

**Potential Impact of
Aging Plant and Equipment
on
Machinery Breakdown Insurance**

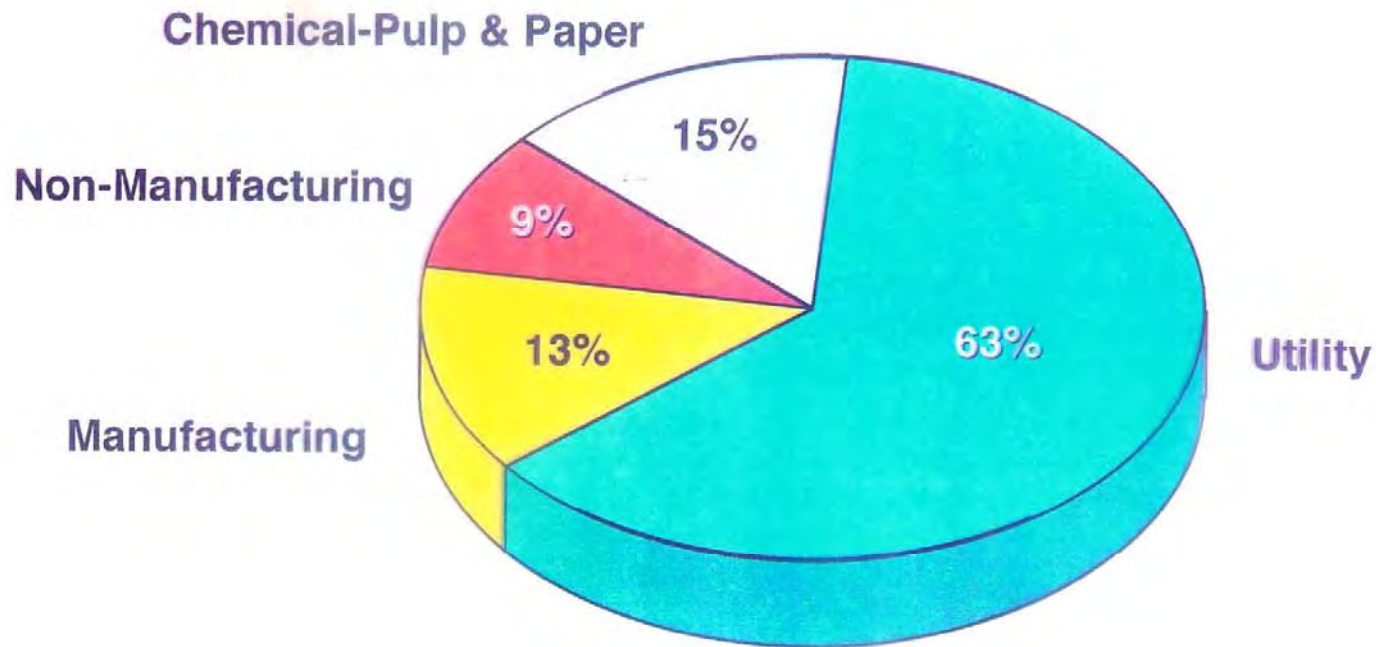
**Power Generation Database:
June 1996**



