

Computer-aided Facilities Management (CAFM) for Assisted Smart and Sustainable Homes

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I. Introduction

- ❑ **Computer aided facilities management (CAFM) systems are increasingly being utilised in facilities management.**
- ❑ **CAFM systems are becoming synonymous with the concept of intelligent buildings (IB) which generally use a centralised monitoring and control system for building services.**
- ❑ **Facilities Management Systems, are types of Information Technology systems (IT) providing the buildings, and more specifically designed Intelligent Buildings Management Systems (IBMS), with management system.**
- ❑ **The incorporation of intelligence by IT is making the facilities management much more innovative but challenging than the conventional FM.**

I. Introduction

Computer-Aided Facilities Management (CAFM) are tools for organising and managing various activities within the facilities assets such as;

- **client contract whereby the client is aware of the equipment, locations and services catered for;**
- **material, stock, purchases and equipment replaced for repairs;**
- **procurement, the subcontractors service and management;**
- **service, the services rendered in accordance to service level agreement and other reactive maintenance;**
- **work history carried out on equipment;**
- **and the strategy used to manage the assets with the engineering instructions to do so at a schedule.**

II. CAFM

- **CAFM systems are commonly database oriented systems with knowledge of the building which could integrate with the knowledge based system for predicted control. CAFM systems contribute to the business of facilities management and organisations**
- **Recently advanced CAFM systems have been chosen for their reporting capability**
- **A new wave of intelligent systems began to dominate the office buildings with the introduction of structured cabling.**

The many non-technical impediments to the implementation of integrated systems make it difficult for the implementation of an optimised CAFM system. The factors that have driven an increase in the use of CAFM include the need for: reduced maintenance and logistics costs, improved equipment availability, and protection against failure of mission critical equipment

II. CAFM

- Commercial Systems
 - **Concept2** / FSI Solutions
 - **CAFM Explorer** / FMX Ltd.
 - **Planet** / Qube Global Software
 - **Planon Enterprise Solution** / Planon Ltd
 - **CAFM Solution** / Abintra
 - **Riuska** / TBA

All offer space management solutions alongside other FM systems including IBMS.

III. CAFM for Homes

- Aging population
- Pension crisis
- Flexible working
- High prices of commodities

Systemic solutions for independent living and active ageing through integrating mobile service platforms with context-aware computing devices.



III. CAFM for Homes

Dwellings that use integrated communication systems to monitor and manage the performance of the home, and to support the lifestyles choices of the occupants.

Assistive living services from community level platform

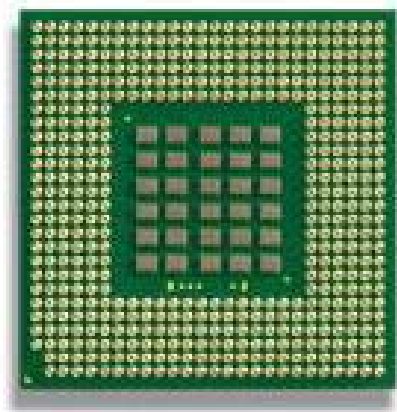
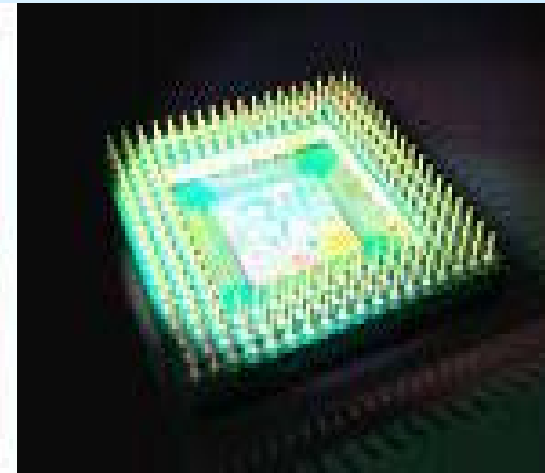
Homes that accommodate current and expected home networking technologies; support simultaneous multimedia applications, deliver data and services around the home, permit devices interactions and enable new devices to be added without the need for upgrade.



