

Plumis[®]

Applications and
attributes of
electronically
controlled nozzles

FSI 2023



Low penetration in homes is a market failure

high, in warehouses

Insurers offset asset or business continuity risk with premium discounts

low, in residential spaces

Sprinkler requirements in Building Codes are an unwanted tax on new builds



‘The National Association of House Builders (NAHB) reaffirm its existing policy opposing mandating fire sprinkler systems’

Why is there no true market for residential sprinklers?

the trade-off

Water damage



Freezing and seismic risk

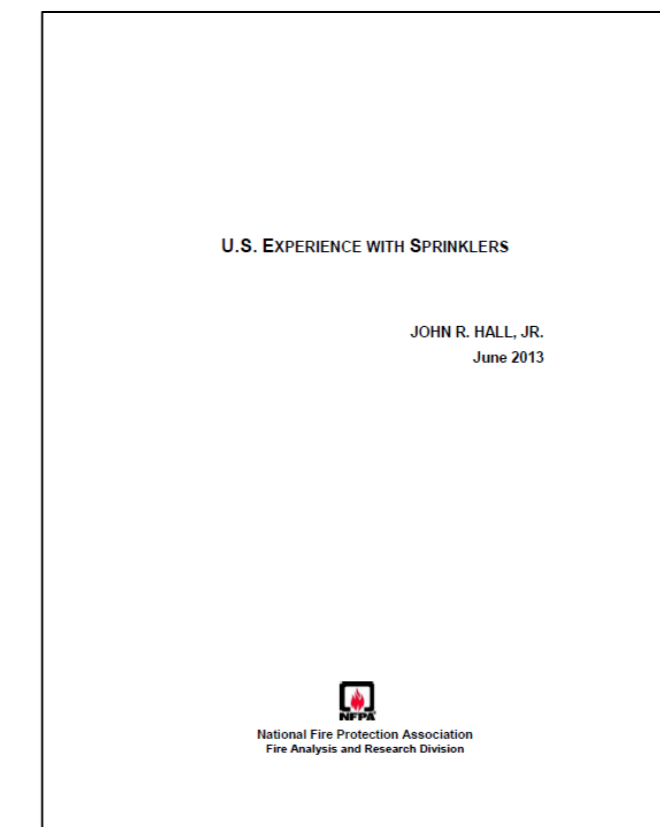


Tank space

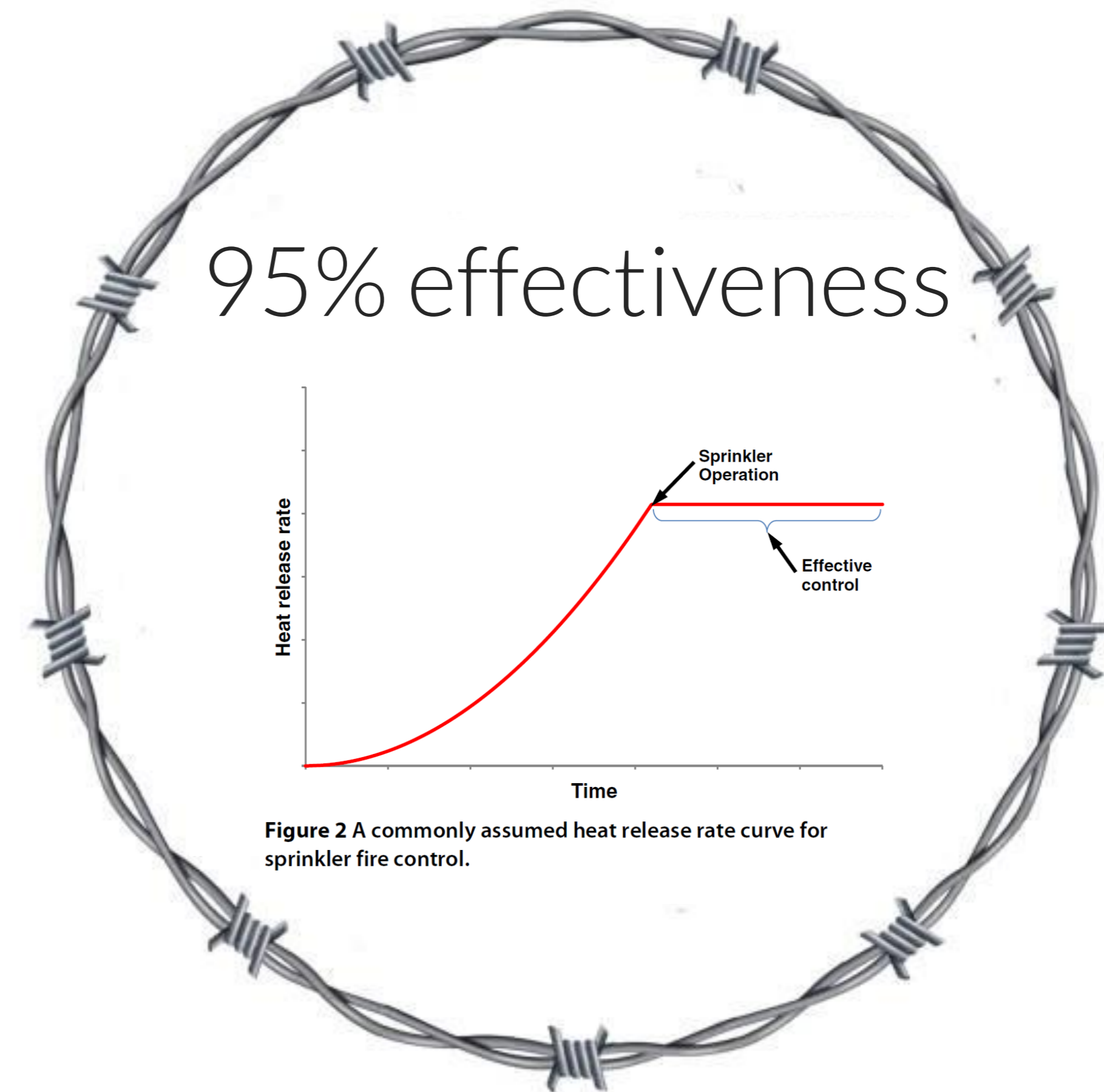


the outcome

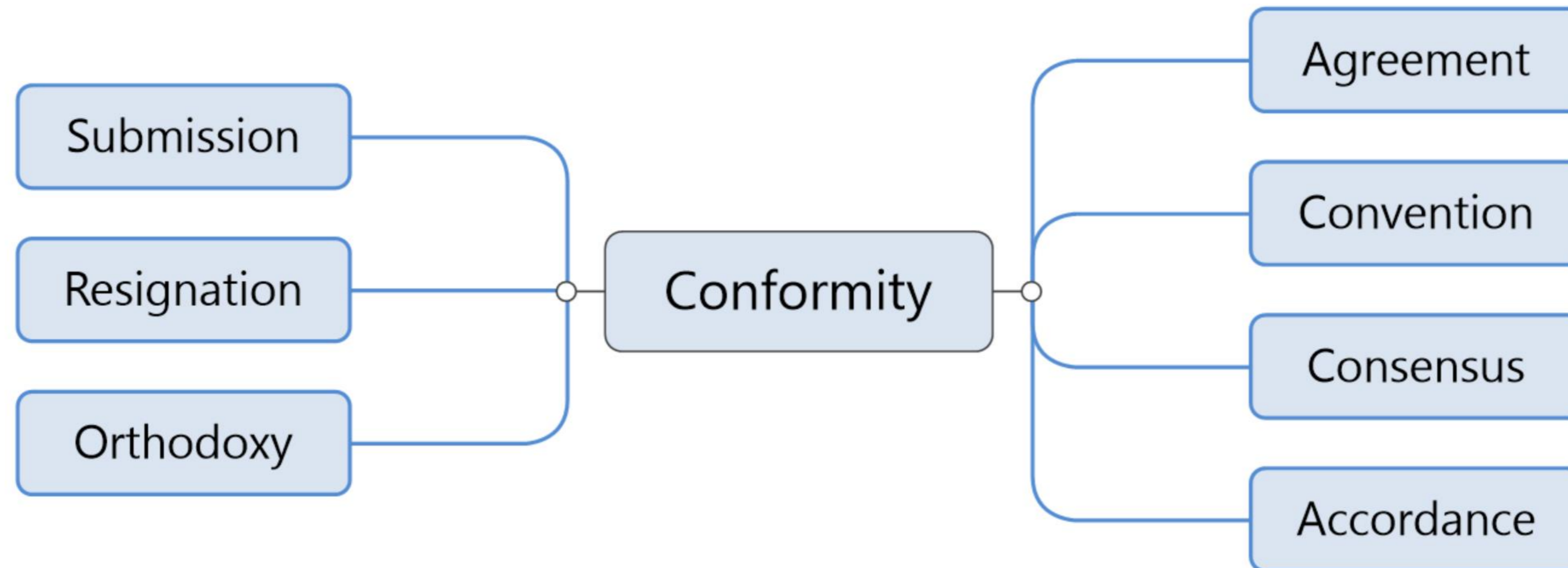
NFPA: in 3% of homes



The unintended consequence of standards



The unintended consequence of standards



Conformity is not a mandate for rigidity

Conformity ringfences performance and freezes trade-offs

Conformity perpetuates market failure

Some notable “non-conformers”



 [Metron \(Electrically Activated\) Products](#)

