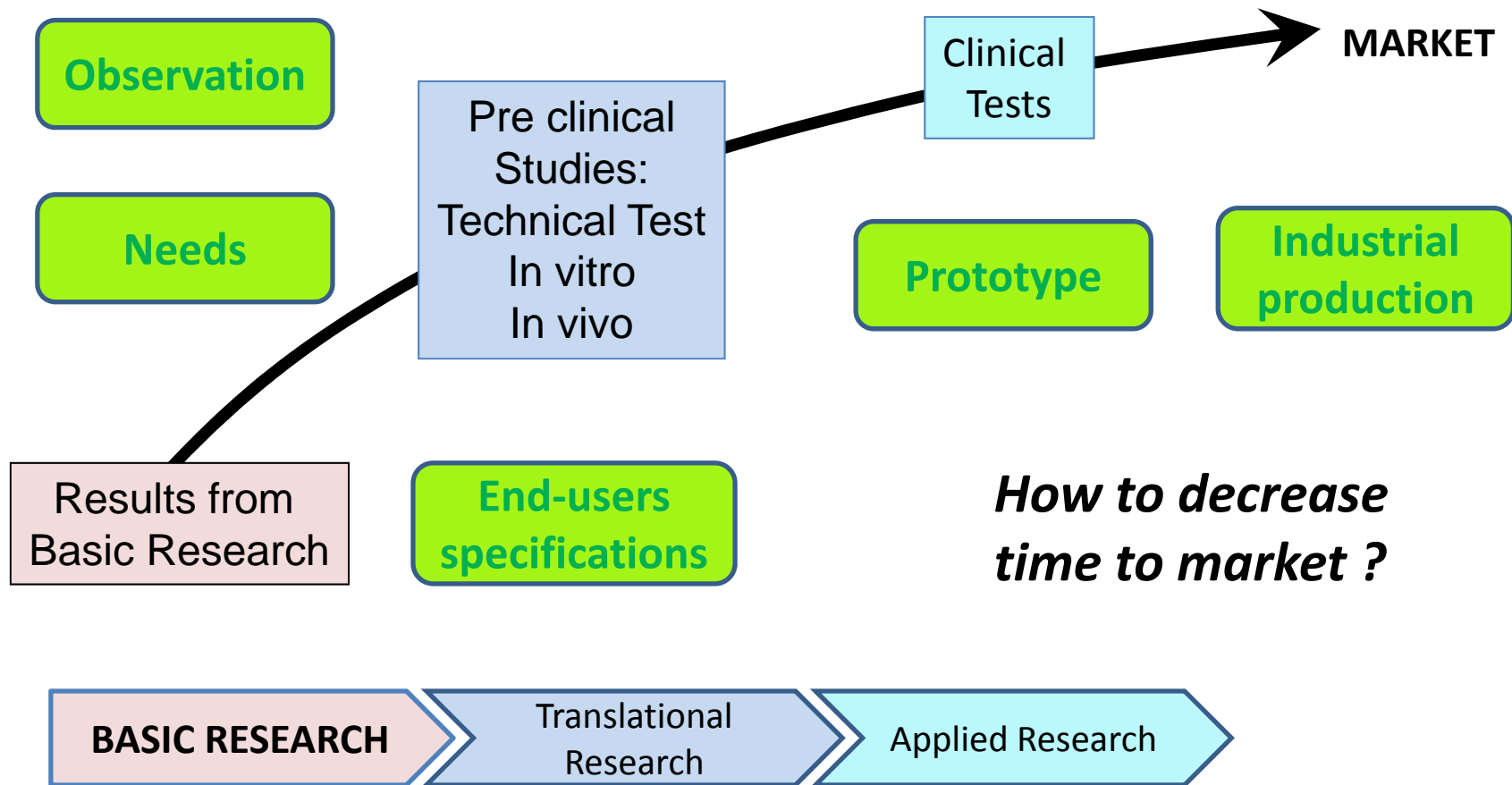
From an old observation by Egyptians (around 8 000 BC), with the input from theoreticians like Aristotle, Alhazen, Da Vinci, prototypes were set up. Used by renaissance painters, the device had evolved during the 18th and 19th through technological inputs of many people from Germany, England France till the world's first photograph in 1827.