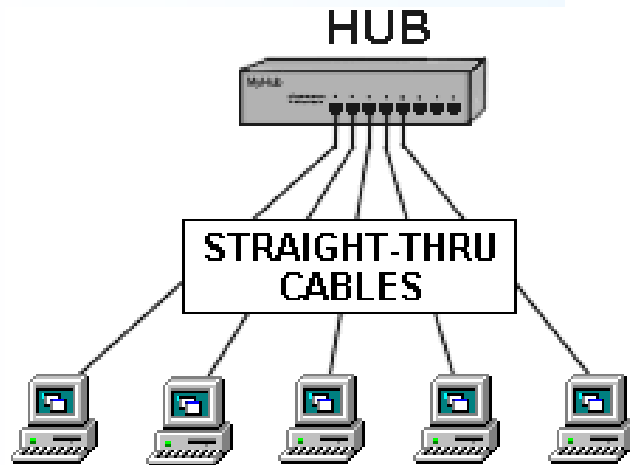
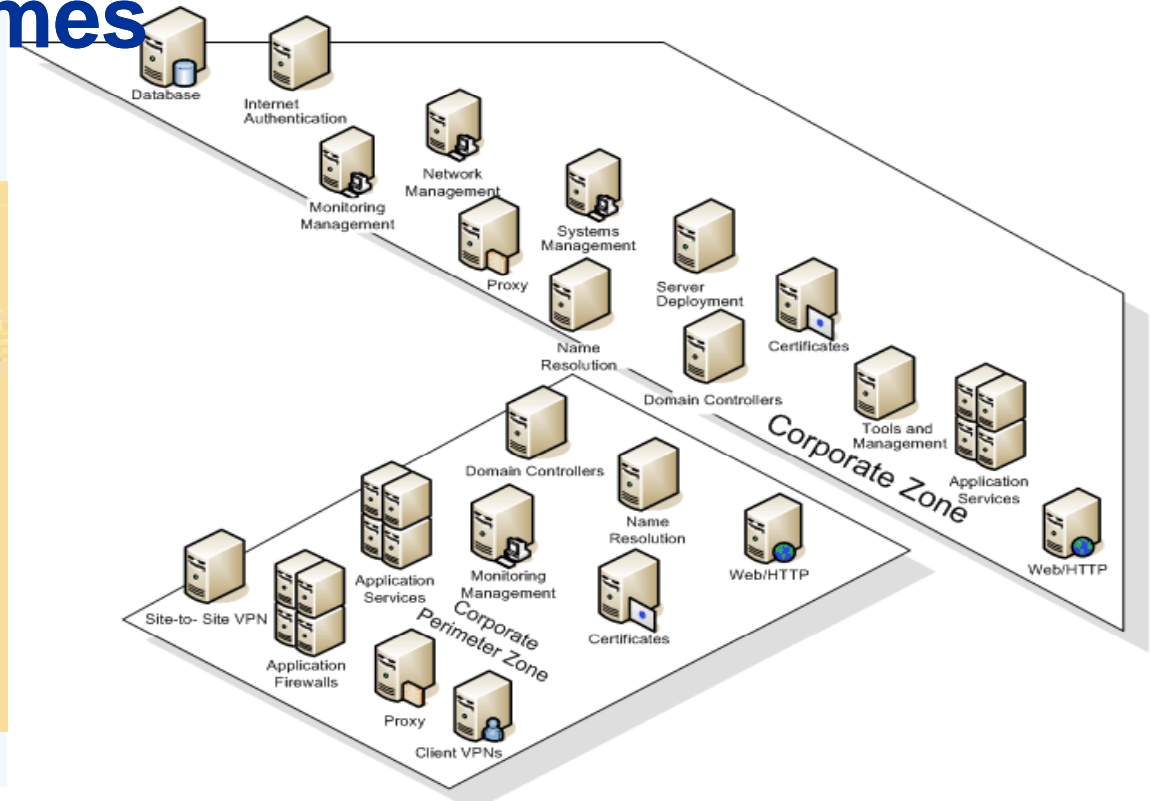
III. CAFM for Homes

