

Transferring technology and testing business ideas: the two faces of the innovation problem

Innovation for productive capacity-building and sustainable development

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Transfer of technology: the broad picture

- Transmission of knowledge about technological practices _ two main forms:
- University (public sector) to industry/service/agriculture
- Firm 1 to firm 2...n (or location 1 to location 2)
- In all cases a successful transfer of technology requires imparting technological (absorptive) capabilities to individuals, organizations that previously had lacked them
- In all cases demand-driven technology transfer better than supply-driven

International ToT for development - 1

- The economic case:
 - No need to re-invent the wheel!
 - *The greater the share of firms and countries that make use of superior products and processes and the sooner they do so, rather than being confined to inferior substitutes, the more widespread and substantial the output and growth benefits should be (Baumol, 2002).*

International ToT for development - 2

- ToT from a developed to a developing country entails a series of operation:
 - The adaptation of the technology to configure it with an operational form or design that fits the new environment
 - The absorption of subsequent improvements
 - The generalisation and scaling up of the technology (diffusion process within the local economy)
 - In parallel the development of capabilities (human capital, institutions, infrastructure)

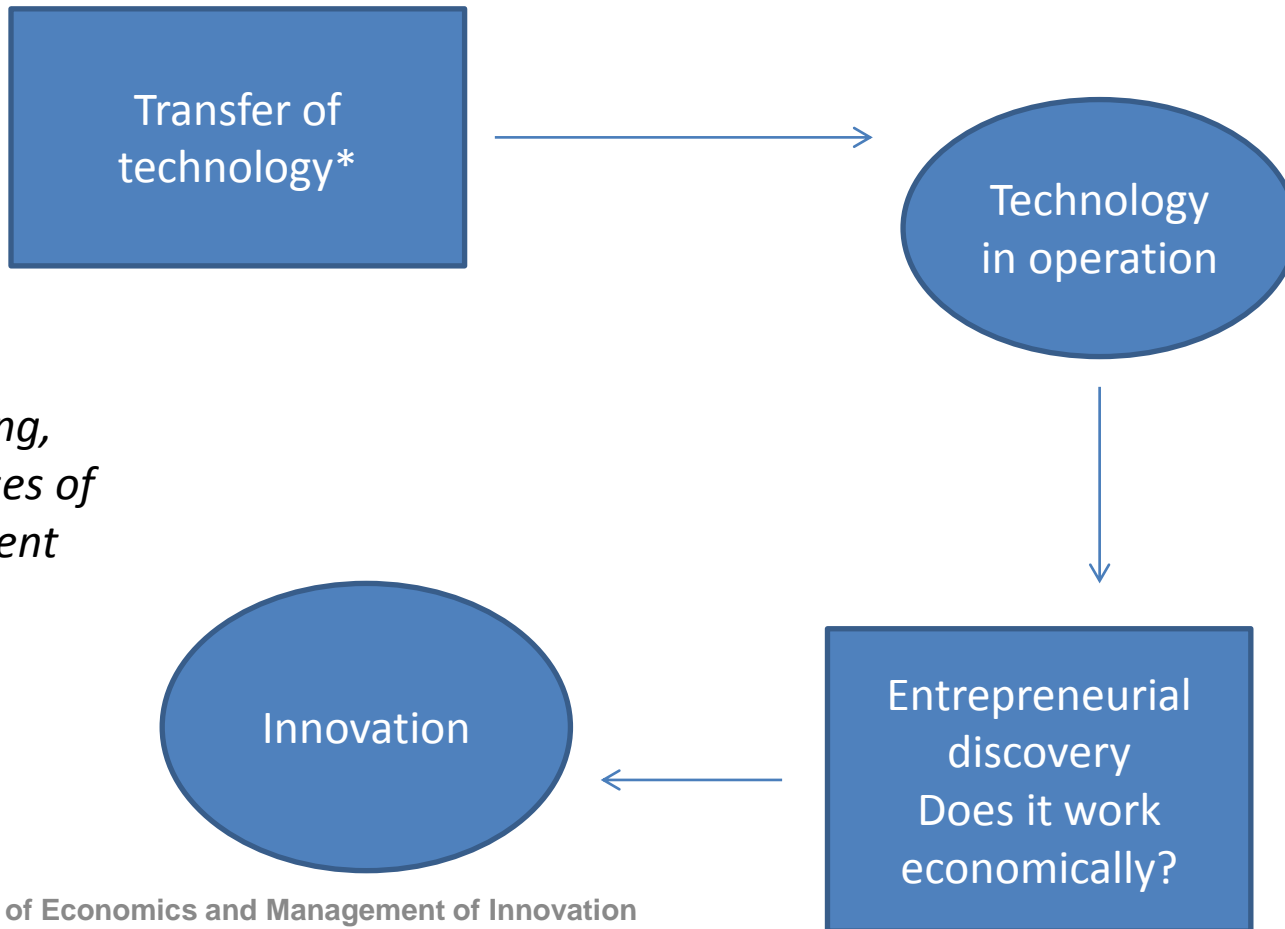
International ToT for development - 3

- Transactional modes : two families
- The ToT is just one element of the transaction that exceeds its scope (ToT is a joint product or a byproduct)
 - FDI-related ToT
 - Trade-related ToT (incl. sub-contracting)
- The ToT is the main goal of the transaction (main product)
 - Licensing + transfer of know-how
 - Purchase of capital equipment
 - Technical co-operation agreements
 - Training contracts

The main issue

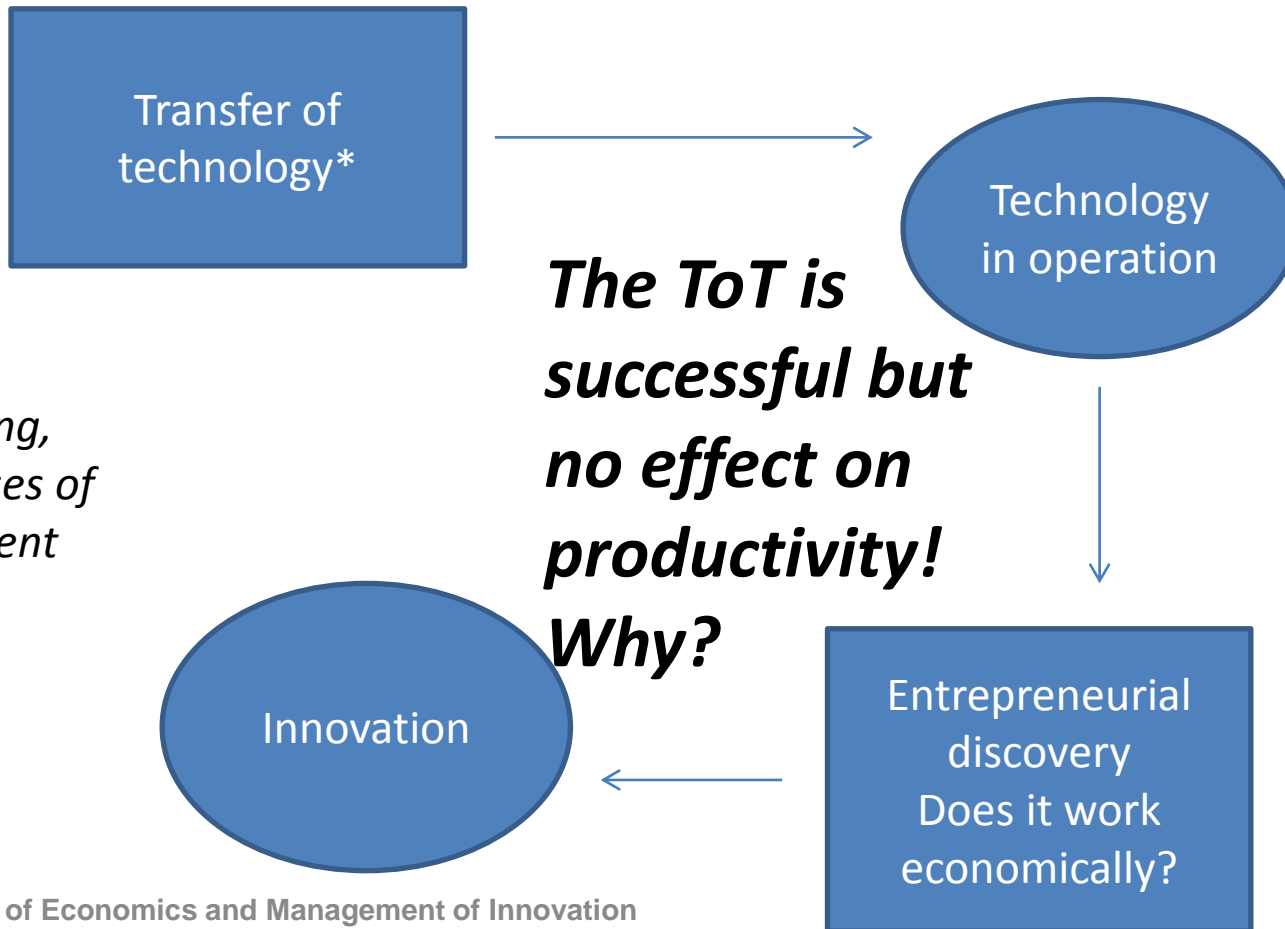
- What is transferred is a technology but the ultimate goal is very often innovation (i.e. the application of a new business ideas)
 - Exceptions: ToT for large public infrastructure
- Even if the technological knowledge has been perfectly transferred, we cannot take it for granted that this knowledge will work economically in the new environment : the innovation can fail
- The need for an entrepreneurial discovery process : does it work economically?
 - The discovery process generates economic knowledge

