Definition (Co-design problem with implementation). A Co-Design Problem with Implementation (CDPI) is a tuple $\langle \mathbf{F}, \mathbf{R}, \langle \mathcal{V}, \mathcal{E} \rangle \rangle$, where **F** and **R** are two posets, and $\langle \mathcal{V}, \mathcal{E} \rangle$ is a multigraph of DPIs. Each node $\mathbf{d} \in \mathcal{V}$ is a DPI $\mathbf{d} =$ $\langle \mathbf{F_d}, \mathbf{R_d}, \mathbf{I_d}, \mathsf{prov_d}, \mathsf{req_d} \rangle$. An edge $e \in \mathcal{E}$ is a tuple $e = \langle \langle \mathbf{d_1}, i_1 \rangle, \langle \mathbf{d_2}, j_2 \rangle \rangle$, where $\mathbf{d}_1, \mathbf{d}_2 \in \mathcal{V}$ are two nodes and i_1 and j_2 are the indices of the components of the functionality and resources to be connected, and it holds that $\pi_{i_1} \mathbf{R}_{\mathbf{d}_1} =$ $\pi_{i_2} \mathbf{F_{d_2}}$ (??).

Figure 0.1

