



EMEA

Biennial Workshop

10-11 October 2019

Utrecht, The Netherland

Project Breakdown Structures

PM-SE Integration WG

Exercise for break-out session

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Team work (break-out)

The group will select one of the 2 use cases (or both in 2 sub-groups)

After an overall description of the System of Interest (SOI) , what is the environment and the main stakeholders, some elements of mission analysis and high level requirements (examples), identify :

- some key **Functions (elements of FBS)***
- the related **Product components (elements of PBS)***
- the related **Work packages (elements of WBS)***

Use Cases descriptions



Use Case 1 : High speed aircraft

To propose a high speed aircraft having
a cruise speed of 2.2 Mach
a range of 6000 NM
a capacity of 50 passengers.

This aircraft shall be able to use all big cities existing airports without any specific adaptations and be compatible with present environmental constraints for noise and CO2 emission.

The first entry into service for a such aircraft is anticipated by 2022.



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Use Cases descriptions

Fictive
Example

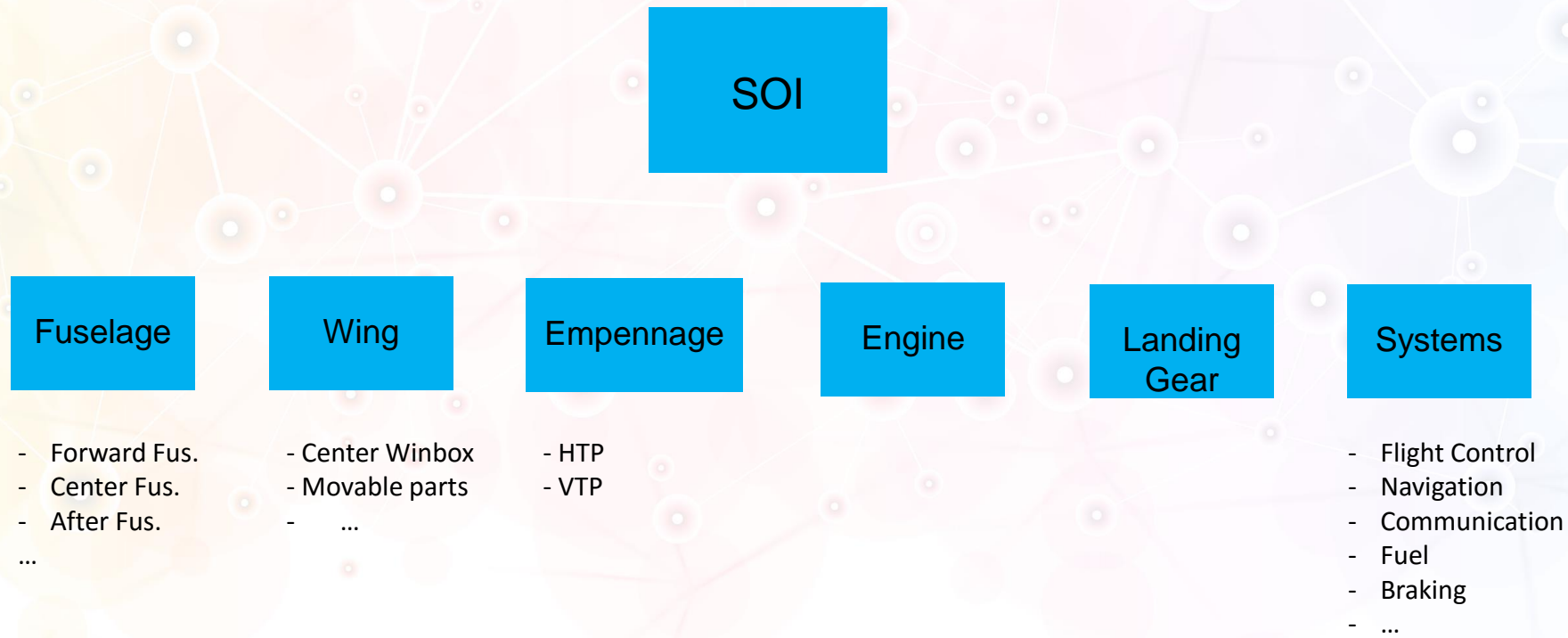
Use Case 2 : Urban aerial vehicle

To face with traffic jam in big cities, a new aerial system transportation system is being developed to allow transportation of up to 4 persons (400kg max payload with luggage) through full electrical propulsion engines with an operational autonomy of 1h.

