

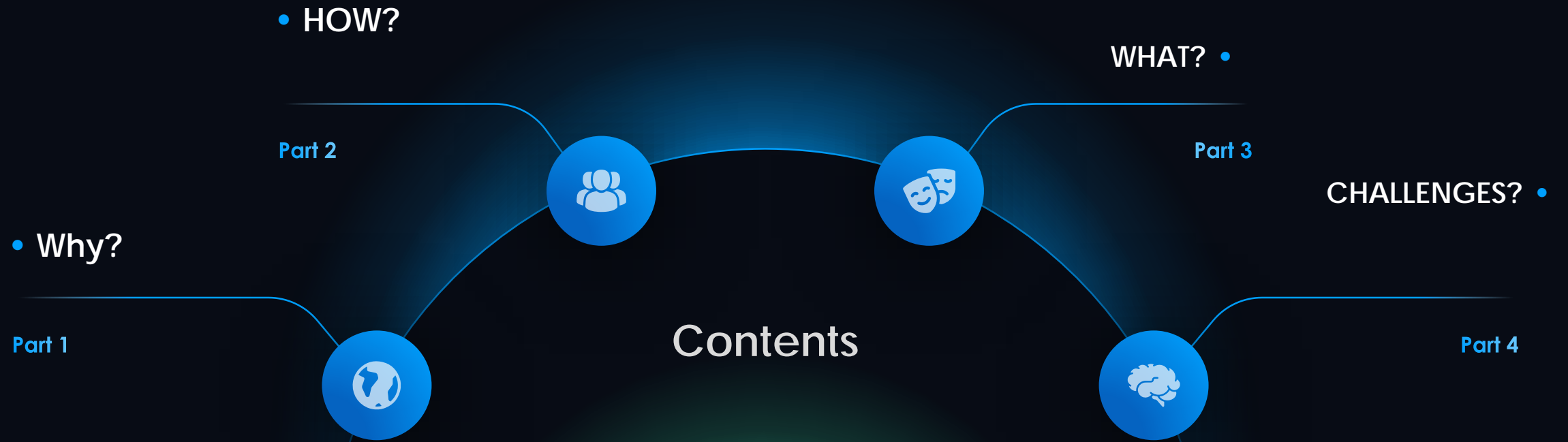


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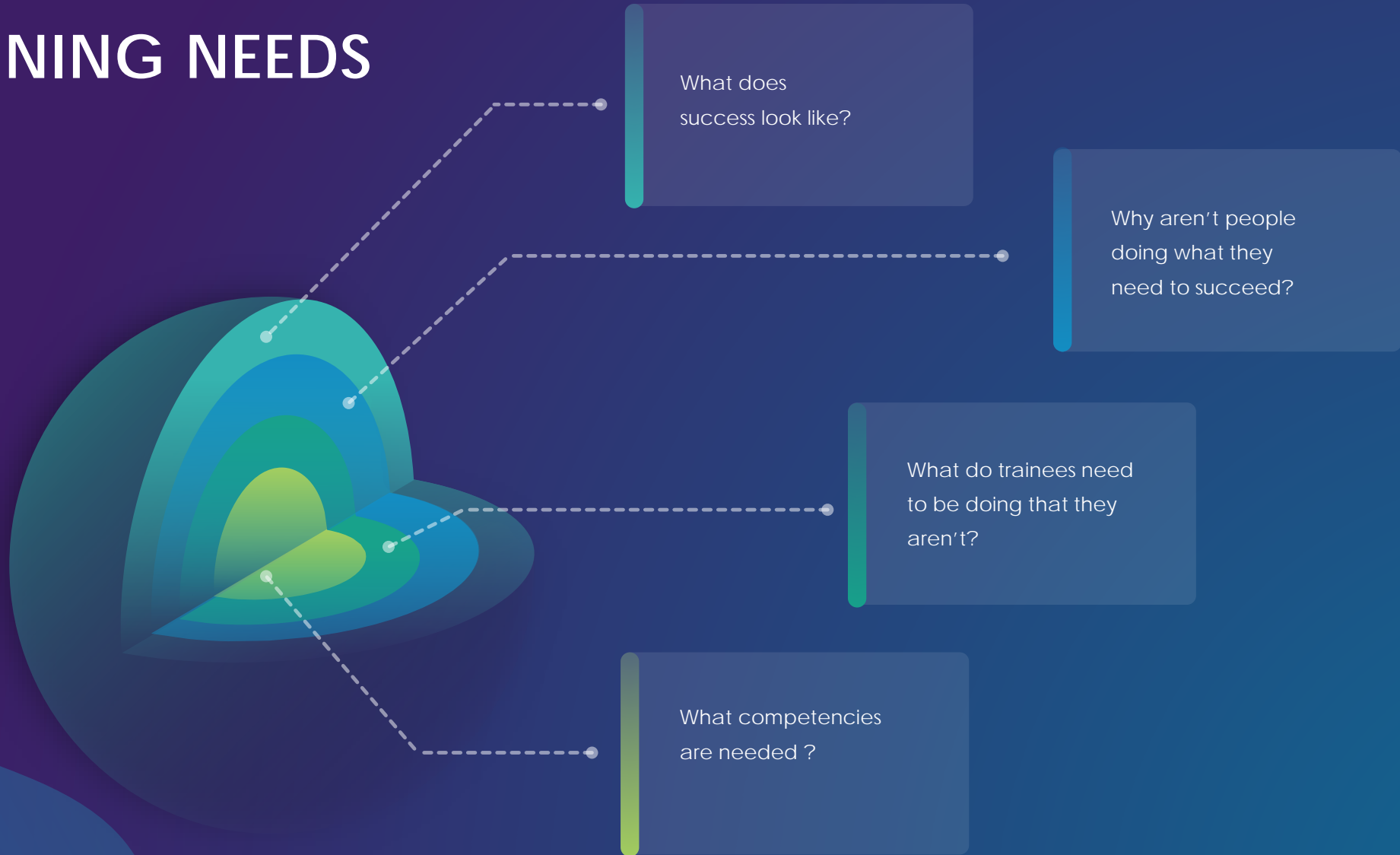