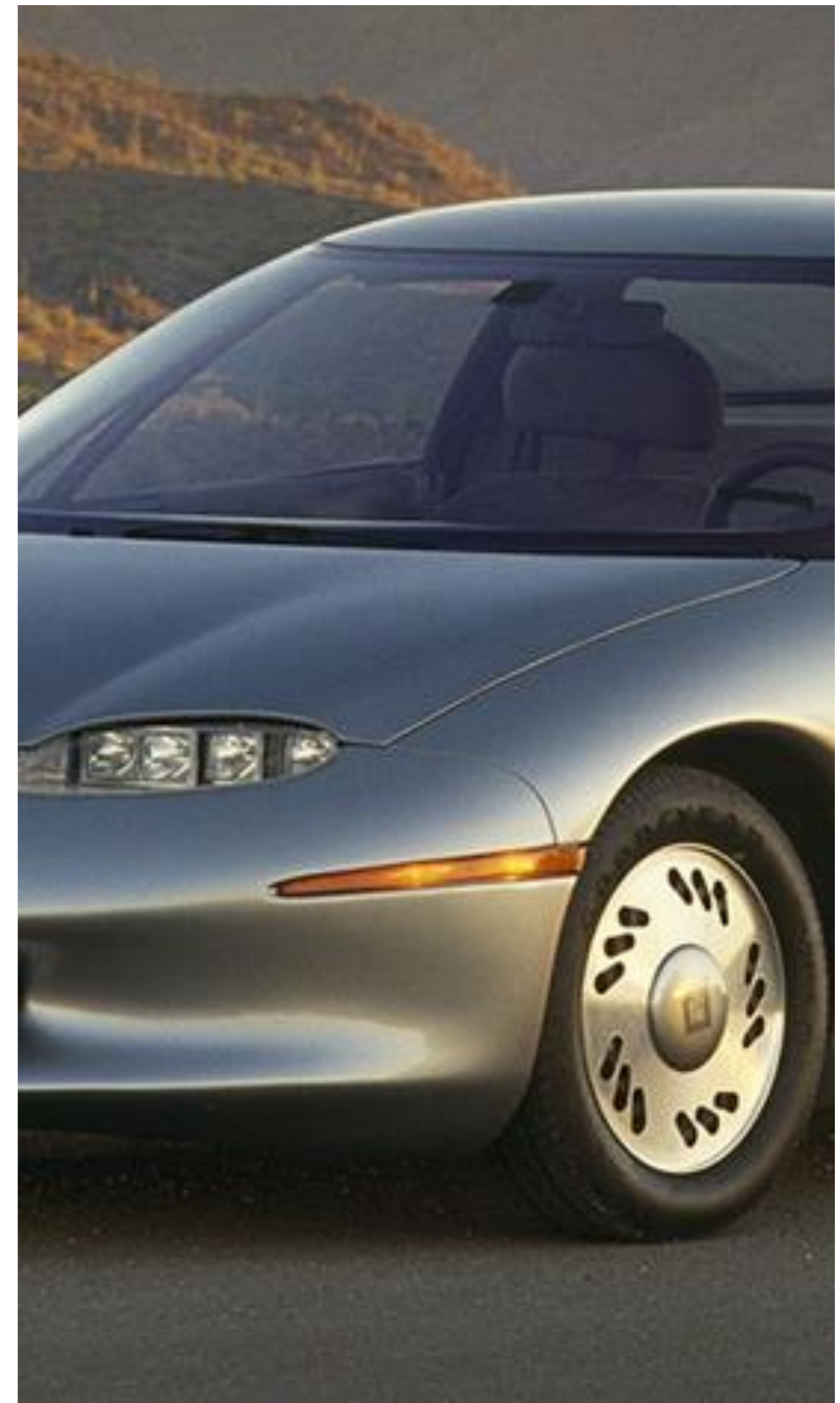




THE INNOVATOR'S DILEMMA

WHEN NEW TECHNOLOGIES
CAUSE GREAT FIRMS TO FAIL

CLAYTON M. CHRISTENSEN



Changing the design, changes the trade-offs

Dry pipe: no freezing

Electronic: faster discharge

Faster discharge: less water/higher tenability

Complex design: more things to go wrong?

Wall mounted: efficient use of water

Targeted: less damage/no tank



Limited pipe length

higher BOM cost

less “gaseous” effectiveness

easier retrofit

obstruction risk?

product approval difficulty



00:00



*Sped up footage**

