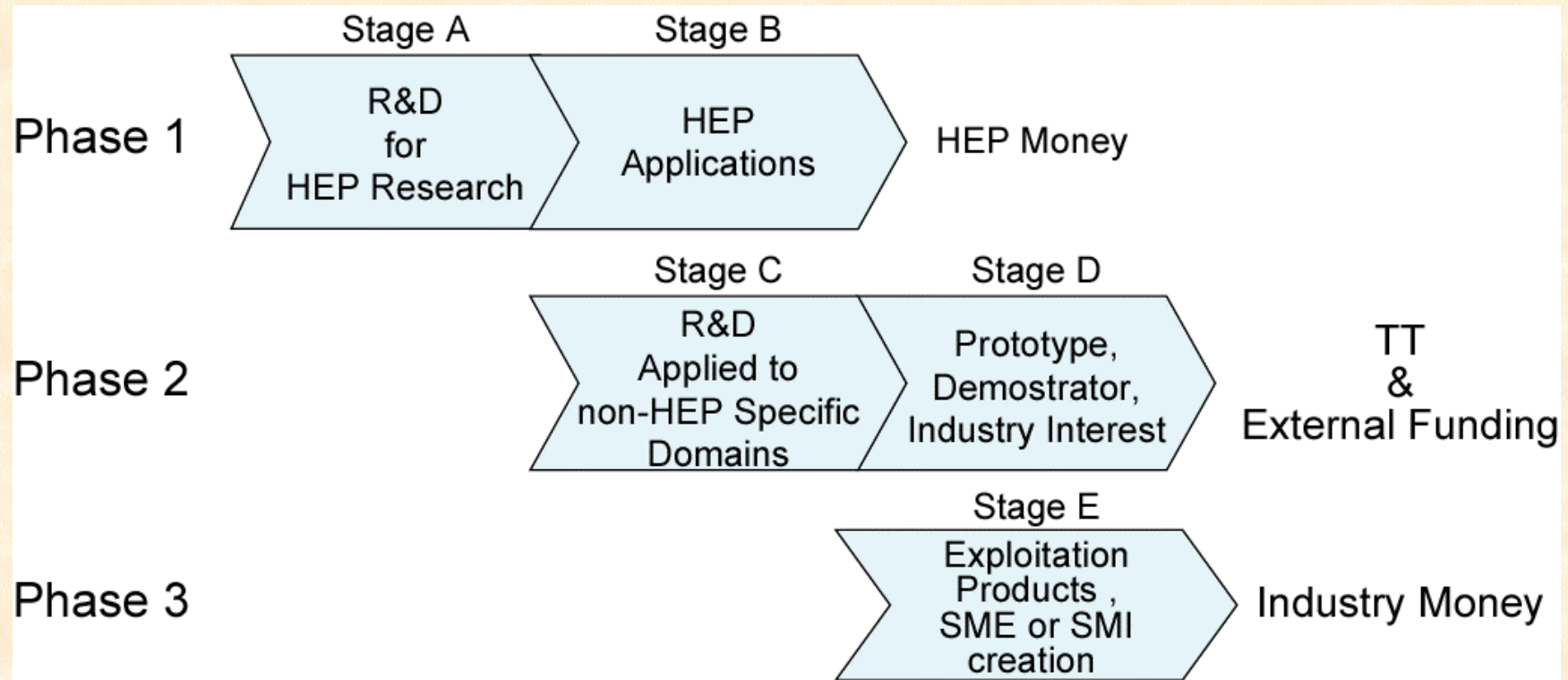


**ETT**  
**Education and Technology Transfer Division**  
**Technology Transfer Group**

**Jean-Marie Le Goff**



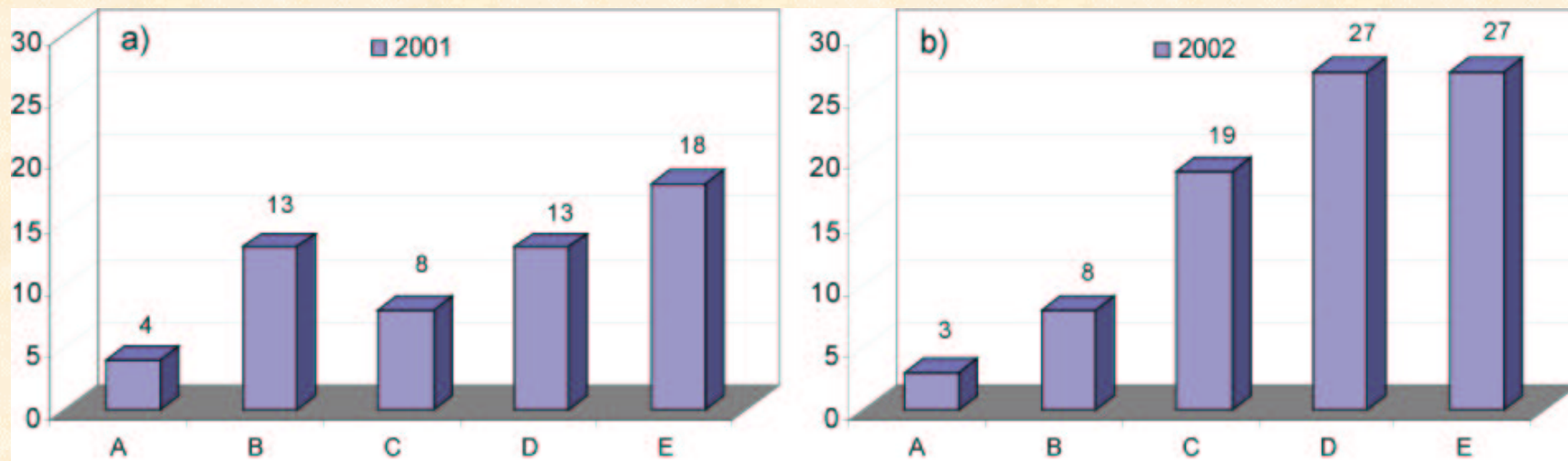
# The TT context



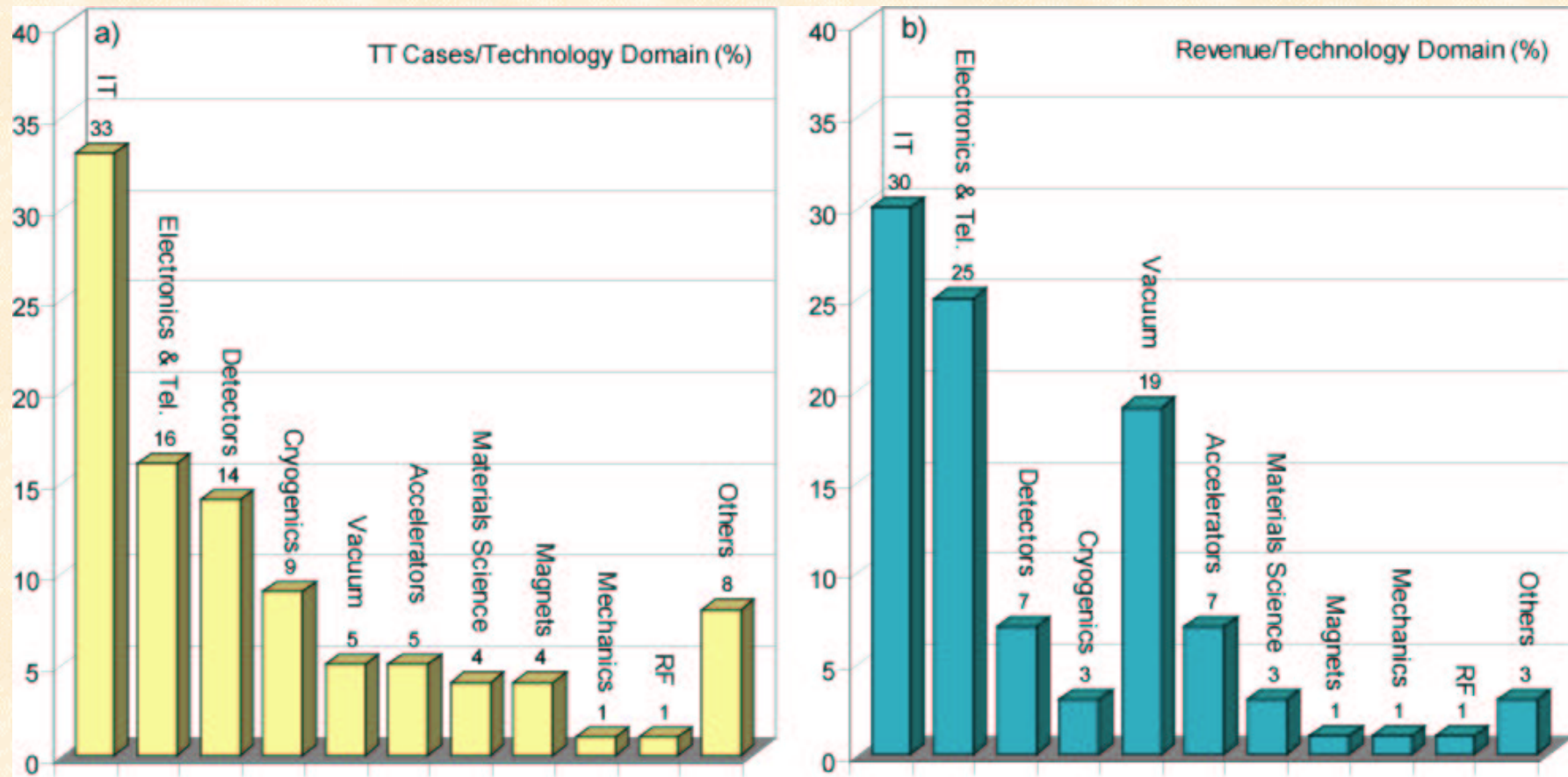
## TT cases

- ❑ 72 TT cases cumulated since the creation of ETT
- ❑ 18 new cases opened in 2002
- ❑ Each case corresponds to one or more technologies (know-how) in a stage:
  - R&D for HEP
  - HEP application
  - R&D applied to non-HEP Specific Domains
  - Prototype, Demonstrator, Industry interest
  - Exploitation; Products, SME/SMI creation

