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CONFLICTS IN CULTURAL DIVERSITY AND THEIR ECONOMIC IMPACT MEASURED BY LOST TIME

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Background and Objectives

Background

Conflict is a normal part of human interaction (Wang et al. 2007) and driven by team-oriented workgroups and decentralized structures it is unavoidable at the workplace (Nohria and Garcia-Point 1991). Amongst others, conflict is defined as "perceived incompatibilities or discrepant views among the parties involved" (Jehn and Bendersky 2003). In conflict research, it is common to distinguish relationship-, task- and process conflict (Jehn 1995; Jehn 1997), an approach used by the majority of scholars (De Dreu and Weingart 2003; Shaukat et al. 2017; Kuriakose et al. 2019). As already implied by the name, relationship conflict describes personal conflicts, involving topics like political beliefs, cultural practices or personal traits (Jehn 1997; Jehn and Bendersky 2003; Jehn 1995). In contrast, task conflict refers to content and task related disagreements, viewpoints or opinions (Jehn 1995; Jehn 1997). Process conflict involves logistical aspects of a task, such as resource allocations or task delegation (Jehn 1997). Conflicts can be viewed in two ways. On the one hand, there is the positive view of conflict. This involves positive results, which arise from conflict. According to previous research, task conflict in particular can achieve such positive outcomes such as improved decision making, a better task understanding, improved performance and commitment, as well as higher creativity and innovation. All triggered by the availability of different viewpoints and alternatives and the absence of group think (Parayitam and Dooley 2007; Tjosvold and Hui 2003; Jehn 1995; Pelled et al. 1999; Yousaf et al. 2020). Process conflict can also have positive impacts on performances, because better planning and resource allocation can take place and roles and responsibilities are better planned (Jehn and Bendersky 2003; Jehn and Mannix 2001; Karn 2008). Especially in the beginning or end of a project, process conflict is claimed to be beneficial (Jehn et al. 1999). On the other hand, there is the negative view of conflict, which describes harmful consequences of conflicts. Almost without exception, relationship conflict falls under this category and consequences are far-reaching. In general, researchers claim relationship conflict to lower performance and productivity (De Dreu and Weingart 2003; Greer and Jehn 2005; Li and Hambrick 2005; Rau 2005; Evan 1965; Wit et al. 2012; Vodosek 2005). Individuals involved in relationship conflict waste their time on the conflict, instead of value-adding tasks (Pelled 1996; Jehn and Bendersky 2003; Jehn et al. 2008; Evan 1965) and their ability to focus on a task or assess new information of others declines significantly (Pelled 1996). In addition, research results indicate that it decreases creativity, innovation, consensus-building, advise-seeking and mutual understanding, but to the same time increases dissatisfaction and the intentions to quit (Evan 1965; Wall, Jr. and Nolan 1986; Deutsch 1969; Jehn 1997; Jehn 1995; Jehn and Bendersky 2003; Marineau et al. 2018; Ismail et al. 2012; Wit et al. 2012; Matsuo 2006). For task conflict, researchers also found that negative consequences are possible to arise. These are again, decreased satisfaction, well-being, consensus-building and trust (Jehn and Bendersky 2003; De Dreu and Weingart 2003; Dijkstra et al. 2005; Medina et al. 2005; Jia et al. 2021; Jehn 1995; Jehn et al. 2008; Baron 1990; Ross 1989), as well as higher intensions to quit (DeChurch and Marks 2001; Simons and Peterson 2000), and more counter-productive work behaviors (Wit et al. 2012). The mentioned researchers claim negative effects on performance (Jehn and Bendersky 2003; De Dreu and Weingart 2003; Dijkstra et al. 2005; Medina et al. 2005; Jia et al. 2021), or that at least the people involved in task conflict evaluate the work results as negative, despite the actual outcomes (Jehn 1995; Jehn et al. 2008; Baron 1990; Ross 1989). For process conflict, too, conflict outcomes can be negative. Mainly in form of the known variables, such as lower performance (Vodosek 2005; Jehn and Mannix 2001; Jehn 1997), creativity and innovation (Matsuo 2006; Jehn and Bendersky 2003; Kurtzberg and Mueller 2005). Some researchers claim a close relation between process and relationship conflict, as process conflict involves evaluations of individuals and their skills, which in turn can evoke negative emotions and reactions and finally also result in dissatisfaction or intentions to quit (Jehn et al. 1999; Jehn and Mannix 2001; Behfar et al. 2008). The mentioned conflict research focuses on qualitative conflict consequence variables, such as the ones mentioned above. An approach to express conflict consequences more quantitatively is the measurement of conflict costs. Audi et al. (2009) define these costs as the financial costs of conflict, that negatively influence a company's financials. Desired outcomes are either achieved, but with lower revenue or the outcomes themselves reduce. Examples of conflict costs are the time spent on a conflict (Porath and Pearson 2009; Freres 2013), different legal fees, absenteeism and presenteeism, damaged brand images, turnovers, illness and sick leaves, as well as lower commitment, satisfaction or motivation (Buss 2011; Freres 2013). For example CPP (2008) states that employees lose on average 2.8 hours on conflicts per week, turnover costs are claimed to vary between 25 – 240% of annual salary costs (Conbere 2000; Kreisman 2002) and legal fees can reach more than \$100.000 per case (Murtha 2005).