Retrofit example 1: too big to fail

Specifier



Drivers

- PC-10 asset risk mitigation
- High value homes
- Distant from fire station



Retrofit example 2: the vulnerable



THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

More things to go wrong?

Fire Sprinkler International Conference, London, UK, May 31 - June 1, 2022



SMART Sprinkler Systems to Save Water

Yibing Xin
FM Global, USA

RESILIENCE IS A CHOICE.



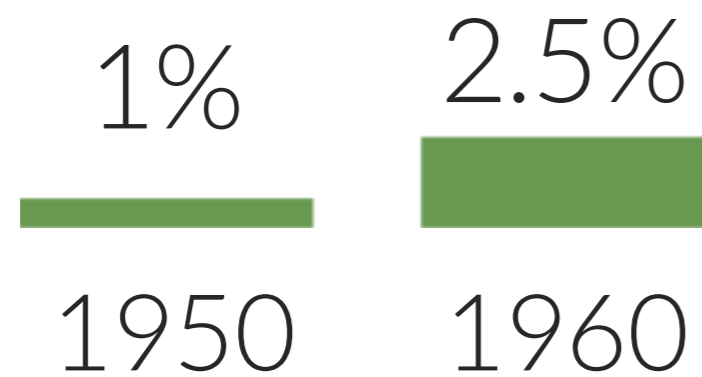
Automotive

Electronic cost as % of total car cost

“80% of innovation is electronic”



