



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35.

An Autonomous Institution

COURSE NAME : Internet of Things

III YEAR/ V SEMESTER

UNIT – I INTRODUCTION

Topic: *Definitions & Frameworks*

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IOT Definitions & Frameworks



Physical consumer products (meta products) connect to the web and start communicating with each other by means of sensors and actuators

View A: IoT is just a concept (conceptual aspects of definition): the IoT does not refer to a network infrastructure; the IoT is not a technical term but a concept (or a phenomenon).

View B: IoT is an infrastructure: The IoT refers to an infrastructure.



ITU-T Views

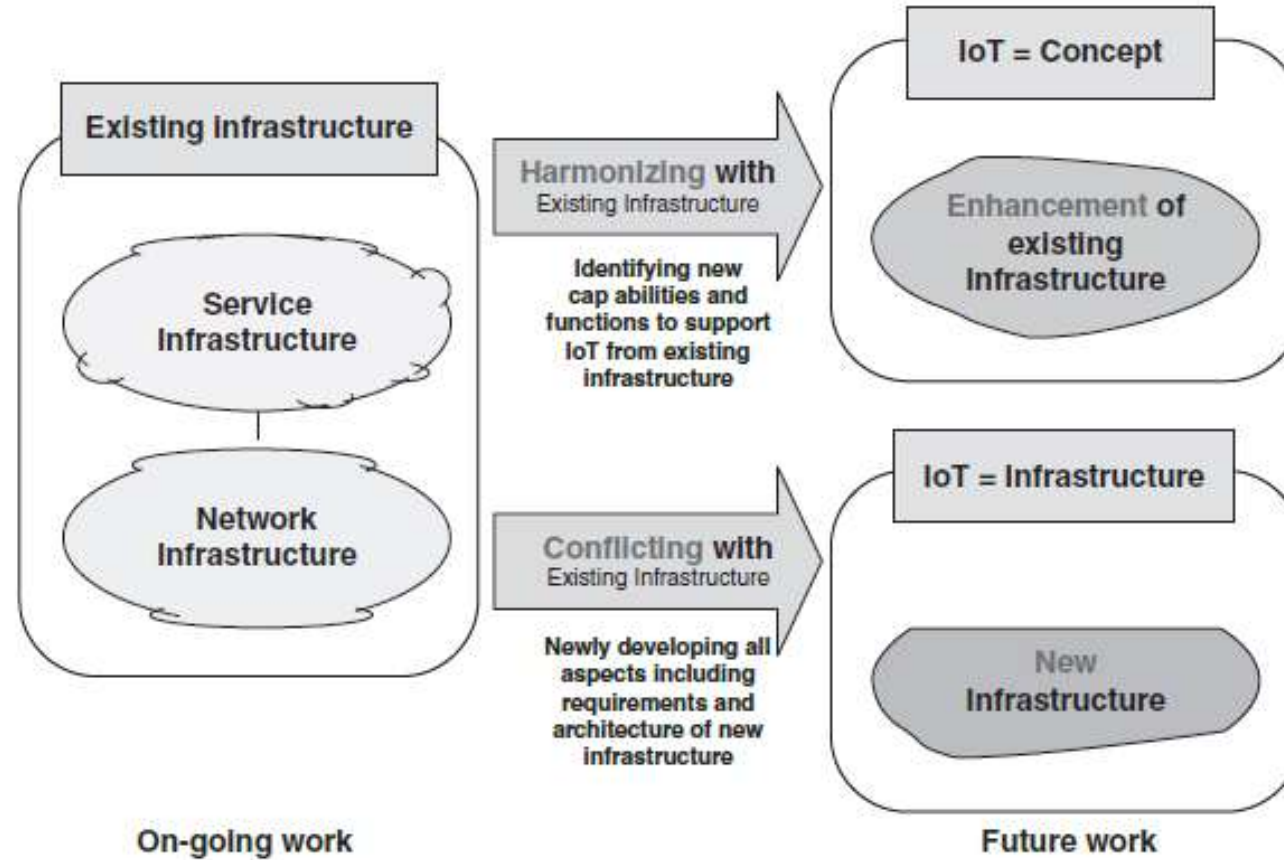


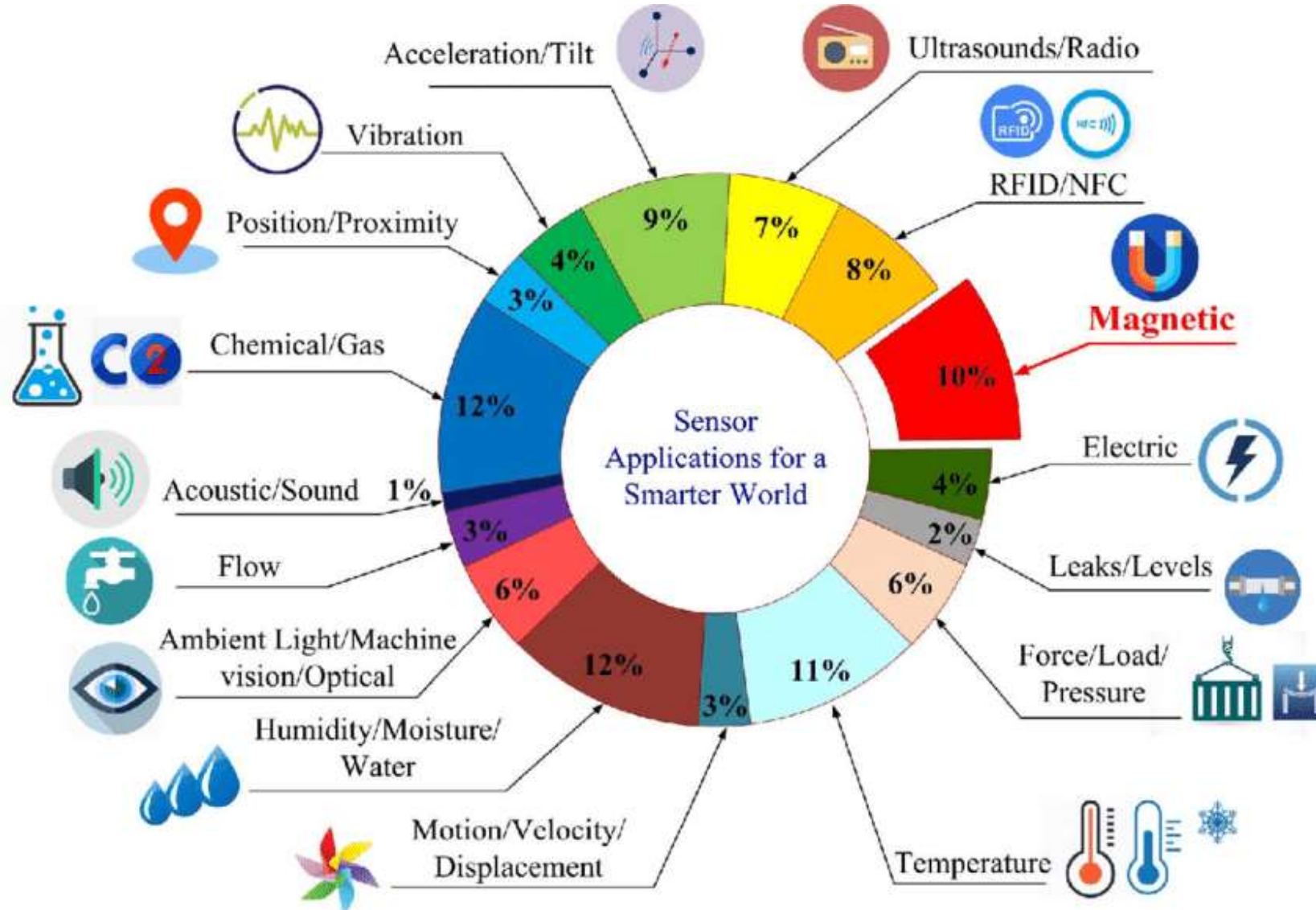
FIGURE 2.1 Direction for standardization according to IoT definition.