A first diagram



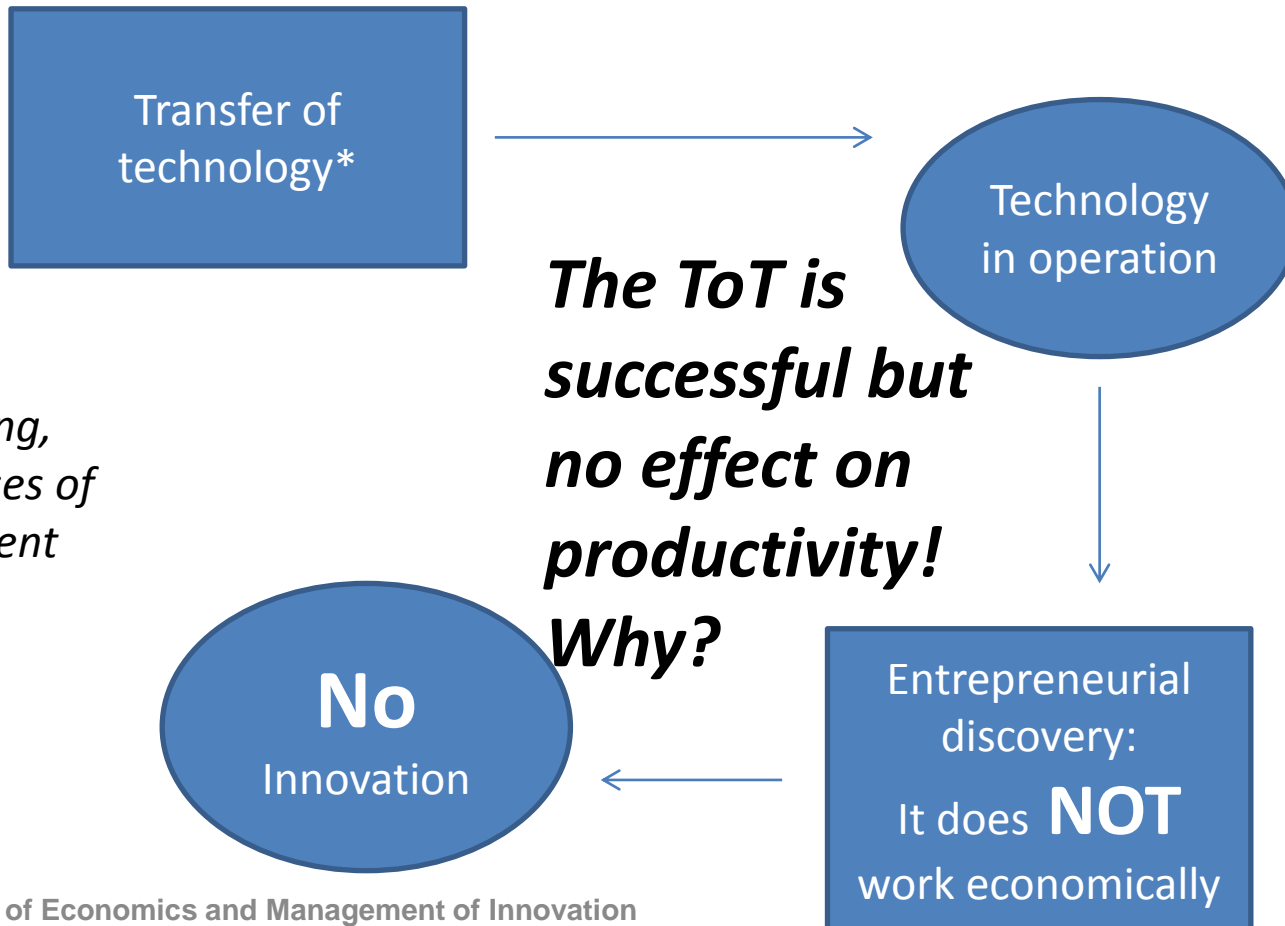
**licensing,
purchases of
