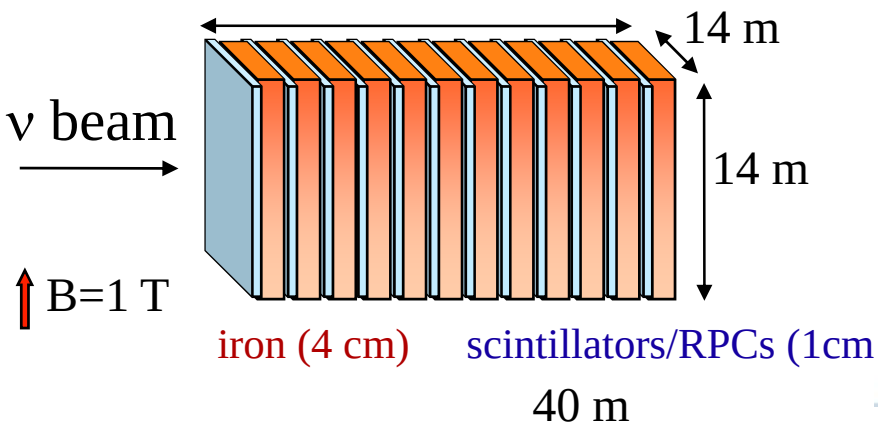
Introduction and Aims

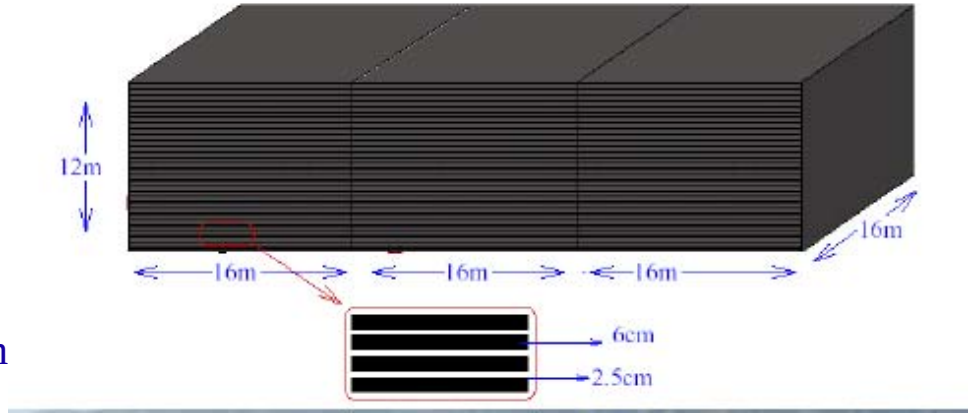
MIND/INO Software Meeting
5 June 2009
Paul Soler

University of Glasgow

Aims

- Similarities in the hardware of MIND and INO:



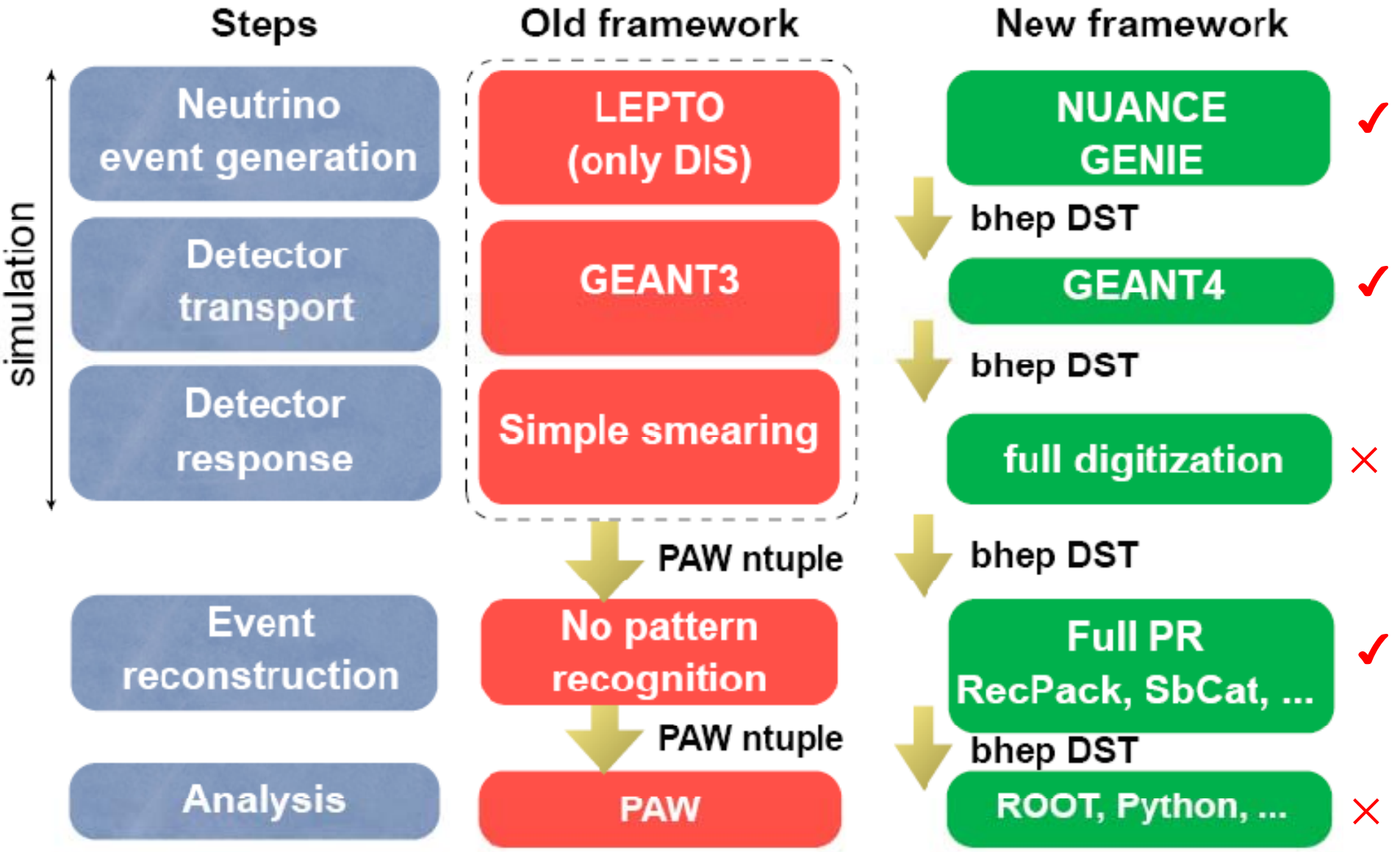


- There is a great opportunity to exploit the synergy also between the software development of both projects

Synergies

- MIND simulations:
  - Original MIND simulations carried out using LEPTO (DIS), GEANT3, smearing functions, no pattern recognition …
  - New modular design using bhep interfaces allows work in parallel.
  - Event generator: NUANCE (move to GENIE in future)
  - Use GEANT4 for particle tracking
  - Develop realistic digitisation depending on technology chosen (R&D)
  - Reconstruction and pattern recognition (RecPack, with full Kalman filter), Cellular Automaton, kink finding algorithms …
  - Analysis: proper likelihood functions
- INO software:
  - Full GEANT4 simulation developed
  - More sophisticated digitisation (more extensive and realistic R&D)
- Clearly MIND and INO are complementary
  - Would benefit from collaboration

MIND software framework



Synergies

- Areas of collaboration:
  - If we agree on common format could have also common repository
  - Modules could become interchangeable
  - TASD and near detector software could also fit easily into framework
  - Need to agree on interfaces: INO software uses ROOT interfaces, whle MIND software uses bhep format (in ascii)
- Programme of visits would also help develop common software
  - Need to exploit current funding to develop collaboration (UKEIRI, EUROnu, DevDet? ….)
- Further discussion at end of meeting on how to proceed