

1.

1979 TMI
가
가
가
가
1970 1980
NRC [1-8] IAEA, OECD/NEA MIT
가

2. w -factor ^[9]

가
SAM (System-Action-Management) ^[10], MACHINE (Model of Accident Causation using Hierarchical Influence Network)^[11], ISM (Integrated Safety Model)^[12], w -factor, WPAM (Work Process Analysis Model)^[13-14], I-RISK^[15] 가
 w -factor
 w -factor PSA 가
(modular structure) 가
가

가

PSA

가

“poor” “good”

(Common Cause Failure, CCF)

w “inherent”

$$w \equiv \frac{I_o}{I_I} \tag{1}$$

$$I_{Total} = I_I + I_o \tag{2}$$

I_I :
 I_o :

$$I_{Total} = (1+w)I_I \tag{3}$$

w 가

w

$$I = I_I + I_o \tag{2}$$

(exposure time)

$$I = \frac{N_I}{T} + \frac{N_{Fo}}{T} \tag{4}$$

N_{Fo} :
 $N_{maint.}$:

$$w = \frac{N_{Fo}}{N_I} \tag{5}$$

(Performance Shaping Factors, PSFs)

PSFs

(, 가 ,)

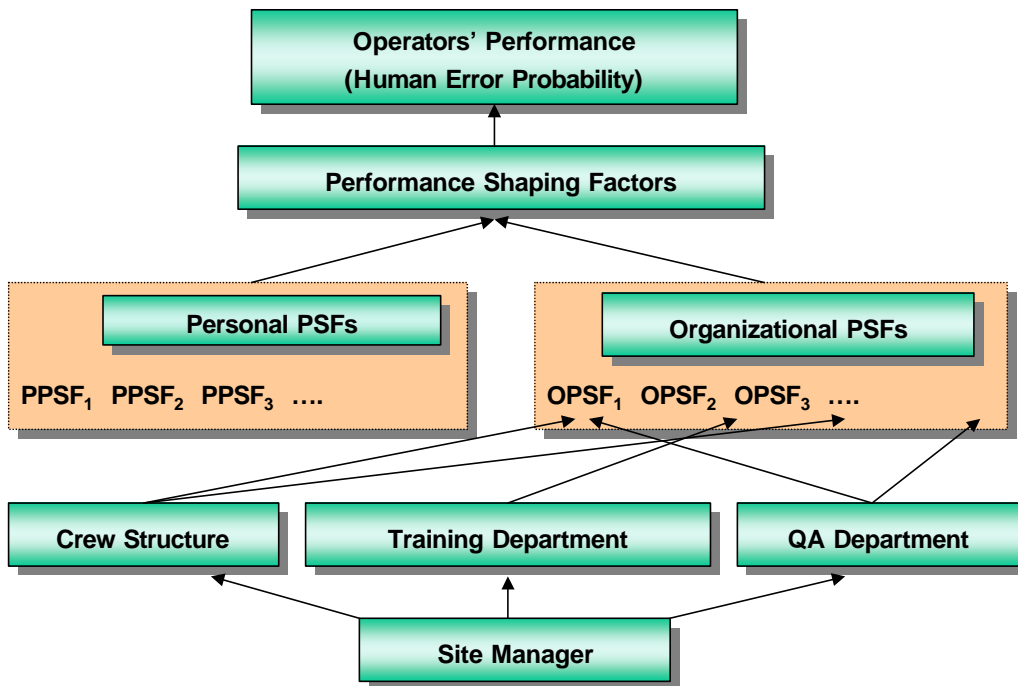
가

$$h_{total} = h_I + h_O \quad (6)$$

$$w = \frac{h_O}{h_I} \quad (7)$$

1

가 0 ~ 10



1.