Cultural diversity is an important variable in conflict research (Friedman et al. 2006; Chen et al. 2003; Doucet et al. 2009), driven by two factors. Firstly, companies face internationalization on a daily basis and culturally diverse teams become normal in today's globalized world (Williams and O'Reilly, III 1998; Lozano and Escrich 2017). Secondly, there are studies indicating the relationship between conflict and cultural diversity, making it essential for organizations to understand and carefully manage that interlink (Vodosek 2005, 2007; Wickramasinghe and Nandula 2015; Friedman et al. 2006; Chen et al. 2003; Doucet et al. 2009). Cultural diversity can hold different roles within a conflict, as it enables conflict parties to differentiate in-group and out-

group members and affects the way how people react and feel about a conflict (VanderPal and Ko 2014; Worchel 2005). In general research found a positive link between the variables, that triggered for example dissatisfaction, lower performance and commitment or more difficult teamwork (Vodosek 2005, 2007; Wickramasinghe and Nandula 2015; Akhtar et al. 2016). Positive results of cultural diversity and conflict can be an increase of task conflict and an increase in perspectives and backgrounds (Liu et al. 2008; Paul and Ray 2013). Within cultural research, the model of cultural distances exists, triggered by the belief that cultural differences can vary a lot. It is suggested that one group of Indians, Russians, Egyptians and Chinese people may not have the identical cultural diversity like a second group consisting of Japanese, Chinese, American and French people (Ayub and Jehn 2014). To describe the magnitude of these differences cultural distances are used. Different methodologies exist reaching from cultural dimensions of Hofstede (1980; 2001), nine cultural dimensions of House et al. (2004) up to 7 clusters of Schwartz (1994, 1999). They have in common that each one defines specific scores for each dimension for each country. These scores allow better comparison and evaluations of different countries.

Research gap

The analysis of conflict consequences can take place in two ways, a more qualitative approach or via quantitative measurements. The research of qualitative conflict outcomes is advanced, and a variety of findings is available. These studies largely present consistent results, where the only discrepancies lie in part with the consequences of process and task conflict. Results on quantitative conflict consequences are rare and also have more gaps. It starts with the lack of a definition of the term conflict costs in most studies, and precise explanations and definitions are also mostly missing when analyzing costs and dividing them into different clusters. Instead, only possible cost

variables are mentioned. However, it is not shown how the determination or assignment of the variables takes place and how the variables interact with each other. The first significant research gap therefore is:

Gap 1: No conflict cost definition and determination of corresponding conflict cost variables. No uniform clustering of conflict costs, including cluster definitions.

Looking at the actual quantitative data, several weaknesses become visible. In most studies, only individual cost variables we re analyzed, detached from all other variables, and a holistic measurement of costs is completely missing. The procedure of how the data was generated and analyzed is hardly or not at all described. A replication of the research would not be possible.

Gap 2: No scientific methodology for the conflict cost measurement of all conflict costs.

Researchers often distinguish task-, relationship- and process conflict and the outcomes of the different types are divergent. Existing studies on conflict costs do not take this into account and only talk about conflict in general terms. This can be problematic, because not all conflict consequences need to be negative. For example, by looking at the cost variable "time spent on a conflict", outcomes can be negative in case of relationship conflict. However, there is the possibility for task and process conflict that this time is spent positively on a conflict and has positive consequences. Therefore, one could not talk about costs in that case. The next major research gap therefore is:

Gap 3: No data on the link of task-, relationship- and process conflict to conflict costs.

When looking at cultural diversity and its relationship to conflict, there are already a large number of studies available. The majority presents a positive relation between diversity and conflicts and mostly indicates positive correlations between the two variables. It can be assumed that this is also applicable for conflict costs, but there are no studies yet that analyze the relationship between cultural diversity and conflict costs.

Gap 4: No data on the link between cultural diversity and conflict costs.

Analyzing cultural diversity as one variable can be too short-sighted. Therefore, the concept of cultural distance was introduced to better analyze the degree to which cultures differ. Even there, there are only few studies researching the effect of cultural distance on conflicts. So far, there are no findings on the extent to which greater cultural distances influence conflict costs and whether they correlate.

Gap 5: No data on the correlation between cultural distance and conflict costs.

Research aim and research questions

The goal of this work is two-folded. Firstly, it is about creating a baseline for conflict cost research that can be used in the future. It is about precise definitions, clusters, variable determinations and a better understanding of the costs itself, how they are influenced and interact with each other and different conflict types. Secondly, it is about understanding the link between conflict costs and cultural diversity in general and how cultural distance influences conflict costs.

Multiple steps are necessary to gain insights on these two elements. These steps are reflected in four publications that are related to each other. Figure 2 summarizes the approach by listing the respective problem and objective of each publication and their overall contribution.

