Preamble (~a week)

Define the name of the detector
- FT for Fibre Tracker, to stay in line with IT/OT

Define the channel ID this means the numbering scheme
- How many bits per SiPM (64/128 channels)
- How many SiPM per module
- How many modules per layer
    - Do we number like OT, or linearly
    - Top/Bottom
- How many layers
    - Maximum 12 as OT now.

Phase 1 (~ 2 months)

Create a minimal version of the detector
- Define the geometry: a detector plane is a plane of the sandwich fibre-carbon-rohacell, with a hole for the beam pipe (~1cm safety around). Put 12 planes at the same Z than OT.

Digitize it
- Detector element: Convert a space point to a SiPM channel. Need to define the spacing between SiPMs and between modules if any. Numbering scheme, SciFi channel ID needed.
- Modelling of the sharing of light between adjacent SiPM cells. Test beam? Or by pure geometry of the fibres?

Raw buffer
- Define a data format.
- Split by TELL40. This implies a detector element description.
- Encode and decode

Pattern
- Study the adaptation of the forward tracking

Studies
- Occupancy.
- Clusterisation and handling of neighbouring particles
- Pattern recognition. Ghost and efficiency
- Number of planes and orientation. Can change the orientation of the 12 generated planes

Phase 2 (summer 2012)

More refined description

- Understand the module geometry and boundaries. Material between modules
- Around the beam pipe: Support for short modules. How to fix the position in Z accurately there.
- Reduce the number of measuring planes from the results of phase 1.

Refine digitisation

- Handling of dead zones between SiPM, between modules
- Handling of large angle particles
- Module alignment to convert position to channel. Misalign in z (move the hit along its direction).
- Buffer encoding and TELL40 data handling constraints

Pattern

- Speed and ghosts. Can we improve it by improved geometry?

Main questions to answer:

1. Is IT needed to cover the central area?
2. How many layers, i.e. do we need to keep some OT modules for cost reason?
3. How fast can be the pattern for HLT, i.e. with minimal momentum cut.