UNIVERSITY OF LATVIA
FACULTY OF ECONOMICS AND MANAGEMENT
DEPARTMENT OF INTERNATIONAL ECONOMICS AND BUSINESS

DETERMINANTS OF TEAM PERFORMANCE IN BUSINESS ORGANIZATIONS

KOMANDAS VEIKTSPĒJU NOTEICOŠIE FAKTORI KOMERCORGANIZĀCIJĀS

DOCTORAL THESIS

Promotion to the Degree of Doctor in Management
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Supervisor: Prof. Dr. Inesa Voroncuka

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CONTENTS

The promotion paper has been designed and approbated at the Department of Management, Faculty of Economics and Management, university of Latvia from 2009 to 2013.

Anotācija

Doktora darba tēzes sniedz empīrisku pētījuma analīzi par zinātnisko ietekmi uz determinējošo uzvedību, mērot komandas efektivitāti komercorganizācijās, pārbaudīta ar nejauši atlasītu studentu grupām Austrijas, Vācijas un Latvijas universitātē. Autors ir analizējis komandu teoriju, komandas efektivitātes kritērijus, dzimumu analīzi un komandas efektivitātes 12 dimensiju modeli, kas ietver uzvedības kritērijus. Doktora darba tēzēs definētas komandas nostādnes, tostarp arī autora definētā uzvedības dimensija komandas efektivitātes mērīšanā. Autors izmanto empīriskās izpētes metodes — laboratorijas testus, sekundāro analīzi, aptauju un pārbaudi ar studentiem vairākās universitātēs: Kufšteinā, Austrijā, Fuldā un Maincā, Vācijā, kā arī Rīgā, Latvijā. Zinātniskā analīze veikta laika posmā no 2009. līdz 2013. gadam, ietverot astoņi publikācijas Austrijas, Vācijā, Latvijā, Apvienotajā Karalistē un Amerikas Savienotajās Valstīs.

Annotation

The Doctoral thesis provides an empirical research analysis of the scientific impact of the determinant behavior on measuring Team Performance in business organizations – validated in the countries Austria, Germany and Latvia at Universities with a population of randomly chosen students. A novel theory of teams, Team Performance criteria, gender analysis and a 12 dimension team performance model including behavioral criteria are described and analyzed. The Doctoral thesis defines a team approach that is defined according to behavioral dimensions with respect to measuring Team Performance. The author uses empirical research methods of a laboratory test, secondary analysis, survey and a validation with students at the Universities of Kufstein in Austria, Fulda and Mainz in Germany, and Riga in Latvia. The scientific analysis was done in the time from 2009 till 2013 including eight publications in the countries of Austria, Germany, Latvia, United Kingdom, and United States of America.

Keywords: team performance, behavior, team, age range, gender, heterogeneity

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List of abbreviations

AR	Age Range
B	Behavior
BA	Behavioral Approach
BE	Behavioral Economics
BR	Business Relation
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CAE	Computer Aided Engineering
DI	Diversity Index
E	Environment
Ed	Education
Fr	Fluctuation Rate
G	Gender
H	Heterogeneity
H_y	Hypothesis
HR	Human Resource
HRM	Human Resource Management
Lr	Leave Vacation Rate per year
P	Person
PLM	Product Lifecycle Management
ROI	Return of Investment
TBI	Team Binding
TB	Team Behavior
TBP	Team Behavior Personality
TC	Team Communication
TCA	Team Compensation Approach
TCF	Team Customer Focus
TCM	Team Conflict Management
TEp	Team Empowerment
TL	Team Loyalty

List of abbreviations

TM	Team Member(s)
TMt	Team Meeting
TP	Team Performance
TPr	Team Productivity Rate
TPS	Team Problem Solving
TSI	Team Sustainable Improvement
TT	Team Trust
TTS	Team Target Setting
Vr	Vacation Rate

INTRODUCTION

The relevance of the theme

Behavioral economics has historically played a fundamental role in practical innovations such as the development of workers' compensation plans, for example. In 1955, Herbert Simon questioned the concept of the *Homo oeconomicus* in his famous article, "A Behavioral Model of Rational Choice"[1]: "The concept of "Economic Man" is in need of fairly drastic revision. […] The task is to replace the global rationality of economic man with a kind of rational behavior that is compatible with the access to information and the computational capacities that are actually possessed by organisms, including man, in the kinds of environments in which such organisms exist. One is tempted to turn the literature of psychology for the answer."[2] The author mentions that there were various economists who expressed themselves in a similar way. Herbert Simon (1998) behavioral economics stated that the term - behavioral economics - is a type of pleonasm, for what else is economics all about if not the study of human behavior.[3] The author of the present work agrees with Simon's approach because psychology, sociology and anthropology are definitely relevant to economics. The development of behavioral economics in the past decade or two is really a return to reality from an unsound position according to which the rational optimizing model was the only framework for economics. In the past, economists were very doubtful of psychologically well-founded approaches because of their low mathematical formulization. The awarding of the 2002 Nobel Prize for economics to Daniel Kahneman and Vemon Smith for their work in the field of behavioral economics and experimental economic research changed this perspective. Behavioral economics marks the return of psychology to the area of economic theorizing.[4] The author agrees with the view of the author Tomer, H., who clearly outlines that this development led the mainstream, psychology-free economic theorists to criticize behavioral economics and accuse it of trying to position itself within the mainstream by claiming that its methods and assumptions are not radically different to theirs.[5] Those economists, such as Cammerer, C.F. focus on behavior with

[1]Simon, H.A. "A Behavioral Model of Rational Choice", The Quarterly Journal of Economics, 69, 1955, p.99ff
[2]Ibid, p.99
[3]Ibid,p.99
[4]Sent, E.-M., "Behavioral Economics: How Psychology made its (Limited) Way Back into Economics", History of Political Economy, 36 (4), 2004, p.735-760
[5]Tomer, J., "Identifies as the unifying tract of the many strands of Behavioral Economics the belief that the dominance of mainstream economics is the key social evil", 2007 p.478

the aim of empowering mainstream economics with better instruments and tools, employing approaches inspired by behavioral and other social sciences, and specifically by means of more realistic psychological foundations: "Increases in the actualization is indeed its main acknowledged objective. In this way, the author is aligned with the conclusion of Cammerer, C.F. that behavioral economics increases the explanatory power of economics by providing it with more realistic psychological foundations"[6], and it advances economics on its own terms by means of "generating theoretical insight, making more accurate predictions, and suggesting better policies".[7] Behavioral economics has witnessed several manifestations of the broad recognition of its successes.[8] Economic research is a fairly stable area, but major organizational innovation is not. The author outlines that those who like to have their economic theories implemented in organizations may have to wait many years to see the theory implemented because innovation is being pushed, but people reflect themselves during this process, their business, their organizational structures as well as their vision, strategy and missions of personal beliefs.

At the moment, the world is going through a dramatic economic crisis. On one hand, the global industry is shocked about the dramatic changes brought about by the economic crisis. On the other hand, the crisis can be seen as an opportunity for self-reflection, behavioral changes and innovation. The smaller financial crises which lead to a worldwide economic crisis were triggered by human behavior based on profit, acquisitiveness, trappings of power, money and growth, have initiated a rethinking of behavior. Trends and discussions are starting to focus more on values, morality, teamwork, social responsibility and motivation with limits placed on financial incentives in global business. Organizations begin to reflect on their strategies, their structures, their business and their management style. Thus behavioral economics and Team Performance come to the fore of new strategies in business which necessitates empirical research in this area. Individualism can be a good in that it develops incentives, promotes leadership and encourages personal development, but not without impacting on other additional factors. People are social beings who are not able to be effective without a defined social environment. The keyword for the author here is teamwork because it keeps people together

[6]Cammerer C.F.; & Loewenstein, G.; Rabin, M., "Advances in Behavioral Economics", Princeton University Press, 2004, p.4
[7]Ibid, p.4
[8]Rabin, M., "A Perspective on Psychology and Economics", European Economic Review, 46, 2002, p.657-685 in Sent, E.-M., "Behavioral Economics: How Psychology made its (Limited) Way Back into Economics", History of Political Economy, 36 (4), 2004, p.735-760

and develops them further. One example of the power of community was recently shown in the election campaign of the president of the United States, Mr. Obama. The campaign developed a strong sense of community and teamwork with a lot of energy among all participants. Community and teamwork means work, our colleagues and our place in the world, which motivates people to a specific behavior. The author agrees with the thoughts of Minzberg and identifies a big power in Team Performance. There are organizations that identify and implement strong, ethical teamwork. An agile community leads to highly efficient teams and organizations with talented, motivated employees based on their common behavior with different competencies, knowledge and capabilities who feel themselves as being part of the whole team based on their passion and performance contribution. In today's global business environment, and under the circumstance of the current economic crisis, various publications carry headlines such as, "1000 ways to recruit Top Talent"[9] and there is a drive to learn how to get the best people for one's business. Additionally, the author states that organizations invest millions of Euros / US Dollars / Yen every year into sourcing and recruiting, personnel development, trainings and terminations because in general leaders are taught by today's known leadership styles and might behave similarly. "By leadership behavior we generally mean the particular acts in which a leader engages in the course of directing and coordinating the work of his group members….this may involve such acts as structuring the work relations, praising or criticizing group members, and showing consideration for their welfare and feelings"[10]. One of the foremost scientists of leadership, Barnard Bass, describes leadership as a "universal phenomenon"[11]. Bass defines leadership as "an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perception and expectations of the members. Leaders are agents of change – persons whose acts affect other people more than other people's acts affect them.[12] Leadership occurs when one group member modifies the motivation or competencies of others in the group…It should be clear that with this broad definition, any member of the group can exhibit some amount of leadership, and the members will vary in the extent to which they do so"[13]. Based on this definition and perspective of Bass, the author agrees with the broad definition and that the adjustment of leadership is

[9]Dr Sullivan, J., "1000 ways to recruit Top Talent ", Journal Harvard Business Manager, (Ed.) 31, 2009, p.20ff
[10]Bass, B.M., Leadership: Theory, Research and Managerial Application, 3rd Ed., New York, Shaw, 1990b, p.14
[11]Ibid, p.4
[12]Ibid, p.4
[13]Ibid, p.19-20

found in the competency level and focus of a leader. A leader selects his or her employees based on a detailed skills-set e.g. competencies, experiences and knowledge, in addition to their capabilities. Furthermore, the leader frequently chooses based on a specific preferred behavior which the candidate displays during an interview. Bass indirectly underlines this behavior with the statement that leadership is a relationship between leaders and followers.[14] Terminations, conflict, employer versus employee job related lawsuits seldom take place because of a lack of knowledge. Knowledge tests, interview case studies, tests regarding their experiences and sometimes tests or interview questions focused on their capabilities are held to find a candidate. However, the vision of human resources, which is aligned to the business strategy, is called in one organization for example "The right people are our Strengths"[15]. The reasons for these strategies are also based on the desire to have the right people to establish high performing teams.[16] In general, these guidelines are very broad and therefore include the hard skill and soft skill side of a given person. In the current business approach, leaders concentrate mainly on the hard skill aspects of prospective employees because the behavioral approach is difficult to measure, particularly as Team Performance assessments generally neglect the behavioral determinants. Large organizations[17] manage their departments based on headcount and cost approaches, which leads to a leadership behavior that aims to place candidates as fast as possible, despite the risk of failure during the integration into their job or into their team. During the probation period, leaders design an integration performance target setting approach including many internal courses and external trainings in their defined business field because of the focus on Team Performance. The goal for the manager is to teach the new employee about the product, about the processes and various other business approaches in the organization. However, when a candidate fails, the reason is rooted mainly in their behavior the fact that they did not fit into the existing team, and not in the competence or knowledge part. In conclusion, the author recognizes the need to measure behavior in Team Performance. In addition, the author describes how recruiters experience a strong focus of leaders on the technical, so called "hard skill" part in interviews, but no strong interest in the "soft skill" part. As a result, the leader neglects a key aspect during the interview because he or she concentrates purely on the

[14]Bass, B.M., Leadership: Theory, Research and Managerial Application, 3rd Ed., New York, Shaw, 1990b, p.11
[15]Internet: http://www.siemens.com, October 2009
[16]Fernandez-Araoz, C. & Groysberg, B. & Nohira, N., translated: "So, you get the best people", in: Harvard Business Manager, German Edition, June 2009, p.25-37
[17]Internet: http://www.mittelstand-optimierung.de/definition_mittelstand.shtml, November 2010

technical fit and excludes the fit into the team as well as the behavior at regular and stressful times. Thus we often observe that the profit of an organization has diminished, costs have increased and a base for a performing, value based community-approached team has disappeared because the behavior of the newly appointed person did not fit. Another approach of human resources in large organizations can be observed in the approach to managing a team during a stressful time when employees and leaders are put under pressure. In today's fast-paced and ever connected world, stress has become a fact of life: "One-third of Americans are living extreme stress and nearly half of Americans (48%) believe that their stress has increased over the past five years. Stress is taking a toll on people"[18] and on teams "contributing to health problems, poor relationships, and lost productivity at work…"[19], which can be observed by frustration in teams, high levels of absenteeism due to illness and, in the long-term, a high employee turnover rate. "The problem with the stress response is that the more it is activated, the harder it is to shut off. Instead of leveling off once the crisis has passed, your stress hormones, heart rate and blood pressure remains elevated"[20]. In fact, researchers have shown that 60 to 90 % of illness is stress-related. Each individual responds to stress with different symptoms and feelings causing different behavioral manifestations that all affect the Team Performance to some extent. As a result, the author will identify the dimensions that need to be considered in order to have a performing team and define behavioral criteria in Team Performance in the following dissertation.

In the past decade the interest in Team Performance has increased because various concepts of teamwork and team setting have been proposed, both empirically and theoretically, such as intergroup conflict[21], social networks in team[22] or the differences in decision-making between individuals and teams have appeared.[23] The author will analyze, reflect and link key group and team methods, theoretical models of Team Performance steps, team formation

[18]National Library of Medicine: "X-plain: managing stress – reference summary [on-line]", 2007, retrieved June 19[h], 2008. From Internet: http://www.nlm.nih.gov/medlineplus/tutorials/managingstress/htm/index.htm, Nov 28th, 2009

[19]Ibid, 2009

[20]Pollard, J.M., "Health Hints", Agri Life Extension, Vol. 13, No 1, 2009, p.1

[21]Jehn, K., Bendersky, C. , "Intragroup conflict in organizations: A contingency perspective on the conflict-outcome relationship", Research in Organizational Behavior, Vol. 24, p. 187-242, and see De Dreu, C.; Weingart, L., "Task versus relationship conflict, team performance, and team member satisfaction", Journal of Applied Psychology, Vol. 88, p.741-749

[22]Rosenthal, E., "Social networks and team performance", Team Performance Management, 1997, Vol. 3, Iss. 4, p.288-294

[23]Sutter, M., "Individual behavior and group membership": Comment, 2008, http://www.uibk.ac.at/fakultaeten/volkswirtschaft_und_statistik/forschung/wopec/repec/inn/wpaper/2008-23.pdf

approaches and teambuilding processes to Team Performance and the behavioral determinants. During the past few years, field research has not only been broadened, but it has also become more detailed. Researchers were able to continue the findings of other authors and to support their own findings by means of the existing research results. The author agrees with the statements of Harris and Partington that Belbin's diagnostic instrument for team role self-perception is widely used for development purposes, including putting together balanced teams, but that it lacks a strong theoretical and empirical underpinning.[24] However, what is frequently missing from empirical analyses about factors determining Team Performance are studies performed in the context of behavior in business organizations. A business organization is a legally recognized organization designed to provide goods or services, or both, to consumers, businesses and / or governmental entities. Business organization is the process of defining, identifying and grouping the work to be performance. Business organizations are driven by capitalist economies, mainly privately owned, and typically formed to make profit that will increase the wealth of its owners and grow the business itself. The owners and operators of a business have the main goal to generate financial returns in exchange for work and the acceptance of risk by delegating responsibilities and authority, and establishing relationships for the purpose of enabling people to work most effectively

Research object

Team Performance in Business Organisations.

Research subject

Analytic Tools for Team Performance Measurement.

Aim of the research

Author's aim of this resarch is to examine empirically measurability of impacts by behavioral determinants on Team Performance indicators.

The aims and objectives of the research can be summarized as follows:

Get acquainted with teams, team performance, team development and behavioral theories analyzing team performance and their interrelationships to measurements, indicators and

[24] Partington, D.; Harris, H., "Team role balance and team performance: an empirical study, Journal of Management Development, 1999, Vol. 18, Iss. 8, p.694-705

possible theoretical results.

Work out a method of measuring aspects of behavior on Team Performance based on theories and empirically test the method.

Work out a model to measure determinants of Team Performance.

Analyze the possible impact of behavior in Team Performance in business organizations by means of the use of several research methods including Pre-Tests.

Analyze the result and findings of the empirical research on a possible behavioral determinant in Team Performance and validate the result in a separate independent research population.

Analyze the results and draw conclusions.

Draw up proposals for the scientific community based on the findings and suggest possible modifications to current theory in addition to drawing conclusions for the business organization of how to potentially improve Team Performance.

The thesis for defense

Based on the author's scientific focus, the key hypothesis is defined as H_{y0}: If Team Performance is measured in business organizations, it will be affected by behavior and is measurably impacted on by the other team members.

Reflecting defined dimensions to measure Team Performance and the behavioral aspect, the author defines and analyzes six concrete sub-hypotheses to measure the possible effect of a behavioral impact on Team Performance. Based on the research, three dimensional clusters are defined under the following hypotheses:

1. H_{y1TT}: The higher the heterogeneity, the higher the Team Performance will be.
2. H_{y2TT}: The higher the correlation between the knowledge and interests of people in the same business field, the higher the Team Performance will be.
3. H_{y1TB}: The higher diversity index in a team, the higher the Team Performance will be.
4. H_{y2TB}: The higher the amount of vacation days not taken, the higher the Team Performance will be.[25]
5. H_{y1TBP}: The higher the age range in the team, the higher Team Performance will be.[26]

[25]Comment by author: This hypothesis links to a German law which gives employees the right to have 25 days of vacation per calendar year and allows them to take it when they want and/or are allowed to postpone it.

[26]Kluge, Annett, "mixed aged teams become in advance in the German economy", University Duisburg-Essen, Computer Woche, Edition 46/10, p.40

6. H_{y2TBP}: The higher the level of education in the team, the higher Team Performance will be.

Research methods applied

Within the context of this research, behavioral economics helps to define problems of Team Performance by providing empirical evidence. The author chose research methods that include secondary analysis, a survey as well as laboratory experiments.

- The secondary analysis is a method using existing material independently from the original aspect relating to the required topic, and analyzing the data in relation to it.[27] The advantages this approach includes the use of real data in a long-term perspective, which can subsequently be applied for multiple studies on a complex problem, to accumulate more representative data, to compare data with various timings for a trend analysis, and to be able to compare with new research data.[28]
- A survey is a study carried out by asking individuals from a given population about their opinion on a specific issue with the intention of defining relationship outcomes concerning this issue. There are three types of surveys, namely: descriptive, explanatory and explorative surveys. Depending on the research question, one can introduce a survey into the conflict team, including the mediator, and ask for their feedback.
- Another choice of research method used in the present work, is a laboratory experiment in which conflicts are handled by a mediator; the observers evaluate the results based on key criteria. This approach frequently includes the design of a case study. The strength of this approach is the presence of fourth party of observers and evaluators which gives more objectivity, the weakness, however, is the population and purely designed environment which could lead to a bias in the results.

Team Performance and theoretical analysis

The author identified that Team Performance is measured in many profit oriented organizations; teamwork is a common working and structured organizational style in global and local companies, and therefore the author has the opinion along with Kendall that Team Performance measurements are needed to estimate team capabilities and training needs, and to

[27]Diekmann, A., "Empirische Sozialforschung: Grundlagen, Methoden, Anwendungen", 4. Aufl., 1998, p.172-173 and p.540-541
[28]Ibid, p.540-541

assure fair reward systems.[29] It has been observed that the dimensions of measuring Team Performance seem to be highly complex, and that there is alignment with the author Kendall who highlights that this process should be a careful and multi-disciplinary endeavor, involving human factors, behavior, cognitive organizational and psychological aspects.[30] The idea is to include behavioral aspects and to find out if the knowledge of behavior in teams comprised of individuals increases the Team Performance. In other words, the author proposes to prove that knowledge of how a given person will react to a specific situation can also be vital to predicting overall Team Performance. There are various existing models to assess performance, but very few models that assess Team Performance and its relationship based and tested on a research approach to behavior.

In the theoretical analysis, the author summarizes the findings of authors like Weinert, A.B. for organizational and personal psychology and the basics of team definition and development and formulates a new definition of team that includes behavioral aspects.

Research base

The author tested the hypotheses by means of various empirical research methods to reach a validated research result. The author began with a laboratory Pre-Test with 18 participants to analyze if there is a trend of possible acceptance. During the research the author has participated in various international conferences and published the research results and findings during these conferences. The author presented a result of a laboratory case study on behavior change (*Current Issues in Management of Business and Society Development Conference, May 2011*), held in Riga, Latvia. The author published the results of a laboratory pre-test of Team Performance and Behavior Economics measured behavior influence as a determinant of Team Performance in August 2001 at an international conference of the Academy of Business Administration in London, UK. Based on positive feedback received, the author continued the research through a secondary analysis in a two year *pro rata* perspective in a software business environment of 602 individuals divided into 68 teams. A major part of this research was accomplished when the secondary analysis result of Team Performance to determine behavior in a software population was presented and published in the American

[29]Kendall, D.L. & Salas, E., "Measuring Team Performance: Review of current methods and consideration of future trends", In: "The Science and Simulation of Human Performance, Advances in Human Performance and Cognitive Engineering Research", Vol. 5, 2004, p.307-326

[30]Kendall, D.L. & Salas, E., "Measuring Team Performance: Review of current methods and consideration of future trends", In: "The Science and Simulation of Human Performance, Advances in Human Performance and Cognitive Engineering Research", Vol. 5, 2004, p.323

Academy of Business journal in December 2011 in Miami, USA. The author's research was also presented November 2011. This included the Pre-test survey results on measuring Team Performance under the determinants of behavior of a population of 10 people and was presented at the International Conference in Current issues in Economic and Management sciences. Almost parallel to the secondary analysis result, the author delivered the empirical results of the survey at the International Conference, Fulda, Germany, in December 2011. By means of a survey, over 800 people were reached which delivered representative replies with an average of 316 answers. The results obtained was again supported a trend of H_{y0}. Lastly, the validation result was published at the International Academy of Business and Economics in USA, 2012. The study involved 256 students, which were split into 56 teams. At the end, the results were published at the International Conference, New Challenges of Economic and Business Development in May 2012 in Latvia with the supervisor Professor Dr. Inesa Voroncuka.

Research limitations

The empirical research on determinants of Team Performance is limited by the author to focus on the behavioral dimension.

In addition, the author describes behavior in a broad perspective, defines behavioral clusters and links them to six measurable indicators, presented in the six sub- hypotheses. The dimension behavior is broadly defined via the dimension and measurable indicators and not limited to action and reaction. The analysis is limited to focusing on each research in depth, but does not cross the results and analyses them in a multi regression analysis.

The population used is partially representative but is limited to a German sales and services organization and its validation is limited to a student population in Austria, Germany and Latvia.

The results of the study are limited on the one hand to the research base of various research methods including the limited population of a German business organization and the limited validation selection of students. The results of the research are also limited due to of the fact that the research was carried out in a performance driven software industry environment but not on non-profit organizations or social public offices. The author proposes that the research result is valid in this context and is therefore limited to for-profit performance driven organizations. Moreover, one hypothesis H_{y2TB} is driven on a situation deriving from German law and is therefore not transferrable to all countries. The legal statement that an employee

receives 25 days' vacation per calendar year, keeps the right to it until it is taken, challenges organizations in their business plans and business projects.

Lastly, the author emphasizes the limitations of the validity of the research that is connected to the situation in a Central European cultural context, particularly with respect to the data on mixed gender teams and culturally heterogeneous teams.

Scope of the doctoral thesis and structure

The doctoral thesis consists of an introduction, four chapters divided into 10 subchapters, conclusions and suggestions as well as a final conclusion.

The theoretical basis for the research is reviewed in the first two chapters. The author structures this empirical research paper firstly by reviewing the theoretical aspects of teams and their performance. Subsequently, the basic information on teams is presented and conceptual directions and analyzed in the link to behavior. The relevant team aspects form the subsequent sections. The author also revises the concept of a team with a new behavioral approach. Next, an analysis of the identification of determinants of Team Performance is reviewed and a new approach by the author is proposed that conceptually drives the research. The core six sub-hypotheses are then defined as well as the define indicators used to measure Team Performance.

The practical part of the dissertation is covered in chapters 3 and 4. The third chapter focuses on the empirical research carried out in the laboratory experiment, secondary analysis, and a survey. The fourth chapter describes the details of the validation methods used and the major findings aligned with the empirical research. The dissertation ends with a conclusion and suggestions for the implementation of the research findings in a business context.

The doctoral thesis consists of 171 pages without appendices and includes 95 illustrations. The thesis refers to 213 sources of literature used and has 5 appendices covering 32 pages.

Novelty of the research

In order to focus on the determinants of Team Performance and whether there is an impact of behavior or not, it is necessary to research empirically. Very few competition measurements have been carried out on a representative population in the field of determinants of Team Performance. The studies that have been carried out are reviewed in the present work.

Research in the field of Team Performance and behavior is empirically limited; there are studies with small non-representative populations which are often not comparable in the field of Team Performance as they focus on the impact on the team but are not often linked to the performance.

1. The author proposes that the definition of the concept of 'team' be modified to include aspects of behaviour in its theoretical definition.
2. Beyond the team definition including behavior, the author develops a novel approach to the composition of teams with a more linked methodology based on the behavioral determinants in Team Performance and clearly defining that the facilitator measures Team Performance including the determinant of behavior.
3. The author designed a dimension model including a new determinant in Team Performance for measuring the impact on performance based on behavior. The differentiated assessment on an empirical basis of Team Performance in business organizations with a representative population and separate validation population is considered a novel approach.
4. The author has developed an approach of measuring Team Performance with a new version of a determinant and has proven that there are impacts that influence the performance. A clear practical result is that a team with 50% women and 50% men are more result oriented in their teamwork as indicated by the fact that this specific team composition generally achieves the highest performance ratings.
5. The author has also shown that teams consisting of individuals with a broad age range deliver higher performance, than teams comprised of individuals who are all more or less the same age. The determinant behavior on Team Performance assesses the impact of this aspect, when it is used to measure Team Performance.
6. Based on including behavior in the determinants and the link to define the aspect of heterogeneity, the author has brought up a new measurable empirical finding. The performance in a team is increased when the team includes people with different nationalities and/or experiences of at least six months of living abroad. Consequently, it has been observed that if a team comprises individuals of only one nationality or who lack global experience, the team will have a markedly lower level of performance.
7. The author has, by means of the empirical research, given evidence that there is a way to measure behavior and therefore that it would profit companies to align their people strategy accordingly.

The novelty of the research can be summarized by concluding that determinants of Team Performance need to be wisely identified and have to include the behavioral dimension. The new way of assessment includes a measurable impact of Team Performance based on a new definition of team and composition of teams.

Theoretical and practical significance of the doctoral research

Adapting and applying the defined measurements in Team Performance to the defined determinant of behavior, the author has come to the conclusion that behavior is measurable and needs to be considered in team definition. The author summarizes the result that four hypotheses H_{y1TT}, H_{y1TB}, H_{y1TBP}, H_{y2TBP} indicated a correlation of positive impact of behavior on Team Performance. The author decided to validate three hypotheses Hy_{1TT}, H_{y1TB}, H_{y1TBP} by means of a study conducted in an educational scientific student population from Austria, Germany, and Latvia and obtained a positive result.

- The author identified: H_{y0} (TP) = f (H_{y1TT}, H_{y1TB}, H_{y1TBP}) + (H_{y2TB}*z) and it can thus be stated that H_{y0} if Team Performance is measured in business organizations and it will be affected by behavior which is measurably impacted on by the other team members.
- From the theoretical point of view, the author constructed a new definition of the concept of a team that includes the aspect of behavior as well as the measurability of behavior. The correlation of Team Performance and behavior and its linkage to influencing performance, is a finding of the research described in the present work.
- Lastly from a practical point of view for business organizations, the author outlines suggestions for optimal team composition. Teams with a 50:50 ratio in gender composition display increased Team Performance, while teams with a higher heterogeneity with respect to culture also display higher performance compared to non-heterogeneous teams, and lastly teams with a wider age rage impact positively the Team Performance results.

The author was able to observe a trend based on the empirical research result that H_{y0} if Team Performance is measured in business organizations, then it will be affected by behavior and is measurably impacted on by the other team members. In addition, the author showed that behavior can be measured based on defined key indicators which can be used to evaluate the impact on Team Performance. The author empirically supports the trend of behavioral

economics entering the economic environment and proved that assessments of Team Performance should include a behavioral dimension and that team definition should take behavior into account. In summary, the author has delivered a behavioral result and impact to teams to build on these trend analyses. As a final point, the author concludes that the empirical research results gives evidence that behavioral economics is continuing to be incorporated into general economic theory. The author has empirically proven the hypotheses of Cammerer, C.F., Loewenstein and Rabin, M. statement that behavioral economics increases the explanatory power of economics due to its realistic psychological, measurable and empirically proven foundations.

At this stage, I would like to express my gratitude to Prof. Dr. Josef Neuert for the opportunity, inspiration and enormous support given to me during the course of this research study and the writing of my thesis. Special thanks also to Prof. Dr. Baiba Savrina and Prof. Dr. Inesa Voroncuka whose use of good examples and her inexhaustible energy and motivation helped me to make this work a success. My gratitude to everyone who contributed to the implementation and improvement of the Promotion Thesis; thanks to reviewers and everyone who voiced their opinion for me to arrive at a positive outcome. Thanks to my business colleagues, especially also Mr. Schweizer, who supported me with the survey implementation as well as to my friend Dr. Januschka Hartig and my mother Erika Giesa for motivating, supporting during the course of this study and the writing of my thesis.

1 ANALYZING TEAM DEVELOPMENT, CHALLENGES AND PERFORMANCE AND THE LINK TO BEHAVIOR

Teams in organizations became a main point of interest in the 1940s, shortly after the Hawthorne Studies[31] were carried out which revealed the impact of informal teams in enterprises. Since then, and especially throughout the 1990s, the use of formally developed teams in organizations has increased. More than 80% of organizations with more than 100 employees report that at least half of their employees are a member of at least one team.[32] The increased reliance on team work is quite apparent in the modern business environment and in German industry, particularly in the branches of research where all employees work in team and group settings. The new drive of behavioral economics in the business environment led to the proposal on the part of the author of connecting the measurement of Team Performance to behavioral measurements. McGrath concluded that "the central feature, the essence of a group lies in the interaction of its members – the behaving together….of two or more people".[33] The concept of behavioral interdependence, which is a term of collective behavior, refers to the tendency to coordinate, evaluate, and utilize task inputs from other team members in an interdependent manner in performing a team task.[34] The author remarks that collective behavior is in fact one of the criteria that also define Team Performance. Golembiewski defined a team as a system of "coordinated behavior".[35] Shaw defined a team as requiring "mutual influence".[36] And McGrawth and Kravitz defined a team as including members who are "mutually aware and take one another into account"[37]. Lastly, Steiner referred to a team as a "mutual responsiveness".[38] It is thus clear that there is some empirical evidence in the literature suggesting that collective behavior seems to make a difference in how well teams perform. Davis found that the preference for working alone versus working with a team was related to

[31]Mayo, E., "The human problems of an industrial civilization", New York: MacMillan, 1933
[32]Beverlein, M. & Harris, C., "Introduction to Work Teams", presentation at the 9th Annual International Conference on Work Teams, 1998
[33]McGrath, J.E., "Groups: Interaction and performance", Englewood Cliffs, NJ: Prentice Hall, 1984, p.12
[34]Ibid, p.12
[35]Golembiewski, R.T., "The small group: An analysis of research concepts and operations", Chicago: University of Chicago Press, 1962, p.97
[36]Shaw, M. E., "Group dynamics: The psychology of small group behavior", New York, McGraw-Hill, 1981, p.8
[37]McGrath, J.E. & Kravitz, D.A., "Group research", Annual Review of Psychology, 33, 1982, p.99
[38]Steiner, I.D., "Paradigms and groups", in L. Berkowitz (Ed.), "Advances in experimental social psychology", Vol. 19, Orlando, FL, Academic, 1986, p.257

both the amount of group discussion and Team Performance.[39] A team of authors Foushee *et al*. showed that ineffective teams are characterized by a lack of communication and the failure to exchange information effectively.[40] Olfert outlines that a team can be described as a group of interdependent individuals who have complementary competences and are focused on a shared, meaningful purpose and a specific, common goal.[41] The author does not fully agree with the complementary competences aspect in Olfert's definition because this criterion might not always be required. If a team does need for e.g. a selling competence because it is a sales team, there is no real need for complementary competences. However, the author agrees with the requirement that a team will always have a shared meaningful purpose and specific common goal. In general, it is clear that members of a successful team have a common, collaborative approach to their work, clear roles and responsibilities, and consider themselves mutually accountable for the team's performance[42] in the same way as a traditional supervisor would - thus establishing methods for ensuring that work is completed as well as offering support as needed and appropriate.

