

ROLES AND RESPONSIBILITIES

09-02-2020

Presented by: Hannah Walker: VP, Sinclair Digital LLC

<https://sinclairdigitalllc.com/>



ABOUT ME

After receiving my bachelors degree in architecture, I began working in Digital Buildings on the ownership and innovation side 3 years ago. Developed 2 successful PoE and Digital buildings featuring a luxury hotel, CVS, data center, and upscale office as an owner, and are now branching out to offer our services to other developers.

Hannah Walker, RCDD, CCNA

VP Sinclair Digital LLC





THINGS ARE CHANGING

As Low Voltage systems become more prevalent, and traditional High Voltage systems begin to phase out all areas of a project from Design to Operation are shifting. It's important to understand which roles are changing, and where the responsibility for different areas of the project will now fall. At the end of the day, every single member of the project is critical to a successful completion, and need to work together instead of against each other.

WHO IS THE CUSTOMER REALLY?

Politics make strange bedfellows

Questions to consider

- Who is the project champion?
- Whose Budget is affected?
- Who may be losing control?
- Who is risk averse?
- Who is leading innovation?



Electrical Engineer



Consults on Compliance with
Electrical Codes

Low Voltage Designer



Expanded Drawing Scope and Code
Compliance

Lighting Designer



PoE Light fixture specifications and
selection responsibilities

Installers



Shared responsibility between
electrician and low voltage installers
based on jurisdiction

KEY PLAYERS

There are many people who will be affected by this transition, but these are the four groups who will be affected the most, and will need to be knowledgeable about their change in scope and responsibilities.

01 *Pre Design*

02 Design

03 Construction

04 Operations



PRE DESIGN: CODE COMPLIANCE

Code Compliance

- International Building Code
- International Fire Code
- International Energy Conservation Code or ASHRAE 90.1 if applicable
- National Electrical Code
- NFPA 101,110,111 as applicable
- ASME Elevator Code
- Life Safety Code

IT Equipment

VS

Life Safety
Systems

When making the jump to a “Smart Building” it’s essential for the **Electrical Engineer, Low Voltage Designer, and Architect** to address any and all code compliance issues. Especially in areas relating to life safety systems such as exit lighting, egress lighting, and required emergency lighting.

PRE DESIGN: AHJ EDUCATION

Code Compliance

Site Visits

AHJ EDUCATION

Before approaching an AHJ you have to already have done a thorough Code Compliance review and be able to verify that you are still meeting all of the required codes. You should also bring in the AHJ early in the project to provide comfort about this new technology and address directly any concerns that might come up later. This should be handled between the **Electrical Engineer, Low Voltage Designer**, and the **Architect**.

PRE DESIGN: DESIGN RULES

Design Rules

- Specify Constant current or constant voltage requirements
- Compatibility with selected Lighting Driver Company
- Address Network Design
- Compatibility with controls and sensor options
- Wattage limitations from power distribution

TO BE USED BY:

Lighting Designer

Electrical Engineer

Lighting Procurement

Once a scope has been established for the project, it will be up to the Low Voltage Designer to set design rules for all equipment being specified by others such as lighting. **This must occur before design phase begins.** The design rules will consist of criteria to be met in the different areas to ensure a successful completion. It must keep in mind the total scope and the required coordination between chosen vendors.

01 Pre Design

02 *Design*

03 Construction

04 Operations



DESIGN: DRAWING RESPONSIBILITIES

Once the drawing phase begins, the Lighting Designer will begin to lay out the fixtures based on the design rules produced by the low voltage designer. Throughout the rest of the drawing phase there should be constant communication between the team as revisions and new requirements become known.



Lighting Designer

- Establish lighting levels required
- Design lighting layout in coordination with architect
- Identify which fixtures need to be on emergency power
- Select preliminary light fixtures



Electrical Engineer

- Place emergency lighting on drawings for permit
- Coordinate with LV designer to ensure all distribution systems have adequate power
- Coordinate with LV designer to supply required conduit



Low Voltage Designer

- Place distribution systems in drawings
- Produce wiring/connection drawings for all LV systems
- Ensure all systems are compatible for communication and collaboration

LV DESIGN: THINGS TO CONSIDER

Budget Limitations



Understand how the budget is going to affect what you can implement, and how you can get the end result with the right products

Network Design



Understand what network design you recommend. There are pros and cons to both centralized and decentralized, and can result in a dramatic cost difference

Recurring Cost



Many Smart Devices are going to have recurring software or support costs. This can not be left out of the budget/design process.

