To simulate hypersonic vehicles, multiple physical aspects such as turbulence and transition, fluid-thermal-structural interactions, non-equilibrium chemistry, shock-boundary layer interactions, ablation, and combustion physics must be included in simulation code and modeled appropriately. Without the consideration and appropriate modeling of these aspects, the simulation of hypersonic vehicles is deficient and cannot support the development and acquisition of these vehicles. To improve capability in hypersonic vehicle research development test and evaluation, the DoD High Performance Computing Modernization Program (HPCMP) has established a Hypersonic Vehicle Simulation Institute (HVSI). This talk discusses the objectives of the DoD HPCMP HVSI and describes how project results are transitioned to HPCMP software products.