In the work cited, the author elaborates that the presence of interdependency is a key characteristic of strong teams and is what distinguishes a work team from a work group.[43] Guzzo and Dickens clearly state that teams are able to achieve more than individuals who work on their own,[44] which is why the author focuses on Team Performance. Additionally, research indicates that teams make higher quality decisions when compared to individuals working and deciding alone[45] and that teams apply a wide set of skills and experience to solve a problem.[46] Moreover, a team develops a sense of commitment to the common solution when working on a defined problem. The author's work experience is a further motivating factor for organizations

[39]Davis, J.H., "Individual-group problem solving, subject preference and problem type", Journal of Personality and Social Psychology, 13, 1969, p.362-374
[40]Foushee, H.C., Lauber, J.K., Baetge, J.K. & Acomb, D.B., "Cre performance as a function of exposure to high-density, short-haul duty cycles", in NASA Tech. Memorandum 88322, Moffett Field, CA, NASA-Ames Research Center, 1981
[41]Olfert, Rahn, "Betriebswirtschaftslehre", 2. Edition, 1997, p.516
[42]Katzenbach, J.R. & Smith, D.K., "The wisdom of teams: Creating the high performance organization". New York: HarperCollins Publisher, 1993, and Guzzo, R. A. & Dickson, M.W., "Teams on organizations: Recent research on performance effectiveness", Annual Review of Psychology, 47, 1996, p.307-338
[43]Guzzo, R. A. & Dickson, M.W., "Teams on organizations: Recent research on performance effectiveness", Annual Review of Psychology, 47, 1996, p.307-338
[44]Ray, D. & Bronstein, H., "Teaming up: Making the transition to a self-directed, team based organization", New York: McGraw-Hill, 1995
[45]Manz, C.P. & Sims, H.P., "Business without bosses: How self-managing teams are building high performing companies", New York: John Wiley & Sons, Inc., 1993
[46]Lernaghan, J.A. & Cooke, R.A., "Teamwork in planning innovative projects: improving group performance by rational and interpersonal interventions in group process", Engineering Management, 37/2, 1990, p.109-116

to focus on team work; it is rooted in the aspect of increasing the performance of a working environment which is also scientifically analyzed by Acona.[47] Organizations and employees derive a benefit from effective work teams in terms of increasing quality[48], productivity[49], coordination[50], and flexibility[51]. Moreover, organizations that rely on the use of teams have recorded improvement in safety[52] and decrease in turnover numbers[53]. In conclusion, the author explains there are many measurable and recognizable benefits to set up organizations in structures of teams.

However, there are also equally valid reasons for not structuring all organizations into teams, i.e. not all tasks are appropriate for teamwork and not all require interdependency.[54] One particular example can be seen from the fact that that many organizations are not organized or built up effectively to support a teamwork approach. The author lists the factors that contribute to a teamwork organization and aligns in this aspect with Guzzo.[55] The sourcing and recruiting process of the organization needs to ensure that new employees have the required set of skills to collaborate in a team because otherwise cultural problems and inefficiency would result. In addition, the compensation system needs to include the aspects relevant to teams with respect to rewards and recognition both from a team and an individual view, so that fairness and long-term business perspectives are guaranteed. The people development approach needs to focus on both teams and individuals, so that capabilities and competencies are aligned for the individual, the team and the company. The leaders and the leadership development system should align with the teamwork approach in the organization so that customers, stakeholders and shareholders are able to buy, invest and participate in the business. In summary, teamwork is a combined way of organizing and working and it offers the potential benefits of synergy from

[47]Ancona, D.G., "Outward bound: Strategies for team survival in an organization", Academy of Management Journal, 33, 1990, p.334-365
[48]Cohen, S.G. & Ledford, G.E., Jr., "The effectiveness of self-managing teams: A quasi-experiment", Human Relations, 47, 1994, p.13-43
[49]Ibid, p.13-43
[50]Harrington-Mackin, D., "The team building toolkit: Tips, tactics, and rules for effective workplace teams", New York: New Directions Management Services Inc., 1994
[51]Mohrmann, S.A., Cohen, S.G. & Mohrmann, A.M., Jr., "Designing team-based organizations: New forms of knowledge work", San Francisco: Jossey-Bass, 1995
[52]Cohen, S.G. & Ledford, G.E., Jr., "The effectiveness of self-managing teams: A quasi-experiment", Human Relations, 47, 1994, p.13-43
[53]Beverlein, M. & Harris, C., "Introduction to Work Teams", presentation at the 9th Annual International Conference on Work Teams, 1998
[54]Guzzo, R. A., "Group decision making and group effectiveness", In P.S. Goodman (Ed.), "Designing effective work groups", San Francisco: Jossey Bass, 1986, p.34-71
[55]Olfert, Rahn, "Betriebswirtschaftslehre", 2. Edition, 1997, p.516

the creation and implementation of an *esprit de corps*.[56] Furthermore, it offers tangible benefits from "social laboring"[57] and social interaction which can positively influence self-esteem and self actualization. At present there is clearly a trend in many organizations towards greater emphasis teamwork. Due to globalization, teamwork occupies an even larger role due to the cross-cultural and multi-national business environment. It is clear that organizations require high performing teams because they are driven by the goal of making profit. In today's business environment, it has been observed that a change has started and calls organizations to switch from benefit plans to contribution plans.[58] Often management delegates responsibility to employees, but this behavior requires motivated employees participating in the business and who are willing to help increase the organizational performance. Thus, employees as human resources (HR) of organizations become more and more important because employees might have specific knowledge of the company or market in addition to individual knowledge and capabilities that are needed by the company. This need for unique competencies from employees has led to an increasing number of organizations relying on teams to manage business tasks.[59] Recent surveys have shown that teams produce various benefits for their organization.[60] It is especially the decision-making process within teams that makes the output of teams interesting for the management of organizations.

In consequence, the performance of a team seems to have specific features, which makes it more attractive from a business perspective than the results obtained by individuals. In specific situations relationships, management, motivation and communication are more effective when people understand their own behavior and the behavioral reaction as perceived by others. The author agrees with Tversky & Kahneman that an understanding of behavior is also the key to unlock human qualities, i.e. leadership, charisma, empathy, whether the purpose is behavioral change, self-development, helping others, hiring people, building teams, or any other field relating to people and their behavior.[61] The author has found a wide range of research done in the field of behavior, personality and team theories. Understanding of and

[56]Staniforth, David, "Team Performance Management", An International Journal, Vol. 2, No. 3, 1996, p.41
[57]Ibid, p.41
[58]Thaler, R. H.; Benartzi, S., "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving", 2004, Journal of Political Economy, 2004, vol. 112, no. 1, p.164
[59]Kocher, M.; Straß, S.; Sutter, M., "Individual or team decision-making – Causes and consequences of self-selection, 2006", Games and Economic Behavior, Vol. 56, Iss. 2, p.264
[60]Che, Y. K.; Yoo, S. W., "Optimal incentives for teams", American Economic Review, Vol. 91, p.526
[61]Tversky & Kahneman, "Judgment under Uncertainty: Heuristics and Biases", Cambridge University, Press 1974, p.1124

knowledge about the behavior and personality of people provides an understanding of the differentiation of people according to their values, strengths and qualities, and emphasizes that people should be treated with care and respect to support high levels of Team Performance in teamwork.

Human Resources are the basis of all business organizations. People working for companies are the organization's most valuable assets, because they both individually and collectively contribute to the output of their organization. The behavior and performance of the human resources requires the strategic approach and leadership of the management of organizations.[62] This means that organizations should not only employ people, but should also develop their abilities and compensate their services within the framework of the organizational requirements. In addition, the author agrees that effective human resources management (HRM) has an important influence on organizational performance,[63] because of its strategic position in a company and its influence on the interface between managers and employees. In the last decade, the economic environment of organizations changed rapidly which necessitated an adjustment of their competitive factors. Adjustments to the *status quo* in companies are also partially necessitated due to demographical changes: birth-rates continually decrease and the number of older people increase.[64] Organizations have to face these challenges by adapting their HRM to the current and future situation. Today, there is also the need for corresponding preparations to deal with changes to the market. Beyond that, the rapid generation of novel technological possibilities increases product efficiency and leads to increased global competition.[65] In fact, many jobs get lost due to the implementation of technical innovations - this also leads to increasingly varied demands on employees. Furthermore, one can notice a structural shift within organizations.[66] Continued modification of products and required performances challenges long term planning and the development of HR. Assuming a perpetual shortening of production and supply cycles is the only way for organizations to compete successfully. This also applies to modified priorities, new trading rules, changed market power and diversified social values. This development shows the complex situation of the

[62]Wood, S., "Human Resource Management and Performance", International Journal of Management Reviews, Vol. 1, Issue 4, p.369
[63]Becker, B.; Gerhart, B., "The Impact of Human Resource Management on Organizational Performance: Progress and Prospects", Academy of Management Journal, 1996, vol. 39, No. 4, p.779
[64]Weinert, A. B., "Organisations-und Personalpsychologie", Beltz Verlag, 2004, p.4
[65]Becker, B.; Gerhart, B., "The Impact of Human Resource Management on Organizational Performance: Progress and Prospects", Academy of Management Journal, 1996, vol. 39, No. 4, p.780
[66]Picot, A.; Dietl. H.; Franck, E., "Organisation – eine ökonomische Perspektive", 1999, p.31

environment that organizations operate in. Key questions of HRM became most important when a business has to develop novel products, reduce costs, and improve quality as well as increase productivity and speed to market.[67] The paradigm change leads to a situation in which former rules lose their validity, but new approaches can only slowly be implemented in organizations. It is the business of HRM to create flexible solutions for urgent problems.[68] Flexible, innovative and cross-linked organizations gain advantages in comparison with organizations with autonomous operating areas: the competitive position can be encouraged. But the downside is that uncertainty levels increase. Against this background, the author shares the opinion of Cammerer, C.F., Loewenstein, and Rabin, M. that it is very important to take human behavior into account.[69] Fully effective HRM cannot be properly implemented in organizations without regarding the differing forms of behavior. There are so many social, cognitive and emotional factors that play a role in the decision making processes in organizations. Individuals as well as groups such as consumers, investors, borrowers or employees all have their special values, beliefs, habits and ways of acting and thus a better understanding of their economic decision making processes might support management in more capably directing synergy between these groups. Behavioral economics (BE) is an area of economic science which especially puts commonly expected rational behavior into question.[70] Not only rational thoughts, but also experiences, emotions and psychological aspects influence decision making in organizations. Therefore, market anomalies are not uncommon.[71] Because of this, the one can easily identify different trends in HRM: for example outsourcing, virtualization, retraining of employees, working from home and, finally, intensified team development.[72]

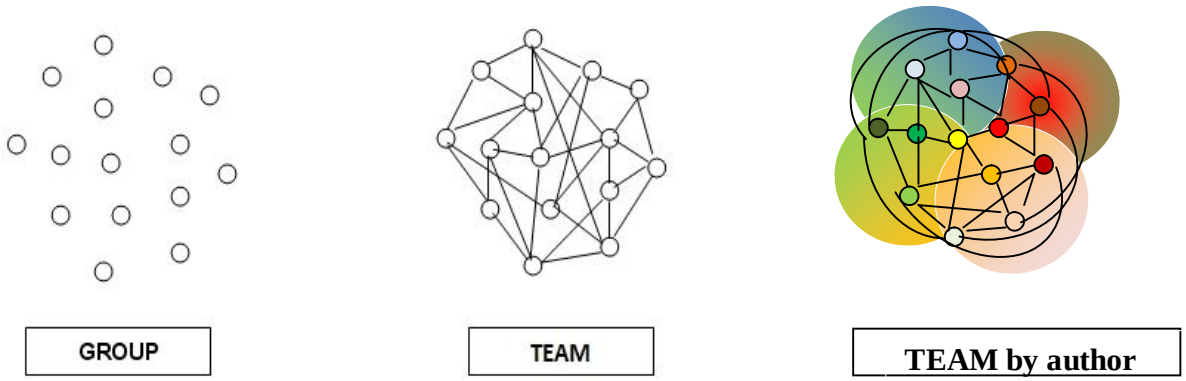
In the literature, there are many definitions of the term 'team'. The perspective on what exactly constitutes a team varies depending on the author. For example Van Dick *et al.* define a team as any group of people who work together.[73] This work can be cooperative and interdependent in order to produce goods or services. Usually team players give account of their performance to each other. Schneider *et al.* emphasize the responsibility of each team member

[67]Dave, U., "Human Resource Champions, the next agenda for adding value and delivering results", 1996, p.57
[68]Legge, K., "Human Resource Management, Rhetoric's and Realities", 2004, p.23
[69]Cammerer, C. F.; Loewenstein, G.; Rabin, Matthew, "Advances in Behavioural Economics", 2004, p.3
[70]Mullainathan, S.; Thaler, R. H., "Behavioural Economics", International Encyclopedia of the Social & Behavioral Sciences, 2001, p.1094
[71]Simon, H., "Behavioural Economics", The New Palgrave, a Dictionary of Economics, 1, p.222
[72]Haug, C.V., „Erfolgreich im Team. Praxisnahe Anregungen für effiziente Team- und Projektarbeit", 2003, p.2
[73]Van Dick, R.; West, M. A., "Teamwork, Teamdiagnose, Teamentwicklung", 2005, p.3

for reaching the required goals.[74] The purpose of teamwork according to Schneider is thus to meet the needs of customers of the organization. Weinert emphasizes the need for efficiency in a team.[75] The author indicates that in this context, a team is not only a group of people working together, but rather a self-organized connection of individuals who work hand in hand. Thus, a team can effectively produce long-term troubleshooting measures. The author also identifies the problem that the terms 'team' and 'group' are frequently used as synonyms, but that the two are fundamentally different in that the reach of synergies differ. The performance of a group consists only of the input of each individual. In a team there is binding force and collective responsibility between the team members. This has individual effects as well as collective impact. Illustration 1 visually describes the difference between a group and a team. Teams can be created for various interactions. It is possible to introduce teams both in terms of long term and short term perspectives. Examples for long term interactions are product development teams, departmental teams or executive leadership teams. Short term teams are used in organizations in order to plan events, to solve specific customer problems or to find adequate employees. While the definitions of the term 'team' in the literature are all valid, the author would like to suggest that it is important to take a further requirement into the consideration in addition to perspectives such as common goals, short-term and long-term targets, efficiency, and working cooperation, self-organization, and alignment in a network approach. The author of the present work defines team along similar lines to that of the other authors in the literature, but clearly separates from a group approach and includes already by definition the behavioral aspect in the form of a color illustration. The following figures illustrate the group approach and the team approach under the definition of the author Weinert and lastly the approach of the author of the present work, which includes the behavioral aspects that have been outlined previously. In this model each individual present in a circle has a different color because of a different behavior and the individual is connected to the other individuals that form part of a team. The color of the team reflects the diversity in behavior through the use of a color code.

[74]Schneider, H.; Knebel, H., "Team und Teambeurteilung, neue Trends in der Arbeitsorganisation", Wirtschafts-verlag Ueberreute, Wien, 1995, p.10
[75]Weinert, A. B., "Organisations-und Personalpsychologie", Beltz Verlag, 2004, p.439

Illustration 1: Group, Team by Weinert, and the team approach by the author



Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under the influence of behavior – validated in a European Environment, international Conference, New Challenges of Economic and Business Development, Latvia, 2012, p.216

The author agrees with the Schneider and Knebel perspective that there are generally three types of teams that can be distinguished.[76] Firstly, decision-making-teams that are characterized by team members who try to get accountabilities and who have to select alternatives and create adequate opportunities. Secondly, consulting-teams in which the team members collect information, work out analyses, and point out potential problem solving possibilities. Their approach frequently is the basis for decisions made by organizational management. Thirdly, the executing-teams have the function to solve special problems of which the aim and duration is precisely fixed. In the organizational structure of a business organization, teams can have special functions as departmental teams, cross-functional teams, and self-managing teams.[77] The author explains that departmental teams operate with people who are working in the same department or area of the organization and that they have the same basis on which they share information, analyze customer needs, promote continuous improvement and provide support. Cross-functional teams integrate people who work across departments[78] and who may have different job functions. Usually they deal with specific problems, issues or products. Cross functional teams often work on the improvement of a particular process.

[76]Schneider, H.; Knebel, H., "Team und Teambeurteilung, neue Trends in der Arbeitsorganisation", Wirtschafts-verlag Ueberreute, Wien, 1995, p.10
[77]Schneider, H., "Team und Teamarbeit", Bergisch-Gladbach: Heider-Verlag, 1991, p.14
[78]Ibid, p.14

The third variant of teams is the self-managing teams where each member is responsible for self-direction in all areas.[79] The latter type of team is also considered in this dissertation and analyzed based on the hypotheses outlined in the introduction to this dissertation. However, the author also states that the definition explained based on Figure 1 is also valid for this style of team. As previously mentioned, the study of teams and teamwork has wide ranging applications. Basically, teams can be established throughout the whole organization but the required task has to be adjusted according to the team abilities.[80] In addition, team members classify their performance as Team Performance which is also observable from the outside. Therefore, not only team members, but also the formal structures of the organization have to advance the output of teams. Thus it can be concluded that it is necessary to support teams by means of organizational rules, routines, and measuring their performance. Therefore an organization has to efficiently handle its HR in order to gain maximum profit. It is a part of HRM to find effective features, for example concerning recruitment, work environment, wages, benefits or job assessment.[81] By effectively modeling these organizational areas, management can contribute to optimal performance of the whole organization. The author clearly sees that it is the function of Human Resource Performance Management (HRPM) to find the optimal combination. In the majority of cases, human resource performance is measured by watching productivity levels (shareholder value), turnover (satisfaction rates) or fluctuation rates of employees.[82] Software and formal evaluations can ease the demands of this process by standardizing requirements. Accurate data about the performance of employees can spread throughout the whole organization. It can be a key point to start analyses, support or training. Performance management in organizations is an ongoing process. It needs communication between the management, or functional leaders, managers, and employees, to clarify expectations, objectives, strategies and evaluations. As a result, the author suggests that Team Performance can be seen as a vital part of an effective human resource performance management system.[83] It is important to note, however, that Team Performance management does not have the same meaning as performance management for individuals, or indeed as team

[79]Schneider, H., "Team und Teamarbeit", Bergisch-Gladbach: Heider-Verlag, 1991, p.14
[80]Van Dick, R.; West, M. A., "Teamwork, Teamdiagnose, Teamentwicklung", 2005, p.7
[81]Jetter, W., "Performance Management entwickeln und einführen", Personalmanager, 1/2006, p.12
[82] Yeung, A.; Berman, B., "Adding value through Human Resources Measurement to Drive Business Performance, Human Resources Management, 1997, Vol. 36, No. 3, p.321-335
[83]Higgs, M.; Plewnia, U.; Ploch, J., "Influence of team composition and task complexity on team performance", Team Performance Management, 2005, Vol, 11, Iss. 7/8, p.228

development or team building. It is not enough to intuitively believe or to hope that conditions or activities improve Team Performance. The business performance results of a team are measurable and the organization has to invest in teams before the team can display positive output. It has been suggested that teamwork is not achieved automatically and the intention is to establish a connection between individual behavior, collective values and the output of the team. A team is a single unit within an organization and has to meet demands as well as other units.[84] Its output and its contribution to the common organizational performance have to be monitored as well as the performance of the complete organization. To be most effective, Team Performance has to be sensibly managed. As a result, a major factor concerning an increasing productivity within a group seems to be Team Performance management.

Because of its importance to the success of an organization, team action becomes an ever greater focus of interest. In order to derive good business results, a team takes several steps. As a result, Team Performance improvement is a process that requires consistent motivation, feedback and action. This ongoing process includes communication between team members, supervisors, the management of the organization and clients. The strategic objectives of the organization have to be included in all communications. One specific aspect of Team Performance improvement that the author emphasized can be described as follows:[85] "clarify expectations, set objectives, identify objectives, provide feedback, and evaluate output". The author of the present work agrees with the Team Performance improvement process, feels that the absence of a behavioral dimension is a weakness that needs to be addressed. In conclusion, the author of the present work thus proposes a process flow according to the following scheme: clarify expectations, clarify and define behavioral models on how to work with each other, set objectives, identify objectives, provide feedback, evaluate output and reflect on behavioral impacts. All factors concerning the team also have an impact on its performance. For example, the roles of team members, special problems of teams, relations within the team or goal setting can affect the output of the team. At this stage, the author focuses on the localization of behavioral economics that is not trouble-free, digital and straightforward because there are many different opinions, interests, perspectives and views. In the literature, behavioral economics, psychology and economics as well as bounded rationality are partly used as

[84]Katzenbach, J. R.; Smith, D. K., "the wisdom of teams: creating the high-performance organization", 2003, p.115
[85]Guzzo, R. A.; Dickson, M. W.; "Teams in organizations: Recent Research on Performance and Effectiveness", Annual review of Psychology, 1996, Vol. 47, p.323ff

synonyms.[86] In most cases, the author highlights that behavioral economics applies to scientific research into human and social, cognitive and emotional factors in order to better understand economic decision making by consumers, investors, and how this affects market prices, returns and the allocation of resources. It is concerned with the boundaries of rationality e.g. self-control of "*Homo oeconomicus*"[87]. In all cases, behavioral models integrate insights from psychology with neo-classical economic theory. Mullainthan and Thaler defined behavioral economics, which the author chooses for a basis because of the key linkage among psychology, economics, and external market environment. "Behavioral economics is the combination of psychology and economics that investigates what happens in markets in which some of the agents display human limitations and complications."[88] In summary, the definition relates and combines economic and psychological theories and methods and it focuses on psychology and economics. A key factor is the aspect of social and cognitive psychology. In addition, the author outlines that it is a method with no limitations. There are financial, mathematical analyses and model theoretical approaches. Therefore, empirical methods can include econometrics and/or field approaches. One assumption is the realistic view of the idea of people that includes the fundamental features of thinking and acting.[89] It differs from the neo-classical approach which limits the features of thinking and acting. The most important limitation is that a person as related to behavioral economics theory is fundamentally rational. The author states that the definition of behavioral economics includes the individual limited cognitive capacities and therefore does not always correspond to a given ideal scenario. Overall, this is the main difference between the "*Homo oeconomicus* approach"[90]. As a result, the author is of the opinion that the individual uses intellectual approaches to find a solution which is not on an ideal level but in a fair level. Furthermore, decisions are influenced by various factors. The "*Homo oeconomicus*"[91] has a straight-forward will power which does not change over time. Another limitation in the definition of behavioral economics and understanding of this dissertation is that the individual has a finite level of will power. This means that under the defined behavioral approach, the individual is able to change the level of will power displayed

[86]Mullainthan, S.; Thaler, R.H., "Behavioral Economics", NBER Working Paper No 7948, 2000
[87]Simon, H., "A Behavioral Model of Rational Choice", The Quarterly Journal of Economics, 69, 1955, p.99ff
[88]Mullainthan, S.; Thaler, R.H., "Behavioral Economics", NBER Working Paper No 7948, 2000
[89]Ibid, Paper No 7948, 2000
[90]Simon, H., "A Behavioral Model of Rational Choice", The Quarterly Journal of Economics, 69, 1955, p.99ff
[91]Ibid, p.99

and behave in a flexible manner. Furthermore, the "*Homo oeconomicus*"[92] concentrates on full egoism, which means that the benefit perceived depends fully on its own good to the individual. Another limitation defined in this paper is that an individual is not driven fully by egoism, but rather is interested and shows care for other individuals, and even focuses on a fair allocation of resources among other individuals. As result, the author defines the behavioral individual with a limitation in rationality with will power, egoism and delivering continuously ideal solutions. The field of behavior relates to actions or reactions of a given organism, usually in relation to the environment. Of course, the author clarifies that behavior can be conscious or subconscious, overt or covert, voluntary or involuntary. Furthermore, it is important to point out that not all human behavioral evaluations will be considered as relevant when linked to teamwork and Team Performance. Organizations are generally committed to financial, time and human resources to develop teams and therefore have an idea of what constitutes high level Team Performance. There are many definitions of Team Performance. in general, performance is a measure of likelihood that the team will achieve its goal.[93] The literature also describes various trends with respect to the definition of performance. The measure might be determined internally by team members or by an entity outside the team to which some degree of objectivity is assigned. Performance is a combined definition of the efficiency of work performed as a measure for resources, influences as a measure of how team members performs, dependency as a measure of the ability of completion of the assigned task, and redundancy as a measure of effort by distinct team members.[94] The author chose a practically oriented version of the Team Performance definition which is shown in that Sundstrom defines it by naming the counterparts, stating an expectation and mentioning the team approach. In light of this, the author states that Team Performance is "the extent to which a work team meets the performance expectations of key counterparts - managers, customers, and others - while continuing to meet members' expectations of work with the team"[95]. The definition of Team Performance demonstrates the importance of the performance results of the team that delivers to key counterparts as well as the processes used within the team required to achieve those results. The

[92]Simon, H., "A Behavioral Model of Rational Choice", The Quarterly Journal of Economics, 69, 1955, p.99ff
[93]Hexemoor, H. & Beavers, G., "Measuring Team Effectiveness", in proceedings of 20th IASTED International Multi-conference: Applied Informatics, Innsbruck, Austria, 2002, p.338-343
[94]Hexemoor, H. & Beavers, G., "Measuring Team Effectiveness", in proceedings of 20th IASTED International Multi-conference: Applied Informatics, Innsbruck, Austria, 2002, p.338-343
[95]Sundstrom, E.D., "Supporting work team effectiveness: best management practices for fostering high performance". San Francisco: Jossey-Bass Publisher, 1999, p.10

processes of a team are essential as they contribute to team member attitudes[96], satisfaction, and commitment[97], which have a positive effect on productivity, turnover and employees' willingness to help coworkers[98].

After defining and agreeing upon a Team Performance definition, it is important to link the behavioral aspects to it. Furthermore, the question arises of how an organization can make sure that the teams implemented are working effectively. At present, there are two main challenges in this area: (1) knowledge of what factors compose Team Performance; (2) adequately measuring those factors.

1.1 The way to measure performance in teams and groups

Companies that implement team structures try to measure their performance. It is clear that there is no universally perfect solution for assessing the performance level of teams because each team is different and the systems used need to be varied accordingly. An important aspect is the probability that the higher the levels of Team Performance, the more benefits are likely to be realized from the work team structure, efficiency, and quality, productivity and employee attitudes. In addition, the measurement of performance is important because of the fact that stakeholders are looking for a return on investment for the costs associated with supporting the teamwork. Performing team measurement techniques should produce data that is used to express return on investment. Several challenging aspects need to be faced when performing such assessments. Firstly, the development and use of a psychometrically sound assessment is often very challenging. This process is laborious, time consuming and might be expensive. The investment for developing a sound assessment can be worth it, however, when considering the benefits that result from high level Team Performance, including improvements in quality[99], productivity[100], safety, lowered absenteeism, and

[96]Beverlein, M. & Harris, C., "Introduction to Work Teams", presentation at the 9th Annual International Conference on Work Teams, 1998
[97]Becker, T.E. & Billings, R.S., "Profiles of commitment: An empirical test", Journal of Organizational Behavior, 14, 1993, p.177-190
[98] Ibid, p.177-190
[99]Manz, C.P. & Sims, H.P., "Business without bosses: How self-managing teams are building high performing companies". New York: John Wiley & Sons, Inc., 1993
[100]Ray, D. & Bronstein, H., "Teaming up: Making the transition to a self-directed, team based organization". New York: McGraw-Hill, 1995

improved employee attitudes[101]. It is known that the measure of any construct should be solidly rooted in theory[102] and the assessment of Team Performance is no exception to this rule.[103] Theoretical approaches influence the way in which measures are constructed and utilized.[104] In practice, it is important to the author to customize measures of assessment to make them as appropriate as possible for particular teams, team objectives, and assessment objectives. Teams are thought to possess certain unique characteristics that differentiate them from all other units (e.g. work groups, taskforce groups). These unique characteristics include specialized roles and responsibilities held by team members, the capacity for team adaptability and the use of communication to perform team tasks.[105] When choosing the best variables with which to measure Team Performance, it is important for the author to distinguish between individuals and the complete team. It is still largely unknown how, and under which conditions, individual attributes (i.e. skills, personality traits, performance levels) influence or manifest as collective Team Performance[106] Although no single measure can effectively capture overall individual or Team Performance, it is often necessary to make a general decision regarding the performance of individual, team, or organizational performance at a particular point in time.[107] The criterion problem is one that can be averted only by concise theory and clear specification of dimensions of interest. Consequently, the author concludes, it is helpful to measure Team Performance in order to avoid the issues and problems associated with dependence upon a single, inadequate criterion. Besides, a critical aspect is also that teams need to take the time to fill out the assessments. It might be challenge to take the task of filling out a detailed assessment form in addition to the responsibility of the core work. Furthermore, the data analysis step is crucial for presenting the data in a meaningful manner which can initiate next steps in performance

[101]Beverlein, M. & Harris, C., "Introduction to Work Teams", presentation at the 9th Annual International Conference on Work Teams, 1998
[102]Nunnally, J.C. & Bernstein, I.H., "Psychometric theory", 3rd Ed., New York: McGraw-Hill, 1994
[103]Salas, E., Burke, C.S., Fowlkes, J.E. & Priest, H.A., "On measuring teamwork skills", in: Thomas, J.C. & Hersen, M., Eds., "Comprehensive book of Psychological Assessment", 2003
[104]Jones, S., "Team performance measurement: Theoretical and applied issues", in: Beyerlein, M.M., Johnson, J.A. & Beyerlein, S.T., Eds, "Advances in Interdisciplinary Studies", Vol. 4, Greenwich, CT: JAI Press, 1997, p.115-139
[105]Salas, E. & Cannon-Bowers, J.A., "The anatomy of team training", in: Tobias, S. & Fletcher, J.D., Eds., "Training & Retraining: A Book for Business", Industry, Government, and the Military, NY: Macmillian, 1992, p.312-335
[106]Klein, K. & Kozlowski, S.W.J., "A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes", in: Klein, K.J., Ed., "Multilevel Theory, Research, and Methods in Organizations: Foundations", Extensions, and New Directions, San Francisco: Jossey-Bass, 2000, p.3-90
[107]Smith, P.C., "Behaviors, results, and organizational effectiveness: The problem of criteria", in: Dunnette, M.D., Ed., "Book of Industrial Organizational Psychology", Vol. 1, Personnel Psychology, Chicago, IL: Rand McNally, 1976, p.743-775

improvement. Managerial leaders should take the time and encourage employees to focus on team development activities.

In this period characterized by serious financial crises, with its effects being observed in all areas especially in the field of human resources, the author agrees with Davis and Mendoca that there is a great necessity for all businesses to gain new perspectives in the ways that they approach finding new markets and opportunities.[108] The author is of the opinion that the capacity of Human Resource Management (HRM) to mobilize people's creativity, energy and commitment can make the difference between the survival or demise of organizations as the findings challenge companies to reassess their resources and redefine their performance standards. In today's business environment, the author finds key terms such as responsibility, flexibility, performance, emotional intelligence and competence appearing with greater frequency. It is known that in calm times, the attitude of an individual in a team is a distant one, while when a threat comes from outside the team, the individual instinctively develops closer ties to the other team members, and there appears the need to consolidate the team. In 1959 two students of group development combined their collective theoretical studies on theories of group development, which numbered around 100.[109] During the sixties, interest in group development reached its peak, and as more than 30 years have passed since these studies were conducted it is assumed that the number of theoretical studies has doubled in the meantime. It can be even considered that there are more empirical studies. However, there is a tradition of constructing theories which are not tested, or, tested only by their constructors.[110] Three classical and know team models are the irregular phase model, repetitive phase model, and sequential phase model. During the irregular phase model, Bion differentiates three "group emotional states"[111]: dependency, fight-flight, and pairing. Team development is considered as an unpredictable alternation because of the emotional states involved; the development occurs when the amount of work increases and when work becomes more integrated with emotionality.[112] The author reflects through Bion that behavior seems to play an important role in team development and therefore in performance of the team. Thus, if members of a team

[108]Davis, I. & Mendoca, L., "translated: How the world looks after the crisis", Harvard Business Manager, German Edition, October 2009, p.18-28
[109]Hill, W.P. & Gruner, "A Study of development in open and closed groups", Small Group Behavior 4, 1973, p.335-381
[110]Kuypers, C., "Group development patterns, an emerging perspective fort he study and change of training groups", 1985, p.7-8
[111]Bion, W.R., "Experience in Groups I", Human Relations 3, 1984, p.314-320
[112]Ibid, p.314-320

know the emotional states and the expected behavior of the other team members, it could be that Team Performance might be not negatively affected, but rather even be positively affected. The theoretical cluster of the repetitive model is recognized by the assumption of a regular sequence of phases, which keeps repeating. An example of this theory is Schutz, W.C. in 1958, FIRO, "A three-dimensional theory of interpersonal behavior, NY". In this theory, interpersonal needs are assumed to be inclusion, control and affection.[113] These three dimensions are shared by the team members and are the basis for team processes. Team members will attempt to arrive at a satisfactory exchange in every area by the sequence of first inclusion, then control then affection.[114] This process is repeated until the final stage where the sequence is reversed to affection, control and inclusion. While the author agrees that it might be a possible process to explain the social forming processes in teams, criticizes a tendency toward a loss in efficiency by uncontrolled replay and a total neglect of behavioral input. Even in the absence of behavioral aspect, the risk that the problem might not be correctly identified and that the process is focuses on the symptom and the team limits themselves using only these three dimensions, the author doubts the success of this approach on a long-term perspective.