The system shall be operational by June 2021

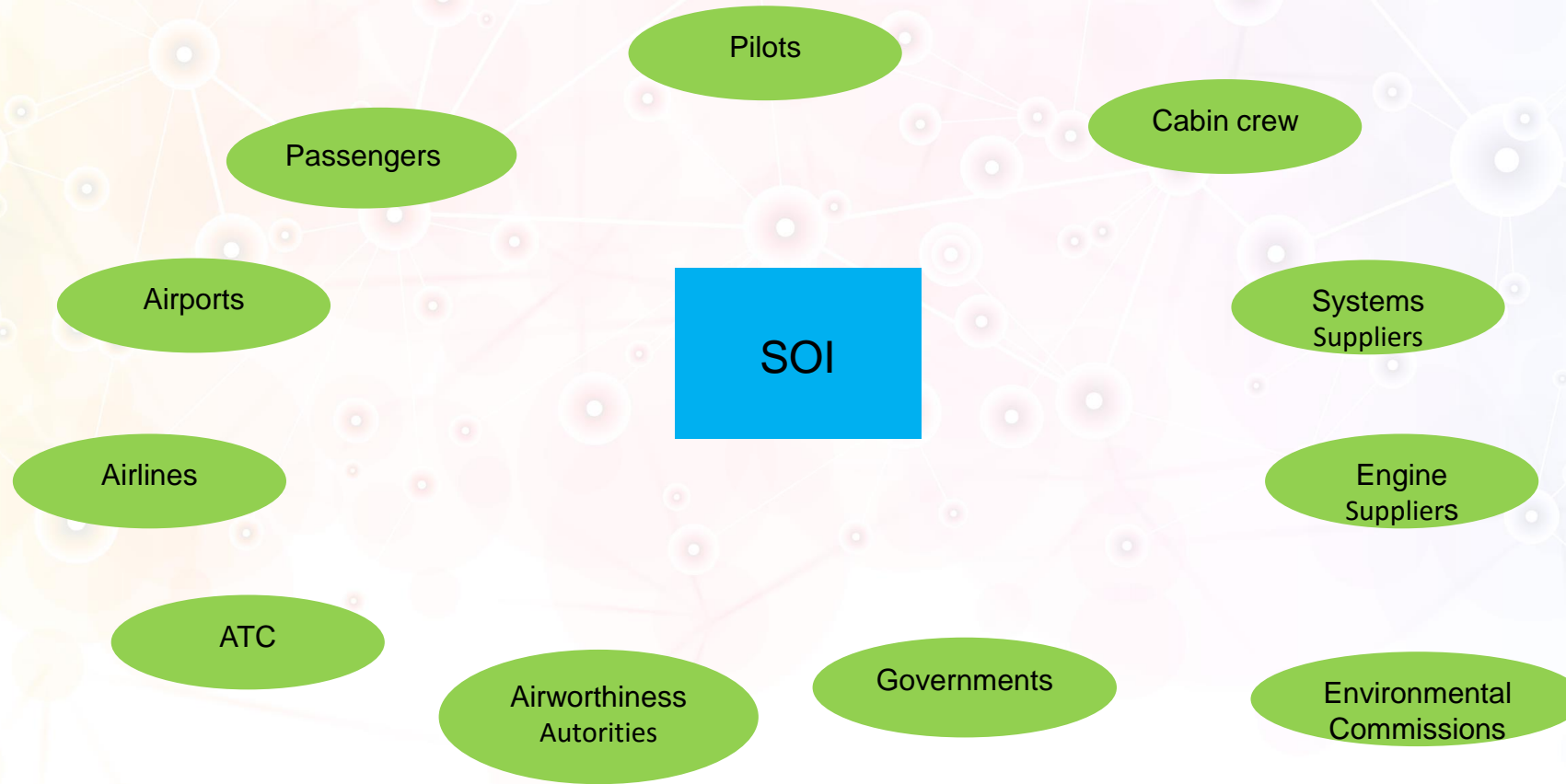
Use Case 1 : High speed aircraft System of Interest (SOI)

Fictive
Example



Use Case 1 : High speed aircraft System Environment and its Stakeholders

Fictive
Example



Use Case 1 : High speed aircraft Mission Analysis

Fictive
Example

Problems

- Environmental regulations
 - Noise
 - CO2 emission
 - Supersonic bang
 - ...
- Fuel consumption (operating cost)
- Compatibility with new energies (electric, ...)
- Engines feasibility & cost
- Capacity
- Range

Opportunities

- New markets
 - New customers
 - New routes
 - ...
- Air traffic growth
- ...