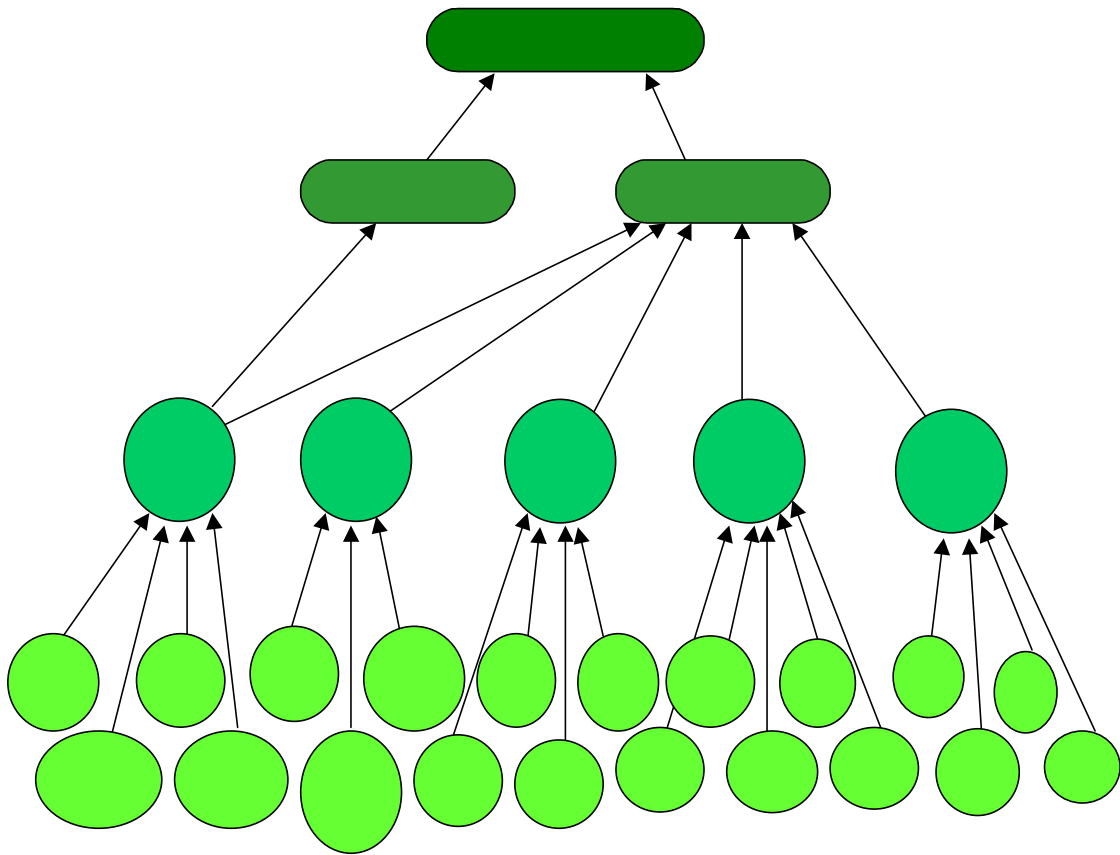
PSF 가(Mosleh

5).

3. 가

W-factor I_o h_o 가 가
 가 . 가 (Influence
 Diagrams, IDs)^[16] 가 .

, 가



2.

2 가 가 가

가 ,

가 . 2

(1991~1994)^[8]

5 가

, NRC BNL
 (administrative knowledge),
 (decision making process),

(communications), (culture),
 (human resource allocation) 20 가

. 20 가

2

5 가

, 2

1.

가

2.

“2

3

가 1

”

3.

가

가

(weight of evidence)

. 가 , ‘

‘ , ‘ , ‘ , ‘

가

, ‘ , ‘

,

‘ , ‘

,

가

가

4.

가

5.

3,4

가

6.

7.

가

8. Nominal

가

9.

10.

W-factor

insight

가

(5)

w

. 가

) 100 가 . 100

4

가

가 . T = 100 가

:

(i) : $I = \frac{4}{100} = 0.04$

(ii) : $I = (1+w)I_I$

- (5) $w = \frac{N_{Fo}}{N_I}$

$w = \frac{1}{3}$

- $I = \left(1 + \frac{1}{3}\right) \cdot \frac{3}{100} = 0.04$ (i)

0.03 ,

0.01 .

0.04

0.03

가

가

4.

가

가

가

가

가

가 / /

가

, W-factor

NRC-BNL

20 가

5 가

가

가

가

20 가

가

5.

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