Advancement in Digital Technologies

- **The Power of the Micro-Processor & software**
- **Parallel Processing**
- **Quantum Computing**

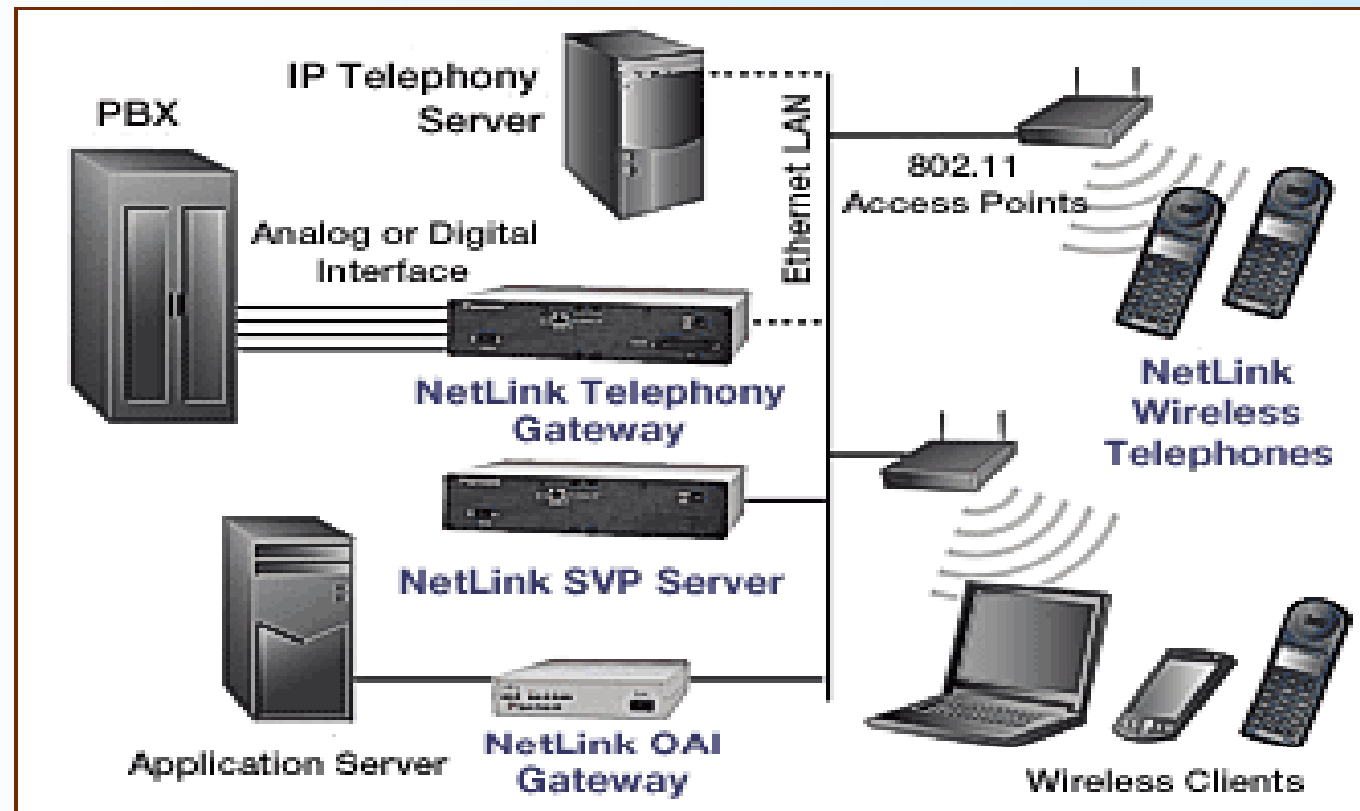