The next theoretical phase cluster is the sequential phase model, which is the most frequently covered and well-known model on team development. It is characterized by the assumption of a regular, non-repetitive, and finite sequence of phases.[115] One example is the theory of Tuckman, B.W., "Developmental sequence in small groups", Psychological Bulletin, 63, 1965. This theory makes a distinction between two realities of team behavior. Each team directs itself towards the successful completion of a task through activities. At the same time, and often via the activities, team members relate to each other; the behavioral patterns of these interpersonal relations are referred to as a team structure.[116]This model of team development has five phases: Forming, Storming, Norming, Performing and Adjourning[117] and includes a behavioral approach. Progression is seen as completion of the task through a team structure that is efficient enough to do so.[118] Historically, teams have been viewed as temporary business units, which form, operate and then disintegrate over time. Teams go through a set of stages in

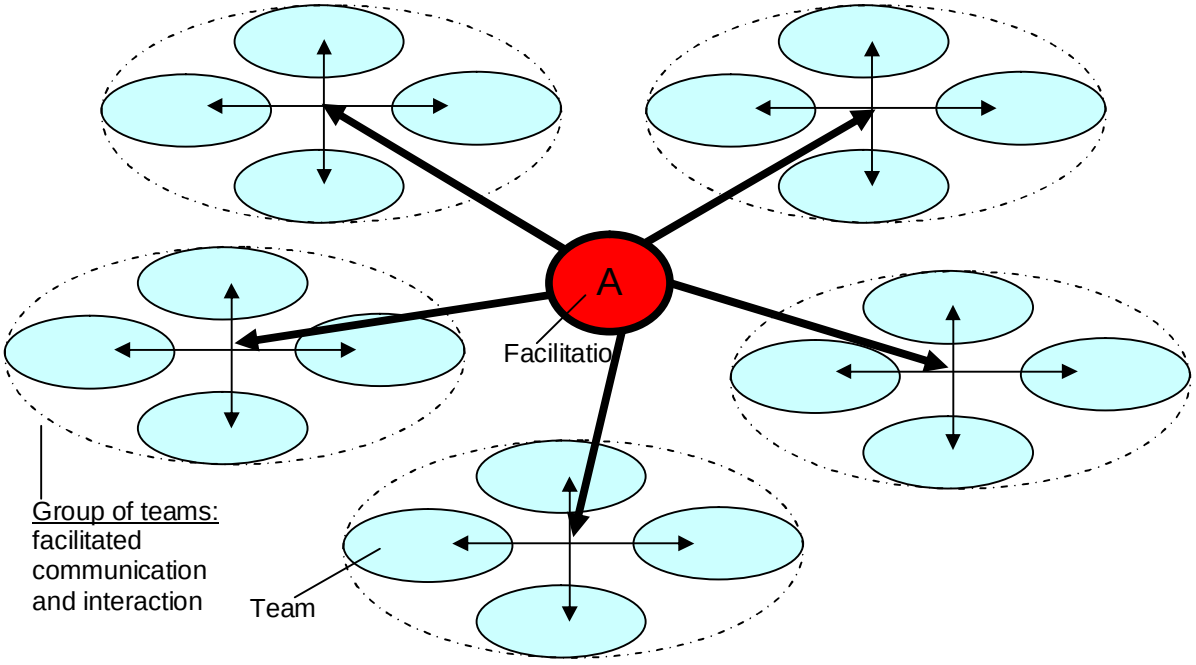
[113]Schutz, W.C., "FIRO, a three-dimensional theory of interpersonal behavior", NY, Academy of Management Journal, 1958
[114]Ibid
[115]Kuypers, C., "Group development patterns, an emerging perspective for the study and change of training groups", 1985, p.9
[116]Tuckman, B.W., "Developmental sequence in small groups", Psychological Bulletin, 63, 1965, p.384-399
[117]Ibid, p.384-399
[118]Ibid, p.384-399

their development: defining values, acquiring resources, assuming roles, and leadership coordination; however, there is no typical sequence, nor does every team go through every stage. At the end of the team's life, the team usually deals with matters of termination.[119] A team's ability to form, function and sustain itself is interrelated to its communication and cooperation with other individuals and teams within the organization as well as with external parties. With the increasing complexity of team performance tasks, the importance of coordinating, keeping records and tracking process increases.[120] The multidimensionality of Team Performance can be determined by means of three criteria: First, the team's productivity, secondly the social, intellectual or material rewards to the team members and thirdly the sustainability of the team as a social unit over time.[121] More often than not, when performing complex tasks and drawing from different expertise, the productivity that is gained by the division of labor in the team is lost due to the added lines of communication and the need for coordination.[122] Team members can have different knowledge areas and use one another as knowledge sharing partners. By dividing the responsibility for different knowledge expertise, the team members can share knowledge more effectively. The communication about exchanging knowledge which is known as transactive memory is used in teams to improve performance.[123] Since complex teams have members with diverse backgrounds and areas of expertise, this collective memory is critical for success in task completion.[124] The future development of teams can be seen in the following figure by the authors Akins Bryan and Cole (Illustration 2). It presents the complexity of teamwork and team development in which the role of facilitator becomes an important function. The composition of a team has the central function of a facilitator that communicates with individual teams' facilitators. The role of the facilitator is a key role in teamwork. Human to human and human to technology interactions form the results of the teamwork. The influence of facilitators on teamwork has proved to be a well-

[119]Katzenbach, J.R. & Smith, D.K., "The wisdom of teams: Creating the high performance organization", Harvard Business School Press, 1992
[120]Kidder, T., "The soul of new machine", Boston: Little Brown, 1981
[121]Hackmann, J.R., "The designs of work teams", Lorsch, Jw, Ed. "Book of organizational behavior", Prentice Hall, Englewood Cliffs, 1983, p.315-342
[122]Brooks, F.B., "The mythical man-month", Reading: Essays on software engineering, Addison-Wesley, 1982
[123]Hayne, S.C., C.A.P. & Vijayasarathy, L.R., "The use of pattern-communication tools and team pattern recognition", Transaction on Professional Communication 48, 4, 2005, p.377-390
[124]Akgün, A.E.; Byrne, J.C.; Keskin, H. & Lynn, G.S., "Transactive Memory system in new product development teams", Transaction on Professional Communication 53, 1, 2006, p.95-111

demonstrated phenomenon.[125] Facilitators need to have behavior that commands respect from others in addition to being good communicators, being proactive in making things happen, willingness to challenge and having potential to develop beyond their existing function.[126] The author of the present work agrees with the statements above, but believes that the approach should be re-defined by including the behavioral team definition and the Team Performance measurement criteria as driven by the facilitator. This is summarized in Figure 3 where the author's own definition of team development is linked to that proposed by Akins, Bryan, and Cole.

Illustration 2: Theoretical trend: Consortium of teams

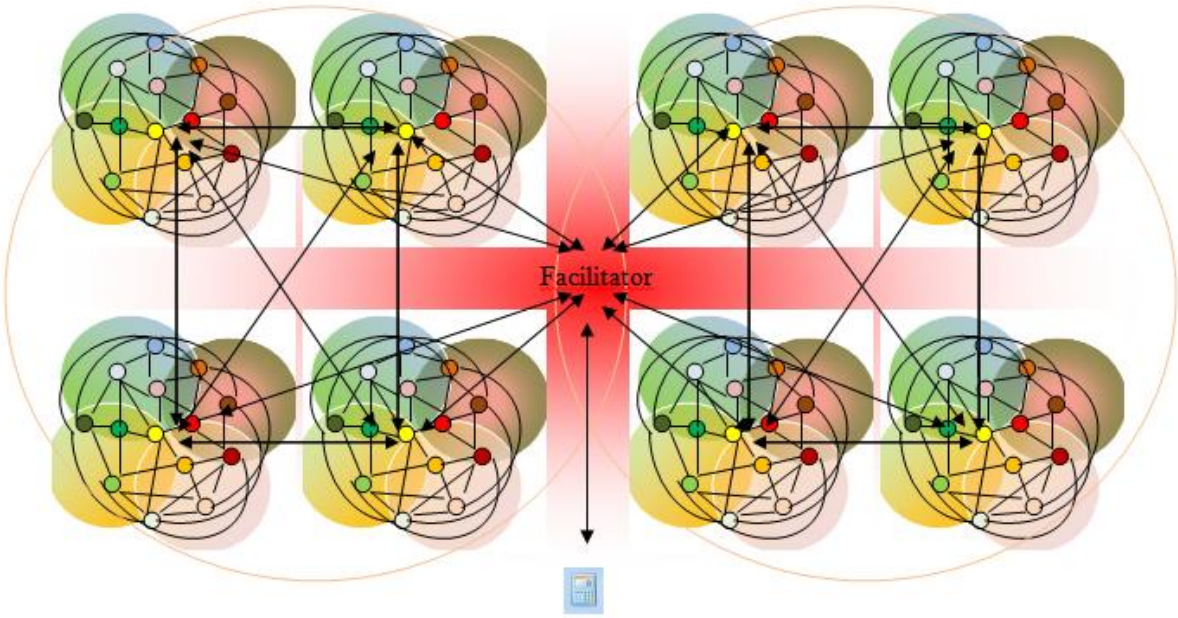


Source: Akins, B. and Bryan, R. Cole: Science and Team Development, Schematic of the new concept of science and team development, Complex Systems 4 (1), 29-43, 2006, p.38

[125]Perry, A.; Bryson, S. & Bebko, J., "Degree of Facilitator Influence in Facilitated Communication as a Function of a Facilitator Characteristics", Attitudes and Beliefs. Journal of Autism and Developmental Disorders 28, 1, 1998, p.87-90

[126]Perry, L., "Effective facilitators – a key element in successful continuous improvement processes", Training for Quality 3,4, 1995, p.9-14

Illustration 3: Theoretical trend: Consortium of teams under determinants of behavior



Source: Giesa, Andreas Michael, Reflection on the definition of "Team" based on a result of measuring team performance under the determinant of behavior, International Business and Economics Conference, Innovative Approaches of Management Research for Regional and Global Business Development, Austria, Kufstein, August 3-5th, 2012, in progress of publishing

In summary, the author states that teams become performing by strengthening the desire for team success, improving their decision-making processes, communicating effectively among colleagues, establishing standards that support team customs, goals and values, fostering harmony among members. This can be further enhanced by on an individual level on the part of the team members by excising personal power, becoming agents of influence, responding to the influence of others, understanding the origin of inter team conflicts, resolving conflicts, and evaluating and improving team operations.[127] It is important to mention at this stage, that no single measure can effectively capture overall individual or Team Performance. It is often necessary to make a general decision regarding Team Performance in the context of individual, team, or organizational effectiveness at a particular point in time and include various aspects.[128] The author concludes that team development including the historical theories and the new trends are a broad field to discover and various possibilities existing to form performing teams

[127]Zander, A., "Making Group Effective", Jossey-Bass Publishers, San Francisco, 2nd Edition, 1994, p.1-220
[128]Smith, P.C., "Behaviors, results, and organizational effectiveness: The problem of criteria: in: Dunette, M.B. (Ed.): "Book of Industrial and Organizational Psychology", Personal Psychology, Chicago, IL: Rand MCNally, 1976, p.743-775

but the aspect of behavior should be analyzed and more research should be done to determine the extent of its influence.

The author identifies that working in a team means to enter into a process which has been described by various authors. Tuckman describes the dynamic of teamwork by the steps Forming, Storming, Performing, Norming, and Adjourning. The author focuses on this process because it is important to compare it with that shown later on the teamwork process of Bender. The first phase is called forming.[129] The team members start with specific new activities that create uncertainty for all members.[130] In the second phase, called storming, team members try to orientate themselves with respect to the group.[131] Characteristically, different conflicts take place in this phase because of uncertainty concerning aims, functions or roles and also because insufficient orientation causes problems.[132] To solve these problems in the next phase known as norming, team members establish sets of rules.[133] Moreover, team members make efforts to find their roles within the team. All these efforts facilitate working in a team. The fourth phase - performing - is characterized by a high benefit for all team members, because team members now can use their abilities adequately.[134] Conflicts are solved, orientation is spread over the team and competencies can unfold. The intended purpose of the team is reached in the last phase of the team work. If the work of the team is temporally or in form or content delimited, the team can be closed. Afterwards team members have to be integrated in new structures. In this scenario outlined above, the aims of the teamwork are realized and the organization can profit from the output of the team. The author is of the opinion that this is a realistic and high level teamwork approach, but feels that Team Performance is not measured in a step that includes process, and that additional determinants of behavioral criteria are neglected. Bender focuses on a different approach to a teamwork process by placing emphasis on social criteria like membership, responsibility, openness, and disunion, which leads to the team result. Referring to Bender, team members are described as having to adapt their entire repertoire of social competencies in order to integrate successfully in a team. During the team forming process, they learn how to place their abilities and how to achieve effective output for the whole organization. According to Bender, in the first phase of team formation, the team has to deal

[129]Tuckman, B. W., "Developmental sequences in small groups", Psychological Bulletin, 63, p.368ff
[130]Ibid, p.368ff
[131]Ibid, p.368ff
[132]Ibid, p.368ff
[133]Ibid, p.370
[134]Ibid, p.370

with the membership of each member.[135] Social structure within the team occurs by identification of individuals within the group. In this respect, contact and communication are necessary. Roles, functions and limits must be found for each individual. Due to the orientation efforts responsibility is on a lower level. The second phase is characterized by the strengthening of team members.[136] Responsibility increases, because the level of orientation is much higher and members are willing to accept responsibility for group efforts.[137] Problems and difficult topics can be addressed. Sometimes rivalry arises due to conflict and differing levels of dominance between team members. But due to this discourse, team members become more acquainted with each other and learn how to define limits and margins. According to team values, rules and norms can be identified. In this situation an adequate behavior is necessary in order to back up the team process. In particular, the management can cultivate acceptance of individual efforts and performance of the team.[138]Bender describes the necessary criterion of the third phase as openness.[139] Team members had intensified contact in the second phase, but only on a superficial level. However, problems are often not only caused by questions of work but by personal aspects of individual characters. To solve such problems members have to open themselves, this means that emotions, motives and values must be identified and communicated. At this stage, the author aligns with Bender to focus more on the social aspects and on problems people might have. In addition, Bender's model would allow discussing diversity, heterogeneity, educational/knowledge background or even experience, in addition to an official step of openness. Coherence must be sensibly developed while identifying with team structures. This kind of team spirit possibly can support the team performance or hinder team performance but definitely outline criteria's in which team member would link it to a result/performance outcome of a team result. If team members refuse openness, there is the danger that problems will persist. The fourth phase referring to Bender can be called disunion, because change is expected.[140] Change means, on the one hand, outside influences but can also refer on the other hand to modification of the inner structure of a team.[141] For example: if a team member leaves the team or if team structures are reorganized. Often these modifications

[135]Bender, S.: "Teamentwicklung", Deutscher Verlag, 2nd Edition, 2002, p.43
[136]Ibid, p.43
[137]Ibid, p.63
[138]Ibid, p.42ff
[139]Ibid, p.51
[140]Ibid, p.63
[141]Ibid, p.63

cause additional work and expense, but they are necessary. The successful passing of each phase is essential for the performance of the team, otherwise specific problems cannot be solved and the team remains stuck in a particular phase. In summary, both processes of teamwork are seen by the author as clear trendsetters, because they focus on a process to achieve a result and also start to include social themes. This is a clear indication that behavioral economics is starting to become a greater influence in current economics and business research environments. In order to increase the usefulness derived from behavioral economic theory, it is essential to conduct more empirical research, particularly on the extent to which Team Performance is influenced by behavior or how it could be measured to evaluate further into this field. The management of business organizations can achieve a competitive advantage by implementing teamwork.[142] As a result of teamwork, there are many benefits by a strategic level. Thinking of the challenges caused by for example globalization; organizations can react quickly to changes of the environment, because teams can share functions and thus react in a flexible way. The author clearly shows that it is an advantage for organizations to respond to market demand rapidly and most efficiently because teams are able to find innovative and unorthodox solutions. In teams creative, diverse potential is available with which complex problems can be solved. Furthermore, the social networks of team members support the performance of teams.[143] Network and relationship within the team and in its environment can prepare a good climate. This can in the view of the author strengthen self-confidence and contentedness of team members, commonly speaking motivation. Organizations in a difficult situation profit by a high Team Performance. If organizations have to install modified structures concerning special areas or functions, teams with multidisciplinary skilled members can realize those restructuring a lot easier than individuals.

1.2 Critical analysis of behavioral team challenges and influences such as gender, diversity and demographics on Team Performance

To work in a team means to solve organizational problems together, but it also means to deal with specific team problems. The confounding factors in work, which can be caused by different levels of teamwork, are discussed in the following section. The literature indicates that

[142]Haug, C. V., "Erfolgreich im Team. Praxisnahe Anregungen für effiziente Team- und Projektarbeit", 2003, p.20
[143]Bender, S., "Teamentwicklung" , Deutscher Verlag, 2nd Edition, 2002, p.19

one of the problems experienced by teams is as a result of the selection of aims and functions.[144] The author agrees it is necessary to select aims and roles of the members carefully in order to reach efficient results, because not all teams function optimally and therefore in this context the individual competencies of team members are important.[145] Individuals have different skills, levels of education and mental attitudes. Moreover, the author concludes the character of team members can affect the team's overall performance. The daily routine in an organization is often challenged by problems as low levels of responsibility, insufficient engagement, a lack of reliability, individuals who are unable to work effectively in teams, competitiveness, hierarchical thinking, conservation of out of date values and a lack of flexibility.[146] The author concludes that behavior plays an important role and that learning in team structures often meets with a refusal on the part of team members. However, without learning the integration into a team is difficult, and for this reason team members have to be chosen carefully. Another behavioral criteria, which the author takes into consideration is moral hazards in business teams. Holmstrom found out that there are team members who act as "freeloaders" and do not fulfill the expected work requirements. The process of continuous performance evaluation ensures that risks are better shared and that instances of "freeloading" can be reduced.

The behavior of management often causes conflict in organizations. A team manager is responsible for taking the aims of the corporate governance as well as team ambitions into account. The team manager operates in a fixed environment and often binds people to established structures by refusing to accept innovative ideas. Conservative organization models do not fit well in a globalised, technocratic and fast moving business world. Managers have to point out that the output of a team is of value for the whole organization. In practice the relationship of team members is often a source of irritation due to the fact that people have the need for affiliation. If they cannot develop mutual commitment, the feeling of belonging to the team cannot be established. There is the need to balance the team spirit and the individuality of each member. The author focuses on the aspect gender relations and how it affects the teamwork and Team Performance. Not too much is known about the ways in which gender

[144]Haug, C.V., "Erfolgreich im Team. Praxisnahe Anregungen für effiziente Team- und Projektarbeit", 2003, p.164
[145]Schneider, H.; Knebel, H.: "Team und Teambeurteilung, neue Trends in der Arbeitsorganisation", Wirtschaftsverlag Ueberreute, Wien, 1995, p.24
[146]Haug, C.V., "Erfolgreich im Team. Praxisnahe Anregungen für effiziente Team- und Projektarbeit", 2003, p.162

shapes that process, while teamwork is supposed to develop group cohesion.[147] In past years, the empirical research related to gender, diversity and demographic aspects in teams and business organizations has markedly increased, however appropriate intervention in team processes has not been extensively explore due to its complexity.[148] Researchers such as Mc Carrey, Mc Leod, Jackofsky, Slocum, Quaid, and Shaw have analyzed the relationships of cultural diversity in teams and came to the conclusion that cultural differences lead to a higher quality decisions[149] with more ideas[150] and a diversity of behavioral styles[151] that lead to a higher value problem solving.[152] However, the majority of researchers have identified a negative impact of diversity on teamwork due to the challenges presented by interpersonal relation problems as well as communication.[153] These challenges lead to conflicts due frequent misunderstanding and a lack of group cohesiveness.[154] In addition, it has been argued that inefficiency is driven by an increase of conflict,[155] poor communication,[156] and low levels of team integration.[157] The results obtained when studying teams were mixed with respect to the gender aspect.[158] The author agrees with Smooth-Lovin and Brody that research results show that gender mix presents a clear tendency to influence behavior, communication as well as individual experience, but do not directly link to Team Performance.[159] Certain researchers like

[147]Scholtes, Peter R, "The team book: How to use teams to improve quality", Madison, Wisconsin, USA, Joiner 1988
[148]Umans, T., "Globalization in the lecture room? Gender and cultural diversity in work groups", Educational Research, 21(1), 2011, p.1
[149]Mc Carrey, M., "Work and personal values for Canadian Anglophones and francophones", Canadian Psychology, 29(1), 1988, p.69-83
[150]Mc Leod, P. & Lobel, S., "The effects of ethnic diversity on idea generation in small groups". Paper of annual meeting of the Academy of Management, Las Vegas, USA, August 1988
[151]Jackofsky, E.F., Slocum, J.V. Jr. & McQuaid, S.J., "Cultural values and the CEO: Alluring companions? " Academy of Management Excecutive, 2(1), 1988, p.39-50
[152]Shaw, M.E., "Group composition", in H.J. Blumberg, A.P. Hare, V. Kent & M-F. Davies (eds.), "Small group and social interaction", vol. 1. Chichester, England: Wiley, 1983
[153]Ancona, D.G. & Caldwell, D.F., "Demography and design: Predictors of new products team performance, Organization Science", 3(3), 1992, p.321-341
[154]O'Reilly, C.A. III., Caldwell, D. & Barnett, W., "Work group demography, social integration, and turnover. Administrative Science Quarterly", 34(1), 1989, p.21-37
[155]Jehn, K., Northecraft, G. & Neale, M., "Why differences make a difference: A field study of diversity, conflict, and performance in work groups", Administrative Science Quarterly, 44(4), 1999, p.741-763
[156]Mayo, M., "Looking into the black box: A social network approach to diversity, communication and work team effectiveness", Annual Meeting of the Academy of Management, Toronto, Canada, 2000
[157]Martins, L., Miliken, F., Wiesenfeld, B. & Salgado, S., "Racioethnic diversity and group members' experiences: The role of the racioethnic diversity of organizational context, Group and Organization Management", 28(1), 2003, p.75-106
[158]Watson, W.E., Johnson, L. & Merritt, D., "Team orientation, self-orientation, and diversity in task groups", Group and Organization Management, 23(2), 1998, p.161-188
[159]Smith-Lovin, L. & Brody, C., "Interruptions in group discussion: The effects of gender and group composition", American Sociological Review, 54/6), 1989, p.425-435

Wood have identified that gender balanced groups would have a more positive environment with less conflicts and a better communication when compared to teams that are dominated by one of the genders (male or female).[160] The author agrees with Wood and has experienced some indication of the effect of balanced gender teams in various cultures and will explore this more fully in the present work. Stringer has shown in an empirical that teams with equal rations between males and females show a more consensus-oriented approach than conflict-oriented situational approach.[161]

Referring to the extent of demographic differences or heterogeneity in teams, the author emphasizes the idea of level of influence on Team Performance. Some researchers such as Williams and O'Reilly or Chatman and Flynn showed that high levels of diversity in teams with respect to gender, nationality and time with the company lead to a decreased Team Performance.[162] The results of the studies cited indicate that high levels of dissimilarity appear to worsen Team Performance when such teams are compared to homogeneous teams.[163] It is interesting that this finding has been contradicted in previous research,[164] and that studies performed prior to the current work have indicated that diversity has a negative effect on results.[165] In the area of gender diversity as an indicator of Team Performance, Wood has shown in his analysis that mixed gender teams seem to perform better than homogeneous-gender teams.[166] In addition, the author cited a study which has shown that women tend to perform better than men and teams with a higher educational level tend to perform better by gender diversity.[167] Lastly, a homogeneous team with respect to gender will have less diverse

[160]Wood, W., "Meta-analytic review of sex-differences in group performance", Psychological Bulletin, 102, 1987, p.53-71
[161]Stringer, D.M., "The role of women in workplace diversity consulting", Journal of Organizational Change Management, 8(1), 1995, p.44-51
[162]Williams, K.Y. & O'Reilly, C.A., "Demography and diversity in organizations: A Review of 40 years of research", in L. Cummings & B. Staw (Eds.), "Research in Organizational Behavior", 20, Greenwich, CT: JAI, 1998, p.77-140 & Chatmann, J. & Flynn, F., "The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams", Academy of Management Journal, 44(5), 2001, p.956-974
[163]Chatmann, J. & Flynn, F., "The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams", Academy of Management Journal, 44(5), 2001, p.956-974
[164]Hofestede, G., "Culture's consequences: International differences in work-related values", Beverly Hills, CA: Sage, 1984
[165]Elron, E., "Top management teams within multinational corporations: Effects of cultural heterogeneity", Leadership Quarterly, 8(4), 1997, p.393-412
[166]Wood, W., "Meta-analytic review of sex-differences in group performance", Psychological Bulletin, 102, 1987, p.53-71
[167]Byrne, M., Flood, B. & Willis, P., "The relationship between learning approaches and learning outcomes: A study of Irish accounting students", Accounting Education, 11(1), 2001, p.27-42

opinions, be limited in its input and therefore deliver a lower Team Performance with complex tasks or in a complex, difficult environment.[168]

1.3 Theoretical analysis and discussion of the measurement of Team Performance in organizations

Team Performance takes place in an environment that includes the organization and its environment. The environment consists of the society in which the organization operates, its culture and the economic market. The organizational environment also has a limited impact on teams within the organization. The organizational impact on teams is much more significant. For this reason, the impact of the organizational context on Team Performance and individual aspects affecting Team Performance are reviewed in this section. It is apparent that team members, Team Performance and the teamwork are influenced by behavioral aspects driven by aspects such as gender, demographics and diversity. From the literature it can be concluded that, in an organizational context, objectives, competencies, management styles and relationships can be seen as the most significant determinants of Team Performance.

In the organizational context, objectives are useful to support the strategic action of teams.[169] The author identifies aims or objectives as concrete targets that an organization tries to reach. People-centered values meet business values while working out aims. Generally, aims belong to the strategic part of HRM and help the organization to link employees with corporate strategic goals as well as to specific team business. The intention is to improve business performance on the corporate and project level. In addition to this, it has been proposed that competitive advantage, innovative development, flexibility as well as explicit and binding aims can make teamwork more effective, because every team member knows the team perspective. The process of setting aims needs to be implemented and cultivated consciously. In organizational practice, strategic actions such as formulating aims are often neglected. Well-defined verbalization of wishes, duties, responsibilities and perspectives further the output of teams. Certain conditions such as written forms, developing a hierarchy of objectives that includes prior and superior objectives and which follow systematically, a clear content of aims,

[168]Dess, G.G. Beard, D., "Dimensions of organizational task environments", Administrative Science Quarterly 29(1), 1984, p.52-73

[169]Stagl, K. C.; Burke, S.; Salas, E.; Pierce, L., "Team Adaptation: Realizing Team Synergy", Advances in Human Performance and Cognitive Engineering Research, 2006, Vol. 6, p.125

measurable activities in order to detect the output adequately, a realistic view of a probable achievement of objectives, and full responsibility of employees for the quality of results strongly support the achievement of objectives.[170] If a team succeeds in laying this foundation, aims function as a benchmark for what is to be achieved. Benchmarking of Team Performance means that it is possible to develop strategies in order to increase the degree of output. Objectives can be formulated as strategic, but also as operational guidelines. It depends on its hierarchical position and it is important to integrate aims in a strategic planning process. The author identifies the following important steps in organizations and thus supports the theoretical approach of Stagl, Burke, Salas and Pierce.[171] The first step contains the development of organizational images, perspectives, profile and visions.[172] All these features are of overriding importance for the whole organization. The second step is to set up fitting objectives in order to achieve the guidelines developed in the first step.[173] The strategic setting helps an organization to realize the desired achievements systematically. If the objectives are measurable, they can be corrected on a continuous basis; an ongoing analysis and correction process is useful because the external and internal environment of the team change and thus the objectives have to be adapted accordingly.[174] On the basis of a clear picture of the organization, different strategic ways can be worked out.[175] A pool of strategies can be developed that depend on the individual situation of each organization. It is of course also possible to take a generic strategy and adapt it or combine several strategies. The selected strategy needs to be implemented into the production process of goods and services. But strategies only contain superior conditions; therefore teams need a concretion of strategic elements into a detailed planning and instruction process[176]. Priorities have to be pointed out and practical problems have to be solved. It is possible that practical issues have not been visible on the strategic level and that these need to be addressed. An effective implementation takes functional areas such as human resources, marketing, research and development of information systems into account. After the implementation of the required processes and strategies, the output of the teamwork has to be

[170]Mumford, A., "Developing the Top Team to Meet Organisational Objectives", Journal of Management Development, 1991, Vol. 10, Iss. 5, p.7
[171]O`Regan, N.; Ghobadian, A., "Formal strategic planning: the key to effective business process management", Business Process Management Journal, 2002, Vol. 8, Iss. 5, p.425
[172]Ibid, p.425
[173]Ibid, p.425
[174]Ibid, p.425ff
[175]Ibid, p.425ff
[176]Ibid, p.425

evaluated and it is thus necessary to measure the results of the Team Performance.[177] Control systems can be implemented to measure Team Performance systematically. This means monitoring the performance continually and setting standards of performance. Objectives cannot exist in isolation but have to be embedded into a deliberate process.[178] This process has a dynamic character, because if one element changes, various other factors are also affected. This is an important aspect of strategic planning, because at present the organizational environment changes rapidly. In this respect, an uncertain world needs flexible converting objectives.

With respect to the term "competence", the author indicates that there are varying definitions both with regard to studies in the literature and in organizational practice.[179] Depending on the perspective, the concept of competence can thus have different meanings. Competence generally is understood as the ability of an individual to react appropriately to a given situation. The author shows the necessity of presiding over a wide repertoire of possible actions and talents. These skills have to be learned for competency and learning is generally a lifelong process. Reflecting on the possibilities of appropriate responses means to evaluate these responses regularly wherever they may be relevant. In organizations, competencies have a significant value, because they are essential components of definitions of outstanding performance.[180] The author concludes that Team Performance is the result of the input of each team member as well as rising synergy effects.[181] The individual competencies of team members contribute to overall business results. Therefore, a sensible selection of employees is necessary. For entry into a team there are several preconditions including the state of the existing environment, settled aims as well as the cultural background and competencies of individual team members. Personal abilities can be seen as a key qualification to work in a team.[182] The author identifies, along Goleman's definition, the important competencies of team

[177]O`Regan, N.; Ghobadian, A., "Formal strategic planning: the key to effective business process management", Business Process Management Journal, 2002, Vol. 8, Iss. 5, p.425
[178]Salas, E; Dickingson, T; Converse, S; Tannenbaum, S., "Toward an understanding of team performance and training", in: Swezey, R. W.; Salas, E., "Teams: their training and performance", American Psychological Association, 1992, p.17
[179]Shippmann, J. S.; Ash, R. A.; Battista, M. Carr. L.; Eyde, L. D.; Hesketh, B.; Kohoe, J.; Pearlman, K.; Sanchez, J. I., "The practice of competency modelling", Personnel Psychology, 53, p.705
[180]Goleman, D., "Emotional Intelligence", 1995, p.86
[181]Haug, C. V., "Erfolgreich im Team. Praxisnahe Anregungen für effiziente Team- und Projektarbeit", 2003, p.47
[182]Haeske, U., "Team- und Konfliktmanagement-Teams erfolgreich leiten-Konflikte konstruktiv lösen", 2002, p.18ff

members[183] which include expertise as employees with an embracing knowledge and a specialist experience are necessary in every organization.[184] This type of broadly talented employee is also indispensable in the context of a team, because they often form the basis for further team development. The effects of methodical and strategic capabilities are best seen if employees perform their work systematically.[185] The use of adequate methods and instruments are important to the qualification of team members while methodical capacities facilitate the attainment of specific goals. In addition to this, team members prefer the addition of individuals who have good organizational skills, for example referring to the management of function, information or time, to their team.[186] Interpersonal skills within a group are identified by the relationship between its members. Depending on how these are lived in practice, intra-group relationships can be a source of conflict and lowered performance or increase trust and respect, which leads to higher performance. Team members, whose competencies include good communication skills, social sensitivity and the potential to solve conflicts, and can make good use of these abilities to help forge stronger teams. Interpersonal skills contribute to moderate and appropriate behaviour in critical social situations. It has also been shown that creative abilities and potential that are very important in teams because it supports the successful solution of problems and tasks.[187] Every team member brings forward ideas, solving and inventive components into the team process. Entrepreneurial thinking also belongs to these creative abilities. Individuals and the whole team can learn how to improve the output by using their creative abilities. This is an important component of team development.

The competencies of each team member form the basis for the team's overall performance[188] and the distribution of competencies within the team serve to make the team successful or ineffective. For this reason, knowledge, skills, abilities and potentials of team members have to be pooled according to function and business. This coordination leads the team to an efficient realization of its aims. It is necessary to allocate responsibilities and duties adequately in order to avoid extra work, time and demand. It is advantageous to compose a

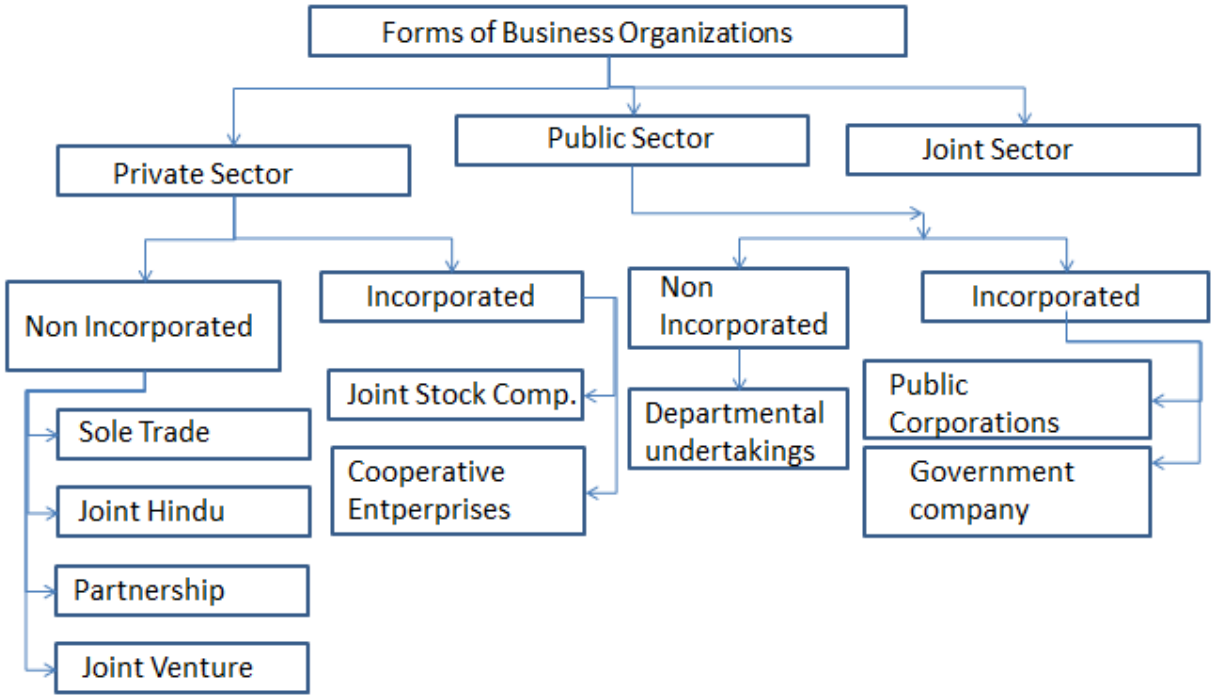
[183]Haeske, U., "Team- und Konfliktmanagement-Teams erfolgreich leiten-Konflikte konstruktiv lösen", 2002, p.18ff
[184]Ibid, p.18ff
[185]Haug, C. V., "Erfolgreich im Team. Praxisnahe Anregungen für effiziente Team- und Projektarbeit", 2003, p.146
[186]Schneider, H.; Knebel, H., "Team und Teambeurteilung, neue Trends in der Arbeitsorganisation", Wirtschafts-verlag Ueberreute, Wien, 1995, p.58
[187]Bender, S., "Teamentwicklung. Der effektive Weg", Deutscher Verlag, 2nd Edition, 2002, p.161
[188]Goleman, D., "Working with Emotional Intelligence", 1998, p.152

team based on varying competencies of the team members because homogenous skills and experiences limit the potential of the team as opinions, ideas or critical thinking are common in one direction[189] and lead to a reduction in possibilities that are explored thus reducing innovation. On the one hand, homogenous teams have less conflict, but on the other hand, innovation in such teams is limited. An optimal team composition is achieved by selecting members with varying key qualifications, competencies and personality types. The characteristics and competencies of individual team members can thus be seen as a deciding factor in the overall success of the team.

