Security & Performance (Efficiency) hazard
Interface causing Safety (Undesirable)
-ble) emergent behaviour.

Simple KISS (Keep it Simple ...)
Occam's Razor:

Security? Access control prevention of theft? (data?)
Performance System e.g. E.E., throughput
Safety: Users
Cost - Efficiency

Memory system

Capacity

Tape
Disk
Main Memory
Cache
Register

Hit Rate: 90%

C2: Expensive but very low latency

C1: Cheap but high latency

Hit Ratio: 90%

10%

90%

$\text{Total cost} = 0.9 \times C_1 + 0.1 \times C_2$

Average latency = $0.9 \times L_2 + 0.1 \times L_1$

Bit speed $\propto$ cost by memory
Cost $\propto$ cheap memory
Energy Efficiency with Low Latency.

Video Camera: High Quality - Very high energy consumption (Sensor)

Low Quality - Low energy consumption

Engineering Design Principle: Combining Solution at extremes of Cost-Benefit tradeoff to come up with an hybrid solution with good cost as well as benefit.
Examples:
- Balancing
- Push & Pull
- Hybrid Cars

Hierarchical Systems

Clusters

Cluster based network (routing)

Route tables

Cost
- Communication
- Memory
- CPU

Flat routing

DNS

Inter cluster
Sensor N/W for Medical Care

Doctors/Nurses.
Wearable.
Reliable Comm.?
Multiple receivers
Mobility.
Security.
Ayushman: http://shamir.eas.asu.edu/numen/
Ayushman.html.