The first publication serves as the basis for all subsequent publications, as it is the basic building block for analyzing conflict costs. At first, a literature review was conducted to understand the status-quo of today's conflict cost research. Following this review, four conflict cost clusters are suggested, including definitions and variables for each of them. One main finding is the variety of cost variables and the impossibility to use one measurement approach for all cost variables. This led to the decision to limit the work related to this publication, but also all further publications on only one cost type (see figure 1). This type is called internal indirect conflict costs and reflects costs that arise within an organization but are difficult to observe by managers or ordinary performance indicators. Their measurement normally requires extensive analysis or in-depth interviews. Cost variables are for example wasted time worrying about a conflict, sick leaves or extra-time gathering information. For all internal indirect conflict costs, that can be measured in terms of lost time, a precise measurement approach is developed and tested.

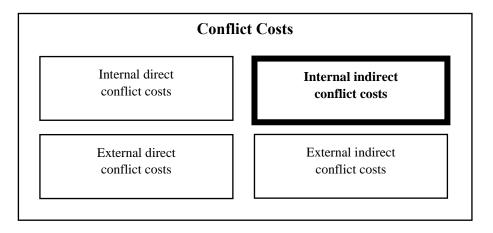


Figure 1: Focus of thesis – Internal indirect conflict costs

Author's own representation

Publication 1: Companies can

conflicts: An analysis of internal indirect conflict costs

lose time over

Publication 2:

Time lost on task-, relationship- and process conflict Publication 3:

Conflict costs in national and international business: A comparative analysis Publication 4:

Cultural distance and its association to time spent on conflicts

Definition of all relevant terms and precise clustering of costs.

Measurement and understanding of first cost variables (internal indirect conflict costs, measured in terms of lost time).

Analysis if time is wasted on all conflict types by researching the link between task-, relationship- and process conflict and its relation to internal indirect conflict costs, measured in terms of lost time.

Study if more conflict costs arise in case of international cooperation, compared to national working groups. With a focus on wasted time, reflected in internal indirect conflict costs.

Research if higher cultural distances lead to higher conflict costs, that are measured regarding the time wasted on a conflict.

Analysis of conflicts and their costs, with a focus on internal indirect conflict costs, measured in terms of lost time.

Analysis of conflict costs, with a focus on wasted time and their link to cultural diversity

What are conflict costs and how are they linked to cultural diversity? (With a focus on internal indirect conflict costs, measured in terms of lost time)

Figure 2: Research objective Author's own representation

The overarching research question of this publication can be summarized as follows:

RQ: What are conflict cost clusters and their variables and how can internal indirect conflict costs be measured?

In a second publication, internal indirect conflict costs that are measured in terms of lost time are analyzed in terms of their relation to relationship-, task-and process conflict. People of course always spend time on a conflict, irrespective of the type. However, internal indirect conflict costs rather describe harmful conflict consequences, that can be clearly entitled as a loss of time. The goal of this research is to understand whether all conflict types cause lost time and respectively cause opportunity costs.

RQ: Is there a relation between relationship-, task and process conflict and lost time, measured with internal indirect conflict cost variables?

In a third publication, the variable of cultural diversity is added to the research of internal indirect conflict costs, measured in terms of lost time. It is about understanding whether cultural diversity causes more conflicts and higher costs, in terms of more wasted time.

RQ: Does cultural diversity cause higher internal indirect conflict costs in form of more time being wasted on conflicts?

In a fourth publication, cultural diversity is researched more precisely in form of cultural distances, with the objective to analyze whether larger cultural distances cause higher amounts of wasted time.

RQ: Do higher cultural distances also lead to higher internal indirect conflict costs, in form of more time being wasted?

The four publications with the respective research questions, serve the overarching research question:

RQ: How are conflict costs, measured in terms of lost time, linked to cultural diversity?

MATERIALS AND METHODS

For the analysis of conflict costs and the introduced variables above, different methodological approaches were used. In the first publication (Dirrler and Podruzsik 2022) a literature review was conducted to establish a baseline on conflict cost research. These findings were then used for a new cluster creation and a first statistical analysis of internal indirect conflict costs. For the literature review GoogleScholar, ScienceDirect and Ebsco were screened for relevant articles, using the search terms "Conflict Costs" and "Measurement of Conflict costs". Only 10 research papers were found, what is however in line with similar studies that identified 12 articles (Freres 2013), as the amount of conflict cost research is very limited (Dirrler and Podruzsik 2022). The objective of the review was to find relevant cost variables, possible clusters and existing quantitative data. Using these results, the definition of conflict costs as "the financial costs caused by conflicts that negatively affect an organization's overall financial performance. A company can either achieve its desired outcomes, but with reduced revenue due to the additional financial costs of conflict, or achieve lower outcomes due to the extra costs" was chosen (Dirrler and Podruzsik 2022). In a subsequent step, all identified cost variables were cross-checked whether they fitted the chosen definition and if additional variables had to be added. The cost variables were then analyzed for common criteria to create new conflict cost clusters. Considering the newly defined clusters, it became obvious that the measurement of these costs with one approach was not possible. Therefore, the focus for the statistical analysis was set on internal indirect conflict costs, measured in terms of lost time. To obtain the data, an online survey was conducted with 675 respondents, who were asked to think of a concrete conflict situation they have been involved in the past are they currently faced. This was a prerequisite and individuals who could not think of a conflict they once faced, were excluded from the survey. In the