III. CAFM for Homes

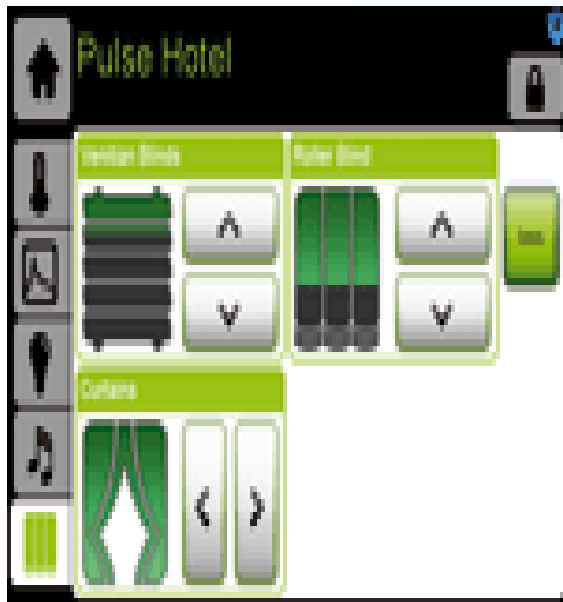


III. CAFM for Homes

ICT and businesses



III. CAFM for Homes



Extending the digital home



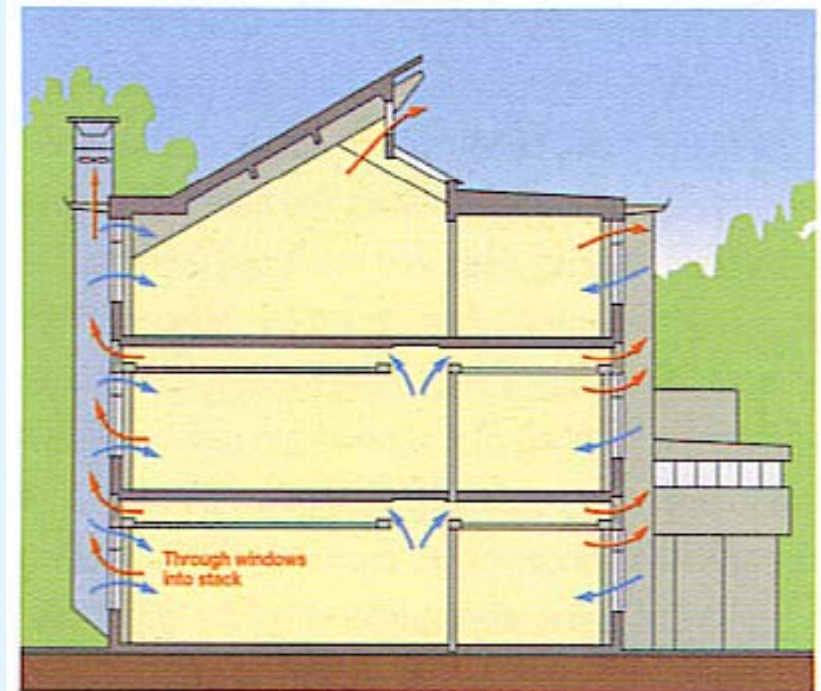
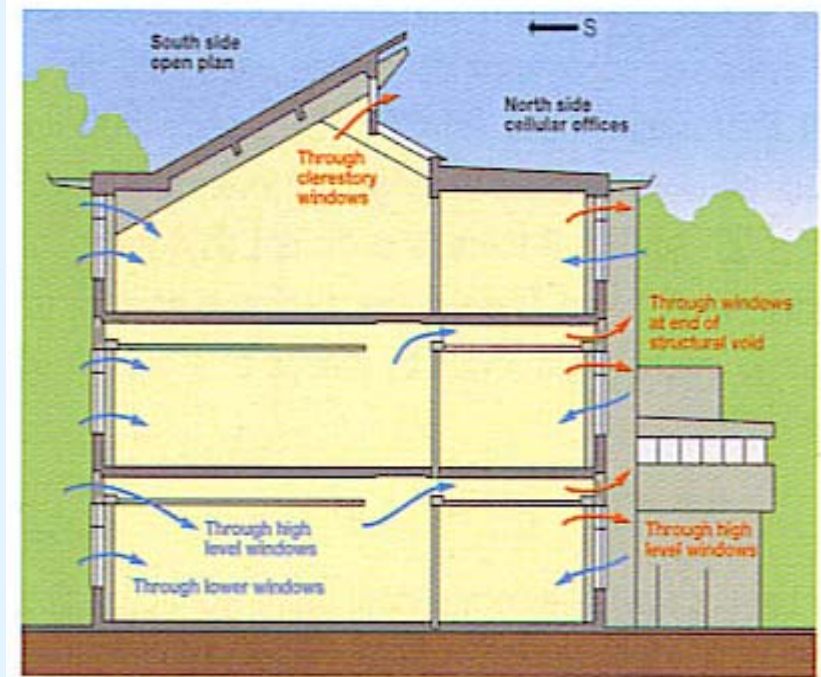
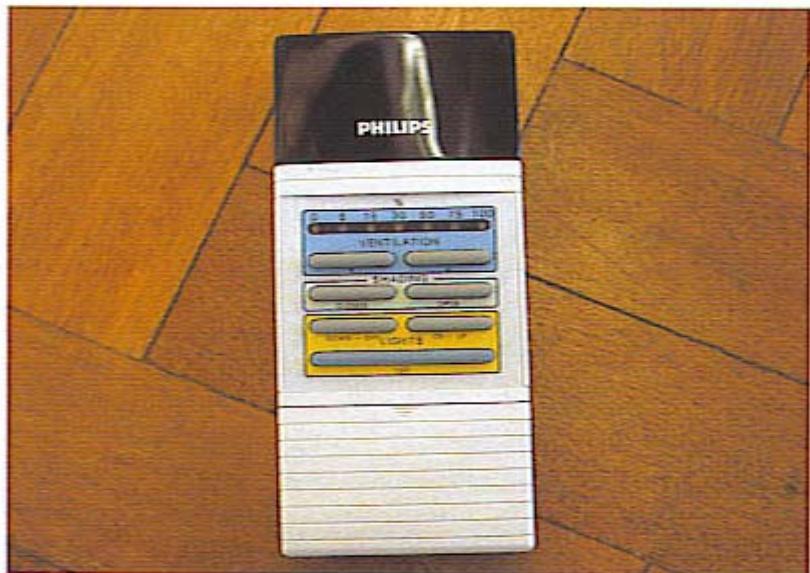
III. CAFM for Homes