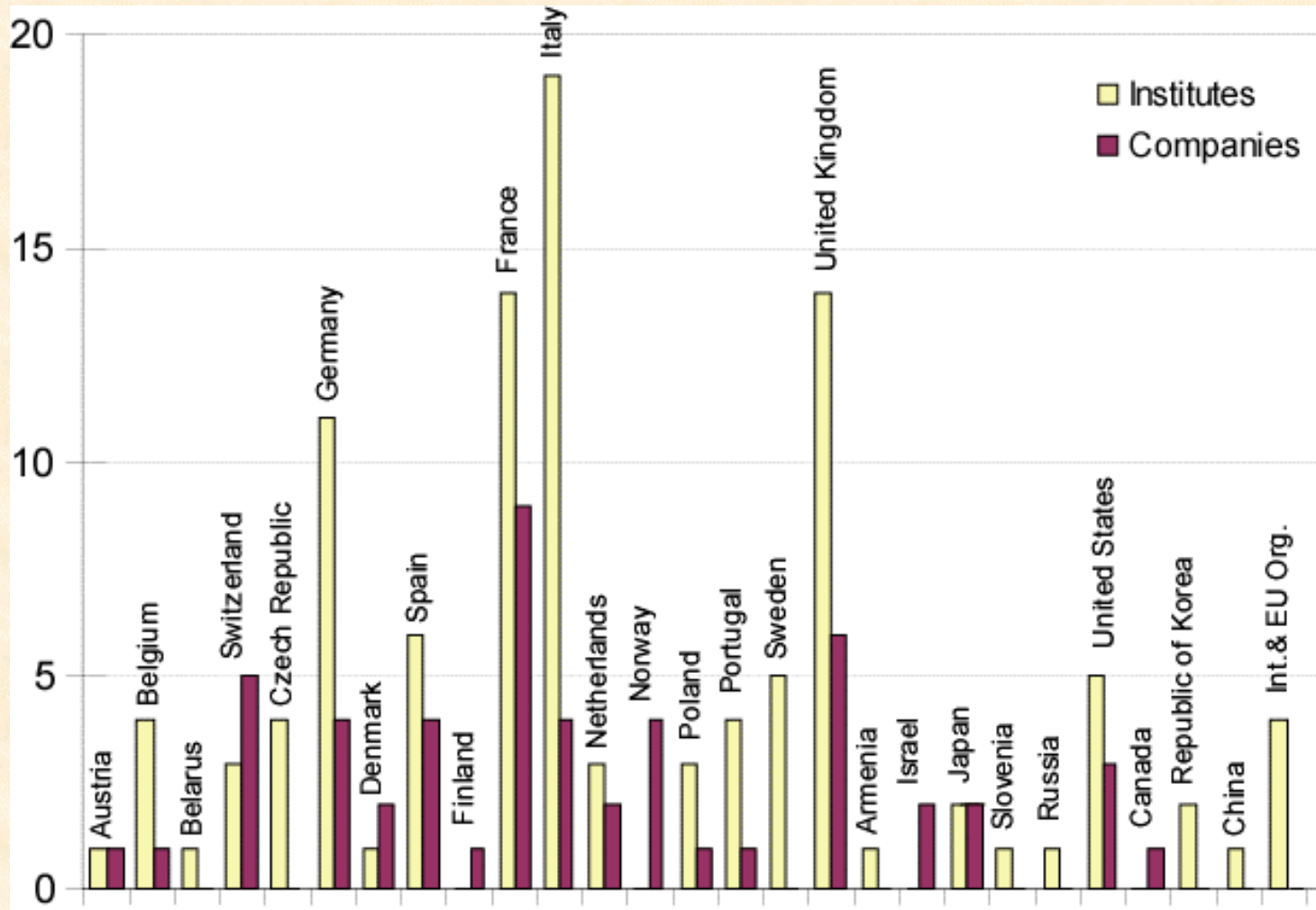
# Distribution of the TT cases



# Distribution of TT cases per Activity Domain



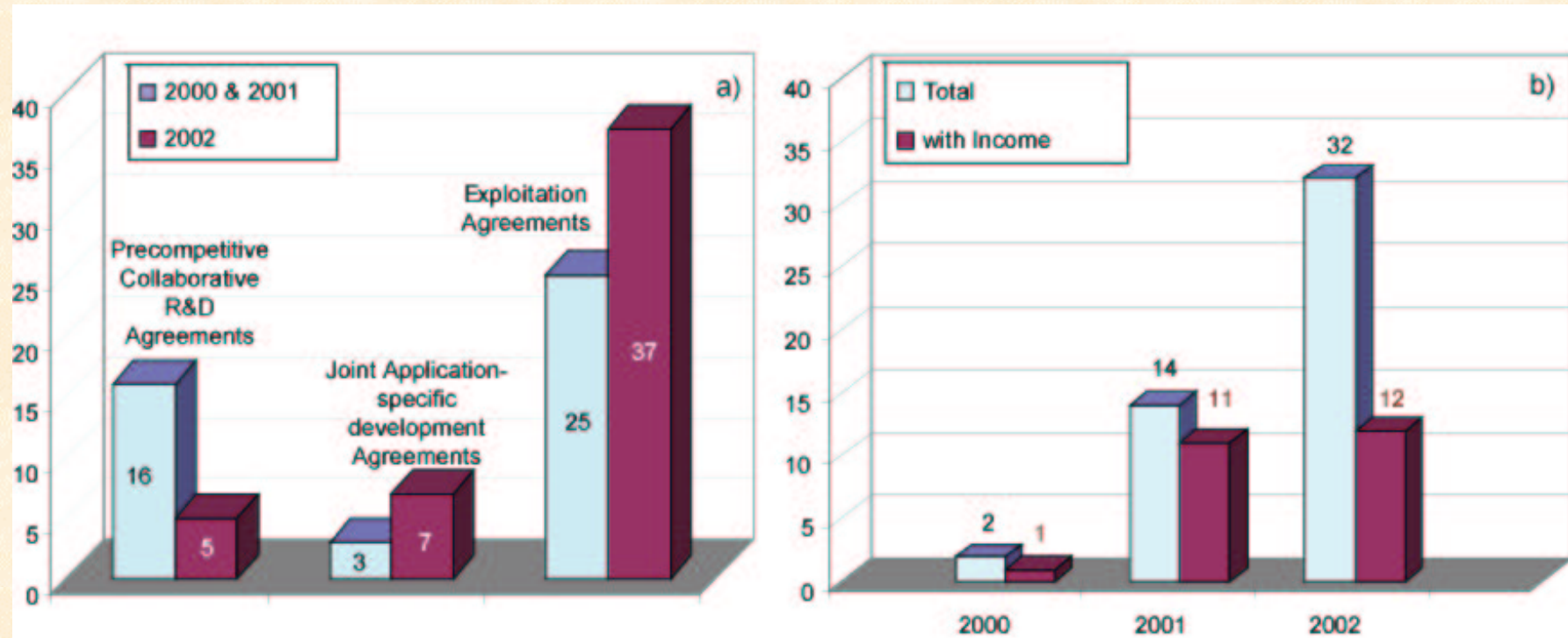
# Distribution of Participants in TT cases



# TT main activities

- ❑ TT through pre-competitive collaborative R&D
  - Phase C
  - Collaboration Agreement
  - Ex: Crystal Clear Collaboration; Medipix collaboration
- ❑ TT joint application developments
  - Phase D
  - TT Projects financed by public funds (EC, National funds) and/or Industry
- ❑ TT through exploitation agreements
  - Phase E
  - Licensing scheme

