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Does digitization make work good or bad?

The impact of the use of information and communication technology in the workplace on job satisfaction

INTRODUCTION

Starting point and research deficit

Starting point

Social perspective:

- The use of computers, laptops, tablets, and smartphones has become an integral part of today's work environment and is utilized across most industries and hierarchies (e.g. Diaz et al., 2012; Kirchner, 2015)

Research perspective:

It is known that:

- The use of ICT impact on work-related conditions (e.g. Autor et al., 2003; Chesley, 2014; Cooper and Kurland, 2002; Kirchner, 2015)
- Work-related conditions influence job satisfaction in a positive as well as negative way (e.g. Hackman and Oldham, 1976; Anderson et al., 2002; Ergeneli et al., 2010; Warr, 2007)

Research deficit

- Even if these results suggest a connection between the use of ICT and job satisfaction, previous research does not focus on this link explicitly



Theoretical contributions and empirical analyses of the relationship between the use of ICT and job satisfaction **have deficits**

INTRODUCTION

Objective and assumption

Objective

Explanation of the relationship between the use of ICT at work and employees' job satisfaction



Assumption

Double edged relationship between ICT use and job satisfaction

- 1 ICT affects different work-related conditions
- 2 These work-related conditions can affect the relationship between ICT use at work and job satisfaction both positively and negatively

Procedure

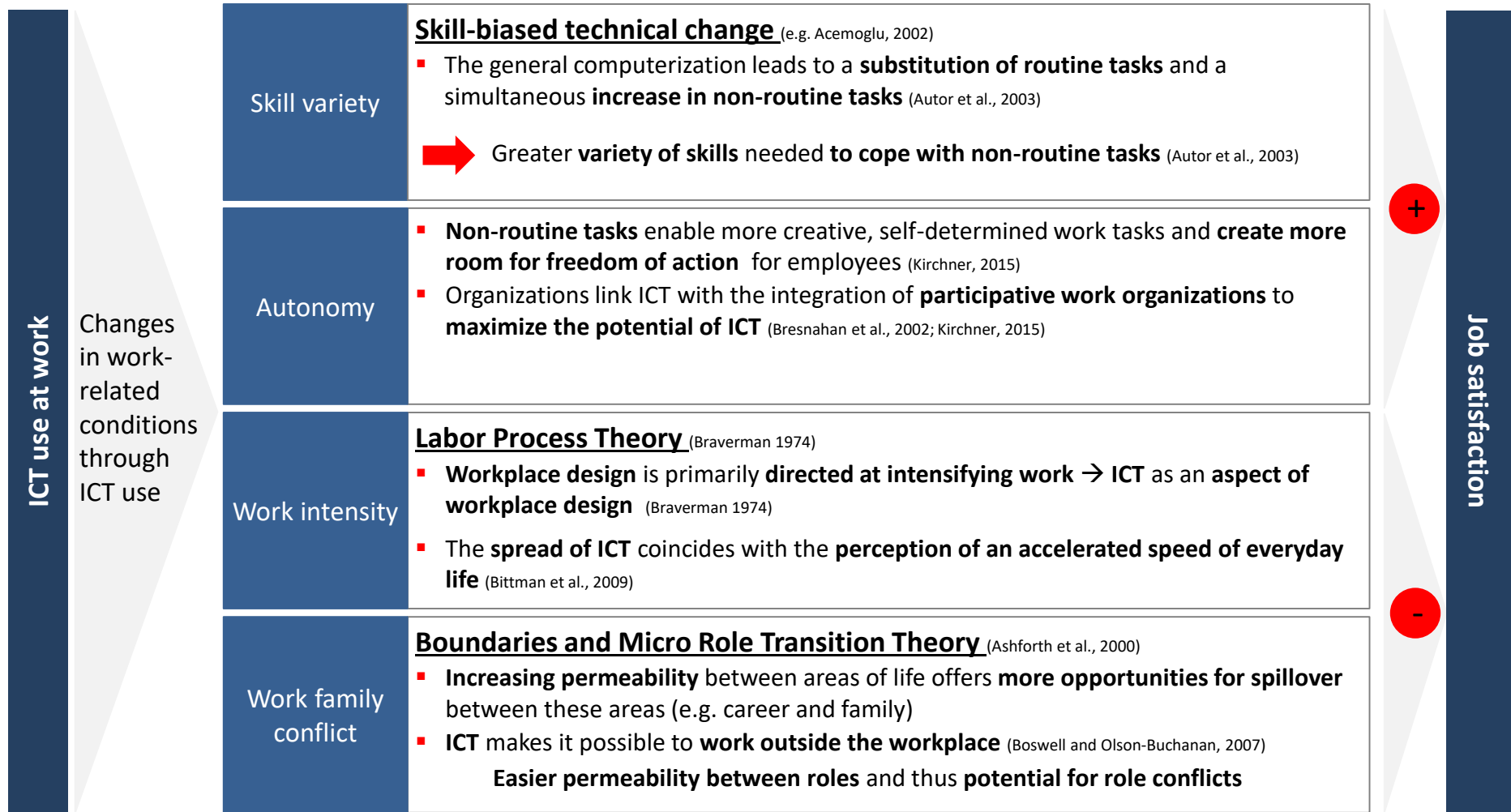
Theoretical development of hypotheses

- 1 Find out what work-related conditions are influenced by ICT
- 2 Analysis of the relationship between ICT and job satisfaction by considering possible mechanisms through work-related conditions