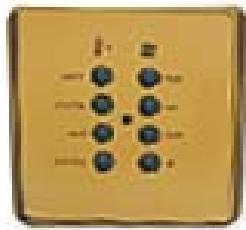
III. CAFM for Homes

Intelligent control

	Passive	Manual	Automatic
Daylight adjustment – reflection/protection	■	■	■
Glare control – blinds/louvres/fixed	■	■	■
Responsive artificial lighting control		■	■
Heating control		■	■
Heat recovery – warmth/cooling	■		
Cooling control			■
Ventilation control		■	■
Fabric control – windows/dampers/doors			■
Insulation – night/solar	■		



III. CAFM for Homes



Extending the digital home

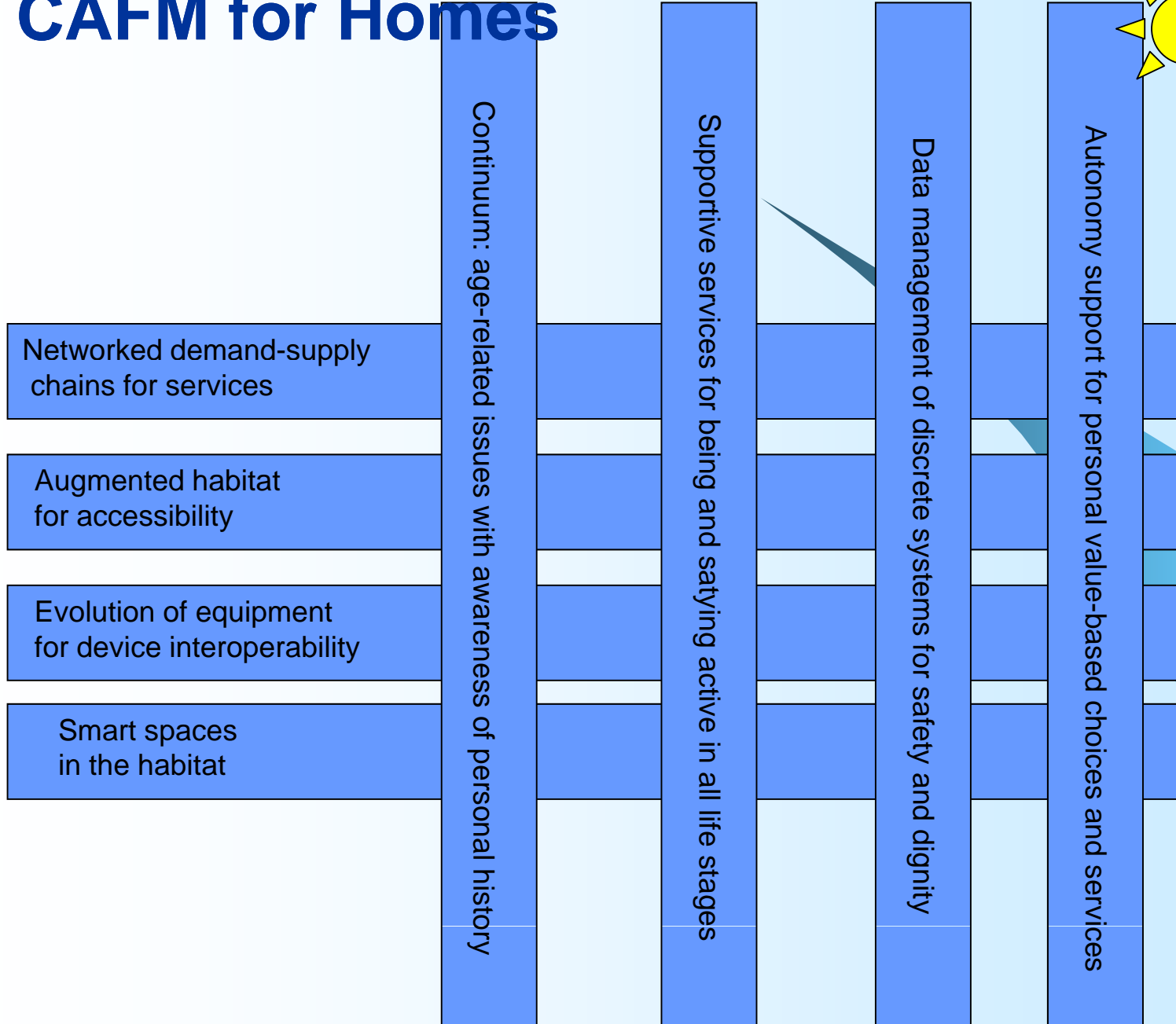
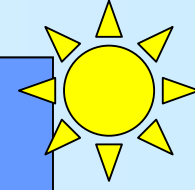