Use Case 1 : High speed aircraft High level stakeholder Needs

Fictive
Example

Stakeholders	Needs
Passenger	Price ticket shall not exceed 30% more than subsonic conventional aircraft
Airport	Runway of existing big airport (city over 1M) shall be usable without extension
Environmental Commission	Noise emission not higher than conventional aircraft
Pilot	Additional qualification vs xx civil aircraft shall not exceed yy hours

Use Case 2 : Urban aerial vehicle System of Interest (SOI)

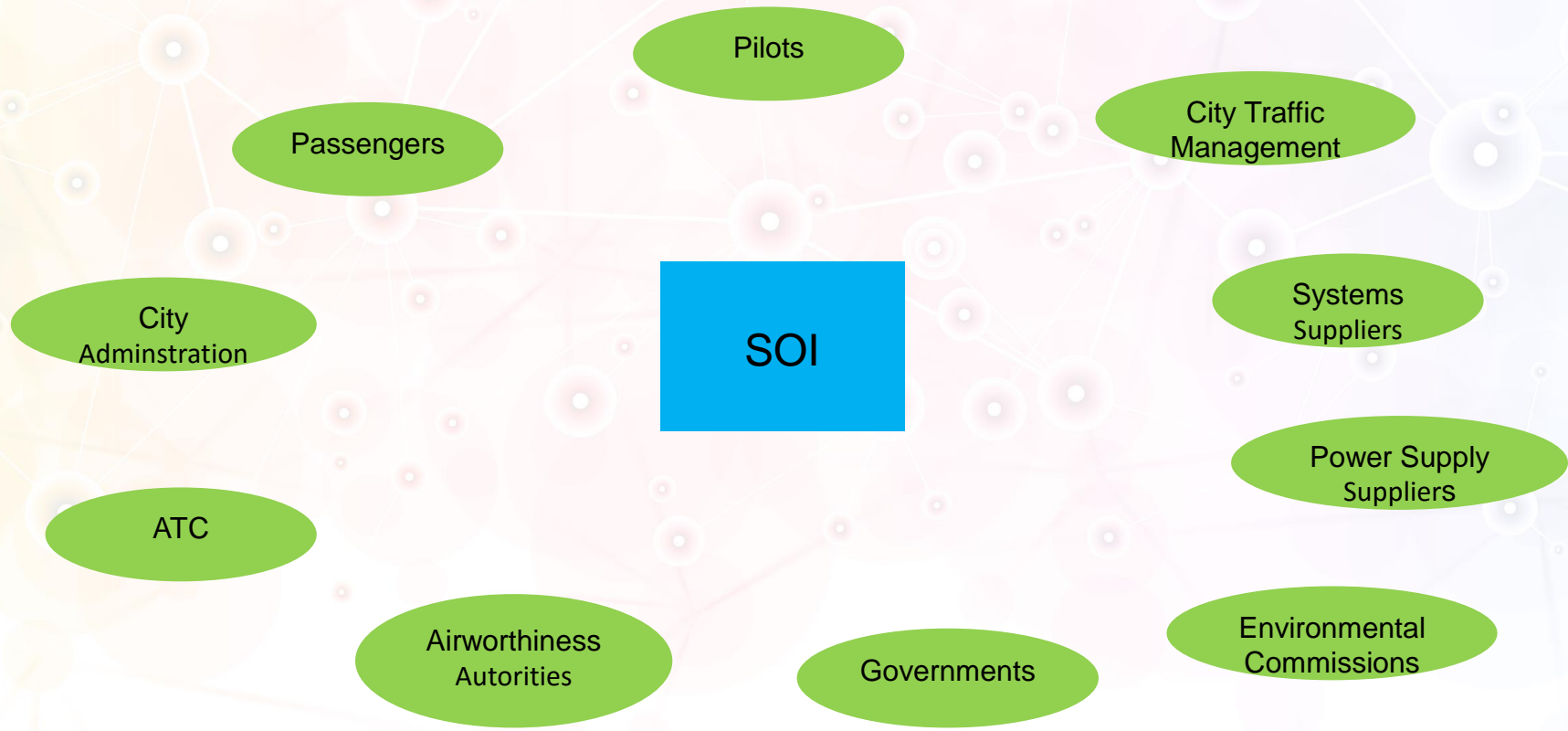
Fictive
Example



- Navigation
- Flight Control
- Communication
- Fuel
- ...