SENSORS



Definition: *Sensors are active devices that measure some variable of the natural or man-made environment (e.g., a building, an assembly line, an industrial assemblage supporting a process).*





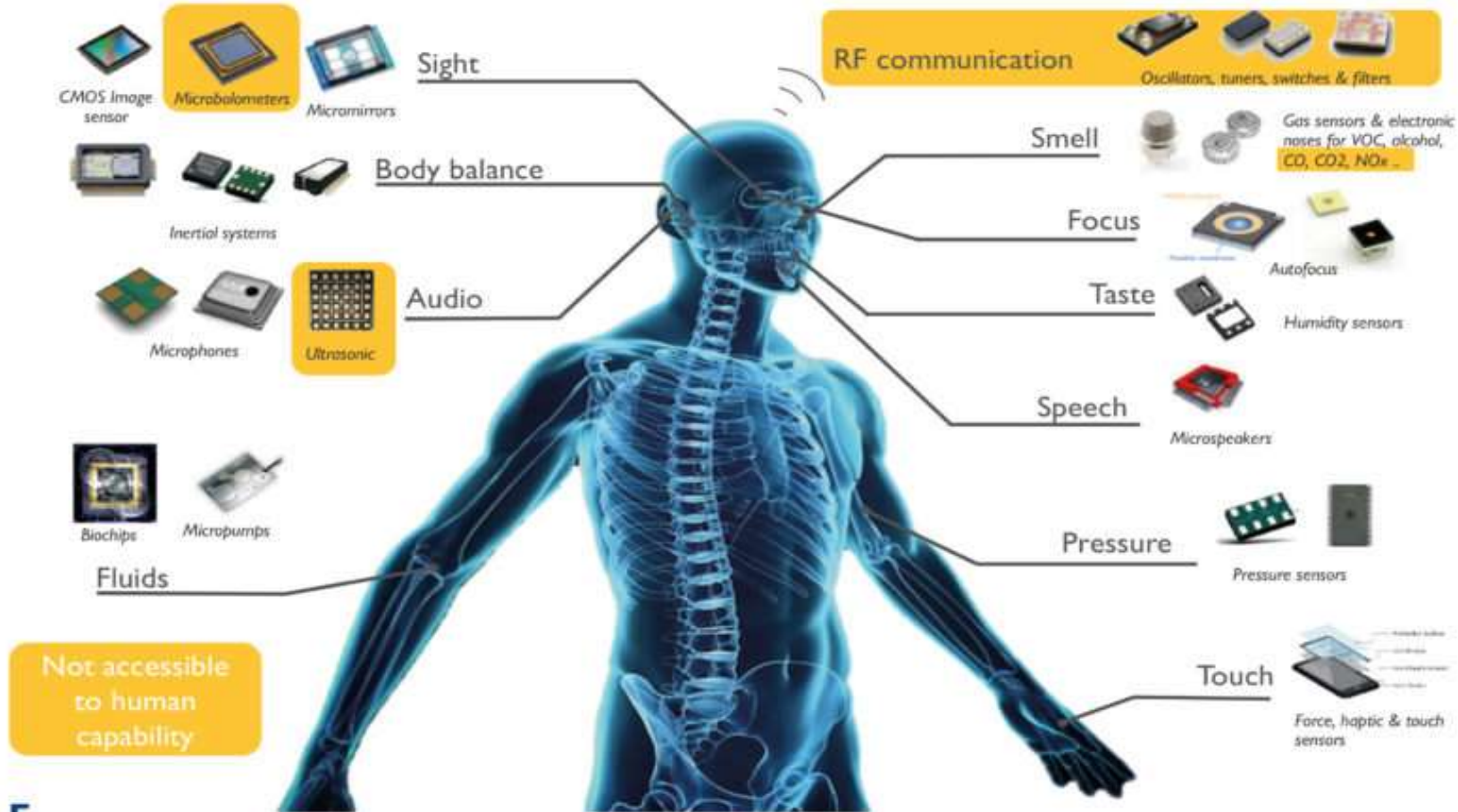
Different Types of Sensors





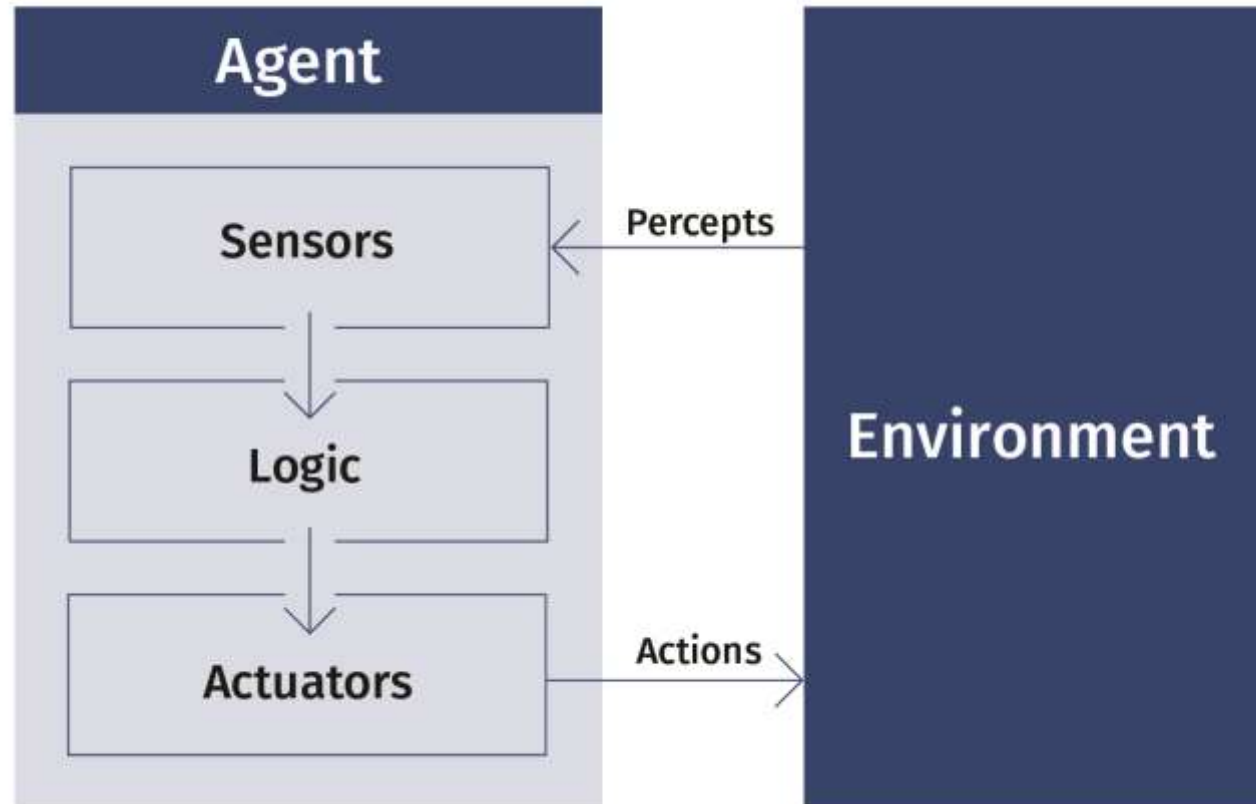
MEMS sensors & actuators: the 5 senses and many more

