

# Uncertainty Management Through Flexible Routines in a High-Risk Organization

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# Rules paradox

- Rules are necessary
  - to coordinate processes
  - to hold the organization together
- Rules are debilitating
  - because they restrict options and freedom of action
  - because not everything can be regulated

Rules that simultaneously  
offer and restrict freedom?  
"Flexible rules"?

# Management of uncertainties: two approaches

(Grote, 2004)

## *Minimizing uncertainties*

- complex, central planning systems; high standardization
- reducing operative freedom through procedures & automation
- avoid disturbances (symptoms of inefficient system design)



dependence /  
feed-forward control

## *Coping with uncertainties*

- planning as resource for situated action
- maximizing operative freedom
- disturbances as opportunities for learning and system change

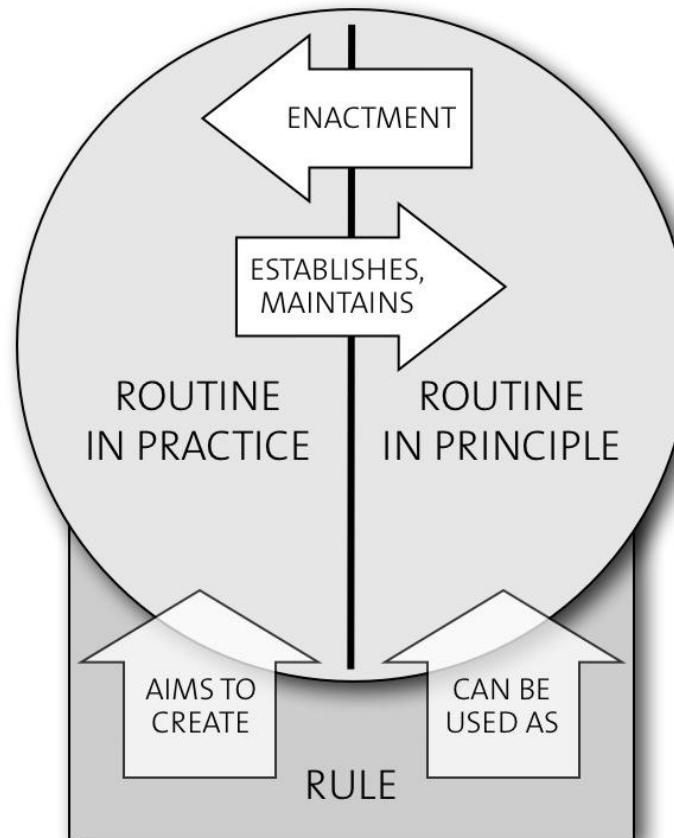


autonomy /  
feedback control

↑ *Balance through loose coupling* ↑

# Organizational routines and rules

Grote & Weichbrodt:  
Uncertainty management  
through flexible routines



# Types of rules

- level of action regulation:
  - goal (the rule only defines the goal without determining the way for achieving the goal)
  - process (the rule describes the processes needed to determine the right course of action)
  - action (the rule prescribes a concrete operative course of action)
- meta-rules: When are rules to be used (as opposed to other coordination mechanisms)?
- obligation or advice?
- decision latitude
- distribution of responsibility
- reasons and explanations given?

# Flexible rules

- Rules can differ in the amount of flexibility they offer
- As much flexibility as possible is *not* the solution
- Rather, different types of rules are needed for different processes

## *Key research questions:*

What kind / amount of flexibility is best fit for what kind of process?

What type of rule is best fit for a certain work process?

What are categories to make this decision?

# Field study: rule management in a Swiss railway organization

- To assess the quality/adequacy of rules and of rule management processes
- Do the rules provide optimal support for the management of uncertainty?
- Methods:
  - interviews
  - observations
  - document analysis
  - rules analysis

# Results of the rules analysis

Grote & Weichbrodt:  
Uncertainty management  
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Rule type	Rules for shunting		Rules for traffic regulation (all rules)		Old rules for train departure		New rules train departure	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Total	28	100	155	100	38	100	32	100
Goal rule	0	0	1	1	0	0	1	3
Process rule	6	21	19	12	2	5	9	28
Action rule	22	79	135	87	36	95	22	69
Advice	0	0	3	2	0	0	1	3
With decision latitude	20	71	61	39	14	37	15	47
With distribution of responsibility	2	7	46	30	13	34	17	53
With exceptions	7	25	34	22	7	18	6	19
With reasons	1	4	5	3	1	3	0	0



# Results of the rules analysis and some arising issues

- very few goal rules
  - Should there be more to support priority setting?
- new rules for traffic regulation include more process rules
  - Supporting orientation without restricting action: A step in the right direction (?)
- more decision latitude for shunting operations than for traffic regulation
  - Adequate for these actors?
- 20% to 25% exceptions
  - Exceptions as support vs. as unnecessary increase in complexity?
- very few reasons
  - Is interplay with training sufficient?

# Further results and open questions

- Focus on shunting yard vs. railway control center
- Worker's perception of rules
  - rules as legal protection
  - rules as hassle
  - rules as instruments of power
- Process rules dilemma
  - process rules require experience,  
experience requires opportunities for making mistakes

# Summary

- Flexible rules could help achieve concurrent standardization and flexibility
- For different processes within an organization, a different amount / type of flexibility is needed
- Categories are being developed to help make these decisions
- To write flexible rules that can create safe and flexible work routines

Thank you for your attention!

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