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WARWICK BUSINESS SCHOOL
THE UNIVERSITY OF WARWICK

**For the
Open
Minded**

Designing Operations

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Designing Operations Agenda

- ◎ Process Types
- ◎ Layout Types
- ◎ Balancing operations workload

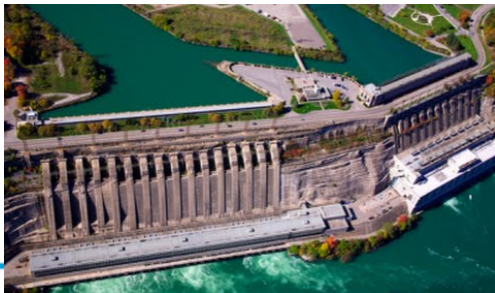
How do we determine the type of processes needed to deliver customer value?

Activating the brain process..

◎ Consider the following process outputs (see figures on left)



- Brent crude oil
- A Stradivarius violin
- Candy bars
- A Dam
- Cakes

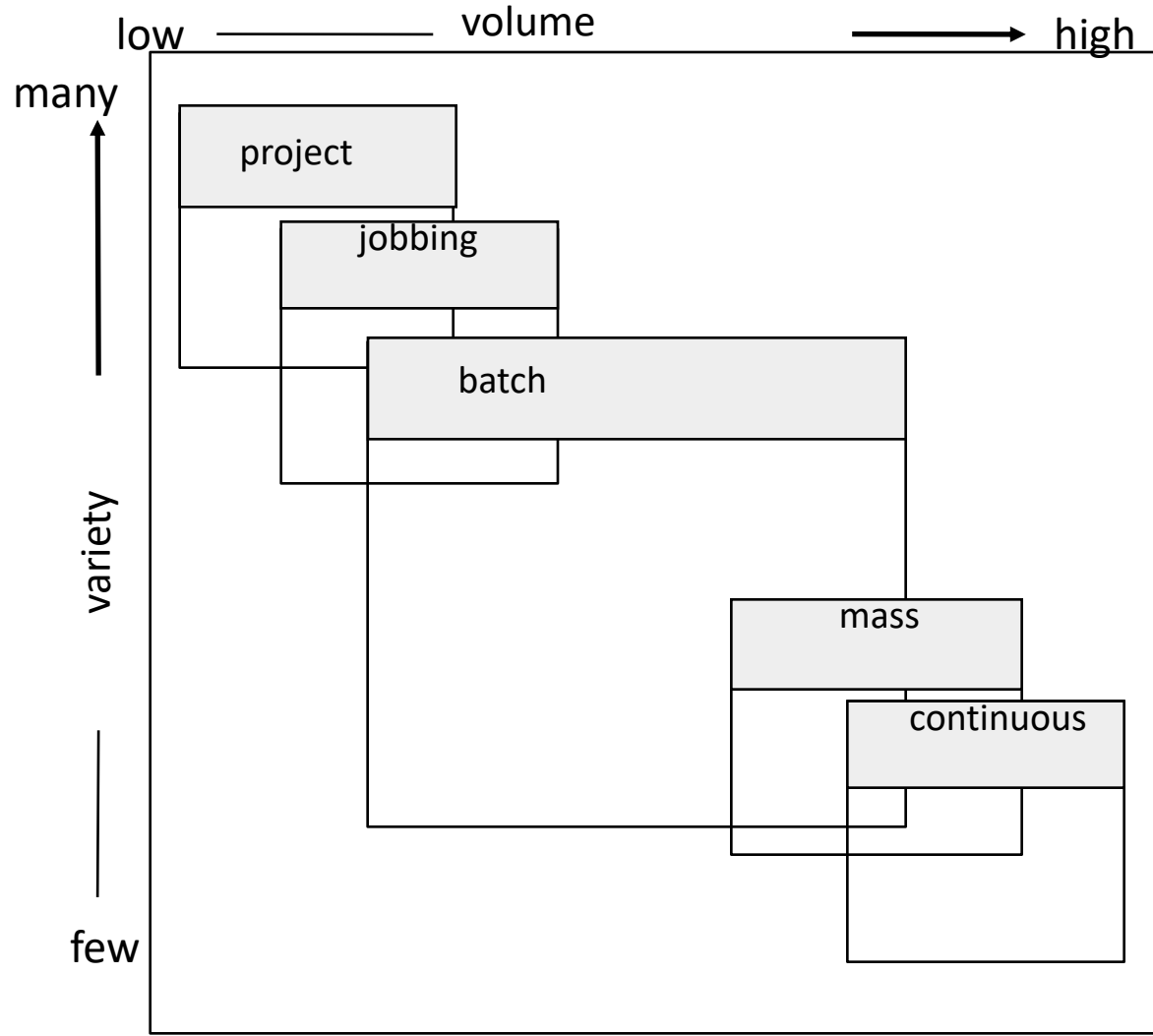


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◎ What types of processes have produced these?