questionnaire, the respondents were asked to indicate how much time they had spent on each individual cost variable. In addition to that, they were asked about the conflict duration in general and its severity. Spearman's correlation testing was used to test the relation between conflict duration (H1a) or severity (H1b) and internal indirect conflict costs. Followed by a Kruskal-Wallis analysis to evaluate how different durations and severities of conflicts indicated differences in the overall amount of lost time. Lastly, internal indirect conflict costs were analyzed in terms of their correlation (H2a), using Spearman's correlation testing again and how the contribution of individual cost variables differed to the overall costs, using the Monte Carlo multinomial test (H2b). The relationship between the hypotheses is also indicated in figure 3.

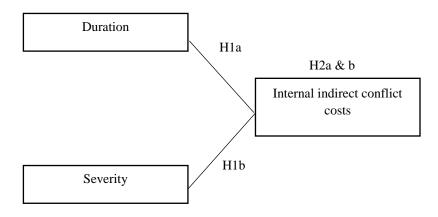


Figure 3: Hypotheses testing – Publication 1

Author's own representation

The second publication (Dirrler and Podruzsik 2023c) had the objective to indicate the relation between lost time, measured in form of internal indirect conflict costs and the three conflict types, expressed in task-, relationship-, and process conflict (Figure 4). A quantitative research approach was chosen, for which data was collected from 507 respondents via an online survey. Internal indirect conflict costs were measured as described in the first publication. To

identify and differentiate the three different conflict types, the questions of Behfar et al. (2011) were used. Each conflict type has a number of questions through which an identification can take place. For task conflict for example this is amongst others "how often do members of your team discuss evidence for alternative viewpoints?". Confirmatory factor analysis was used to identify the conflict types, checked with the Kaiser Criterion and Eigenvalues. Multiple linear regression was used to analyze the relation between the amount of wasted time and the conflict types. The conflict types were then also analyzed in terms of their differences with Kruskal-Wallis testing.

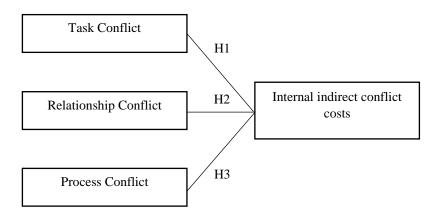


Figure 4: Hypotheses testing – Publication 2

Author's own representation

The goal of the third publication (Dirrler and Podruzsik 2023a) was to compare international and national groups and their amount of wasted time on internal indirect conflict costs. Data was collected with a questionnaire with 490 people in a national work set-up and 185 in an international one. Similar to the first publication, respondents were asked to indicate the amount of wasted time on individual cost variables, their conflict duration, severity, in addition to the total amount of conflicts per year. A Kruskal-Wallis test was used to evaluate whether the amount of conflicts per years differed according to different degrees of international work. Wilcoxon rank-sum tests were conducted to

analyze if the central tendencies for conflict duration and severity differed in the national and international group. This test was also used to analyze whether wasted time on internal indirect conflict costs differed in the two groups.

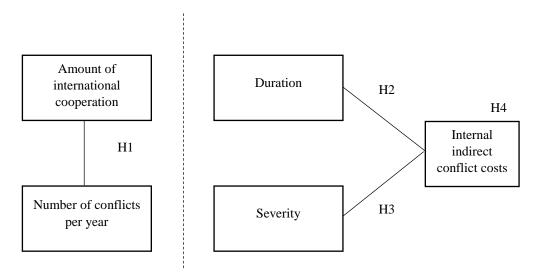


Figure 5: Hypotheses testing – Publication 3

Author's own representation

Table 1: Overview Publications and their methodology and data

Publication	Methodology	Data
Companies can lose time	Online questionnaire and	675 respondents with a
over conflicts: an analysis	Spearman's correlation test,	concrete conflict situation
of internal indirect conflict	Kruskal-Wallis test and	
costs	Monte Carlo multinomial	
	test	
Time lost on task-,	Online questionnaire and	507 respondents with a
relationship and process	Multiple Regression	concrete conflict situation
conflict	analysis and Kruskal-Wallis	
	testing	
Conflict costs in national	Online questionnaire and	490 respondents with a
and international business:	Kruskal-Wallis testing, as	concrete conflict situation
A comparative analysis	well as Wilcoxon rank sum	in a national set-up and 185
	test	respondents for an
		international conflict
		situation
Cultural distance and its	Online questionnaire and	226 respondents with a
association to time spent on	linear and multiple	concrete conflict situation
conflicts	regression analysis	in an international work
		environment

Author's own representation

In the fourth publication (Dirrler and Podruzsik 2023b), data for internal indirect conflict costs was gathered as described previously. However, all survey participants had to have a conflict situation in an international work environment, which were in the end 226 people. Each participant was asked to state his or her own nationality and up to five nationalities of conflict parties. The goal of the publication was then to test whether larger cultural distances also caused higher amounts of wasted time (Figure 6). To measure cultural distances, the model of Hofstede was used, by assigning his cultural distance scores to the indicated countries. For the statistical analysis linear regression analysis was applied, as well as a multiple regression analysis.