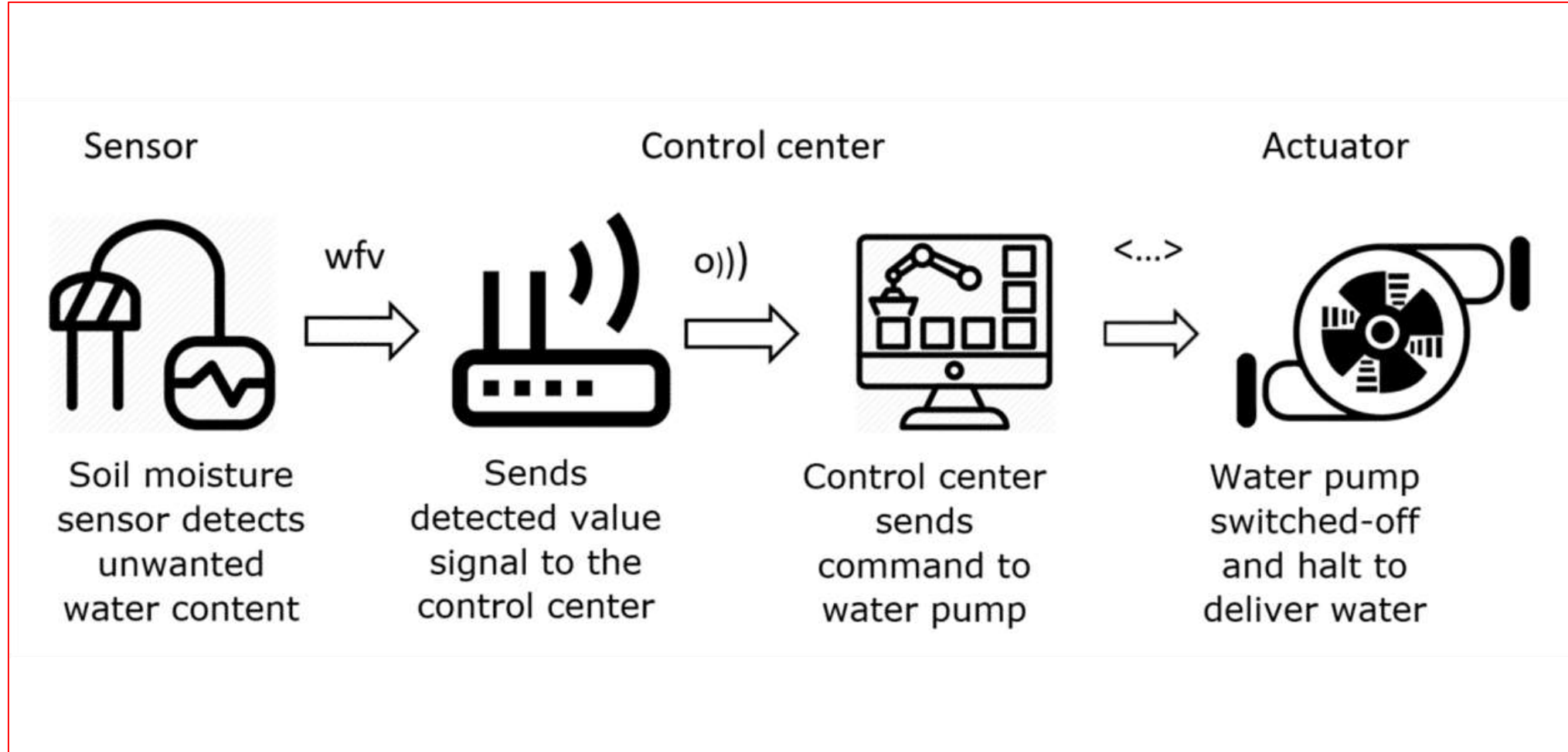
(Source: Status of the MEMS Industry report, Yole Développement, 2019)





Definition: *An actuator is a mechanized device of various sizes (from ultra-small to very large) that accomplishes a specified physical action, for example, controlling a mechanism or system, opening or closing a valve, starting some kind of rotary or linear motion, or initiating physical locomotion. An actuator is the mechanism by which an entity acts upon an environment.*







Object Characteristics

have the ability to sense and/or actuate
are generally small (but not always)
have limited computing capabilities (but not always)
are energy/power limited
are connected to the physical world
sometimes have intermittent connectivity
are mobile (but not always)
of interest to people
managed by devices, not people (but not always)