LV DESIGN: INSTALLATION DRAWINGS VS OPERATIONAL DOCUMENTATION

Installation VS Operational

- Used for the installation of cabling, fixtures, end points
- Has wiring details and for standard room types
- Not specific to exact room numbers

- Used for the cataloguing of each piece of data equipment
- Specific to every device in the building
- Needs a standardized naming schema that can be utilized by all software partners

BOTH NEEDED BEFORE INSTALLATION FOR PRE-PROGRAMMING

01 Pre Design

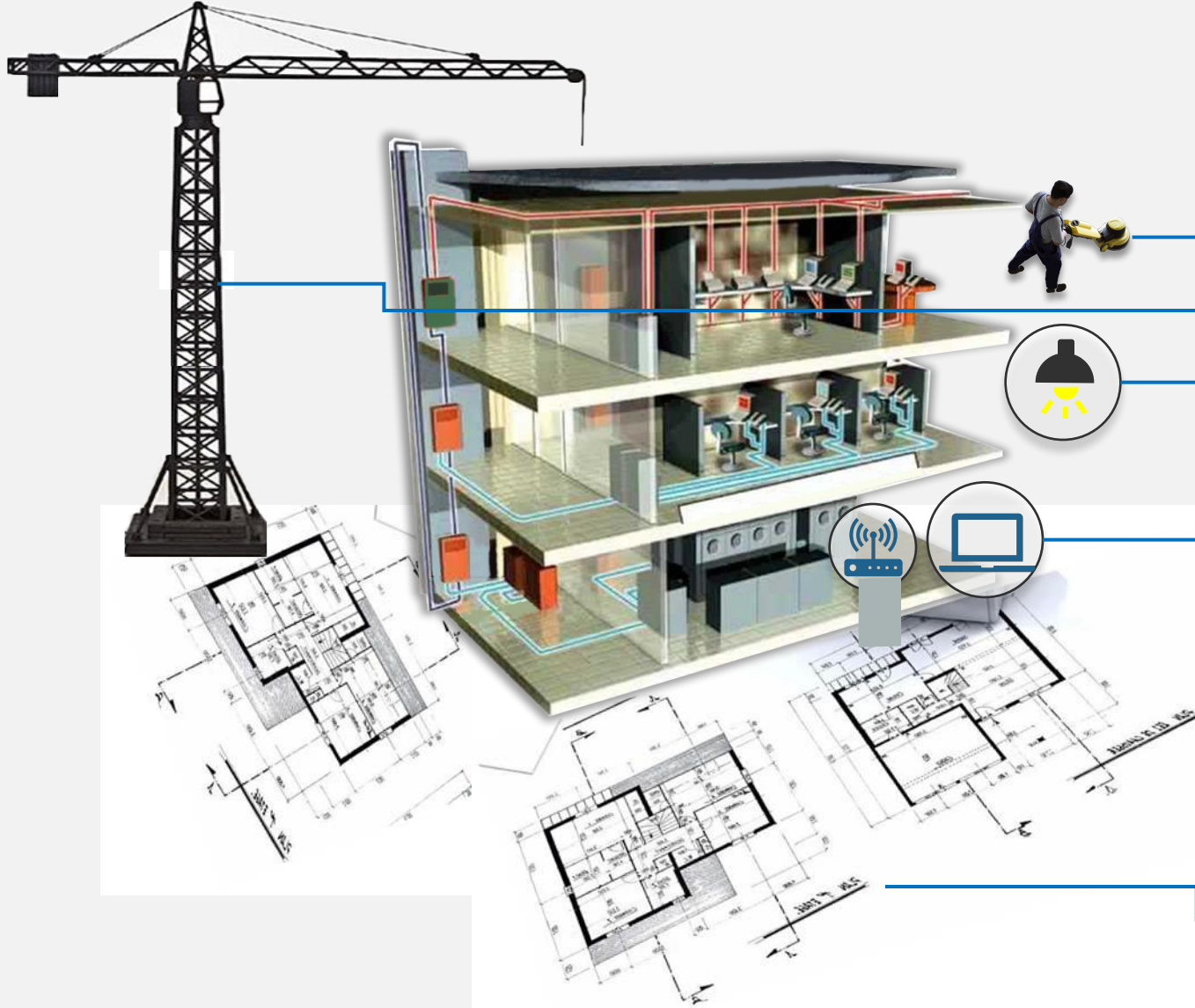
02 Design

03 *Construction*


04 Operations






CRITICAL ROLES OF THE BUILDING PROCESS




Facilities Management 

General Contractor & Project Manager 

MEP's  
Low Voltage & Structured Cable Contractor Electricians

IT Consultant & Systems Integrator 

Architect 

CONSTRUCTION: INSTALLATION

- Hard Metal Conduit for pathways
- High Voltage Devices and Wiring
- High voltage power to LV distribution systems
- Battery Backup System installation

ELECTRICIANS

Reduction/Shift of Scope

LOW VOLTAGE INSTALLER

Increase of Scope

- Lighting Wiring
- Light Fixture Installation
- Flex Conduit Installation
- All typical LV equipment and wiring

CONSTRUCTION SEQUENCING

ARCHITECTURAL VS DECORATIVE

01

Framing

Framing Contractor

02

Flex Conduit Installation

Low Voltage



03

Back Boxes/Cut In Rings

Electrical

04

MEP Rough In

Electrical/mechanical

05

Low Voltage Wiring

Low Voltage



06

Switching Installation

Low Voltage



07

Drywall

Drywall Contractor

08

Paint

Painters

09

Trim Out/Light Install

Low Voltage

10

FF&E Install

FF&E Installers

11

Shade Install

Shade Installers

12

Commissioning

Low Voltage



HAPPENING AT THE
SAME TIME

01 Pre Design

02 Design

03 Construction

04 *Operations*



OPERATIONS

IT

Becoming more flexible

- Coordination with networking equipment between data deployment and power deployment
- Incorporate a larger budget to accommodate for smart building troubleshooting needs
- Assess the need to have an onsite team member

- New skills required for maintaining intelligent building features
 - If possible, it's important to include team members in the commissioning process
 - Shift from physical maintenance to digital troubleshooting
 - Networking 101 Skills