# Distribution of Agreements

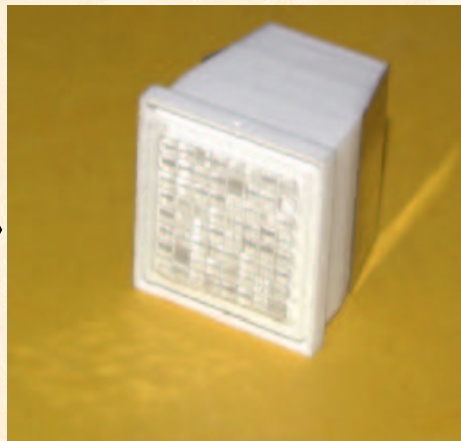
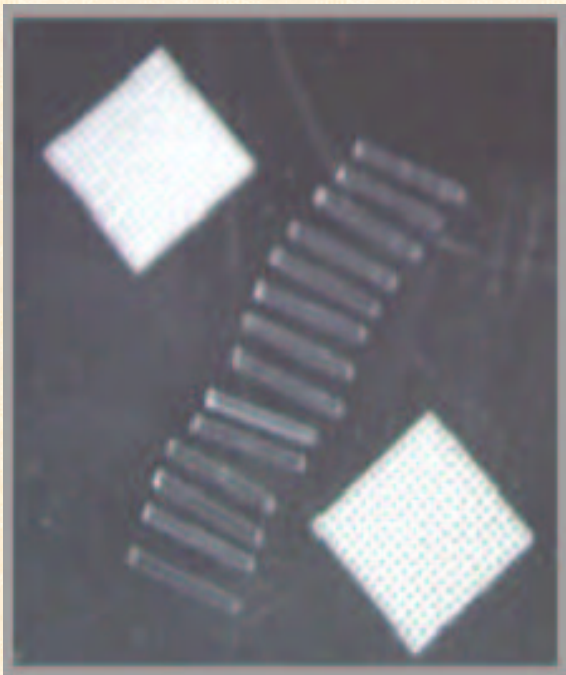




# TT in brief

- ❑ TT is now operational and handles an increasing number of cases
- ❑ The awareness of TT in the house is very slowly increasing
  - Inform all the divisions on TT activities
  - CERN wide: Bulletin
- ❑ TT is involved in a number of projects with potentially important impact on Society
  - Health Care: Medical Imaging and Hadron Therapy
  - Information Technology: Mammogrid
  - Surface Treatment: Neg, Ti Polishing
  - Energy: Solar and Clean Accelerator based Nuclear Energy