Presented by Peter Downs, HSB at the IMIA Conference Washington Sept 1996

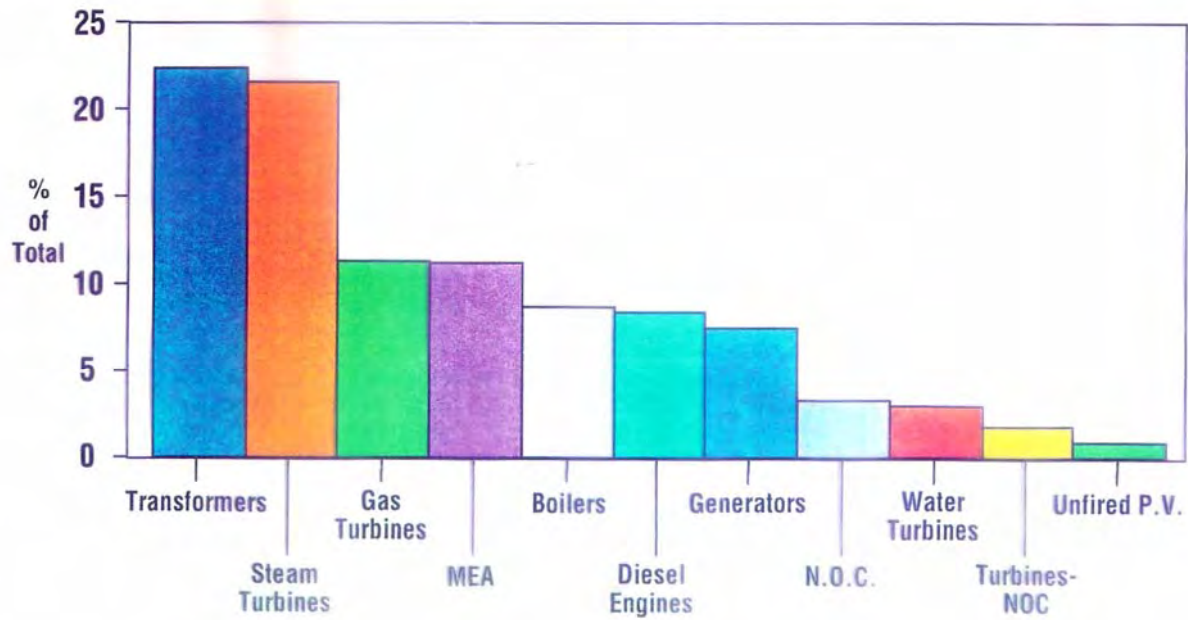
Industry Profile

IMIA Power Generation Database: June 1996



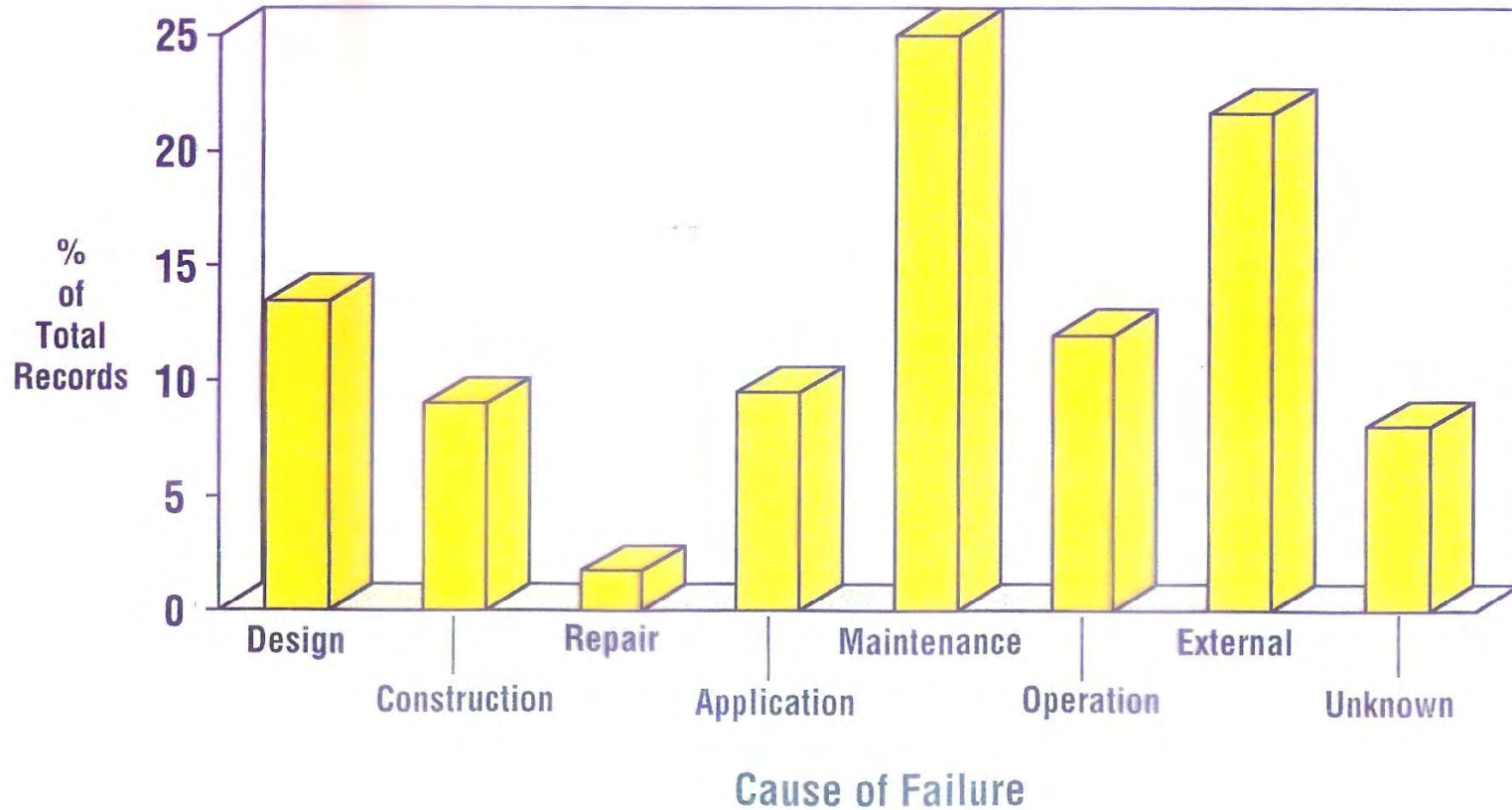
Object Composition

IMIA Power Generation Database: June 1996



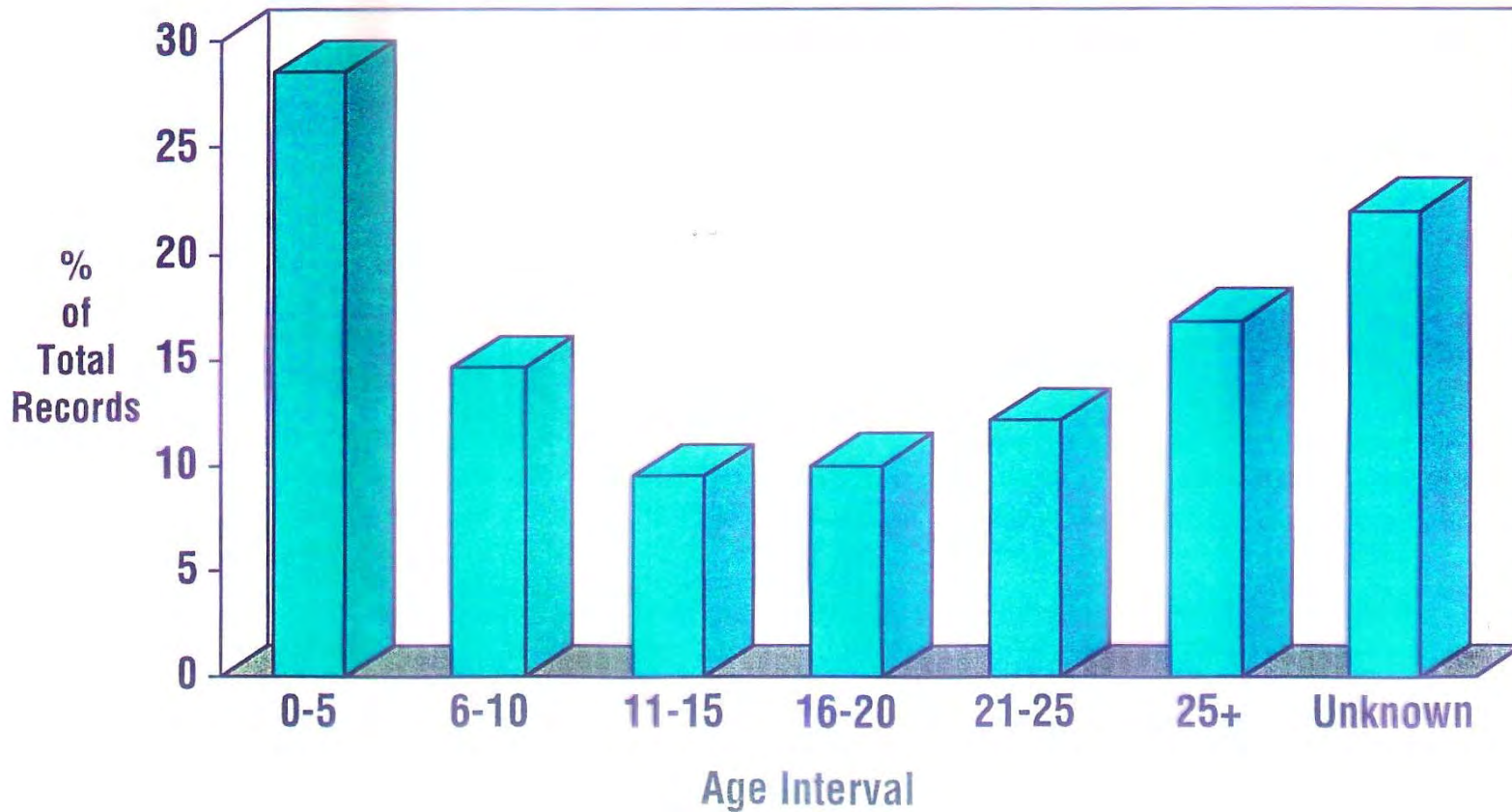
Cause of Failure Distribution

IMIA Power Generation Database: June 1996



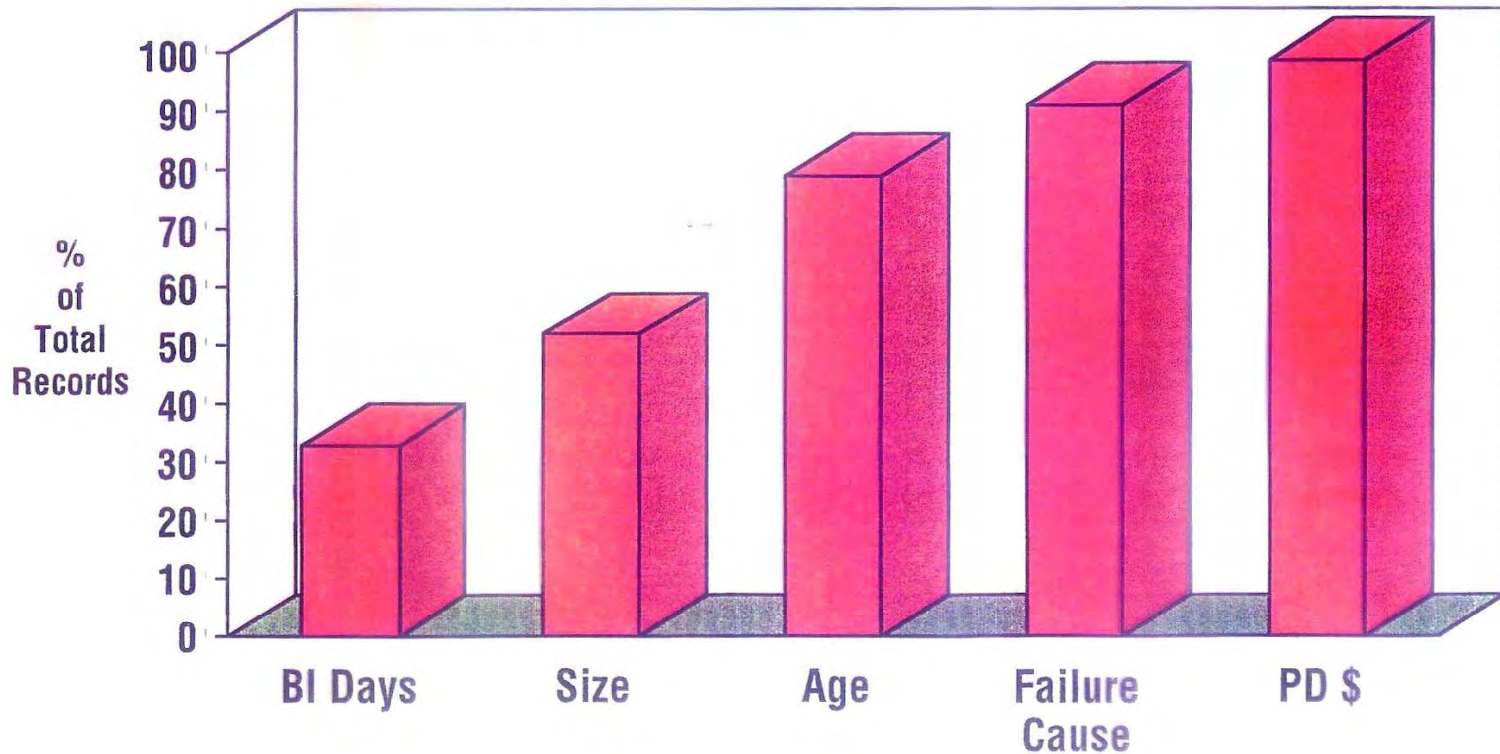
Object Age Distribution

IMIA Power Generation Database: June 1996



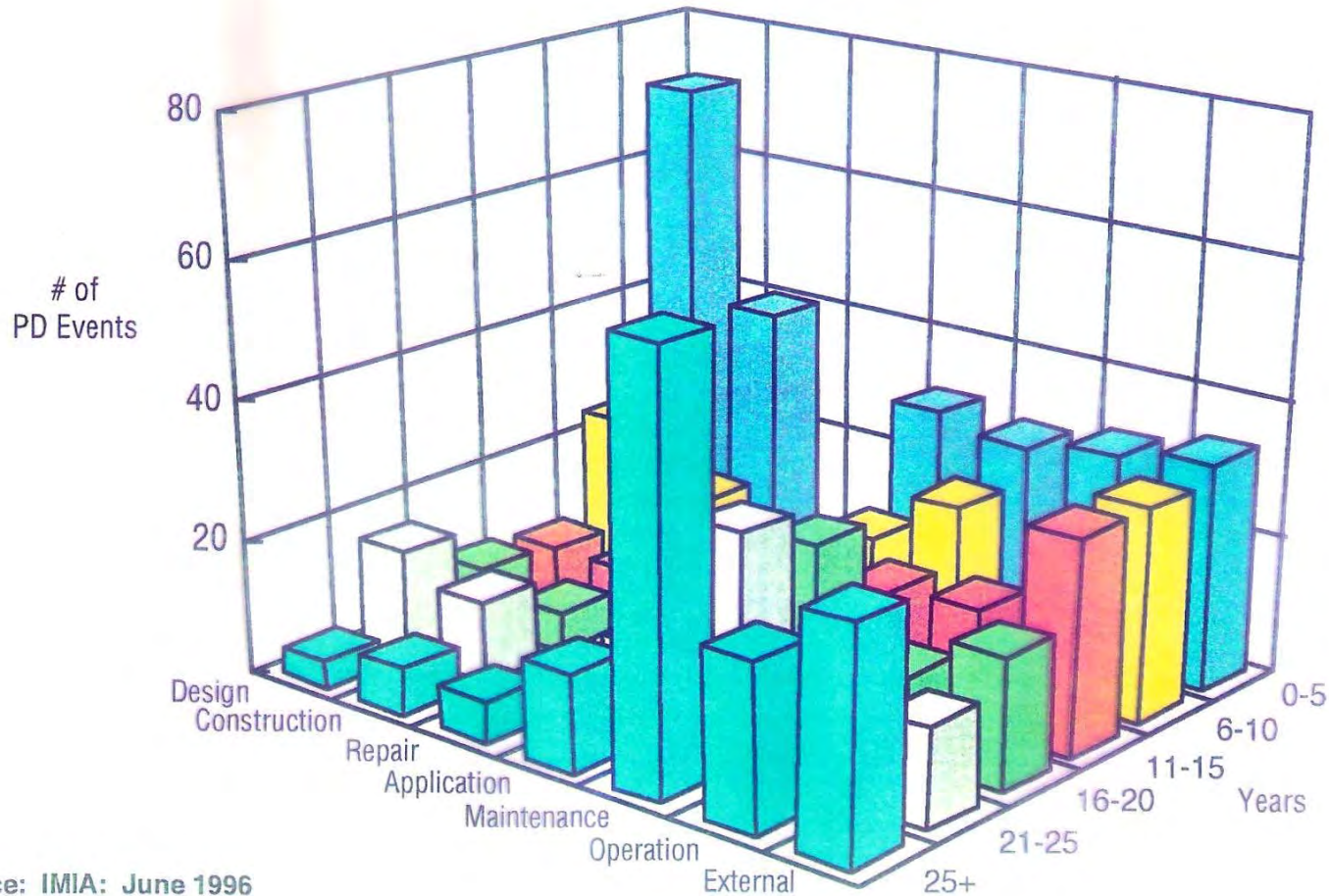
Data Completeness

IMIA Power Generation Database: June 1996



Age vs. Failure Cause: Frequency Analysis

Physical Damage: All Objects

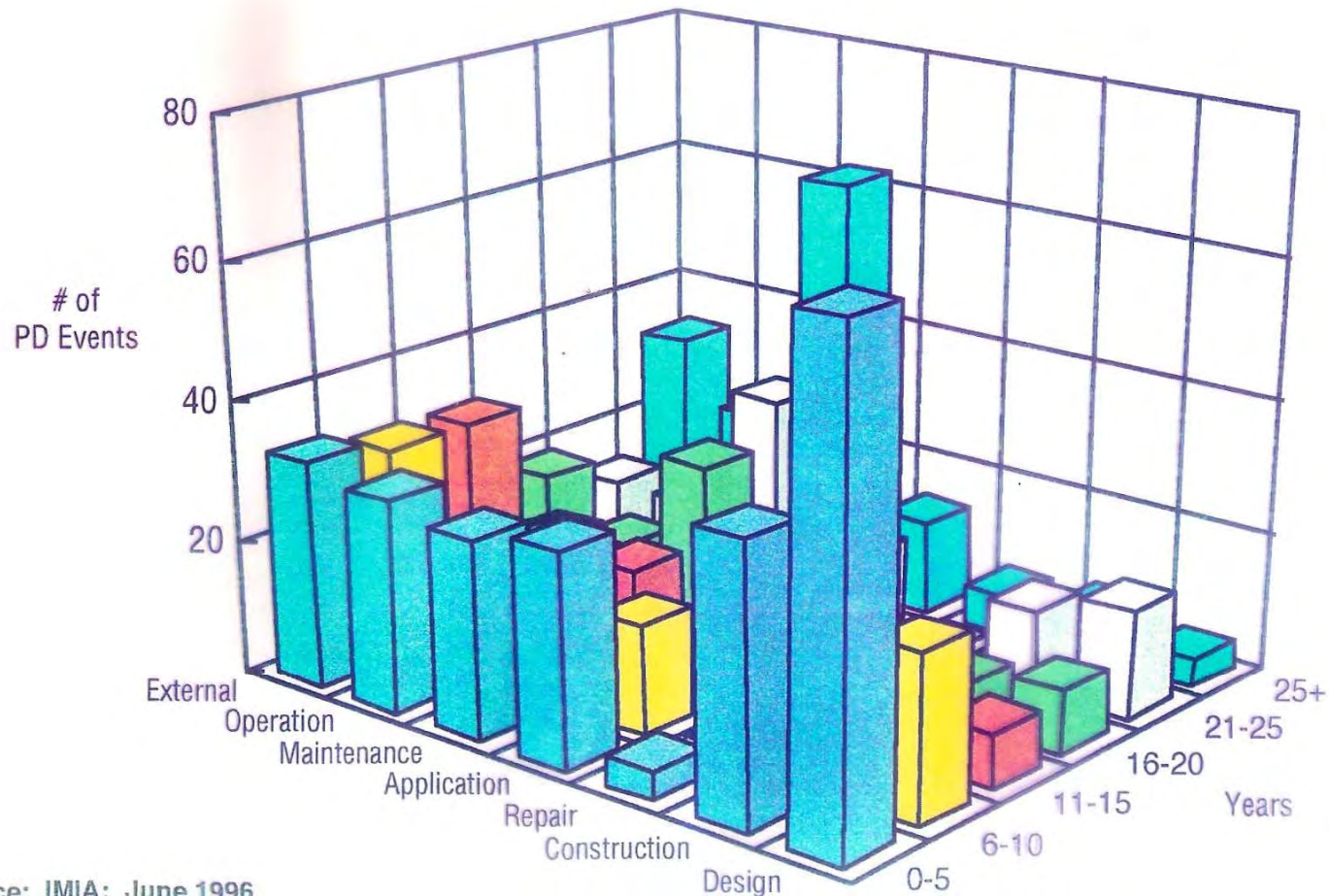


Source: IMIA: June 1996

a) seen from the external 25 years corner

Age vs. Failure Cause: Frequency Analysis

Physical Damage: All Objects

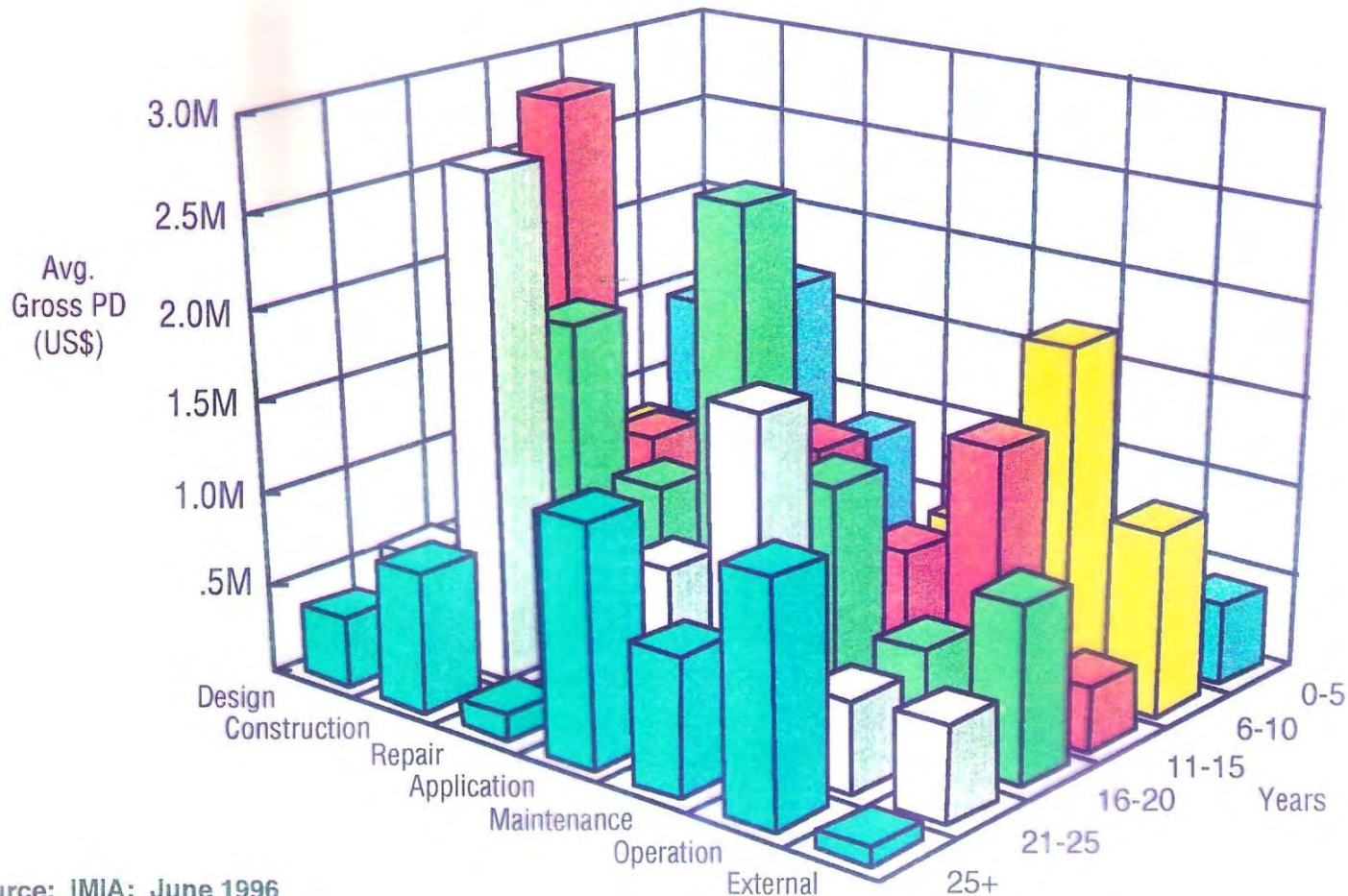


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Age vs. Failure Cause: Severity Analysis