Quantitative analysis

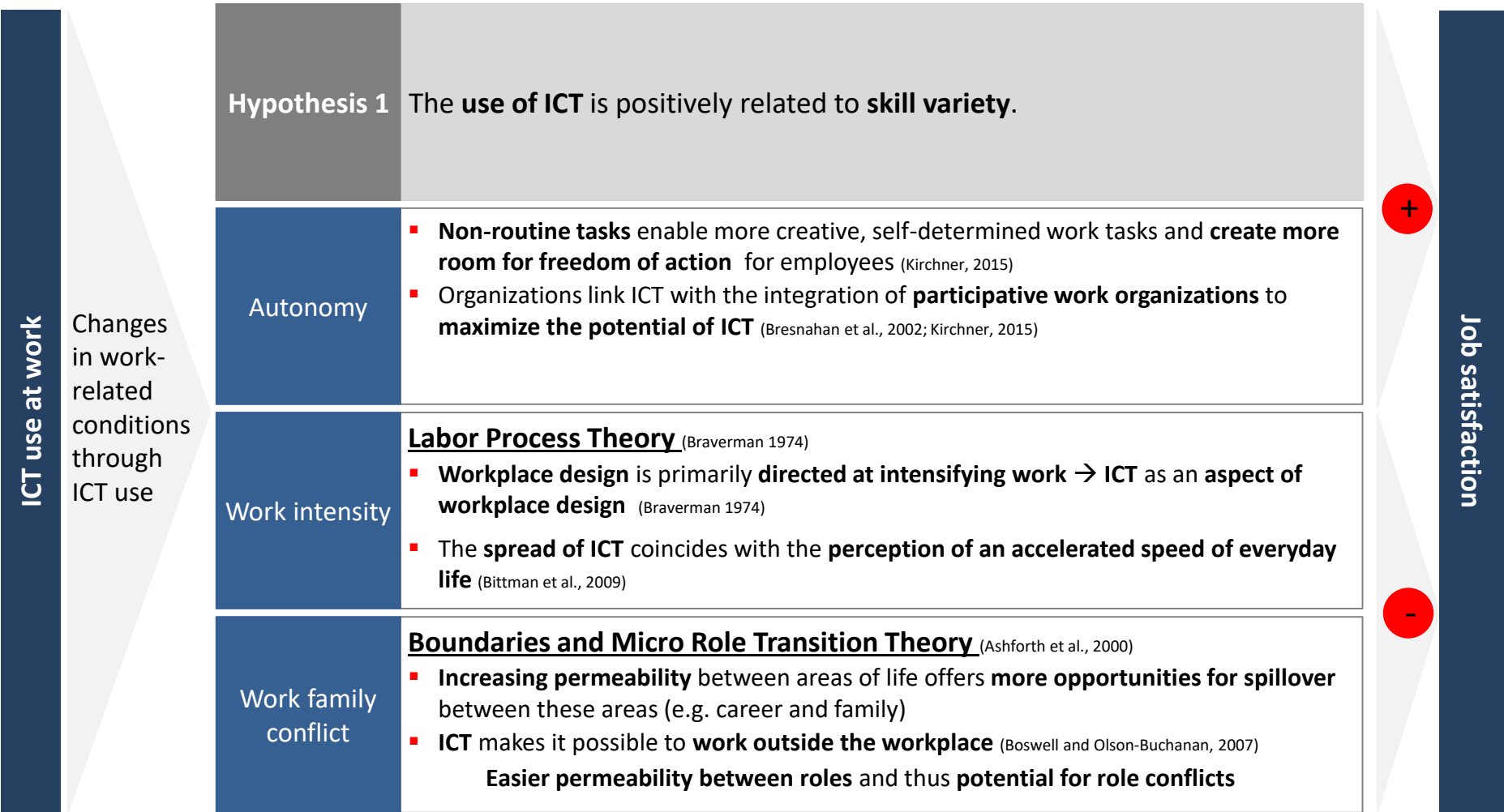
THEORY AND HYPOTHESES

Changes in work-related conditions



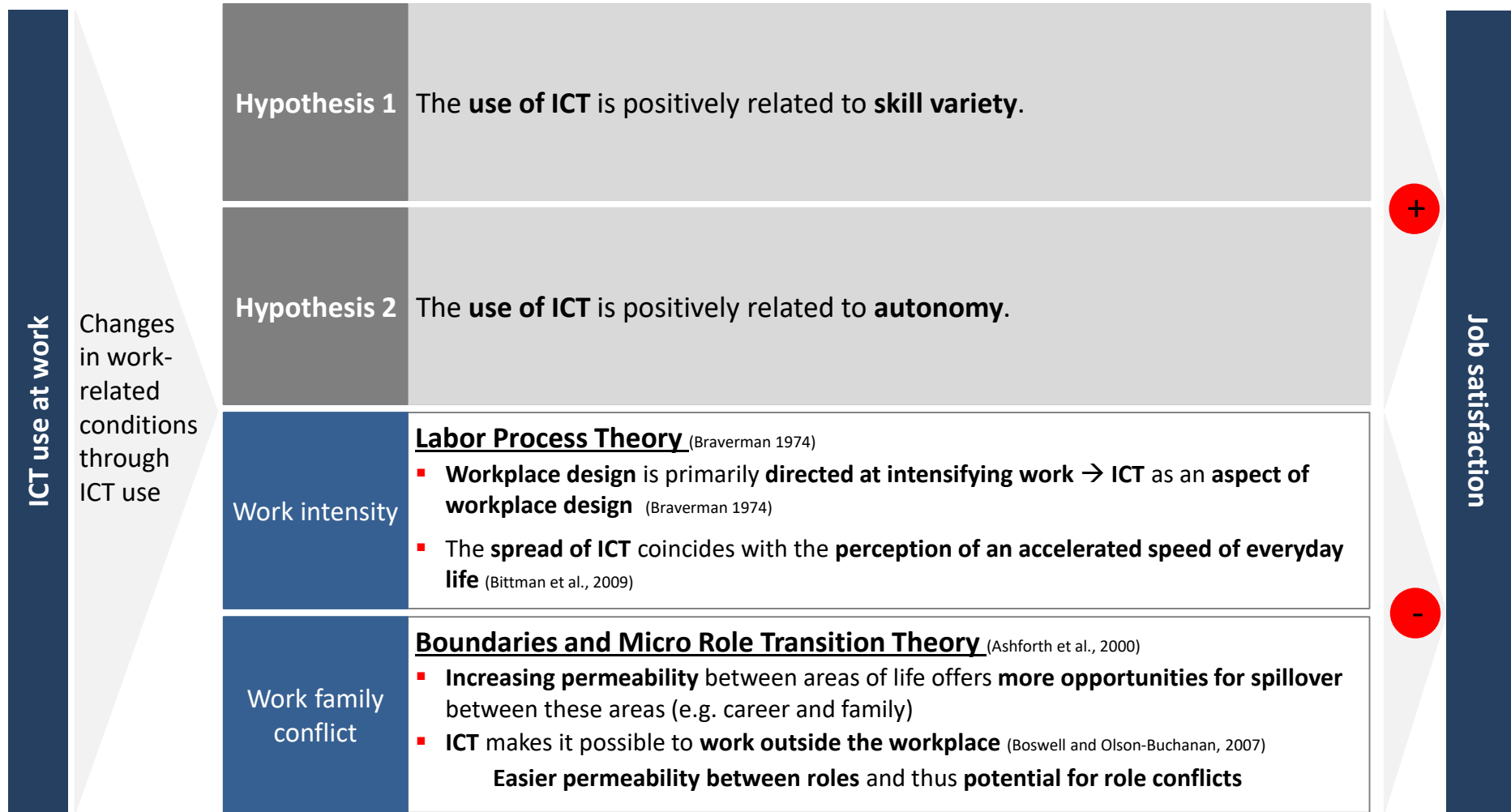
THEORY AND HYPOTHESES

Changes in work-related conditions



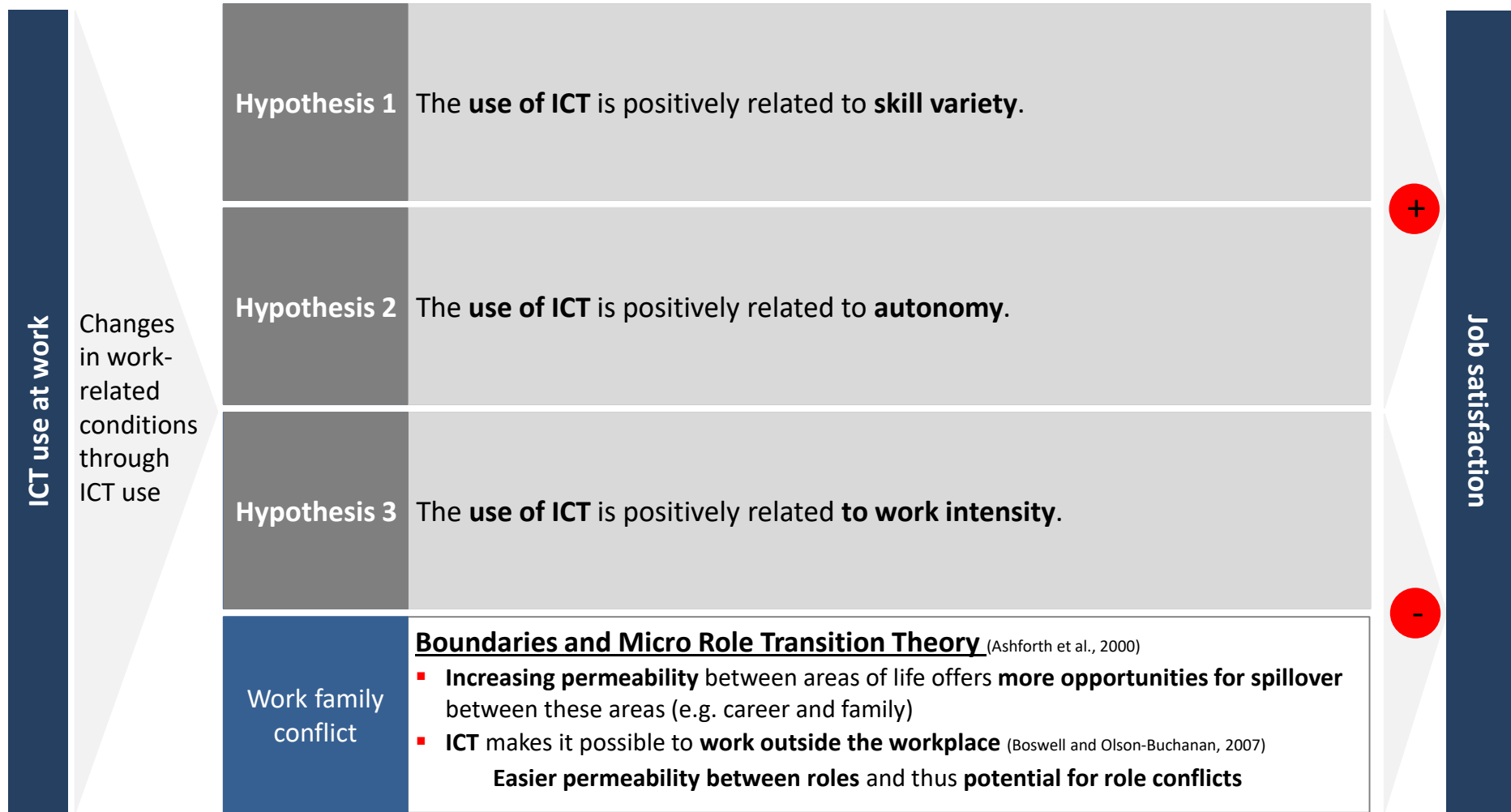
THEORY AND HYPOTHESES

Changes in work-related conditions



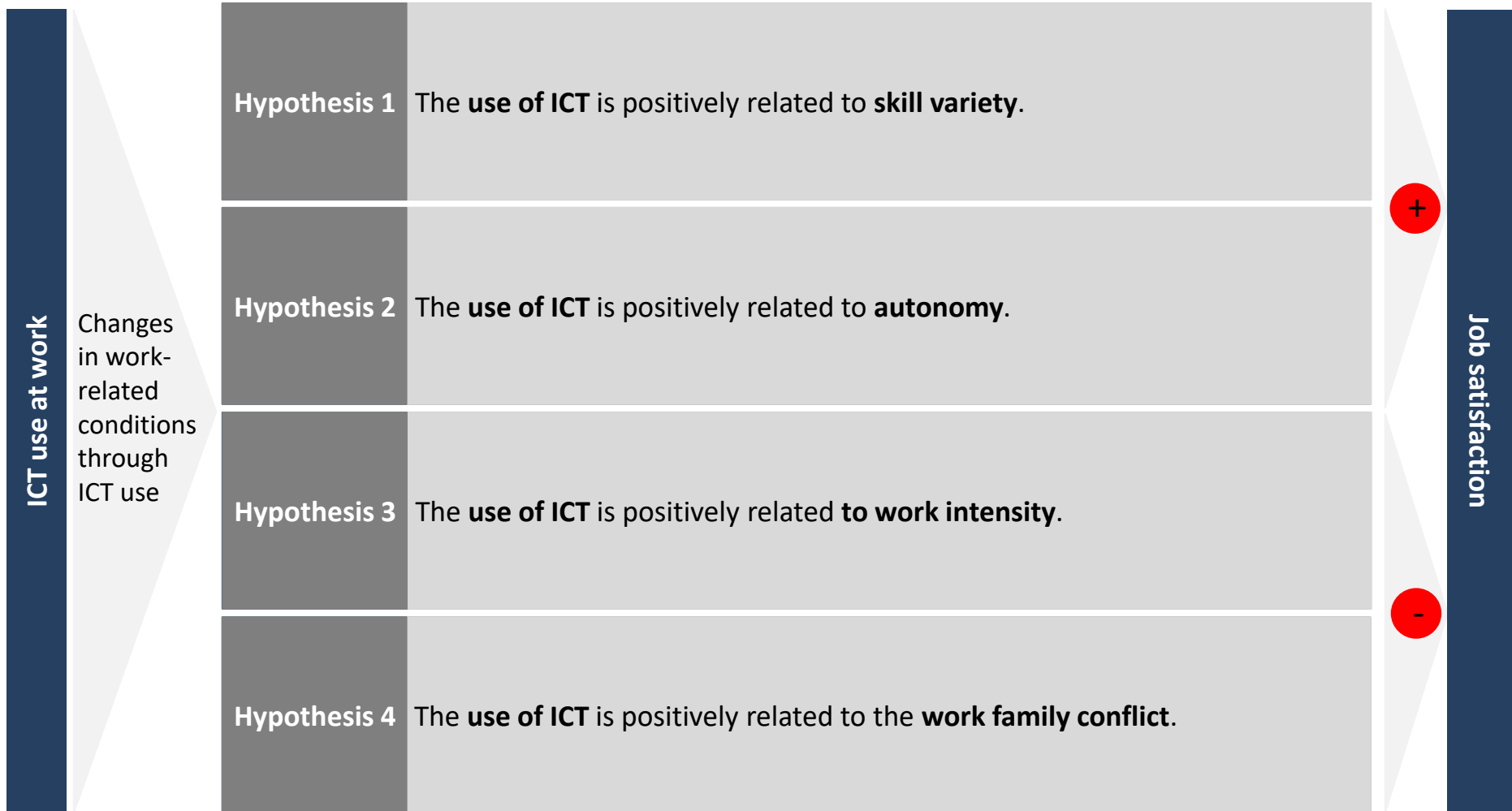
THEORY AND HYPOTHESES

Changes in work-related conditions



