

Transportation scenarios with task inter-dependencies

In most e-commerce scenarios there is no coupling between tasks in the field, and even combining pickup or return of small products does not dictate a hard dependency.

However, many high-value transportation scenarios dictate coupling between specific tasks, or between tasks of certain types. Supporting such dependencies affects the transportation plans for specific trucks or across the entire fleet.

These dependencies are known to dispatchers, which apply these during planning – quite hard to apply efficiently for hundreds or thousands of tasks. Examples:

- Tasks that may be performed only after another task or a group of tasks had been performed; or only before that.
- Transporting cargo of sizes or forms that limit accessibility and dictates LIFO or FIFO scheduling.
- Tasks that should be performed only if another task/s are **not performed**. (more on this in future info page)

Implicit coupling between tasks:

- Tasks that must be performed within a certain time-window or should be expedited, and could affect the scheduling of other tasks.
- Tasks of high priority which affects the ability to perform other tasks, when workload is very high.
- Tasks that include cargo/materials of different categories which are incompatible, and consequently dictate the pick-up or loading order, or the drop-off or unloading order.
- Tasks that include goods/cargo of size or shape (2D and 3D) that affects their co-existence with other goods/cargo and dictate loading constraints.
- Transportation of materials/fluids in containers

Some inter-dependencies are explicitly indicated in Task attributes, while some result from rules that apply to certain task type or categories.

Urbana provides unique tools to apply customized inter-dependency rules easily and flexibly, and enables multiple rules to co-exist and direct planning. Urbana's planning AI plans optimally in accordance with inter-dependencies, on a large scale.

If you have refreshing insights on this matter, please share with us: [Urbana.Tech](https://urbana.tech)