SMART Project





TRAINING NEEDS



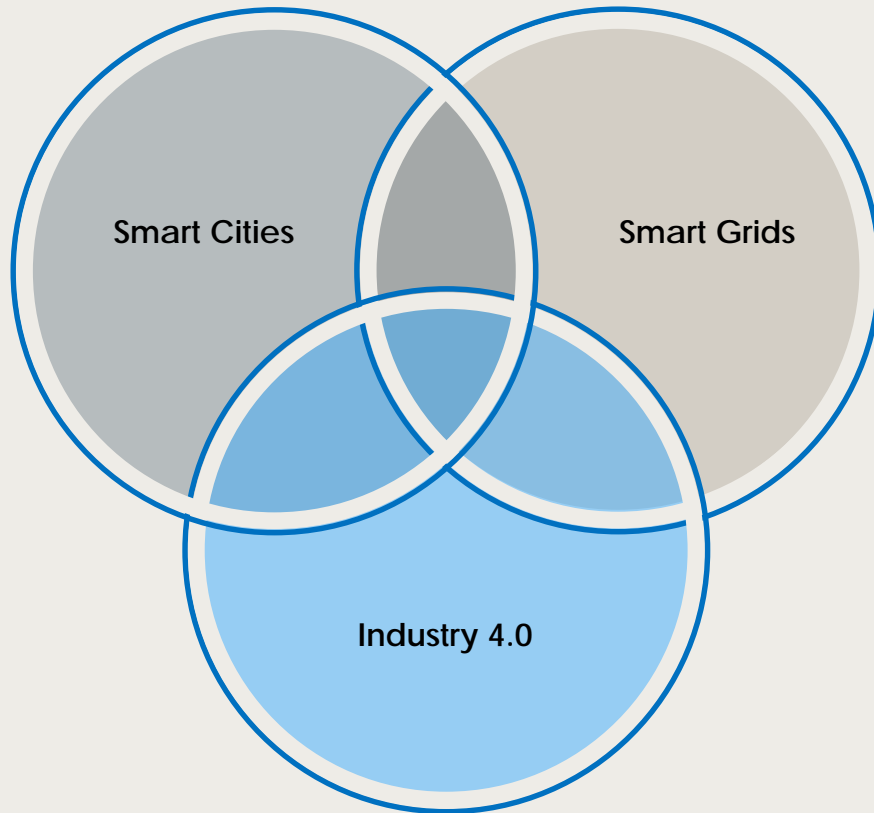
What does success look like?

Why aren't people doing what they need to succeed?

What do trainees need to be doing that they aren't?

What competencies are needed ?

IDENTIFICATION



1

Network Communications

2

Project Management

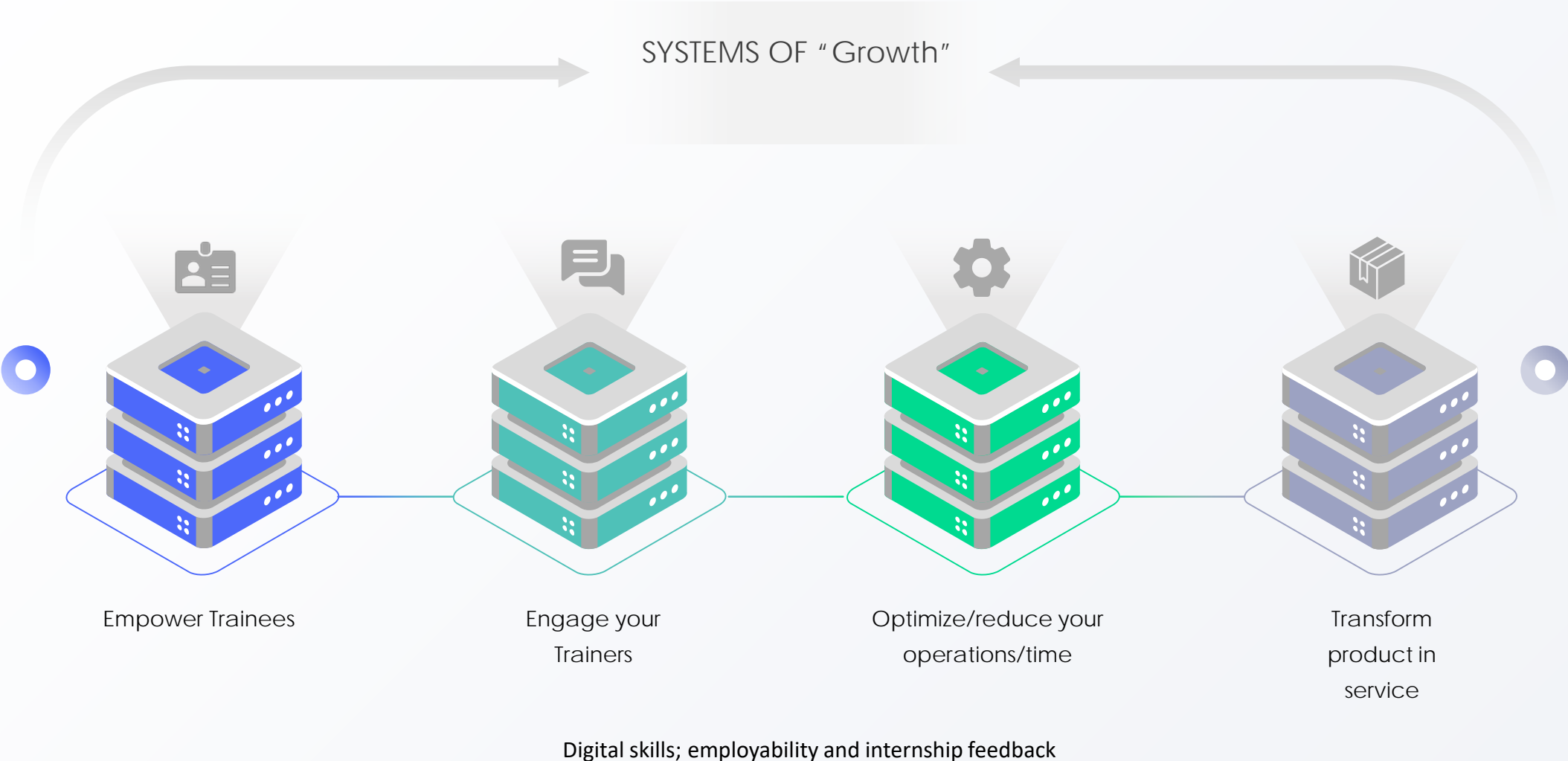
3

Integration Skills

4

Soft Skills

DIGITAL TRANSFORMATION



SMART

- The success of trainees is the company success;
- Digital transformation;
- Trainers;
- Trainees;
- Money;
- Resilience in uncertain times

- Training Center;
- Stakeholders

- Standardization;
- "Project Management";
- Service;
- Change Mindset

- Integration of solutions;
- Create a cycle of development;
- Reduction of time for development new solutions

- Modular ;
- Scalable;
- Integrator;
- Update;
- collaborative

PURPOSE

VALUES

PROCESS

PRODUCT/SERVICE

INFRASTRUCTURE

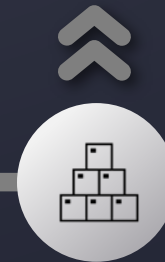
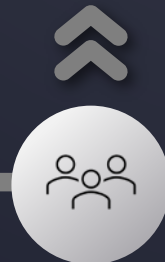
WHY

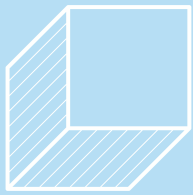
WHO

HOW

WHAT

WHEN/WHERE





SMART



Vision

Build the future, living the process, reducing execution times and providing the development of all involved in a sustainable way



Who?

