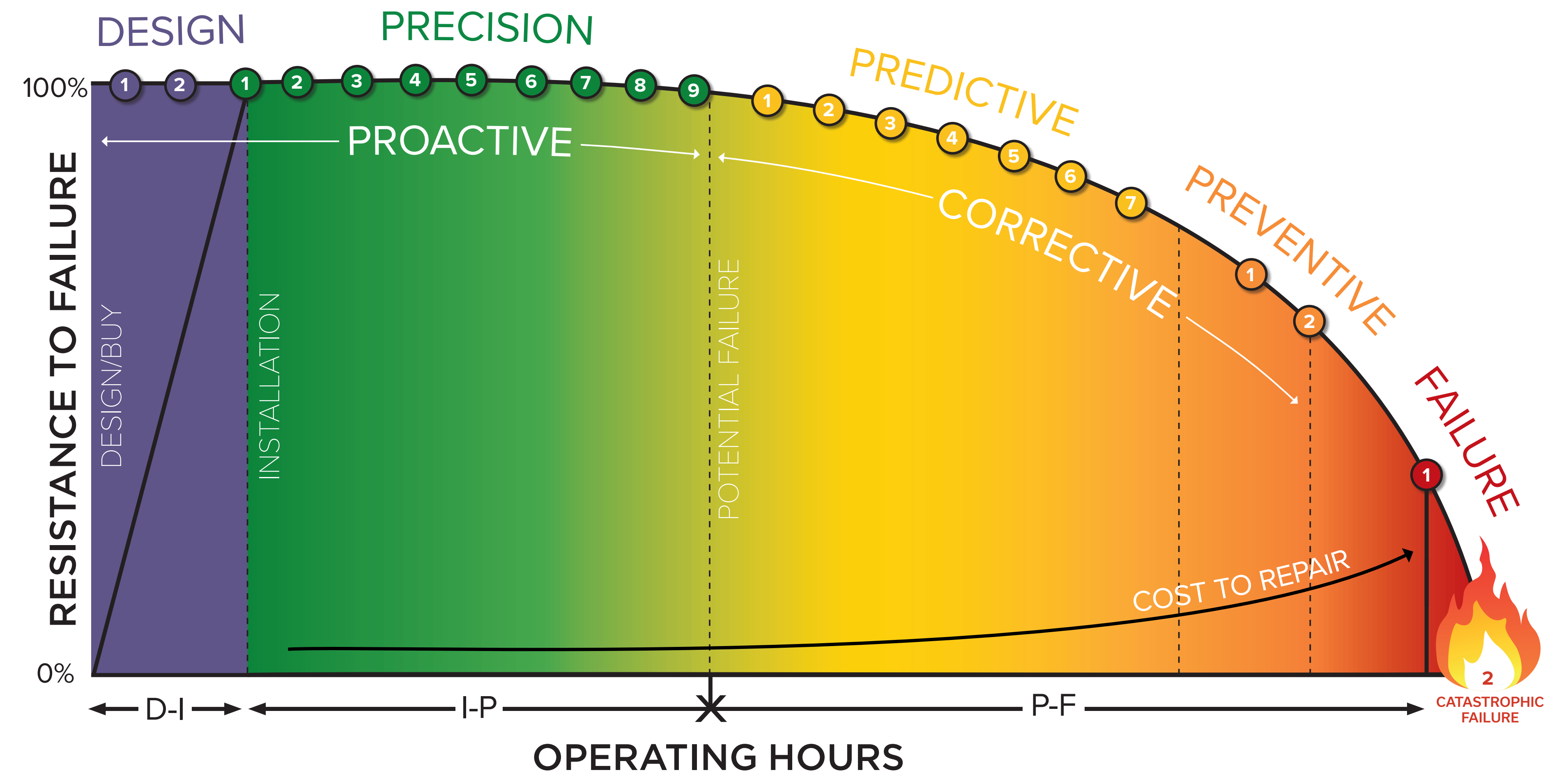


HOW FAILURE OCCURS

D-I-P-F CURVE (DESIGN-INSTALLATION-POTENTIAL FAILURE-FAILURE)

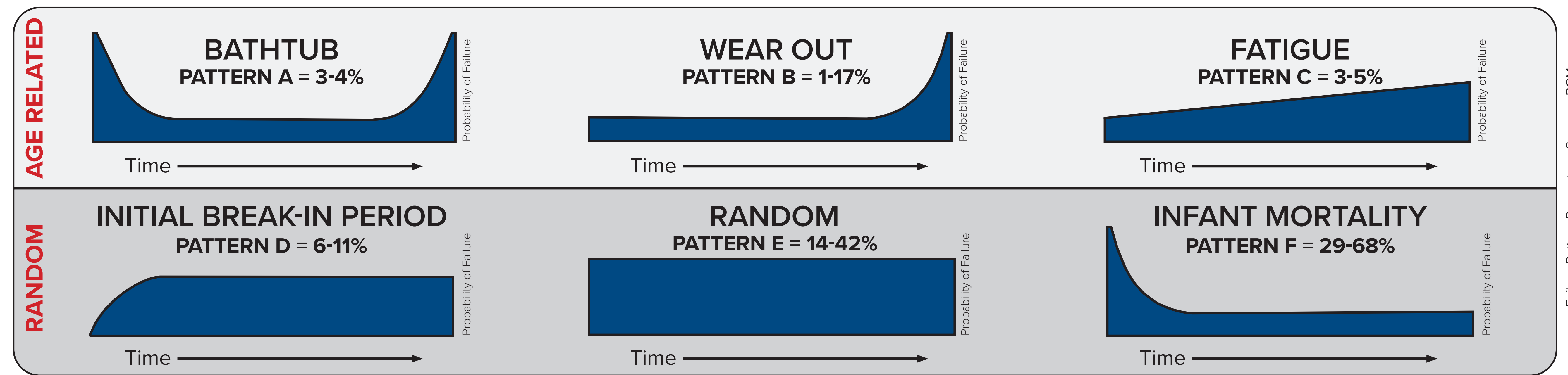


Attribution/inspiration: The D-I-P-F curve was originally developed by Doug Plucknette, Certified Reliability Leader, Author, *RCM Blitz* (ISBN: 978-0-9838741-6-4) and further modified/evolved by Brian Heinsius, Certified Reliability Leader

- DESIGN/BUY**
- 1 Design for Reliability (DFR)
 - 2 Purchase for Purpose
- PRECISION**
- 1 Precision Commissioning
 - 2 Precision Installation
 - 3 Defect Elimination
 - 4 Precision Alignment and Balancing
 - 5 Work Processes and Procedures
 - 6 Asset Condition Management
 - 7 Lubrication Reliability
 - 8 Clean to Inspect (5S)
 - 9 Operate for Reliability
- PREDICTIVE**
- 1 Condition Directed Tasks
 - 2 Ultrasound Testing (UT)
 - 3 Fluid Analysis (FA)
 - 4 Vibration Analysis (VIB)
 - 5 Motor Testing (MT)
 - 6 Infrared Imaging (IR)
 - 7 Non Destructive Testing (NDT)
- PREVENTIVE**
- 1 Time-Directed Tasks
 - 2 Human Senses (audible noise, hot to touch, smell)
- FAILURE**
- 1 Functional Failure
 - 2 Catastrophic Failure

FAILURE PATTERNS

Random failures account for 77-92% of total failures and age related failure characteristics for the remaining 8-23%.



Failure Pattern Percentage Sources: RCM by Nowlan and Heap, US Navy, Bromberg



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