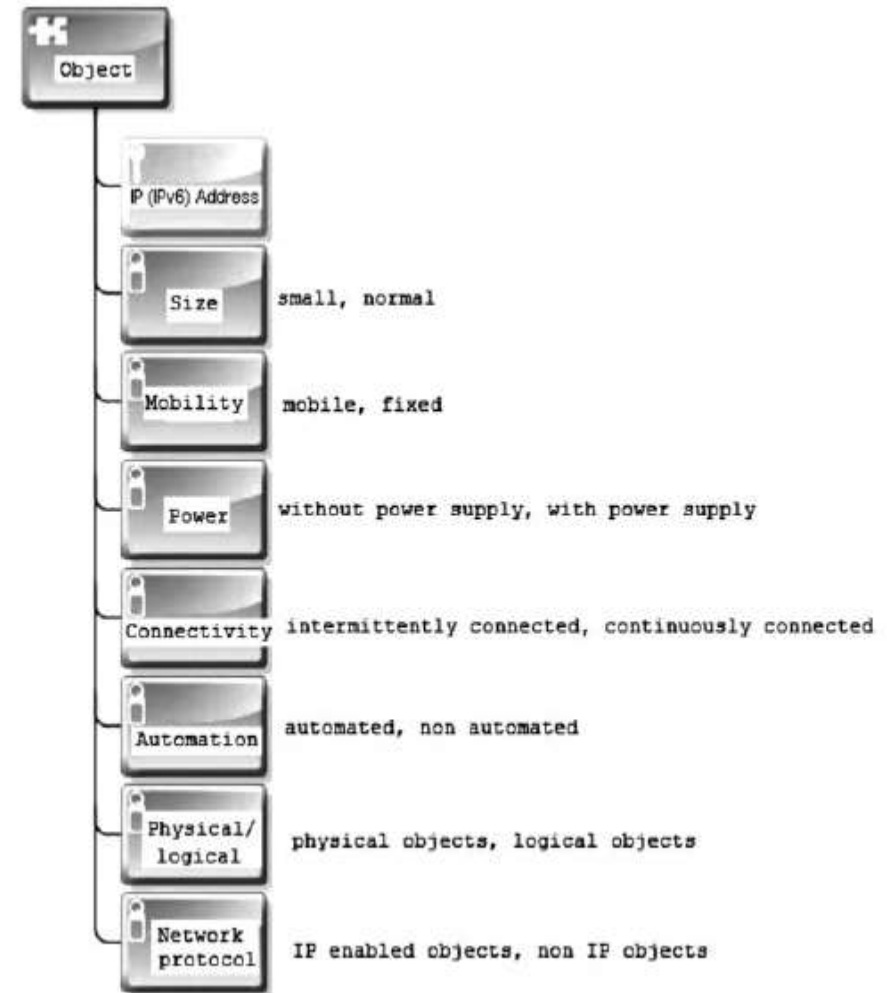


FIGURE 2.2 Object classification.