Use Case 2 : Urban Aerial Vehicle System Environment and its Stakeholders

Fictive
Example



Use Case 2 : Urban Aerial Vehicle Mission Analysis

Fictive
Example

Problems

- Environmental regulations
 - Noise
 - Traffic density
 - ...
- Aerial Traffic regulation
- Security of cities
- Reliability of engine
- Pilot training and qualification
- Performances (range, take off weight, autonomy)

Opportunities

- Traffic car reduction
- Reduction of pollution in cities
- City Transport time reduction
- New markets
- New customers
- ...

Use Case 2 : Urban Aerial Vehicle High level stakeholder Needs

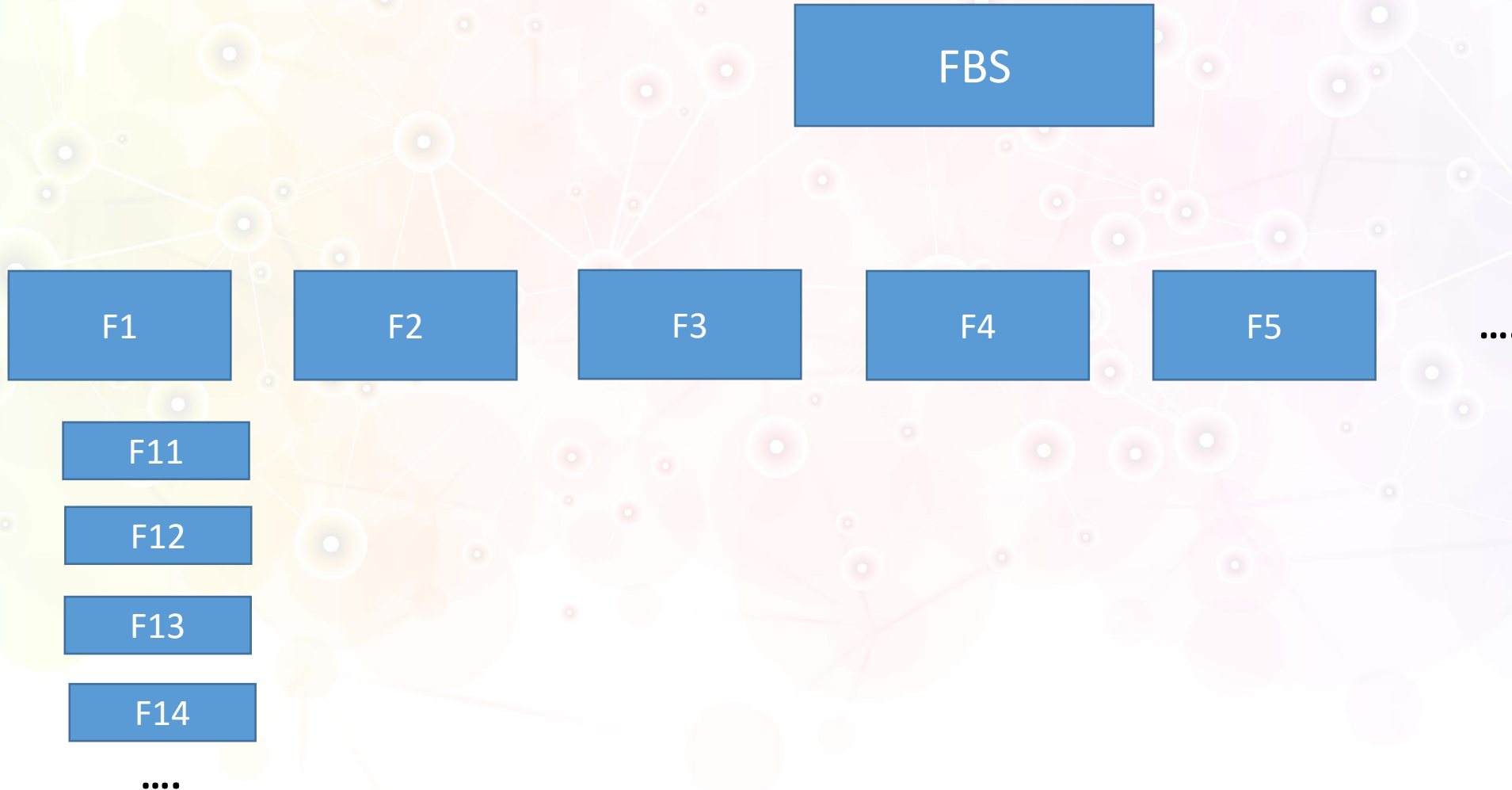
Fictive
Example

Stakeholders	Needs
Passenger	The price per seat shall not exceed xx € / hour
Pilot	Qualification of pilot shall be possible after xxx hours of training operated by authorized organisation
Environmental Commission	Noise emission shall not exceed xxx dB at the altitude of 100 m.
Power Supply System	The recharging of the battery shall be done in one hour maximum