Process types in Manufacturing operations



Project

- ① Unique, complex, highly customised
- ① Well-defined start and finish
- ① Long time interval
- ① Coordination between different competences
- ① Resources organised especially for each project



Jobbing

- ◎ Very low quantities (one or a few)
- ◎ Usually smaller items than project processes
- ◎ Specially made products with high variation and low repetition
- ◎ Each product shares the resources of the production system
- ◎ Wide competence is needed



Batch processes

- ⦿ Larger volumes and lower variety
- ⦿ Products are produced in “batches”, fairly repetitive
- ⦿ Wider range of volume and variety levels
- ⦿ Standard product, but can also be special manufacturing



Mass production

- ⊙ High volumes
- ⊙ Narrow variety in the fundamental product design
- ⊙ Repetitive
- ⊙ Lower and often more focused competence in those adding value
- ⊙ Often called "line"



Continuous processes

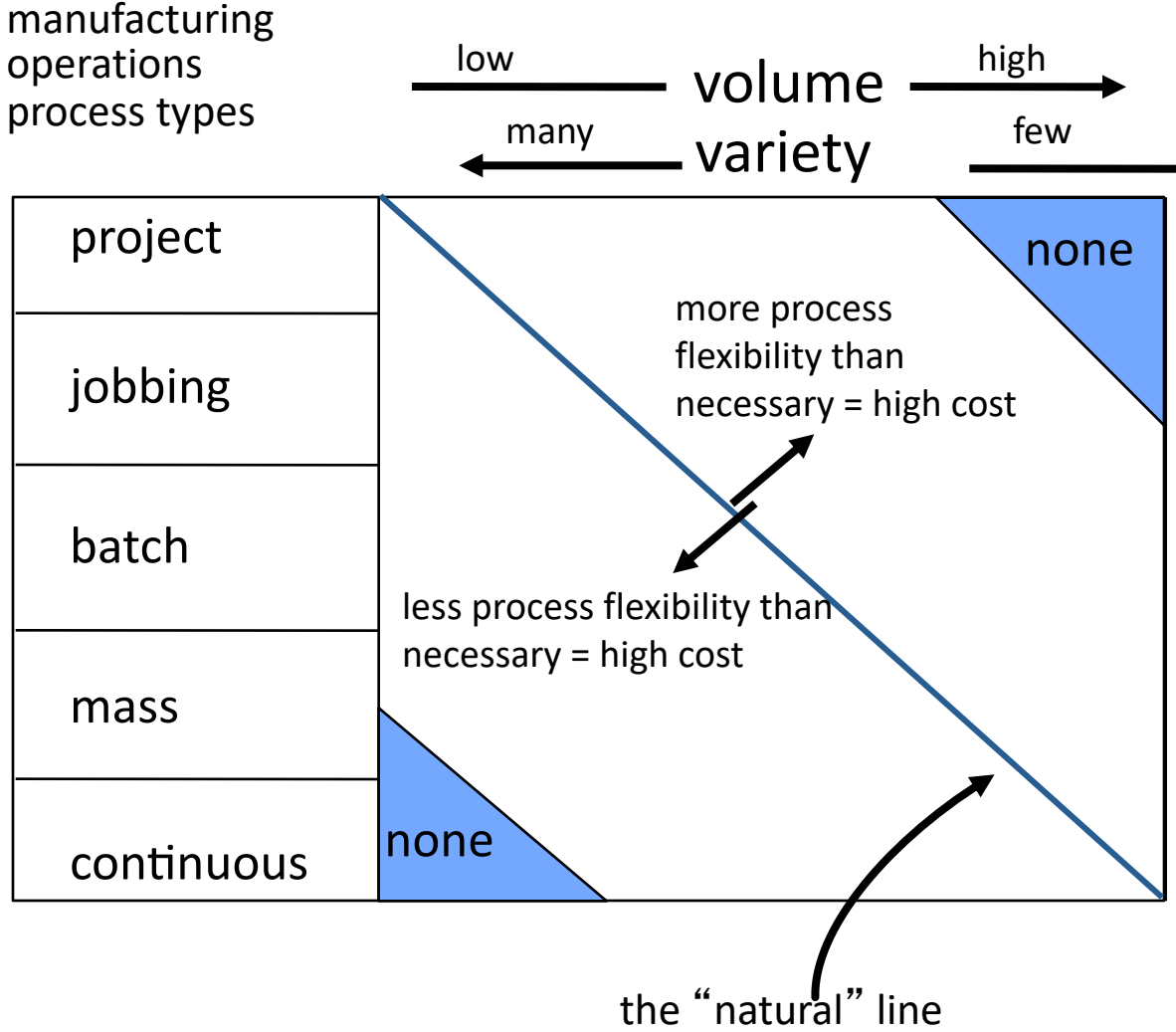
- ⦿ Extremely high volumes and lower variety – often only one product
- ⦿ Capital-intensive and fully automated
- ⦿ Expensive and difficult to start and stop the process