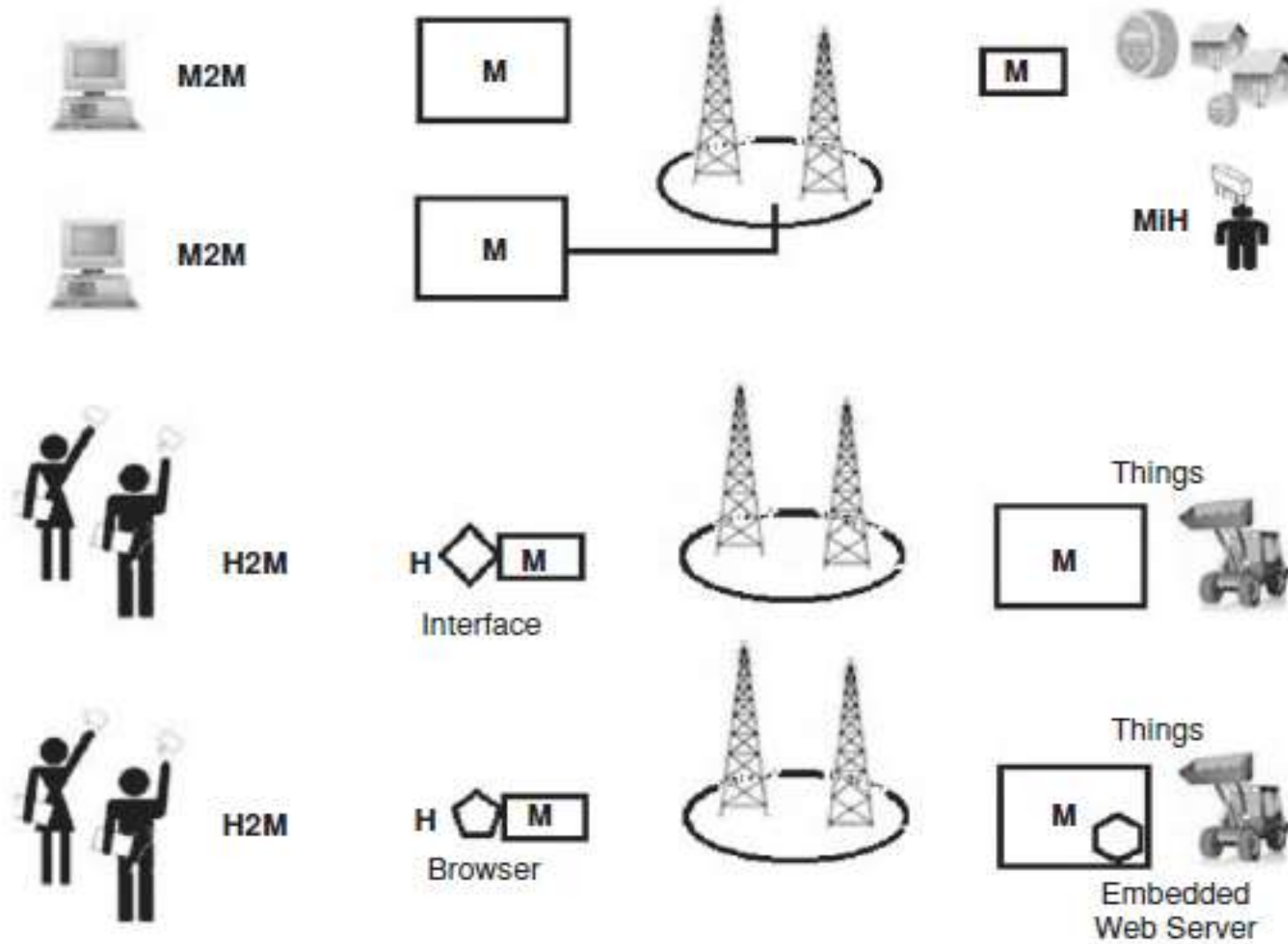


FIGURE 2.4 Classes of generic IoT arrangements.

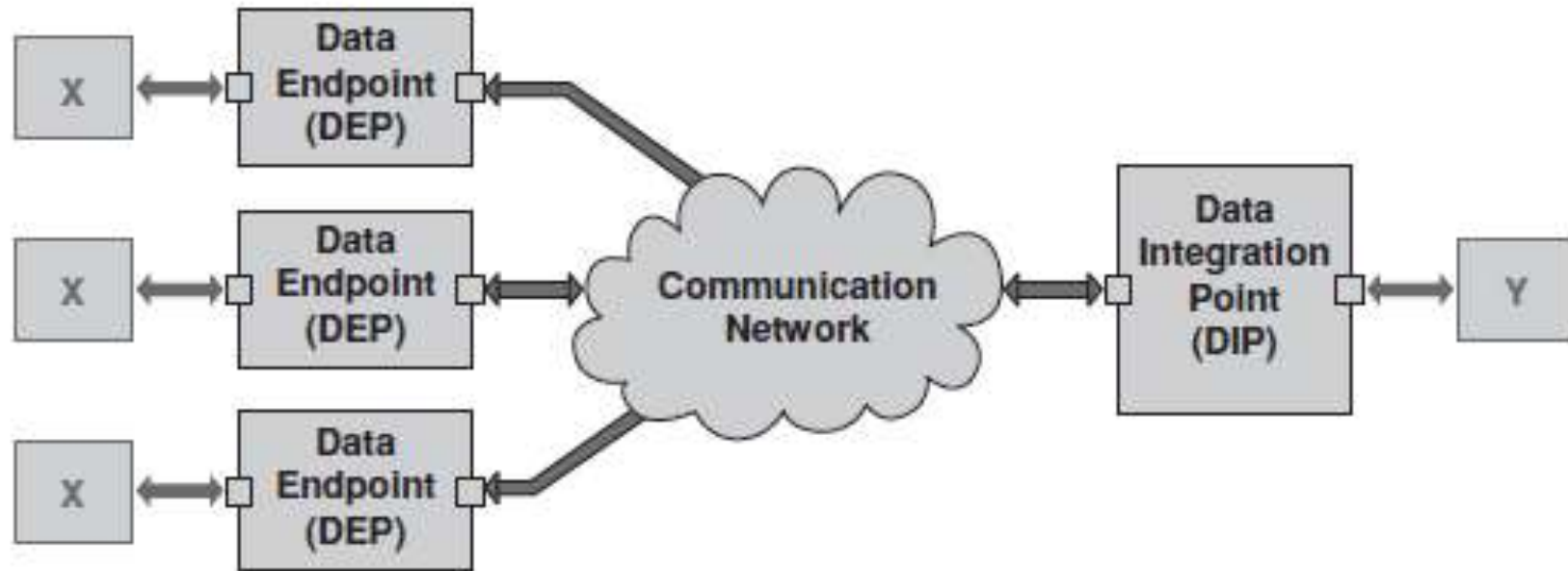


FIGURE 2.5 Basic elements of an M2M application.