equipment*

A first diagram

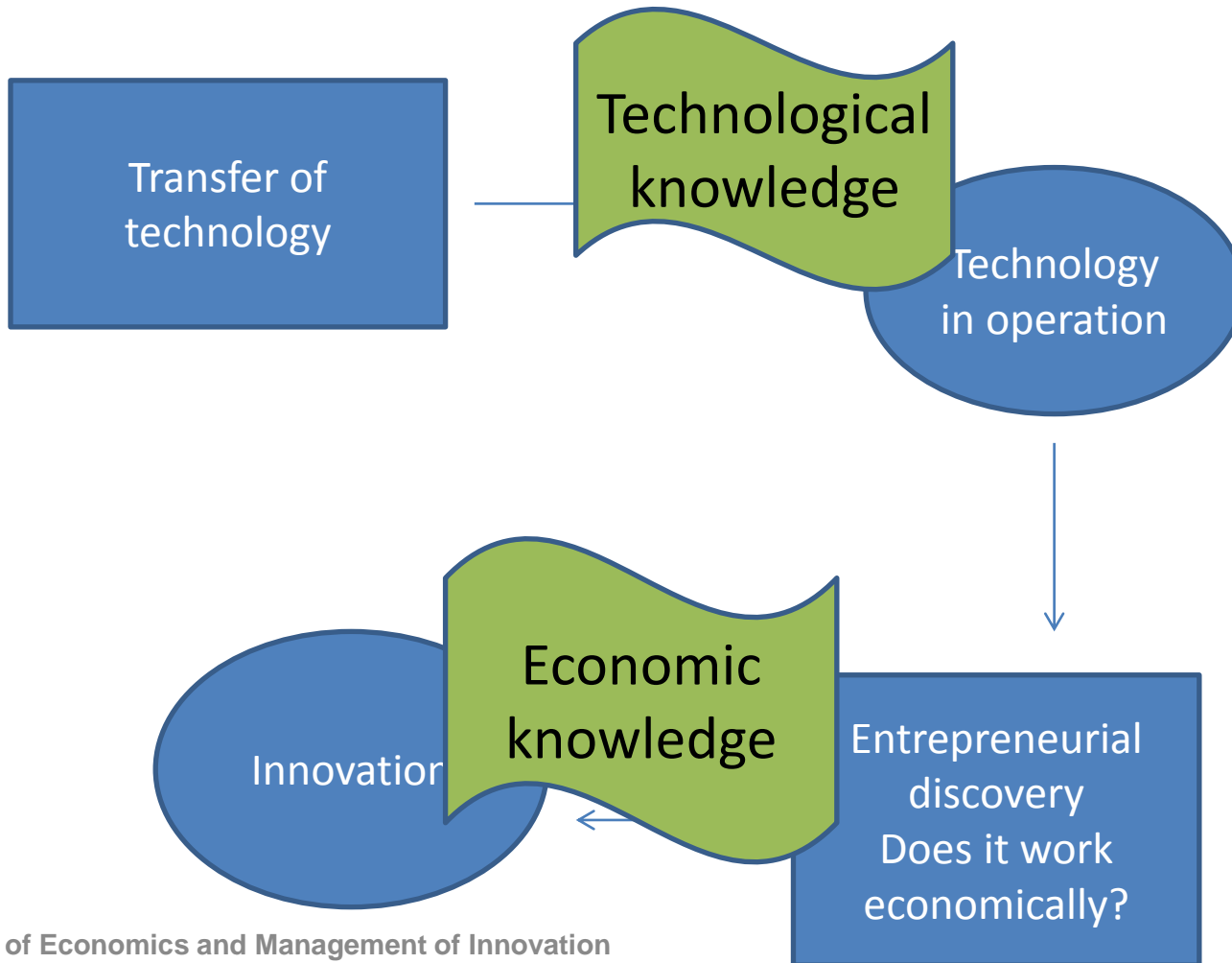