The analyses in its empirical study are sourced in the business organizational environment. The term "business organization" links to the field of business which purpose is to trade of goods, services, or both to consumers. The author states it is in the capitalist economy to earn profit and to increase the wealth of their owners. The author R.K. Singla states that business includes economic activity, an exchange of goods and / or services, deals with regulatory affairs, is profit oriented, takes risks, has utilities and drive for satisfaction of economic needs.[190] Based on the view of the author Singla, R.K., the theory presented states that business organizations can occur in one of three forms, namely the private sector, public sector or joint sector. The present work commences by focusing the empirical study on the private sector, using a German company as a subject, and then validates the study in the public sector by using populations in different Universities. An overview of the business organizations listed is shown in the Illustration 4. A search of the literature reveals that various definitions of what defines an organization can be found. Four key definitions are discussed in the following section and are only a sample of what is available in the literature. Barnard, C.I. defines it as follows: "an organization is a system of co-operative activities of two or more persons".[191] The authors Mooney and Railey define "organization is the form of every human

[189]Bender, S., "Teamentwicklung. Der effektive Weg", Deutscher Verlag, 2nd Edition, 2002, p.155
[190]Singla, R.K., "Business and Management", V.K. India, Delhi Enterprises, 2011, p.6-7
[191]Champoux, Joseph E., "Organizational Behavior, Integrating Individuals, Groups and Behavior, 4th Edition, Taylor and Fancis, 2011, p.16

Illustration 4: Forms of business organization



Source: Singla, R.K., "Business and Management", V.K. India, Delhi Enterprises, 2011, p.39

association for the attainment of a common purpose".[192] According to Louis A. Allen, "organization is the process of identifying and grouping the work to be performed, defining and delegating responsibility and authority, and establishing relationship for the purpose of enabling people to work most effectively together in accomplishing objectives".[193] The author agrees with the definition developed by Allen and suggests incorporating the definition of the author Singla, thus creating a definition of a business organization for this dissertation as follows: "A business organizations is a legally recognized organization designed to provide goods or services, or both, to consumers, businesses and, or governmental entities. Business organization is the process of defining, identifying and grouping the work to be performed due to being driven by capitalist economies, mainly privately owned, and typically formed to make profit that will increase the wealth of its owners and grow the business itself. The owners and operators of a business have the main goal to generate financial returns in exchange for work and acceptance of risk by delegating responsibilities and authority, and establishing relationship

[192]Rju, R.S., Parthasarathy, A., "Management", Newl Delhi, Prentice Hall India, 2003, p.67
[193]Sonawane, S.,"Amway", Jounral, India Premium Techno Management Business Academy, 2011, p.20

for the purpose or enabling people to work most effectively." The author adds the comment that non-profit organizations or state-owned enterprises might be exempt from this definition.

2 EVALUATION OF TEAM PERFORMANCE IN AN ORGANIZATIONAL CONTEXT AND ITS CONNECTION TO MANAGEMENT

The author is of the opinion that behavior is a sensitive aspect in team processes, because the management of an organization has manifold assignments. Because of this the guidance of a team can cause both positive and negative effects, depending on how it is done.[194] On the one hand, managers in an organization require the outputs deriving from high performing teams while on the other hand, they are frequently challenged when required to configure a team according to the organizational objectives while taking individual values into account. The development of a team depends on the boundaries laid down by the management. The management of the organization is responsible for the setting of the relevant margins.[195] These conditions definitely can support an effective performance of a team. Accordingly, the management has to modulate conditions in a way that support a team specifically. The management has to manage work environment as well as communication technology.[196] A team works in an organizational environment, which limits the scope of action that is available for team members. Teams need adequate rooms and networks in order to keep a lively exchange of information. This infrastructure requires investment and support by the management of an organization. In addition, it is necessary that management updates the action and outputs of a team. Effective management can foster a positive attitude towards working in a team throughout the whole organization. This is the basis for a good climate at work and for producing an efficient output. Acceptance of teams in an organization also plays an important role concerning performance. Employees and management likewise have to accept teams and their actions while management makes the appropriate decisions regarding the duties of a team. In the majority of cases, teams are built up in order to be in charge of specific products or services. Complex structures of goods and services justify the implementation of dedicated teams, because versatile competencies and varied experience of team members TM qualifies a team to handle intricate structures.[197] Much of the work done in organizations at present requires high levels of knowledge and various specific competencies. The mental component of

[194]Foti, R. J.; Hauenstein, N. M., "Pattern and variable approaches in leadership emergence and effectiveness", Journal of Applied Psychology, 92, 2007, p.348
[195]Bender, S., "Teamentwicklung. Der effektive Weg", Deutscher Verlag, 2nd Edition , 2002, p.19
[196]Zaccaro, S. J., "Trait-based perspectives of leadership", American Psychologist, 62, 2007, p.9
[197]Mumford, M. D.; Zaccaro, S. J.; Harding, F. D.; Jacobs, T. O.; Fleishman, E. A., "Leadership skills for a changing world solving complex social problems", The Leadership Quarterly, 11, 2000, p.21

work is higher than the physical component. Solving problems creatively or to improve productivity means performing mental work and cannot be delegated as efficiently as can physical work. There is the demand for the use of competencies of different individuals working hand in hand. The manager`s job is to coordinate the skills, knowledge, opinion and behavior of the team member in order to increase performance.

Managers play an especially crucial role in organizational Change processes. Shelley *et al*. found that transformational leadership can build up the basis for an improved Team Performance.[198] The model includes the factors inspirational motivation, intellectual stimulation and individualized consideration. Shelly *et al.* further goes on to analyze the impact of managerial style on team output and indicates that this may affect the communication, the cohesion and the management of conflicts within teams. Although a team needs the guidance of its manager, it is also an autonomous unit within the organization. Autonomy places team members in a position to have their own agenda and to act in a self-reliant manner. Managers are thus required to trust team members. This autonomy allows team members to develop strength and self-sufficiency, because each individual has the capacity to act and to decide. Within teams, decisions can be made within the organizational hierarchy or between TMs.[199] It is helpful to base decisions on the degree of autonomy of the team. This means to accelerate collective decisions if the team has intense strong sense of independence. In addition to this, complex problems require collaborative decisions, because they evoke greater levels of acceptance. All aspects and interests of team members are taken into considerations and team members can thus identify with decisions that are made.

In the context of behavioral theory, leadership has been one of the popular themes in research for a long time. Generally, there are three leadership styles:[200]Authoritarian in which the leader takes decisions alone and expects strict compliance with the orders.[201] The democratic style drives decisions in a collective decision-making process, the leader just assists.[202] The laissez-faire style is characterized by a leader without participation and with a

[198]Shelley, D. D.; Yammarino, F. J.; Atwater, L. E.; Spangler, W. D., "Transformational leadership and team performance", Journal of Organizational Change Management, 2004, Vol. 17, Iss. 2, p.189
[199]Hersey, P; Blanchard, K.; Johnson, D., "Management of Organizational Behavior", Leading Human Resources, 2008, p.54
[200]Kouzes, J., Posner, B., "The Leadership Challenge", Jossey-Bass, 1st Edition, 2007, p.85ff
[201]Ibid, p.85
[202]Ibid, p.85

specific role in the decision-making process.[203] The author concludes that democratic leadership style is mostly preferred, in theory as well as in practice.[204] Positive reinforcement, as Skinner showed in his concept of behavior modification, is one of the most efficient multipliers to change behavior.[205] It can be used in business context as a successful technique by the management of an organization in order to increase productivity.

In an organization, Blake and Mouton identified five distinct leadership styles:[206] Firstly, the indifferent style that can be observed when managers try to avoid problems and trouble for themselves.[207] They do not feel much responsibility and are not concerned with people, productivity or efficiency. In the accommodating style of management, managers care for the employees in order to increase their performance, but less for the production.[208] As a result of too much emphasis on the people aspects, the output of the whole organization can suffer. The dictatorial style is in direct contrast to the accommodating style in that managers with this style typically display a care for production that dominates the concern for people; rules and punishments are important to achieve the objectives.[209] Managers who exhibit the *status quo* style of management place equal emphasis on the targets of the whole organization and employee needs but the danger is that trying to fulfill both expectancies can lead to not fulfilling either.[210] The sound style of management is characterized by high levels of concern for both people and production, and teamwork is encouraged in order to enable employees to feel that they are a valuable part of the organization.[211] In contrast, managers who have an opportunistic style rely on whichever type of behavior offers the leader the biggest benefit.[212] In the paternalistic style challenges are excluded and the *status quo* is maintained with praise and support.[213] Aligned to the organizational process, the decision-making process within teams can follow the way that the manager decides on his/her own, the manager and team co-act or the

[203]Kouzes, J., Posner, B., "The Leadership Challenge", Jossey-Bass, 1st Edition, 2007, p.85ff
[204]Miner, J. B., "Organizational Behavior", Behavior 1: Essential Theories of Motivation and Leadership, 2005, p.40
[205]Ibid, p.98
[206]Blake, R.; Mouton, J., "The Managerial Grid III: the Key to Leadership Excellence", Research Papers Sciences Organization, 1985, p.34ff
[207]Ibid, p.34
[208]Ibid, p.34
[209]Ibid, p.34
[210]Ibid, p.34
[211]Ibid, p.35
[212]Ibid, p.35
[213]Ibid, p.35

team and client decide in conjunction with one another. [214] Thus management has several alternative opportunities to support an efficient output of the team. Which decision process is chosen depends on the individual situation of the organization and of the team, but the author Witt advises to take the alternative with that has the widest common acceptance.[215] Generally, hierarchical decisions do not earn as much support as commonly made decisions. Clients too, better accept decisions if they are included in the decision-making process. Shared decisions produce an increased feeling of responsibility within the team. They also evoke a working atmosphere with that is characterized by creativity, which markedly increases Team Performance. From the literature it is clear that leadership of a team profits from using collective decision-making, resulting in higher Team Performance[216] particularly when using participative leadership as a means to involve all team members in the decision-making process. This involvement concerns key decisions. Participation within a team can be visible if all team members actively work together. The team is not only controlled by a dominant member or supervisor, but all team members are involved in decision-making processes. This behavior forms the basis for a strong feeling of belonging to the team. In practice, communication has to be adapted and there has to be willingness to compromise. As a result, the author states the importance of participation to increase Team Performance, because it supports motivation and effectiveness. To ask team members for their opinion and input allows them to feel valued.

A team that wants to improve the coordination of team members' efforts in order to increase Team Performance can focus on improved goal setting and improved leadership style as well as a special focus on the intra team relationships. Therefore the author links this to relationship concerns and various aspects of social connection. Firstly, each team member has a specific role. Belbin observed teams in order to find out which dynamics affect a team with respect to its output.[217] It was Belbin`s intention to find out how problems in teams could be avoided. Belbin found, that behavior such as the following of team roles formed distinct team contributions. Each team member has a tendency to behave, contribute and interrelate with other team members in his/her own specific way. Belbin found different team roles in varying degrees cause individuals occupying this role to feel highly creative and thus enable them to

[214]Witt, M. M., "Teamentwicklung im Projektmanagement, konventionelle und erlebnisorientierte Programme im Vergleich", Deutscher Universitätsverlag, Wiesbaden 2000, p.48
[215]Ibid, p.48
[216]George, J. M.: "Leader Positive Mood and Group Performance: The of Customer Service", Journal of Applied Social Psychology; 25 (9), 1995, p.786
[217]Belbin, M., "Management Teams, Why they succeed or fail", taylor & francis, 2nd Edition, 2010, p.54

leverage their strengths to solve problems unconventionally. Team members in the monitor evaluator role are characterized by their impartial judgments as well as their logical evaluation of problems or situations while team members that are coordinators draw out other team members and facilitate the achievement of common goals. In addition, we find resource investigators who are team members that possess various skills, ideas and knowledge which are valuable resources of the team, which can be activated when needed. Implementers have a talent to plan and carry out a practicable strategy and thus they take care of efficiency and productivity of the team output. Completer Finishers play a vital role in work for errors and correcting final outputs. People in the team worker role assist the whole team to complete the required work and to produce an accredited output and, in so doing, support other team members. Team members who are known as shapers push a team to bear challenges and they keep the dynamic of the team moving. Lastly, the specialists have a deep knowledge in a key area. In most cases they are interested in their specific area of expertise, but often have a narrow focus.[218] The team roles described above are very different, but a high performing team needs all competencies and roles. Managers need to take this into account when establishing teams as the absence of any of these roles leads to lower performance, as outlined in the work of Belbin. While individuals who make up a team may have their weaknesses, a well-balanced team can compensate for this and become high performing in spite of it. While the author of the present work supports the idea of team roles as proposed by Belbin, they will not be considered in the dissertation for the evaluation on the behavioral determinants of Team Performance as it is not that significant to a defined behavioral analysis.

The author focuses on conflicts as a further factor in social relationships in the current Team Performance analysis. The purpose of Befahr *et al.* was to examine the specific conflict potential and its strategies in order to improve Team Performance.[219] The authors found that teams worked out their own strategies to avoid and solve problems like conflicts between team members by making compromises, open communication, discussing conflicts, voting, avoidance of conflicts, changing responsibilities and creative problem solving.[220] Behfar *et al.* also noticed that teams apply the abovementioned strategies in different ways, depending on

[218]Belbin, M., "Team Roles at Work", taylor & francis, 2nd Edition, 2010, p.23ff
[219]Behfar, J. K; Peterson, R. S.; Mannix, E. A.; Trochim, W. M., "The Critical Role of Conflict Resolution in Teams, A close Look at the Links between Conflict Type, Conflict Management Strategies, and Team Outcomes", Journal of Applied Psychology, Vol. 93, Nr. 1, 2008, p.171
[220]Ibid, p.177

individual members and situations.[221] Similar operating conditions do not lead to a similar use of strategies, but the creativity of individuals makes the team manage its task in its specific way.

Consequently, the author proposes that the behavior which makes a team successful varies and furthermore, that this behavior can change during the Team Performance management process. The dynamic nature of teams is a clear advantage during the rapid change of environment. If teams are able to continuously evaluate their performance they can possibly identify the gap between current and desired behavior, between objectives and results. Planning, implementation and monitoring can be used flexibly to close the gap.

Trust is a further important factor in avoiding conflicts in the relationship between team members. Referring to Baldvinsdottir, trust contains the positive expectation of an individual concerning an action or an event.[222] The author of this dissertation fully agrees with Baldvinsdottir's findings and regards Team Trust as a key dimension for measuring Team Performance under the determinants of behavior. In addition, the author even mentions that the term trust also describes the quality of the relationship.[223] Trust is based on the voluntary action of a person it includes the willingness to cooperate and to deal with the future. The danger lies in taking risks, uncertainty and vulnerability, but by taking risks, one could increase Team Performance, which would need to be empirically tested. Teams have the chance to develop common experiences and a similar system of values. If team members can deliver constantly, trust can increase. But Kanawattanachai *et al*. found, that cognition and affect have an important impact on the development of trust within a team.[224] Simons *et al*. observed that trust within the team decreases problems in relationships.[225] In addition to minimizing task conflicts.[226] Trust cannot be increased with a linear decline of team output. Langfred examined the team and the individuals comprising the team with respect to the degree of individual autonomy to affect performance in self-managing teams. He identified limits to the

[221]Behfar, J. K; Peterson, R. S.; Mannix, E. A.; Trochim, W. M., "The Critical Role of Conflict Resolution in Teams, A close Look at the Links between Conflict Type, Conflict Management Strategies, and Team Outcomes", Journal of Applied Psychology, Vol. 93, Nr. 1, 2008, p.182
[222]Baldvinsdottir, G. H., "Management Accounting and the Institutionalisation of Trust", University Gothenburg, 2001, p.25
[223]Nieder, P., "Vertrauen ist gut – Kontrolle ist nicht besser – Wege zu einer Vertrauenskultur", Betriebswirtschaftliche Forschung und Praxis, Nr. 2, 2001, p.180
[224]Kanawattanachai, P.; Yoo, Y., "Dynamic nature of trust in virtual teams", The Journal of Strategic Information Systems, Vol. 11, Issues 3-4, 2002, p.209
[225]Ibid, p.209
[226]Simons, T. L; Peterson, R. S., "Task conflict and relationship conflict in top management teams", The pivotal role of intra group trust, Journal of Applied Psychology, Vol. 85 (1), 2000, p.102-109

development of trust, because trust evokes a kind of positive disinterest in the work of other team members. Individuals stop to monitor each other, if the degree of trust is high in a team.

2.1 An analysis of individual contributions versus team contributions

There is a difference between what an individual does within a team and what a team does collectively. The author clarifies that the reason for this is that individual behavior and team behavior have different origins and intentions. The difference between these two behaviors can be a serious limitation to good outputs and it is the task of team performance management to take all actions necessary in order to improve the team output. The individual contributions are one factor within the Team Performance process with a strong impact on the output. In recent years, economic researchers are considerably more interested in team decision making. The differences between individual and team decision making affects the organizational output. Goodman, in 2000, detected the linkage between team outcomes and individual behavior.[227] Today, there are a lot of case studies examining situations in which teams have failed with respect to their performance. Sutter studied the question of whether the size of a team has a possible effect on Team Performance.[228] He showed that individuals or small teams with two members are disadvantaged compared with slightly larger teams with four persons. Generally speaking, these larger teams are more successful than individuals. These findings are also included in the validation process conducted in the present work. DeShon *et al*. examined the effect of individual and team goals on the final team output.[229] They found that team members act as individuals as well as team members.[230] They regulate their actions in a way that contributes to individual effectiveness as well as Team Performance. It is characteristic for team processes to have these two levels of decision-making. Therefore, the author states that a team member has to deal with multiple goals. There are essentially parallel effects of individuals and team members concerning goal orientation, feedback and interaction. The influence of individual characteristics on teams is important and the knowledge of it helps

[227]Goodman, P. S., "Missing organizational linkages: Tools for cross-level research", 2000, p.87
[228]Sutter, M., "Are four heads better than two? An experimental beauty-contest game with teams of different size", 2004, p.7
[229]DeShon, R. P.; Kozlowski, S. W.; Schmidt, A. M.; Milner, K. R.; Wiechmann, D., "A Multiple-Goal, Multilevel Model of Feedback Effects on the Regulation of Individual and Team Performance", Journal of Applied Psychology, 2004, vol. 89, No. 6, p.1035
[230]Ibid, p.1051

to regulate Team Performance. Sutter found in an experiment, that group membership changes individual behavior.[231] For this conclusion the "in group" does not need to have an interaction with an "out group". The emphasis here is put on the membership of the group. Sutter's findings ties in with those of Chariness *et al.*, who have shown that group membership makes individual behavior more competitive as is shown, for example, in prisoner`s dilemma games and coordination games. The decision-making of team members have the same effect on the output, although groups and teams have a different degree of individual values and action.[232] Team members do not need to coordinate or compromise with other individuals of the group. This means that the behavior of group members in many cases is different from that of team members. However, Sutter found that these have the same aim to achieve a higher output. In this context, individuals want to be effective both for the group and for the team, because they feel themselves as a member. The payoff is a motivation for greater efforts on the part of individuals, not depending on their membership to a group or a team. Falk noticed, during the course of field experiments, that individual action is shaped by gender, age, height and parental background.[233] This individual basis has an economically significant impact although the risk attitudes of individuals tend to be relatively stable across varying contexts as individuals seem to be willing to take risks as a personal trait. Risky activities such as smoking or holding stocks can be valued similarly to participating in a team. The gender difference shows that men are more willing to take risks than women. Gächter *et al*. investigated the behavior of individuals towards risk and showed that loss aversion underlies both riskless and risky choices.[234] This is true in team situations where individuals make decisions under risk. Therefore, the author suggests that individuals make their decisions based on their specific point of view and not always depending on the opinion of other team members because the benefit of common team decisions has to first become clear in order to contribute to the decision-making. Driskell and Salas observed the critical line between individual and collective behavior within a team.[235] They interpreted individualistic behavior as egocentric and against collective action and confirmed through their experimental results that team performance improves if team members

[231]Sutter, M., "Individual behaviour and group membership: Comment", 2008, p.15
[232]Ibid, p.16
[233]Falk, A., "Individual Risk Attitudes: Measurement, Determinants and Behavioural Consequences", 2009, p.22
[234]Gächter, S.; Johnson, E.J.; Herrmann, A., "Individual-Level Loss Aversion in Riskless and Risky Choices", 2007, p.18
[235]Driskell, J. E.; Salas, E., "Collective Behaviour and Team Performance", Human Factors: The Journal of the Human Factors and Ergonomics Society, 1992, Vol. 34, No. 3, p.284

turn to attend to the task inputs of other team members. Morgan *et al.* surveyed the experiences of a number of individuals to find the impact on empowerment.[236] In the context of a project setting, the authors found that individuals make decisions on the basis of their cultural values and that the relationships with leaders and colleagues have a serious impact on the team output. At the team-level, leadership style and team atmosphere are the key factors taken into account when making decisions. The authors of the study go on to advise the management of organizations and team leaders to intervene concretely in teams to improve the Team Performance. Liang *et al.* mentioned in an experiment that a work group can improve its performance by training.[237] The authors found that the training results are more efficient, if it is a common training which involves the whole team and not an individual training of selected team members. The author of the present work disagrees with the aspects of training in a generic term, because it depends on the leadership style if training in a team can increase Team Performance. As a consequence, training criteria will not be further focused on in the present study.

Van Emmerik made a multilevel analysis and showed that a positive moderating relationship that involves the mentoring of individuals can increase individual job performance.[238] However, it is the combination of individual and team mentoring that has the greatest effect on improving the team output. Guidance and learning of individuals seem to be important factors for Team Performance. Loo and Thorpe describe the success of reflective learning journals concerning both individual and Team Performance.[239] Journaling as a useful learning tool contributes to the specific development of individuals and has an impact on the team output as well. Ambrus *et al.* showed that deliberation strengthens the non-median members of a group.[240] There is a remarkable group shift as a difference between average individual decisions and average group decisions. In a review of the literature Waller *et al.* posed the question regarding how deadlines are managed differently by individuals and

[236]Tuuli, M. M. ; Rowlinson, S., "What empowers individuals and teams in project settings? A critical incident analysis", Engineering, Construction and Architectural Management, 2010, Col. 17, Iss. 1, p.10
[237]Liang, D. W.; Moreland, R. ; Argote, L., "Group Versus Individual Training and Group Performance: The Mediating role of Transactive Memory", Personality and Social Psychology Bulletin, 1995, Vol 21, No. 4, p.390
[238]Van Emmerik, I. J. H., "It is not only mentoring: the combined influences of individual-level and team-level support on job performance", Career Development International, 2008, Vol. 13, Iss. 7, p.586
[239]Loo, R.; Thorpe, K., "Using reflective learning journals to improve individual and team performance", Team Performance Management, 2002, Vol. 8, Iss. 5/6, p.136ff
[240]Ambrus, A., Greiner, B.; Pathak, P., "Group versus individual desicion-making: Is there a shift?", Australian School of Business Economics, 2009, p.18

teams.[241] Time urgency is an important factor in business process and teams who often have to rush in order to finish their required tasks on time. Effective time management is critical for individuals too, but special conditions in teams may produce a different manner of dealing with time, for example the communication process differs. Waller *et al.* saw differences in the perception and motivation of team members with respect to keeping deadlines. These considerations lead the author to the conclusion that the management of an organization needs to support not only the performance of a team, but also the individual development. Indeed, Brumback found that within teams, individuals have to be managed as well as the whole team.[242] This is complemented by the research of Coetzer and Trimble which indicates that individual training has to be carried out as well as team training.[243] A combined support of individuals and the team can motivate and produce behavior with best results. Referring to Brumback in team performance management, it is necessary to follow basic principles and thus encourage high performance, accountability, responsible empowerment and performance management.[244] These interventions target the cognitive, behavioral and emotional capacity of individuals and empower them to complete tasks efficiently, especially if team members have individual problems such as adult attention deficit disorder. Offermann *et al.* identified the importance of behavioral factors concerning Team Performance.[245] They showed that cognitive abilities of individuals account for more variance on individual tasks. However, it is interesting to note that emotional competence accounts for more variance in Team Performance than cognitive abilities. As a result, the author concluded that emotional competencies affect team attitudes and therefore the output of the team. The background of individual behavior in a team context is illustrated by the findings of Rosenthal, who showed that acting as a team member is a special behaviour for individuals.[246] The relationship between the people within a team is of

[241]Waller, M. J; Conte, J. M. ; Gibson, C. B. ; Carpenter, M. A., "The effect of individual perceptions of deadlines on team performance", Academy of Management Review, 2001, Vol. 25, No. 4, p.594ff
[242]Brumback, G. B., "Blending "we/me" in performance management", Team Performance Management, 2003, Vol. 9, Iss. 7/8, p.168
[243]Coetzer, G. H.; Trimble, R., "An empirical examination of the relationships between adult attention deficit, reliance on team mates and team member performance", Team Performance Management, 2009, Vol. 15, Iss. ½, p. 88
[244]Brumback, G. B., "Blending "we/me" in performance management", Team Performance Management, 2003, Vol. 9, Iss. 7/8, p.168
[245]Offermann, L. R.; Bailey, J. R.; Vasilopoulos, N. L. ; Seal, C. ; Sass, M., "The Relative Contribution of Emotional Competence and Cognitive Ability to Individual and Team Performance", Human Performance, 2004, Vol. 17, Iss. 2, p.219ff
[246]Rosenthal, E., "Social networks and team performance," Team Performance Management, 1997, Vol. 3, Iss. 4, p.289ff

great importance and the connections are valued highly. It is the personal network, if such one is established, that affects the performance of an individual and following of a team. Personal networks are also a powerful motivator for individuals to do a good job within the team and it can be concluded that this behavior improves the overall team output as well. The author agrees strongly with the approaches outlined above. In summary, this review posited a concrete description of Team Performance on a theoretical and empirical basis. In addition to this, the overview above summarizes the key findings of a broad body current research on Team Performance.

In detail, the author explains that determinants of Team Performance can be theoretically divided into factors deriving from an organizational context and factors, which contribute to individual aspects. Objectives are an explicit and binding strategy to link teams with corporate strategic goals, but objectives have to be set under specific conditions in order to support their successful achievement, for example clear content, a written form or adequate to their purpose. It is useful to integrate objectives into the strategic planning process of the organization to ensure their reliable accomplishment.

Competencies of employees are a second factor determining Team Performance in business organizations. On the basis of individual abilities competencies can be used to react adequately referring to each situation. In organizations, varying competencies are needed, because a complex environment requires a fitting range of skills, knowledge and qualifications. Competencies can be seen as the individual input of each team member to improve the team output. The most important competencies in business organizations are expertise, methodical and strategic capacities, interpersonal skills and creative abilities. For the organization it is an advantage to construct diverse teams characterized by the varying competencies of its team members. The management of an organization has manifold assignment; one of its major duties is to develop teams sensibly and thus improve the output of the team and, as a consequence, that of the whole organization. The leadership style has an important impact on teams and on their performance. Thus, managers have to coordinate skills, knowledge, opinions and behavior of the team members. In many cases, decision-making in teams is based on participative leadership, which means that the manager and team act together. The advantage is that shared decisions produce an increased feeling of responsibility, which increases motivation and output. The relationship, trust, behavior, gender, diversity and demographics between team members and their environment is both a source of conflict as well as a strong determinant of Team

Performance. In this context, the roles of team members are of importance for the team work. For management, it is desirable to implement different roles such as specialists, coordinators or implementers into a team. . How conflicts are approached and solved is an important factor that affects the relationship, trust and behavior between team members. Team members work out their own strategies to solve conflicts for example by compromising, discussing, communicating, voting or avoiding. Because of the creativity of team members, behavior can change and tasks are managed in a specific way depending on the situation. Trust is helpful in relationship, because it is based on the voluntary action of team members and includes their willingness to solve relationship problems. But the increase of trust has its limits. The author therefore concludes that individual behavior has a significant effect on Team Performance. This impact should not be underestimated, as current studies prove. The results of many empirical analyses show that individuals in a team act as individuals as well as team members. The degree of affiliation to the team affects the team output. Similarly, team membership can change individual behavior. The membership is a decisive factor, but naturally depends on the individual viewpoint of each team member with respect to cultural background or personal experiences. Teams are able to improve their performance by training individual team members in addition to the team as a unit. If individuals develop their personal skills, Team Performance profits, both on the individual as well as the team level. Therefore, the task of managers is to support team members both as individuals and simultaneously as members of the team. The approaches outlined should comprise the foundation of an effective HR strategy in the organizational process. Teams are a vital part of business activities and the emphasis on teamwork is increasing with time. Today, human resources are at the beginning of a process in which the management as well as the employees have to make great efforts to achieve a high level of Team Performance. The understanding of team processes and the design of Team Performance is a challenge for management, employees and for social sciences research.

Beyond the described theory, the author takes the examination of the approach of group thinking into consideration. Groupthink is defined by Forsyth as “a strong concurrence-seeking tendency that interferes with effective group decision making”.[247] The author states that groups have the opportunity to reach a higher performance than any individual might achieve, but groups have also a high potential to produce unlimited destruction. The theory also describes the significant difficulties involved in conducting empirical studies in this research field. The

[247]Forsyth, R. Donelson, “Group Dynamics”, 5th Edition, Wadsworth, CA, USA, 2010, p.40

author Irving Janis proposed a hypothesis that decision making groups are likely to experience groupthink when they are insulated from experts, receive limited information, operate with higher management and experience conditions of high stress with low self-esteem coupled with little hope of finding better solutions.[248] Based on this, the author outlines two symptoms of undesirable decision-making processes. First, there is the traditional symptom of groupthink that includes stereotypes of groups, collective rationalization, and inherent morality and behavior of the group. Second, there is the symptom of poor information search, selective information processing and the risk of choosing the wrong solution. Janis, with his hypothesis first presented in 1972, initiated a new focus for researchers into the field of groupthink. Steiner and others note that group search is notoriously difficult to conduct.[249] Additionally, groupthink approaches include various independent and dependent variables because of the challenging theoretical specifications. Turner, Pratkanis, Probasco & Leve suggest at least three interpretations for a groupthink work: First, groupthink should happen only when all the conditions are present. Second, groupthink comes more into focus when the number of antecedent conditions increases. Third, the interpretation of groupthink is to focus on unique situational possessions invoked by a defined set of antecedent conditions found in each situation. Overall, Feynman's discussion defines groupthink research into three phases: test of the model, extension of the model, and reformulation of the model.[250] Researchers like Tetlock state that case studies form the basis for evidence of groupthink.[251] The author finds, based on the literature, that these studies regard operationalization of key constructs and processes that are questionable and result in strong critiques.[252] By the phase of the extension of the model, Fodor and Smith researched the effect of power and motivation on groupthink outcomes.[253] The author summarizes that at this phase, the research attempted to focus on the full constellation of groupthink effects. The reformulation phase lets researchers develop models of groupthink with

[248]Janis, I-L., "Crucial decisions: Leadership in policymaking and crisis management", New York, Free Press, 1989, and Janis, I.L., "Victims of groupthink", Boston, Houghton Mifflin, 1972
[249]Steiner, I.D., "Heuristic models of groupthink", in H. Brandstatter, J.H. Davis & G. Stocker-Kreichgauer, Eds., "Group decision making", New York, Academic Press, 1982, p.503-524
[250]Feynman, R.P., "Surely you're joking, Mr. Feynman", New York, Bantam, 1985
[251]Tetlock, P.E.,"Identifying victims of groupthink from public statements of decision makers", Journal of Personality and Social Psychology, 37, 1979, p.1314-1324
[252]Longley, J., & Pruitt, D.G., "Groupthink: A critique of Janis's theory", in: L. Wheeler, Ed., "Review of personality and social psychology", Vol1., Beverly Hill, Sage, 1980
[253]Fodor, E.M., & Smith, T., "The power motive as an influence on group decision making", Journal of Personality and Social Psychology, 35, 1982, p.178-185

respect to collective avoidance and optimism.[254] The author summarizes that groupthink theory rarely documents a full study of groupthink effects. Laboratory studies have rarely shown a fully conclusive groupthink model, and few experimental studies have really documented the end result of groupthink. In the present work, this factor will be considered in the research on the team determinant that is linked to a behavioral focus with research models to find and present results based on empirical finding.

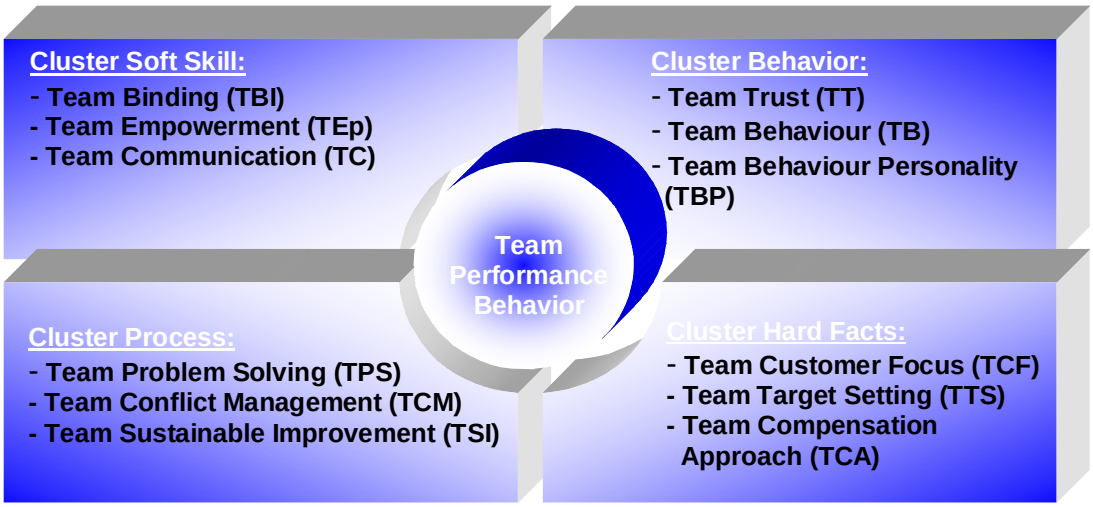
2.2 Development of the 12 dimension model of Team Performance including a behavioral cluster

Based on the theory discussed so far, the relation and research in the field of Team Performance, Team Productivity and Behavior plays a key role in this dissertation. The overall generic hypothesis is defined by the author and later focuses on six key hypotheses based on the development of the 12 dimension model of Team Performance including a behavioral dimension that will be tested and measured empirically. The author defines the overall hypothesis as H_{y0}: If Team Performance is measured in business organizations; it will be affected by behavior and is measurably impacted by team members. The author proposes a selection of Team Performance dimensions in this research into the field of Team Performance. Furthermore, it is necessary to state that a team must work diligently and must be committed to achieving results.[255] In addition, the author subscribes to the theory that a team should have a mixture of competences, i.e. technical skills, problem solving and interpersonal skills with the goal to approach and accomplish a high level of team results. However, teams need to have an appropriate level of empowerment to deliver and manage their tasks,[256] proper leadership support, as well as a supportive environment with a clear and transparent system of rewards and recognition. [257] Furthermore, the author develops the idea and proposes that a dimension of behavior should be included into the research in order to evaluate the significance of behavioral economics on the economic environment and Team Performance. This is especially significant

[254]Hart, P., "Preventing groupthink-revisited: Evaluating and reforming groups in government", Organizational Behavior and Human Decision Processes, 73, 1998, p.306-326
[255]Internet: http://www.eagle.ca/-mikehick/teams.html, Feb. 7th, 2010
[256]Hyatt, D.E. & Ruddy, T.M., "An examination of the relationship between work group characteristics and performance: Once more into the breech". Personnel Psychology, 50, 1997, p.553-585
[257]Tesuluk, P.E. Vance, R.J., & Mathieu, J.E., "Examining employee involvement in the context of participative work environments". Group & Organization Management, 24/3, 1999, p.271-299

in light of the fact that the author found no Team Performance assessment in the literature that included behavioral statistical information or statistical psychometric soundness of the instruments used for the research. A definition of each dimension that was used and is relevant to this study is described with the purpose of indicating the scale of the dimension with respect to this research. The author has defined four clusters, within which one cluster focuses on the new innovative behavioral aspect, and three other clusters relate to the findings described in the literature for measuring Team Performance. In total, the author defines 12 dimensions for measuring Team Performance including the context of behavior (Illustration 5).