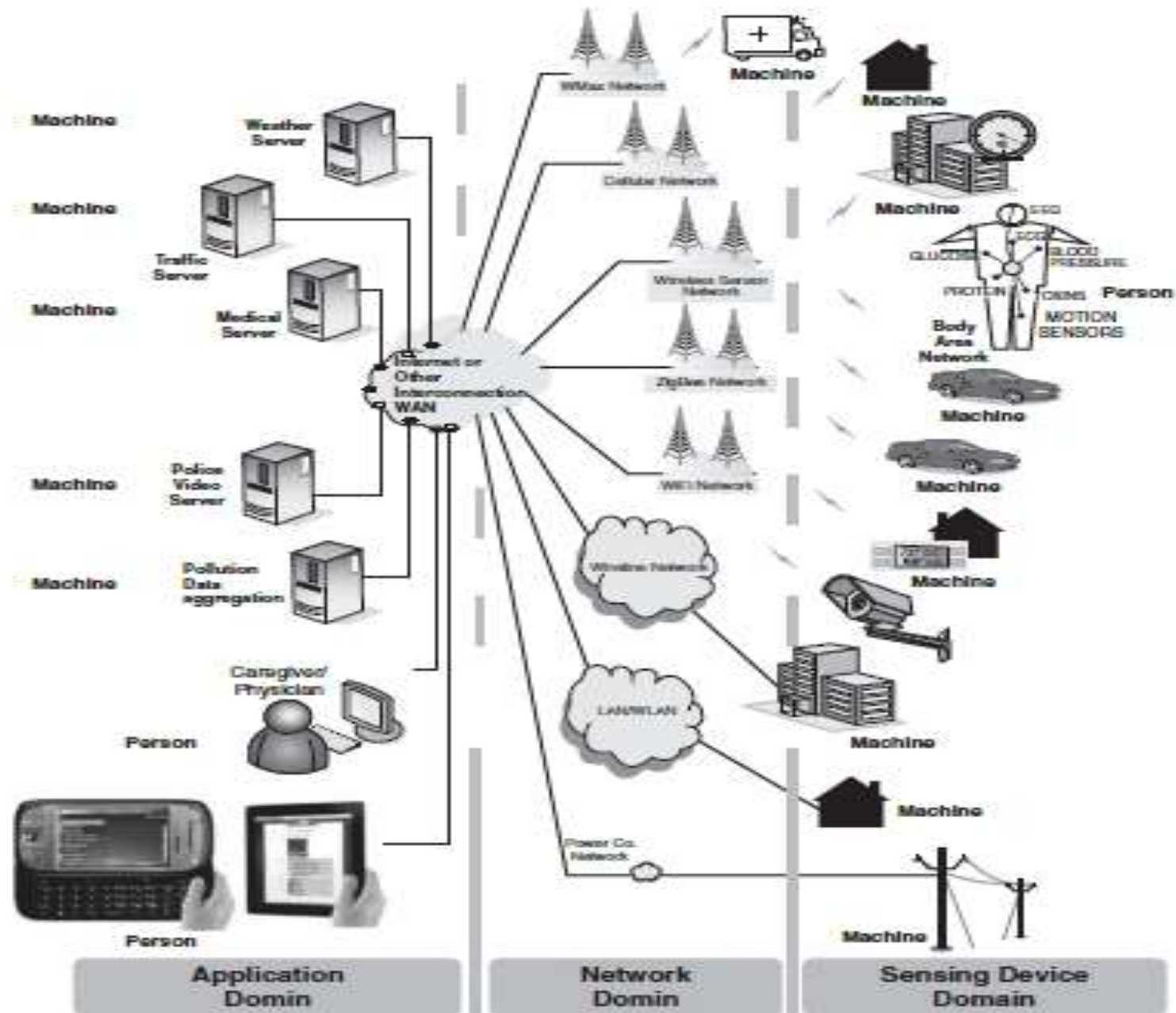


FIGURE 2.6 M2M domains.



References :

1. Daniel Minoli, Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications, Wiley Publications, First Edition, 2013. (UNIT I-IV)
2. Arsheep Bahga , Vijay Madisetti , Internet of Things: A Hands-On Approach, Universities Press, First Edition , 2014.(UNIT I & V)