Table 1 presents a summary of the publications, their methodology and data set.

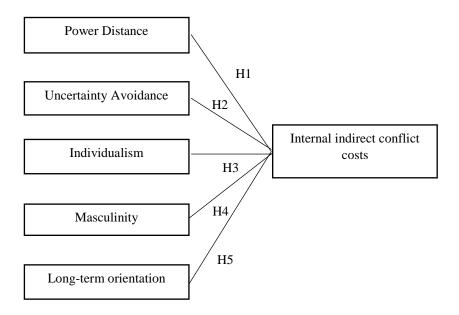


Figure 6: Hypotheses overview – Publication 4

Author's own representation

RESULTS AND DISCUSSION

The overall objective of this research is to investigate conflict costs in terms of lost time and their relation to intercultural diversity. The first publication set the basis for this. We found ten research articles that captured conflict costs and used their variables to formulate new clusters, to define their variables and to suggest a measurement approach (see table 2). Here, the crucial decision was made to focus this thesis on internal indirect conflict costs, measured in terms of lost time. The data collected through a survey, indicated that the proposed measurement approach was successful and the respondents did not indicate difficulties in answering the questions. Our statistical analysis demonstrated correlations between most cost variables ranging from 0.2 to 0.5 and no values above 0.7, confirming the usefulness of all variables in explaining the overall internal indirect conflict costs and hypothesis 2a (see table 3). The mean and total values of each variable already indicated large time differences (see table 3) that potentially lead to different contributions to the overall amount of lost time (H2b). This was also confirmed by the Monte Carlo test with 10258185 events, 91.529 chi² observations and p < 0.01.

Table 3: Means and total amounts of lost time.

Variable	Mean	Total	Variable	Mean	Total
Wasted time due to	3.96	2,944	Wasted time worrying	4.04	3,035
involvement in conflict			about conflict		
Pretended to work	1.94	905	Counter-productive working behavior	1.80	773
Additional time for	2.86	1,753	Lost time due to	2.38	1,301
information gathering			avoiding behavior		
Lost time due to not	1.64	584	Lost time due to personal	2.15	1,163
listening purposely			attacks		
Lost time due to pointing	2.28	1,241	Wasted time solving a	4.34	3,407
out mistakes			conflict		
Less time at work	2.10	1,087	Presenteeism	60.48	40,824
Psychological/ physical	62.54	42,216	Sick leave to avoid	30.22	20,400
disease due to conflict			conflict		

Source: (Dirrler and Podruzsik 2022)

Table 2: Conflict costs clusters and variables

Internal	Direct	Internal Indirect		
Legal & Dispute Costs	Vandalism	Wasted time worrying about conflict (L)	Attacking behavior (L)	
Discrimination claims	Sabotage	Wasted time dealing with conflict (L)	Psychological & physical disease (L)	
Grievance	Performance declines	Time spent resolving conflict (L)	Sick leave (L)	
Compensation settlements	Decreased Quality	Pretending to work (L)	Less diligence	
Litigation	Inability to meet deadlines	Absenteeism (L)	Voluntary departure from team	
Theft & Damage	Loss in productivity	Presenteeism (L)	Voluntary departure from organization	
Fees of lawyers & professionals	Increased supervision costs	Decreased time at work (L)	Decreased work effort	
Accidents		Avoiding behavior/ shun contact (L)	Change resistance	
		Extra time gathering information (L)	Bad quality decision making	
		Counter-productive work behavior (L)	No decision making	
External	Direct		! Indirect	
Legal suits Compensation	Customer complaint handling Loss of ongoing	Employer Reputation Difficulty to attract	Damage to brand image	
claims	relationship	talent		

Note: (L) – Variables measured in terms of lost time.

Source: Dirrler and Podruzsik (2022)

In addition, we found support for conflict duration and strength being amplifiers of internal indirect conflict costs (H1a & b). The correlation result for conflict duration was $r_s=0.32,\,p<2.2e\text{-}16$ and for conflict strength $r_s=0.47,\,p<2.2e\text{-}16$ in relation to conflict costs.

