Astrophysics is, arguably, still in major discovery mode. Emboldened by the successes of the past 20 years, astronomers are setting out to construct a new generation of ambitious observational facilities that will shape the astronomical landscape of the coming decades. In this talk I will provide an overview of some of these new megastructures, and review the science that drives them: from extrasolar planets to Dark Energy, from supermassive black holes to gravitational waves.