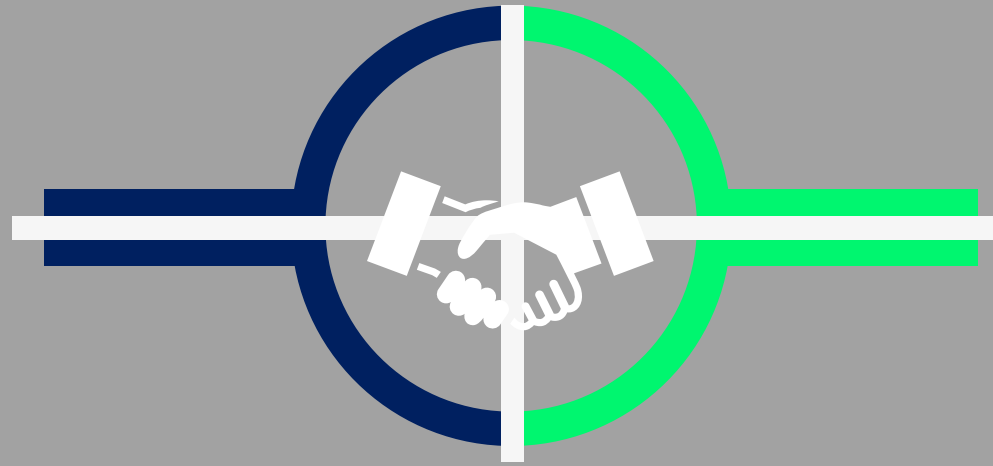
MAINTENANCE

Becoming more technical

WORKING TOGETHER

IT Functions

- IP Addressing/Subnet
- Network Connectivity
- Security Standards

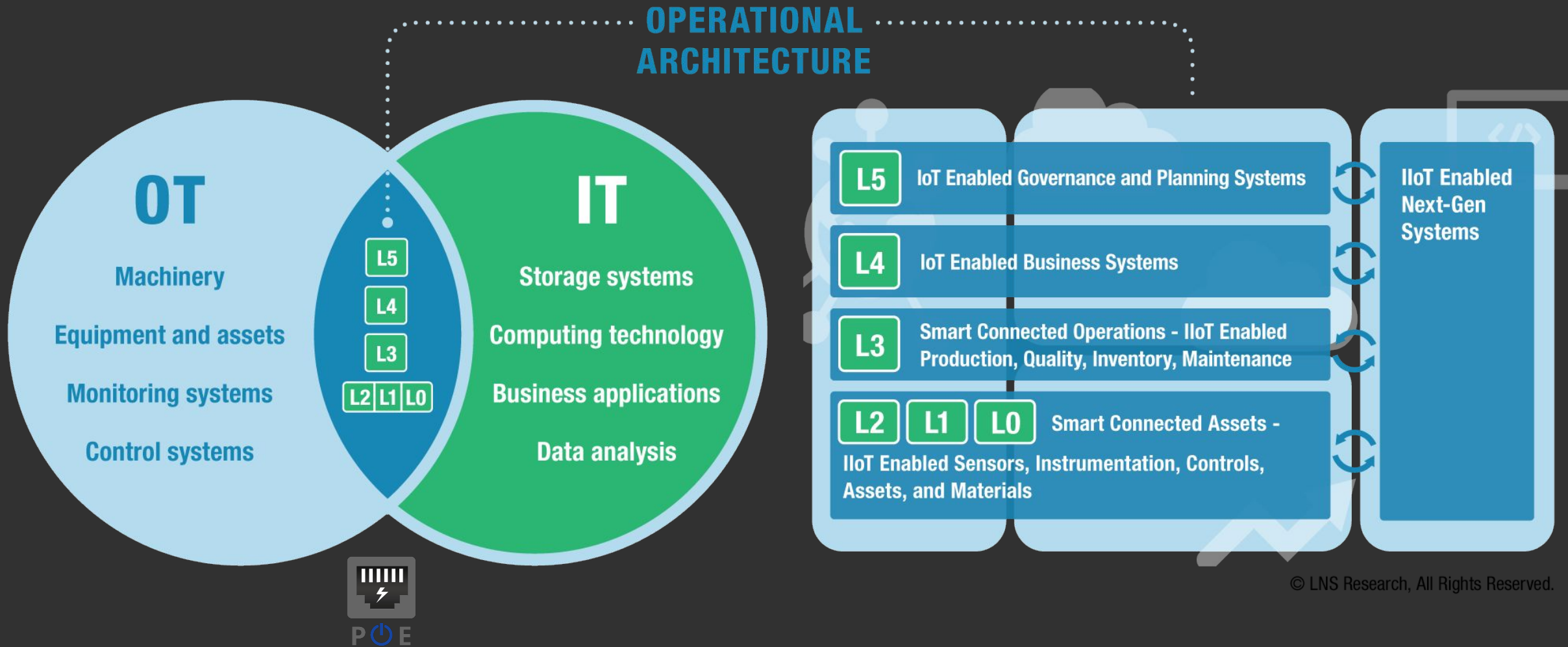


OT Functions

- Ceiling Access (OSHA)
- Contractor Management
- Code/Building Compliance

- The Digital Building is a “Networked Solution”
- Greatest success occurs when IT & OT (Facilities) work closely together
- **Lack of cooperation means one side must make decisions for the other leading to conflict and political problems**

CONVERGENCE MODEL





TAKE AWAYS

- It takes a team to make an intelligent building successful
- Be aware of Code Compliances you need to adhere to
- Everyone needs to be aware of their role and also the roles of the other team members
- Budgets need to be addressed with the changing roles
- IT and OT will be having a convergence

THANK YOU