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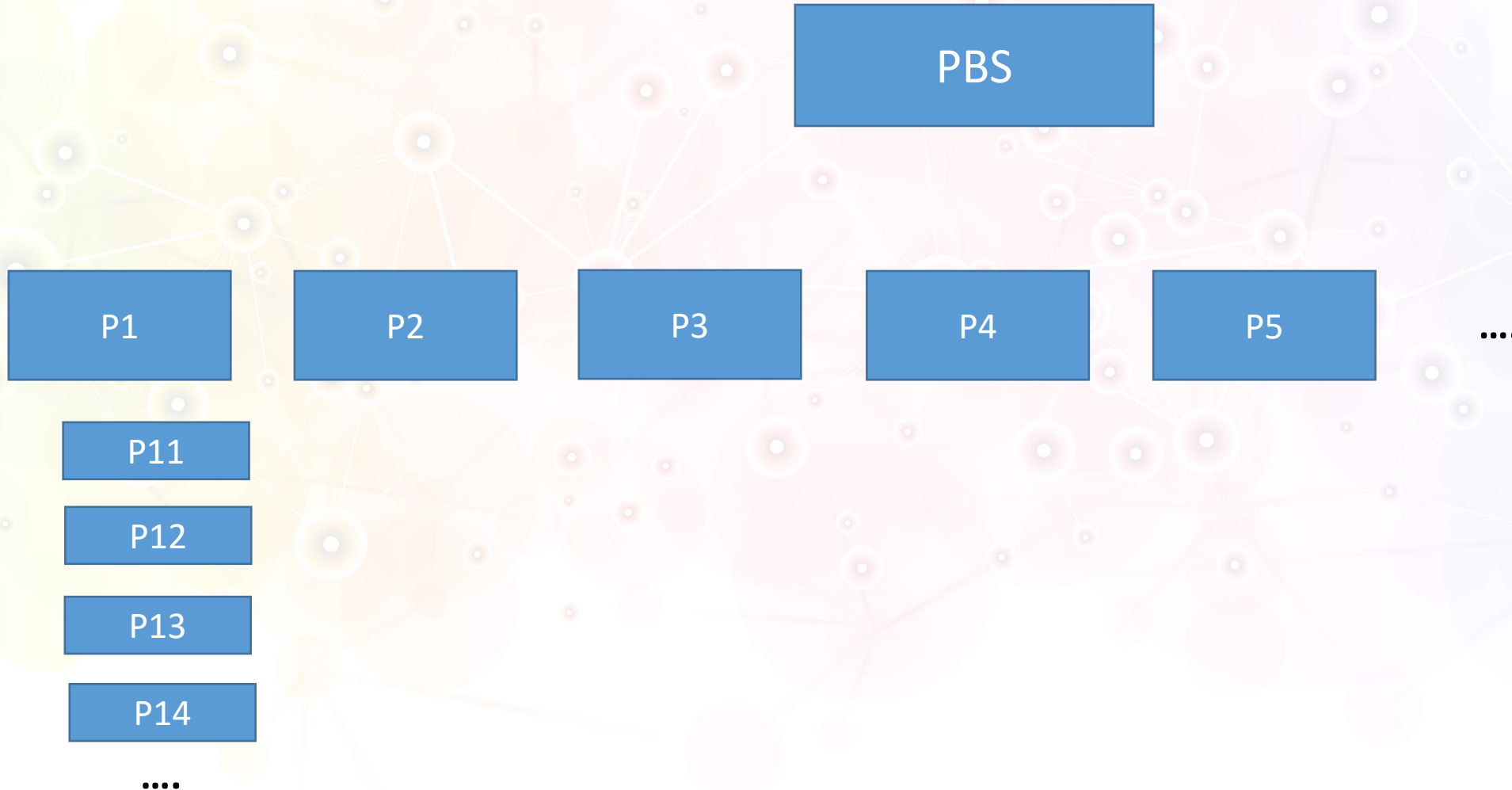
Use Case : *Functional Breakdown Structure*





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Use Case : *Product Breakdown Structure*





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Use Case : *Work Breakdown Structure*

