Olefin Metathesis has become a tool for the synthesis of complex organic molecules and materials. The key to the development of these applications has been the discovery and study of organometallic complexes that will efficiently catalyze the reaction in the presence of standard functional groups. The next advances resulted from the development of more selective catalysts and complexes that show high turnover numbers in important transformations.

A number of commercial processes based on olefin metathesis are now in development, others will only become possible with even more selective and efficient catalysts. In addition to the science behind the developments, some of the issues associated with transitioning research into technology will be considered.