Illustration 5: The 12 Dimension-Model for Team Performance incl. context of behavior



Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under the influence of behavior – validated in a European Environment, International Conference, New Challenges of Economic and Business Development, Latvia, 2012, p.217

The following section describes the definition of the 12 dimensions of Team Performance within the four clusters (Illustration 5). The first cluster is called soft skills because it covers soft skill criteria in Team Performance. In the literature, Team Binding (TBI) is described under cohesiveness as being essential to the research of Team Performance and is influenced by the interpersonal relations among team members.[258] TBI activates unity with other team members. The author defines it as interpersonal relations support to maintain effective and suitable

[258]Pelled, L.H., Eisenhardt, K.M., & Song, M., "Getting it together: Temporal coordination and conflict management in global virtual teams", Academy of Management Journal, 44, 2001, p.1251-1262

relationships with team members who, in turn, support to enhance information exchange and decision-making in teams.[259] High TBI teams have lower levels of absenteeism, high participation in team activities and high levels of team behavior harmonization during team tasks.[260] In addition, the author Bettenhausen has done a review of team research linked to TBI with team variables that included satisfaction, productivity and member interactions.[261] The authors Swezey and Salas include the dimension of TBI as one of seven primary categories that addresses teamwork process principles, and thus may be used to discriminate between effective and ineffective teams.[262] Due to its obvious significance in Team Performance, the author of the present work also includes the definition that TBI can be seen as a motivational driver influencing team performance in previous empirical research,[263] and that analyses have shown important TBI performance effects.[264]

Team Empowerment (TEp) is a well-known and broad topic. Here, the author uses it in relation to employees in work teams in an organizational setting. The idea of TEp focuses around the authority to make decisions and about how to get the work done. Moreover, the author includes the ability to make suitable decisions which are an important aspect for the success of a team to reach their goals in his definition. TEp involves an evolution from power-dependence relationships to those based on interdependence and influence.[265] The author is in agreement with Lawler who includes three components in his definition of empowerment: (a) information regarding processes, quality, customer feedback, events, and business results; (b) knowledge of the work, the business, and the total work system, and; (c) rewards tied to business results and growth in capability and contribution.[266] However, in practice, employee empowerment is often facilitated through the establishment of designated empowered work

[259]Pelled, L.H., Eisenhardt, K.M., & Song, M., "Getting it together: Temporal coordination and conflict management in global virtual teams", Academy of Management Journal, 44, 2001, p.1251-1262
[260]Morgan, B.B., Jr. & Lassiter, D.L., "Team composition and staffing", in R. W. Swezey & E. Salas (Eds.), "Teams: Their training and performance", Westport, CT: Ablex Publishing Corporation, 1992, p.75-100
[261]Bettenhausen, K.L., "Five years of group research: What we have learned and what needs to be addresses", Journal of Management, 17/2, 1991, p.345-381
[262]Swezey, R.W. & Salas, E., "Guidelines for use in team-training development", in R.W. Swezey, & E. Salas (Eds), "Teams: Their training and performance", Wetport, CT: Ablex Publishing Corporation, 1992, p.219-245
[263]Weaver, J.L., Bowers, C.A., Salas, E. & Cannon-Bowers, J.A., "Motivation in work teams", in M. Beyerlein, D. Johnson, D. & S. Beyerlein (Eds.), "Advances in interdisciplinary studies of work teams", Greenwich, CT: JAI Press, Inc., 1997, p.167-191
[264]Mullen, B. & Cooper, C., "The relation between group cohesiveness and performance: An integration", Psychological Bulletin, 115/2, 1994, p.201-227
[265]Carr, C., "Managing self-managed workers", Training and Development, 45, 1991, p.36-42
[266]Lawler, E.E., "High involvement management", San Francisco: Jossey-Bass, 1986

teams.[267] The consequential employee empowerment has been recognized to correlate positively with increases in customer satisfaction, reduced costs, and lean management.[268] Furthermore, Kirkman and Rosen have researched the consequences of team performance and their results indicated that more empowered teams were also more productive and proactive than less empowered teams and displayed higher levels of customer service, job satisfaction, and organizational and team commitment.[269] For purposes of this research, the author defines TEp as the degree to which the appropriate decision-making authority exists within the team.

One of the most important aspects of the soft skill perspective is the Team Communication (TC). TC is a defining factor in Team Performance.[270] Open and honest communication is crucial for any team that aims at quality and longevity. A team's ability to perform is only as good as each member's ability to communicate effectively, which includes listening skills, sufficient sharing of information, suitable interpretation of information, accurate perception of others and accurate interpretation of and response to nonverbal cues.[271] The essence of communication is summarized by the author, and aligned with Campion, Papper and Medskar, as the methods and processes for gathering, distributing, attending to and exchanging information; the ability to share ideas openly, supportively, and objectively using appropriate verbal and non-verbal behaviors while actively listening.[272]

The next cluster is defined by the author as process cluster. Team Problem Solving (TPS) is a key skill for working teams.[273] Teams are confronted with what can sometimes be a challenge in TPS efforts - working effectively with others in their team. Many teams have a tendency jump straight into the development of solutions before clearly defining the problem in the first place. Goldfreid and Davidson found out those successful problem solvers, team members TMs have an attitude that problems are just part of life and are there to be solved and

[267]Shipper, F. & Manz, C.C., "Employees self-management without formally designated teams", Organizational Dynamics, 1992, p.48-61
[268]Shrednick, H., Schutt, R. & Weiss, M., "Team tactics", CIO, 5, 1992, p.74-76
[269]Kirkman, B.L. & Rosen B., "Beyond self management: Antecedents and consequences of team empowerment", Academy of Management Journal, 42, 1999, p.58-74
[270]Swezey, R.W. & Salas, E., "Guidelines for use in team-training development", in R.W. Swezey, & E. Salas (Eds), "Teams: Their training and performance", Wetport, CT: Ablex Publishing Corporation, 1992, p.219-245
[271]Varney, G.H., "Building productive teams: An action guide and resource book", San Francisco: Josey-Bass, Inc., 1989
[272]Campion, M.A., Papper, E.M. & Medskar, G.J., "Relations between work team characteristics and effectiveness: A replications and extension", Personnel Psychology, 49, 1996, p.429-452
[273]Guzzo, R.A. & Shea, G.P., "Group performance and intergroup relations in organizations", in: D. Dunnette & L.M. Hough (Eds.), "Book for industrial and organizational psychology", Vol. 3, Palo Alto, CA, Consulting Psychologist Press, 1992, p.269-313

thus take the time to define and describe a problem thoroughly before coming up with ideas to solve it. TMs brainstorm solutions only after defining the problem and choose an appropriate solution by taking their brainstorm list and addressing the pros and cons of each idea after which they try the selected solution and if it does not work to complete satisfaction, they go back to step one and go through the steps again.[274] Effective TPS is thus an important skill for individual contributors as well as work teams. The knowledge TP profile addresses TPS with several items under the heading of team processes and Kirkman and Rosen ask evaluators to provide feedback on TPS on their team assessment.[275] After considering the key points presented in the literature and the items represented on these assessments, the author defines the dimension TPS as the ability to recognize situations in which TM need to work together to solve problems, identify the appropriate people to be involved in the TPS, and determine an appropriate solution to the problem. Team Conflict Management (TCM) needs to be handled in each team, especially when working under pressure and performance orientation. The author states that a team structure should general be diverse with respect to resources, knowledge, and ideas. However, as previously mentioned, diversity might also lead to conflict. Conflict exists when two or more members of a team, or two or more teams, disagree and becomes harmful if tension within or between teams is such that it impedes members from thinking clearly or making sound decisions.[276] The positive side of conflict is that it can awaken members to alternative perspectives and stimulate creativity in TPS and decision-making.[277] The consequences and the result of conflict depend on how TM manage, control and resolve the problem. Generally, it is important for teams to encourage conflict over substantive issues while taking time to resolve issues among TM when negative conflict arises. While it may not be possible to fully resolve all conflict, it must at least be managed effectively.[278] Various studies have shown that effective conflict management improves Team Performance.[279] Conflict remains a major challenge for most teams operating within large organizations, even after repeated training sessions on how to handle conflict and how to reduce the negative impact on

[274]Polk, K., "How to do group problem solving with employees", Internet: http://www.imakenews.com/newsources/e_article000014539.cfm, Feb 14, 2010
[275]Kirkman, B.L. & Rosen, B., "Beyond self management: Antecedents and consequences of team empowerment", Academy of Management Journal, 42, 1999, p.58-74
[276]Zander, A., "Making groups effective", 2nd Ed., San Francisco: Jossey-Bass, 1994
[277]Dyer, W.G., "Team building", Reading, MA: Addision-Wesley Publishing Company, 1995
[278]Rahim, M.A., "Managing conflict in organizations", London, Quorum Books, 1992
[279]Evans, C.R. & Dion, K.L., "Group cohesion and group performance: Ameta-analysis", Small Group Research, 22/2, 1997, p.121-129

team members.[280] Whether conflict is linked to interpersonal relationships, team processes, communication or any other potential source, the topic frequently appears on team assessments in the literature or organizational documentation. As a result, to include this aspect into the current study, the author defines as the parameters of conflict as the ability to recognize the presence of conflict, identify the source of the conflict, and appropriately manage it.

Team Sustainable Improvement (TSI) is often linked to incremental changes in the day-to-day process of work with improvements being suggested by the TSI themselves. The author's view of TSI involves producing a steady stream of improvements in all aspects of customer focus, including quality, design, and timely delivery, while lowering cost at the same time.[281] Based on this background and researched information, the TSI dimension is defined by the author as the sustainable effort by the team to eliminate waste, reduce response time, simplify the design of products and processes, and improve quality and customer focus.

The next cluster is identified as cluster of hard facts by the author, because it focuses on clear measurable criteria. Team Customer Focus (TCF), in which effective teams try to meet the expectations of key partners and stakeholders, including customers, plays an important role and is a dimension in Team Performance based on the definition for this research by the author.[282] If teams are motivated and focused on working effectively with their customers, and have direct access to information that allows them to plan, control, steer and improve their operations and take corrective actions to resolve daily problems, the team will be able to increase TCF satisfaction by meeting the expectations placed on them by the customer. The author defines the dimension TCF for the purposes of this research as the degree to which the team mindset is focused on customers and their needs and to which team actions and deliverables supports that mindset. The author also proposes that Team Target Setting (TTS) is an important aspect for performing teams. The essential basic expectation for teamwork is that the team is performing according to the organization's expectations. If TTS is compatible with individual goals, a 31% increase of productivity can be expected versus a 19% increase when individual targets are set

[280]Varney, G.H., "Building productive teams: An action guide and resource book", San Francisco: Josey-Bass Inc., 1989

[281]Devane, Tom, "Integrating Lean Six Sigma and High Performance Organizations, Leading the Charge Toward dramatic, rapid, and sustainable improvement", A Wiley Imprint, Pfeiffer, in: Internet: http://books.google.de/books?hl=de&lr=&id=1R2VnM9_6HAC&oi=fnd&pg=PR13&dq=team+sustainable+improvement&ots=zlMGEi4iMv&sig=_ty9Yu7CzyKN_GegRs27aqF0rc4#v=onepage&q=team%20sustainable%20improvement&f=false, 2010

[282]Sundstrom, E.D., "Supporting work team effectiveness: best management practices for fostering high performance", San Francisco: Jossey-Bass Publishers, 1999

alone or a 12% increase with only a team goal.[283] Working to align team members' understanding of human performance, including effective goal-setting and performance management techniques, can contribute to the team effectively achieving their objectives. The TTS dimension is defined by the author as the ability to establish specific, measurable, achievable, realistic and timely focused team targets and to monitor, evaluate and provide feedback to the team with respect to accomplishing these goals. Team Compensation Approach (TCA) should exist in the form of a rewards and recognition system. There is a link between the intention of people to stay at their place of employment, the TCA and the bonus received for their performance. Some studies have shown a positive correlation between recognition given for work that is well done, performance and the length of time an employee intends to stay with their current employer.[284] The definition of TCA in this study used by the author will focus on the methods of appreciation and acknowledgement used within the team.

The novel and key cluster for measuring Team Performance under the determinant of behavior is the developed cluster behavior that is proposed by the author of the present work. The author's view aligns with the theory presented in the literature which indicates that Team Trust (TT) is a difficult topic to study. On one hand, it is a behavioral topic, on the other, it occurs within a relationship and implies some amount of risk and individual vulnerability. A behavior of trust is initiated in a team when a person believes that the team, "…makes a good-faith effort to behave in accordance with any commitments both explicit or implicit, … is honest in whatever negotiations preceded such commitments, and … does not take excessive advantage of another even when the opportunity is available"[285]. In addition, a trust environment can be developed by people who have shared social norms, shared experiences and repeated interactions.[286] Some studies on the relationship between trust and performance in teams report a link between trust and performance while others do not. For instance, Smith and Barclay found a positive relationship between trusting behaviors and perceived trustworthiness with task performance using different rationales. In addition, Mc Allister, had already found a

[283]Gowen, C.R., "Managing work group performance by individual goals and group goals for an interdependent group task", Journal of Organizational Behavior Management, 7, 1986, p.5-27
[284]Tesluk, P.E. Vance, R.J. & Mathieu, J.E., "Examining employee involvement in the context of participative work environments", Group & Organization Management, 24/3, 1999, p.271-299
[285]Cummings, L.L. & Bromiley, P., "The Organizational Trust Inventory, Development and validation", in R.M Kramer & T.R. Tyler (Eds.), "Trust in organizations: Frontiers of theory and research", Thousands Oaks, CA: Sage Publications, 1996, p.303
[286]Bradach, J.L. & Eccles, R.G., "Markets versus hierarchies: From ideal types to plural forms", Annual Review of Sociology, 15, 1989, p.97-118

positive relationship between behavioral trust and the assessment of performance in his work published in 1955. However, it is worth noting that there are studies in which trust was shown to play only a moderate role in the relationship between team processes and performance.[287] For the purpose of the present study, TT can be defined as the degree to which team members believe they can depend on other TM abilities and intentions. The next dimension in the behavior cluster proposed by the author is Team Behavior (TB), which is a complex field and therefore often not considered in statistical Team Performance assessments performed to date. This dissertation focuses mainly in this area and hypothesizes that TB is a key influence in Team Performance. TB refers to actions or reactions of an organism (a person), usually in relation to its environment. TB can be conscious or subconscious, overt or covert, and voluntary or involuntary. Referring to the literature, team role behavior is assessed by the well-known Belbin Team Role Self-Perception Inventory (BTRSPI). In addition, other researchers have focused on the team role aspect in behavior by gender.[288] Interestingly, Fisher and Macrosson used the childhood family environment to interpret different management team roles in the sense of behavior.[289] The BTRSPI is a widely used instrument by managers and trainers in management, selection, assessment, team building, and management training, but it does not measure Team Performance in teams, even though it yields information on aspects of behavior.[290] The author defines TB for the purposes of this dissertation based on psycho-physiological factors such as extroversion-introversion and high anxiety-low anxiety.[291] The aspect of the individual's motivation and values forms a part of the particular set of definitions in TB. The next dimension behaviour cluster is Team Behavior Personality (TBP) and is defined as a dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations, and behaviors in various situations.[292] The definition of TBP for the purpose of the present study is focused on the personality aspects of openness to experience that is characterized by the tendency to be imaginative, independent,

[287]Dirks, K.T. & Ferrin, D.L., "The role of trust in organizational settings", Organization Science, 12/4, 2001, p.450-467
[288]Balderson, S.J. & Broderick, A.J., "Behavior in teams: exploring occupational and gender differences", Journal of Managerial Psychology, Vol. 11 No. 5, 1996, p.33-42
[289]Fisher, S.G. & Macrosson, W.D.K., "Early influences on management team roles", Journal of Managerial Psychology, Vol. 10 No. 7, 1995, p.8-15
[290]Furnham, A., "A psychometric assessment of the Belbin Team Role Seld-Perception Inventory", Journal of Occupational & Organizational Psychology, Vol. 66, 1993, p.245-257
[291]Yuwei, Shi & Tang, H.K., "Team role behavior and task environment", Nanyang Business School, Nanyang Technological University, Singapore, Journal of Managerial Psychology, Vol. 12 No. 2, 1997, p.85-94
[292]Ryckman, R.M., "Theory of Personality", Wadsworth Publishing, 2004

and interested in variety vs. practical, conforming, and interested in routine. Conscientiousness can be described as the tendency to be organized, careful, and disciplined vs. disorganized, careless, and impulsive. Agreeableness is the tendency to be softhearted, trusting, and helpful vs. ruthless, suspicious, and uncooperative. Finally, as a lack of neuroticism is the tendency to be calm, secure, and self-satisfied vs. anxious, insecure, and self-pitying.[293]

2.3 Definition, indicators and assessment of the six core hypotheses

The author has defined a 12 Dimension-Model for Team Performance including behavioral determinants. The present study focuses on the cluster behavior and the author has six sub-key hypotheses, two for each dimension of the cluster humanity. The author defines the hypotheses H_{y1TT} in the cluster humanity with the dimension Team Trust: The higher the heterogeneity, the higher the Team Performance will be. H_{y2TT}: The higher the correlation between the knowledge and interests of people in the same business field, the higher the Team Performance will be. A further two hypotheses deriving from this cluster involve the dimension of TBP: H_{y1TBP}: The higher the age range in the team, the higher Team Performance will be[294] as well as H_{y2TBP}: The higher the level of education in the team, the higher Team Performance will be. Lastly, the under the third dimension TB, the author defines H_{y1TB}: The higher diversity index in a team, the higher the Team Performance will be and H_{y2TB}: The higher the amount of vacation days not taken, the higher the Team Performance will be. H_{y2TB} is a hypothesis that is based on a German law approach which requires employees to have at least 25 days of vacation, which generally amounts to 30 days of vacation per calendar year. Companies find this law challenging t due to business targets, project goals and attempting to maintain a high performance environment. An employee has the right to keep it and postpone the allotted days but a company has to then accrue the cumulative leave of the employee. An employer cannot really forbid an employee to take vacation days anytime he or she wishes to, and therefore the amount of leave taken, and when it is taken could be a an indication of the employee's level of dedication and ultimately of Team Performance. At this stage, the author outlines the importance of a theoretically based comment on the hypothesis of the Cluster Behavior, Team

[293]Santrock, J.W., "The Self, Identity, and Personality", in Mike Ryan (Ed) "A Topical Approach to Life-Span Development", New York: McGraw-Hill, 2008, p.411-412.
[294]Kluge, Annett, "mixed aged teams become in advance in the German economy", University Duisburg-Essen, Computer Woche, Edition 46/10, p.40

Trust in the field of heterogeneity. The system-theory deals quite strongly with the field of heterogeneity of organizations. In this context, heterogeneity is not only used in the context of random or negatively evaluated characteristics of organizations, which focus on standardization, but also to build the basis for flexibility and organizational learning development. A central message of the system-theory is the aspect of law of the necessary diversity, based on which the long-term survival of a system is in danger when the complexity is not enough to allow variety to solve challenges brought about by environmental influences. The more heterogeneous a system appears, the greater is the probability for linkage to element of a system. As a result, the internal heterogeneity is therefore one of the most important pre-conditions of self-reflecting development processes of systems and thus for the successful adaptation to the continuous changing environmental conditions.[295] Reviewing the management and organizational theory, the St. Gallen Management approach[296] and the author Kirsch[297] assume that organizations are too complex to be steered systematically and with a target oriented approach by management. Instead of using instruments to reduce complexity to be capable to manage the organization, they propose to understand complexity as an advantage. The author concludes that complexity, heterogeneity and redundancy take a key position in the conditions required for a long-term survival of the organization.[298] However, empirical studies deliver only partial evidence of this. There are studies that present a positive impact from cultural heterogeneity on Team Performance, but there are also studies that present a negative impact. In the work of the authors Kilduff/Angelmar/Mehra (2000) and Gibson (1999, 1st part), no impact of cultural heterogeneity appears in their empirical study. The authors Thomas/Ravlin/Wallace (1996) showed a negative influence of team heterogeneity when linked to Team Performance. However, Cox/Lobel/McLoeod 1991 and Gibson (1999, 2nd part) showed a positive effect of Team Performance and Earley/Mosakowski (2000) even found a linear relation to Team Performance. Based on these discussions, and for the purposes of this dissertation, it was decided to assume this hypothesis and try to do deliver an additional aspect of the empirical study in the area of heterogeneity. Moreover, in the future the research designed with this variable will neglect other influences that could affect the results for e.g. the

[295]Schreyögg, G., "Organisationsgestaltung", 4. Auflage, Wiesbaden, 2003
[296]Malik, F., "Systemtisches Management, Evolution, Selbstorganisation", Funktionsmechanismen und Lösungsansätze für komplexe Systeme, 2. Auflage, Bern, 2003
[297]Kirsch, W., "Unternehmenspolitik und strategische Unternehmensführung", München, 1990
[298]Probst, G.J.B., "Selbstorganisation", in: Frese, E.: Handwörterbücher der Organisation, 3. Aufl., Stuttgart, 4, 1992, p.807-825

social background of people, the environment in which they grew up, the level of education of their parents and whether or not they had siblings. It is assumed for this dissertation that all other influences occur as a Gaussian distribution. The dissertation concentrates and focuses exclusively on: H_{y0} (TP) = f ($H_{y1TT,}$ $H_{y2TT;}$ $H_{y1TB,}$ H_{y2TB}; $H_{y1TBP,}$ H_{y2TBP}).

The author explains business field that was studied in the following section because, based on the theory, it is an important aspect of the Team Performance empirical study. The organization studied is an enterprise that has been synonymous with international focus and worldwide presence for more than ten years. Today, this organization is a global powerhouse with activities across all continents. The challenges confronting today's world are global in nature – and so is the company. With a presence in more than 60 countries, they can offer customers fast, local, tailor-made solutions which provide them with a decisive competitive edge. Their roughly 8,000 employees work at more than 100 locations around the globe, including over 100 R&D facilities. The organization studied is mainly active in industry, energy healthcare and infrastructural business. The industrial business sector and its solutions address the needs of industrial customers in the fields of production, transportation, building systems and lighting. The energy sector offers products and solutions for the creation, transmission and distribution of electrical energy. The healthcare sector stands for innovative products and complete solutions as well as service and consulting in the healthcare industry, and the infrastructural field tries to handle field structure of global cities. Industry software is a business division of the industry business. The current crisis did not catch any of the business units unaware. On the contrary, having done their homework and having introduced timely measures, they were not only able to get through this difficult period in the present, but also to emerge from it even stronger than before. They began identifying market-specific, forward-looking trends and drawing strategic lessons from them early on. One example is investing in the software industry. A few years ago, they geared their portfolio towards four megatrends: demographic change, urbanization, climate change and globalization. These trends are already influencing the way everyone lives today, and their impact will increase substantially in the decades to come. By bundling their business activities into the three business fields of industry, energy and healthcare, they also set the stage for capturing leading positions in attractive growth markets. In addition, they decided two years ago to start to buy software businesses in the industrial sector in order to bundle and combine software competences and to grow and develop in this new market. The vision is to become the largest player in software industry

worldwide. As a result, the business environment in which this research was conducted is the new and innovative software industry organization. The organization studied is currently a global company and one of the top five players in the field of production and plant lifecycle management. It has more than eight thousand employees worldwide in more than 24 countries with more than 63,000 customers. It is a dynamic, flexible, lean, function oriented and team structured organization that develops, sells and provides software service solutions for industrial products, or plants for the entire product lifecycle process. The research design focuses on the second largest part of the organization in terms of revenue and profit which is based in Germany. The German organization is represented in research development, pre-sales, sales, services, customer support and support functions (IT, AC, Finance, HR, and Procurement) and has around 1000 employees. The population for this dissertation will be the business unit of sales & services which covers around 600-800 people structured based on a strict team oriented approach.

The vision for the industry software is that of being able to design, manage and maintain a factory totally virtually before bringing it into implementation. Product lifecycle management software provides product lifecycle management packages, a category of design and collaboration software. Customers include many of the world's largest automakers that were among the first manufacturers to adopt it. The company offers a possible value proposition with their software products. Some key products in this business field include a digital product development system that helps companies to transform the product lifecycle. With the industry's broadest suite of integrated, fully associative applications, the product extends across the full range of development processes in product design, manufacturing and simulation. The software solution provides a complete suite of integrated process automation tools to enable companies to capture and reuse product and process knowledge thus encouraging the use of corporate best practice. The software solution is a comprehensive portfolio of digital manufacturing solutions that deliver innovation by linking all manufacturing disciplines together with product engineering – from process layout and design, process simulation and validation, to manufacturing execution. Built upon the open product lifecycle management foundation for a manufacturing platform, it provides the most versatile set of manufacturing solutions on the market today. The software is committed to further the organization’s legacy of providing the premier tool for high performance analysis of complex, global models. The availability of the software enables industrial players to utilize the power and capabilities of

their product in a variety of enterprising environments. It also enables leading developers of "best of class" applications to leverage their technology.

When the time comes for the organization to determine which Team Performance indicators to assess, the author explains the challenges that arise and how to measure these. Performing teams deliver various positive results to stakeholders and the organization but it stands to reason that ineffective teams can have a negative in many ways. Team members can experience frustration due to lack of clear targets or/and poorly developed interpersonal relationships. When a team needs to spend a lot of its time to handle and discuss these issues, it generally leads to a decrease in productivity and an increase in discontentment on the part of the team members. Considering how much time an average size team with four to seven employees spends on dealing with such issues the financial loss incurred due to a loss of productivity become very noticeable. If the team works on a product that will be sold to an external customer and the product is faulty or its production is delayed because of team inefficiency, the detrimental impact takes on larger dimension. To this end, accurate assessment of performance within teams is very important. Some studies place the use of teams in industry at over 60 percent,[299] and some organizations boast that their entire work force work as part of a team.[300] A researched, applicable and reliable means of measuring Team Performance supports teams by giving them and their managers a way to keep track of where they excel and where they could benefit from further development. Developing an empirical study and a reliable assessment requires paying special attention to the development of the assessment items and involving the people who will use the assessment in a research study. Basically, teams should use assessment information to identify areas of excellent performance and areas where improvement is needed. Appropriate TCA support reinforces areas of excellent performance.[301] In areas where improvement is needed, teams could benefit from participating in related learning modules or developmental opportunities. An added benefit of using assessment information exclusively for developmental purposes is that individuals are likely to provide a higher level of honesty in their ratings since they may be less concerned with being penalized for low scores or missing out on rewards associated with high scores. In relation to the six key hypotheses based on the

[299]Campion, M.A., Medsker, G.J. & Higgs, A.C., "Relation between work groups characteristics and effectiveness: implications for designing effective work groups", Personal Psychology, Vol. 46, 1993, p.823-850
[300]Thamhain, H.J., "Leading technology-based project teams", Engineering Management Journal, Vol. 16 No. 2, 2004, p.35-42
[301]Tesluk, P.E., Vance, R.J. & Mathieu, J.E., "Examining employee involvement in the context of participative work environments, Group & Organization Management", 24/3, 1999, p.271-299

behavioral dimension model by the author, the following indicators were defined for measuring behavior in Team Performance. H_{y1TT} measures the heterogeneity (H) by one team member with foreign nationality equals a unit of 0.25 and one team member with international experience of at least six months equals a unit of 0.25. The same dimension has a second hypothesis H_{y2TT} which measures a high business relation (BR) of people driven by their common knowledge and interest. The measurements are two team members from the same business field equals a unit of 0.5, three team members from the same business field equals a unit of 0.75, and four team members from the same business field equals a unit of 1.0. For the dimension Team Behavior Personality (TBP) the author has defined for the H_{y1TBP} the measurement of age range (AR) with the indicators of age range from 1 to 3 years equals a unit of 1, age range from 3 to 6 years equals a unit of 2, age range from 6 to 10 years equals a unit of 3, and age range from higher 10 years equals a unit of 4. The second hypothesis H_{y2TBP} measured the impact of education (ED), and therefore the author defines education (no study background, apprenticeship or learning academy) equals a unit of 0.5, team members who have a bachelor/diploma from a University of Applied Sciences equal a unit of 1.0, people with a Master/Diploma degree from a University equals a unit of 1.5, and people who have a doctoral degree equal with a unit of 2.0. The third dimension in the cluster behavior is the dimension of Team Behavior (TB) with the hypothesis H_{y1TB} focusing on a diversification index (DI) measured by TM with equal gender distribution equals a unit of 1, one team member different gender than three other team members equals a unit of 2, two team members men and two team members women equal a unit of 3. The second hypothesis H_{y2TB} is defined according to the number of days vacation not taken[302] (LV) an employee has in the organization. The indicators by the author are one to ten days left equals a unit of 1, elevent to twenty days left for the calendar years equals a unit of 2, twenty-one to thirty days left equals a unit of 3, and in case someone has more than thirty days open it equals a unit of 4. The team productivity is defined by the author by means of evaluations the achieved variable income versus targeted revenue.

By measuring the determinants of Team Performance in the humanity in this empirical study, to the author would like to link his theory with that summarized by Lewin in the psychological field theory: “In psychology, one can primarily distinguish between a person (P) and its environment (E) in a situational context. The extent of one or the other element, which

[302]In Germany: most companies allow taking 25 days of vacation for each employee. They should be taken during the calendar year.

certain behavior depends on, varies tremendously. In principle, however, this psychological phenomenon depends on the predisposition of the person and its environment. So far, we can utilize the formula B (=behavior) = f(S=situation). Behavior (B) can describe any psychological activity as the function B=f(P,E)."[303] Based on this equation, the author concludes, there is a cause-and-effect-relationship between behavior as a dependent variable, and personality and its environmental context as the independent variables".[304]

As a result, the author links these to the research of the determinants of Team Performance in business organizations, theoretical background & empirical evidence in the context of behavior and linked to the hypothesis and measurement delivered, the equation could be transformed into to TP = f(SoftSkill) + f(Process) + f(Hardfacts) + f(Behavior), whereby the focus of this dissertation is concentrated on TP = f(Behavior). Subsequently the equation continuously triggers function TP=f(P,E) with the additional aspect that TP is measured by team productivity, fluctuation rate and vacation rate, and whereby P=TM, and E=BR. TM would be defined by the indicators of age range, education, heterogeneity, diversity index, remaining vacation per year, so that we could get the following summary: TP = f(TPr, Fr, Vr); f (AR,Ed,H,DI) + (BR). The author defines therefore the dependent variables as presented by TPr, Fr, and Vr, and the independent variables as AR, Ed, H, DI, BR.

[303]Lewin, K., "Feldtheorie in den Sozialwissenschaften", Ausgewählte theoretische Schriften, Bern/Stuttgart, 1969, p.34
[304] Ibid

3 DEFINING THE RESEARCH DESIGN & CHOOSING RESEARCH METHODS FOR THE EMPIRICAL RESEARCH

The following chapter introduces the research design and also describes the research methods used. All data has been collected in the selected software business organization in Germany anonymously and at the team level, so that data confidentiality was assured. The required information for the indicators was collected and researched as proposed. The target sample size for the study was 100 teams consisting of approximately 800 individuals. This target was developed by the author based on Hutcheson and Sofroniou who recommend at least 150 – 300 cases being acceptable when there are a few highly correlated variables,[305] while Gorsuch recommended at least 200 cases, regardless of study specifics such as subjects to variable ratio,[306] and that the subject to variable ratio should not be lower than five.[307] The laboratory test were run with a pre-test of around 18 people and later on the validation process was implemented in a European scientific educational environment at the University in Riga, Latvia, at the University of Applied Sciences in Fulda, Mainz in Germany and at the University of Applied Sciences in Kufstein, Austria. The method of data collection includes a secondary analysis of the focus group in the software business. This collected pro-rata data for measurement against the current situation, the laboratory test and the final survey with the future outlook.

