HOW THE FIRE INDUSTRY CAN INFLUENCE THE FUTURE OF IOT

Yusuf Muhammad
Cofounder & Design Director of Plumis
AGENDA

1. Introduction
2. The history of fire sprinklers
3. The problems associated with fire sprinklers
4. Parallels with the insurance industry
5. The insurtech revolution
6. The future of fire sprinklers
FREDERICK GRINNELL

1882 FIRST PRACTICAL FIRE SPRINKLER
1890 GLASS DISC SPRINKLER
COMMONPLACE DESIGN
Table 4-1 Sprinkler System and Water Supply Design Requirements for Sprinklered Facilities

<table>
<thead>
<tr>
<th>OCCUPANCY CLASSIFICATION</th>
<th>SPRINKLER SYSTEM DESIGN DENSITY LIMITS (#/GSM)</th>
<th>DESIGN AREA (NM²)</th>
<th>HOSE STREAM ALLOWANCE (L/Min/GPM)</th>
<th>DURATION OF SUPPLY (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Hazard</td>
<td>4.5 (0.16)</td>
<td>266 (3000)</td>
<td>950 (250)</td>
<td>60</td>
</tr>
<tr>
<td>Ordinary Hazard Group 1</td>
<td>8.1 (0.15)</td>
<td>266 (3000)</td>
<td>1900 (500)</td>
<td>60</td>
</tr>
<tr>
<td>Ordinary Hazard Group 2</td>
<td>8.2 (0.20)</td>
<td>266 (3000)</td>
<td>1900 (500)</td>
<td>90</td>
</tr>
<tr>
<td>Extra Hazard Group 1</td>
<td>12.2 (0.50)</td>
<td>266 (3000)</td>
<td>2840 (750)</td>
<td>120</td>
</tr>
<tr>
<td>Extra Hazard Group 2</td>
<td>18.3 (0.40)</td>
<td>266 (3000)</td>
<td>2840 (750)</td>
<td>120</td>
</tr>
</tbody>
</table>

Note: The protection requirements identified in these tables are based on the Standard for fire Protection from fire by sprinkler systems for buildings. This Standard represents the minimum requirements necessary to provide a level of fire protection. The level of protection is based on the type of occupancy and the type of sprinkler system. The tables provide design criteria for the selection and application of sprinkler systems. The tables are intended to be used in conjunction with the Standard for the Installation of Sprinkler Systems and the Standard for the Protection of Property from Fire by Sprinkler Systems.

Design and Installation Standards

- Other fire sprinkler standards
  - Used when:
    - Level of hazard exceeding the scope of NFPA 13
    - Specific design requirements for a hazard
    - The approving authority requires the use of a different standard
  - NFPA 30, 30B, 214, 804
  - Insurance providers may develop own standards.
  - Design professional determines best to use.
PROBLEMS WITH TRADITIONAL FIRE SPRINKLERS

POOR RELIABILITY

DIFFICULT TO RETROFIT

WATER DAMAGE
EFFECTIVENESS
BACKGROUND OF MODERN INSURANCE

1861 UNDERWRITERS SOLD THE FIRST PAPER POLICIES TO PROTECT LONDON HOMES FROM FIRE
1. MANDATED
2. PRICE SENSITIVE
3. IGNORED DURING ITS LIFETIME
4. SMALL OVERSIGHT CAN RESULT IN PROBLEMS
5. POOR CUSTOMER SATISFACTION WHEN ACTIVATED
MODERNISATION OF INSURANCE

InsureTech Trends

- Chatbots
- On Demand Coverage
- Big Data Underwriting
- Peer-to-Peer (P2P) Insurance
- Internet of Things (IoT)
- AI Claims Processing
MODERNISATION OF FIRE SPRINKLERS

USER ENGAGEMENT  RETROFITTABLE  WATER DAMAGE
MODERNISATION OF FIRE SPRINKLERS

ELECTRONIC CONTROLLED SPRINKLERS
ARCHIMEDES PRINCIPLE OF BUOYANCY
FIRE SPRINKLER & INSURANCE CONVERGE

SPRINKLERS 0-10%  
despite of the water damage

IOT SMOKE ALARM 0-5%  
connected to Wi-Fi to report status

a smarter modern fire sprinkler ~30%?