Toward an industrial process, due to Talbot's discovery (the production of the first negative image), then the use of roll film instead of plates or sheets, and now with the numeric revolution, we afford to transmit picturing of anything from anybody and anywhere **to get a health expert's advice.**





Translational research Model for Health





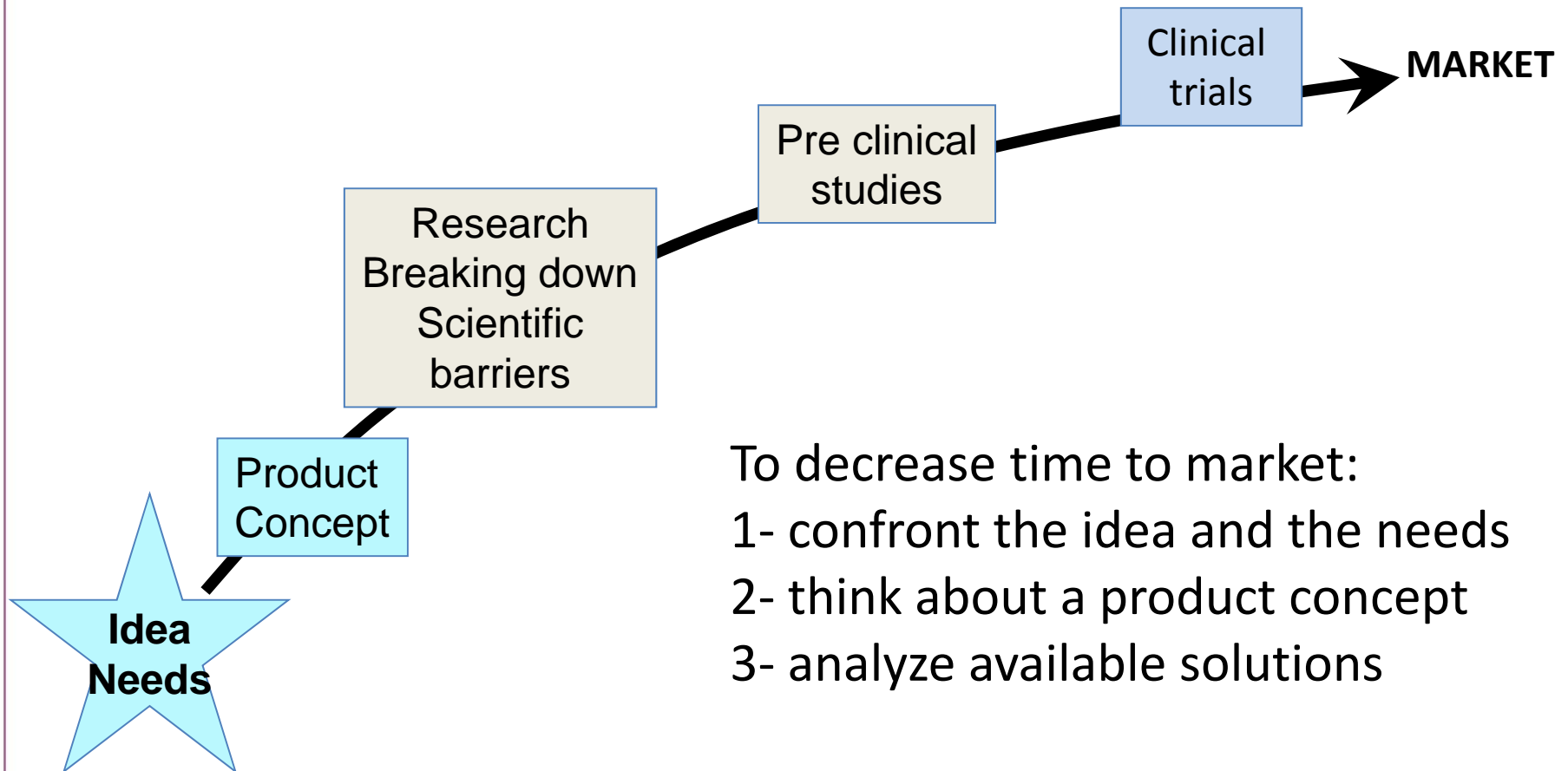
Translational research

General definition from Wikipedia:

*“**Translational research** can be applied more generally, as in science-to-business marketing or other initiatives where researchers **try to shorten the time-frame** and conflate the basic-applied continuum, to ‘translate’ fundamental research results into practical applications.”*



Adapted Translational research Model for Health



To decrease time to market:
1- confront the idea and the needs
2- think about a product concept
3- analyze available solutions



- 1-Analyze capacities of techniques then
- 2- Define the medical needs meeting the technical capacities



based on Optical Coherence Tomography

FP7-ICT-2011-8

Coordinator: Christophe GORECKI, Femto-ST UMR CNRS 6174, France





1-Define the needs from the medical point of view then 2-Analyze available techniques



« Decrease pain of screening at birth »

ANR-2010 - PHRCi





Translational research

Refined definition

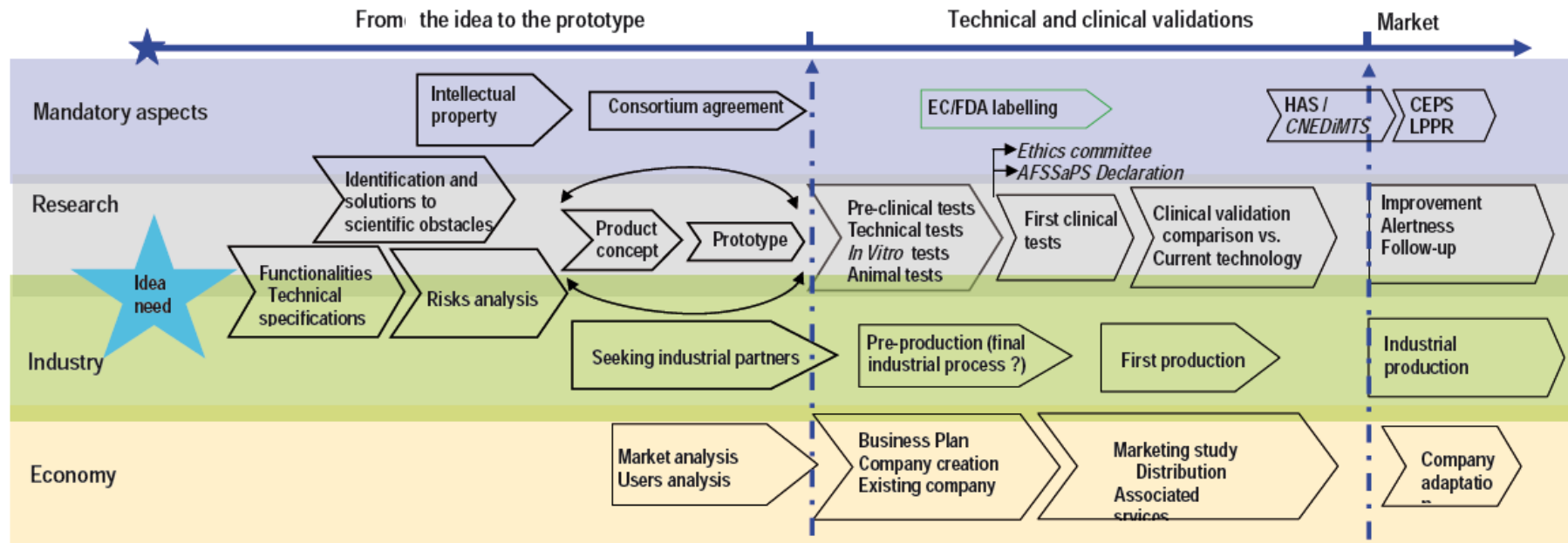
Definition from the National Institutes of Health (NIH):

“Translational Research involves the extensive body of work required to move a discovery from bench to bedside.”

Some others add the feedback loop “from the bed to the bench”



Innovative Medical Devices Development



BASIC RESEARCH

Translational Research

APPLIED RESEARCH