Physical Damage: All Objects

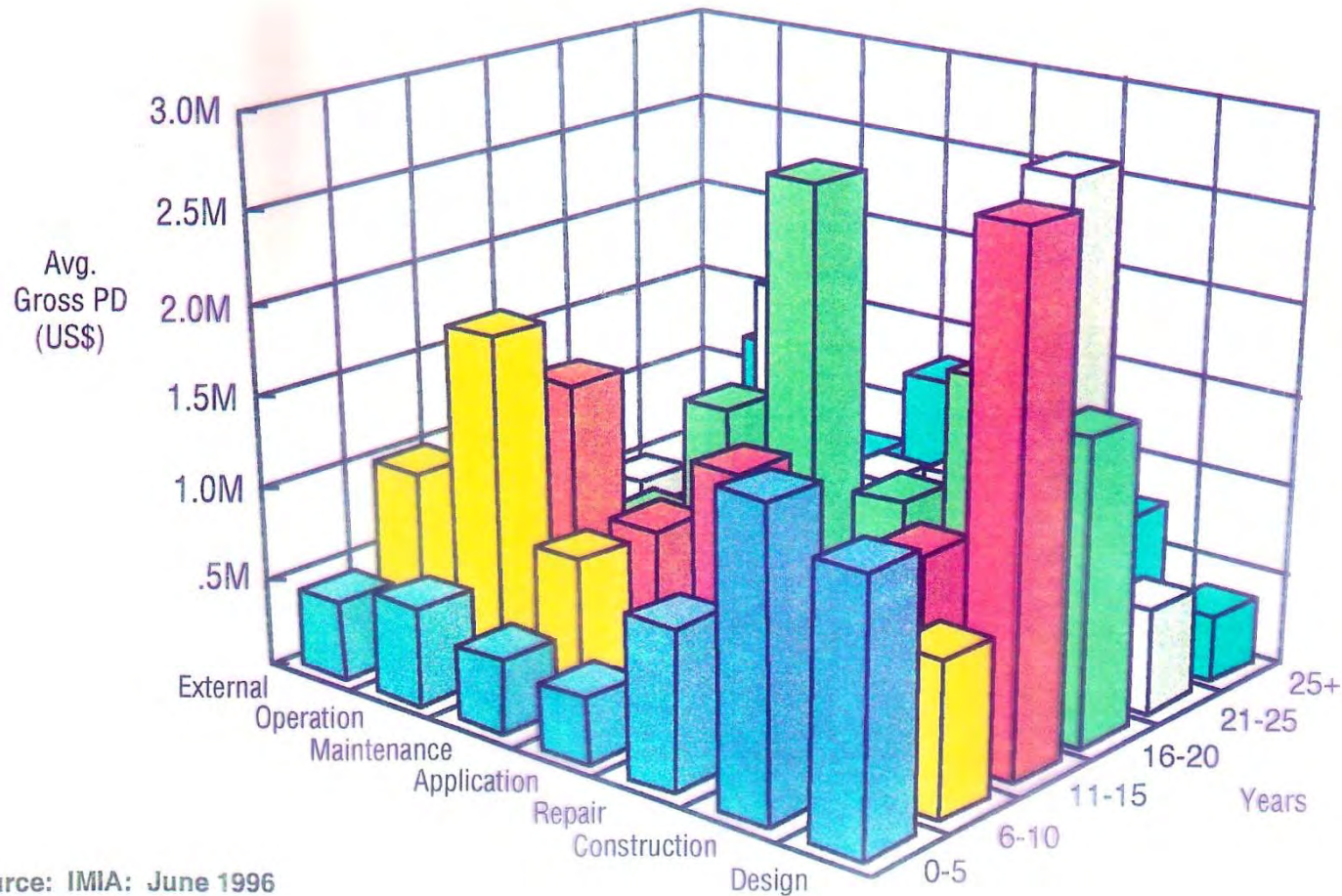


Source: IMIA: June 1996

a) seen from the external 25 years corner

Age vs. Failure Cause: Severity Analysis

Physical Damage: All Objects

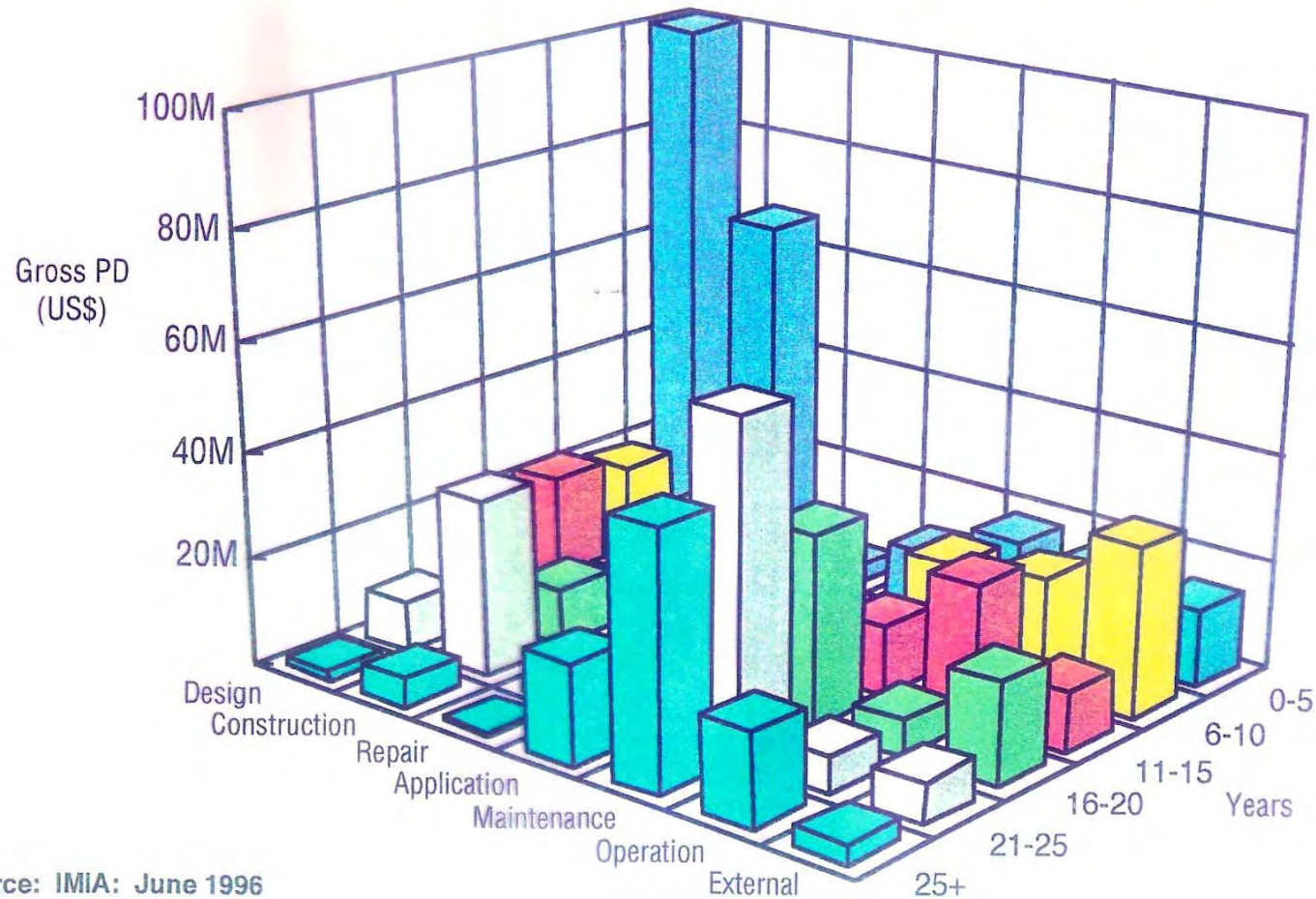


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Age vs. Failure Cause: Risk Analysis