Electronic Fuel Injection



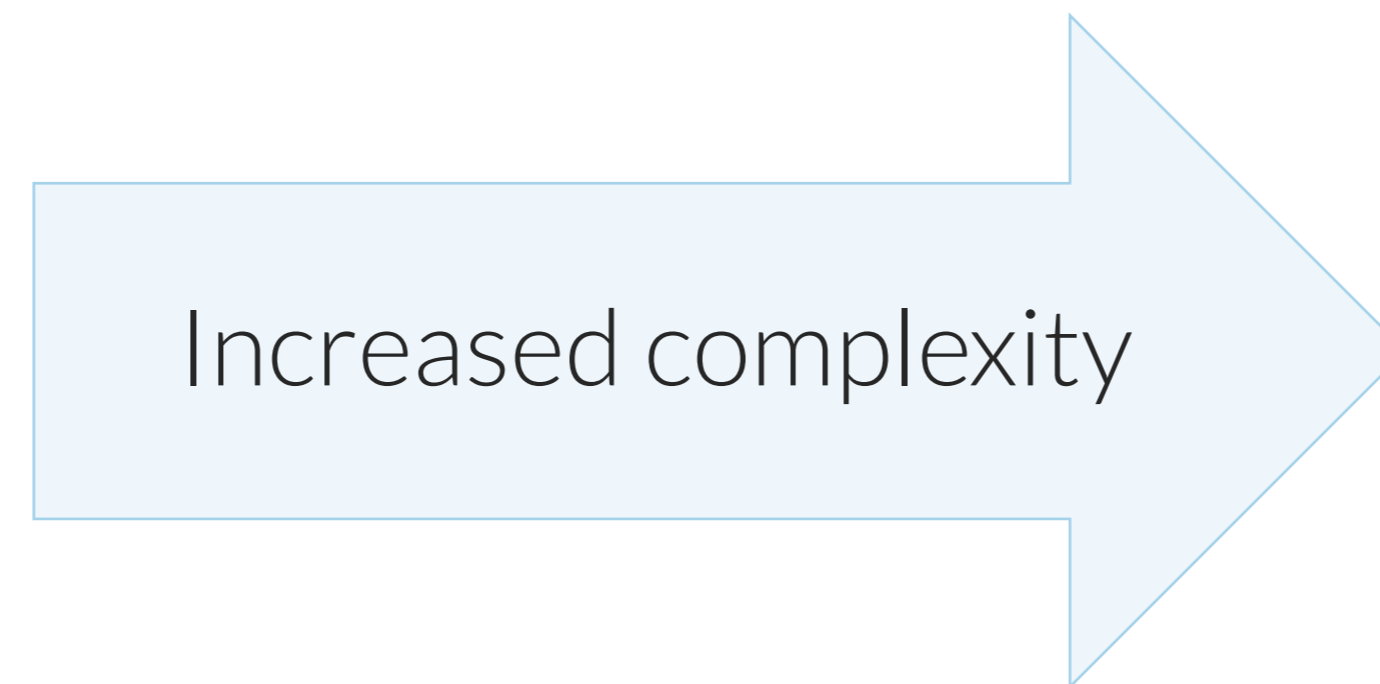
- Active- Passive Safety
- Green Powertrain
- Radar / Vision
- Infotainment
- Airbag
- ABS / ESP
- Body Electronics
- Multiplexing