# ClearPET-Module assembly



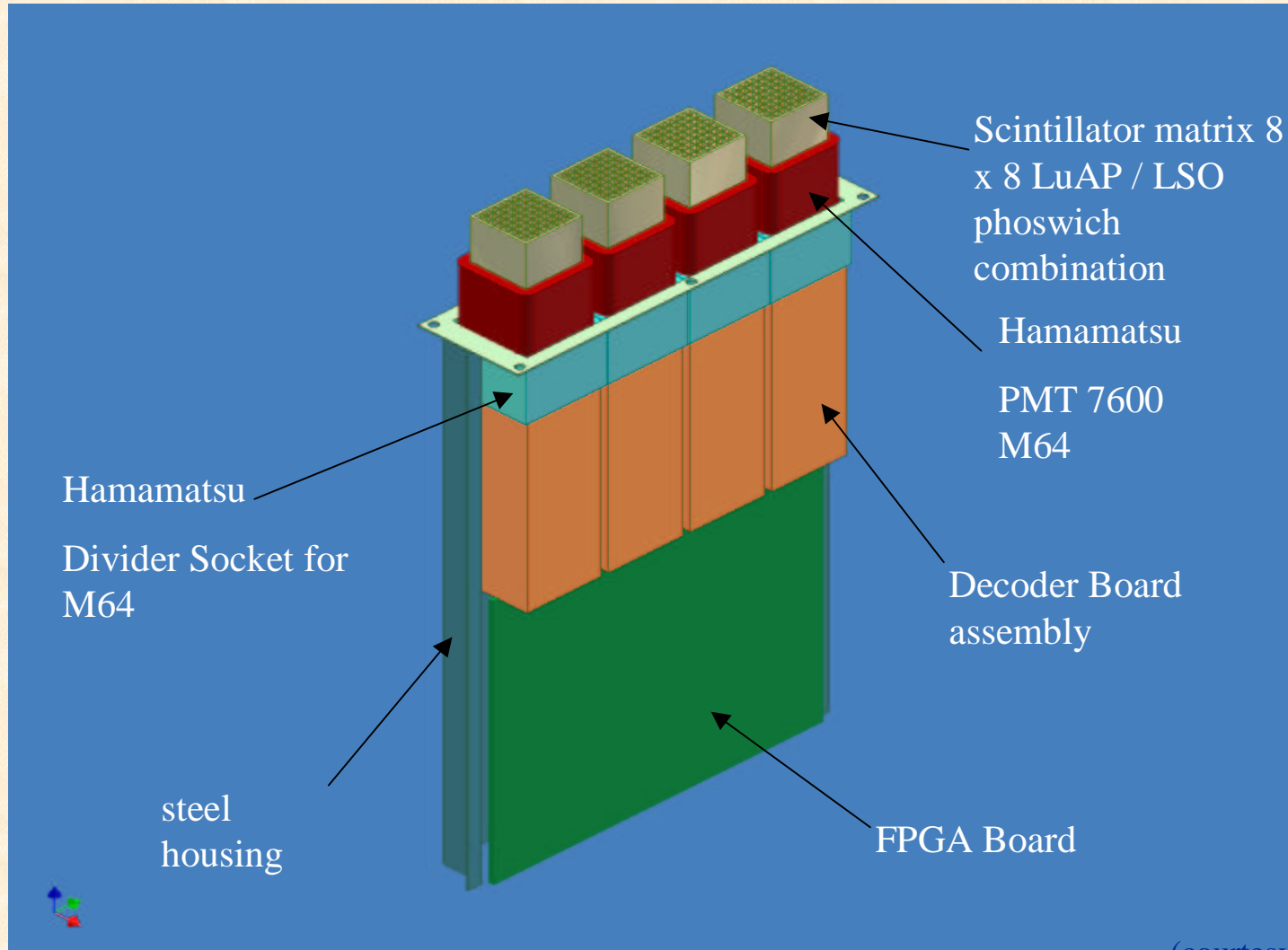
Hamamatsu H7546  
64 channel PMT



Hamamatsu 32 channels APD  
array

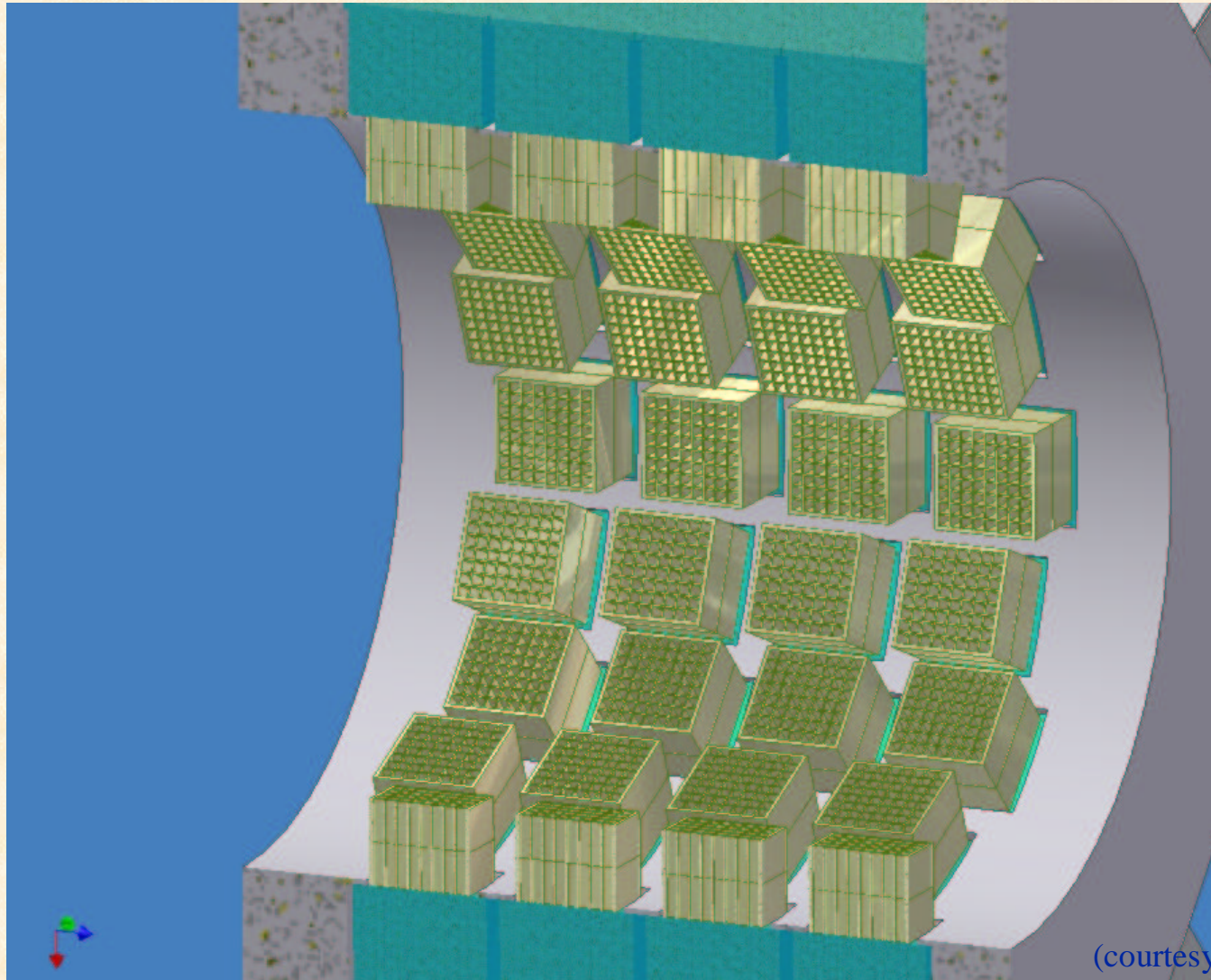
(courtesy of P.Lecoq/CERN)

# ClearPET detector assembly



(courtesy of P.Lecoq/CERN)

# ClearPET detector assembly



(courtesy of P.Lecoq/CERN)