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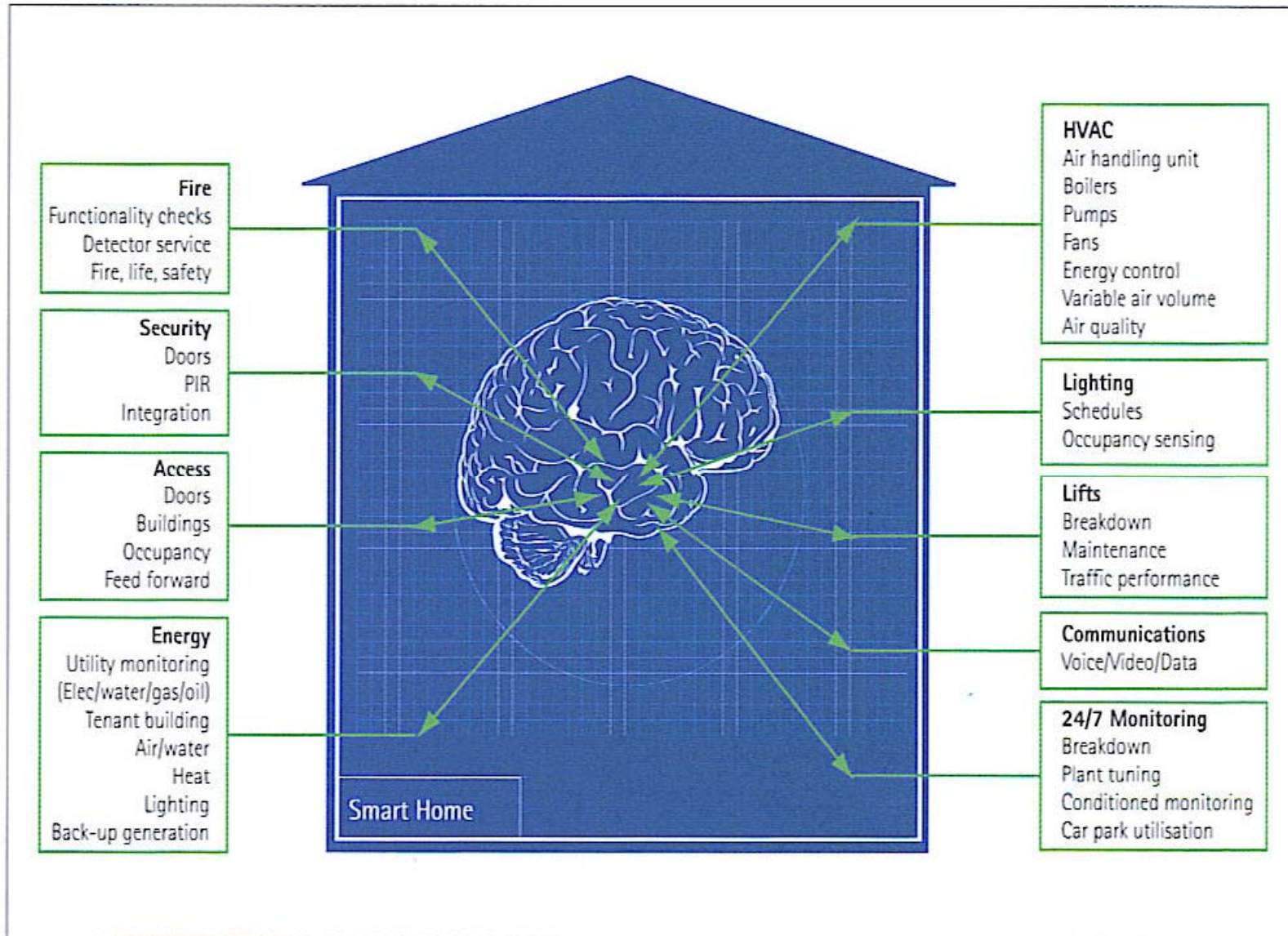
- Investigate current and innovative workplace and assistive living strategies and practices and their implication on the ageing and disabled population.
- Investigate and document capturing and using unstructured data and information in smart spaces for assistive homes.
- Investigate interoperability of software and services for advancing assisted living and working.



