



**Figure 1.17** The general architecture of evolutionary algorithms (GAEA).

## Map

Only algorithms which make a distinction between the search space and the solution space require a mapping stage to convert genotypes into phenotypes. Consequently, the genetic algorithm is the only major EA which uses mapping. This mapping stage is often trivially simple, e.g. converting a binary allele in the genotype to a decimal parameter value in the phenotype. However, as some chapters in this book describe, this mapping stage can also be very complex.

So why bother with it? This is a difficult question which neatly divides evolutionary computation into two camps: those who believe the effects of genetic operators can be simulated on