Table 4: Correlation matrix – lost time

	-	2	8	4	5	9	7	∞	6
Wasted time due to involvement in conflict									
2 Wasted time worrying about conflict	0.56**								
3 Pretended to work	0.26**	0.25**							
4 Counter-productive working behavior	0.27**	0.30**	0.34**						
Additional time for information 5 gathering	0.52**	0.46**	0.31**	0.30**					
6 Lost time due to avoiding behavior	0.33**	0.41**	0.35**	0.35**	0.43**				
7 Lost time due to not listening purposely	0.14**	0.18**	0.36**	0.37**	0.26**	0.46**			
8 Lost time due to personal attacks	0.28**	0.38**	0.32**	0.32**	0.44**	0.44**	0.43**		
9 Lost time due to pointing out mistakes	0.35**	0.35**	0.30**	0.34**	0.46**	0.40**	0.39**	0.61**	
10 Less time at work	0.23**	0.30**	0.41**	0.32**	0.34**	0.38**	0.37**	0.33**	0.29**
11 Wasted time solving a conflict	0.72**	0.52**	0.22**	0.24**	0.51**	0.30**	0.14**	0.33**	0.34**
12 Sick leave to avoid conflict	0.12**	0.21**	0.33**	0.27**	0.26**	0.39**	0.43**	0.42**	0.36**
Psychological/ physical disease due to 13 conflict	0.16**	0.27**	0.29**	0.22**	0.29**	0.32**	0.34**	0.44**	0.35**
14 Presenteeism	0.11**	0.26**	0.26**	0.27**	0.26**	0.32**	0.31**	0.41**	0.33**

Dirrler and Podruzsik (2022)

In a second step, reflected in a subsequent publication (Dirrler and Podruzsik 2023c), it was critical to analyze the relation between the different conflict types and the amount of lost time. The Confirmatory Factor Analysis (cf. own paper 2) confirmed the differentiation of the three conflict types relationship, task- and process conflict. Multiple Regression analysis indicated significant results for relationship conflict and its ability to predict internal indirect conflict costs (B = 2.1718, p < 0.001). Task and Process conflict were non-significant with B = 0.00183 and p = 0.9458 and B = 0.05314, p = 0.0942. By including gender, age and the international work environment as control variables, the results did not change significantly, indicating that the respondents did not interpret their time spent on process or task conflict as a loss in time.

Against our assumption, the effect of international cooperation on internal indirect conflict costs was limited. When analyzing cultural diversity as one variable, reflected in the third publication, we did not find significant differences between culturally homogeneous and heterogenous groups and their amount of lost time or an effect on the cost amplifiers of duration and strength. The Wilcoxon rank-sum test results were non-significant for conflict duration and lost time, with W = 47013, p = 0.4251. Indicating that the two groups did not differ significantly in terms of conflict durations. The same is applicable for conflict severity with W = 46170, p = 0.6906. To compare the national and international groups regarding the amount of lost time, a Wilcoxon rank-sum test was applied again. The results stayed non-significant with W = 44450, p = 0.4252. The only exception was the number of conflicts per year that increased with the degree of an international work environment, meaning that the more international the work atmosphere became, the more conflicts a person faced per year. The Spearman's rho correlation coefficient test indicated a weak positive relation of $r_s = 0.159$, p = 3.169e-05. According to the degree of international involvement, respondents were split in separate groups that ranged from up to 20% of international contact to fully international work, whereas the Kruskal-Wallis test also demonstrated differences between the groups with H(4) = 17.063, p = 0.00188 here. According to the Bonferroni post-hoc test mainly the group of up to 20% international involvement differed from groups with more international contacts.

As the influence of cultural heterogeneity on conflict costs was against our assumptions low further tests were conducted in a subsequent publication. Here, cultural diversity was measured more precisely in terms of the cultural distance dimensions defined by Hofstede (1980; 2001). Most survey respondents were German, however in total the data reflected 75 different nationalities mainly reflected in the nationalities of the conflict parties. In a first step, each of the five cultural dimensions of Hofstede (1980; 2001) was tested individually in terms of the effect of larger distances on wasted time.

Table 5: Linear Regression Analysis incl. Control Variables

	Variable	В	P-			Variable	В	P-
			value					value
	Intercept	1.0331	0.0003			Intercept	1.0564	0.0003
	Power	0.0585	0.1446			Uncertainty	0.1927	0.1550
	Distance					Avoid.		
	Age > 30				Se	Age > 30		
a)	Age 30 – 39	-0.1107	0.6390		ano	Age 30 – 39	-0.0707	0.7702
Power Distance	Age 40 – 49	-0.1176	0.5931		Avoidance	Age 40 – 49	-0.1109	0.6252
sta	Age 50 - 59	-0.5813	0.0201		AV	Age 50 - 59	-0.5739	0.0294
Di	Age < 60	0.1446	0.7642			Age < 60	0.1415	0.7689
ver	Gender	-0.0072	0.9688		Uncertainty	Gender	-0.0316	0.8652
00	Employee				ırt	Employee		
I	Project	0.7004	0.0720		nce	Project Manager	0.6325	0.1072
	Manager				n			
	Lower Mgmt	0.2215	0.5552			Lower Mgmt	0.2339	0.5612
	Middle Mgmt	0.2372	0.3796			Middle Mgmt	0.2226	0.4071
	Upper Mgmt	0.0315	0.936			Upper Mgmt	-0.0161	0.9572
	Self-employed	0.3079	0.4630			Self-employed	0.2950	0.4915
	$R^2 = 0.07626$	p = 0.42	227]		$R^2 = 0.07709$	p = 0.4119	