1950 1960 1970 1980 1990 2000 2005 2010 2030

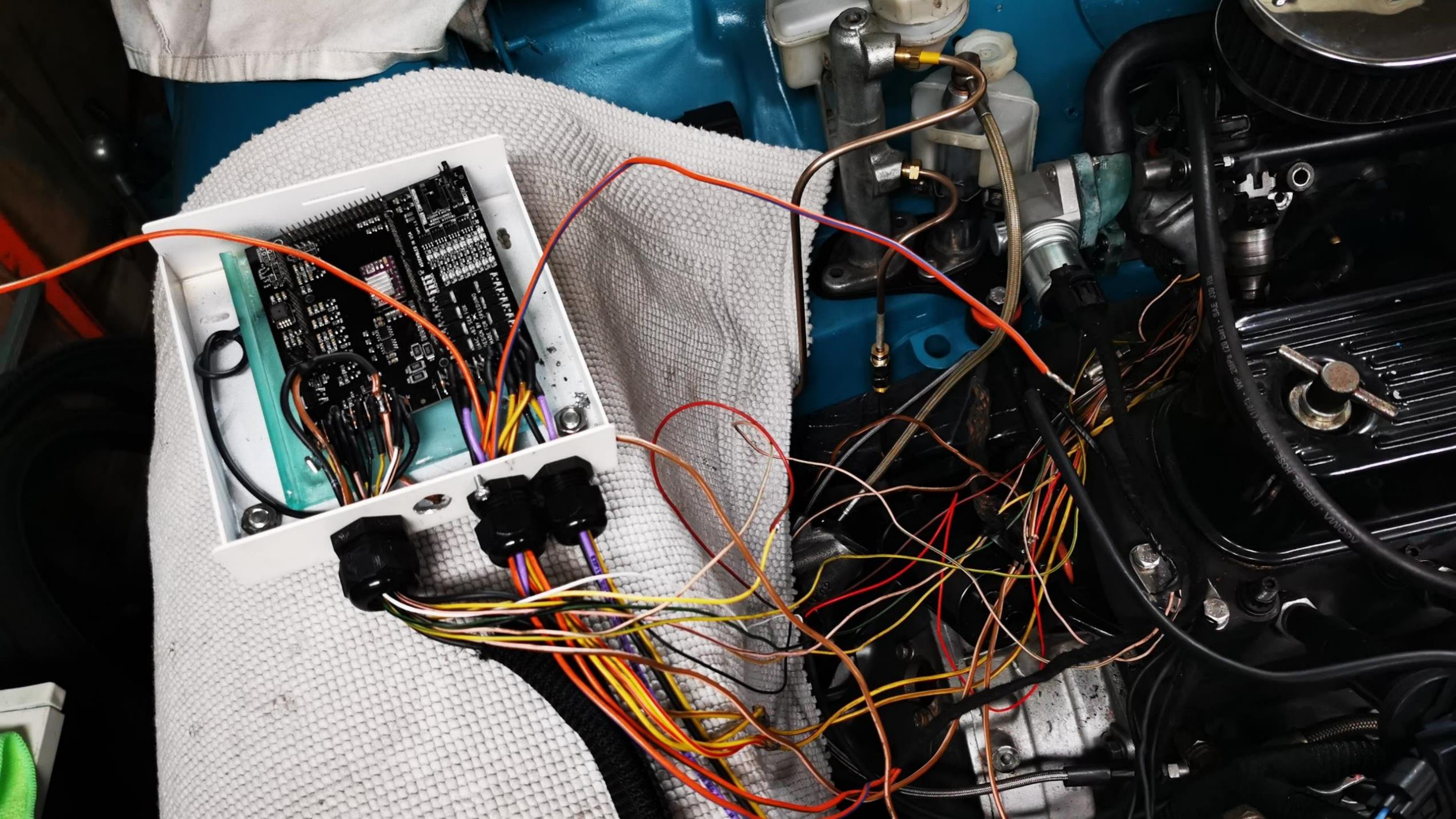
Automotive Reliability

- Oil change every 1,500 miles
- Solely mechanical components
- Visual inspection
- Repair of failures