Multidisciplinary with support from management



Mandela "et al":

- Everybody wants to go to heaven, but nobody wants to die!
- Dreams without goals are just dreams!
- Dreams without action are the fuel of disappointment;
- Action without vision is only passing time, vision without action is merely day dreaming, but vision with action can change the world



Goal

Training is a partner in the sustainable development of society;
Ability to create and develop circular knowledge in order to develop society



Principles

- From trainees to trainees;
- Work with the companies;
- Challenge trainers



Principles

- Modular;
- Hands on;
- Scalable;
- Integrator;
- Update;
- collaborative



Principles

- Intrapreneurship;
- Internacional;
- Service;
- Standard;
- credible



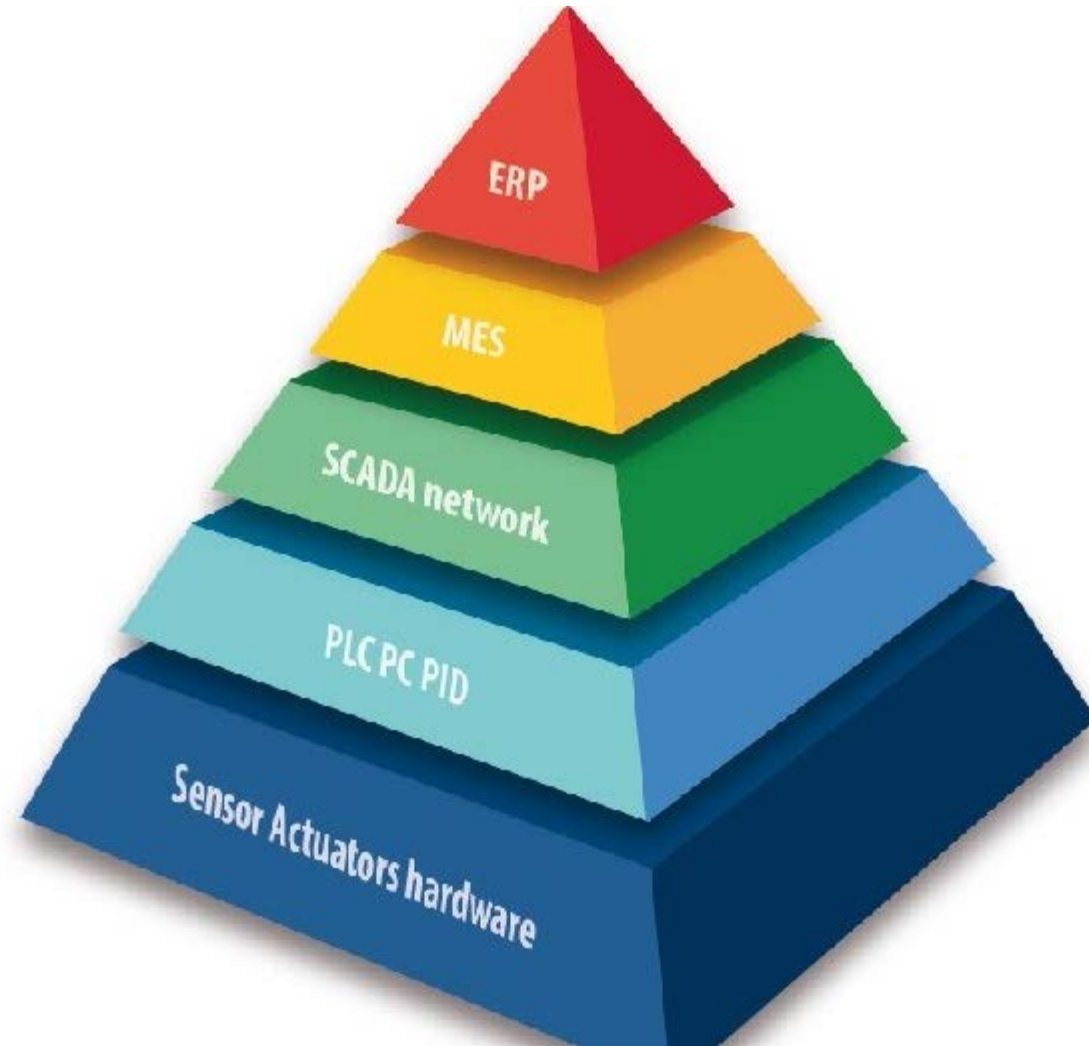
Principles

- Resilient to the past and the future
- Purpose of belonging
- Adaptive;
- Bigger Than Us;
- Living organism