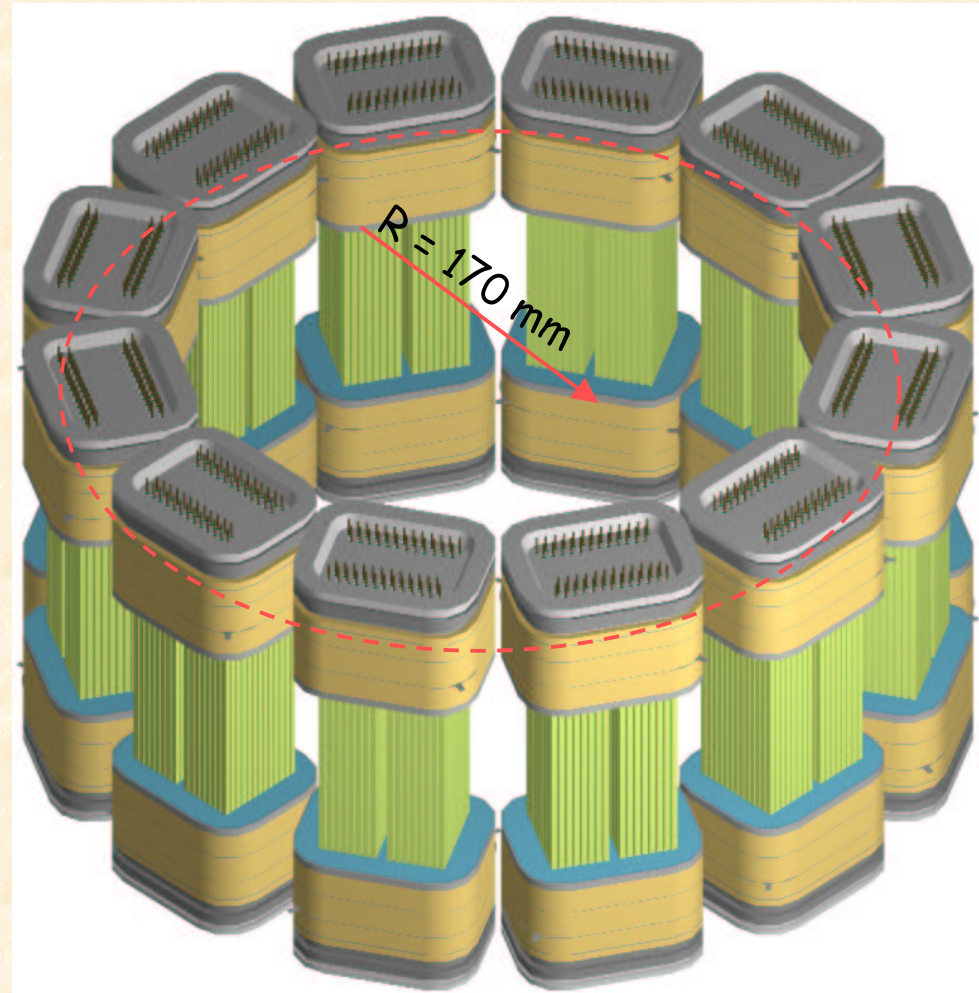


# Brain PET with HPD

In 2 years:  
Full ring scanner available

Possible configuration  
for a **Brain PET**

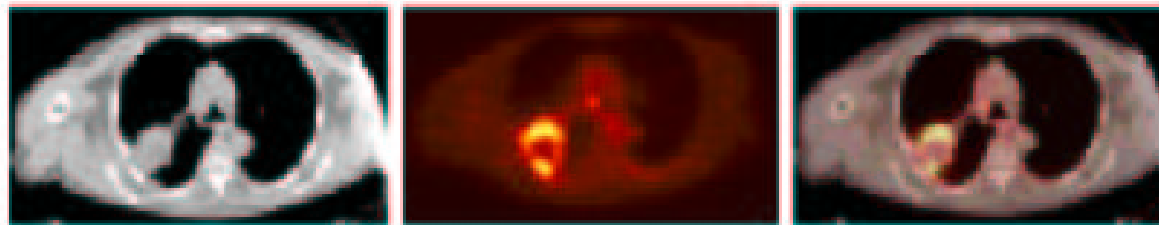
- 34 cm inner diameter
- 10 cm axial length
- 2496 crystals
- 24 HPDs
- total detection volume  
2556 cm<sup>3</sup>
- F coverage 66%