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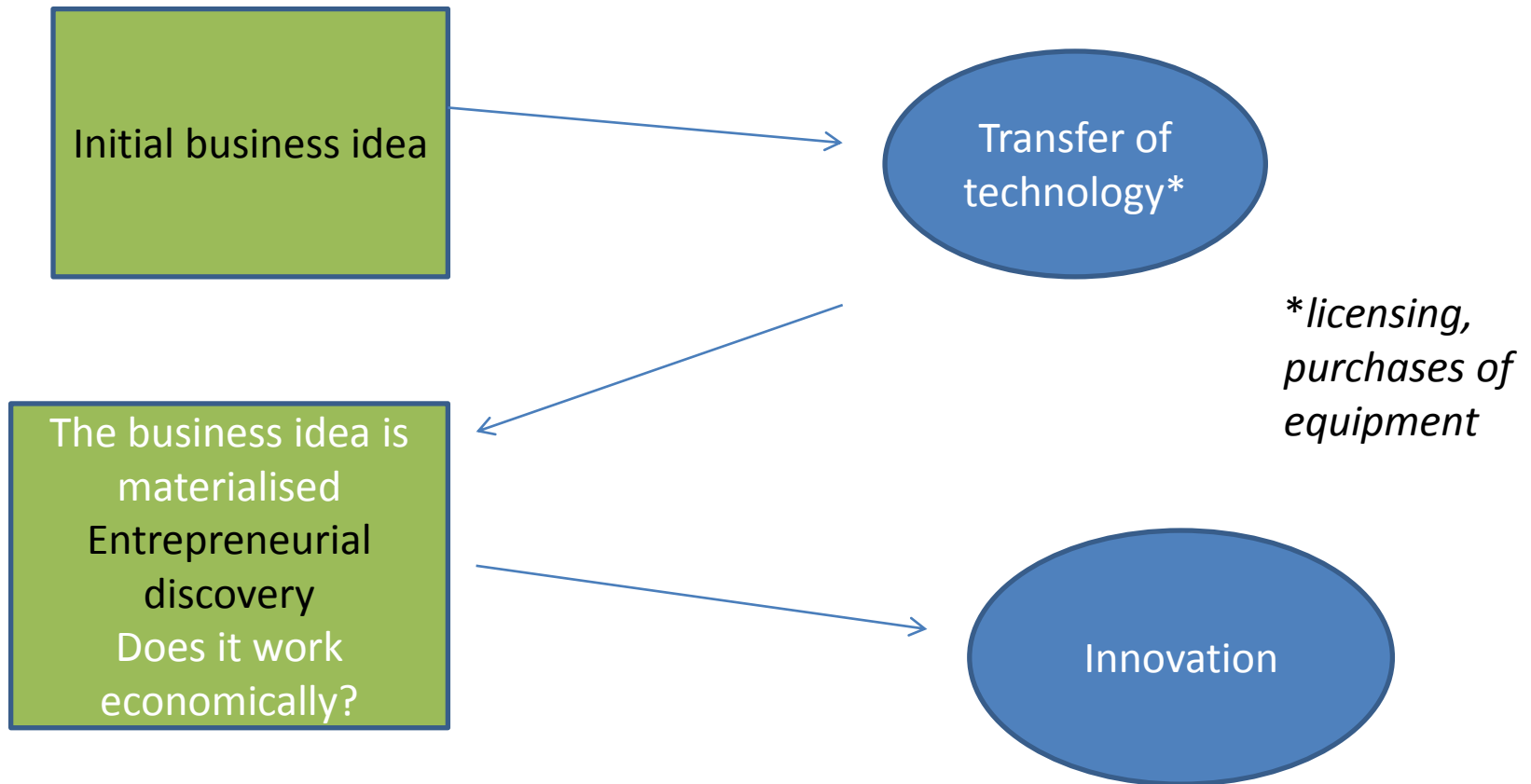
A first diagram