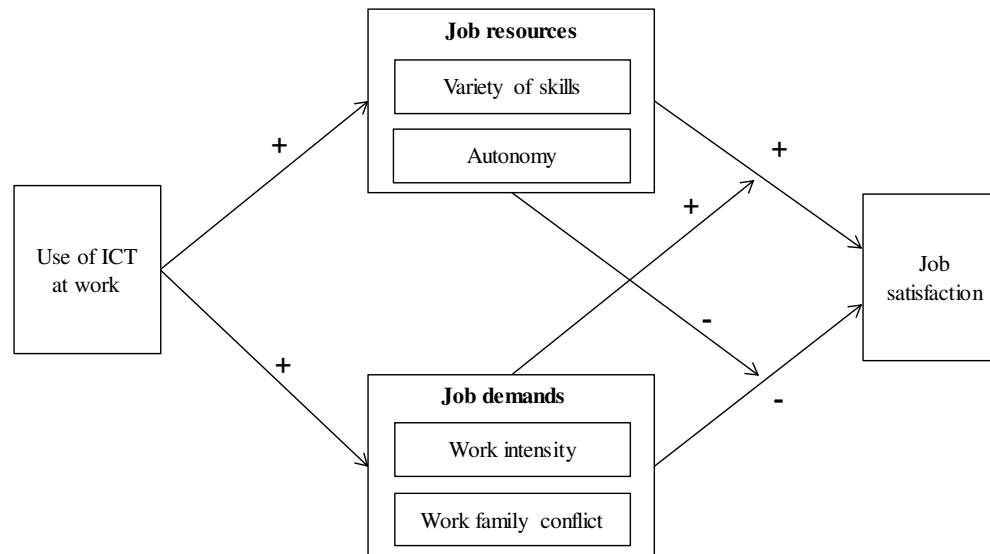
THEORY AND HYPOTHESES

Changes in work-related conditions

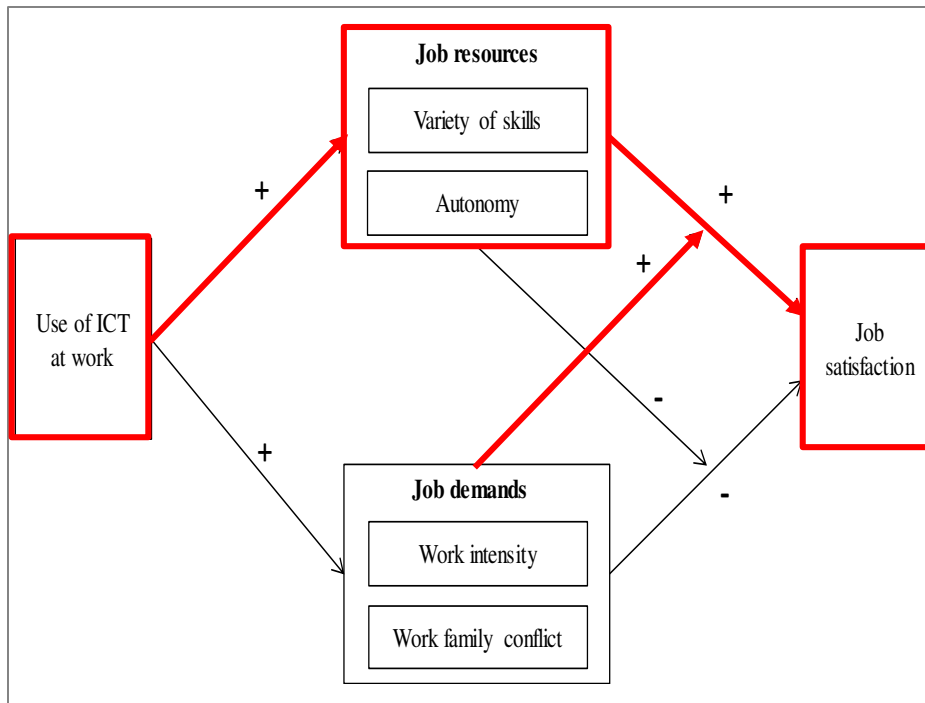


Job Demand Resource Model (Demerouti et al. 2001)

1. Work-related conditions can be classified in two categories (job resources and job demands)
2. Two parallel processes exist
 - Positive process (job resources trigger motivating processes)
 - Negative process (job demands trigger demotivating processes)
