Despite the significant academic interest in them and their richness in nature, antiferromagnets have always been overshadowed by ferromagnets in real-life applications based on magnetism or spintronics. This is primarily due to the fact that antiferromagnet order parameters, in contrast to the ferromagnetic magnetization, are only weakly coupled to magnetic fields, and are hence difficult, in conventional view, to be manipulated. In this talk I will discuss a number of recent theoretical and experimental developments that counter this conventional wisdom, in a class of antiferromagnets that have stable noncollinear magnetic orders. As an introduction I will talk about the discovery of the anomalous Hall effect (AHE), which is the voltage perpendicular to the current or electric field direction in the absence of external magnetic fields and has been conventionally assumed to exist only in ferromagnets, in noncollinear antiferromagnets. AHE can thus be used as an efficient probe to determine the global orientation of the noncollinear antiferromagnetic order. I will then explain how conventional spin Hall effect (SHE) and inverse spin Hall effect (ISHE) can be understood as local response functions involving spin density and charge current in a quantum kinetic theory. Using this approach, we are able to explain the recent experimental discovery of time-reversal-symmetry-breaking counterparts of the conventional SHE and ISHE in the noncollinear antiferromagnet Mn3Sn, which we name as the magnetic spin Hall effect (MSHE) and the magnetic inverse spin Hall effect (MISHE), respectively. Finally, I will discuss the concept of spin density polarization, and how to use it to describe the spin-Hall effect in a magnetic insulator as a bulk effect, without using the spin current language.