



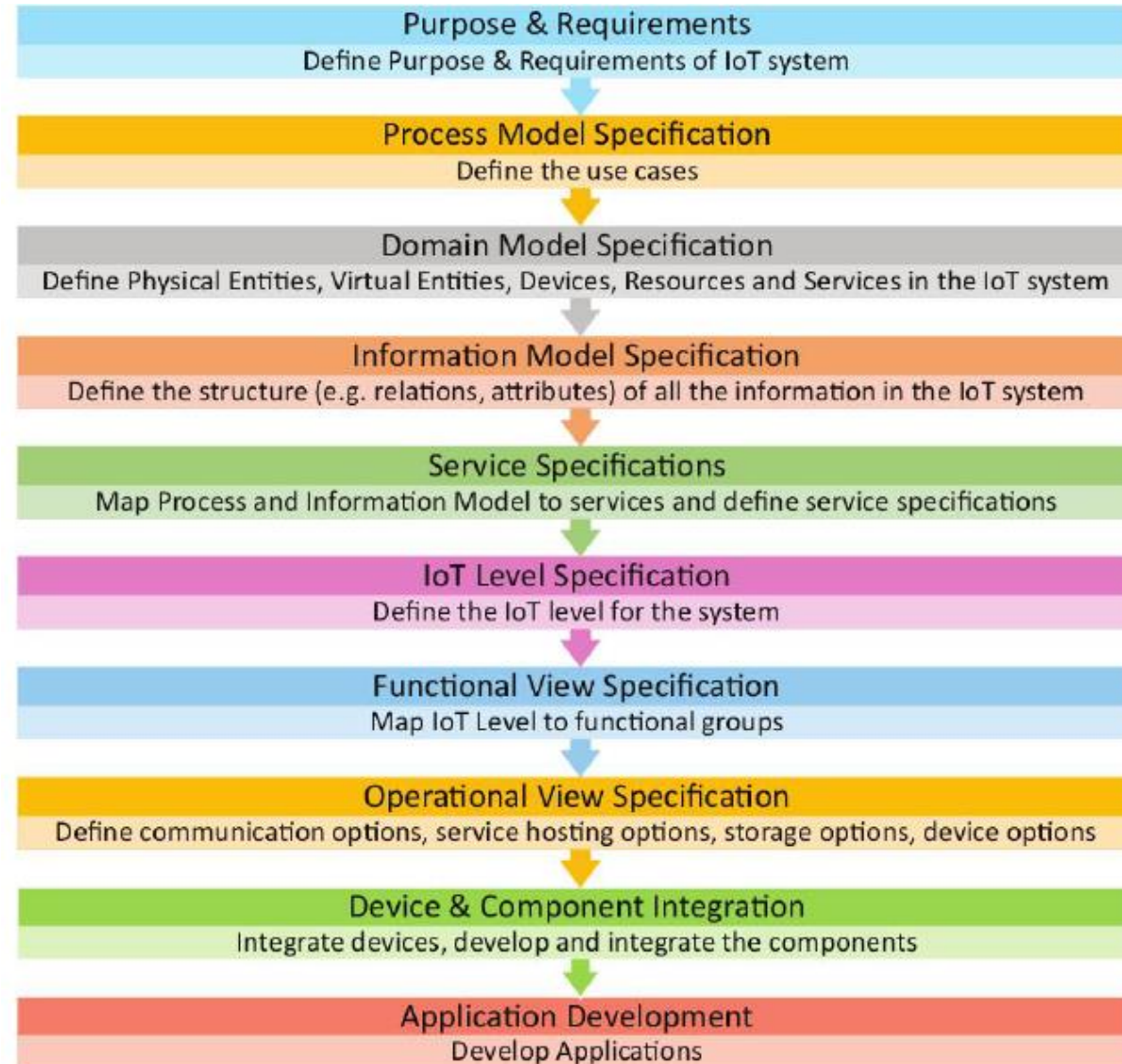
# IOT DEVICE DESIGN METHODOLOGY



- ❖ Purpose & Requirements Specification
- ❖ Process Specification
- ❖ Domain Model Specification
- ❖ Information Model Specification
- ❖ Service Specifications
- ❖ IoT Level Specification
- ❖ Functional View Specification
- ❖ Operational View Specification
- ❖ Device & Component Integration
- ❖ Application Development



# STAGES





# PURPOSE & REQUIREMENT SPECIFICATIONS



- ❖ The first step in IoT system design methodology is to define the purpose and requirements of the system.
- ❖ In this step, the system purpose, behaviour and requirements are captured
- ❖ Requirement includes data collection requirements, data analysis requirements, system management requirements, data privacy and security requirements, user interface requirements.



# PROCESS SPECIFICATIONS



- ❖ The second step in the IoT design methodology is to define the process specification.
- ❖ In this step, the use cases of the IoT system are formally described based on and derived from the purpose and requirement specifications



# DOMAIN MODEL SPECIFICATIONS



- ❖ The third step in the IoT design methodology is to define the Domain Model.
- ❖ The domain model describes the main concepts, entities and objects in the domain of IoT system to be designed.
- ❖ Domain model defines the attributes of the objects and relationships between objects.
- ❖ Domain model provides an abstract representation of the concepts, objects and entities in the IoT domain, independent of any specific technology or platform.
- ❖ With the domain model, the IoT system designers can get an understanding of the IoT domain for which the system is to be designed.



# INFORMATION MODEL SPECIFICATIONS



- ❖ The fourth step in the IoT design methodology is to define the Information Model.
- ❖ Information Model defines the structure of all the information in the IoT system, for example, attributes of Virtual Entities, relations, etc.
- ❖ Information model does not describe the specifics of how the information is represented or stored.
- ❖ To define the information model, we first list the Virtual Entities defined in the Domain Model.
- ❖ Information model adds more details to the Virtual Entities by defining their attributes and relations



# SERVICE SPECIFICATIONS



- ❖ The fifth step in the IoT design methodology is to define the service specifications.
- ❖ Service specifications define the services in the IoT system, service types, service inputs/output, service endpoints, service schedules, service preconditions and service effects.



# IOT LEVEL SPECIFICATIONS



- ❖ The sixth step in the IoT design methodology is to define the IoT level for the system.





# FUNCTIONAL VIEW SPECIFICATIONS



- ❖ The seventh step in the IoT design methodology is to define the Functional View.
- ❖ The Functional View (FV) defines the functions of the IoT systems grouped into various Functional Groups (FGs).
- ❖ Each Functional Group either provides functionalities for interacting with instances of concepts defined in the Domain Model or provides information related to these concepts



# OPERATIONAL VIEW SPECIFICATIONS



- ❖ The eighth step in the IoT design methodology is to define the Operational View Specifications.
- ❖ In this step, various options pertaining to the IoT system deployment and operation are defined, such as, service hosting options, storage options, device options, application hosting options, etc



# DEVICE AND COMPONENT INTEGRATION



- ❖ The ninth step in the IoT design methodology is the integration of the devices and components.



# APPLICATION DEVELOPMENT



- ❖ The final step in the IoT design methodology is to develop the IoT application.



## REFERENCE



- ❖ [https://www.webnms.com/iot/help/iot\\_deployment\\_guide\\_cloudgate/iot,\\_sensors,\\_and\\_cloud\\_server.html](https://www.webnms.com/iot/help/iot_deployment_guide_cloudgate/iot,_sensors,_and_cloud_server.html)