The author chose to use the method of secondary analysis, which is a method using existing material independently from the original aspect relating to the required topic, and analyzing the data in relation to it.[308] The challenges of using this method is that there might be a high risk of receiving the data, the theoretical background needs to be defined clearly so that the secondary analysis will be suitable for the research, and there is risk with respect to quality due to the limitation of the delivered data. In this situation, the author targeted collection of the definition for diversity index, age range, heterogeneity aspect, business field operations, educational level, and status of open vacation days. In addition, the author calculated the

[305]Hutcheson, G. & Sofroniou, N., "The multivariate social scientist: Introductory statistics using generalized linear models", Thousands Oaks, CA: Sage Publications, 1999
[306]Gorusch, R.L., "Factor Analysis" (Rev. ed.), Hillsdale, NJ: Lawrence Erlbaum, 1983
[307]Bryant, F.B. & Yarnold, P.R., "Principal components analysis and exploratory and confimratory factor analysis", in G. Grimm & P.R. Yarnold, "Reading and understanding multivariate analysis", Washington, DC: American Psychologocal Accociation Books, 1995
[308]Diekmann, A., "Empirische Sozialforschung" 4. Aufl., 1998, p.172-173 and p.540-541

individual productivity and Team Performance by targeted revenue and achieved revenue. With the help of this research method, the retro perspective and design will be reviewed based on the pre-test results and hypothesis of the laboratory test and survey. The author defines a survey as a study carried out by asking individuals from a given population about their opinion on a specific issue with the intention of defining relationship outcomes concerning this issue. Another possibility is a laboratory experiment in which conflicts would be handled by a mediator; the observers would evaluate the results based on key criteria. This approach could include the design of a case study. The positive aspect of this approach would be the presence of a fourth party of observers and evaluators, the negative side is the limited population and purely designed environment. In addition to the survey, the alternative of expert interviews could be chosen, which might help to increase the level of control, to eliminate or reduce the possibility of biased differences between respondents and non-respondents, as well as the validity and reliability of the data. However, in summary, the author has taken the choice of a survey because it appeared to be a reasonable solution with the possibility of adding a research method with the goal of increasing the validity and reliability, but has not focused on expert interviews. In the industry organization studied, teams perform self-assessments to evaluate their performance. Of course, the assessment and its measures are based on this dissertation and rooted in theory,[309] because theoretical models greatly influence the manner in which measures are constructed and utilized.[310] The teams are asked to voluntarily complete a self-assessment, including the aspects of behavioral approach against their performance using the new approach of team assessment. This was accomplished by sending an e-mail to all team members and requesting everyone's participation in the research throughout the organization. Moreover, the opportunity to participate in the research was communicated by the author individually to all and through news-tickers internally. Teams were informed that their participation is voluntary that their information was to be used anonymously, and the data from their pilot assessments were required for the sole purpose of validating the properties of the assessment. Participants received no feedback of the results as the instrument had not yet been evaluated. Teams had the option of completing their assessments in electronic online format. The electronic version of the assessment was available on a commercial electronic data collection tool and sent to all via e-

[309]Nunnally, J.C. & Bernstein, I.H., "Psychometric theory (3rd Ed.)", New York: McGraw-Hill, 1994
[310]Jones, S., "Team Performance Measurement: Theoretical and applied issues", in: Beyerlein, M.M., Johnson, J.A. & Beyerlein, S.T. (Eds), "Advances in Interdisciplinary Studies", Greenwich, CT: JAI Press, Vol. 4, 1997, p.115-139

mail. All of the electronic assessments contained only information to identify the total feedback and the survey was anonymous. The collection procedure was designed in this manner in order to maximize individual anonymity and the data obtained was evaluated using data and statistical analysis. The author did a Pre-Test on June 9th, 2010 at the office location of Industry Software in Munich. The team comprised of 18 individuals, who were further divided into four teams. The design of the teams was done by the author and based on the pro-rata data analysis which can be seen in the results (Illustration 6-9). The task to be performed was the same for all the teams. It was an actual business case,[311] in which a business unit wants to grow from 30 million € revenue to 100 million € revenue by 2014. The jury consisted of a CEO of a business unit, which also plans to grow as well as another independent sales director of the German software business unit organization. The environment for the Pre-Test was a familiar one for all participants. The Pre-Test took place in the office building of the company. Each team had an own room with all materials that were necessary to complete the task: PC, projector, flipchart, table charts and refreshments. The environment in which the study was conducted was familiar to and comfortable for the participants. The population of the Pre-Test was the talents-group of the industrial software company that represented a mixture throughout business units, all capabilities and knowledge background of the organization. Due to data security only the required information for each team is shown (Illustrations 6 - 9).

Illustration 6: Overview of Team 1 – Pre Test

Person	**Gender**	**Nationality**	**Exper. Abroad**	**Education**	**Age**	**Department**	**Left Vac Average**	**Productivity Rate**
Person 1	Female	Foreign	Yes	Bachelor	35	Finance	18	150%
Person 2	Male	Foreign	Yes	Master	42	Sales	19	103%
Person 3	Male	German	Yes	Master	40	ProjectTeam	20	140%
Person 4	Male	German	Yes	Master	28	Service	22	127%

Source: Giesa, Andreas Michael, Team Performance & Behavior Economics linked to a brief laboratory Pre-Test of measured behavior influence as a determine of Team Performance, International Conference, Academy of Business Administration, London, August 3rd-7th, 2011, p. 5

[311] Details of the Business Case can be found in the annex: Business Case, June 2010

Illustration 7: Overview of Team 2 – Pre Test

Person	Gender	Nationality	Exper. Abroad	Education	Age	Department	Left Vac Average	Productivity Rate
Person 1	Male	German	No	Master	41	Marketing	20	100%
Person 2	Male	German	No	Master	33	Customer Service	25	112%
Person 3	Male	German	No	Bachelor	41	ProjectTeam	21	100%
Person 4	Male	German	No	Bachelor	40	Sales	22	107%

Source: Giesa, Andreas Michael, Team Performance & Behavior Economics linked to a brief laboratory Pre-Test of measured behavior influence as a determine of Team Performance, International Conference, Academy of Business Administration, London, August 3rd-7th, 2011, p. 5

Illustration 8: Overview Team 3 – Pre Test

Person	Gender	Nationality	Exper. Abroad	Education	Age	Department	Left Vac Average	Productivity Rate
Person 1	Male	German	No	Bachelor	38	Sales	25	155%
Person 2	Male	German	Yes	Master	40	Sales	23	100%
Person 3	Male	German	Yes	Master	26	Sales	22	100%
Person 4	Male	German	No	Master	44	Sales	20	110%

Source: Giesa, Andreas Michael, Team Performance & Behavior Economics linked to a brief laboratory Pre-Test of measured behavior influence as a determine of Team Performance, International Conference, Academy of Business Administration, London, August 3rd-7th, 2011, p. 6

Illustration 9: Over view Team 4 – Pre Test

Person	Gender	Nationality	Exper. Abroad	Education	Age	Department	Left Vac Average	Productivity Rate
Person 1	Male	German	No	Bachelor	42	Service	21	114%
Person 2	Male	German	No	Bachelor	39	Service	21	122%
Person 3	Male	German	No	Master	42	Product management	19	100%
Person 4	Male	German	No	Education	39	Sales	19	100%
Person 5	Male	German	No	Education	36	Service	28	135%
Person 6	Male	German	No	Education	36	Service	22	104%

Source: Giesa, Andreas Michael, Team Performance & Behavior Economics linked to a brief laboratory Pre-Test of measured behavior influence as a determine of Team Performance, International Conference, Academy of Business Administration, London, August 3rd-7th, 2011, p. 6

Referring the teams 1-4, based on hypothesizes and the measurements, the following point overview can be shown:

Illustration 10: Point Overview based on the Measurements & Indicators

	Heterogeneity	Business Relation	Age Range	Education	Diversity Index	Open Vacation	**Sum**
Team 1	1,5	0	4	5,5	2	(10)	**13**
Team 2	0	0	3	5	1	(11)	**9**
Team 3	0,5	1	4	5,5	1	(11)	**12**
Team 4	0	1	2	5	1	(16)	**9**

Source: Giesa, Andreas Michael, Team Performance & Behavior Economics linked to a brief laboratory Pre-Test of measured behavior influence as a determine of Team Performance, International Conference, Academy of Business Administration, London, August 3rd-7th, 2011, p. 6

When reviewing the data (Illustration 10), the author proposes that team 1 and team 3 should deliver the results at a similar level and team 2 would be definitely not the winning performer. Pre-judgment of team 4 by the author based on the hypothesis in the dissertation was more difficult because there are two more individuals in the team who could be expected to have a bigger influence on the Team Performance. If the vacation level of team 4 would be lower due to the 2 individuals in the team, the team would have had a lower total amount of points. From this preview, the author assumed that either team 1 or team 3 would be the winning team and the team 2 and team 4 would be behind the results. The aspect of turnover was not considered because it did not take place in this specific instance. Due to the fact that the vacation rate is a dependent variable similar to the productivity rate, it was not factored into the total amount of the variable points. For the Pre-Test, the teams had to deal with a business case provided by the CEO. The basic idea was to work out a concept of how to grow from 30 million € to 100 million € revenue by the year 2014. During the working time of one hour for each team, every team could talk to the CEO for 10 minutes and ask questions for more details.

The result of the findings of the jury, comprised of the CEO and a sales director, was to vote for team no. 3 as the winning team because of the most customer oriented approach including some ideas of financial data. The team was closely followed by team no. 1 which actually had actually the more innovative approach, but because of the lack of the financial data due to time problems the team was not able to make it to the position number one. The next teams were team no. 2, and then team no. 4. Comparing the results by the author of the jury (team 3, team 1, team 2, and team 4) and the estimation of team 1 & 2 in a close position, the preview based on the provided data delivered a close estimation to the final result. In addition, the author noticed that the persons with the highest productivity in business was one in team 1 and one in team 3. In summary, the author believes that when reviewing this Pre-Test it is clear that the hypotheses proposed show an interesting aspect and influence of a behavioral determinant in Team Performance. The question of whether this would be also shown in a representative research is still open one. A critical aspect in this Pre-Test could be that all indicators were weighted equally; the question for the review could be if it makes sense to weigh the indicators differently. In addition, the author concludes that the Pre-Test was successful in terms of the selected indicators. Another aspect outlined that may be important for the research is that the teams should have the same size in the final test so that no extreme numbers influence the overall view too strongly. To sum up, the author believes that the Pre-

Test was valuable for observing and reviewing the selected variables and their influence on Team Performance. For the final test, the author evaluated possible changes. The fluctuation/turnover rate was not considered in this Pre-Test, but might be required in the secondary analysis. Finally, the author has formulated the following functions in this Pre-Test: TP = f(TPr, Vr); f(AR,Ed,H,DI) + (BR) and TP_{sum} = f(2079, 48); f(13,21,2,5)+(2). In review of this function, it outlines that the comparable points, the aspect of education and age rage add up to a major influencing factor, and the heterogeneity and diversity index were relegated to a minor position. However, the author concludes that after the Pre-Test it can be stated that behavior has an impact on measured Team Performance and that the indicators and measurements are useful to continue the empirical research into this area more deeply.

3.1 Review and analysis of the Pre-Test results and further implications for the secondary analysis

The secondary analysis was implemented by the author for the sales and service population of an American software organization within its German country organization. The data was collected from 602 individuals comprising 68 teams. On average, each team had an average size of 8.8 individuals. In the Annex N.2 an example of the secondary analysis that includes all details, numbers, figures and graphical charts is shown adjusted with a secret code due to restrictions of confidentiality. The author shows a presentation in the attachment with graphics per teams as well a numerical spreadsheet per team and topic: diversity, heterogeneity field, educational level (Doctorate, Master, Bachelor, some education, no education), the business field, the age range, open vacation days status in a view of two year perspective, salary view of a two year perspective, and the salary increase revenue achievement of two years.[312] The secondary analysis was carried out by reviewing the existing designed teams over a period of two years. In addition, the author designed clusters of teams to present a more summarized view. The author defined the clusters focused along the business, and teams working closely together. The analysis by the author concentrates on the defined hypothesis of the dissertation and an analysis and reflection. Moreover, the author defined an own productivity rate by means of the achieved salary increase, multiplied by the revenue outcome and divided by 100 and

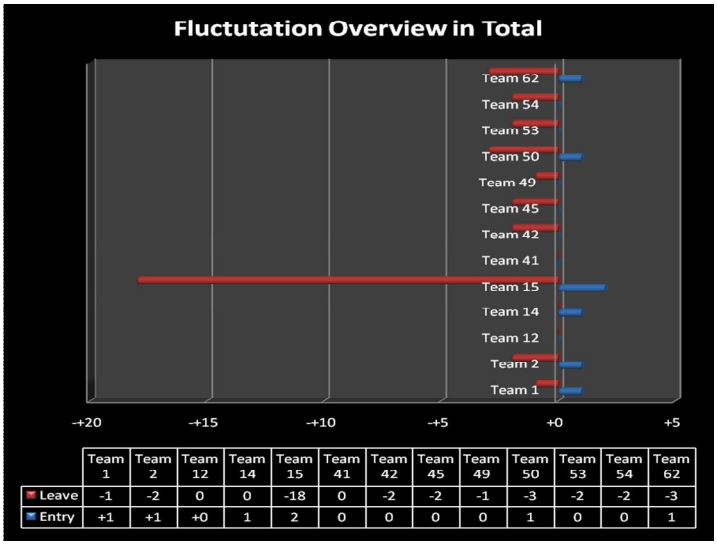
[312] Comment: All Data are transferred with a secret key so present the approach. The shown data is change from the original data with a secret key to eliminate any lack in data confidentiality.

finally multiplied by 10, so that the productivity rate presents the measurable sales performance. The salary data was also multiplied by 10 so that the comparability in the graphs will be more clearly visible. Furthermore, keeping the hypothesis in mind, the author evaluated all teams on a punctuality approach in the same way as in the Pre-Test to see the Team Performance was purely based on the hypothesis perspective and to analyze a possible impact.

The secondary analysis was implemented by the author by empirical research pro rata data of 68 teams that comprised 602 team members in the data obtained was summarized in graphs and tables. By the analysis of the fluctuation it was observed that only a few teams were affected by fluctuation d. In conclusion, the author delivers and shows a total summary of the secondary analysis data below. There is no graphic representation of the field business relation because during the data analysis the author recognized the fact that all available data were in the same business field.

Additionally, to have a better understanding of the figures and the approach of the secondary analysis of the 68 teams, the total overviews are briefly presented here. The first illustration (Illustration 11) represents the fluctuation rate which appears to be low with the exception of one team. It could be possible to ignore this one data point as an outlier in the sample study.

Illustration 11: Total Overview of 68 Teams - Fluctuation

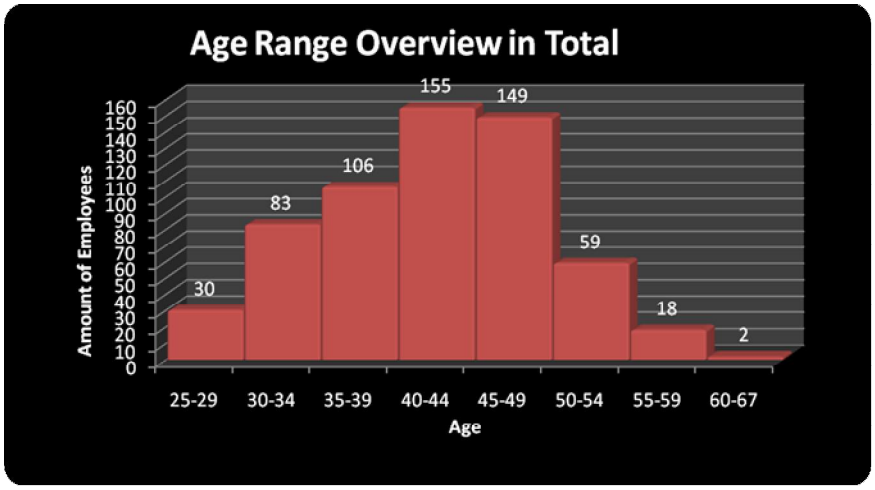


	Team 1	Team 2	Team 12	Team 14	Team 15	Team 41	Team 42	Team 45	Team 49	Team 50	Team 53	Team 54	Team 62
Leave	-1	-2	0	0	-18	0	-2	-2	-1	-3	-2	-2	-3
Entry	+1	+1	+0	1	2	0	0	0	0	1	0	0	1

Source: Author – overview of fluctuation in numbers of the people in the teams of the population in the secondary analysis

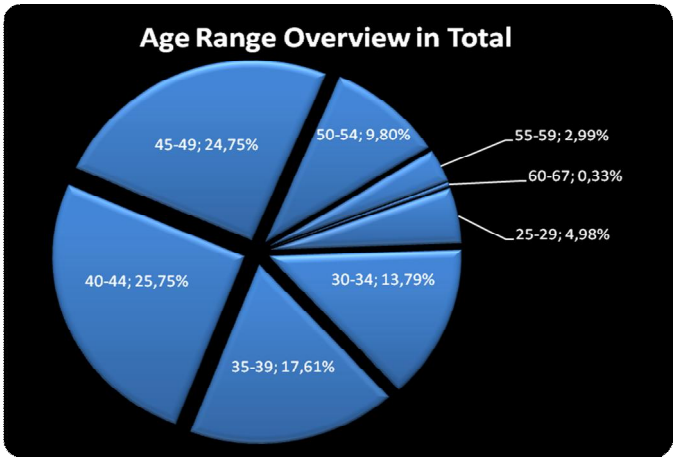
Furthermore, the author tried to determine if it were possible to link the data via the overview to the designed hypotheses. The age range was reviewed in a total perspective, so that the allocation is shown over the empirical population of 602 individuals in 68 teams. The population looks like a normal distribution with the high center in ages between 40-50 years. By reviewing these figures it can be concluded that the sales population has a wide age range distribution. However, around 50% of the employees are at least 40 years of age, which could indicate that the company has a lack of behavior in younger mind-sets (Illustration 12 and Illustration 13). The author concludes that the population is good for the hypotheses test due to the wide age range because the author also links it to the behavior, the dimension of team behavioral personality, which triggers the age range the hypothesis that the higher the age range in the team, the higher the Team Performance will be. The author concludes that the salary rate and revenue achieved would need to be approximately high even though there was a financial crisis because of the age and relative experience of the sample population.

Illustration 12: Total Overview of 68 Teams – Age Range – Numbers Allocation



Source: Author – overview of the age range in number per employees in the population of the secondary analysis

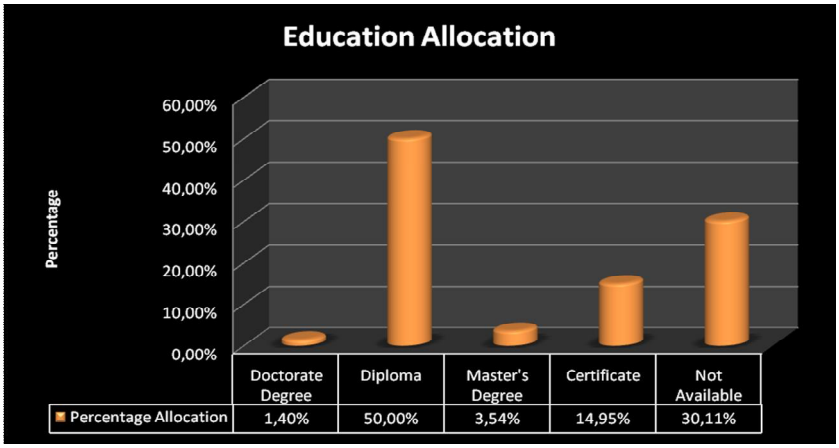
Illustration 13: Total Overview of 68 Teams – Age Range – Percentage Allocation



Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.4

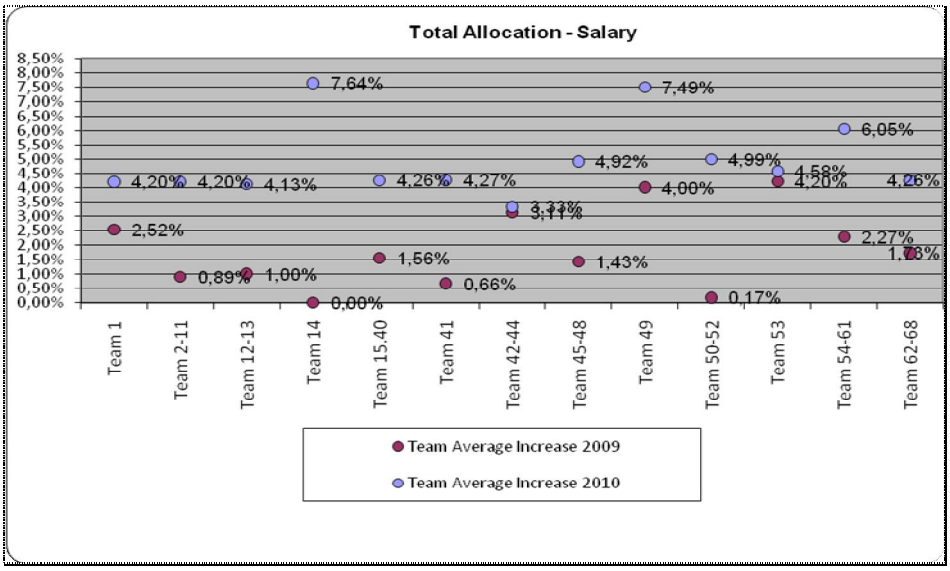
As the same behavioral personality cluster includes the educational perspective, the author would like to point out that it is a valuable criterion to focus on because of the level of educated people in the sample. The following chart shows the level of total education status as well as the number of participants for whom the status remained unknown. The educational level overall is around 70%. $H_{y2TBP:}$ The statement that the higher the level of education in the team, the higher Team Performance could be, could still be valid. Therefore the author concludes that the population is a valuable environment to test the hypothesis.

Illustration 14: Total Overview of 68 Teams – Education – Percentage Allocation



Source: Author – overview of the education allocation of the 68 teams of the secondary analysis

Illustration 15: Total Overview of 68 Teams – Salary – Percentage Allocation

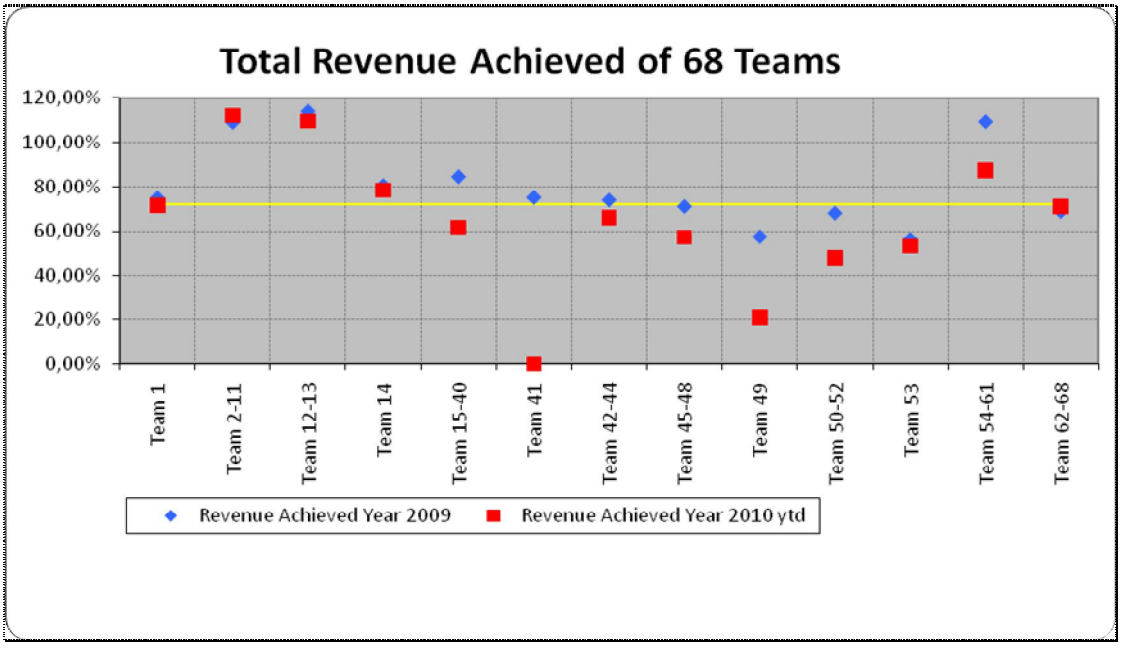


Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.4

By reviewing the salary allocation over the last two years (Illustration 15), the charts were defined with specific team clusters that were sales-related. The result shows data indicating that, even in 2009, the year of the crisis, salary increases were still positive and they were strong in 2010. The acquired has given the author the opportunity to define a productivity rate and later on to match this with the hypotheses indicators and their measurements. The author concludes that the allocation data is valuable for analyzing the hypotheses.

In addition, the next chart explains an overview of the revenue achieved (Illustration 16) within the last two years by the same clustered teams. Based on this additional data, the productivity rate can be calculated and correlated with the behavioral hypothesis measurement indicators to analyze a possible link between them.

Illustration 16: Total Overview of 68 Teams – Revenue Achieved

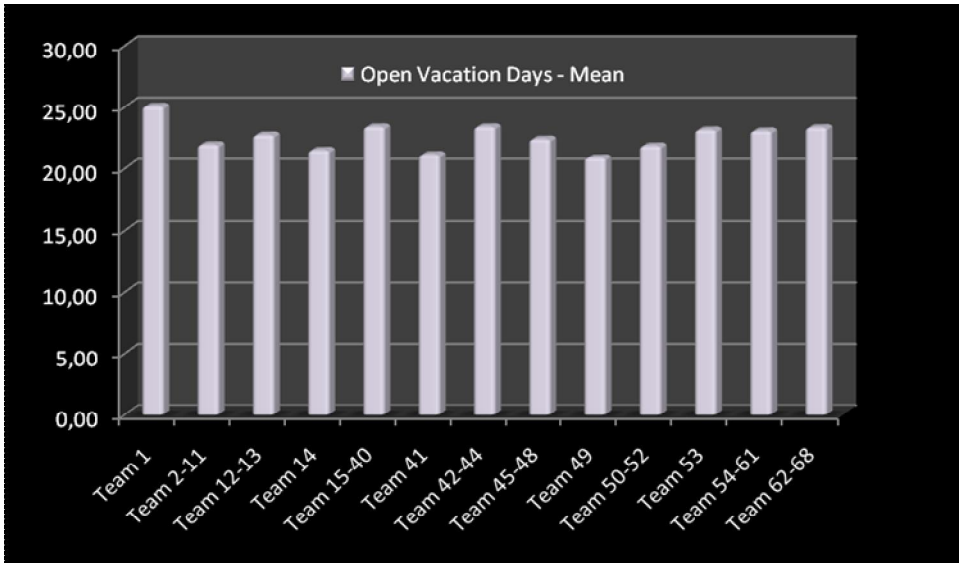


Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.5

Finally, the total overview of the open vacation days was calculated by the author by means of information obtained from the teams and incorporated into the cluster to provide a targeted overview of the total for the teams. The hypothesis in the team dimension was: H_{y2TB} The higher the number of vacation days not taken, the higher the Team Performance will be. The chart (Illustration 17) shows that the open vacation day number is above 20, which can be considered high. The high salary increase and the high revenue achievement linked to the high number of open vacation days could be a positive indicator for the hypothesis in the team dimension.

The link to team heterogeneity is shown by the author and presents the international experience linked to the behavior dimension of Team Trust, which states the hypothesis that the higher the heterogeneity, the higher the Team Performance will be. The overview (Illustration 18) displays a narrow internationalization as approximately one-third of all surveyed participants had international experience and 76% had no international experience at all. The author concludes that the outcome of the hypothesis when correlated to the secondary analysis has to be analyzed carefully so as not to prematurely discard the hypothesis due to a skewed bias from the sample population used

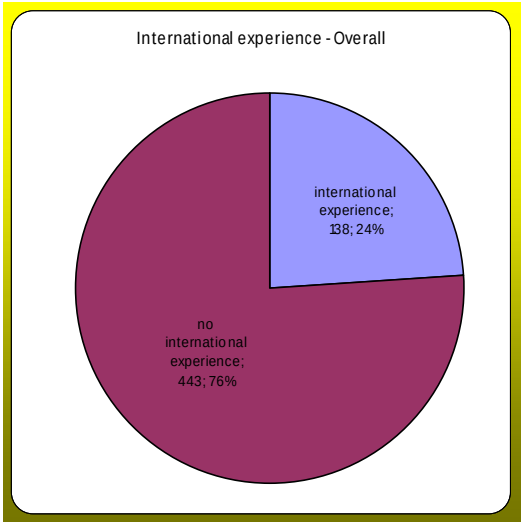
Illustration 17: Total Overview of 68 Teams – Open Vacation Days



Source: Author – overview of the open vacation days by the 68 teams in the secondary analysis

In conclusion, by reviewing the first figures and graphs of the Secondary Analysis and the linking them to the hypothesis, the author suggests that there is a good probability of valuable empirical result analysis. The data gathered from the 68 teams reflects enough information of the basic population to analyze in the next step and thus determine if there is a link to Team Performance and the defined hypotheses proposed in the present work.

Illustration 18: Total Overview of 68 Teams – International Experience



Source: Author – overview of international experience of the 68 teams of the secondary analysis

Based on the previous overviews of the first results of the secondary analysis and the first links to the hypotheses, a more detailed link was established by the author to the indicators and measurements of this dissertation and its hypothesis. The following table provides a detailed overview and linkage based on the hypotheses and defined measurable indicators by means of points for each team as well as a reflection on the own defined calculated productivity rate.

Illustration 19: Point Overview base is the Hypothesis Measurements & Indicators

Team	Heterogeinity	Age Range	Education	Diversity Index	Open Vacation	Fluctuation Rate	Business Relation	Hypothesis Points	Productivity Rate
Team 1	3,75	4	14,5	1	3	1	4	**31,25**	24,68
Team 2	0,75	4	13	2	3	0	4	**26,75**	33,90
Team 3	1	4	8,5	2	3	0	4	**22,5**	53,90
Team 4	0,75	4	5,5	2	3	0	4	**19,25**	24,70
Team 5	1,25	4	8	1	3	0	4	**21,25**	81,90
Team 6	1,25	4	7,5	1	3	1	4	**21,75**	37,00
Team 7	0,25	4	5,5	1	2	-1	4	**15,75**	24,40
Team 8	1	4	6,5	1	2	-1	4	**17,5**	21,70
Team 9	1	4	5	1	3	0	4	**18**	27,80
Team 10	3	4	4,5	1	3	0	4	**19,5**	26,00
Team 11	0	1	5	2	3	0	4	**15**	22,20
Team 12	0	4	1,5	1	3	0	4	**13,5**	23,10
Team 13	0,25	4	14	2	3	0	4	**27,25**	25,90
Team 14	0	3	4	3	3	1	4	**18**	30,40
Team 15	0,25	4	13	2	3	0	4	**26,25**	12,00
Team 16	1	4	8	2	3	-1	4	**21**	22,80
Team 17	0	4	4	2	3	-1	4	**16**	46,70
Team 18	1	4	10,5	1	3	0	4	**23,5**	24,20
Team 19	0,75	4	12	1	3	-3	4	**21,75**	6,70
Team 20	0	4	1,5	3	3	0	4	**15,5**	-6,28
Team 21	0,25	4	8,5	2	3	0	4	**21,75**	16,90

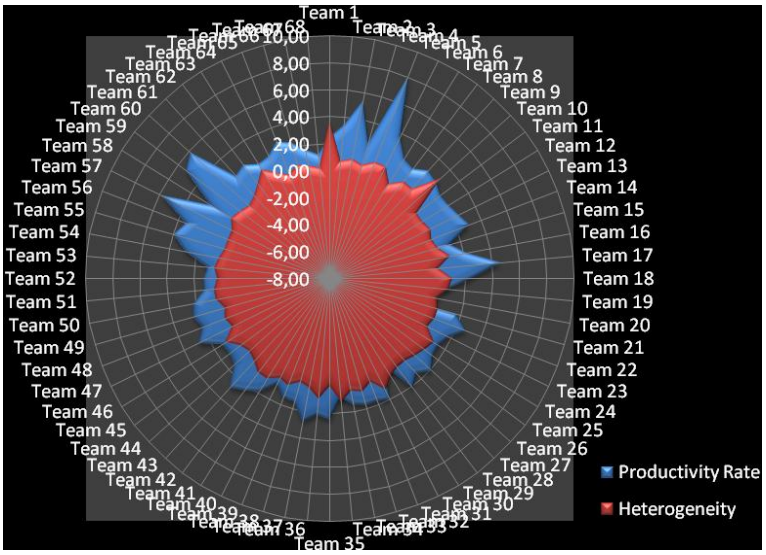
Team 22	0,25	4	2	1	3	0	4	**14,25**	27,70
Team 23	0	4	8	1	3	0	4	**20**	17,70
Team 24	1	4	16,5	1	3	-3	4	**26,5**	14,10
Team 25	0,75	4	4,5	1	3	0	4	**17,25**	15,10
Team 26	0,5	4	9	1	3	0	4	**21,5**	21,40
Team 27	0,25	4	6	1	2	-1	4	**17,25**	14,80
Team 28	0,25	4	6	1	3	1	4	**19,25**	21,50
Team 29	0,5	4	9	1	3	-1	4	**21,5**	-0,44
Team 30	1,25	4	7,5	2	3	0	4	**21,75**	20,00
Team 31	0,25	4	7,5	1	3	0	4	**19,75**	17,30
Team 32	0,75	4	7	1	3	-1	4	**18,75**	17,30
Team 33	0,5	4	10	1	3	0	4	**22,5**	14,90
Team 34	1,25	4	10	2	3	-1	4	**23,25**	8,40
Team 35	0	4	4	1	3	0	4	**16**	24,40
Team 36	1	4	17	1	3	-2	4	**28**	21,40
Team 37	0,25	4	4,5	1	2	-1	4	**14,75**	27,90
Team 38	0	4	4,5	1	3	0	4	**16,5**	15,00
Team 39	0,5	4	8,5	1	3	-1	4	**20**	14,30
Team 40	0,25	4	8	1	3	0	4	**20,25**	7,10
Team 41	0,75	4	5,5	3	3	0	4	**20,25**	18,60
Team 42	0,75	4	5	2	3	-2	4	**18,75**	23,90
Team 43	0,25	4	4,5	1	3	0	4	**16,75**	29,20
Team 44	0	1	2	1	3	0	4	**11**	14,60
Team 45	0,25	4	8	3	3	0	4	**22,25**	12,20
Team 46	1	4	8	1	3	0	4	**21**	12,70
Team 47	0	3	3,5	1	3	-1	4	**13,5**	27,60
Team 48	0,25	4	5,5	1	3	-1	4	**16,75**	20,00
Team 49	0	4	2	1	3	-1	4	**13**	21,70
Team 50	0,5	3	2,5	2	2	-2	4	**12**	21,70
Team 51	0,5	3	5,5	1	3	-1	4	**16**	12,40

Team 52	0,25	4	4,5	2	3	1	4	**18,75**	12,60
Team 53	0,5	4	10,5	3	3	-2	4	**25**	9,80
Team 54	0,25	4	6	1	3	0	4	**18,25**	27,50
Team 55	0	4	3,5	1	3	0	4	**15,5**	39,40
Team 56	0	3	1,5	1	3	0	4	**12,5**	33,20
Team 57	0	4	1,5	1	3	0	4	**13,5**	58,00
Team 58	0,5	4	8	2	3	0	4	**21,5**	23,00
Team 59	0,25	4	6,5	2	3	-1	4	**18,75**	52,00
Team 60	0	4	7	1	3	-1	4	**18**	58,30
Team 61	0,25	4	6,5	1	3	0	4	**18,75**	22,60
Team 62	0,75	4	14,5	1	3	-2	4	**25,25**	25,20
Team 63	1,5	4	14	1	3	0	4	**27,5**	19,40
Team 64	0,75	4	11	2	3	0	4	**24,75**	21,00
Team 65	0,25	4	4,5	1	3	0	4	**16,75**	28,40
Team 66	0,75	4	6,5	1	3	0	4	**19,25**	24,40
Team 67	0,5	4	12	1	3	0	4	**24,5**	16,90
Team 68	0,25	4	3	1	3	0	4	**15,25**	12,10

Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.6

By reviewing these indicators linked to the hypotheses, the author has come to the following conclusions. In the cluster behavior, the dimension of Team Trust with the hypothesis H_{y1TT}: The higher the heterogeneity, the higher the Team Performance will be, the analysis is summarized. Considering the productivity rate with the mathematical and technical support by dividing PR by 10 to make it comparable in a graph, the author can conclude that there could be a linkage, because the heterogeneity (red) is centered on the PR (blue) in the graphic summary of the data. The shape does not fully align, so PR = H is not true, but PR ≠ is also not true. Overall, the author concludes that there is a positive correlation between the two because of the H inside PR and therefore continued research on H_{y1TT} will be conducted.

