Chapter 14: Social and Educational Responsibility of Science

- In this chapter
  - **Learning Processes** – We describe information flow and learning processes in international, large-scale fundamental research collaborations. These processes facilitate the fast dissemination of knowledge, creative innovation, cooperation and discovery. We then expand on the potential to apply such structures in academia, industry, business and other areas of society.
  - **Science Education and Public Engagement** – We emphasise the vital role of education to instil excitement in fundamental research and to develop an understanding of science methodology in our youth. We describe current informal and formal educational programmes, networks linking scientists with educators, and the success of inquiry and challenged-based innovation techniques. We also present innovative methods in public engagement designed to build and reinforce trust in the public, not only to seek support for scientific research, but also to help humanity to make informed decisions as citizens.
  - **Diversity, Inclusion and Accessibility** – We discuss lessons learned by large-scale international collaborations concerning the value of the participation of members with diverse national, social and cultural backgrounds. We also admit shortcomings in the recruitment and retention of women in our field, the need to reach out to underrepresented communities and issues concerning accessibility to those with physical challenges.

Chapter 14: Summary Status

- Our estimate of current level of completion: 90%
- The following additions/revisions will be completed by July 31st
  - Reduction of text (currently at 10k words) – There is significant redundancy, but could also benefit from specific comments by editors. What should be cut? Is anything missing?
  - Addition of summary
  - Addition of table of Masterclasses
- (if) our chapter includes direct quotes or images/figures used from other sources, permission needs to be asked from them as follows (examples!):
  - LIGO Data Management figure should require permission
  - CERN Diversity figure should also require permission

Chapter 14: Key messages, insights (possible input for other chapters)

- Large-scale international collaborations have developed structures and processes that facilitate the flow if information and knowledge. A mixture of competition and cooperation, driven by shared curiosity in a diverse mindset, help to optimise this flow and can be examples for others.
- Education and Public Engagement are essential to build support for the large-scale projects, like FCC, being planned. In fact, it is the work that has been done this past decade that might make or break that support when funding is sought in the coming decade.
- Training of the next generation of scientists, engineers and technicians is essential, but not the only reason for our efforts. Much deeper than that is the need to instil appreciation for fundamental research and to teach the methodologies that go with it. These have a direct impact on society, as they help our youth make better decisions in the future