The first liquid crystal shells were produced in the Weitz lab, using a microfluidic technique, one decade ago [1]. Since then a number of groups around the world have adapted the production technology, and shells of nematic [1-6], cholesteric [7-8], smectic-A [5-6,9], and smectic-C [10] types have been explored, with varying combinations of boundary conditions, and experiments have been complemented with computer simulations [11-12] and theory [3, 13-15]. A major driving force for these studies is the spontaneous appearance of defects on shells with (partial) tangential alignment, arising due to the spherical topology. Another fascinating effect is the photonic cross communication arising between multiple shells of short-pitch cholesteric liquid crystal [8], where the curvature and the internal periodic structure interplay to generate regular but surprisingly complex multi-colored patterns. Shells can be polymer-stabilized [4] or polymerized into liquid crystal elastomers [16], allowing long-term stability and giving further functionality like mechanical actuation. This development makes devices using liquid crystal shells feasible, and among the proposed application areas are micropumps [16], sensors [4] and physical unclonable function tokens for secure authentication [8]. From a fundamental physics point of view, much has been learnt concerning the stable configurations of topological defects on the shells [1-3,5-6,10-15,17], as well as their trajectories when the shell is out of equilibrium [18-19]. Still, many questions remain to investigate, for instance concerning to what extent the shells, which still require a layer of stabilizers on the inside and outside, can be considered curved 2D systems. In this talk we will survey the activity during the first decade of liquid crystal shell research and try to identify stimulating questions for the next decade, in particular in the context of collaboration between experimentalists and theoretical physicists and mathematicians.