Illustration 20: Heterogeneity and Productivity Rate Intersection View

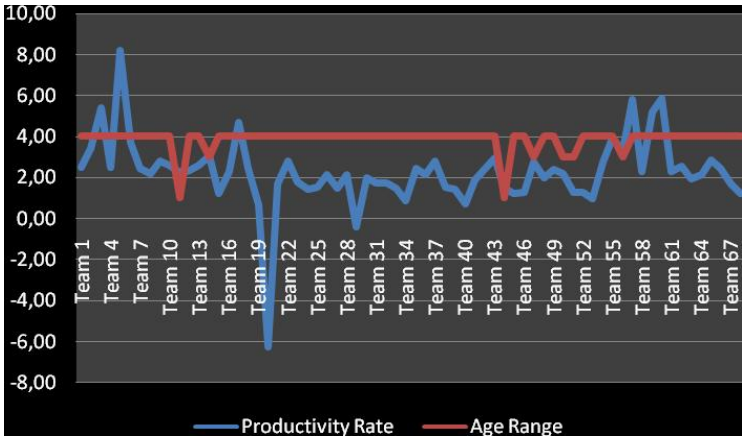


Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.6

The secondary analysis has provided the following result for H_{y2TT}: The higher the correlation between knowledge and interests of people in the same business field, the higher the Team Performance will be. All teams were in the same business field of sales, all had similar backgrounds and similar interests, and all teams studied had the same business-related clusters thus, based on the indicators, there were no measurable differences. The hypothesis did not indicate any input to determine Team Performance in relation to behavior and therefore the data will not be explored any further within the scope of the present work.

The next dimension Team Behavioral Personality H_{y1TBP}: The higher the age range in the team, the higher Team Performance will be, was also analyzed. In general it was found that the age range did not have a great impact in the evaluation because the existing teams in the secondary analysis have a broad AR in total so there were no outliers that could have served as a basis for comparison (Illustration 21). It is interesting to note, that these results differ from those observed in the Pre-Test as in that instance, the teams with the highest age range were the top two teams. In this critical view and the result obtained, the author recognizes that the age ranges were generally broad but overall, with the total amount of team members in a closer age range, the hypothesis should be retained, and possibly modified appropriately.

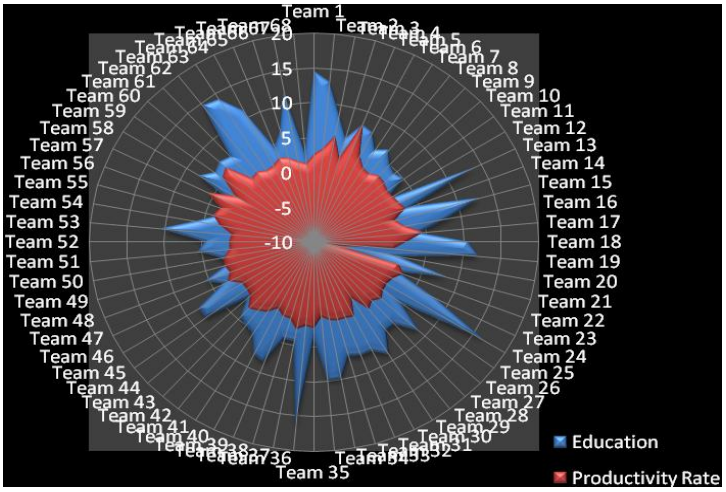
Illustration 21: Age Range and Productivity Rate Intersection View



Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.7

The hypothesis H_{y2TBP}: The higher the level of education in the team, the higher Team Performance will be, was also analyzed. The author found out that based on the indicator review, and also on the total overview that has already been provided, there might be a link between the high education level of at least 70% with the above average levels observed in terms of revenue and salary increases. Moreover this was markedly apparent in some teams, for example: teams 3–4, team 19–22, teams 29–31, team 43, and teams 59–60 (Illustration 22). As a result of the secondary analysis, the author concludes that education level should be considered when determining Team Performance in relation to behavior. Productivity rate lies in the field of education. The author cannot state PR=Ed, PR≠Ed, but is able to state that there could be a linkage, and therefore this is further investigated in the present work.

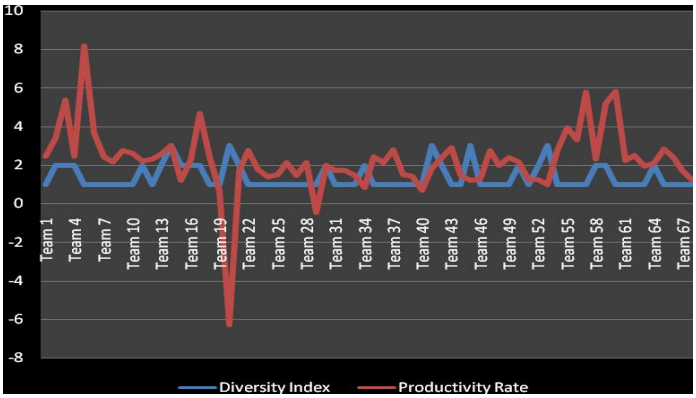
Illustration 22: Education and Productivity Rate Intersection View



Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.7

The cluster behavior in the dimension Team Behavior was also checked in the secondary analysis H_{y1TB}: The higher the diversity index in a team, the higher the Team Performance will be. Based on the results shown (Illustration 23), a weak correlation in support of the hypothesis can be identified. Interestingly, the diagram below shows opposite trends. Based on this observation, the author is currently unable to state whether or not this hypothesis is valid. Of course, there are minor tendencies in pairs, e.g., teams 1–3, teams 13–14, teams 40–42, but also opposite measurements, e.g., team 5, teams 19–22, team 34, and team 53. Furthermore, based on the overall figures, the author defines that the population in general does not seem to be diverse. Thus, the author proposes to keep this hypothesis and focus again in the research methodology of the survey and on the validation process. The author is of the opinion, based on the described literature review, that while the diversity index is often discussed there is not always clear direction when attempting to measure diversity.

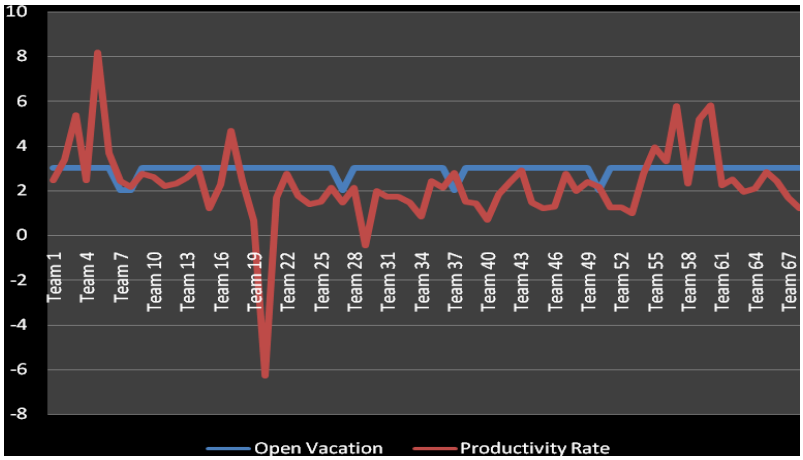
Illustration 23: Diversity Index and Productivity Rate Intersection View



Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.8

The result for the hypothesis of H_{y2TB}: The higher the amount of vacation days not taken, the higher the Team Performance will be, showed a minor correlation to the expected result because most of the participants surveyed over the last two years had a large amount of vacation remaining, with an average above 20 days and a maximum of 30 days. Generally, the author concludes that the high amount of open vacation days indicates the high productivity rate of the organization, but based on the findings this cannot be seen to have been conclusively proven. There are some team fittings aligned with PR, e.g., teams 7–8, team 14, teams 24–28, team 43, team 50, team 54, but the mismatches by team 2, team 5, teams 16–17, team 20, team 29, teams 40–42, and in the team 50 region are still significantly high. To sum up, the author sees a possibility of a validly proven hypothesis, but the evidence at this stage is not fully conclusive. It might be a determination of Team Performance in relation to behavior with less likelihood of possible acceptance.

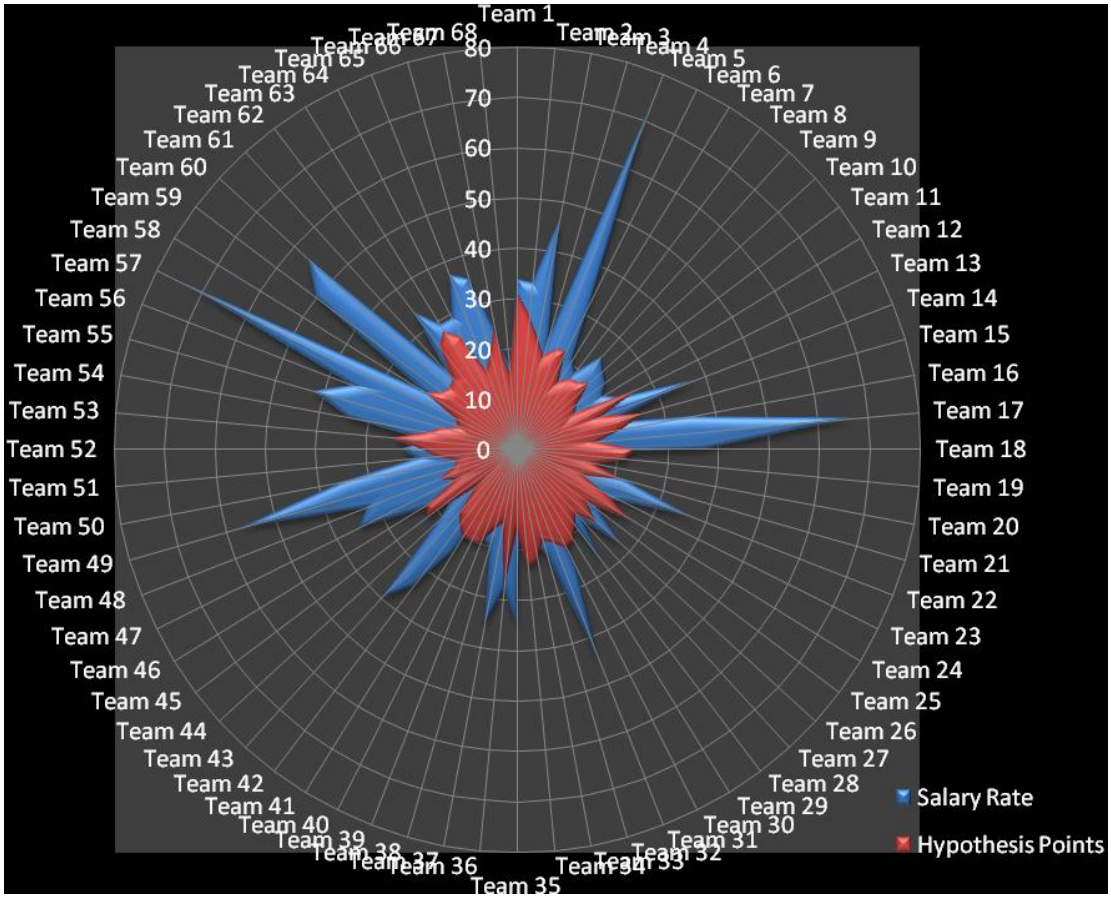
Illustration 24: Open Vacation Days and Productivity Rate Intersection View



Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.8

In summary, the author concludes that the most significant contribution in this analysis was derived from heterogeneity, level of education, low diversity, and a low fluctuation rate. Lastly, by reviewing and analyzing the results, there seems to be a question regarding overlap, and if so, then the question arises regarding how an intersection between the hypothesis indicators in summary and the productivity and/or salary rate appears. By comparing and reflecting on how the empirically researched data in the behavior context shows an intersection between the fact-based productivity or salary increase, which usually happens based on performance achievement, it might deliver a valuable outcome. Therefore, the author reviewed the data and designed two figures with the results obtained. One figure shows the hypothesis indicator results and the salary mean results of all 68 teams (Illustration 25), and the other shows the hypothesis indicator results and the productivity rate (Illustration 26).

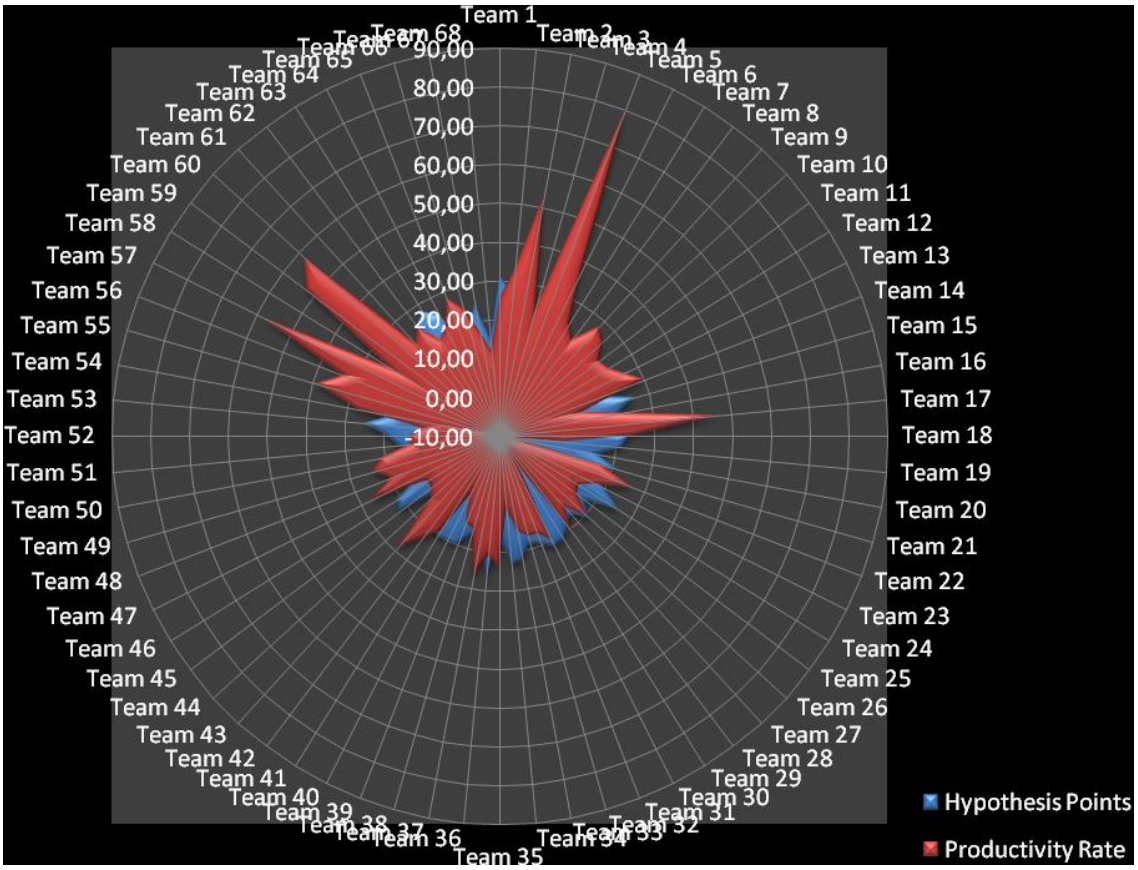
Illustration 25: Hypothesis Indicators and the Salary Intersection View



Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.9

Based on this result, the author concluded that the hypothesis indicators fit mainly into the framework of the salary rates. From the summarized data, it can also be concluded that the central overlap seems to be rather high, but that the extreme salary increases are not covered by the hypothesis indicators. In addition, the results of the hypothesis indicators, which represent the measurable behavior indicators, also show some extremes that the same trend as was observed in the salary rate picture. Examples of this include: teams 1, 4, 8, 9, 14, 18, 26, 32, 36, 42, 48, 57, 63, 64, and 65. Other examples show larger differences, such as those observed for teams 13, 23, 17, 24, 30, 34, 45, 46, and 53.

Illustration 26: Hypotheses Indicators and the Productivity Rate Intersection View



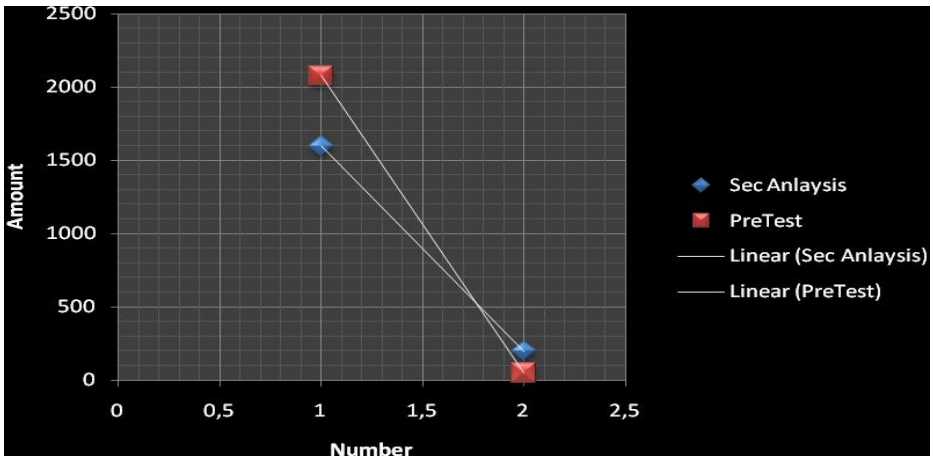
Source: Giesa, Andreas Michael, A Secondary Analysis in Team Performance under the determine of behavior in a Software Population, The Journal of American Academy of Business, USA, December 2011, p.9

Reviewing the graph above (Illustration 26) with respect to the productivity rate, the author also can state that there is an intersection because only blue colored spots indicate the fields not covered. Despite the fact that there are fields which do not match in some teams the rate of intersection in general can be regarded as high. Thus, at this stage of measuring Team Performance, the focus of the research is only on the behavioral perspective and all other determinants of Team Performance were not reviewed by the author and thus not covered in the pro rata analysis. It can thus be concluded that the data overlap is high and it appears that behavior has a measurable impact on reflection of the productivity rate and salary rate.

The author summarizes that by reviewing and analyzing this secondary analysis and linking it to the results of the Pre-, the hypotheses with the defined indicators generally show an intersection and influence in determining Team Performance in relation to behavior.

The empirical secondary research analysis shows measurable overlaps and outlines behavioral impact on Team Performance. Key determinants of Team Performance might be heterogeneity and education; medium determinates of Team Performance in relation to behavior might be age range, diversity index, and determinants of business relations that do not require any further analysis, while open vacation days seem to play a minor role in determining Team Performance in relation to behavior. One critical aspect in this secondary analysis is the different sizes of the teams, even though the average team consisted of 8.8 individuals; however there were larger and smaller teams and in general, a statistically relevant sample of 602 individuals was evaluated. The author concludes that the secondary analysis reflects the results of the Pre-Test with respect to variations in diversity and age range. In addition, the secondary analysis was found to be a valuable empirical research tool for analyzing the trends of the hypotheses and allowed for a review of the variables and their influence on Team Performance with determinants of behavior. In reflecting on the Pre-Test, the author formulated the function TP = f(TPr, Vr); f (AR,Ed,H,DI,FR) + (BR) and TP_{sum} = f(2079, 48); f(13,21,2,5,0)+(2). In a review of the secondary analysis, the author formulated the function TP = f(TPr, Vr); f (AR,Ed,H,DI,FR) + (BR) and TP_{sum} = f(1599, 199); f(261,483,38,95,-27)+(272). Looking at both functions, the question appears to be in which ways are they comparable, and if there is a possibility to identify parallels. Based on this, the following two figures (Illustration 27 and Illustration 28) were drawn from the data. First a view of the first part of the TP function (TPr, VR) and the second function (AR,Ed,H,DI; FR) + (BR).

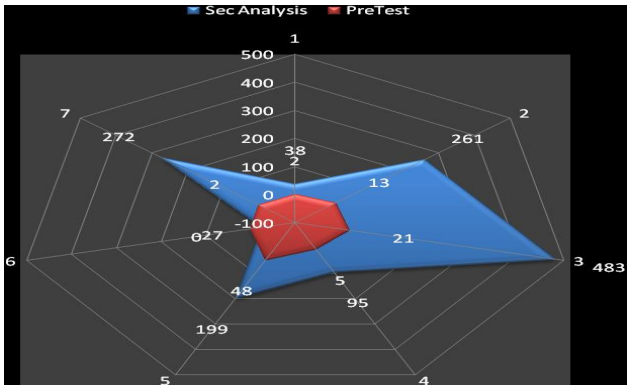
Illustration 27: The view of f(TPr, VR) by PreTest & Secondary Analysis



Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under influence of behavior – validated in a European Environment, Latvia, May 2012, p.223

By comparing the two TPr or even the Vr, parallels can be identified. Of course, it must be clarified that the values diverge due to the differences in the population numbers, but a parallel tendency can be seen regardless. The thin white line is only shown to outline the parallels. In reviewing the following figure (Illustration 28), the author indicates that the Pre-Test covers the aspects of the secondary analysis and vice versa; however, the Pre-Test has not delivered the extreme outcomes that form part of the secondary analysis.

Illustration 28: The view of f (AR,Ed,H,DI,FR) + (BR) by PreTest & Secondary Analysis



Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under influence of behavior – validated in a European Environment, Latvia, May 2012, p.223

The author thus concluded that the Pre Test and the Secondary Analysis drive the current research when using the defined hypotheses for determinants of Team Performance in business organizations, together with the theoretical background and the evaluated empirical evidence in a specified context of behavior. The links via the measurable indicators lead to a new and interesting perspective of team behavior in business. In order to further build on the data presented thus far, an empirical evaluation of a Team Performance Survey in this sales population to measure the TP, including the relationship of behavior was conducted, the results evaluated and comparedto the Pre-Test and Secondary Analysis.

3.2 Analyzing the Team Performance Survey including the determinants behavior

The motivation for conducting the survey was to evaluate Team Performance with the determinant of behavior in a software sales and service business environment, for a sample population of approximately 840 individuals in Germany. The key aspect of the Team

Performance survey was the cluster of behavior. In this cluster the author embedded the key questions directly linked to the hypothesis, which is shown in Annex N.3, while the full details can be found in appendices. In order to check if the survey was designed correctly, the author carried out a pre-test randomly as described in the following section (Illustration 29 and text).

Illustration 29: Survey Questions focusing on behavioral extract

Cluster Team Trust:

- Team members trust each other.
- Team members with different nationalities add value to the team performance.
- Team members with different experiences (e.g. experiences living abroad) lead to a greater trustfulness within the team
- Team members with different experiences (e.g. experiences living abroad) lead to a better performance.
- Teams with different cultural backgrounds are more communicative with each other.

Cluster Behavior in Teams:

- Team members know who in the team behaves more introverted.
- Team members know who in the team behaves more extroverted.
- Team members care less about vacation days, but are more interested in increasing the team performance.
- Team members know the value each team member adds to the team and they appreciate each other's strength.
- Team members know how a team member will act/react in specific situations.
- Teams with mixed-gender (women and men) lead to better results.

Cluster: Team Behavior Personality:

- Team members have an understanding of their colleagues.
- Teams with a wider age range lead to a better performance because overall they are more experienced.
- Team members know who in the team has a more chaotic and imaginative working style.
- Team members are open to share experiences and colleagues appreciate this.

- Team members know who has a more softhearted and helpful personality.
- Teams with a high educational level lead to higher performance results.

General Question to the Cluster Behavior

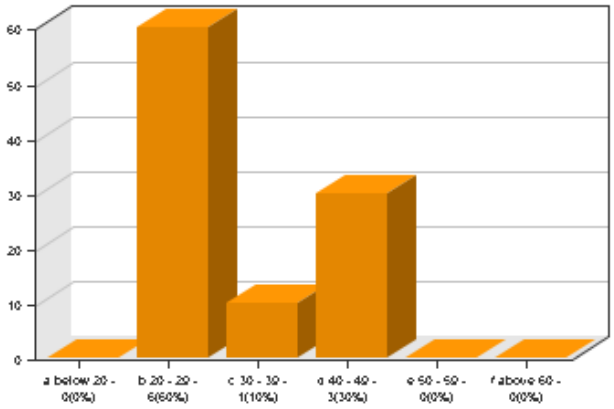
- Team Performance increases by knowing more about the behavior of the others.

Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.5

The Pre-Test of the survey to evaluate Team Performance with the determinant of behavior was carried out between October 27th, 2010 and November 2nd, 2010 and the feedback received was used to adjust the survey before starting the final survey from November 10th, 2010 to November 26th, 2010. The selected sample population was the same as the one for the Pre-Test of hypothesis and the Secondary Analysis; however the author expanded the population to a total of 840 participants. The survey is shown in Annex N.3 and was designed based on the theoretical description given in the previous chapter, with the reason for a five scale evaluation. In addition, the questions asked in the survey were based on the theoretical designed Team Performance model with the determinant behavior. The most important question is at the end of the survey, which links to the five hypotheses that are under empirical test.

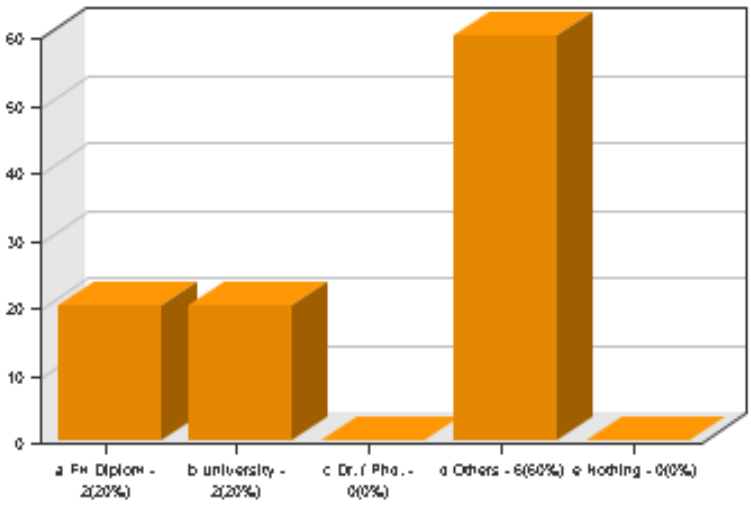
The Pre-Test of the survey by the author was conducted on ten randomly chosen individuals of the defined population that were asked to answer the survey within a defined time period. The answers were evaluated on a five point scale (1=does not apply (color: red) to 5=fully applies (color: green)). The Survey Pre-Test measuring Team Performance, including the determinant of behavior and its focus on it resulted in 100% participation. During the evaluation of the results, the author concentrated on the aspect of behavior and the question linked to the hypothesis. At the beginning, the author presents the result first in a generic overview of the participants with respect to their frequency and allocation of age range, education, residence abroad and open vacation days in 2010 to show the data quality overall and data foundation to measure Team Performance including the determinant behavior in form of a survey (Illustrations 30-33).

Illustration 30: Distribution of participants' age in Survey Pre-Test



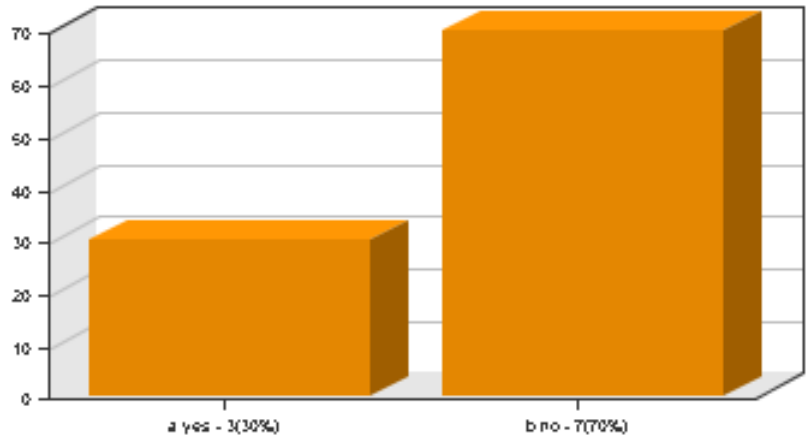
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.5

Illustration 31: Distribution of participants' education in Survey Pre-Test



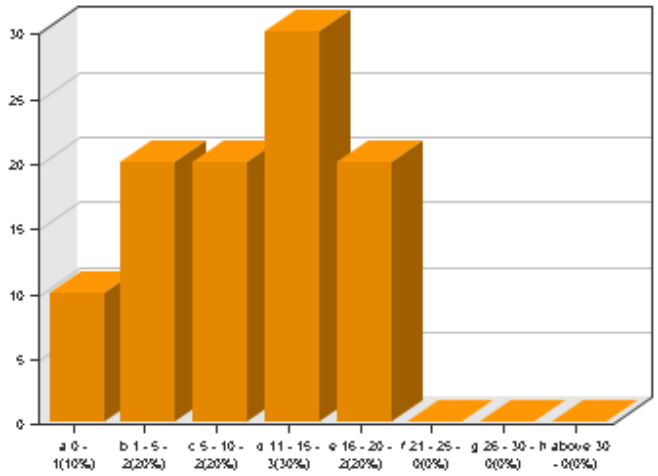
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.5

Illustration 32: International experience of participants in Survey Pre-Test



Source: Author, results of the participants living abroad experience of the Survey Pre-Test

Illustration 33: Allocation of participant's open vacation status in Survey Pre-Test



Source: Author, results of the allocation of open vacation status by the participant's of the Survey Pre-Test

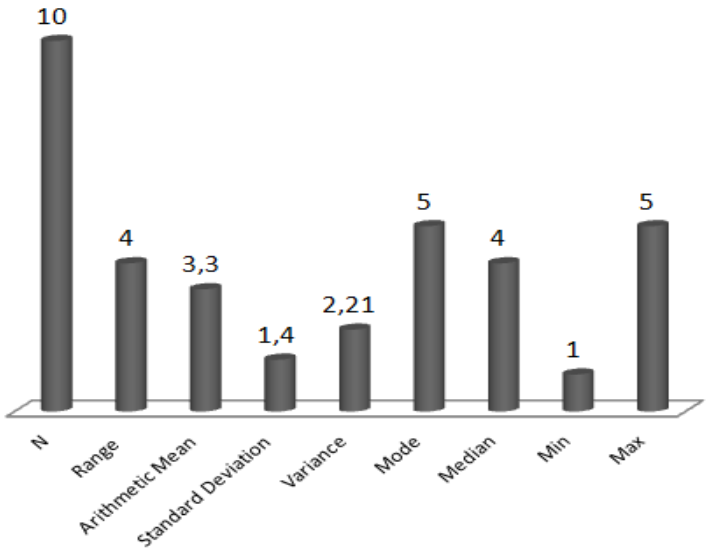
At The evaluated Pre-Test population has an age-range of between 20 to 49 years. 100% of the participants have an education with 40% having a bachelors degree or higher. The majority has no experience living abroad (70%) and the team surveyed had at least 50% of the participants having more than 11 open vacation days in November 2010. The randomly chosen population for the Pre-Test delivers a broad data quality, leading the author to conclude that the survey was suitable for use on the population to be studied, and that it will yield valuable data.

The following focus on the result evaluation will concentrate on the eight key questions in the cluster behavior that are linked indirect/directly to the hypothesis: 1. TM with different nationalities adds value to the team's performance (H_{y1TT}). 2. TM with different experiences

(e.g. experiences living abroad) lead to greater levels of trust within the team (H_{y2TT}). 3. TM with different experiences (e.g. experiences living abroad) lead to a better performance (H_{y2TT}). 4. TM care less about vacation days, but are more interested in increasing the team performance (H_{y2TB}). 5. Teams with mixed-gender (women and men) achieve better results (H_{y1TB}). 6. Teams with an older age range lead to a better performance because they are more experienced (H_{y1TBP}). 7. Teams with a higher educational level achieve higher performance results (H_{y2TBP}). 8. Team Performance increases by knowing more about the behavior of the others (H_{y0}).

H_{y1TT} means the evaluation of team members with different nationalities adds value to the team's performance. The allocation of the evaluation is illustrated by including statistical key figures. A key result obtained from the survey was that in 50% those surveyed indicated that team members with different nationalities add value to Team Performance, even though in this population only 30% have experience living abroad.