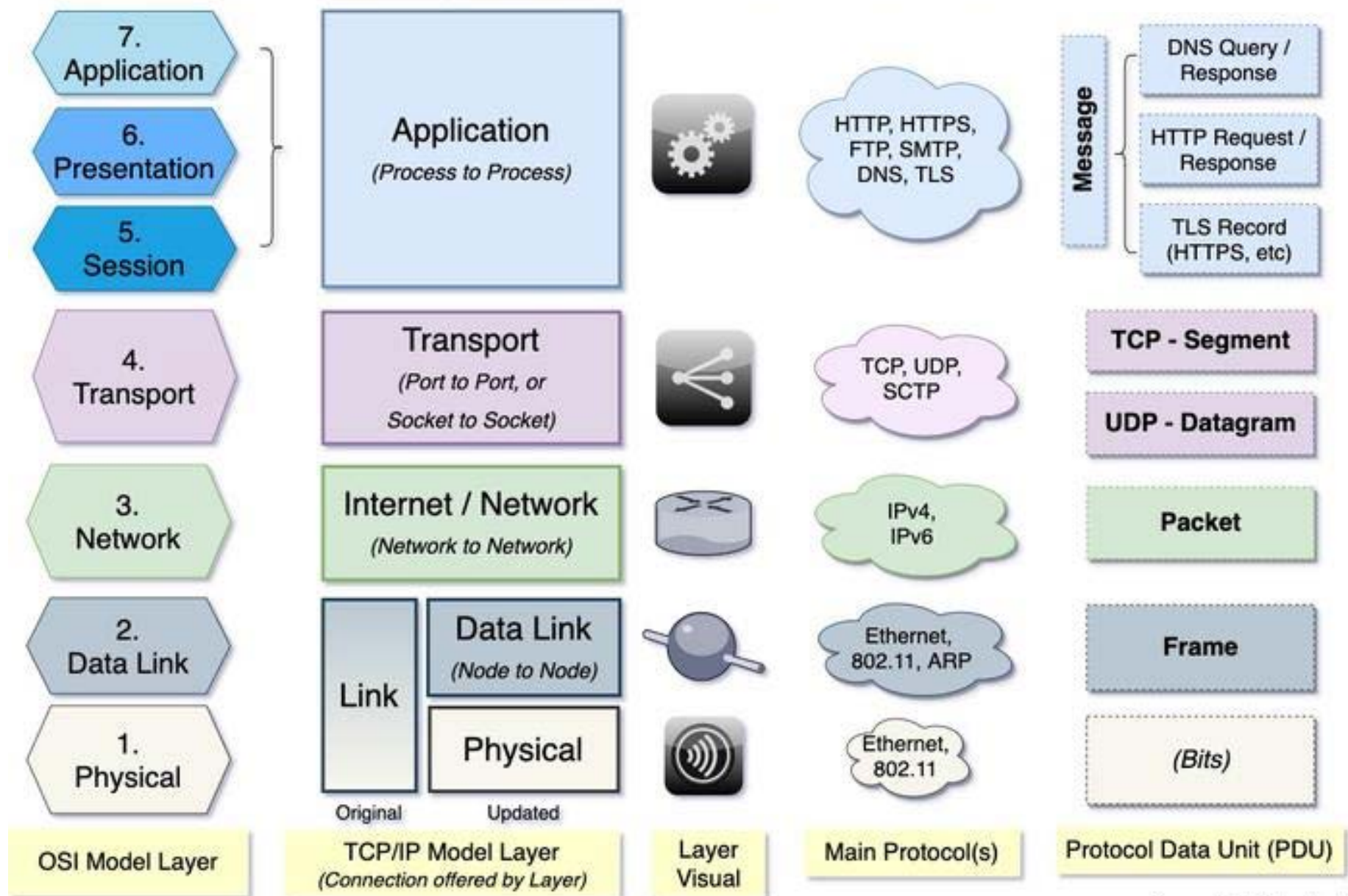
Strategy?



Automation system pyramid



The Internet Layers: Overview of the OSI and TCP/IP Models



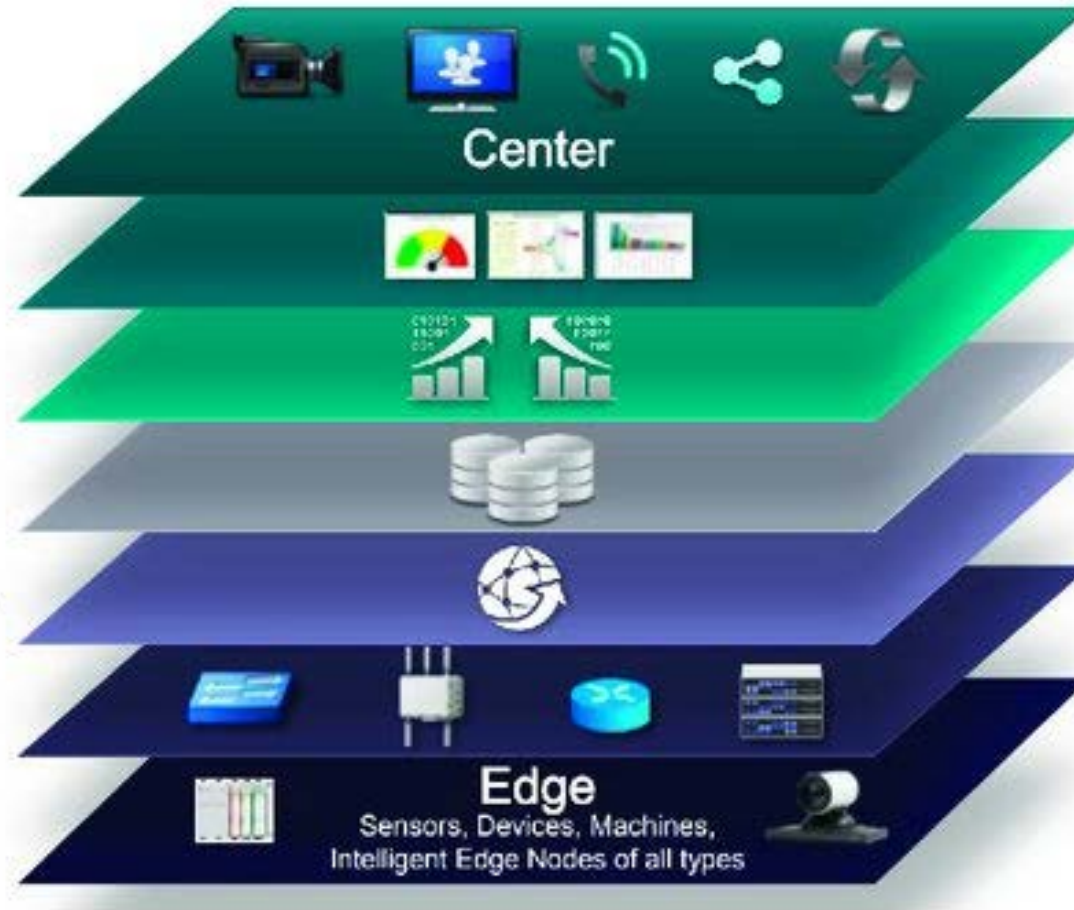
Digital transformation



IoT Layers

Levels

- 7 **Collaboration & Processes**
(Involving People & Business Processes)
- 6 **Application**
(Reporting, Analytics, Control)
- 5 **Data Abstraction**
(Aggregation & Access)
- 4 **Data Accumulation**
(Storage)
- 3 **Edge Computing**
(Data Element Analysis & Transformation)
- 2 **Connectivity**
(Communication & Processing Units)
- 1 **Physical Devices & Controllers**
(The "Things" in IoT)



Reference Model introduced in 2014 by Cisco, IBM, and Intel at the 2014 IoT World Forum has as many as seven layers.