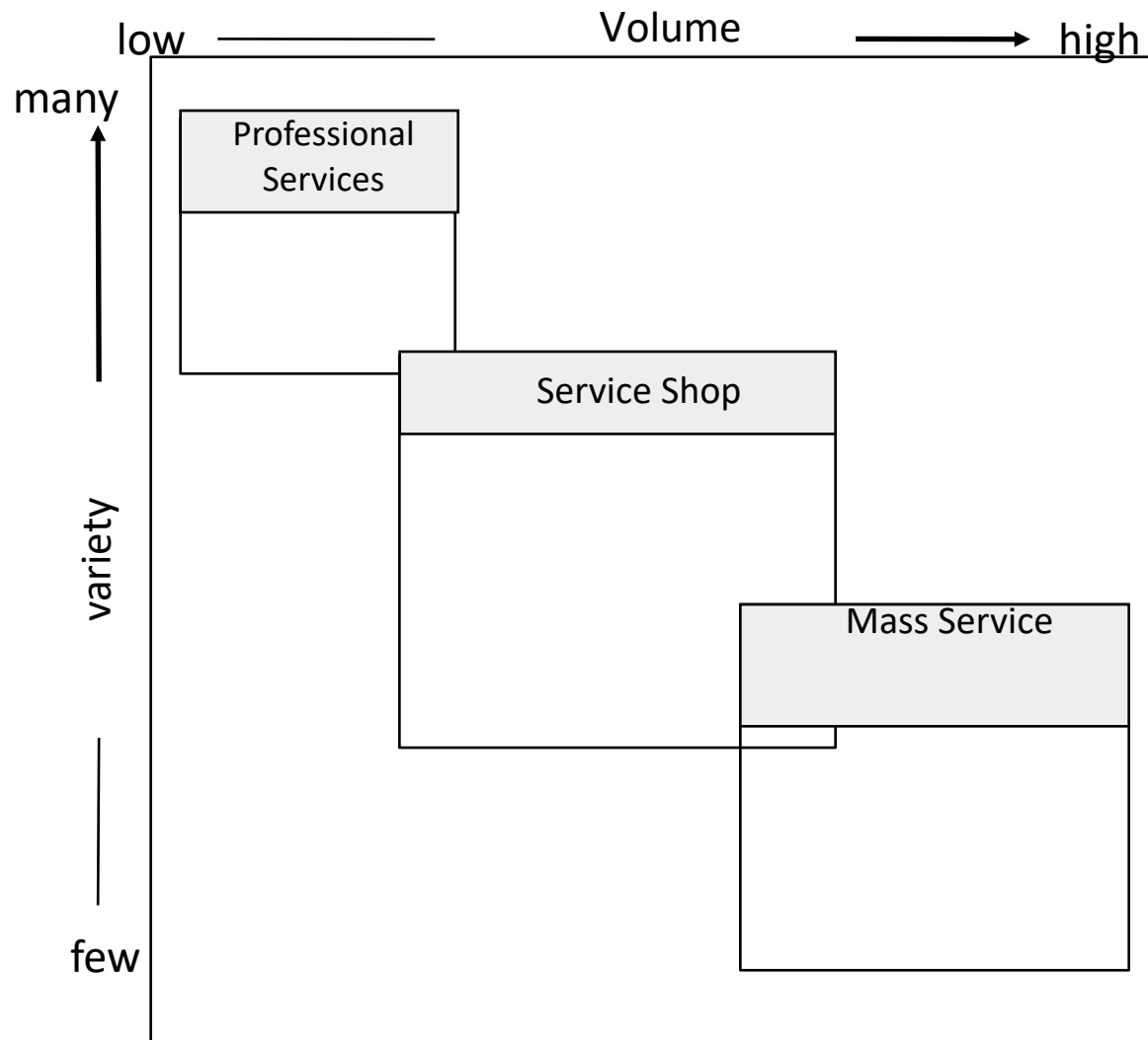
The Product/Process matrix

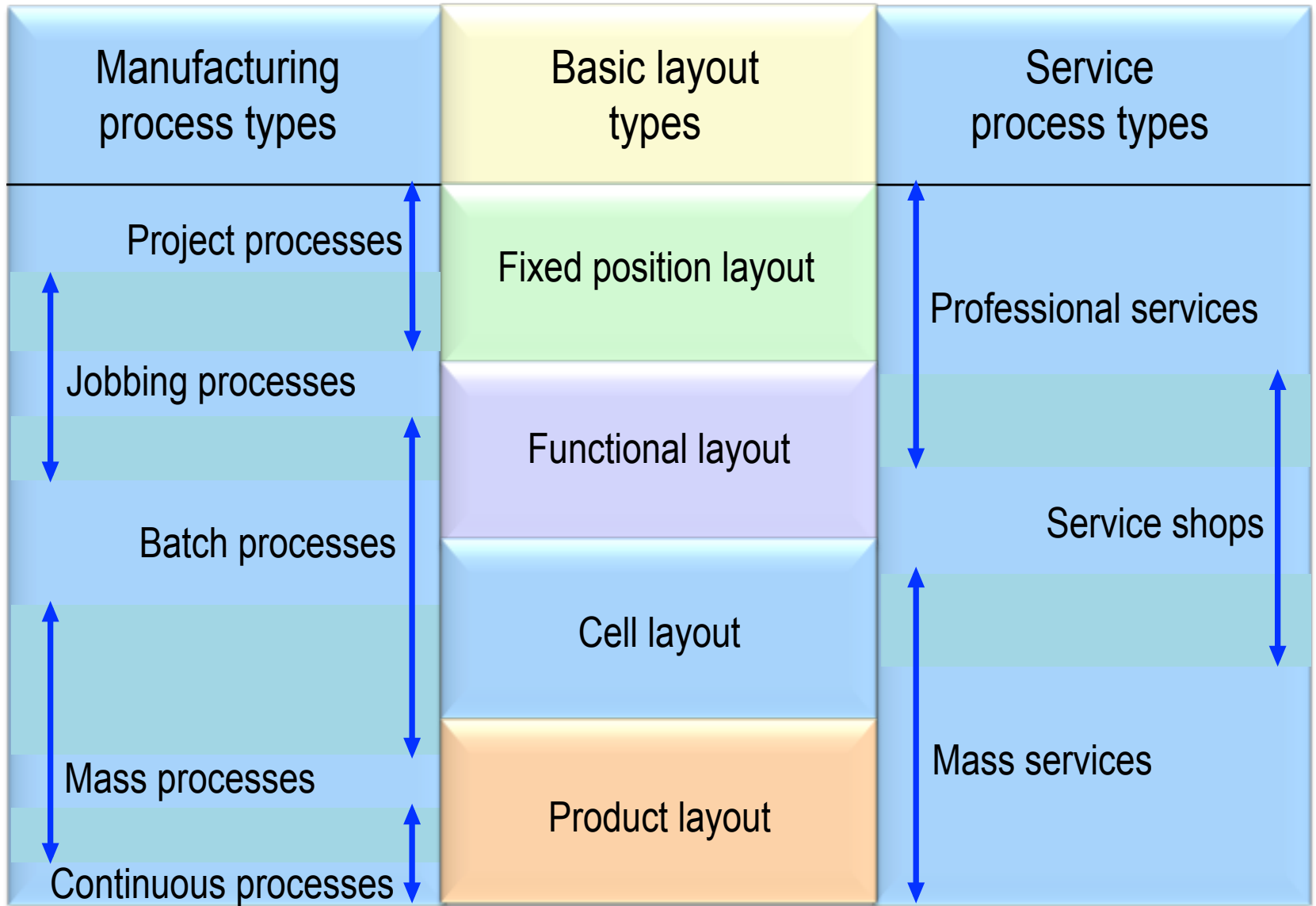
		Product characteristics			
		Low volume, Low standardisation	Low volume, Multiple products	Higher volume, Few major products	High volume, High standardisation
Process characteristics	Random flow (project)				
	Jumbled flow (jobbing)				
	Disconnected line flow (batch)				
	Connected line flow (mass)				
	Smooth flow (continuous)				