Physical Damage: All Objects

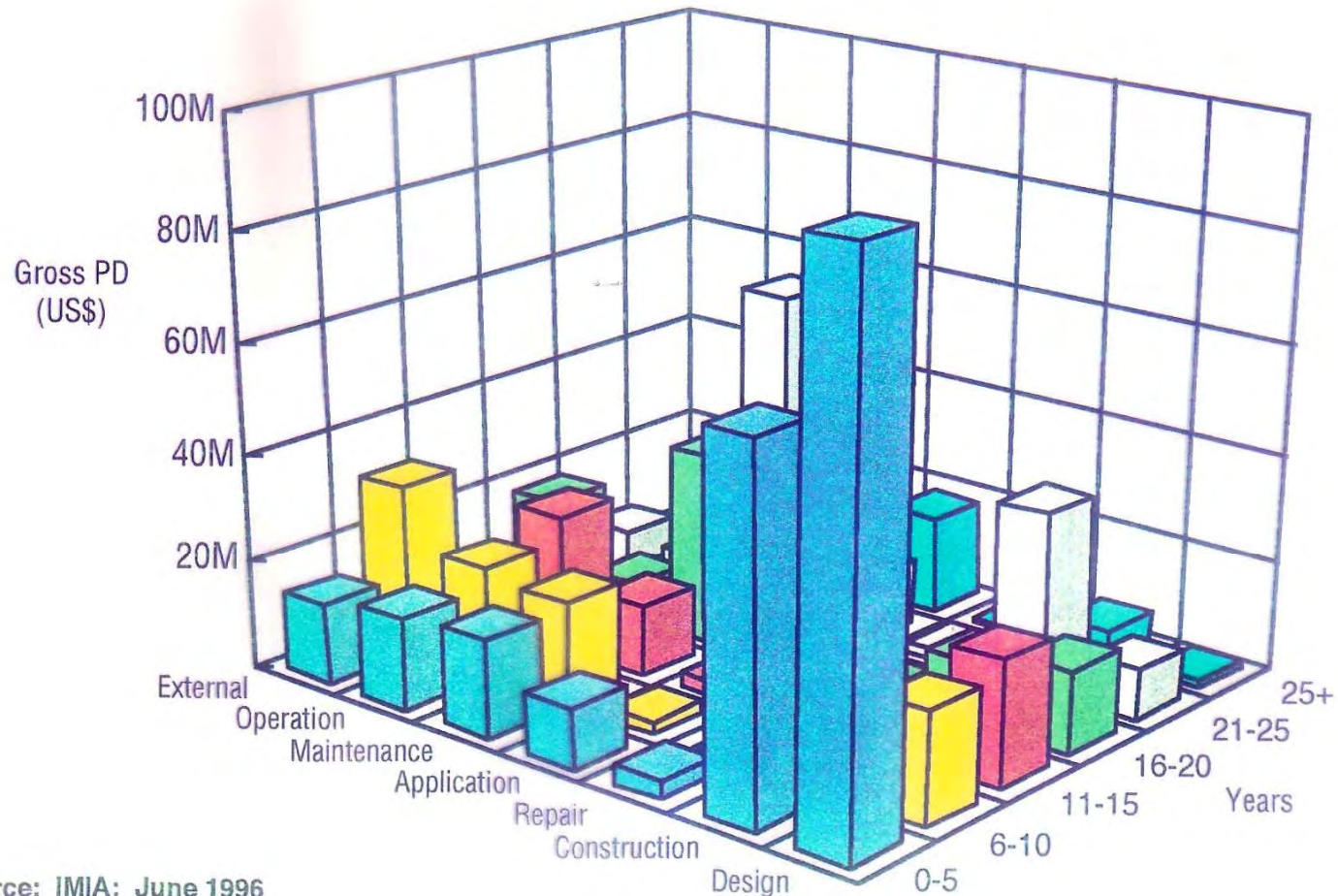


Source: IMIA: June 1996

a) seen from the external 25 years corner

Age vs. Failure Cause: Risk Analysis

Physical Damage: All Objects

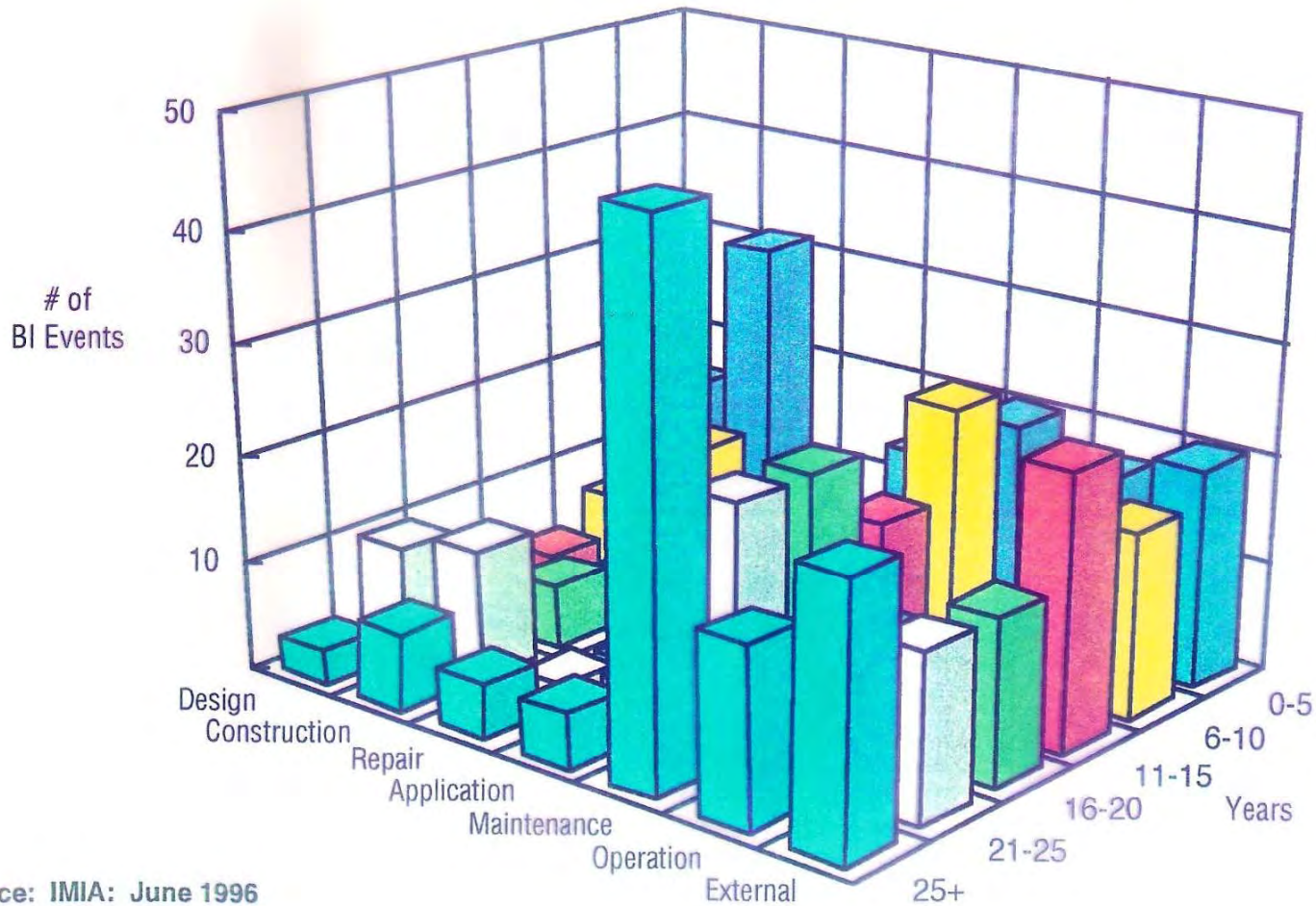


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Age vs. Failure Cause: Frequency Analysis

Business Interruption: All Objects

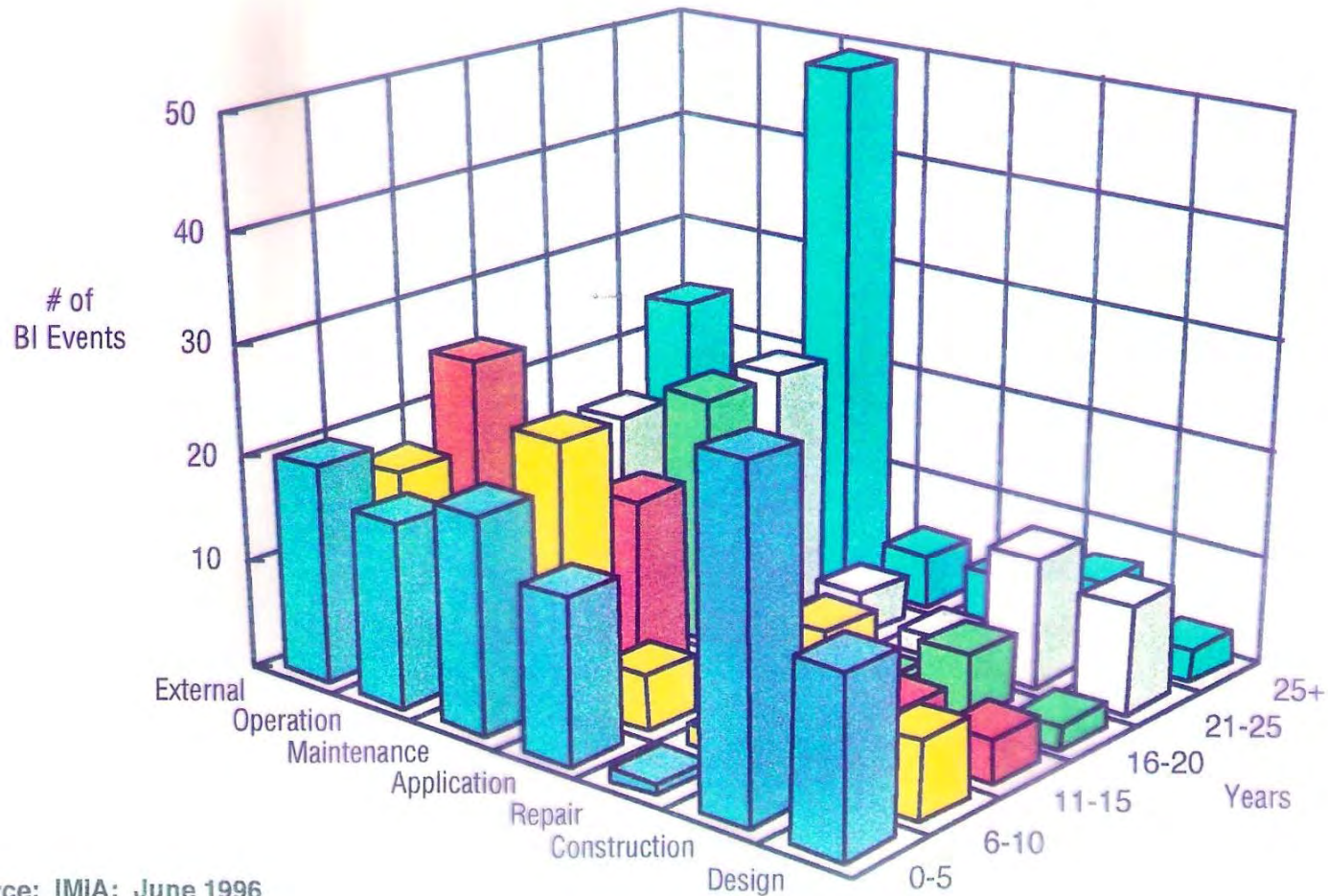


Source: IMIA: June 1996

a) seen from the external 25 years corner

Age vs. Failure Cause: Frequency Analysis

Business Interruption: All Objects

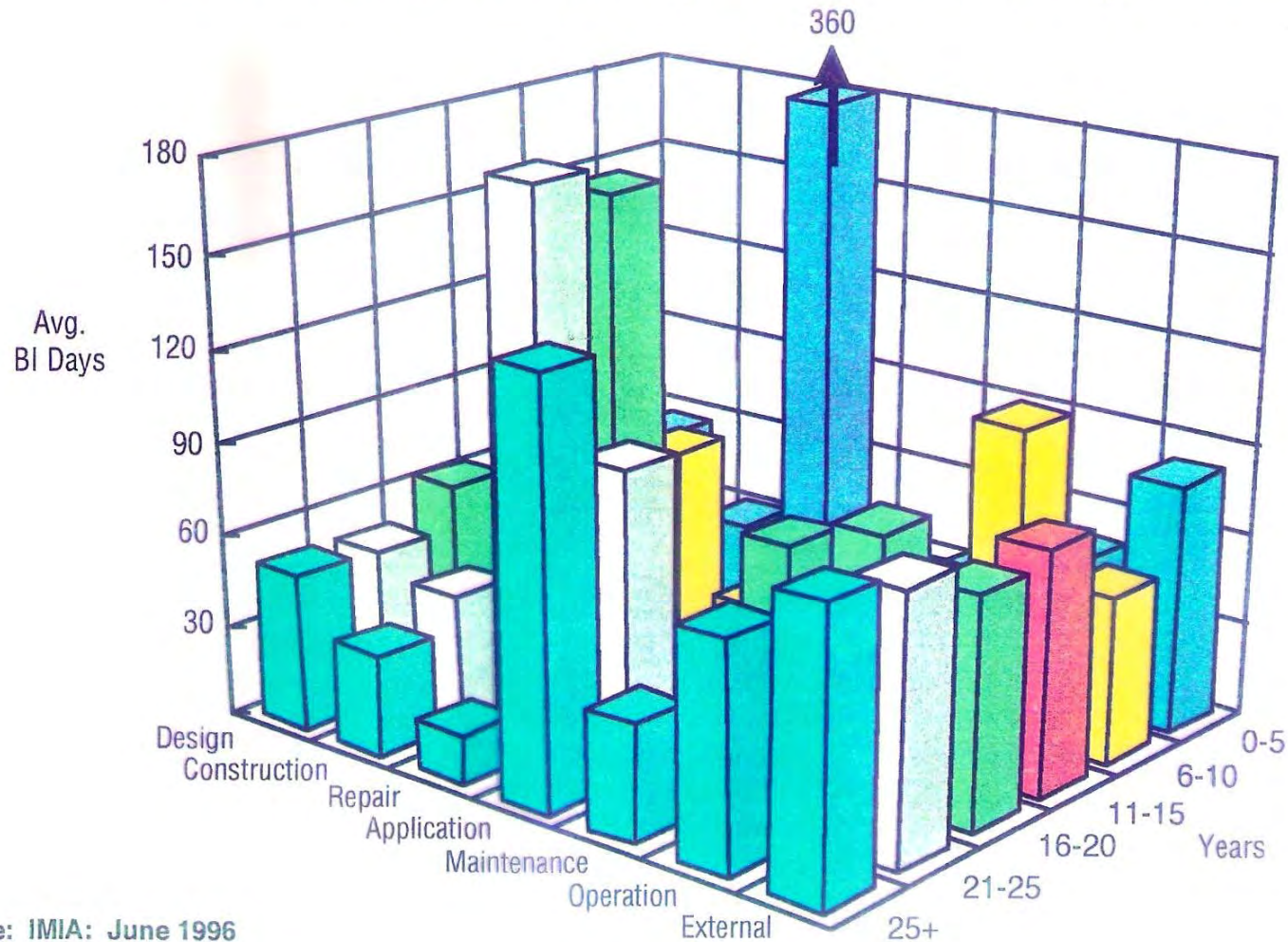


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Age vs. Failure Cause: Severity Analysis

