Definition (Design problem with implementation). A *design problem with implementation* (DPI) is a tuple

$$\langle F, R, I, \mathsf{prov}, \mathsf{req} \rangle$$

where:

- F is a poset, called *functionality space*;
- R is a poset, called *requirements space*;
- I is a set, called *implementation space*;
- the map $\mathsf{prov} : I \to F$ maps an implementation to the functionality it provides;
- the map $\mathsf{req} : I \to R$ maps an implementation to the resources it requires.