

# DD4hep Future

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## Proposal for Generic Digitization in DD4hep

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# Digitization Package for DD4hep

- **Logical next processing step after simulation**  
**Common data processing from particle collisions in DD4hep beyond the simulation step**
- **Separate from simulation – if possible**
  - **Study detector segmentation effects**
- **Detector response to energy depositions**
  - **Hit / Cluster creation**
  - **Charge sharing**
- **Incorporate electronics effects**
  - **Noise, cross-talk, etc**

# Digitization Package: Program of Work

- **Develop an independent data model**
  - **Either efficiently convertible from experiment specific model**
  - **Or simple wrapper to encapsulate experiment specific data behind common facade**
  - **Needs to match input and output data**
- **Investigate digitization types**
  - **Detailed model for specialized studies**
  - **Simplified model for bulk productions**
- **Develop a palette of digitization plugins for typical subdetector types**
  - **Parameterized and flexible**
  - **Valid for “most” readouts**

# Digitization Package: Program of Work

- **Start with digitization plugins for**
  - **Silicon based trackers**
  - **Silicon based calorimeters**
  - **Or other user wished device types**
- **Clients who declared interest**
  - **FCC community (ee , hh)**