Business Interruption: All Objects

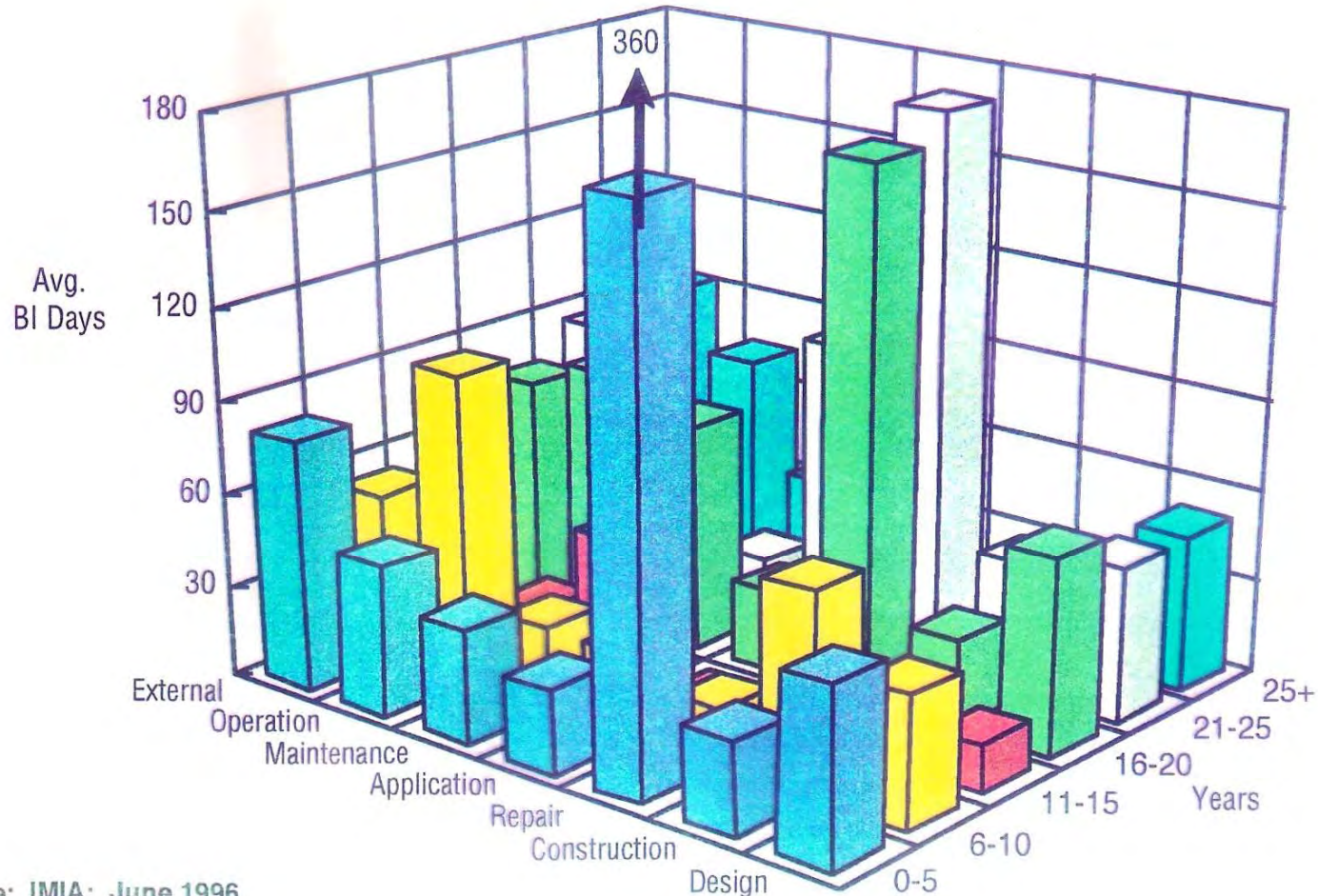


Source: IMIA: June 1996

a) seen from the external 25 years corner

Age vs. Failure Cause: Severity Analysis

Business Interruption: All Objects

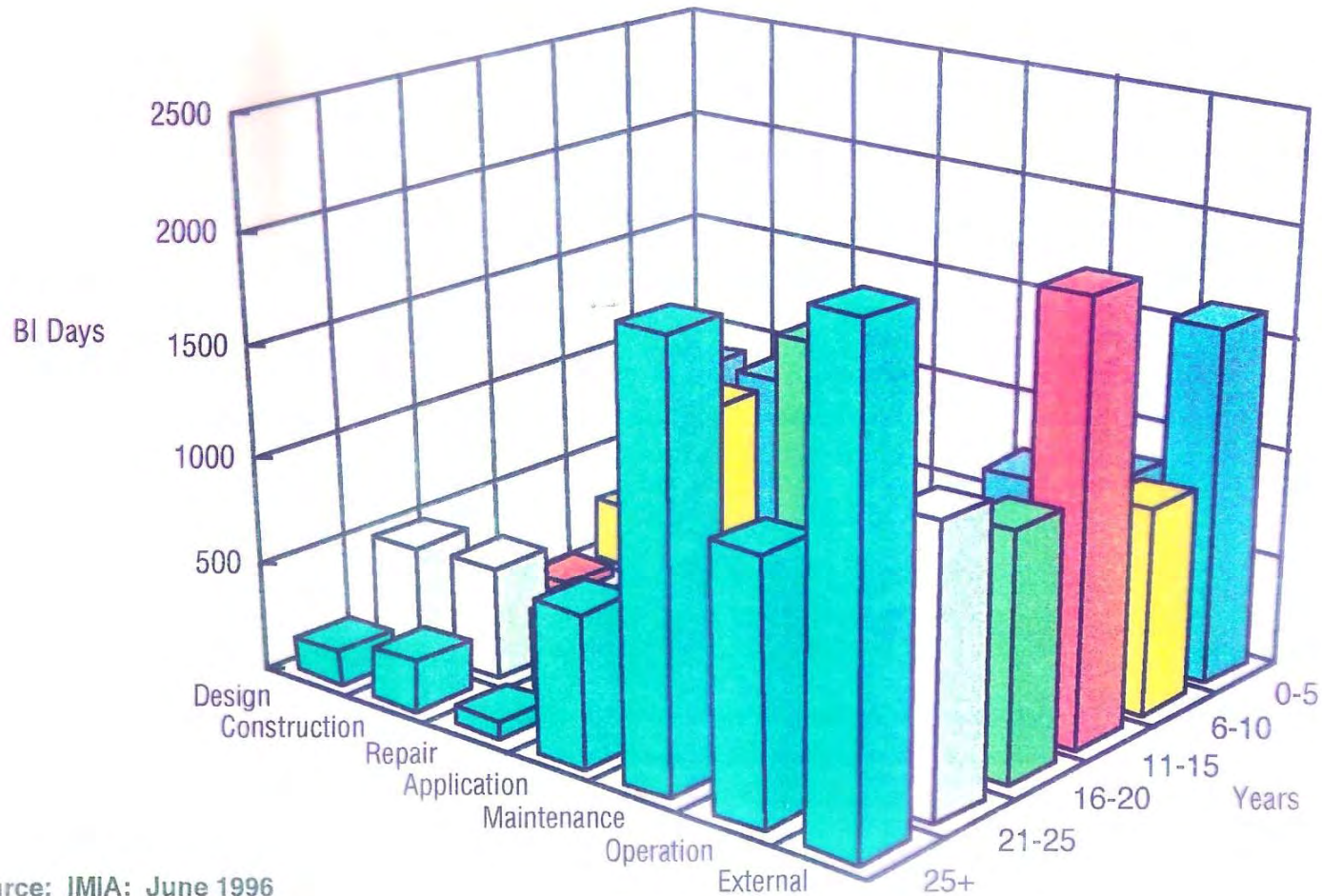


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Age vs. Failure Cause: Risk Analysis

Business Interruption: All Objects

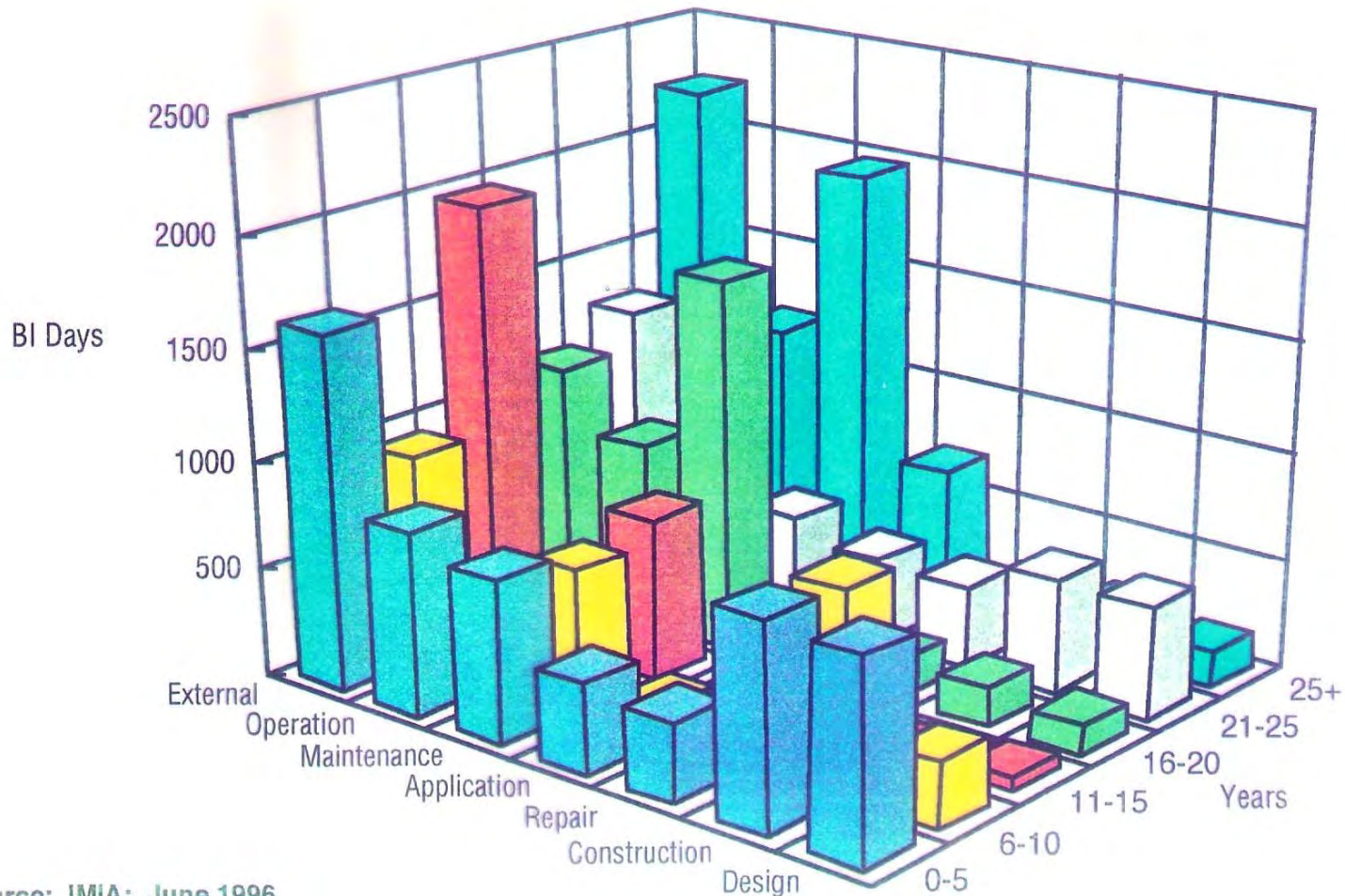


Source: IMIA: June 1996

a) seen from the external 25 years corner

Age vs. Failure Cause: Risk Analysis

Business Interruption: All Objects

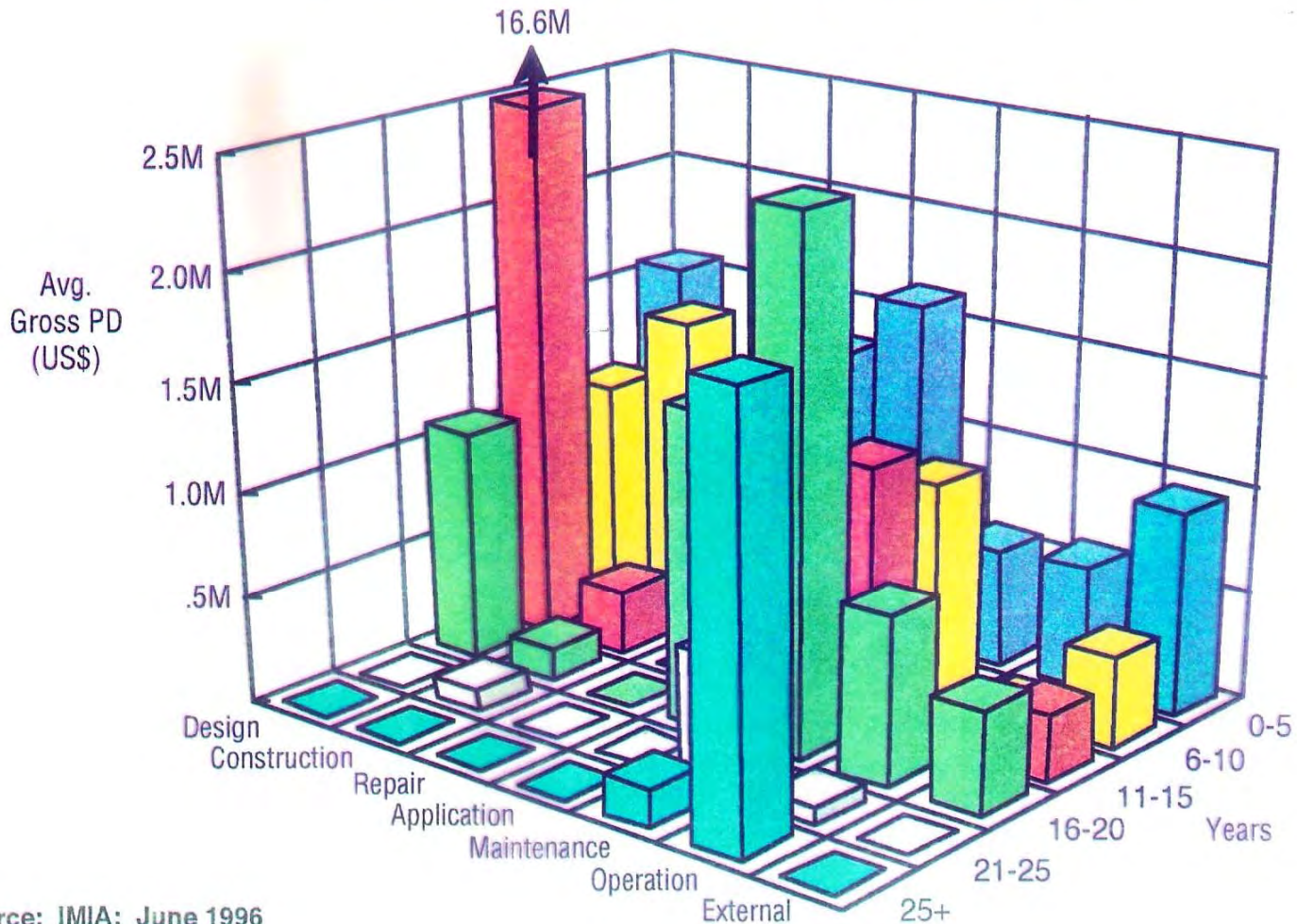


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Gas Turbines: Age vs. Failure Cause

