

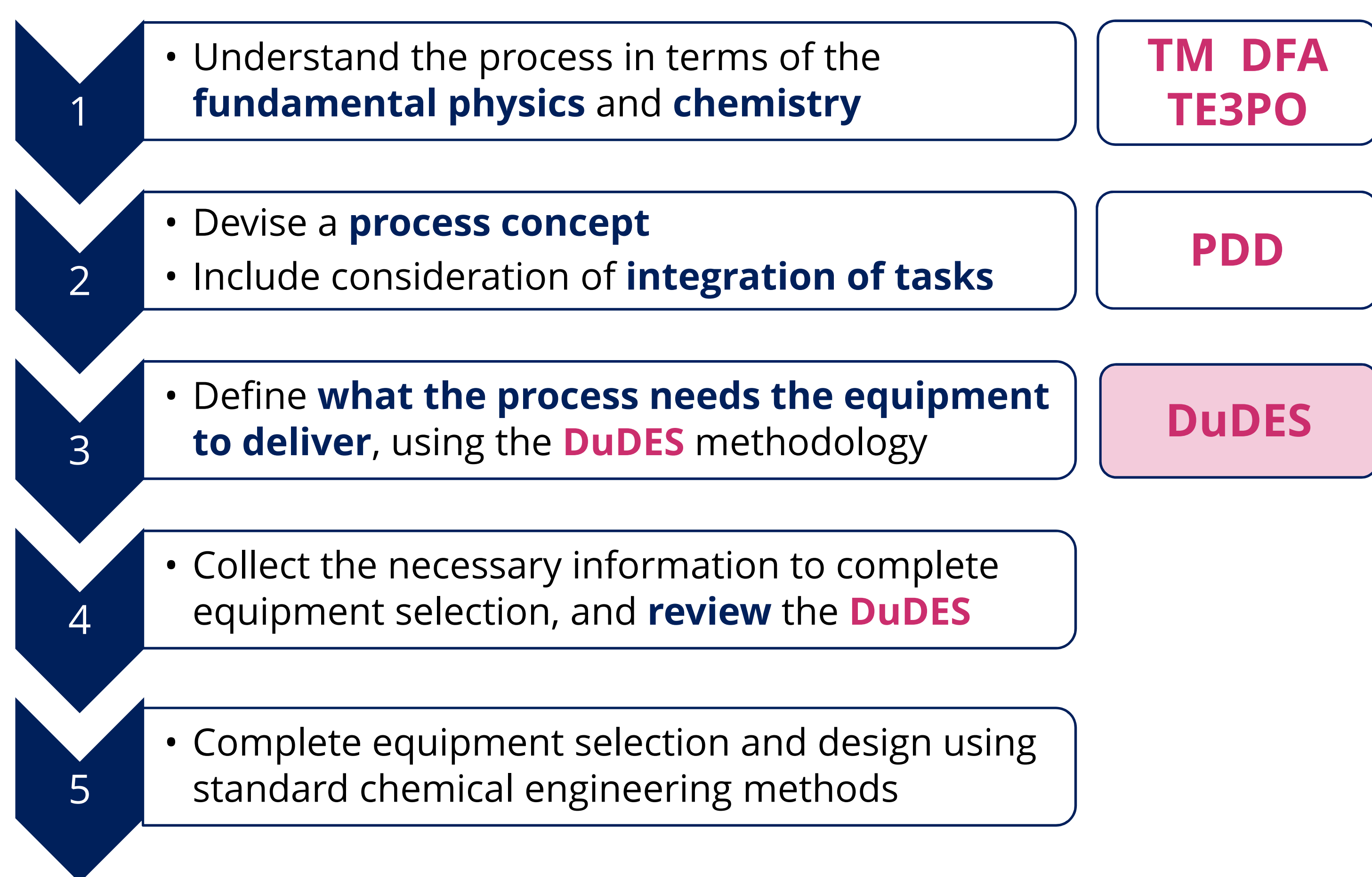


Duty Definition and Equipment Specification (DuDES)

Britest's **Duty Definition & Equipment Specification (DuDES)** is a methodology to help a process development team select appropriate equipment based on the process understanding gained from using Britest tools. It can be used when selecting equipment for:

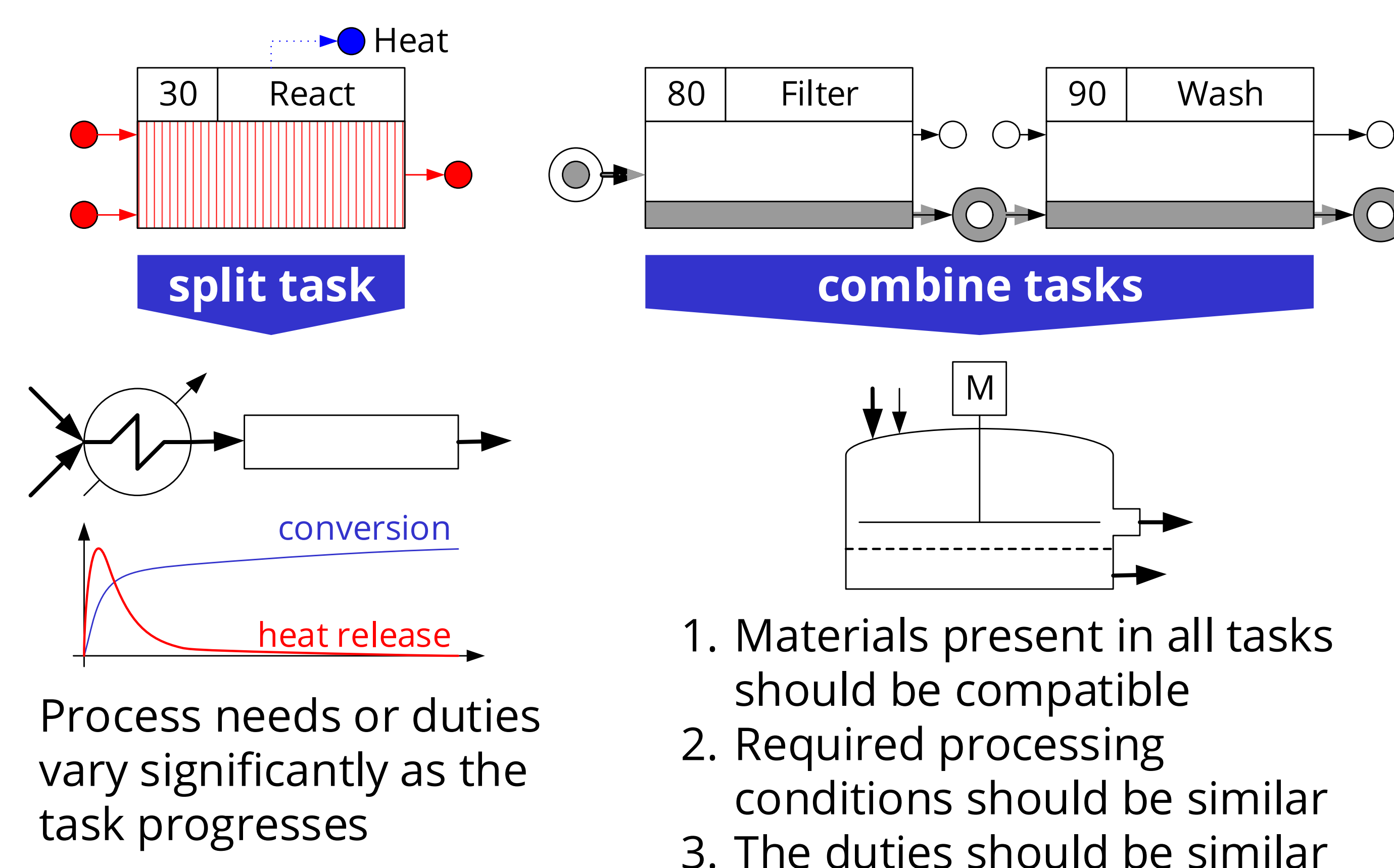
- New capital investment, or
- Siting processes in existing assets

Equipment selection in the Britest methodology



Mapping process tasks to equipment

For some processes, splitting or combining tasks will give a more economically efficient process:



Example DuDES

DuDES for Task 30 Coffee extraction	Musts and wants	Avoids and prefer nots	Comments and actions
Task purpose	Extract flavour from the ground coffee, while minimising bitter flavours		
Mass quantities	150 mL H ₂ O 8 g coffee		
Residence time	Enough to allow flavour to be extracted	Long residence time gives bitter product	Check optimum extraction time
Heat transfer	None		
Mass transfer	Sufficient to allow extraction of good flavours	Minimise extraction of bitter flavours	See above
Phases	Must be able to cope with L-L-S system Desirable to preserve "crema" foam	Mustn't be clogged by solids	
Phase ratios	L:L:S 15:small:1 approx		
Physical processing	Should enhance "crema" formation		What conditions give good "crema"?
Operability	Temperature ~100°C		
Materials of construction	Must withstand corrosion from coffee acids	Avoid corrosion	What materials resist coffee acids?
Cleanability	Must be easily cleanable		

Supporting organisations in gaining value
from process understanding