- W coverage 18%



(courtesy of P.Weilhammer/CERN)

## Multi Modality: CT + PET Collaboration Project

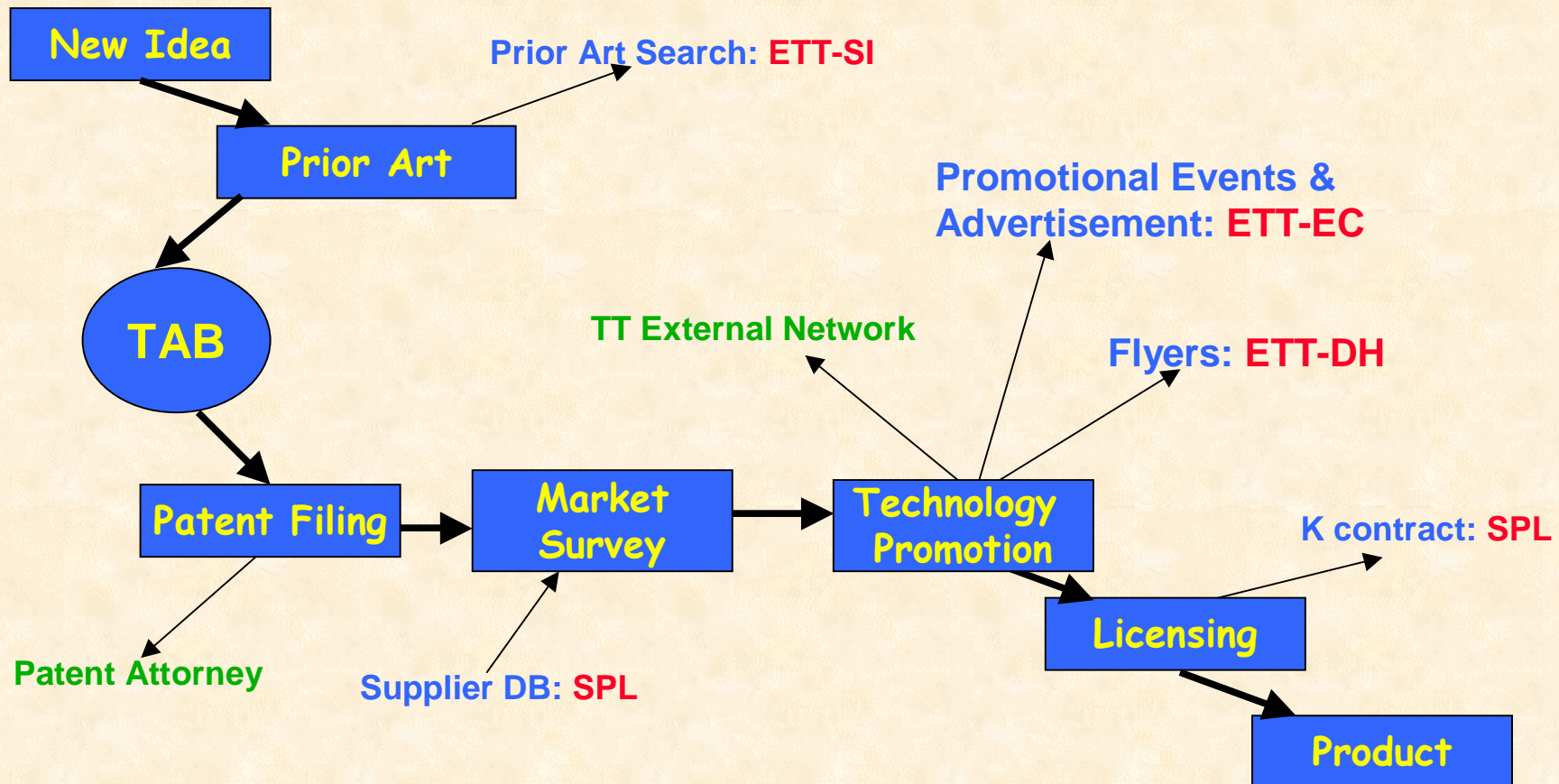
Primary lung cancer imaged with the SMART scanner. A large lung tumor, which appears on CT as a uniformly attenuating hypodense mass, has a rim of FDG activity and a necrotic center revealed by PET.