Gross PD Severity Analysis

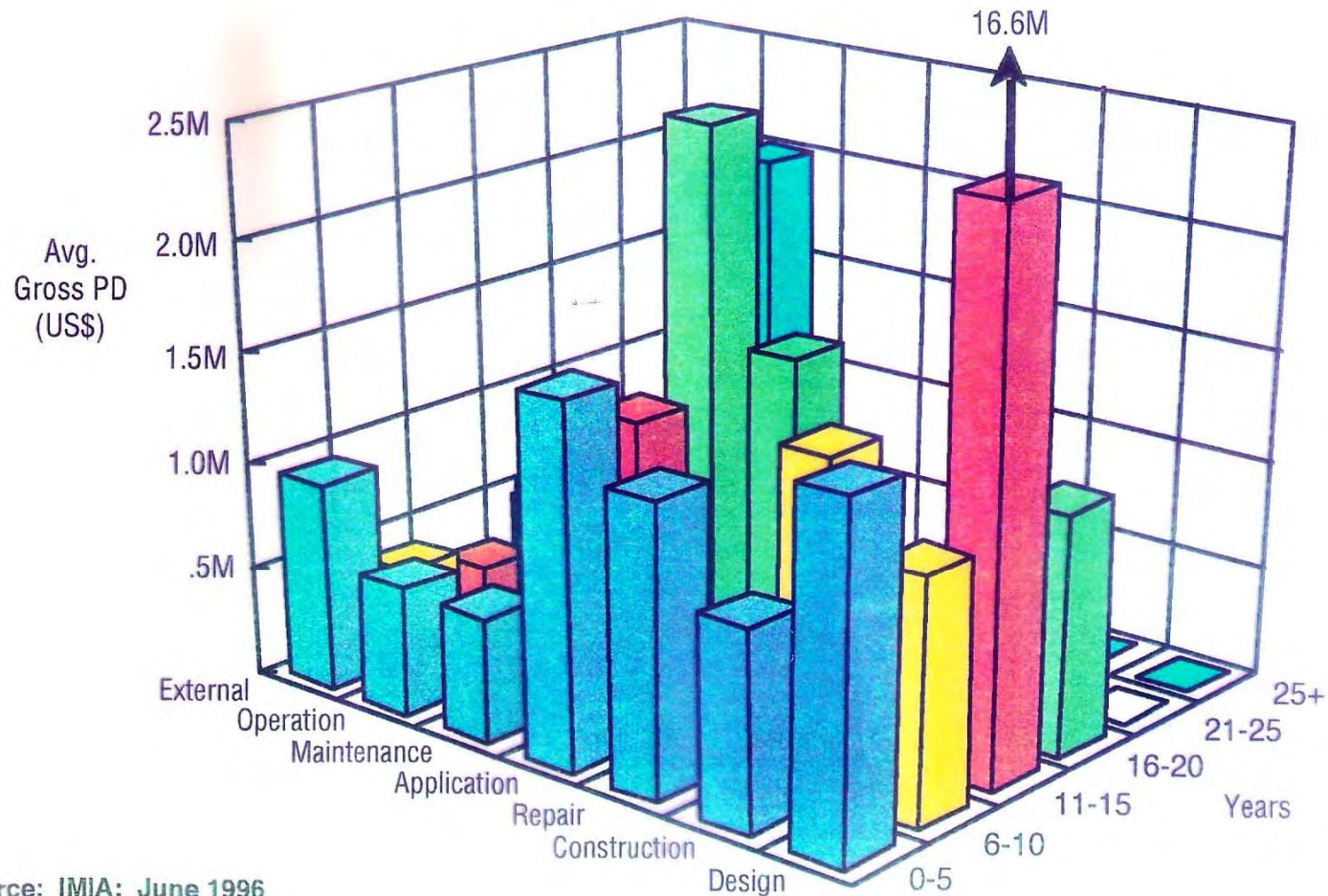


Source: IMIA: June 1996

a) seen from the external 25 years corner

Gas Turbines: Age vs. Failure Cause

Gross PD Severity Analysis

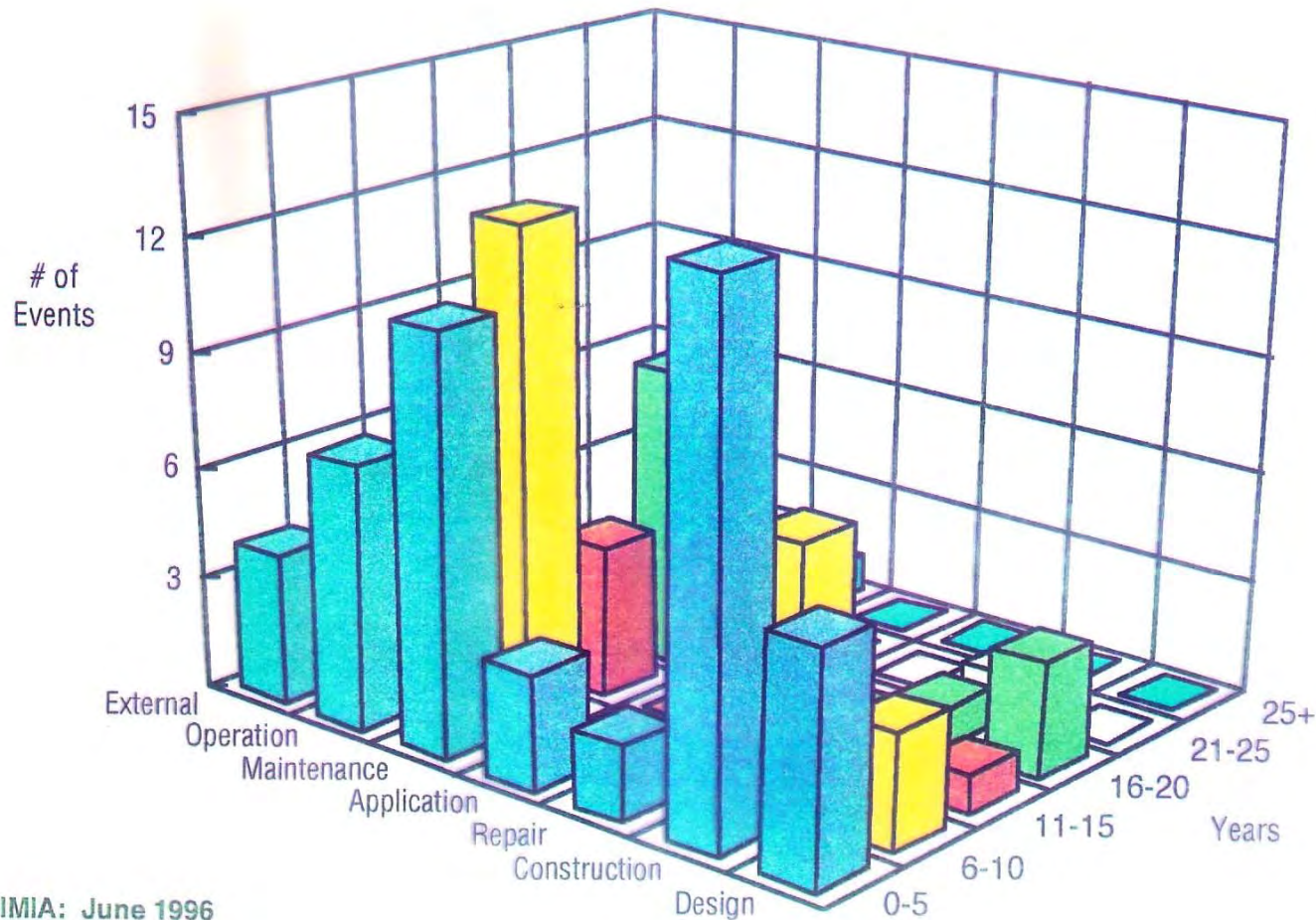


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Gas Turbines: Age vs. Failure Cause