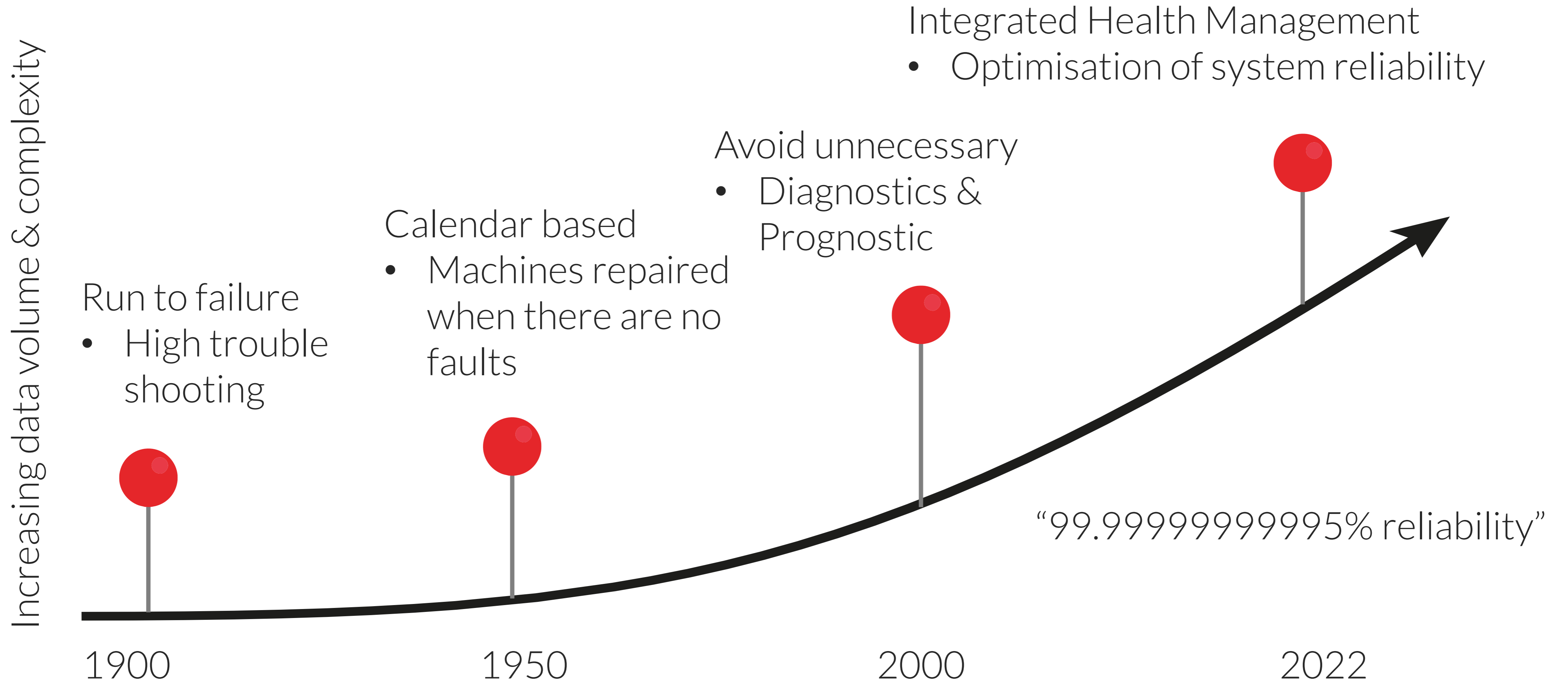
- Service interval of 15,000+ miles
- Networked electronic and mechatronic systems
- Diagnostics
- Exchange of components