3. Interactions between the two processes of job demands and resources
 - Job resources have a particular positive impact on work-related outcomes when job demands are high
 - Job resources can cushion the impact of job demands on job strain



Positive process

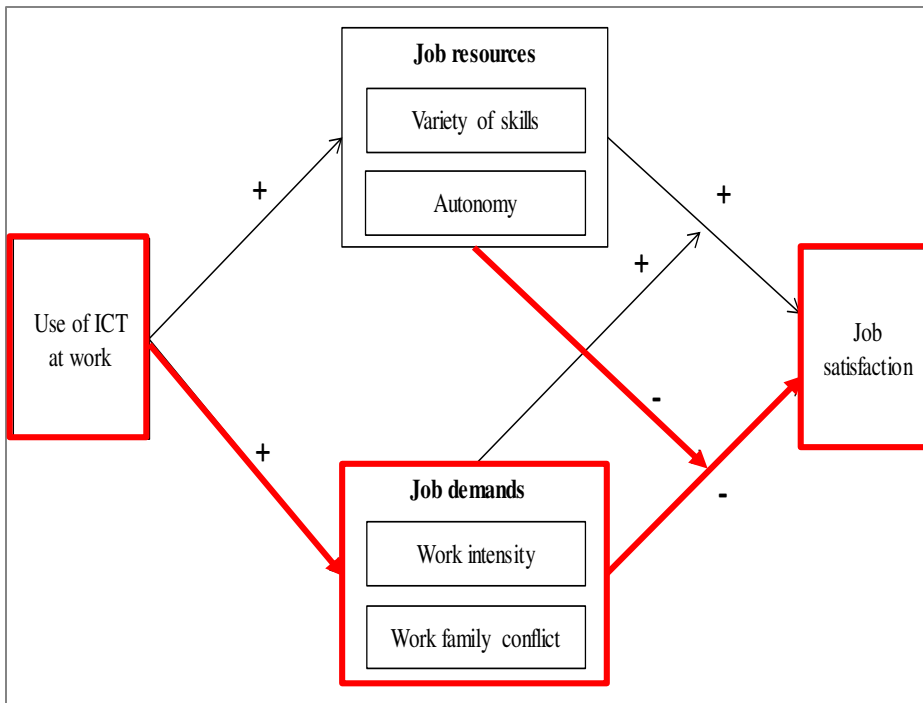


- Skill variety and autonomy can be classified as job resources (Bakker & Demerouti, 2007)
- Based on the JD-R model it can be assumed that:
 - Job resources affect positive on job satisfaction
 - The positive process is strengthened when job demands are high (interaction assumption)
- Reinforced by the job characteristics model (JCM) (Hackman and Oldham, 1976)
 - job satisfaction is affected by five core job attributes: skill variety, task identity, task significance, autonomy, and feedback
- The JCM as well as the expected link between skill variety and autonomy and job satisfaction is supported by previous research (e.g., Fried & Ferries, 1987; Hackman & Oldham, 1976; Humphrey, Nahrgang, & Morgeson, 2007)

Hypothesis 5

- a) The relationship between the use of ICT at work and job satisfaction is positively mediated by job resources.
- b) Job demands moderate the indirect effect of the use of ICT and job satisfaction through job resources so that the indirect effect is stronger for high job demands.