	Variable	В	P-
			value
	Intercept	1.1372	0.0001
_	Individualism	-0.0055	0.9289
isn	Age > 30		
Collectivism	Age $30 - 39$	-0.0784	0.7423
llec	Age 40 – 49	-0.0980	0.6635
ည	Age 50 - 59	-0.5778	0.0255
	Age < 60	0.1472	0.7636
E	Gender	0.0034	0.9856
Individualism vs.	Employee		
lua	Project	0.6540	0.1182
Vic	Manager		
ndi	Lower Mgmt	0.1551	0.6973
ī	Middle Mgmt	0.2244	0.4116
	Upper Mgmt	0.0088	0.9778
	Self-employed	0.2504	0.5506
	$R^2 = 0.06467$	p = 0.58	345
1			

	Variable	В	P-
			value
	Intercept	1.0559	0.0002
	Individualism	0.1248	0.1261
m	Age > 30		
nis	Age 30 – 39	-0.0593	0.8027
Feminism	Age 40 – 49	-0.1063	0.6306
Fe	Age 50 - 59	-0.5986	0.0208
/S.	Age < 60	0.1377	0.7669
ty v	Gender	-0.0084	0.9631
inií	Employee		
Masculinity vs.	Project Manager	0.6750	0.1122
[as			
\mathbf{Z}	Lower Mgmt	0.2027	0.5939
	Middle Mgmt	0.1601	0.5559
	Upper Mgmt	-0.1118	0.7226
	Self-employed	0.2185	0.6314
	$R^2 = 0.0781$ p	= 0.3989	

	Variable	В	P-
			value
	Intercept	1.0897	0.0002
n	Long-term	0.0436	0.4271
atic	orientation		
nta	Age > 30		
Long-term vs. short-term orientation	Age $30 - 39$	-0.1051	0.6546
n c	Age $40 - 49$	-0.1010	0.6473
erı	Age 50 - 59	-0.5994	0.0171
rt-t	Age < 60	0.1509	0.7566
hoı	Gender	-0.0085	0.9663
S. S.			2
ı vs	Employee		
ırı	Project	0.6473	0.0962
;-te	Manager		
guo	Lower Mgmt	0.1483	0.6880
L	Middle Mgmt	0.2554	0.3392
	Upper Mgmt	-0.0130	0.9670
	Self-employed	0.2659	0.5154
	$R^2 = 0.06969$	p = 0.51	126

Source: Dirrler and Podruzsik (2023b)

However, none of the hypotheses proved to be significant, meaning that no relation could be found between the variables of the cultural dimensions and conflict costs (cf. Dirrler and Podruzsik 2023b). Also, by including control variables, the results stayed non-significant (see table 5). Lastly, multiple regression analysis was applied testing all cultural dimensions and their effect

on internal indirect conflict costs. In line with prior results, these results stay non-significant (cf. Dirrler and Podruzsik 2023b).

NEW SCIENTIFIC RESULTS

Table 6: Novelty of results

D =14	N14
Result	Novelty
Conflict costs can be divided into four	Conflict costs are scientifically
clusters. Internal indirect conflict costs can	conceptualized and methodology for its
be measured in terms of lost time, among	measurement is introduced and successfully
other things. The individual cost variables	tested. A representative data set is used to
correlate and contribute differently to the	statistically evaluate some conflict cost
total value. Conflict duration and severity	variables. First findings are presented how
can be considered as cost amplifiers.	much time is lost due to conflict. It is the
	first study to investigate the relation between
	conflict duration or severity and conflict
	costs.
Relationship conflict is a major contributor	It is the first study to investigate the relation
to wasted time due to conflict.	of task-, relationship- and process conflict to
Undoubtedly, respondents experience	conflict costs. It is novel to evaluate the
relationship conflict as a loss of time and	effects of the three different conflict types in
that time is not spent on value-adding	form of internal indirect conflict costs,
activities. This is in contrast to process and	measured in terms of lost time.
task conflict. Even though time is spent on	
these conflict types, respondents did not	
experience it as a loss in time. There was	
no correlation between task conflict and	
internal indirect conflict costs and for	
process conflict only in international work	
environments.	
There is no difference between national	Due to the limited research in the area of
and international working groups and the	conflict costs, there is no study yet that
amount of lost time on conflicts. Also,	examines the impact of cultural diversity on
conflict duration and severity did not differ	conflict costs. The novelty of the study is
between the groups. However, the more	given by examining internal indirect conflict
international a work environment	costs, measured by lost time and comparing
becomes, the more conflicts people are	national and international groups. In
facing.	addition, it is a new scientific finding, that
	the likelihood of more conflicts increases by
	a more international work environment.
A link between cultural diversity and more	This is the first study to evaluate the relation
wasted time cannot be approved. Also, by	between cultural distances and conflict costs
evaluating cultural distances, whether	in general, but also more precisely by
larger distances cause higher time losses, a	looking at the amount of wasted time.
correlation cannot be found.	