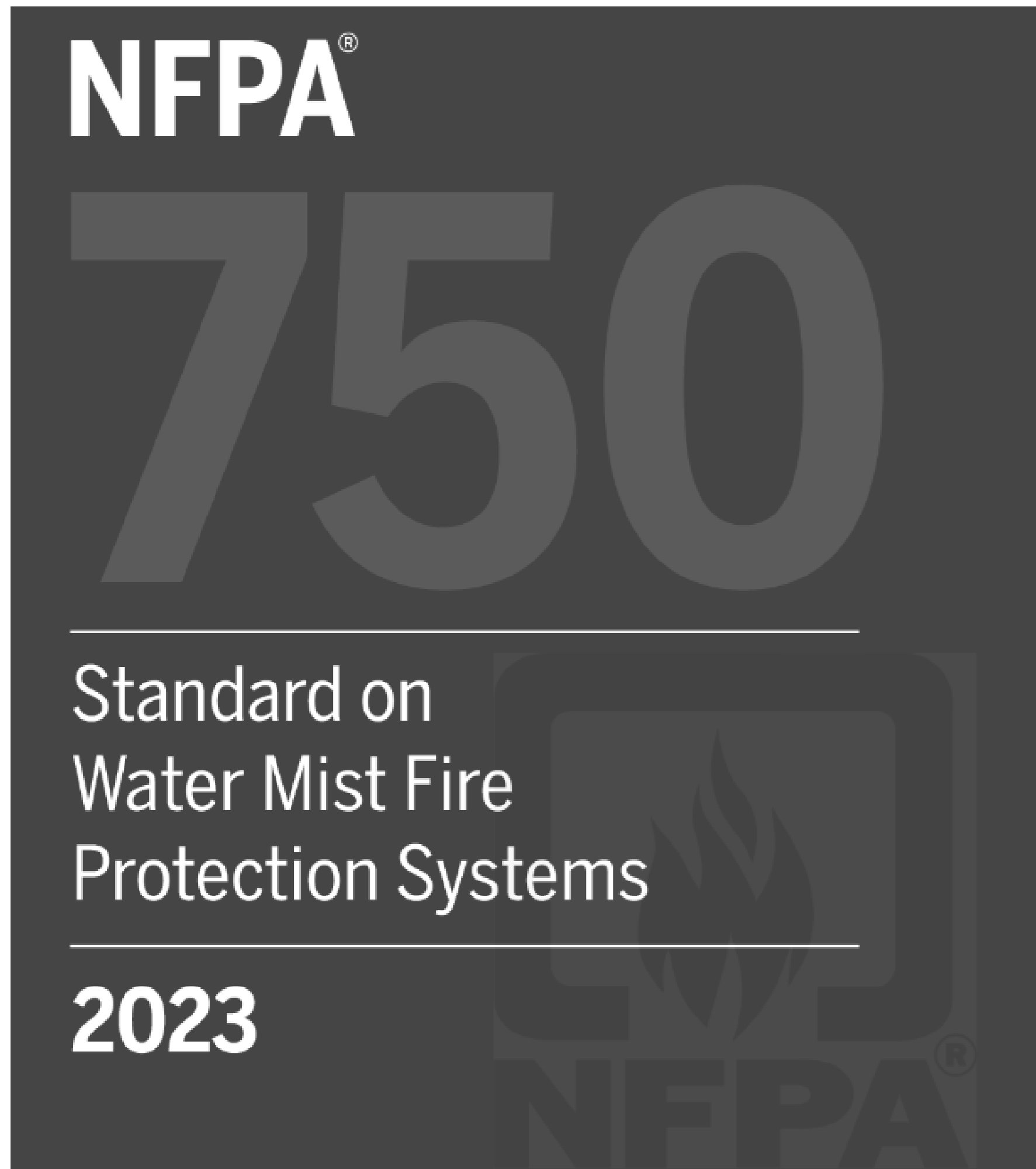
1950 1960 1970 1980 1990 2000 2005 2010 2022



Aerospace Maintenance



Conforming, in a performance, fit for purpose, way



3.3.25.2 *Electronically-Operated Automatic Water Mist Nozzles.* Nozzles that are normally closed and operated by electrical energy that is initiated and supplied by fire detection and control equipment.

C.1 General. In the absence of a generalized design method based on engineering-first principles, water mist systems must be listed for specific hazards and protection objectives. It is the intent of NFPA 750 that such listings be obtained through full-scale fire tests and system component evaluations conducted by internationally recognized laboratories to demonstrate that performance objectives can be met. New potential applications

Most of the market for suppression is untapped

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