Negative process



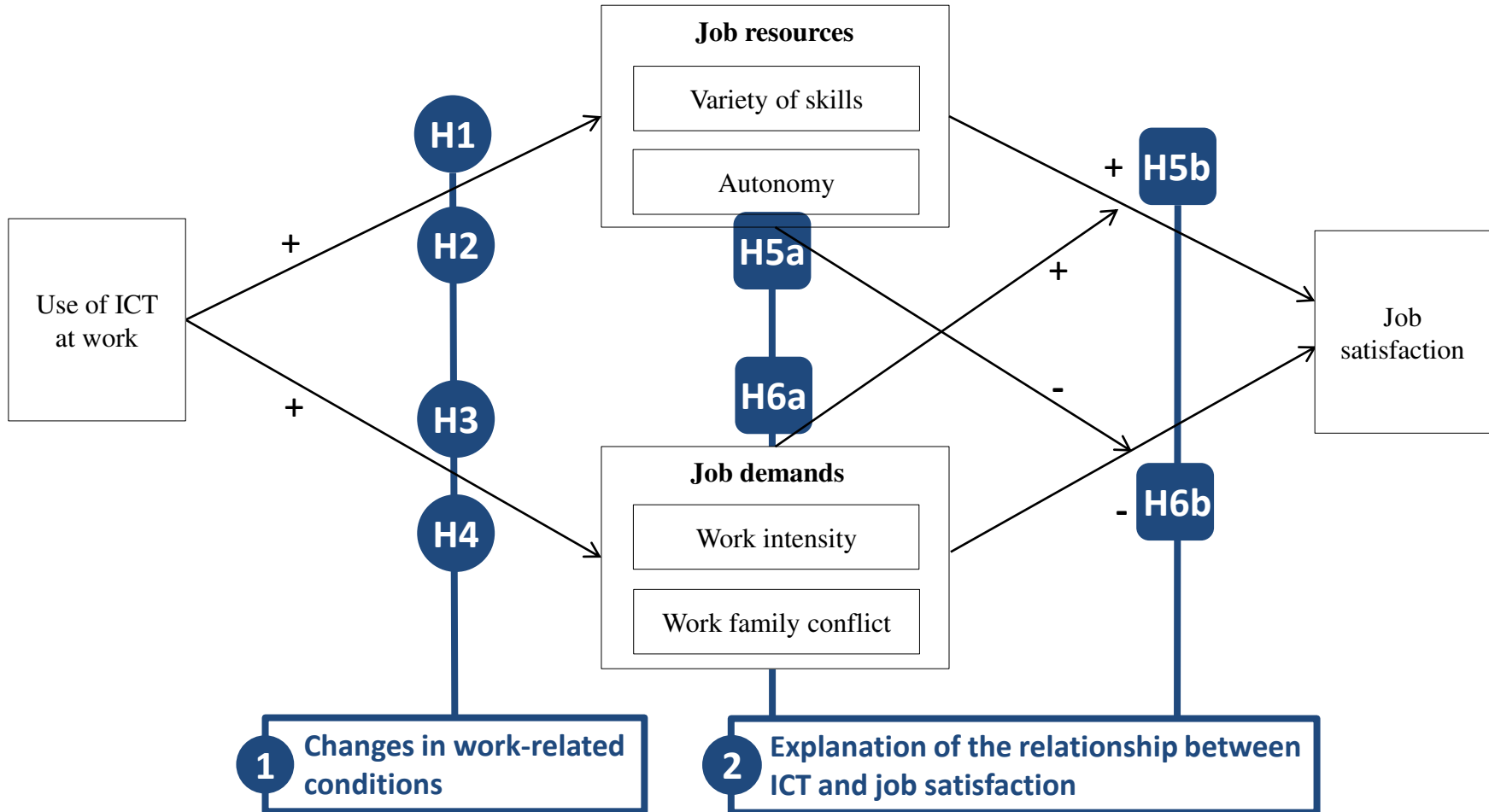
- Work intensity and work family conflicts are classified as job demands (Bakker & Demerouti, 2007)
- According to the JD-R model
 - An increase in job demands results in a negative effect on job satisfaction (Bakker & Demerouti, 2007)
 - It can be assumed that a high level of job resources can mitigate the negative process (interaction assumption)
- Previous studies have shown that the intensification of work and work family conflicts have negative effects on job satisfaction (e.g., Anderson et al., 2002; Ergeneli et al., 2010; Warr, 2007)

Hypothesis 6

- a) The relationship between the use of ICT at work and job satisfaction is negatively mediated by job demands.
- b) Job resources moderate the indirect effect of the use of ICT and job satisfaction through job demands so that the indirect effect is less strong for high job resources.

THEORY AND HYPOTHESES

Location of the hypotheses in the theoretical framework





DATA AND METHODOLOGY

Overview of the data used

Data

Dataset

European Working Conditions Survey 2015 (EWCS)

Population

Representative data on the **working population**

Considered
region

Germany

Economic
sector

Workers in the manufacturing, service and agricultural sectors

Sample size [n]

n = 1.265

DATA AND METHODOLOGY

Units of measurement – Overview

Variables used

Dependent variable

Job satisfaction (1 = not at all satisfied to 4 = very satisfied)

Independent variable

ICT use at work (1=Never to 7=all the time)