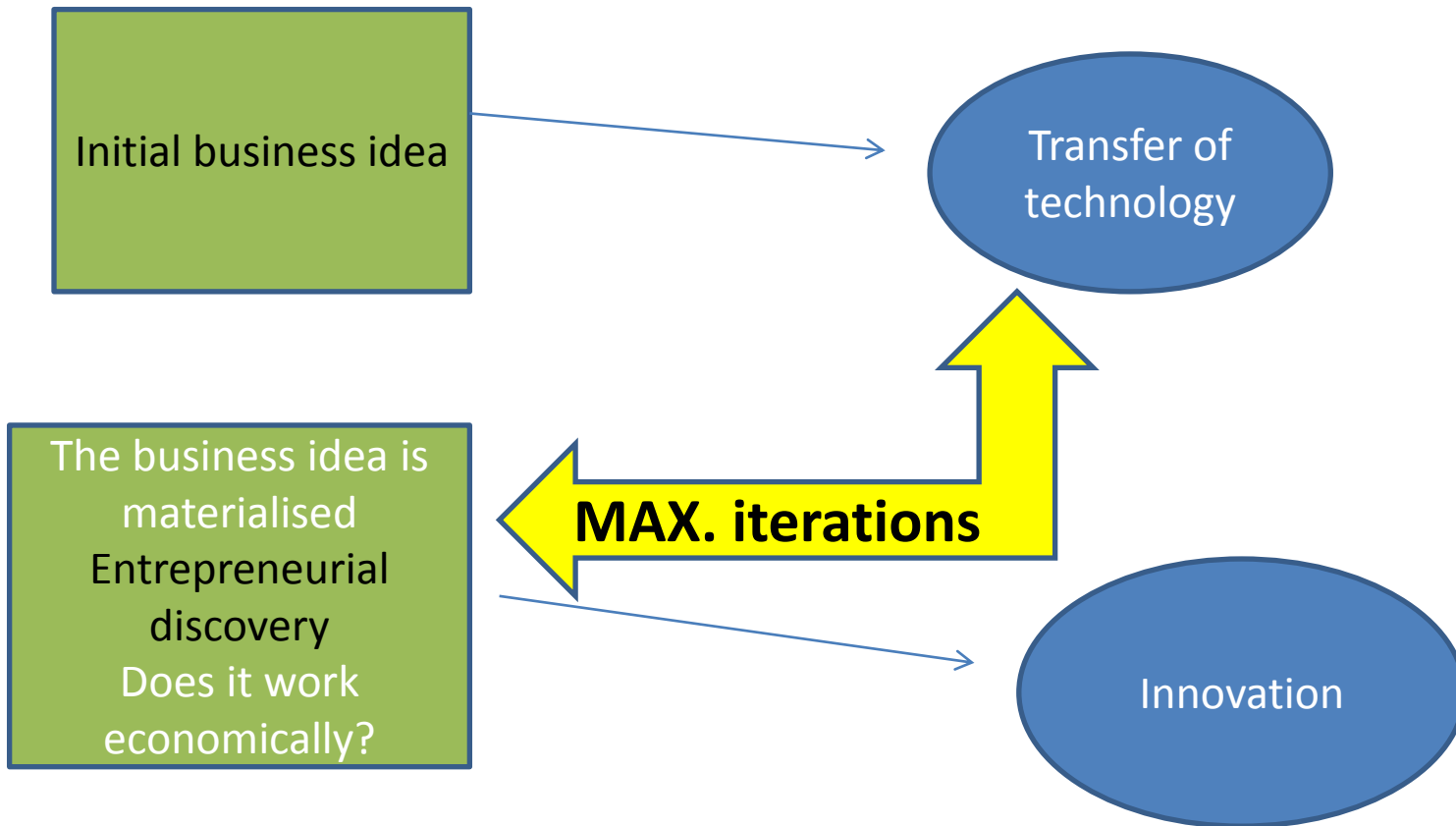
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