



# Understanding and using the ETTO principle

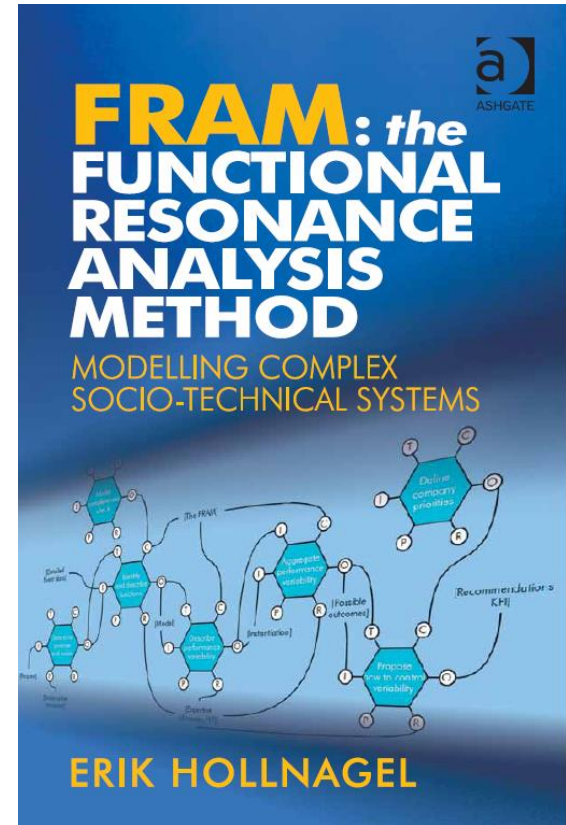
To assess risk in FRAM models

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# Agenda

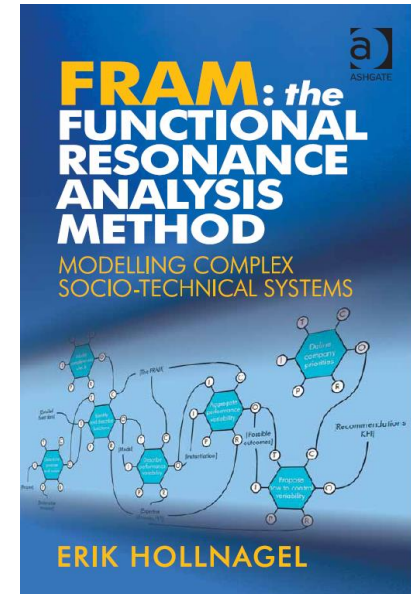
- The basis of FRAM
- The ETTO principle and the 17 ETTO rules
- Examples of adjustments and related ETTO rules
- Conclusion



# The basis of FRAM

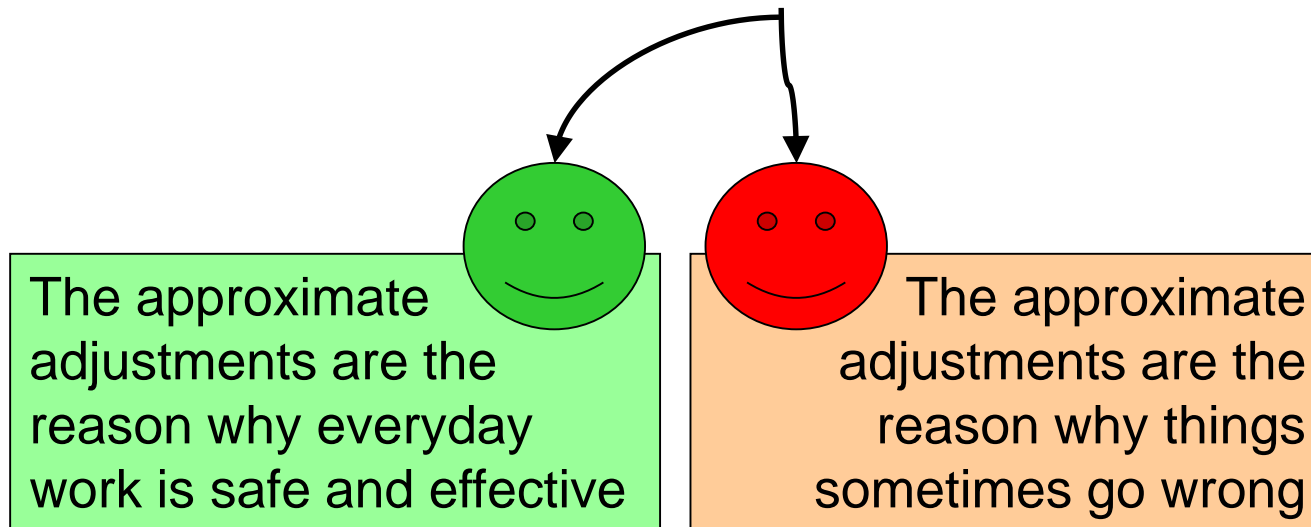
FRAM is based on four underlying principles:

1. The Principle of Equivalence of successes and failures
2. The Principles of Approximate Adjustments
3. The Principles of Emergence
4. The Principles of Functional Resonance



# 1. Equivalence

- Individuals and organizations must adjust to the current conditions in everything they do
- Because time, information and resources always are finite, the adjustments will always be approximate



## 2. Approximate Adjustments

Time to think



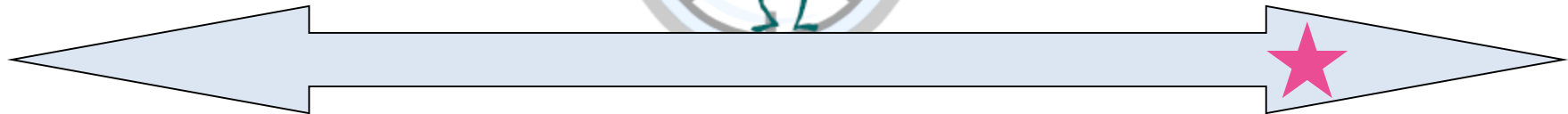
Thoroughness



Time to do



Efficiency



ETTO★ and TETO

# Definitions

## Thoroughness

- An activity is carried out only if the individual or organization is confident that the necessary and sufficient conditions for it exist so that the activity will achieve its objective and not create unwanted outcome

People are expected to be both efficient and thorough at the same time

## Efficiency

- An activity is carried out with the amount of resources sufficient to achieve its objective (good enough to be accepted)
- Resources:
  - ✓ Time
  - ✓ Materials
  - ✓ Money
  - ✓ Psychological effort (workload)
  - ✓ Physical effort (fatigue)
  - ✓ Manpower (number of people)

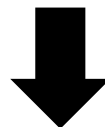
# ETTOing

## Time to think

- Recognizing situation
- Choosing and planning
- If thoroughness dominates there may be too little time to act

## Time to do

- Implementing plans
- Acting
- If efficiency dominates, actions could be badly prepared or wrong and preconditions could be missed



Adjustments

No.	Work related ETTO rules
1	'It looks fine'
2	'It is not really important'
3	'It is normally OK, there is no need to check'
4	'It is good enough for now'
5	'It will be checked later by someone else'
6	'It has been checked earlier by someone else'
7	'Doing it this way is much quicker'
8	'There is no time (or resources) to do it now'
9	'We must not use too much of X'
10	'I cannot remember how to do it'
11	'We always do it in this way here'
12	'It looks like a Y, so it probably is a Y'
13	'It normally works'
14	'We must get this done'
15	'It must be ready in time'
16	'If you don't say anything, I won't either'
17	'I am not an expert on this, so I will let you decide'

## The ETTO rules



Adjustments to save time

Handout



## Example 1. Adjustment and ETTO rules

### Work-as-imagined

The General Practitioner reads the full text of the CT-scan test result

### Work-as-done

The General Practitioner reads only the headings of the CT-scan test result, saving time for other patients

A habit shown to be effective

ETTO rules?

*Rule no. 1 'It looks fine'*

*Rule no. 3 'It is normally OK, there is no need to check'*

*Rule no. 6 'It has been checked earlier by someone else'*

*Rule no. 13 'It normally works'*

## Example 1. Adjustment and ETTO rules

### Work-as-imagined

The General Practitioner reads the full text of the CT-scan test result

### Work-as-done

The General Practitioner reads only the headings of the CT-scan test result, saving time for other patients

A habit shown to be effective

The General Practitioner gave the following reasons for his way of working:

- 'I have always done it in this way and it normally works'
- 'I save time for other patients and for unexpected situations'

## Example 2. Adjustment and ETTO rules

### Work-as-imagined

The General Practitioner expects that the heading of the test result includes all findings, both the main finding related to the suspicion of cancer and incidental findings that need action to be taken

### Work-as-done

The heading includes only the main finding related to the suspicion of cancer and not incidental findings.

