1. Parton distribution functions for precision and discovery physics

   - Improvement in our current understanding of PDFs is needed in the 'precision region.' For example, the differences between the CT, MSTW and NNPDF gluon PDFs is large exactly in the range relevant for Higgs studies. A future electron-hadron collider, such as the LHeC, would be the ultimate machine to provide PDFs for precision HL-LHC physics.
   - Improvement in our current understanding of PDFs is needed in the 'discovery region.' Future LHC data is needed to reduce the uncertainties in order to facilitate high-mass discoveries.
   - Photon-induced reactions will become an increasingly large contribution to scattering processes at future high-energy colliders. Further work is needed to constrain the photon distribution function from LHC data.

2. The frontier of perturbation theory

   - Higher precision calculations combining QCD at NNLO and beyond, together with EW corrections at NLO, are needed to fully realize the potential of future high energy pp collisions. The capability to perform an NNLO calculation for any $2 \to 2$ process and select $2 \to 3$ processes is desired, and seems within reach.
   - Should QCD and electroweak corrections be combined additively or multiplicatively? Do either correctly reproduce the result of an exact calculation? Calculations of mixed corrections are needed to check how to perform this combination, and to develop an intuition about when each method is appropriate.
   - The battle for precision must be fought on several fronts. Progress on both fixed-order calculations and on the resummation of large logarithms is crucial. It will remain so at future colliders, where the larger phase space available will lead to increasingly larger ratios between the available scales. The full realization of the potential of future proton-proton machines to unravel the identity of the Higgs boson requires advances in our QCD calculational abilities.

3. The Sudakov zone

   - At high energies, electroweak corrections became as large as, or larger than, QCD corrections. The inclusion of electroweak corrections into theoretical simulation programs is mandatory for physics studies at future high energy pp colliders.
   - Electroweak corrections are technically challenging for high-multiplicity final states. In many common kinematic situations these corrections are dominated by Sudakov logarithms. Continued attention should be devoted to assessing frameworks for their approximate inclusions in Monte Carlo simulations.

4. The determination of fundamental constants

   - The current errors on α_s, m_b and m_c induce sizable parametric uncertainties in predictions for Higgs boson decay rates. Lattice and continuum extraction methods both feature smaller errors than used in coupling extractions, and have consistent central values. The error assumptions in future Higgs coupling analyses should be revisited.
   - Improvements in lattice calculations, data from LHeC, and from future e^+e^- colliders could reduce the error on α_s to 0.1%.