

Fit work to people: How can national occupational health regulation work in practise

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Who am I?

Year	Appointment
1973	Educated engineer within production management
1978	PhD., subject: job design
2001	Professor in human factors in production management

For all years active within the field of macro- ergonomics at a Nordic and International level

Ergonomics

- Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among humans and other elements of a system, and the profession that applies theoretical principles, data and methods to **design** in order to optimize human well being and overall system performance (Definition by IEA,2000)

Domains within an ergonomic approach

Physical Ergonomics

- human anatomical, anthropometric, physiological and biomechanical characteristics as they relate to physical activity. The relevant topics include working postures, materials handling, repetitive movements, work-related musculoskeletal disorders, workplace layout, safety and health.

Cognitive Ergonomics

- mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system. The relevant topics include mental workload, decision-making, skilled performance, human-computer interaction, human reliability, work stress and training as these may relate to human-system design.

Organizational Ergonomics

- optimization of socio-technical systems, including their organizational structures, policies, and processes. The relevant topics include communication, crew resource management, work design, design of working times, teamwork, participatory design, community ergonomics, cooperative work, new work paradigms, organizational culture, virtual organizations, telework, and quality management.



Ergonomics places people at the centre of systems (User-centred)

Concentric rings model

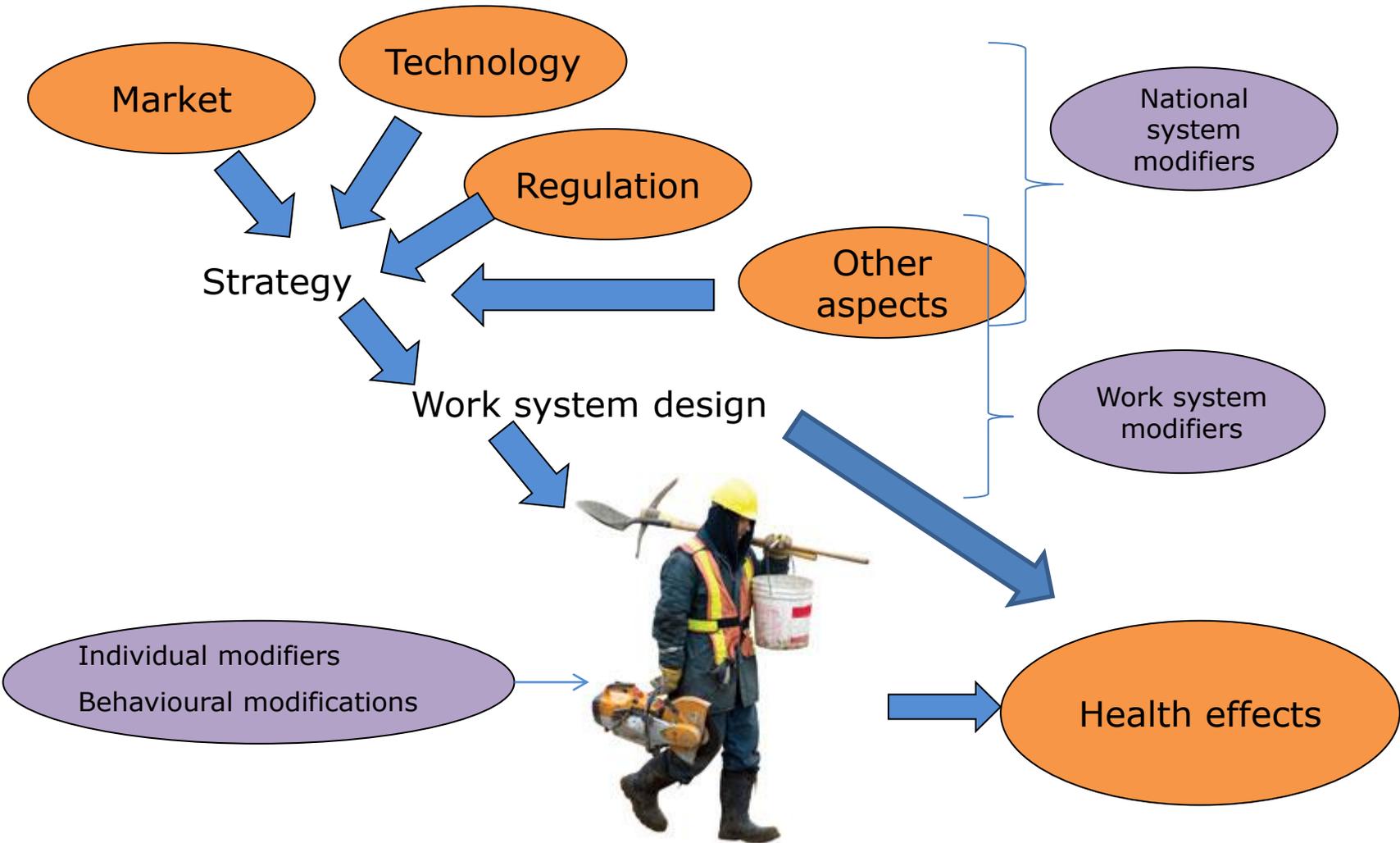


'Concentric Rings' - Model of ergonomics factors relevant to work design.
(Adapted from Grey et al., 1987, as in Wilson and Corlett, 1995)

Question to be addressed

1. How can regulatory agencies regulate complex OHS problems?
 1. The setting