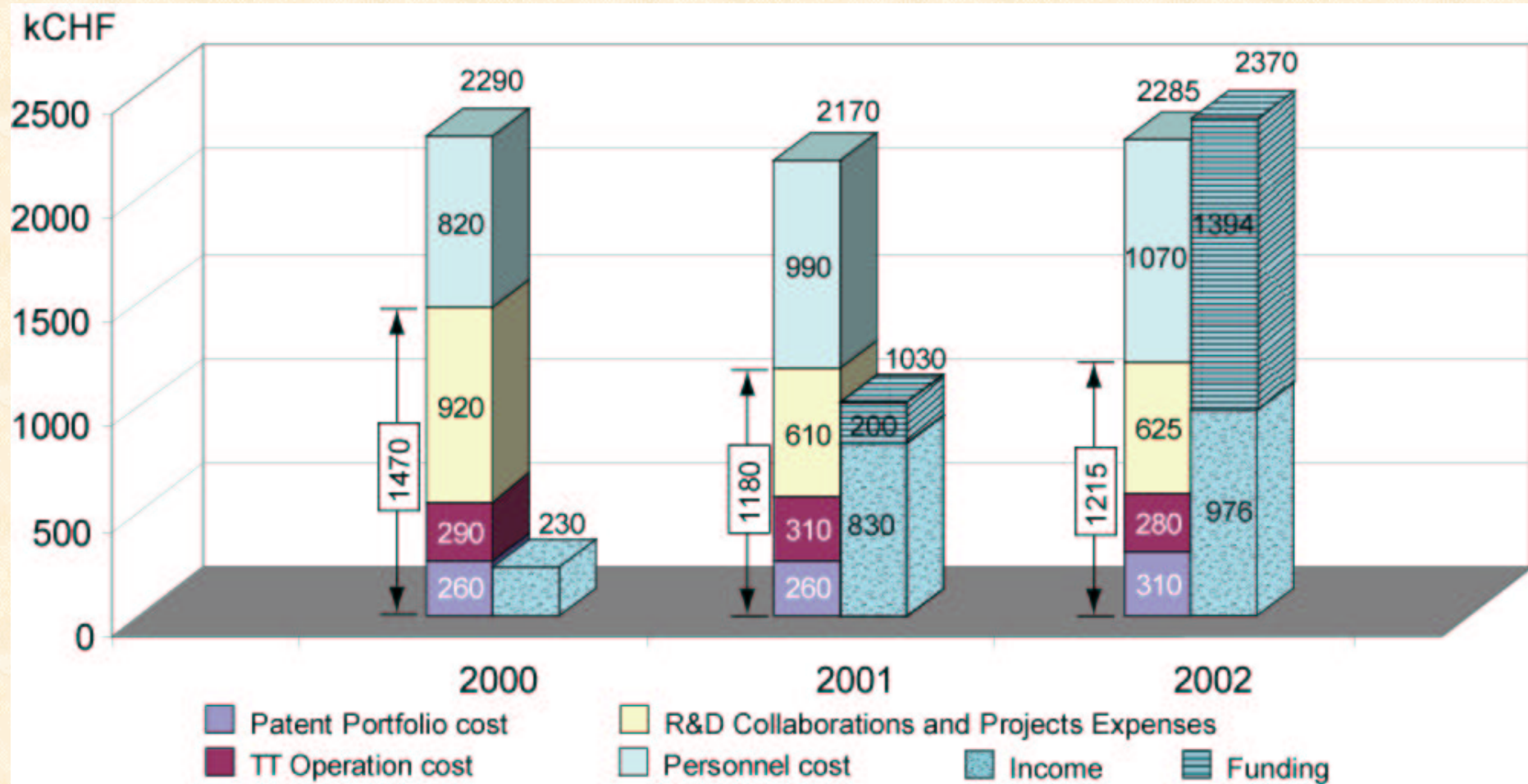
- ⇒ Patents filed by CERN and Julich
- ⇒ Collaboration technologies licensed to a German company

# A TT process: Synergies in ETT

□ A successful TT case is a result of a collaboration between all the groups in TT!



# TT Revenue & Expenditure





# Conclusion

- ❑ CERN has a gold mine of technologies useful for Society
- ❑ Society expects CERN to transfer as many technologies as possible
- ❑ The success of TT depends on:
  - The CERN scientists mastering the technologies
  - On a tight collaboration between:
    - The CERN scientists, SPL, FI, Legal Services, and
    - ETT/DH, ETT/SI, ETT/EC and ETT/TT