Source: <https://www.researchgate.net/publication/343035783/figure/fig1/AS:915447394361345@1595271075421/IoT-World-Forum-Reference-Model-22.png>



CPS 5C level architecture

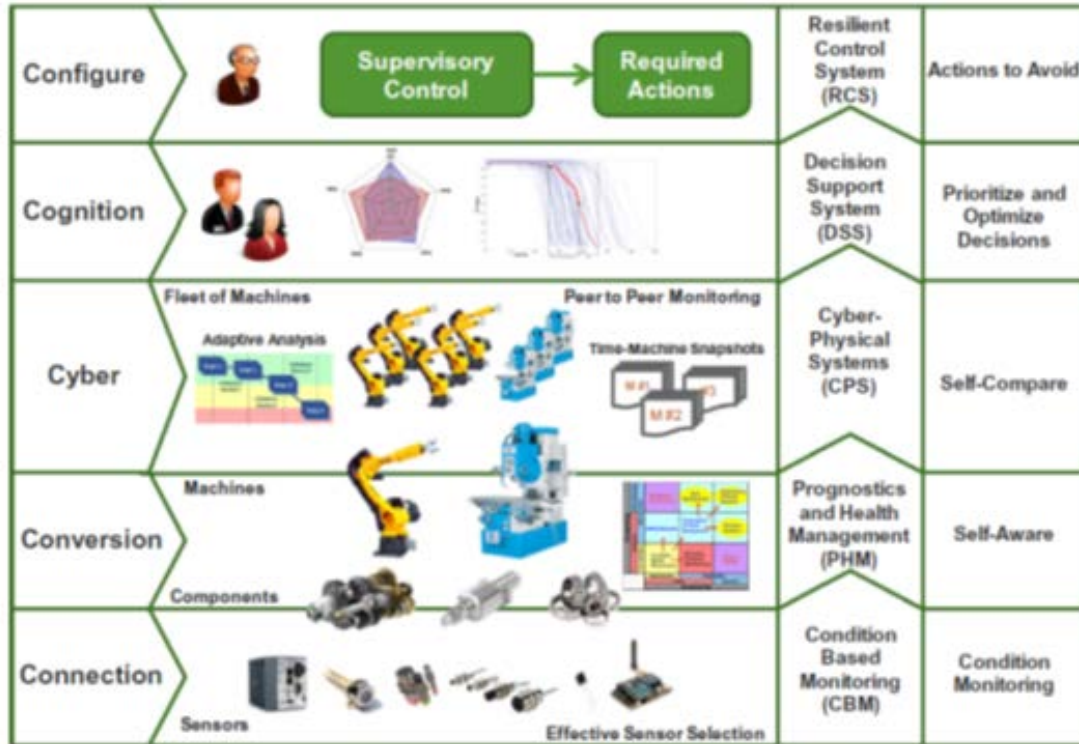
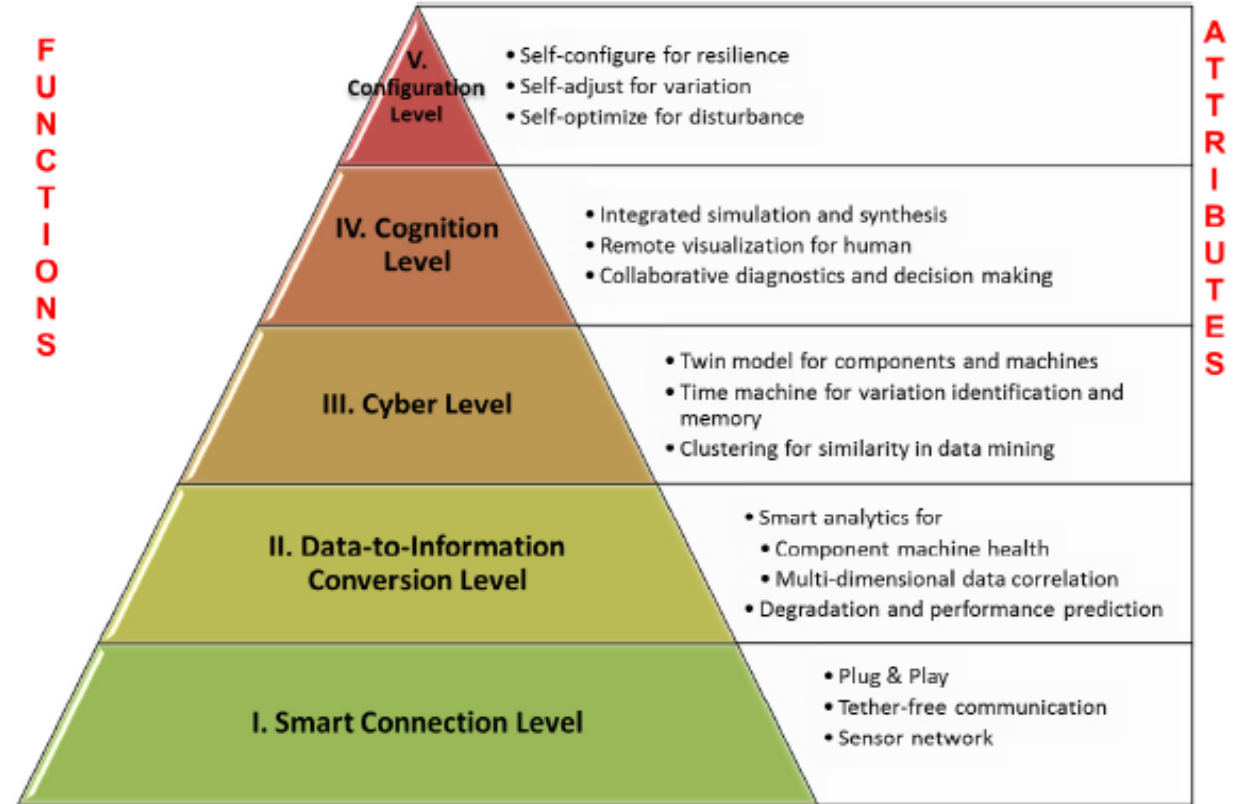
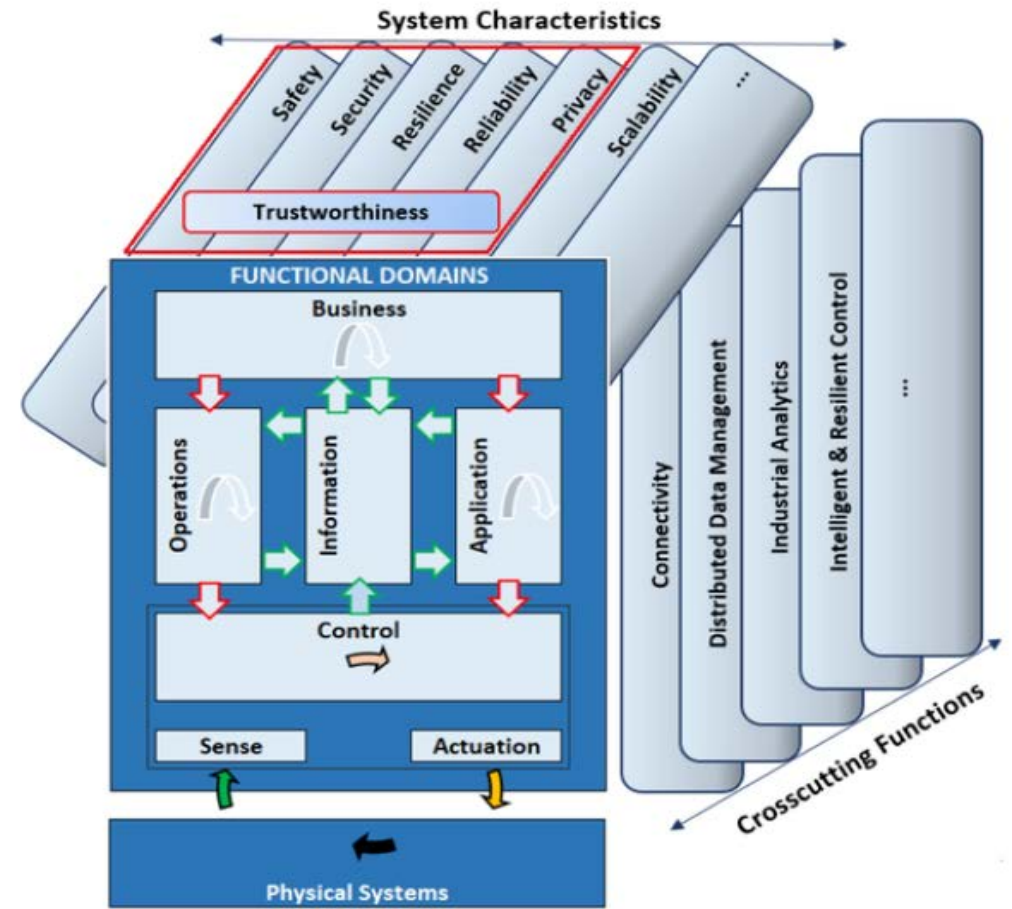
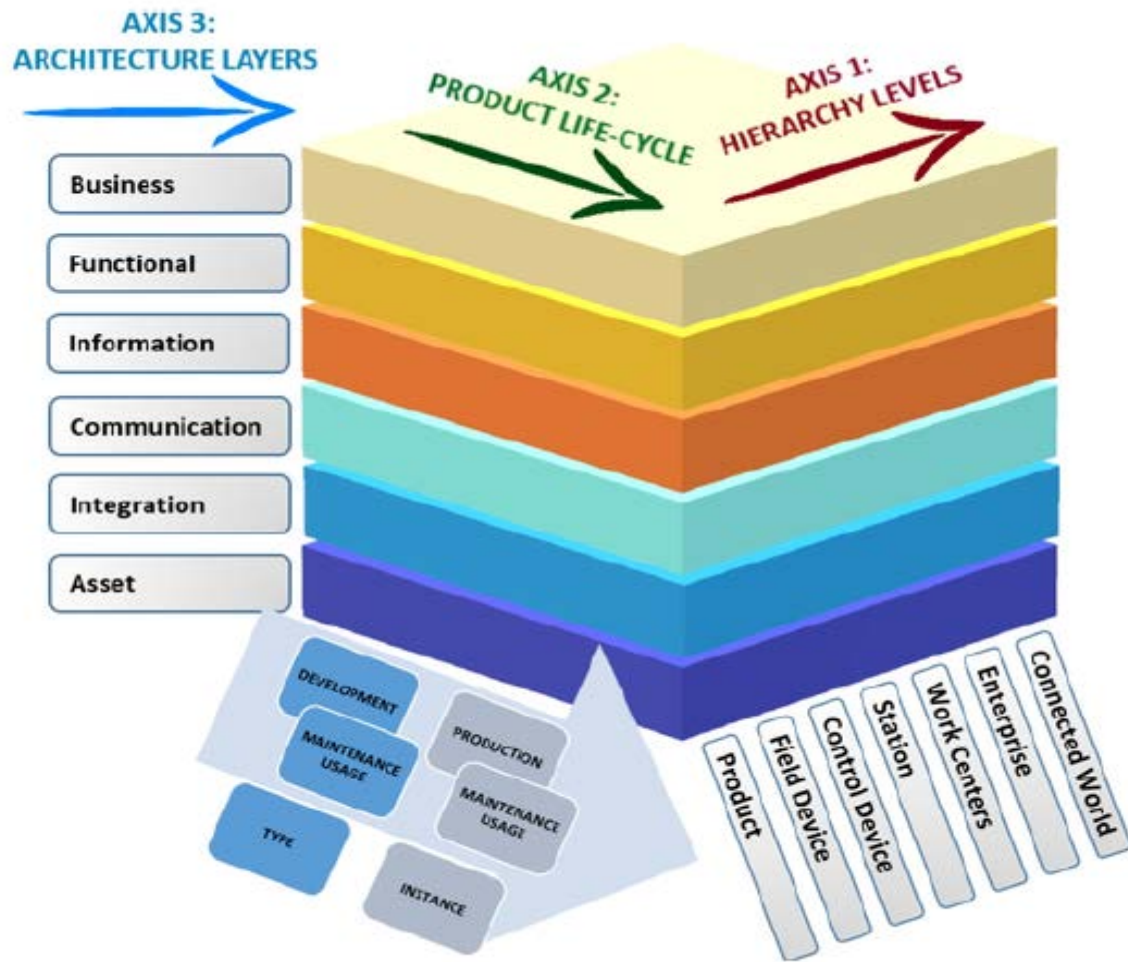