Mediator (moderator) variables

Skill variety

Autonomy

Work intensity

Work family conflict

Control variables

Education

Occupation

Company size

Age

Gender

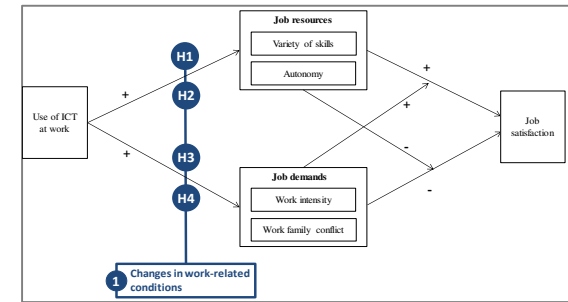
Income

Contract type

Weekly working hours

RESULTS

Work related conditions



Linear regression

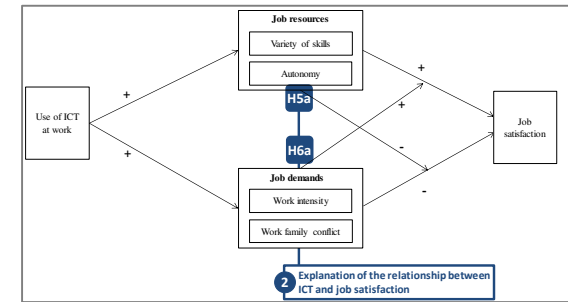
Independent variables	Dependent variables											
	Skill Variety (M ₁)		Autonomy (M ₂)		Work Intensity (M ₃)		Work Family Conflict (M ₄)					
	Coeff.	p	Coeff.	p	Coeff.	p	Coeff.	p				
ICT (X)	a ₁	.072	<.001	a ₂	.115	<.001	a ₃	.147	.007	a ₄	-.030	.381
Model R ²		.246	<.001		.121	<.001		.064	<.001		.070	<.001

- H1 ✓
- H2 ✓
- H3 ✓
- H4 ✗

Notes: N=1,265; coefficients are unstandardized
Source: EWCS, own calculation

RESULTS

Relationship ICT use and job satisfaction



Direct effect of ICT on job satisfaction, indirect effect of skill variety, autonomy, work intensity, and work family conflicts

	Direct effect on job satisfaction			Indirect effect on job satisfaction		
	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI
ICT	.022	-.0122	.0262			
SV				.021	.0101	.0342
AUT				.019	.0078	.0320
WI				-.015	-.0277	-.0037
WFC				.008	-.0097	.0248

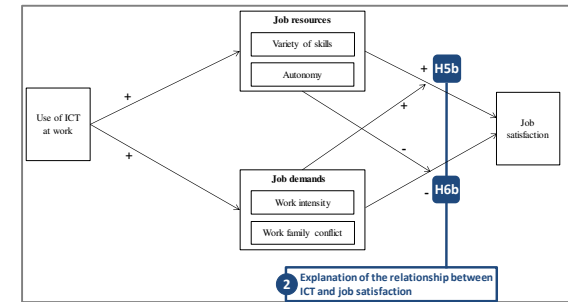
Skill variety, autonomy und work intensity mediate the relationship between ICT use and job satisfaction

- H5a)
- H6a)

Notes: N=1,265, direct and indirect effects are completely standardized, 10,000 Bootstrap samples, 95% confidence interval; LLCI=lower limit confidence interval; ULCI= upper limit confidence interval; ICT=ICT use, SV=Skill variety, AUT=Autonomy, WI=Work intensity, WFC=Work family conflict
Source: EWCS, own calculation

RESULTS

Relationship ICT use and job satisfaction



Moderated mediation for positive and negative process

	Indirect effect:	Moderator	Index of moderated mediation	Boot LLCI	Boot ULCI
Model 1 (positive process)	ICT → SV → JS	Work intensity	.0006	-.0001	.0015
		Work family conflict	.0003	-.0011	.0019
	ICT → AUT → JS	Work intensity	-.0001	-.0012	.0010
		Work family conflict	-.0002	-.0022	.0016
Model 2 (negative process)	ICT → WI → JS	Skill variety	.0013	-.0003	.0036
		Autonomy	-.0001	-.0018	.0014
	ICT → WFC → JS	Skill variety	-.0001	-.0013	.0008
		Autonomy	.0001	-.0008	.0009

There is no significantly moderated mediation in any case

- H5b)
- H6b)

Notes: N=1,265; 10,000 Bootstrap samples; 95% confidence interval; LLCI=lower limit confidence interval, ULCI=upper limit confidence interval; ICT=ICT use, SV=Skill variety, AUT=Autonomy, WI=Work intensity, WFC=Work family conflict
Source: EWCS, own calculation

SUMMARY

Summary of first results

1

ICT use in the workplace has a positive impact on work-related conditions

- Skill variety
- Autonomy
- Work intensity

2

These **three work-related conditions** act as **mediators** for the relationship between **ICT use and job satisfaction**

3

Moderated mediations were not found in any case

ICT use in the workplace can have **both positive and negative effects on job satisfaction**.
According to current knowledge, **neither the positive nor the negative influences predominate**.



Thank you very much for your attention!

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