In this talk based on joint work with Alan Stapledon, we discuss how to enlarge the scope of Ehrhart theory from lattice polytopes to subdivisions of lattice polytopes. Lattice polytopes naturally correspond to generic hypersurfaces in toric varieties by the Newton polytope construction, and the Ehrhart-theoretical lattice point-counting invariants can be matched with topological and algebraic geometric invariants of the hypersurface. Regular subdivisions of lattice polytopes correspond to degenerations of hypersurfaces whose cohomology has a mixed Hodge structure. We discuss the invariants of the subdivision inspired by the mixed Hodge structure, making connections with Stanley’s theory of subdivisions and h-vectors. (Received August 29, 2014)