IV. CAFM for Homes



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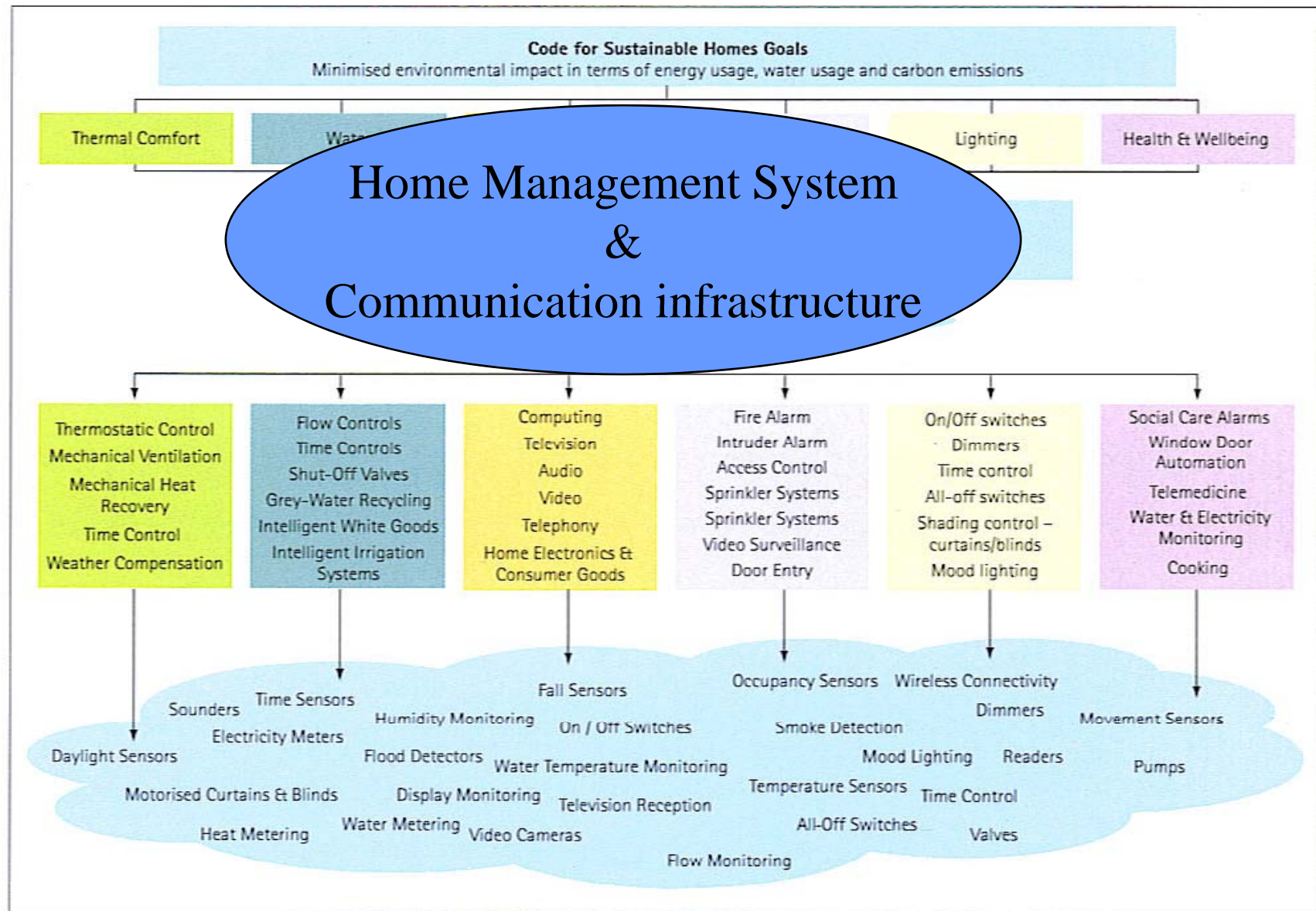


Figure 2: Smart Home systems

IV. CAFM for Homes

Socio-technical Challenges:

**Systems interoperability,
seamlessness and reliability**

Technological footprint

**Need for evidence based linking
smart assisted homes with
sustainability.**

**Revision for performance
requirements based on new
technologies**



**“ Who shares not the spirit of his age,
Knows it in all its unhappiness.”**

Voltaire

Thank you