Author's own representation

A first analysis on the literature of conflict costs revealed that the research in the field of conflict costs is limited. The overall number of studies is limited, but also the conducted research investigations and results. The first publication therefore serves as a building block on conflict costs, by scientifically conceptualizing the term and topic of conflict costs. Terms are clearly defined and clustered and variables are allocated. Subsequently, some cost elements are statistically tested and evaluated. The importance of measuring conflict costs in terms of lost time, among other things, has already been pointed out in other studies (Buss 2011; Freres 2013). This is where the first publication successfully picks up and statistically verifies a possible measurement and presents first quantitative findings.

Compared to conflict costs, research on conflict is far-reaching. A common approach is to distinguish relationship-, task- and process conflict (Jehn 1997; Jehn 1995). Again, the link is however missing to conflict costs in general, but also to the variable of lost time. By linking the conflict types to internal indirect conflict costs and examining them accordingly, new research contributions are presented. The second publication clearly shows that especially relationship conflicts cause high amounts of lost time. This is not the case for task conflict and for process conflict only in very specific setups.

To research cultural diversity as one variable, but also in form of cultural distances and their effect on lost time is again a new approach. The third and fourth publications are the first ones to link these two research areas, as up to now research only exists on conflicts in general and their association to cultural heterogeneity. Against previous assumptions, the effects of cultural diversity were however low on internal indirect conflict costs.

CONCLUSIONS AND SUGGESTIONS

The research results indicate that people spend time on conflicts and that conflicts can cause situations where time is wasted or lost. Different variables contribute to these time losses, such as the time itself that is spent on the conflict, but also extra time gathering information, attacking behaviors or different forms of absences and sick leaves. It was found that people spend already six hours on variables like the ones mentioned above. In case of longer conflicts lasting six to twelve months, the time spent on conflicts increased to 40-45 hours. To derive with actual costs, it is suggested to multiply the time losses with average salaries (Dirrler and Podruzsik 2022). In Germany, with an average salary of 22.78€ for example costs of 137€ per person arise for conflicts only lasting one week, which equals to approximately 15% of a weekly salary. The researched time losses are all part of internal indirect conflict costs, that describe costs that are caused within a company that are however less visible to management or HR. Reasons are that the conflicts still affect an individual on a very personal level and have not reached a high escalation stage yet. Time losses therefore only represent one element of the overall conflict costs and total costs of a conflict can be even higher (Dirrler and Podruzsik 2022). Research results indicate that undoubtedly relationship conflict leads to wasted time, that in the end generate internal indirect conflict costs. Even though people spend time on task and process conflict, too, no relation to internal indirect conflict costs could be approved. Respondents did not indicate time losses for these conflict types, which indicates that the time spent on task or process conflicts is considered positive or at least not as a loss of time (Dirrler and Podruzsik 2023c). This is positive for companies, as it enables them to benefit from the advantages of task and process conflict, without additional costs to arise. Examples are the discussion and consideration of different viewpoints and perspectives (Parayitam and Dooley

2007; Tjosvold and Hui 2003; Jehn 1995; Pelled et al. 1999; Yousaf et al. 2020) or the better planning of roles and responsibilities (Jehn and Bendersky 2003; Jehn and Mannix 2001; Karn 2008). It will however be important to carefully watch conflicts and to intervene as soon as relationship conflict arises (see table 6).

Intercultural diversity is becoming more important and common in today's organization. Therefore, it is encouraging for companies that research did not find a link between cultural diversity and internal indirect conflict costs (Dirrler and Podruzsik 2023a; b). This is beneficial, because it indicates that people do not react differently to conflicts in general. However, cultural management and awareness can still be important, as the number of conflicts increased with the amount of international work relations. More research is needed in order to understand that link and to ensure that conflict costs do not increase significantly due to cultural differences. In general, these results are encouraging and less-alarming than expected (see table 7).

Table 7: Managerial implications

Implications	References
Conflict costs can reach considerable amounts, that	(Dirrler and Podruzsik 2022)
should be measured and managed by companies	
Relationship conflict causes significant amounts of lost	(Dirrler and Podruzsik 2023c)
time, whereas task and process conflict did not indicate	
a link. Meaning that managers can potentially benefit	
from the advantages of task and process conflict, should	
however directly intervene in case of relationship	
conflict	
Cultural diversity did not indicate a link to internal	(Dirrler and Podruzsik 2023a)
indirect conflict costs, which is encouraging for	
international cooperation. However, the number of	
conflicts increased, therefore a close monitoring and	
cultural management can still be of importance	
Cultural distances did not impact internal indirect	(Dirrler and Podruzsik 2023b)
conflict costs, which signals that people do not react	
differently in case of intercultural diversity to conflicts	
in general and their behavior stays unchanged	

Author's own representation

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