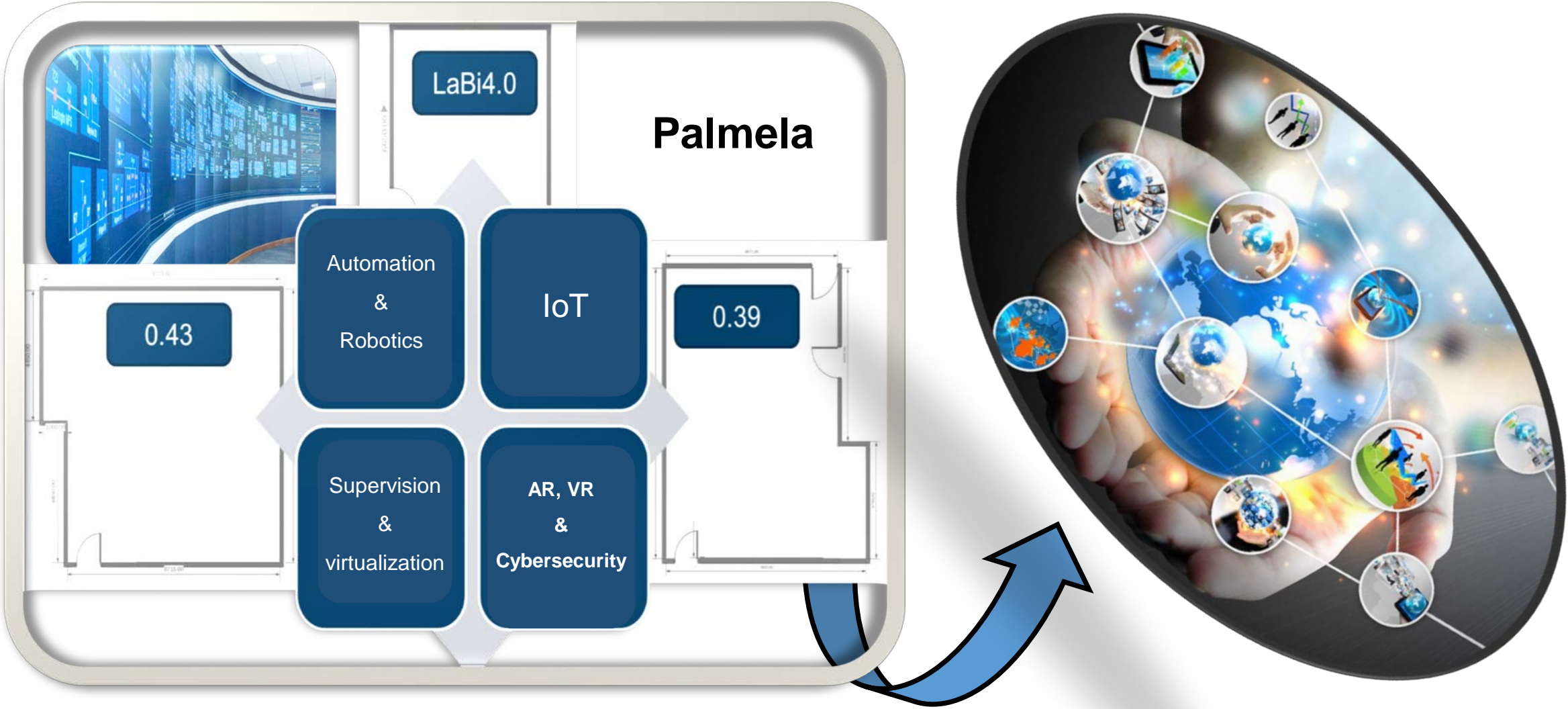
Fig. 2. Applications and techniques associated with each level of the 5C architecture.