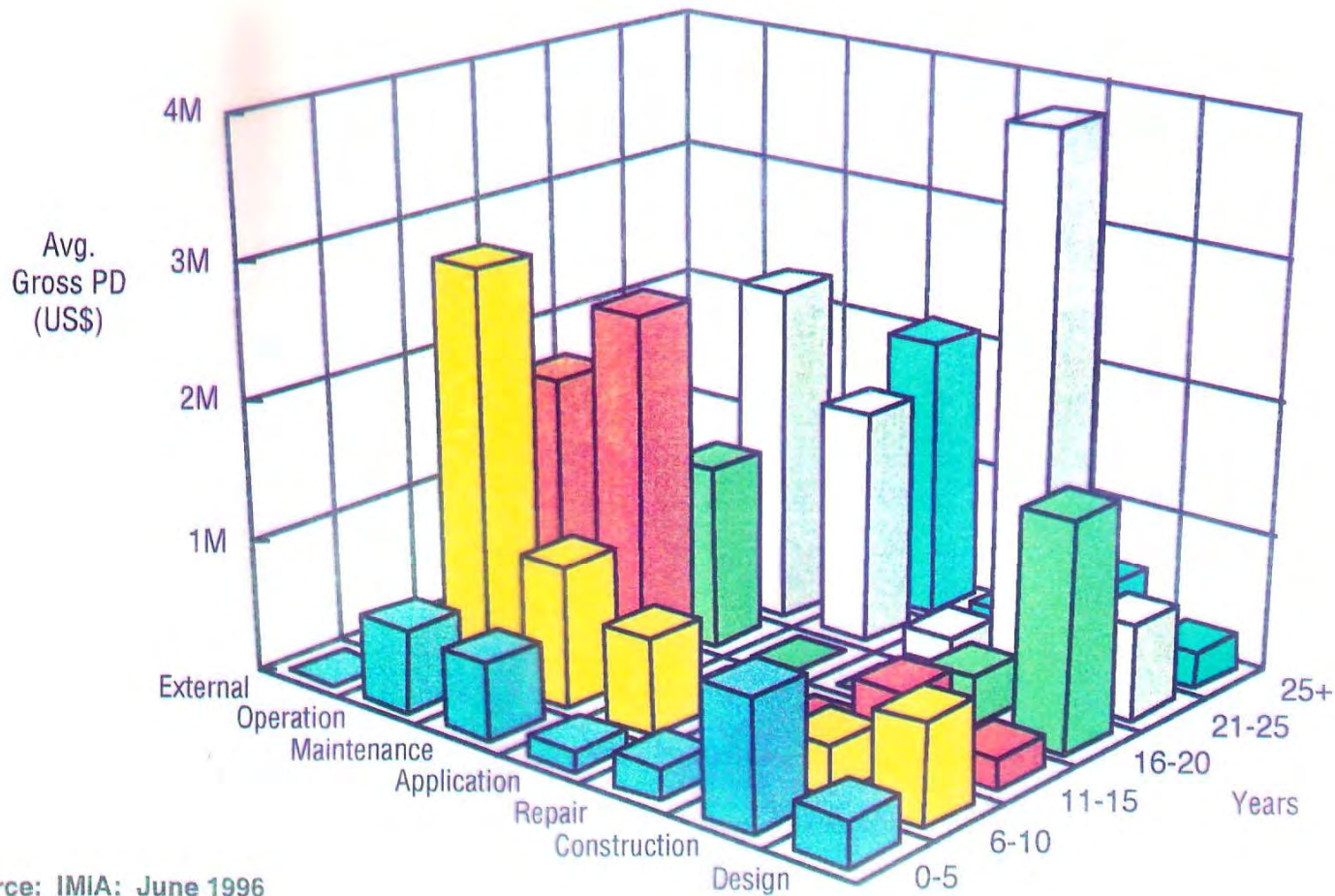
Gross PD Frequency Analysis



Source: IMIA: June 1996

Steam Turbines: Age vs. Failure Cause

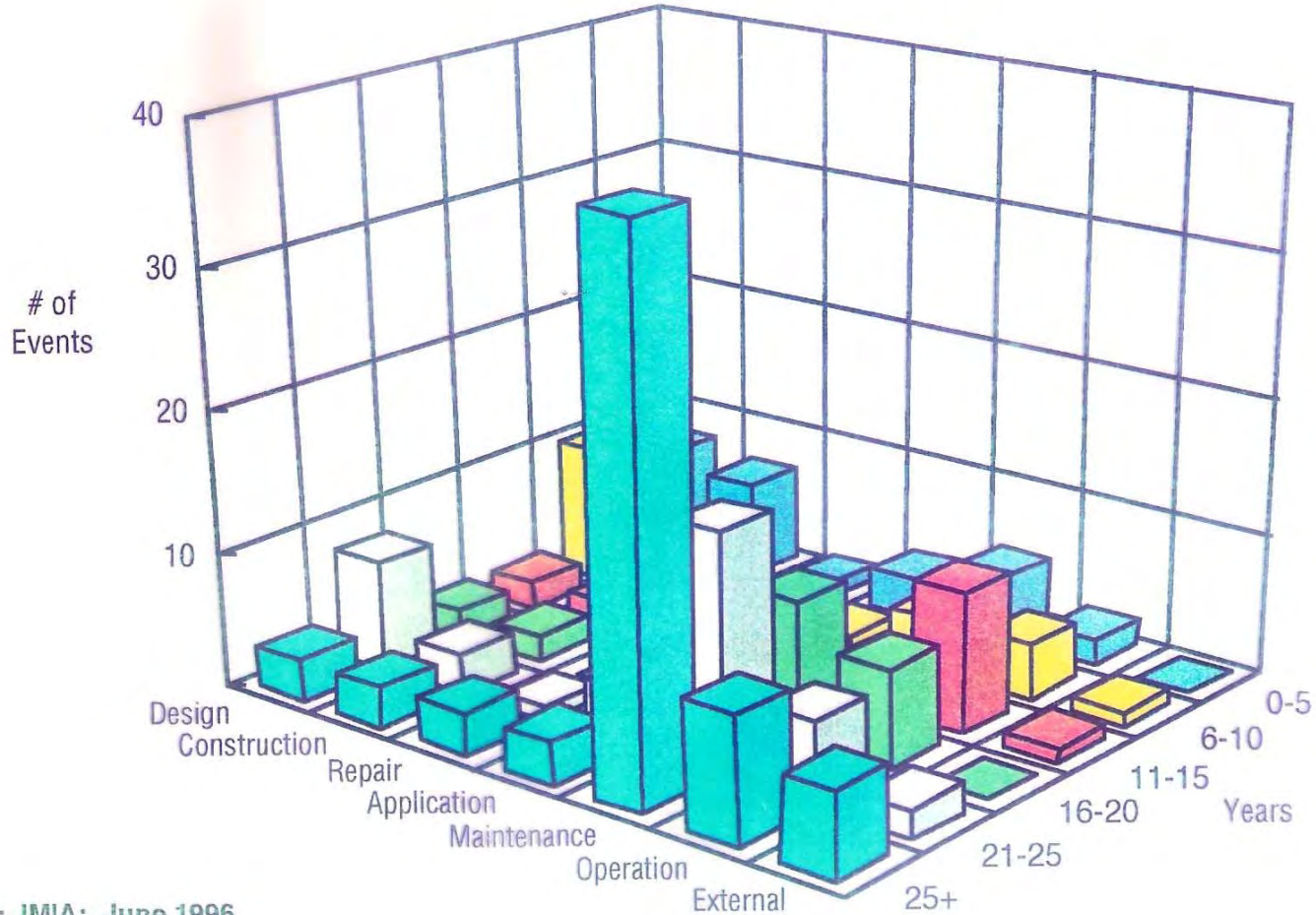
Gross PD Severity Analysis



Source: IMIA: June 1996

Steam Turbines: Age vs. Failure Cause

Gross PD Frequency Analysis

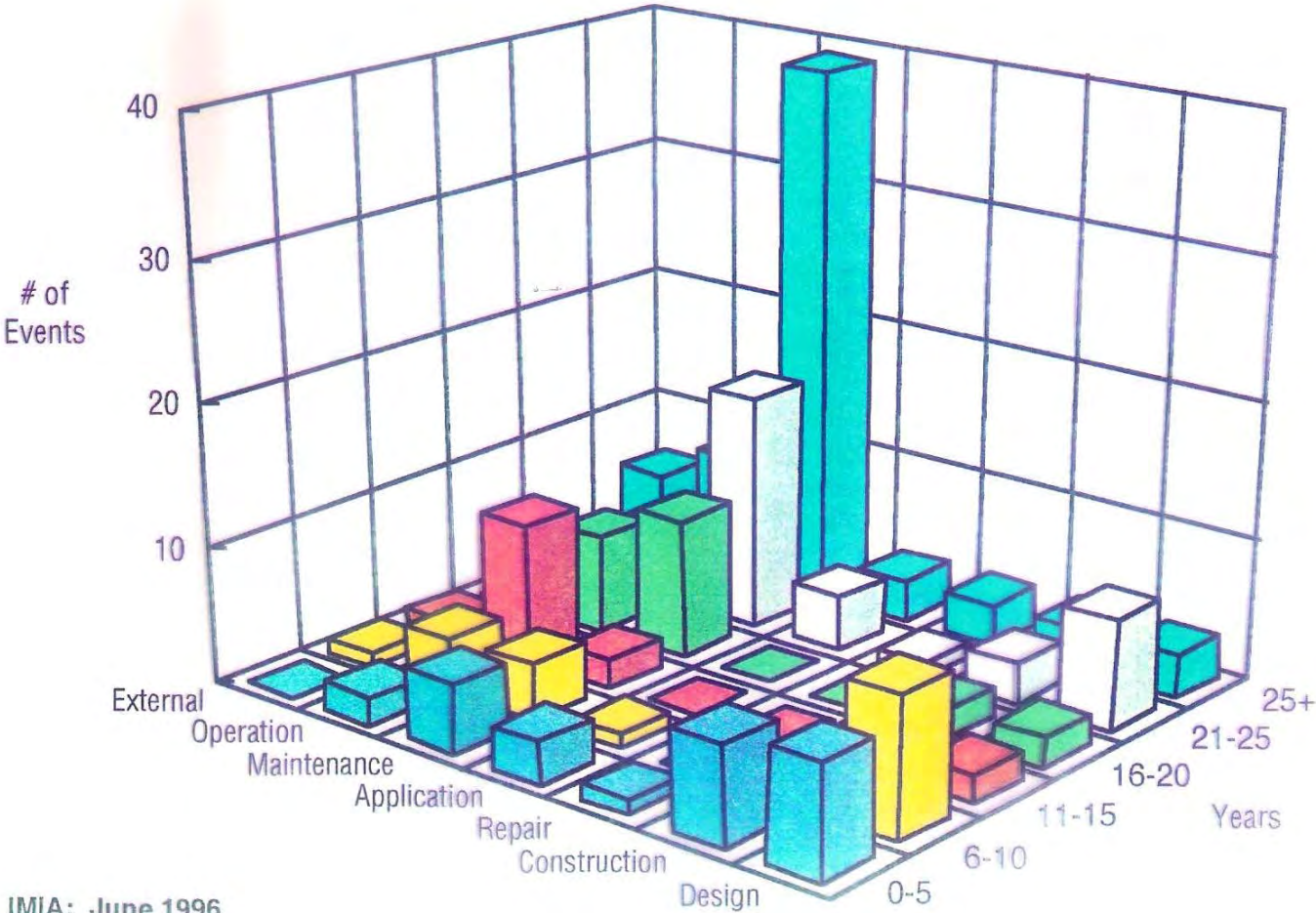


Source: IMIA: June 1996

a) seen from the external 25 years corner

Steam Turbines: Age vs. Failure Cause

Gross PD Frequency Analysis

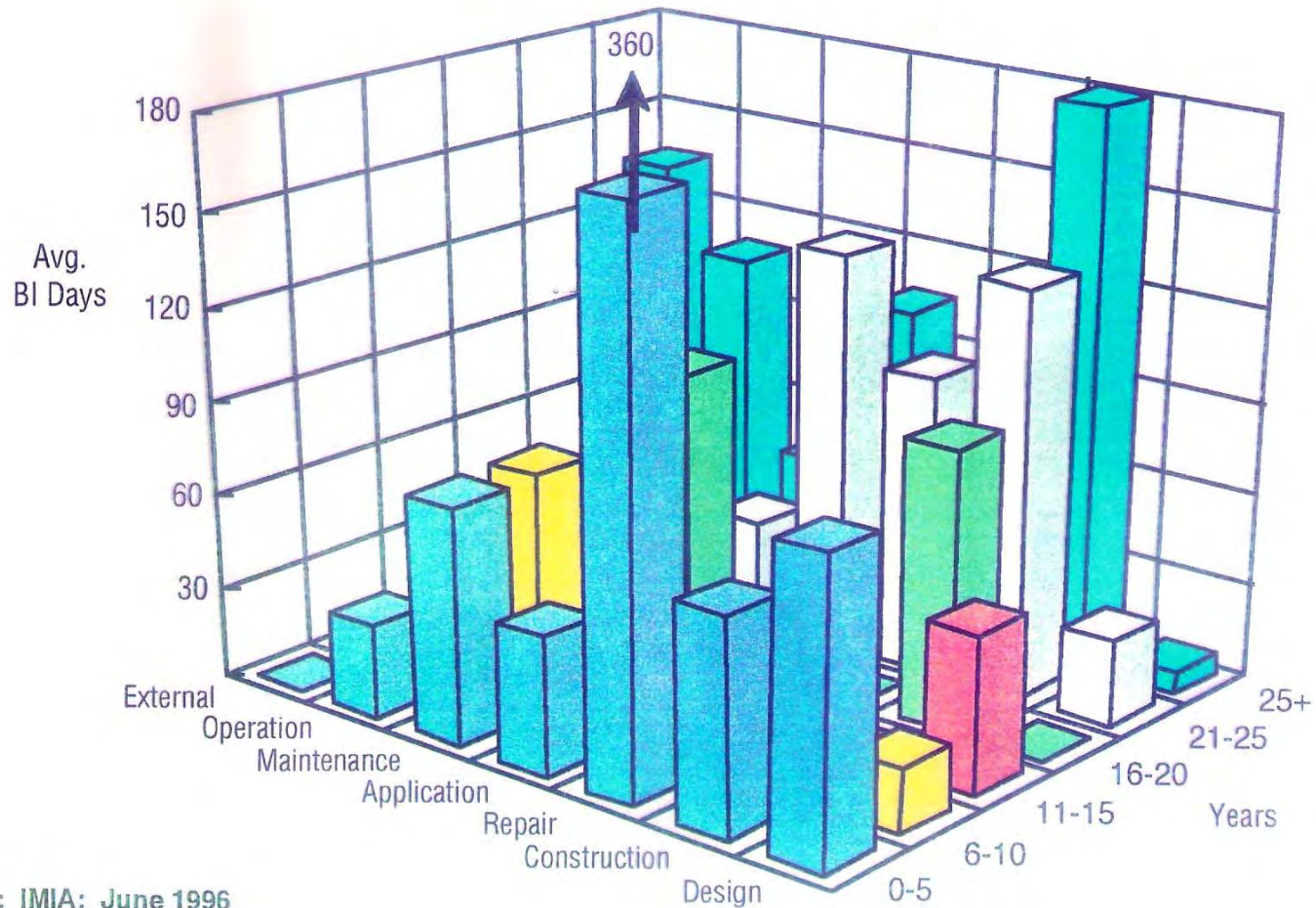


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Steam Turbines: Age vs. Failure Cause