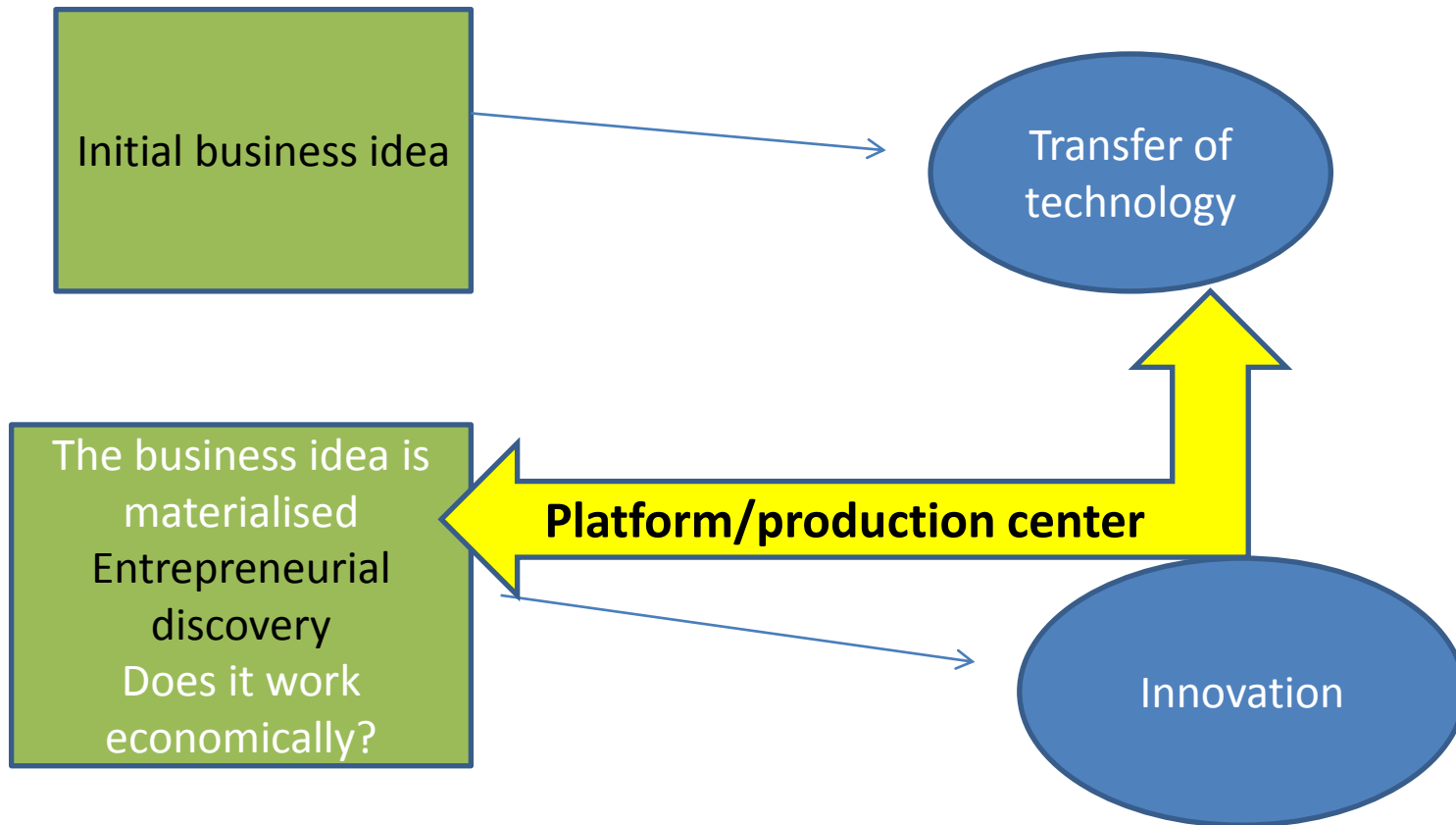