RAMI & IIRA Model

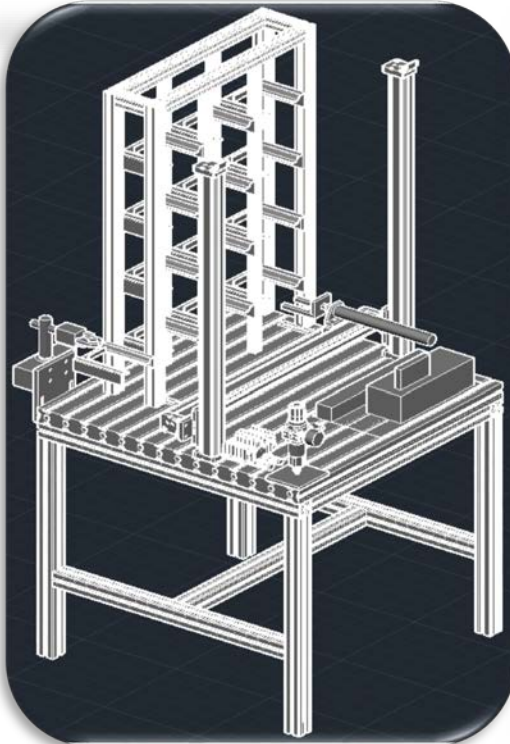


Physical Layer

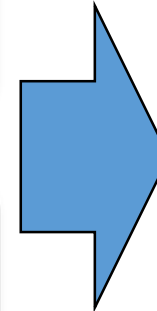
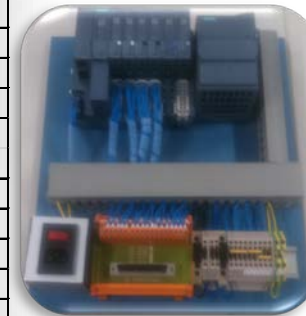


Physical Layer

Equipments



Pos.	Description	Reference	Manufacturer	Quantities
1	Line	FR-20-40-600	http://www.vetter-band.de/klein	1
2	Parallel connectors N8	3842542737	www.boschrexroth.com	3
3	Profilcovers 40x40, black, Bos	3842548747	www.boschrexroth.com	1
4	Profilcovers 40x40, black, Item	0.0.370.13	www.product.item24.de	30
5	Set screw M8x40	A9149400080040	www.potsdamer-schrauben.de	1
6	Allenkey Screw M6x35	A47628000060035	www.potsdamer-schrauben.de	1
7	Allenkey Screw M6x10	A47628009060010	www.potsdamer-schrauben.de	1
8	Allenkey Screw M5x10	A9129409050010	www.potsdamer-schrauben.de	1
9	Allenkey Screw M6x16	A47628009060016	www.potsdamer-schrauben.de	1
10	Disc 5,3mm	A1250119053000	www.potsdamer-schrauben.de	1
11	Disc 6,4mm	A1250119064000	www.potsdamer-schrauben.de	1
12	Hex nut M5	A9858109050000	www.potsdamer-schrauben.de	1
13	Hex nut M6	A9851109060000	www.potsdamer-schrauben.de	1
14	T-Slot Nut F 8 St M6	0.0.613.19	www.product.item24.de	30
15	T-Slot Nut F 8 St M5	0.0.613.20	www.product.item24.de	10
16	T-Slot Nut 6 St M6	0.0.439.75	www.product.item24.de	10
17	Profilcovers 30x30, black, Item	0.0.419.22	www.product.item24.de	6
18	Item Profile 30x30x1000	0.0.419.06 length=10	www.product.item24.de	1
19	Cylinder	DSNU-20-60-PPV-A-MH-Q	Festo	1
20	Cylinder Part	GRLA-1/8-QS-4-D	Festo	2
21	Valve	VTUG-10-SK7-S1T-Q6R-UR-C	Festo	1
22	Service unit with on/off val	152894	www.festo-didactic.com	1
23	Item Angel 40x40 45 Degree	0.0.665.53	www.product.item24.de	20
24	Sunkcrew for Angel M8x14	0.0.680.96	www.product.item24.de	40