ETTO rules?

*Rule no. 11 'We always do it in this way here'*

## Example 2. Adjustment and ETTO rules

### Work-as-imagined

The General Practitioner expects that the heading of the test result includes all findings, both the main finding related to the suspicion of cancer and incidental findings that need action to be taken

### Work-as-done

The staff at the hospital said that the heading includes only the main finding related to the suspicion of cancer and not incidental findings.

The staff at the hospital gave the following reasons for their way of working:

- 'This is according to our procedure – this is the way we agreed on working'

## Example 3. Adjustments and ETTO rules

### Work-as-imagined

The physicians at the Spine Centre assess the CT-scan during pre-admission

### Work-as-done

The physicians at the Spine Centre normally only assess the referral of the General Practitioner and the age of the patient, not the CT-scan

ETTO rules?

*Rule no. 5 'It will be checked later by someone else'*

*Rule no. 6 'It has been checked earlier by someone else'*

*Rule no. 7 'Doing it this way is much quicker'*

*Rule no. 13 'It normally works'*

## Example 3. Adjustments and ETTO rules

### Work-as-imagined

The physicians at the Spine Centre assess the CT-scan during pre-admission

### Work-as-done

The physicians at the Spine Centre normally only assess the referral of the General Practitioner and the age of the patient, not the CT-scan

The physicians at the Spine Centre gave the following reasons for their way of working:

- 'There is a production target that all the referrals from the General Practitioners must be assessed the same day'
- 'It normally works and it is quicker this way'
- 'It has been checked by both the hospital and the General Practitioner'

## Example 4. Adjustments and ETTO rules

### Work-as-imagined

Output from the preadmission evaluation:

- "Urgent"
- "Normal"

### Work-as-done

Output from the preadmission evaluation

- "Urgent"
- "Urgent +"
- "Urgent ++"
- "Urgent +++"
- "Urgent" - and the doctor would go to the secretary and say: This is urgent !
- "Normal"

ETTO rules?

*Rule no. 13 'It normally works'*

## Example 4. Adjustments and ETTO rules

### Work-as-imagined

Output from the preadmission evaluation:

- "Urgent"
- "Normal"

### Work-as-done

Output from the preadmission evaluation

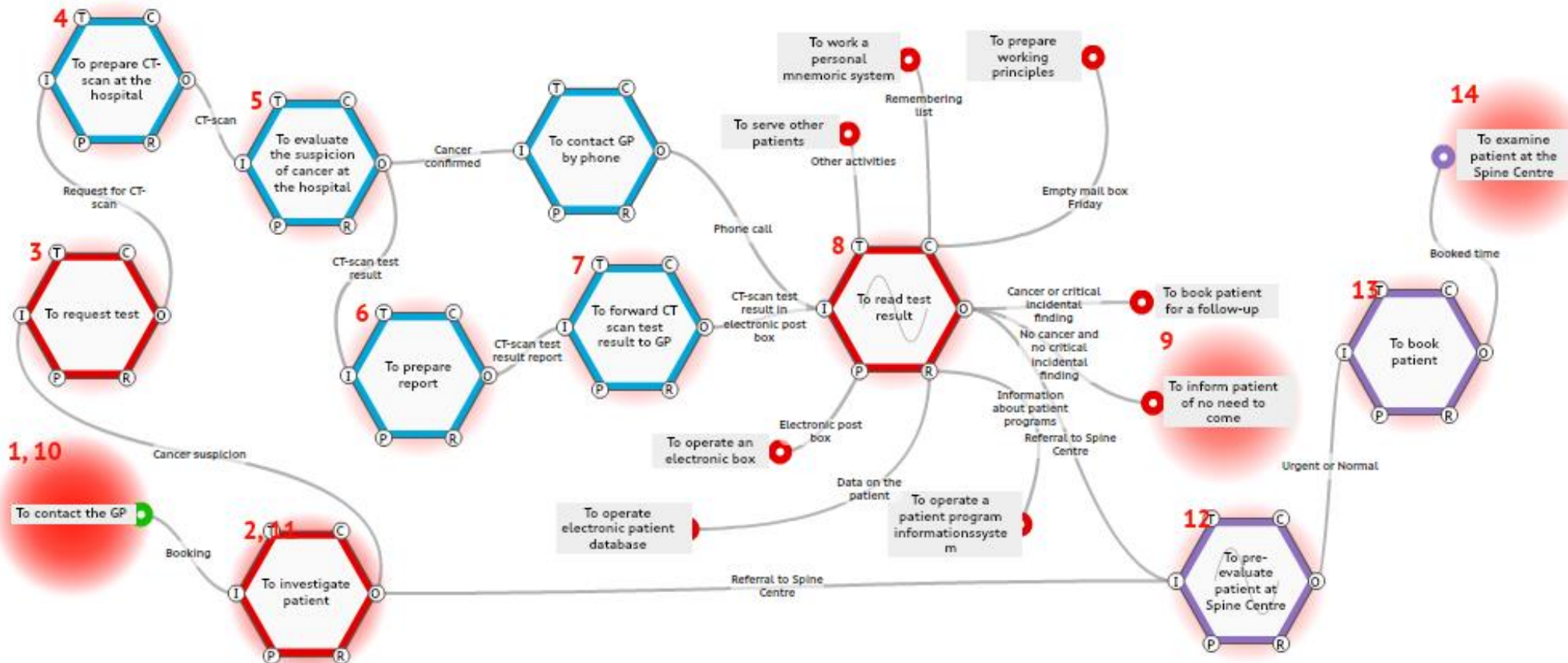
- "Urgent"
- "Urgent +"
- "Urgent ++"
- "Urgent +++"
- "Urgent" - and the doctor would go to the secretary and say: This is urgent !
- "Normal"