 2. What is a complex problem?
 3. Research in a complex setting
 4. Regulatory responses
2. How do enterprises react to this type of regulation?

Levels of intervention



What is a complex problem?

(Snowden, 2005)

<i>Classifi- cation</i>	<i>State of insight</i>	<i>Charateristic</i>	<i>Examples of OHS-regulation</i>
Ordered domains	Simple order	Clear generally accepted cause – effect relation Repeatable, Predictable and Transparent A right answer does exist	Protection against dangerous machines Set up of scaffoldings
	Complicated order		
Un-ordered domains	Complex Un-order		
	Chaotic un-order		
Disordered			

What is a complex problem?

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Ordered domains	Simple order	Clear generally accepted cause – effect relation Repeatable, Predictable and Transparent A right answer does exist	Protection against dangerous machines Set up of scaffoldings
	Complicated order	Knowable relation between cause and effect. Not generally accepted Experts can move to the known Trust: decision maker - expert Many different perspectives and experts → Not right answer might exist	Regulation of issues with long latent time as Chemical substances Hearing loss
Un-ordered domains	Complex Un-order		
	Chaotic un-order		
Disordered			

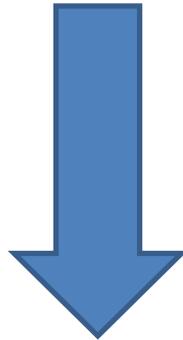
What is a complex problem?

(Snowden, 2005)

<i>Classification</i>	<i>State of insight</i>	<i>Charateristics</i>	<i>Examples of OHS-regulation</i>
Ordered domains	Simple order		Machine safety
	Complicated order		Regulation of issues with long reaction time
Un-ordered domains	Complex Un-order	<p>No apparent relation between cause and effect</p> <p>Unordered and messy</p> <p>Unpredictable – no right answer</p> <p>Patterns can be identified in retrospect, but not predicted</p> <p>Focus on the present – not the past</p>	<p>Psycho-social aspects of work</p> <p>Complex problems within the physical ergonomic domain</p>
	Chaotic un-order	<p>No perceivable relationship between cause and effect</p> <p>Sense of high turbulence</p> <p>Not enough time for investigations and to wait for patterns to emerge</p>	