Trainer:

- Examples
- Equipment List;
- Schemes;
- Layouts;
- Equipment datasheets

Trainee:

- Examples;
- Equipment List;
- Schemes;
- Layouts;
- Equipment datasheets

Software

- **Manuals:** Onenote;
- **Presentations:** Powerpoint online
- **Video and Screen Capture :**
 - SCREENCASTIY;
 - Edpuzzle;

Network Simulator :

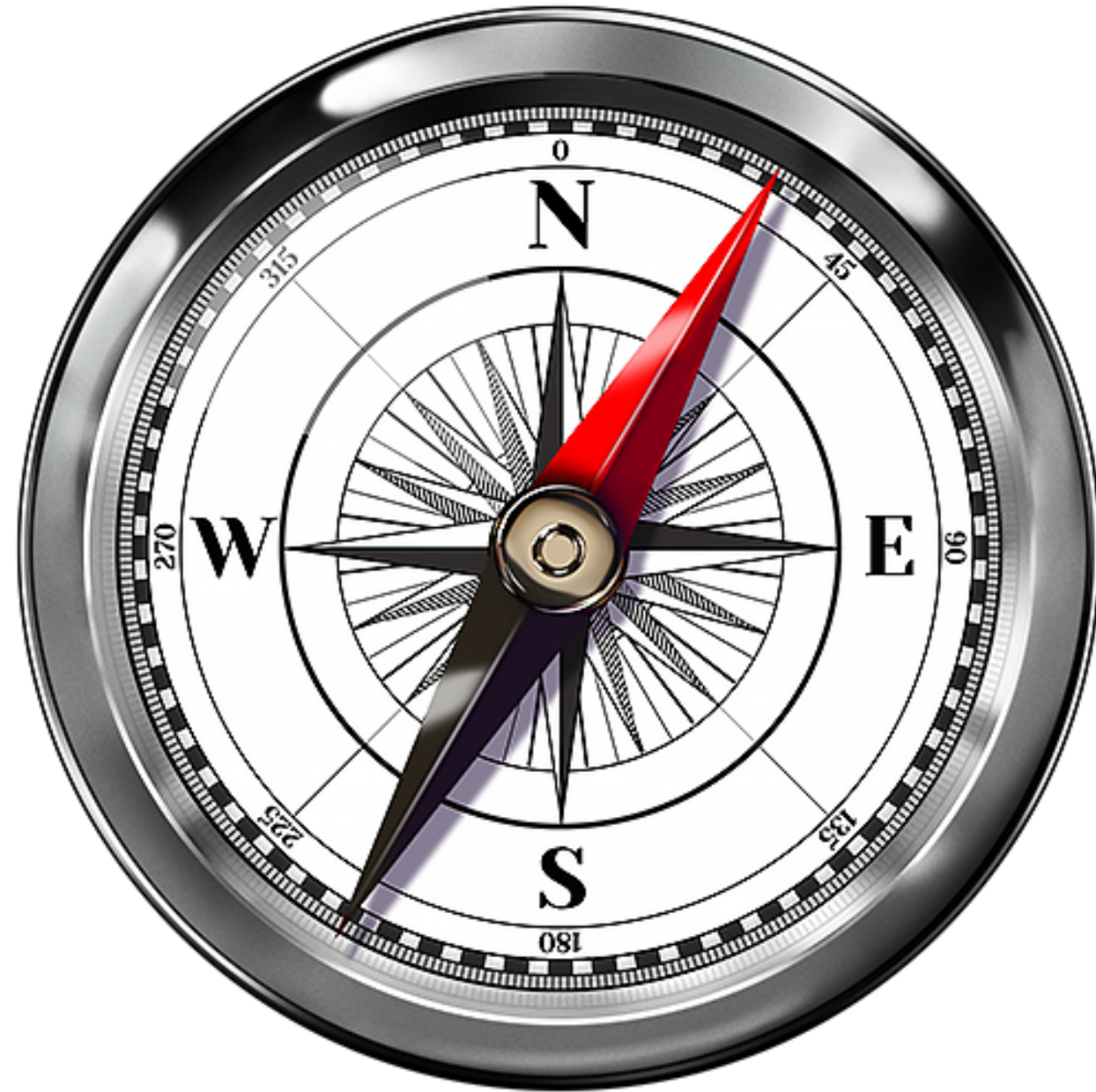
- GNS3 Free Network Emulator Tool

Software:

- Python;
- Node-Red;
- C

Communications:

- Profinet;
- Profibus;
- MQTT;
- IO Link;
- KNX



“Systems Integrator”

1560 -----1910h

Designation	workload (hours)
Industrial Automation Level 1	50
Industrial Automation Level 2	50
Robotics 1	50
Robotics 2	25
Industrial Networks	50
IoT Architectures Level 1	50
IoT Architectures Level 2	50
SCADA Systems	50
Smart measurement and instrumentation 1	50
Smart measurement and instrumentation 2	50
Smart measurement and instrumentation 3	50
Smart measurement and instrumentation 4	50

“Field” – Layer 1 & 2 – **875h**

Designation	workload (hours)
Introduction to Databases	25
Programming Processes and Solutions	50
Programação em C/Pyhton	50
Database Solutions	25
Networks	50
Cloud Computing	50
Introduction to Cybersecurity	50

Designation	workload (hours)
Complex project management	25
LEAN Six Sigma	25
Resilience, critical thinking, problem solving	25
Emotional Intelligence & Teamwork	25
Sustainability and economy	25
Conflict Management	25
Data Management	25

“ IoT” – **175h**

Designation	workload (hours)
Augmented Reality	25
Project IoT Layer 1	50
Project IoT Layer 2	50
Project IoT Layer 3	50
Project IoT Layer 4	50
Internship	560

Layer 3 & 4 – **785 h**

1760 h






Questions?

Presentation Templates : <https://youexec.com/>