SNS COLLEGE OF ENGINEERING

Department of Information Technology

Course Name – Internet Of Things & AI

III Year / V Semester

UNIT 2 - DESIGN METHODOLOGY
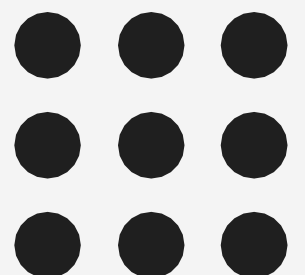
IOT Platforms Design Methodology

- Designing IoT systems can be a complex and challenging task as these systems involve interactions between various components such as IoT devices and network resources, web services, analytics components, application and database servers.

- IoT system designers often tend to design IoT systems keeping specific products/services in mind.

- So that designs are tied to specific product/service choices made. But it make updating the system design to add new features or replacing a particular product/service choice for a component becomes very complex, and in many cases may require complete re- design of the system.

- Here we discuss a generic design methodology for IoT system design which is independent of specific product, service or programming language.
- IoT systems designed with the proposed methodology have reduced design, testing and maintenance time, better interoperability and reduced complexity.'
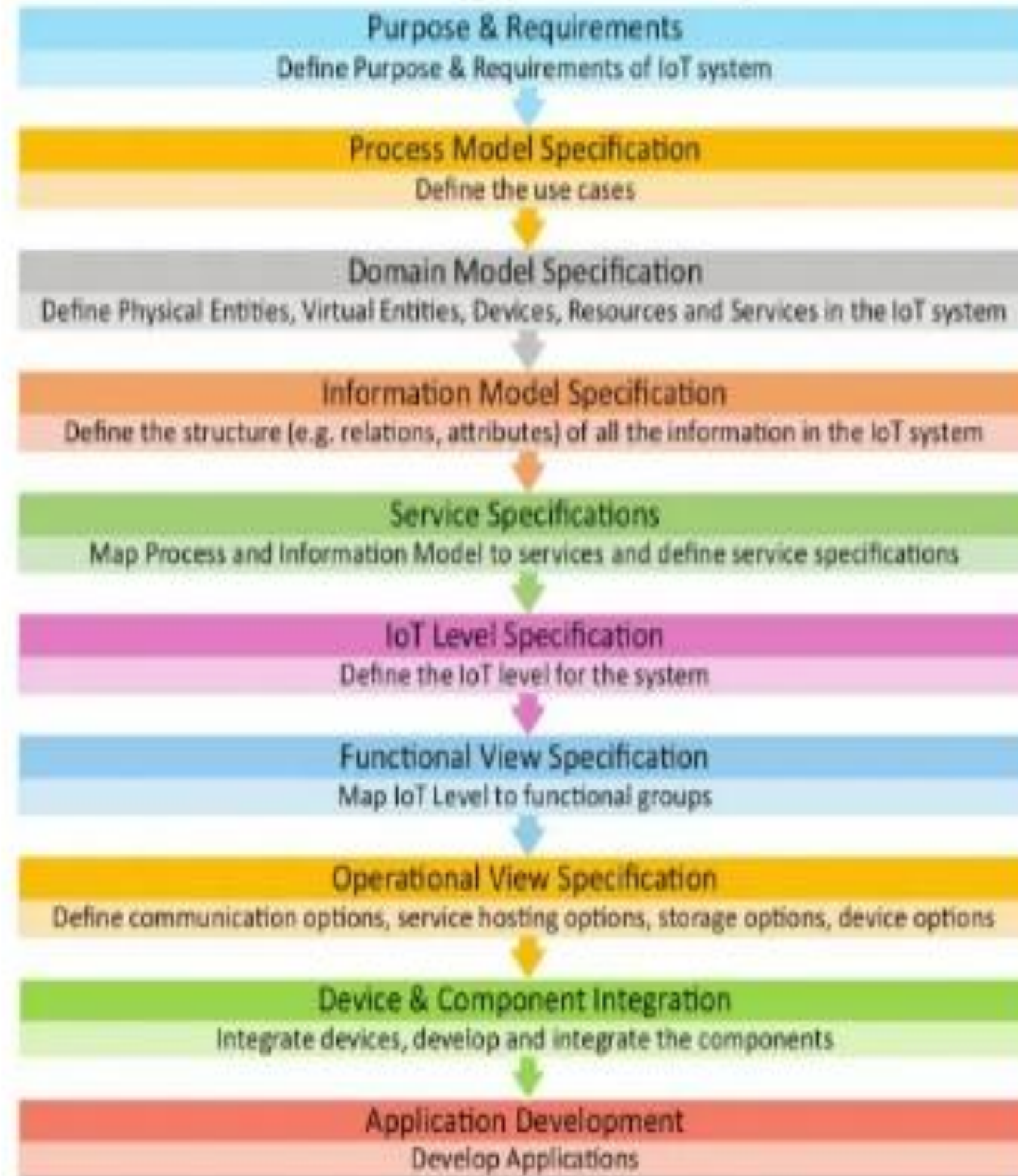
IOT Platforms Design Methodology

It includes:
- Purpose & Requirements Specification
- Process Specification
- Domain Model Specification
- Information Model Specification
- Service Specification
- IoT Level Specifications
- Functional view Specification
- Operational View Specification
- Device & component Integration
- Application Development

IoT Design Methodology - Steps

Purpose & Requirements
Define Purpose & Requirements of IoT system

Process Model Specification
Define the use cases

Domain Model Specification
Define Physical Entities, Virtual Entities, Devices, Resources and Services in the IoT system

Information Model Specification
Define the structure (e.g. relations, attributes) of all the information in the IoT system

Service Specifications
Map Process and Information Model to services and define service specifications

IoT Level Specification
Define the IoT level for the system

Functional View Specification
Map IoT Level to functional groups

Operational View Specification
Define communication options, service hosting options, storage options, device options

Device & Component Integration
Integrate devices, develop and integrate the components

Application Development
Develop Applications

Purpose & Requirements Specification

- The first step in IoT system design methodology is to define the purpose and requirements of the system. In this step, the system purpose, behavior and requirements are captured.
- **Purpose :** A home automation system that allows controlling of the lights in a home remotely using a web application.
- **Behavior :** The home automation system should have auto and manual modes. In auto mode, the system measures the light level in the room and switches on the light when it gets dark. In manual mode, the system provides the option of manually and remotely switching on/off the light.
- **System Management Requirement :** The system should provide remote monitoring and control functions

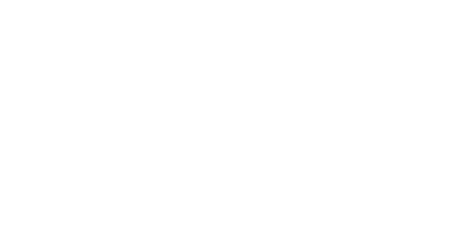## Purpose & Requirements Specification

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THANK YOU