Development of knowledge

- Ordered domain:
 - Controlled experiments

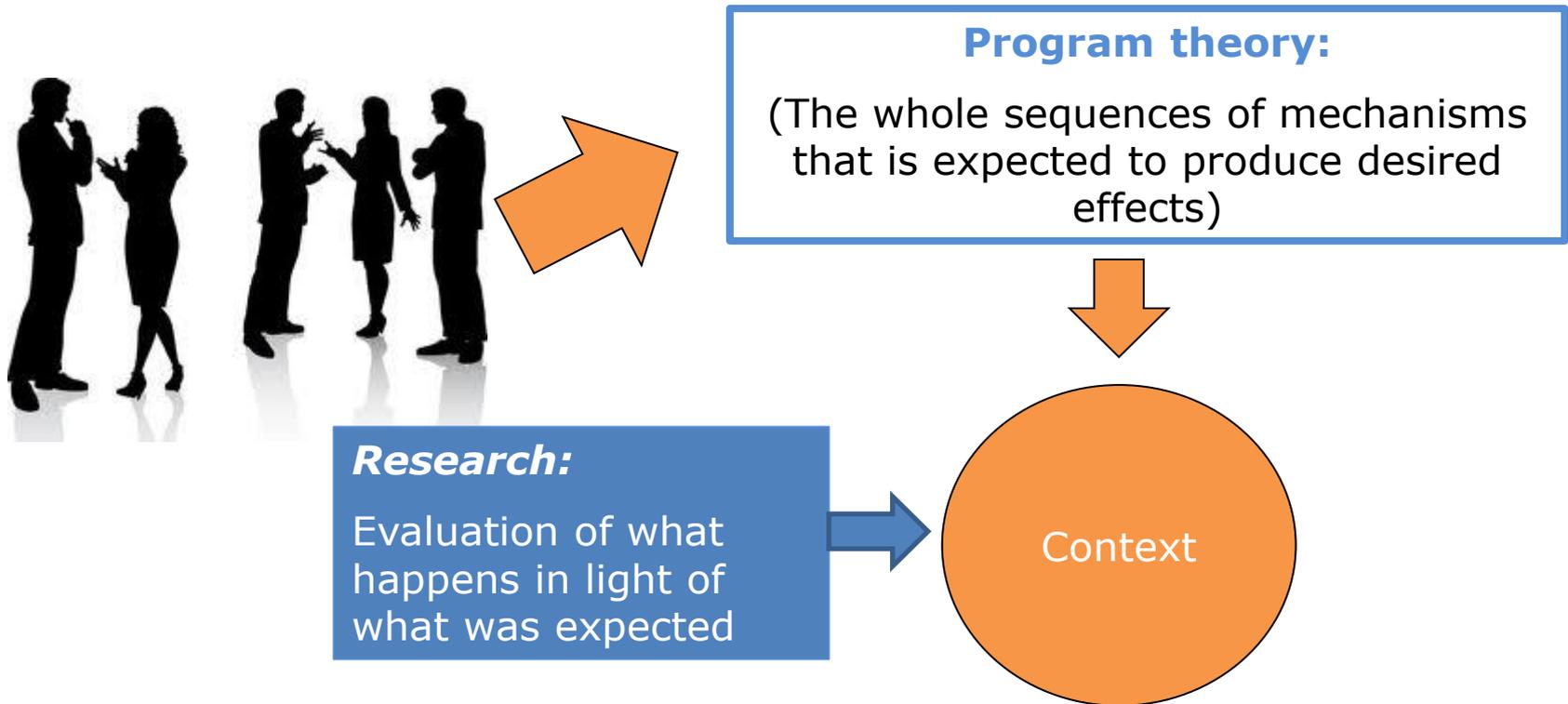


- Unordered domain:
 - Experiments

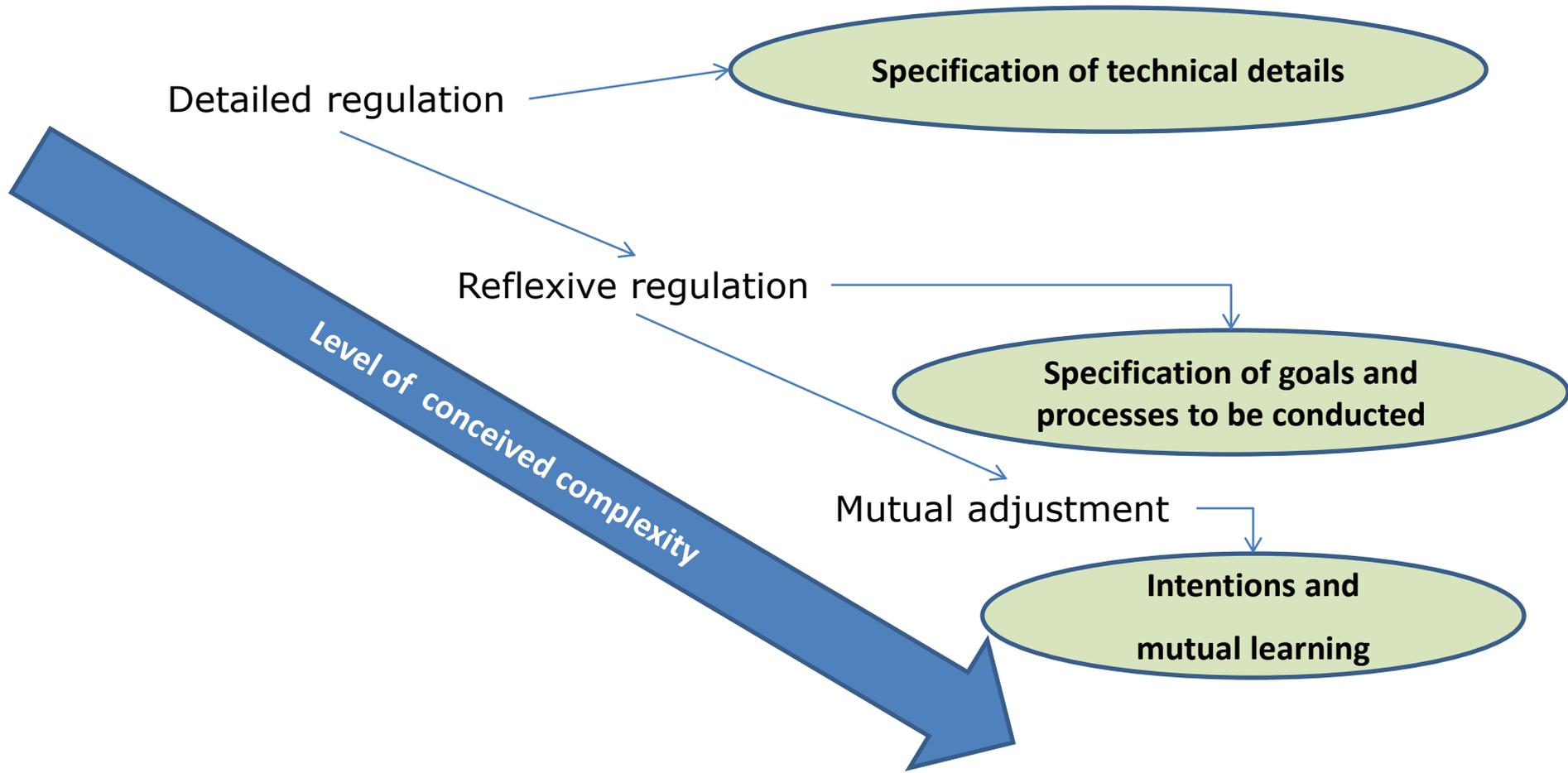
Experiments as knowledge creators

- Based on present knowledge a ‘program theory’ is established.
- Program theory: The whole, complex sequences of mechanisms that is expected to produce desired effects