A second (more relevant) diagram

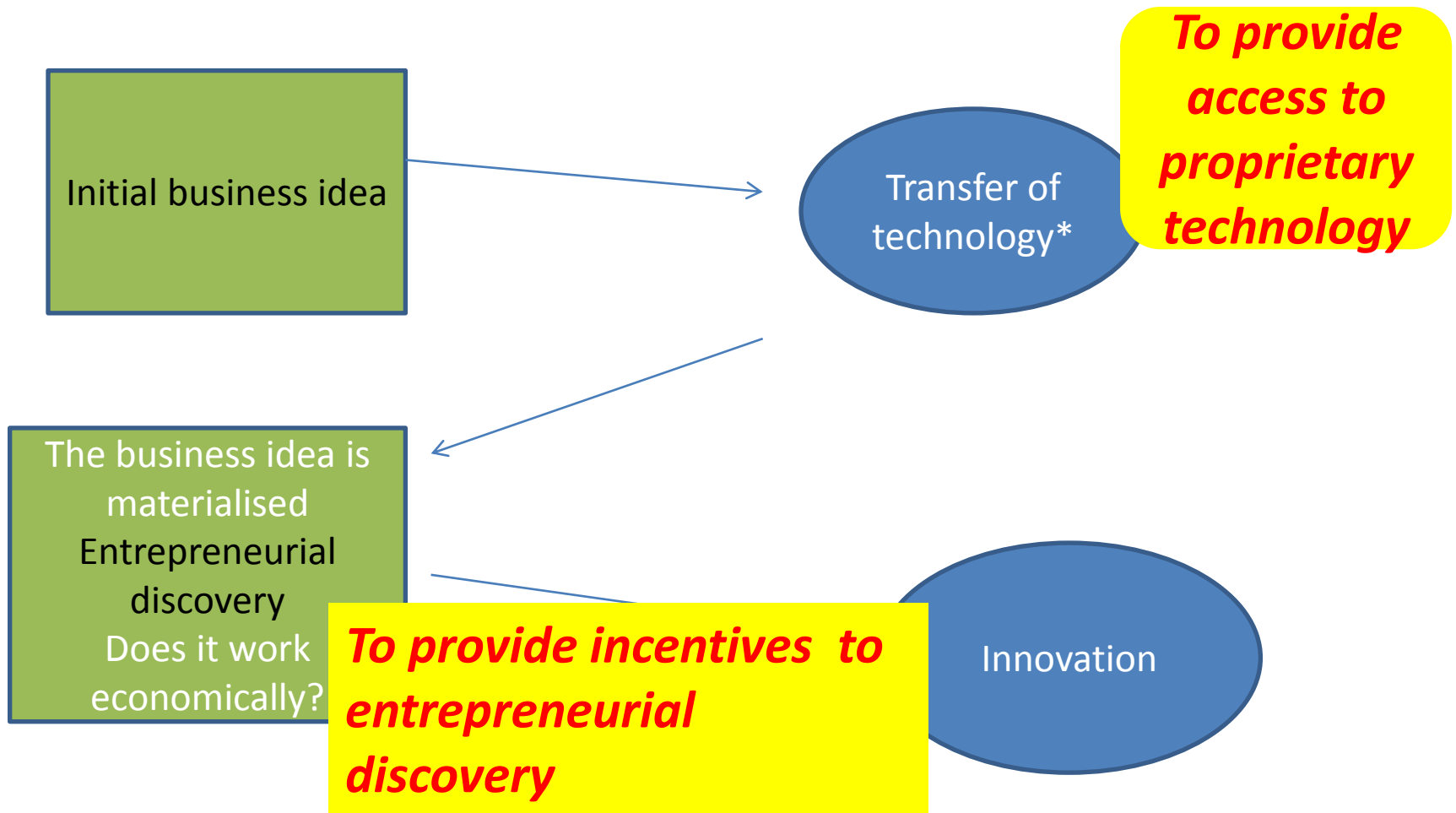


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- The operation of transfer of technology is undertaken while all the uncertainties about the economic value of the business idea have not been reduced yet
 - The initial business idea cannot be tested because the technology is missing – it will be tested (entrepreneurial discovery) only once the technology transfer is achieved
 - The fixed cost of the transfer of technology is incurred while the economic knowledge is not yet available





Two roles for IPR



Conclusion

- Two problems within one process :
 - developing (transferring) the technology
 - discovering whether it will work economically
- Capacity building is not only about technological knowledge but also about economic knowledge – i.e. the capacity to test new business ideas and to discover whether it works economically
- Some transactional forms of technology transfer are quite effective in solving the two problems
- Need for organisational structures (platforms) that can support both the development of technological knowledge and the production of the economic knowledge