The dispersive optical model (DOM), originally conceived by Claude Mahaux, provides a unified description of both elastic nucleon scattering and structure information related to single-particle properties below the Fermi energy. Extensions of this framework developed in St. Louis, have introduced a fully nonlocal implementation for $^{40}\text{Ca}$, $^{48}\text{Ca}$, and $^{208}\text{Pb}$. For the first time properties below the Fermi energy like the charge density and the presence of high-momentum nucleons can be included in the DOM while elastic cross section data continue be represented as accurately as in the local DOM implementation. Application of the nonlocal DOM to $^{48}\text{Ca}$ generates a prediction for the neutron skin of $0.249 \pm 0.023$ fm for this nucleus, which is larger than most mean-field and available ab initio results. The DOM provides critical ingredients for the description of important nuclear reactions. Application to the $(e,e'p)$ reaction provides an assessment of the validity of the distorted-wave impulse approximation used to describe Nikhef data. Improved descriptions of transfer reactions like $(d,p)$ and $(p,d)$ are also discussed while identifying a strategy to raise the standard of the treatment of the deuteron.