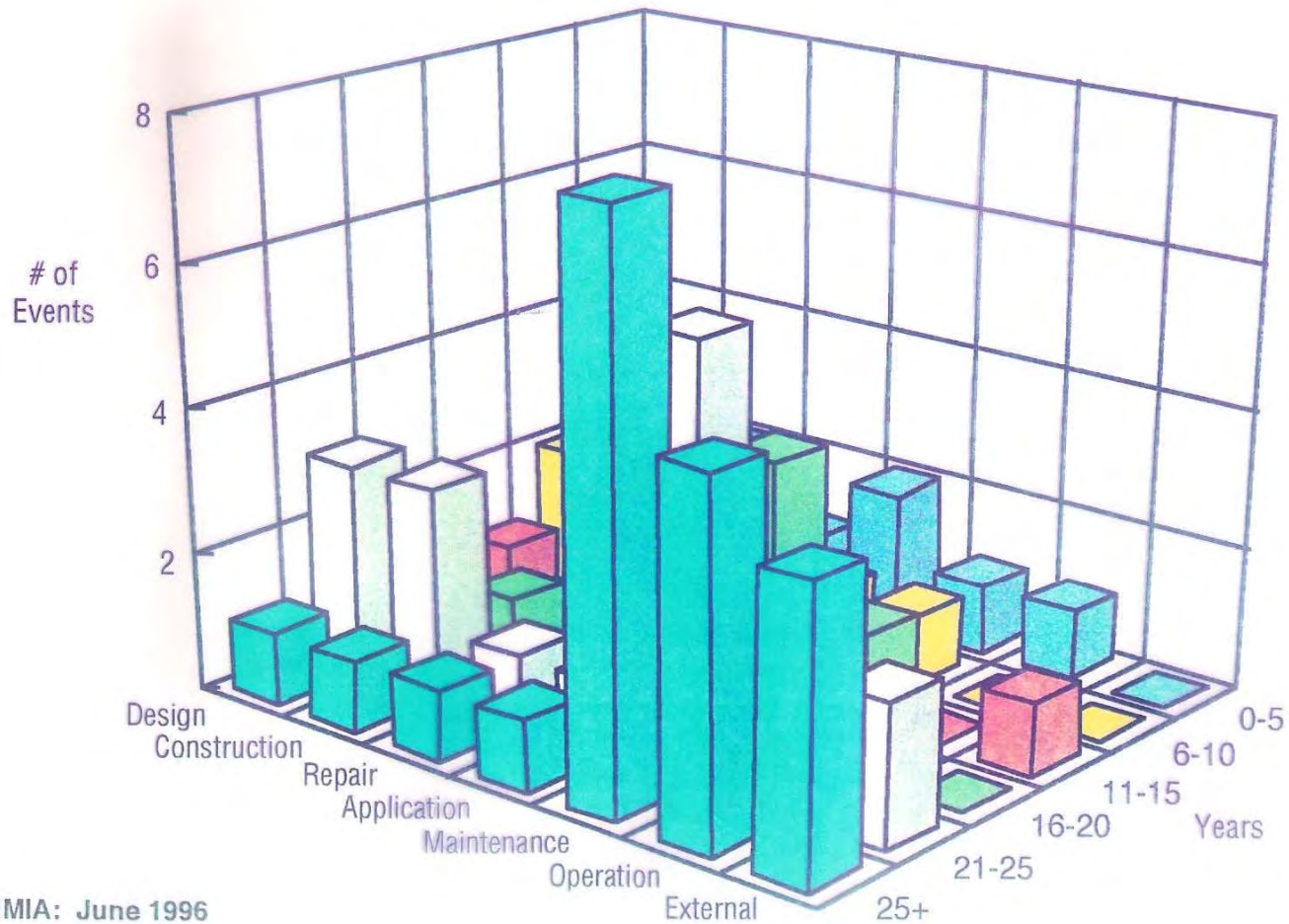
BI Days Severity Analysis



Source: IMIA: June 1996

Steam Turbines: Age vs. Failure Cause

BI Days Frequency Analysis

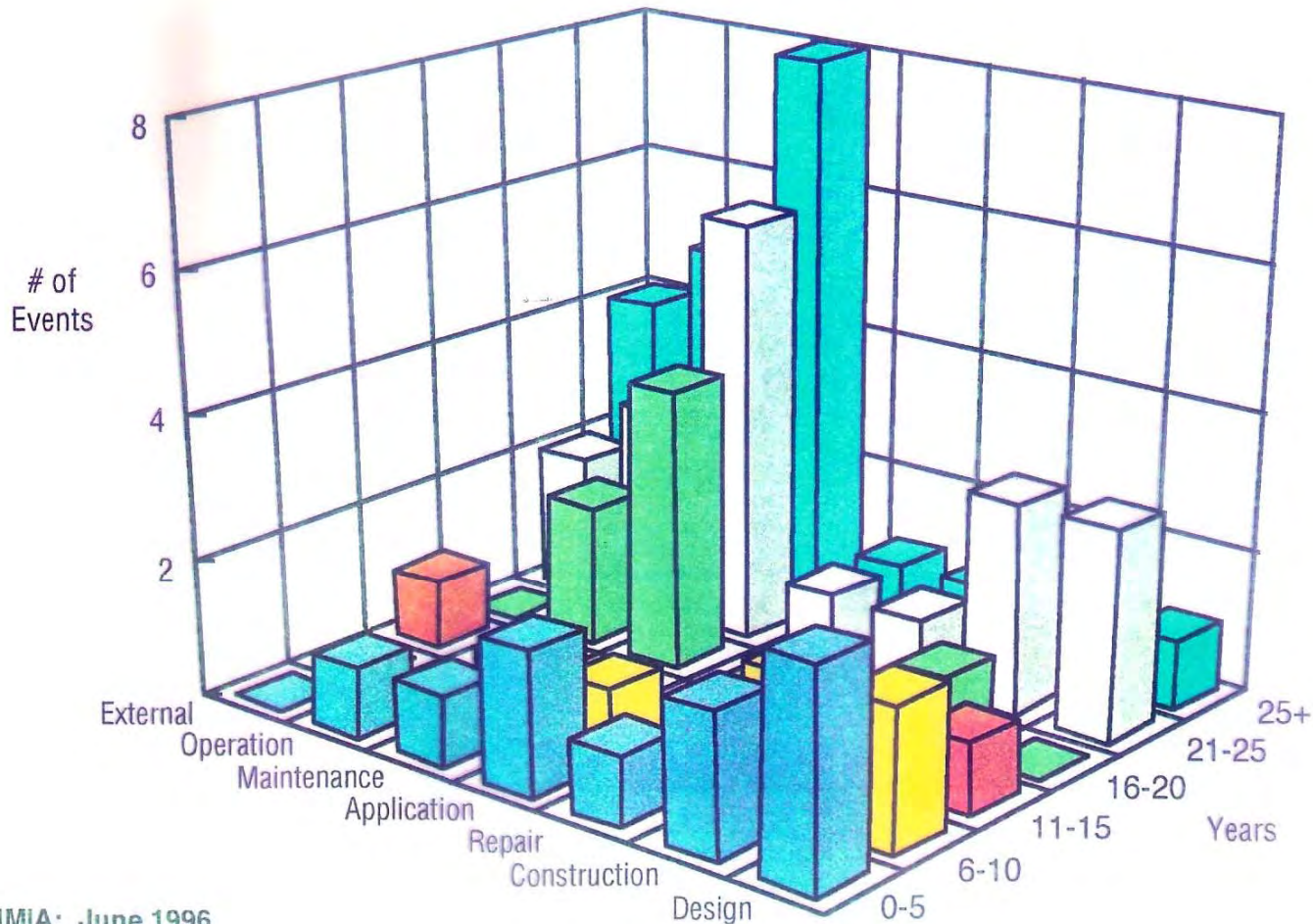


Source: IMIA: June 1996

a) seen from the external 25 years corner

Steam Turbines: Age vs. Failure Cause

BI Days Frequency Analysis

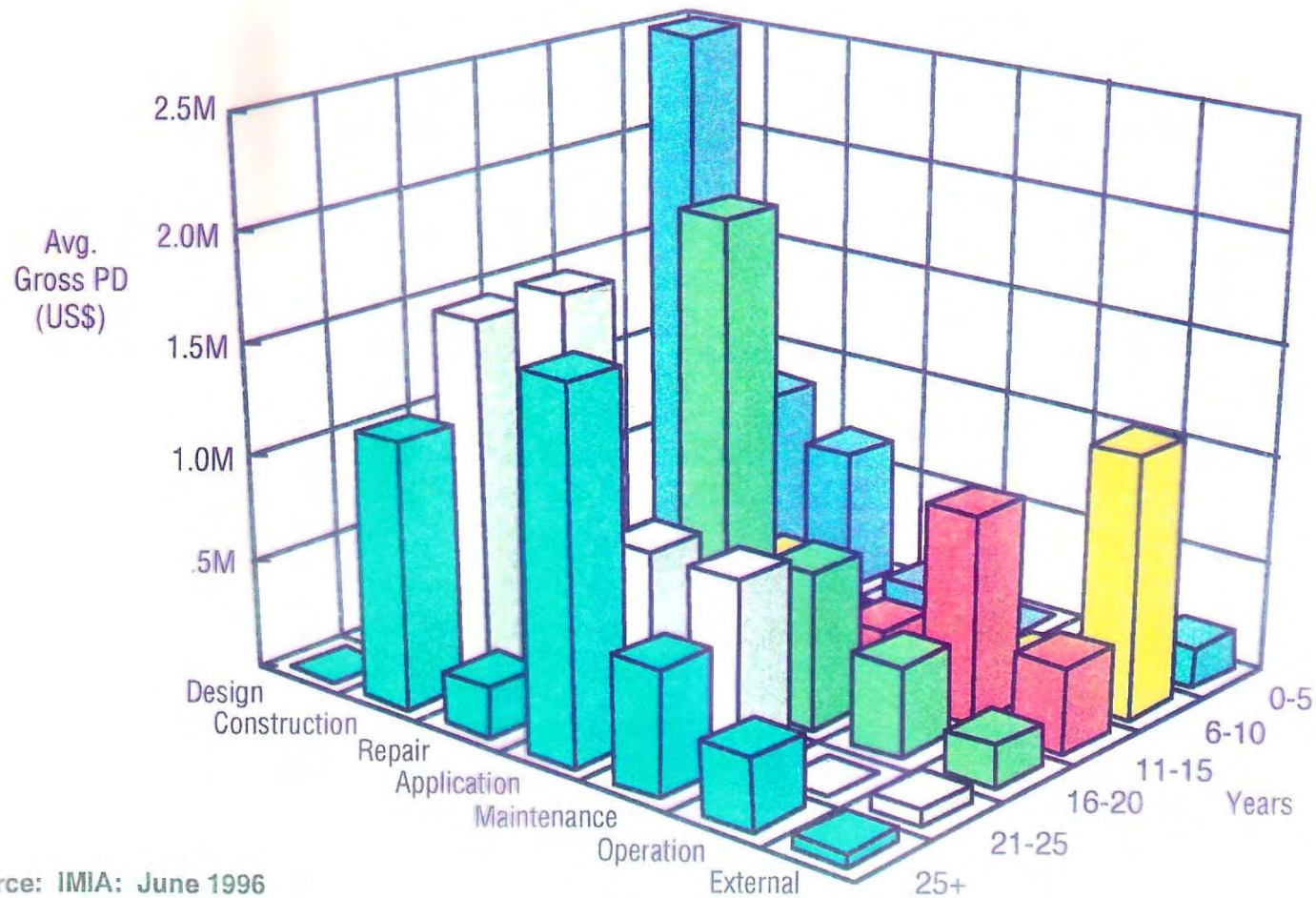


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Transformers: Age vs. Failure Cause

Gross PD Severity Analysis

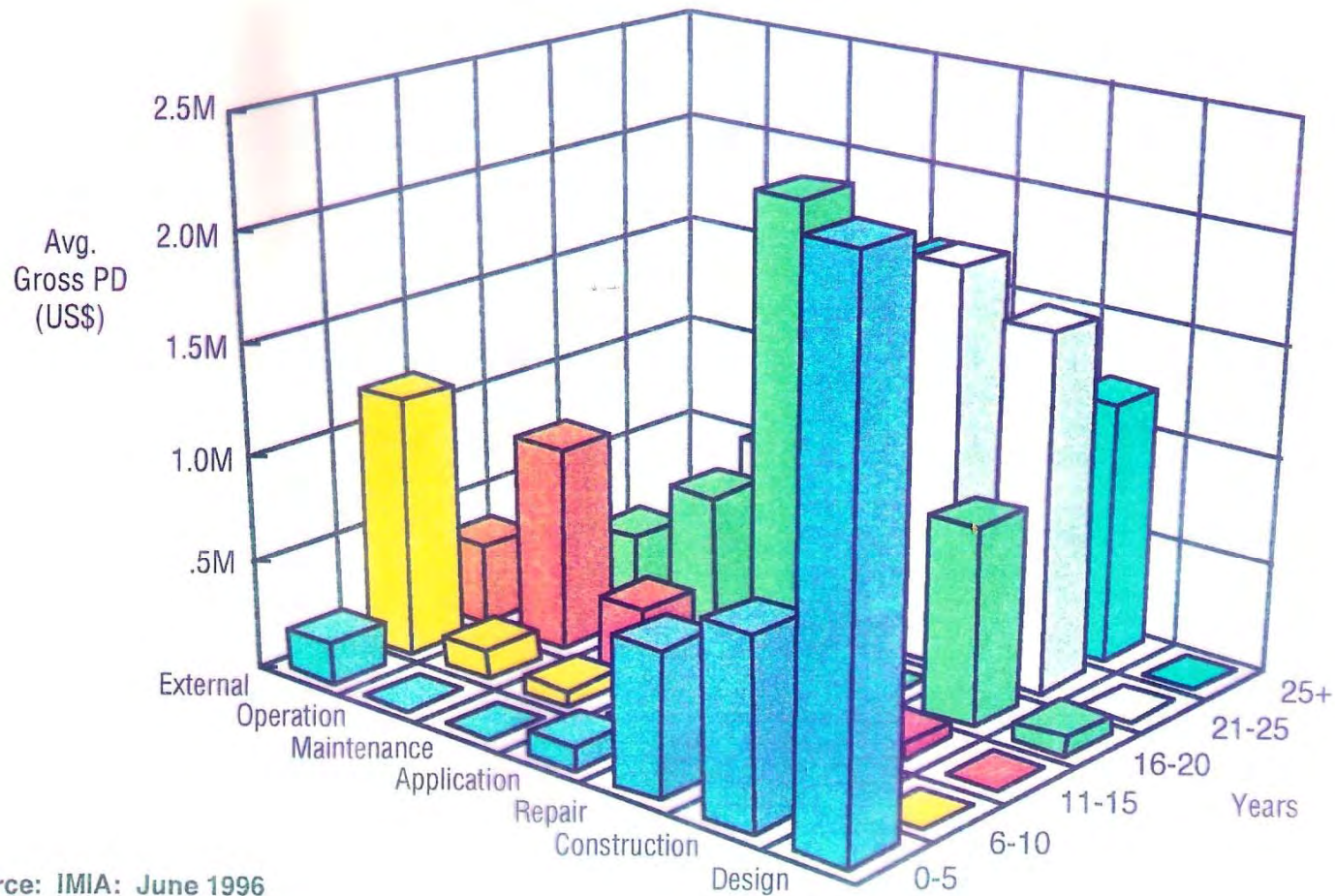


Source: IMIA: June 1996

a) seen from the external 25 years corner

Transformers: Age vs. Failure Cause

Gross PD Severity Analysis

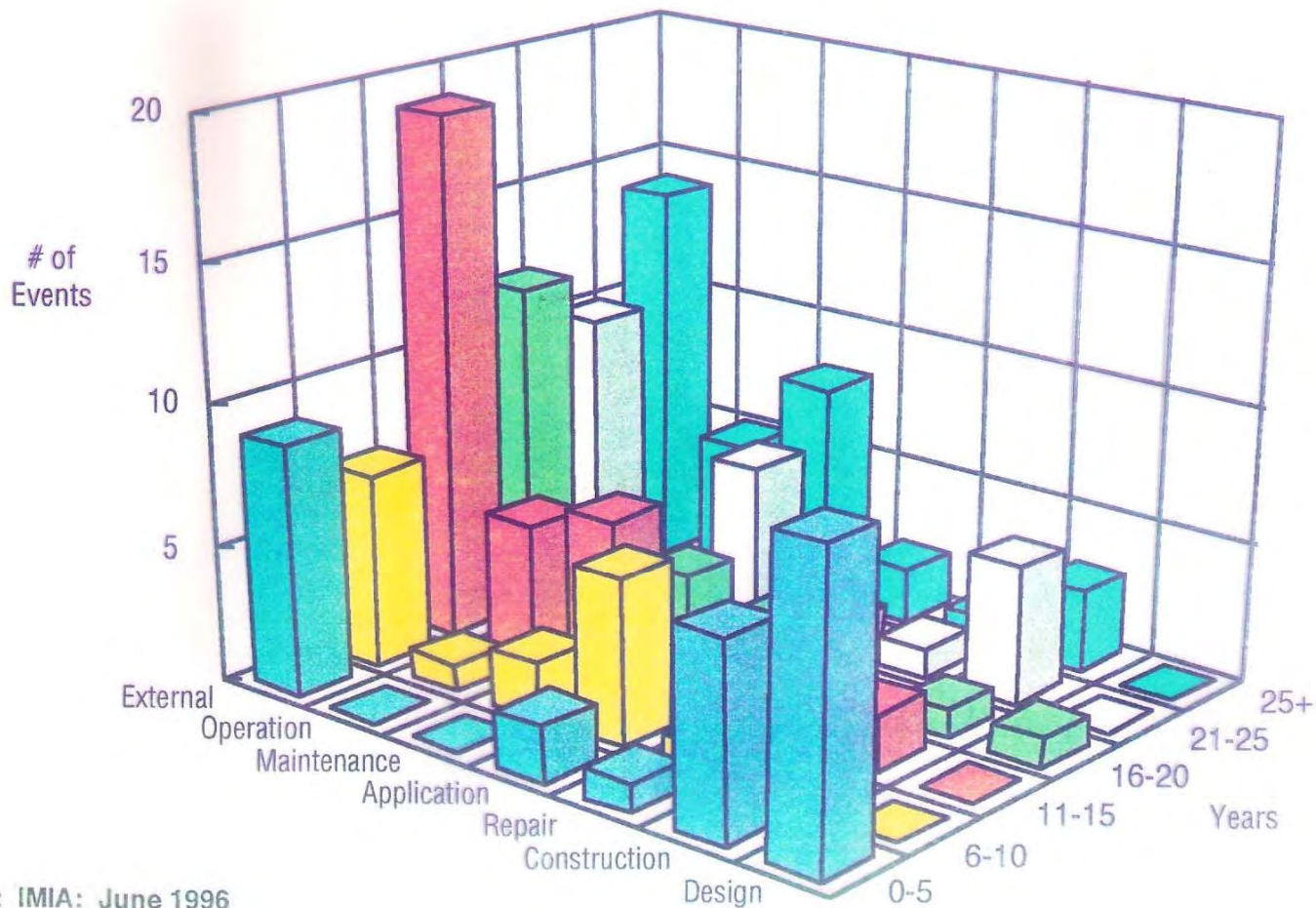


Source: IMIA: June 1996

b) seen from the Design 0-5 years corner

Transformers: Age vs. Failure Cause

Gross PD Frequency Analysis



Source: IMIA: June 1996

Next Steps

- **A World-wide Data Collection & Compilation can be Successful**
- **Continued Success Requires Continuous Data**
- **IMIA's Main Role in This Effort Should Concentrate on the Severity Factor of the Risk Equation**
- **The Best Application of the Current Database is to Serve as an Information Resource for Specific Questions**