The pre-admission was prepared by six different physicians.

They all were convinced that the others followed the procedure and that each one was alone in the need of an additional category. They had not talked about the need in common.



## Work-as-done. An ordinary day.....



Red hexagons = General Practitioner  
Blue hexagons = Hospital  
Purple hexagons = Spine Centre  
Green Hexagon = Patient

## Conclusion

During my six years working with FRAM, ETTO and the 17 ETTO rules has helped me

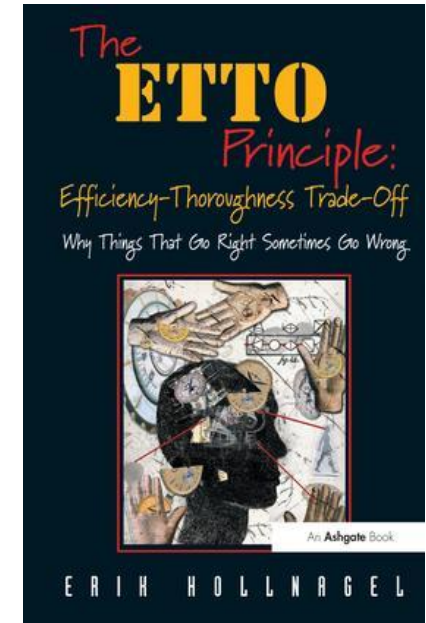
- To gain insight in why individuals feel safe doing work-a-rounds and short-cuts
- To identify risks in existing workflows originating from human functions
- To predict the variability of the outputs from human functions when designing a workflow and identifying the related risks
- To identify function where thoroughness is required to succeed, to be able to ensure the right priorities and working conditions

## Recent article of interest

- Grant S, Guthrie B (2017). 'Efficiency and thoroughness trade-off in high-volume organisational routines: an ethnographic study of prescribing safety in primary care', BMJ, 9 November 2017, <http://dx.doi.org/10.1136/bmjqs-2017-006917>
- Conclusion  
*'Hollnagel's ETTO presents a useful way for healthcare organisations to optimise their own high-volume processes through reflection on where they currently prioritise efficiency and thoroughness, the stages that are particularly risky and improves ways of balancing competing priorities'*

# Thank you for your attention!

If you want to know more.....



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# Presentation

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- **Background:**
  - B.Sc. in Mechanical Engineering (1981)
  - B.Sc. in Human Resource Development (2003)
  - Master in Public Quality and Risk Management (2016)
- **Working Experience:**
  - Quality Development and Risk Management in 35 years – Off-shore, Natural Gas Distributions, Chemical Industry and Health Care (since 2007)
- Centre for Quality in Denmark - a Research and Development Centre working within the field of Quality and Patient Safety in Health Care
- Work together with Professor Erik Hollnagel since 2011