So what?

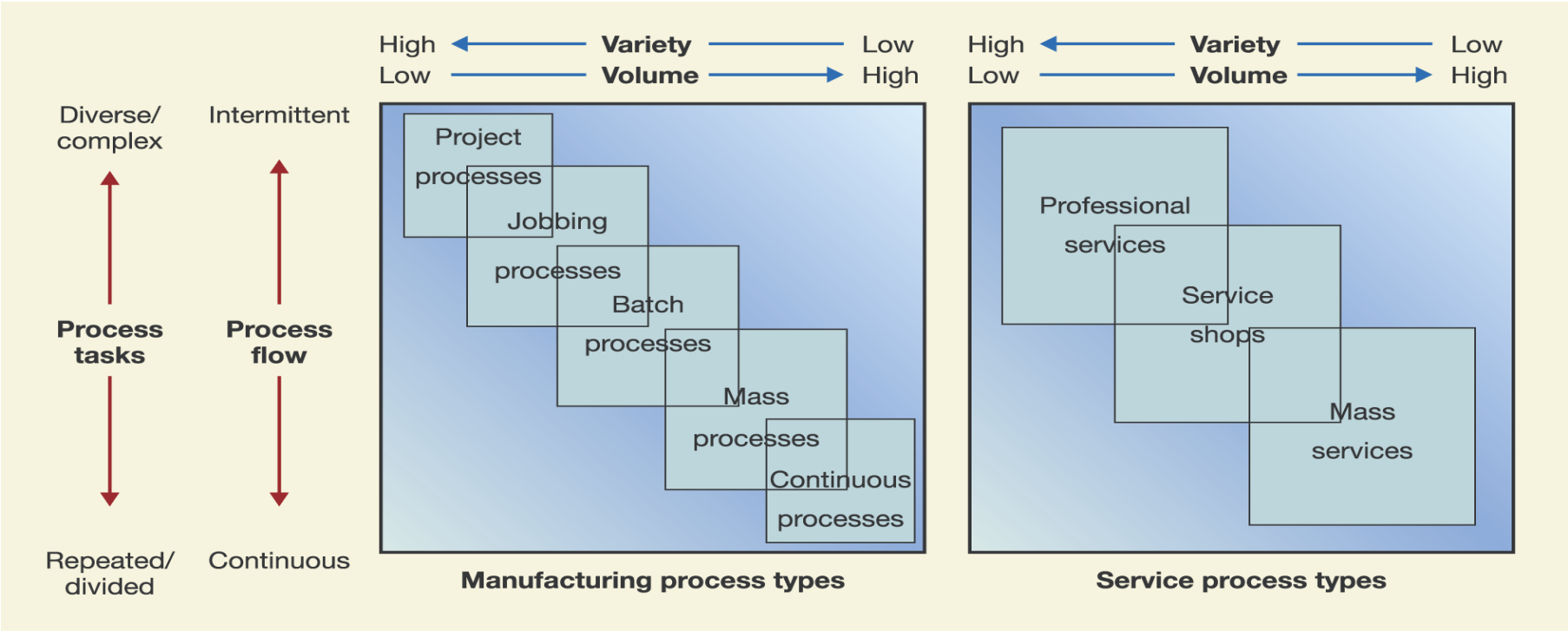


So what about services?





Process Types



Recap

- ⦿ The volume-variety that an operation needs to contend with impacts the design of the process
- ⦿ For manufacturing, process designs include:
 - ⦿ Project
 - ⦿ Jobbing
 - ⦿ Batch
 - ⦿ Mass
 - ⦿ Continuous
- ⦿ For services, process designs include:
 - ⦿ Professional services
 - ⦿ Service shops
 - ⦿ Mass services