The role of research related to experimental settings



Development in regulatory approaches



Components in reflexive regulation

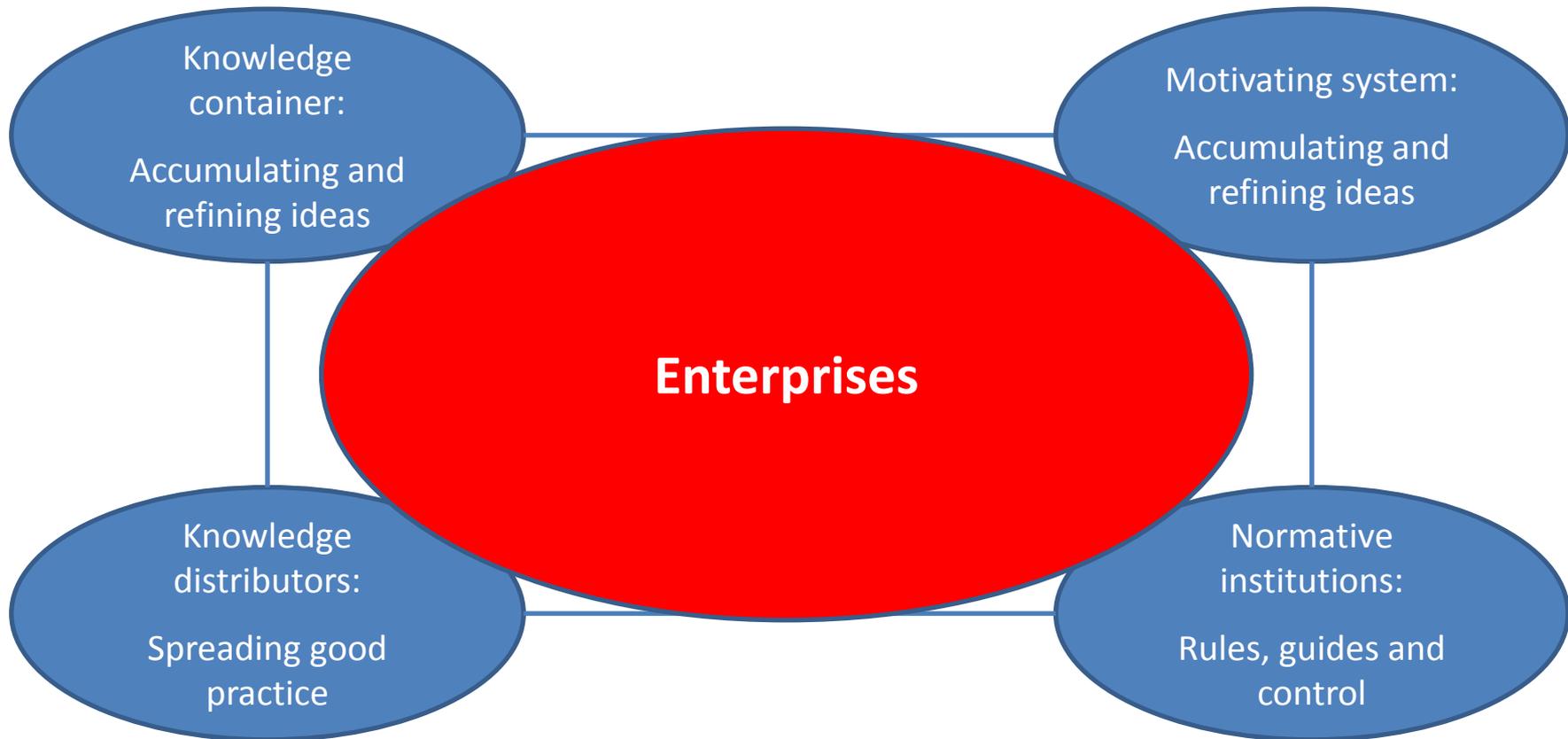
- Goals and aims
 - Healthy and safe
- Structural elements
 - Management responsibility, Safety committee, safety reps.
- Procedural elements
 - Risk assessment
 - Accident investigation
 - Substitution processes

Developing new practices

More perspectives to apply:

- New instructions to be learned
 - Formulation, layout and teaching of instructions
- Organisational learning
 - Identify gap to be reduced and ways to do it
- Innovation
 - Establishing an innovation system

An innovation system approach



An example:

Study of new Danish regulation

- With the aim of boosting activities and making them more *effective and efficient* the structural arrangement might deviate from the model ordered in formal rules.
- Aims are maintained:
 - Safe and Sound working conditions
- Procedures, tools, organisation of activities is open for local decisions

On our present study

AIM:

- To study enterprise reactions to the new options given in Departmental Orders
- To give evidence-based recommendations to make use of these options

Main components in the program theory behind the amendments

Kept from earlier versions:

1. Harmonious relation between social partners → joint problem solving
2. Motivation for local actions of central importance for prevention

New in the amendments:

1. Change in fundamental concepts:
 ‘Safety’ → ‘Working Environment’
2. Increased flexibility conc. organisation of activities.
 The enterprises have the freedom to organise their activities for accomplishing more effective and efficient activities
3. Emphasis of the link between strategic and operational working environment activities
 Mandatory annual work environment talks addressing goals and achievements
4. Development of competences of actors involved
 Offers for competence development of actors involved

Samples for further studies

STEP 1	OHS quality		
		+	-
Quality of OHS activities	+	20	20
	-	20	

STEP 2:

15 enterprises for detailed studies of what happens when changing the organisation of the OHS activities

Two studies

3F

(Public servants union)

- Electronic questionnaire to working environment representatives
- 3130 questionnaires
- 1724 in returned corresponding to 54%

Safety man.

- Emails to safety managers having followed a course at DTU on management of working environment
- 55 questionnaires
- 49 returned corresponding to 89%

Two studies on the effects of the change

3F

- "How do you experience the impact of the reform on the work environment activities in your company?"
 - 77% No change
 - 15% Positive development
 - 8% Negative development

Safety managers

- "Has your organisation changed the organisation of the working environment activities after the reform?"
 - 49% Yes
 - 47% No
 - 4% Do not know

Differences in results

3F

- The supplementary comments given indicates two possible scenarios:
 1. The OHS activities are not affected by the change in law
 2. The change of the law is used as a reason for reducing the OHS activities

Safety Managers

- The new possibilities has been brought into use by more enterprises

- Is it to early to conclude on the change in the OHS efforts due to the change in law?
- The change in law is used differently by enterprises dependent on size, sector and resources.

Conclusions

- The changes in the law gives privileges to companies able and willing to take advantage of the law
- Most often larger enterprises with resources
- With a higher qualifications concerning OHS - management that normally found

Supportive theoretical explanation

Institutional Isomorphic Change, DiMaggio and Powell, 1983

Coercive Isomorphism

- Pressures from other organizations in which they are dependent upon incl. governmental institutions .
- ‘Tell us what to do - but make it simple’

Mimetic Processes

- Imitating the front runners. ‘We will do like the best’
- Models are diffused through employee migration or by consulting firms.

Normative Pressures

- Professionals takes responsibility rooted in licensing and crediting of educational achievement. and the inter-organizational networks that span organizations.
- Norms developed during education are entered into organizations.
- People from the same educational backgrounds will approach problems in much the same way. Socialization on the job reinforces these conformities.
- ‘We will hire an expert’

Effect:

The similarities which develops allow firms to interact with each other more easily and to build legitimacy.

What to do with companies lagging behind

- Inspection strategy
 - Risk based approach managed from the head office of the labour inspectorate
 - Labelling
 - Media attention
- Black spot's



3.454



84.113



5.016



970