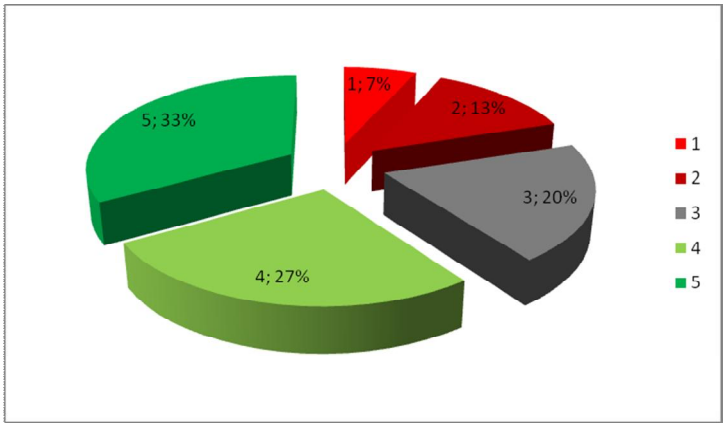
Illustration 34: Key Figures of …nationalities adds value to TP by Survey Pre-Test



Source: Author - results of key figures if different nationalities add value to TP by the Survey Pre-Test

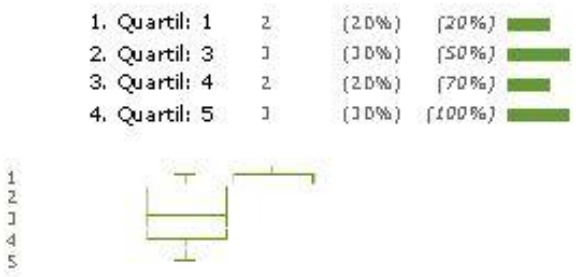
Illustration 34 above delivers key figures that show a 100% participation, range of 4 with the arithmetic mean above average. However, the range is from 1 to 5 and a standard deviation of 1.4 with a variance of 2.2 delivers a critical aspect in the small population, even though the trend can be understood as supportive into the hypothesis.

Illustration 35: Allocation …to nationalities adds value to TP of Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.8

Illustration 36: Quartile Distance Overview



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.8

Based on the figures, allocation and quartile analysis (Illustration 36) it can be concluded, based on the data obtained in the Survey Pre-Test that the question of whether or not team members of different nationalities / living abroad experiences

H_{y1TT} means that team members with different experiences (e.g. experience in living abroad) achieve greater levels of trust within the team. Team members with different experiences (e.g. experience in living abroad) achieve better performance. The evalution of the experiences was conducted by the author by asking two questions in the cluster of behavior. The data was analyzed in a combined focus so that correlation between factors could easily be

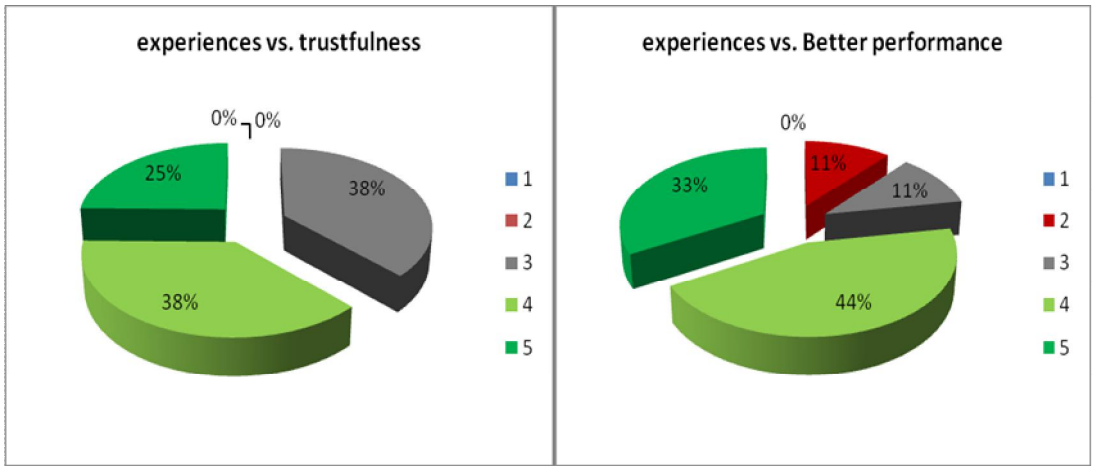
detected. The author had already concluded based on the results that the opinion of the Pre-Test population delivers a clear observation that team members with different experiences have an impact on levels of trust and a better Team Performance. The figures and comparison overview in Illustration shows 100% participation, a low range of 2 or 3, a high arithmetic mean by rounded 4, low standard deviation and low variance. The author is thus able to sum a strong support in the defined hypothesis.

Illustration 37: Key Figures of …experiences… by Survey Pre-Test

	experiences vs. trustfulness	experiences vs. Better performance
N	10	10
Range	2	3
Arithmetic Mean	3.875	4
Standard Deviation	0.78	0.94
Variance	0.61	0.89
Mode	3	4
Median	4	4
Min	3	2
Max	5	5

Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.9

Illustration 38: Allocation of …experiences… by Survey Pre-Test

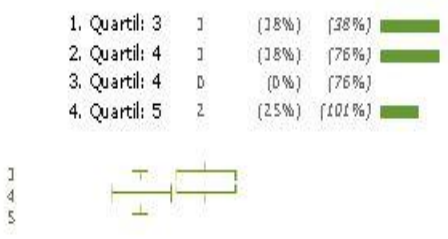


Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.9

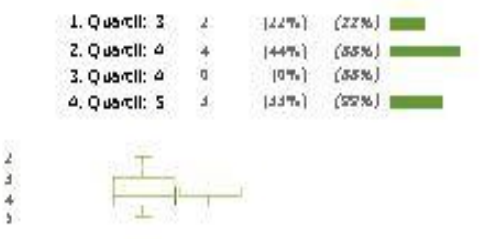
In the above figures (Illustration 37 and Illustration 38) it can be noticed that in the figure of experiences vs. trustfulness, there is 0% for evaluation steps in scale 1 with respect to both criteria. In figure experiences vs. better performance one scale with 0%. In general, roughly 63% of persons surveyed described that team members with different experiences lead to a greater trustfulness in teams and almost 77% state that including such persons in a team leads to a better Team Performance.

Illustration 39: Quartile Distance Overview to …experiences… by Survey Pre-Test

experiences vs. trustfulness



experiences v. Better performance

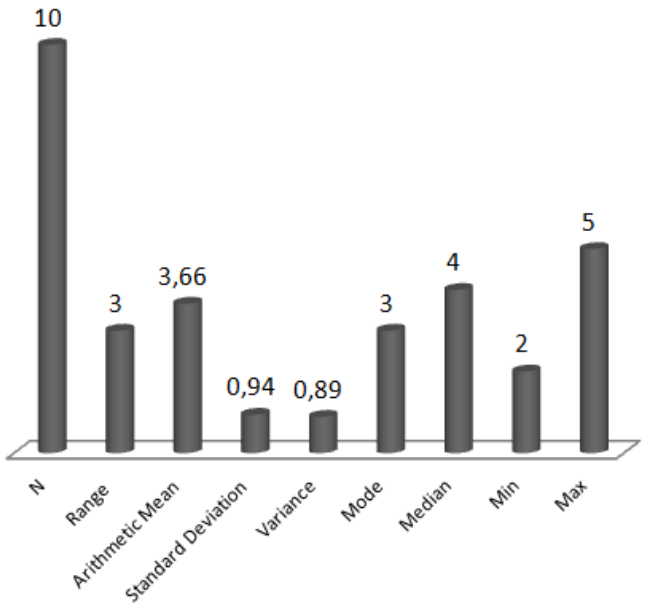


Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.9

The author concludes based on the key figures, allocation and the box blog / quartile analysis, the Pre-Test population delivers a clear indication that different experiences might have an impact on Team Performance.

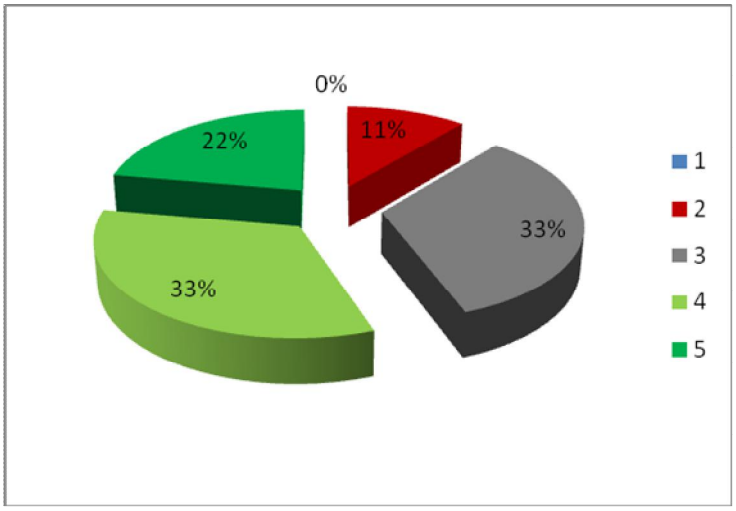
H_{y2TB} means team members care less about vacation days, and are rather more interested in increasing the team performance. The analysis of whether a team performs better by caring less about of open vacation days is shown below (Illustration 40 and Illustration 41). The result shows a standard deviation of less than 1.0 and in the allocation level 1 is not used. However, the allocation shows a broader range, which is also presented by quartile analysis that focuses on the range of 3-4. It is also shown by the key figures of an arithmetical mean of 3.66. In addition, the author also outlines the minimum starting at 2 and not at 1, so that the range is also limited to 3, based on the result of the Pre-Test.

Illustration 40: Key Figures of …open vacation days… by Survey Pre-Test



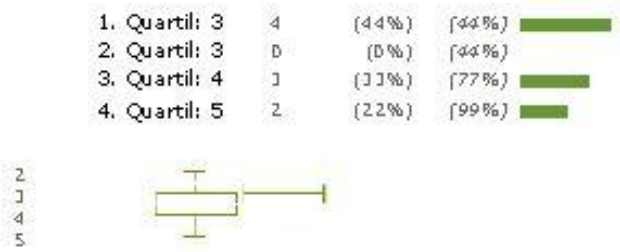
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.10

Illustration 41: Allocation of …open vacation days… by Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.10

Illustration 42: Quartile Distance Overview to ..open vacation days.. by Survey Pre-Test

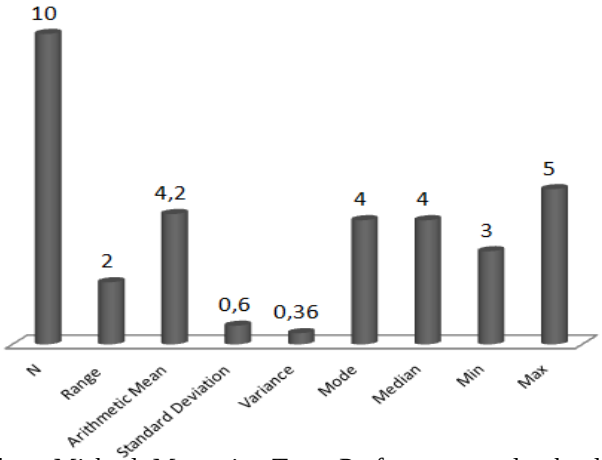


Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.10

The question regarding the effect of the open vacation days on Team Performance did not provide a conclusive result because there are 44% that are in quartile 3 and 55% in total in quartile 4 and 5. The author thus proposes that this is due to the small number of participants in the Survey Pre-Test. More clarity is needed to have an observable trend displayed, and therefore more data is definitely necessary. H_{y1TB} means Teams with mixed-gender (women and men) lead to better results. The result obtained here appears to deliver a clear trend in the Pre-Test Survey as indicated by a standard deviation of only 0.6, a median of 4 and a range of only

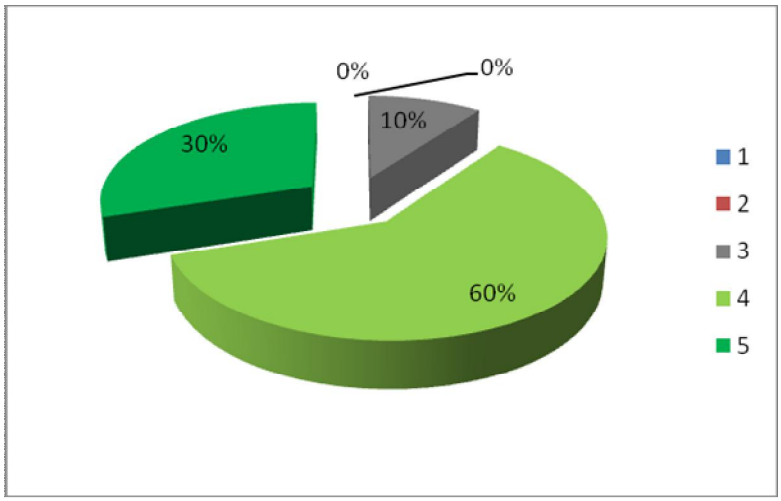
2. The allocation showed that 90% of all those evaluated stated that a mixed-gender team leads to better results. This is illustrated by means of a box-plot quartile analysis (Illustrations 43-45).

Illustration 43: Key Figures of …mixed-gender… by Survey Pre-Test



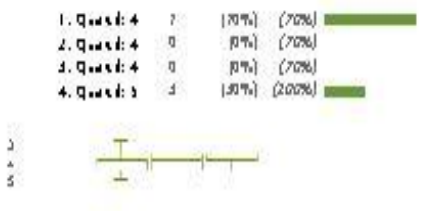
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.11

Illustration 44: Allocation of …mixed-gender… by Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.11

Illustration 45: Quartile Distance Overview to ..mixed-gender.. by Survey Pre-Test

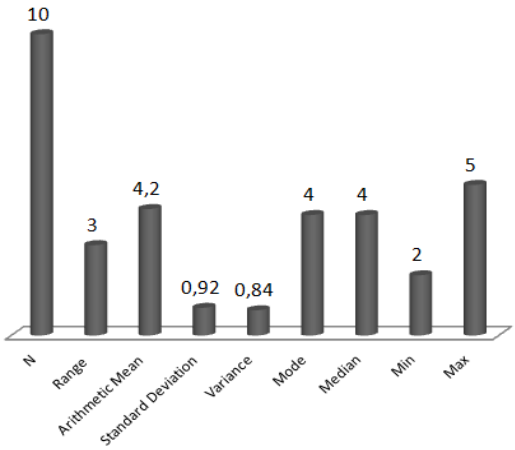


Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.11

The author concludes from the Survey Pre-Test result regarding whether TP increases as a result of mixed-gender that there appears to be a strong positive correlation.

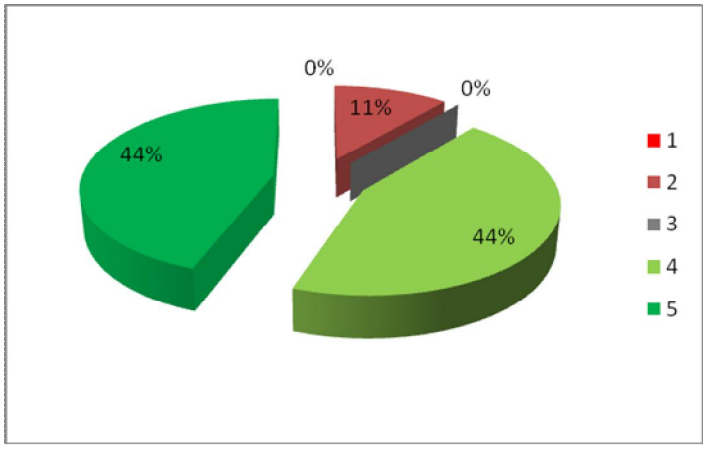
H_{y1TBP} means Teams with a wider age range lead to a better performance because overall they are more experienced. The question in the Survey Pre-Test results was answered positively by 88% of the surveyed population. The standard deviation is 0.92 because there are also 11% of the answered respondents who said answered with 'no' for this link between age range and Team Performance. The Median, Mode and Arithmetic Mean deliver a clear trend with 4. Lastly, the quartile analysis also presents the majority in the evaluation of 4-5.

Illustration 46: Key Figures of …age range… by Survey Pre-Test



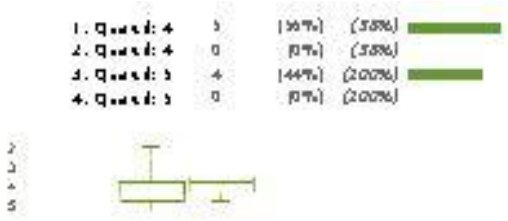
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.11

Illustration 47: Allocation of …age-range… by Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.12

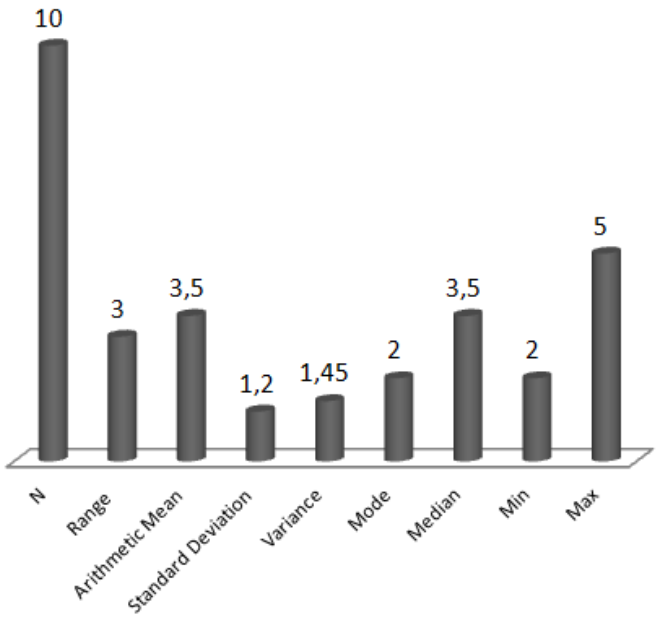
Illustration 48: Quartile Distance Overview to ..age range.. by Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.12

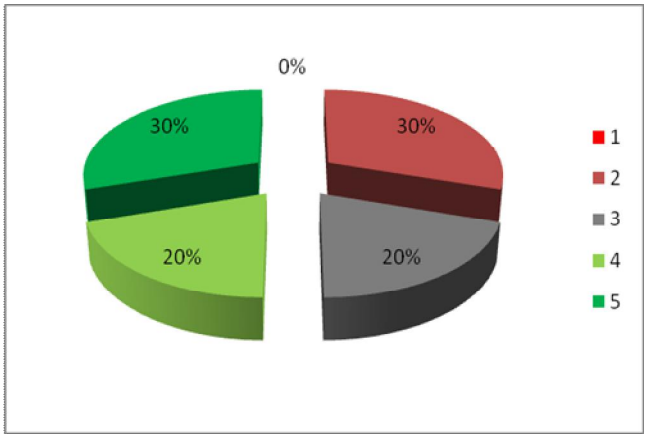
H_{y2TBP} means Teams with a high educational level lead to improved performance results (Illustrations 49-51). The result of the educational level and its linkage to higher Team Performance does not appear to conform to any definite trend. The standard deviation is higher (1.2 fold) compared with the other answers to the survey. In addition, on the one hand, the allocation delivers 50% with a trend for agreeing with this statement while the other 50% show the opposite trend. Thus, in order to draw any definite conclusions, more data on this question would need to be gathered.

Illustration 49: Key Figures of …educational level… by Survey Pre-Test



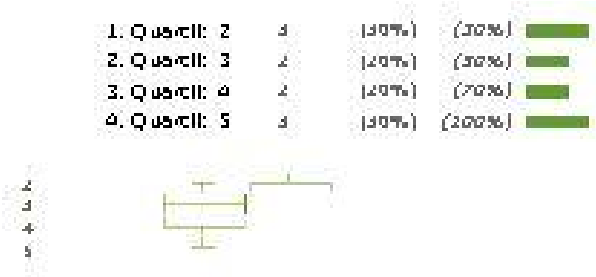
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.12

Illustration 50: Allocation of …educational level… by Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.12

Illustration 51: Quartile Distance Overview to ..educational level.. by Survey Pre-Test

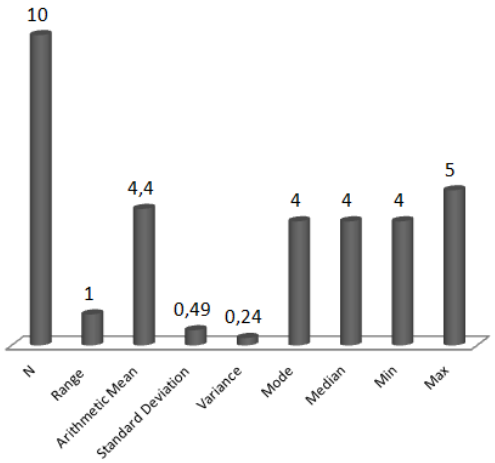


Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.13

H_{y0} means Team Performance increases by knowing more about the behavior of others team members. The answers received to this question presents a clear positive trend in that 100% of all participants in this Survey Pre-Test believe that the Team Performance increases by knowing more about the behavior of the others. A strictly low standard deviation, a range of 1 and an Arithmetic mean support this.

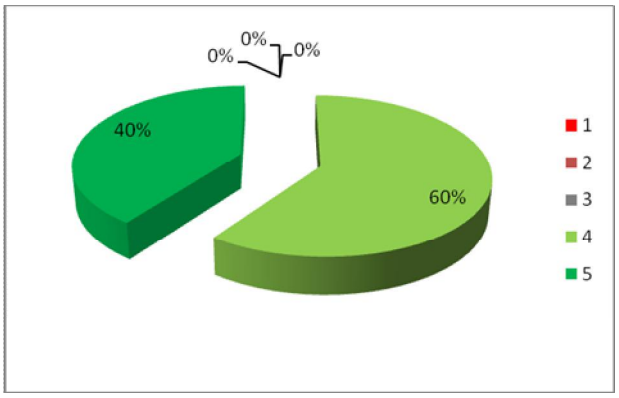
Reviewing the Survey Pre-Test, the results and analyses, it can be concluded that the survey yields valuable data that confirm the hypotheses in several cases, and can thus can be applied to the defined population. The received data with the focus on behavior and the linkage to the hypotheses trigger have generated valuable results. The question in the survey regarding whether Team Performance increases by knowing more about the behavior of other team members, links to the generic hypothesis and clearly displays a positive trend in the empirical Pre-Test. Referring to the dimensions of behavior and the behavioral cluster (Illustrations 52 and Illustration 53) proposed by the author, the following summary based on the Pre-Test has been made. H_{y1TT}: The higher the heterogeneity, the higher the Team Performance will be is the question of whether team members with different nationalities add value to the Team Performance, team members with different experiences lead to a better trustfulness, and Team Performance link to this hypothesis. Based on the results in the Pre-Test, the author can conclude that all three questions deliver a positive trend for this hypothesis and should thus continue to be evaluated in the final survey. H_{y1TBP}: The higher the age range in the team, the higher Team Performance will be; and H_{y2TBP} the higher the level of education in the team, the higher Team Performance will be which focus on the questions of age range and educational level in the survey of the cluster behavior also links to these

Illustration 52: Key Figures of …behavior… by Survey Pre-Test



Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.13

Illustration 53: Allocation of …behavior… by Survey Pre-Test



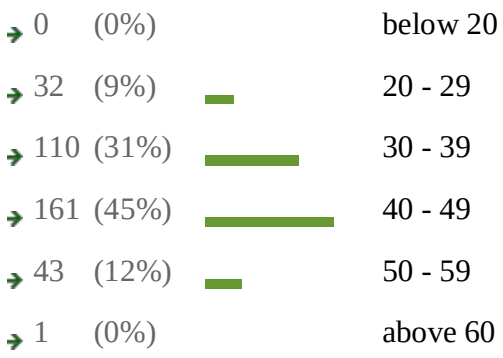
Source: Giesa, Andreas Michael, Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey, International Conference in Current Issues in Economic and Management Sciences, Latvia, 2011, p.13

hypotheses. The results obtained in the Pre-Test for the age range question correlated positively to the proposed hypothesis. The answers obtained regarding the impact of educational level on Team Performance were inconclusive with respect to the hypothesis and thus more representative data is needed. The author concludes that both of these hypotheses should be evaluated further in the next step of the survey. H_{y1TB}: The higher the diversity index in a team,

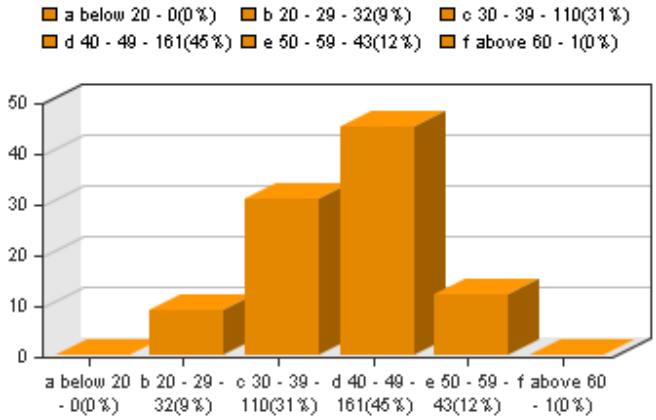
the higher Team Performance will be; and H_{y2TB} the higher the amount of vacation days not taken, the higher Team Performance will be that focus on the questions of the mixed-gender and the open vacation days are directly linked to these hypotheses. The evaluation of the mix-gender in the Pre-Test delivers a strong positive trend, while the tendency of the hypothesis with the open vacation status cannot be considered as a trend. However, as the data does not conform to any specific trend this hypothesis as well as the other will again be tested by the author in the final Team Performance survey. In summary, the hypotheses that formed the basis of the survey questions and that were tested in the Survey Pre-Test has delivered a few clear trends and left some questions open. In general, the value of having Team Performance measured to include behavior and its influence was clearly seen in the Pre-Test survey results.

Due to the successful Pre-Test of the Survey of Team Performance, including the determinant of behavior, and the clear linkage to the hypothesis, the survey was implemented by the author in the defined software sales and service population. 840 participants were asked to answer the 17 questions in order to evaluate Team Performance including the determinant of behavior. Finally, 466 people filled out the survey, which is a response rate of 55.47%. Out of this group 355 (76%) people answered at least one question, and 295 people answered the last questions, i.e. 64% of the total respondents. The author concludes that the survey is representative based on the theoretical explanations by authors Hutcheson and Sofroniou, and author Gorusch. At the beginning the author presents an overview of the population generically with respect to the frequency and allocation of age, education, and living abroad and vacation days left open in 2010. It is worth mentioning that 76% of the population who responded to the survey is in the age range of 30 to 49 years of age (Illustration 54).

Illustration 54: Distribution of participant ages in the final Survey TP



The question was answered by 355 people.

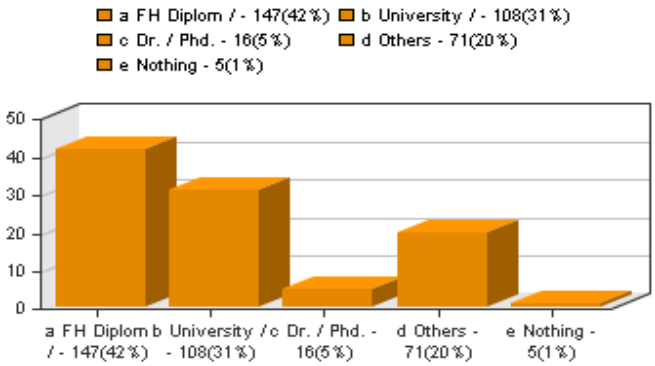


Source: Author – allocation result of age in numbers and percentage by 355 participants of the TP survey including determinant behavior

Illustration 55: Distribution of participant's level of education of the final Survey TP

147 (42%)	FH Diplom / Bachelor
108 (31%)	University / Master
16 (5%)	Dr. / Phd.
71 (20%)	Others
5 (1%)	Nothing

The question was answered by 351 people.



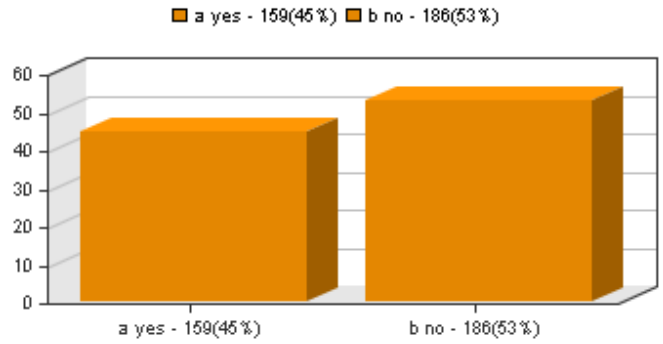
Source: Author – allocation result in percentages and numbers by 351 participants of the TP survey including determinant behavior

The survey respondents generally had a high level of education with 78% having at least a bachelor's degree (Illustration 55).

Illustration 56: Allocation of participants living abroad of the final Survey TP

159	(45%)	yes
186	(53%)	no

The question was answered by 352 people.



Source: Author – allocation result of living abroad experience by 352 participants of the TP survey including determinants behavior

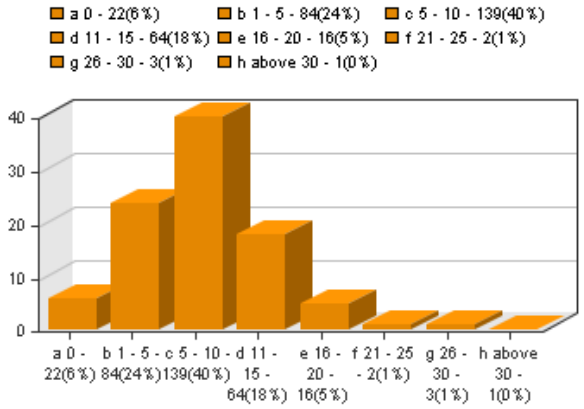
45% of the population has living experiences abroad (Illustration 56). The Pre-Test Survey presented by the author also shows a result in which less than half of the group surveyed had living experience abroad.

Illustration 57: Allocation of participant's open vacation status of the final Survey TP

22	(6%)	0
84	(24%)	1 - 5
139	(40%)	5 - 10
64	(18%)	11 - 15
16	(5%)	16 - 20
2	(1%)	21 - 25
3	(1%)	26 - 30

1 (0%) above 30

The question was answered by 349 people.

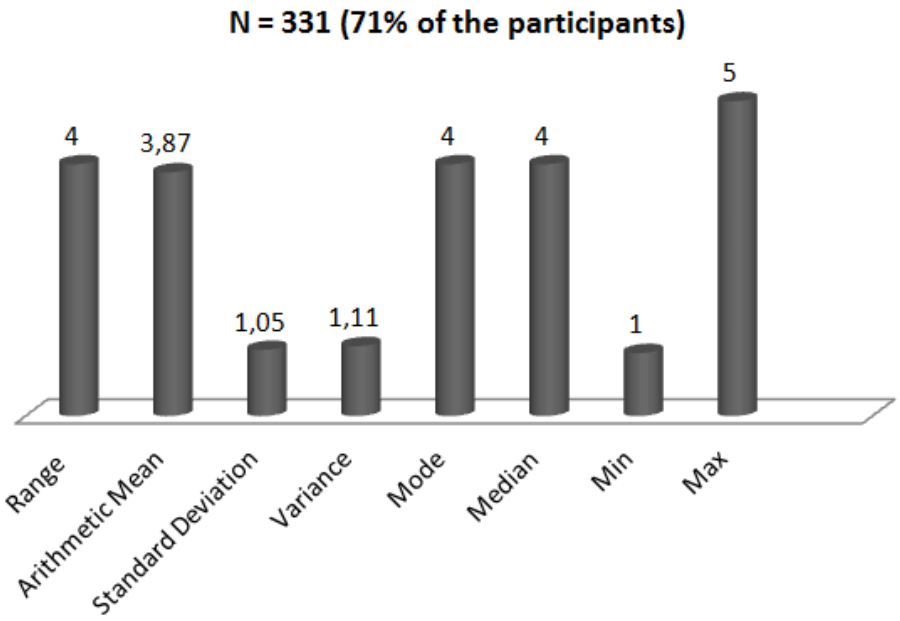


Source: Author – allocation result of open vacation days in percentages and numbers of 349 participants of the TP survey by determinants of behavior

It can thus be summarized that the respondent population has an age-range of 30-49 years, 99% of the participants have an education with 78% of having at least a bachelors degree. A total of 45% of the respondents have lived abroad and 40% have 5-10 days open vacation days, 25% have more than 11 days left for vacation in 2010. The focus of the evaluation will be on the eight key questions in the cluster behavior that are linked indirect/directly to the hypothesis which proposes that team members with different nationalities add value to the team's performance (H_{y1TT}); team members with different experiences (e.g. experiences living abroad) lead to a greater levels of trust within the team (H_{y1TT}); team members with different experiences (e.g. experiences living abroad) lead to a better performance (H_{y1TT}); team members care less about vacation days, and are rather more interested in increasing the team performance (H_{y2TB}); Teams with mixed-gender (women and men) achieve better results (H_{y1TB}); Teams with greater age ranges lead to a better performance because overall they are more experienced (H_{y1TBP}); Teams with a high educational level lead to higher performance results (H_{y2TBP}); Team Performance increases by knowing more about the behavior of the others (H_{y0}). The H_{y1TT} means evaluation of team members with different nationalities adds value to the team's performance. The following figures show a representative trend for the answers to these questions. 68% of the participants think that team members with different nationalities add value to the Team Performance with only 9% who do not agree

(Illustration 58). In addition, the skew illustration presents also a negative Skew of -0.9, which confirms that the median is on right of the mean.

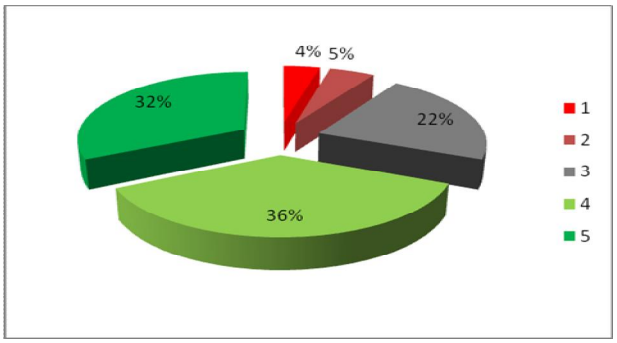
Illustration 58: Key Figures of …nationalities adds value to TP by TP Survey



Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.7

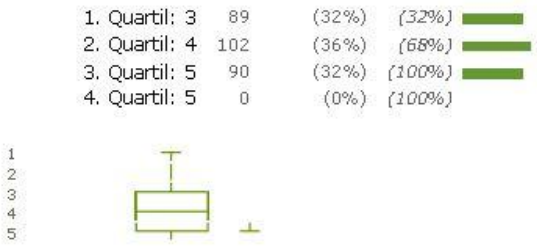
With the representative number of 331 people, a normal standard deviation of 1.05, a strong arithmetic mean and median with 4 seem to support the hypothesis. The results strongly support the proposal Team Performance is positively influenced by the background of different nationalities (Illustrations 59 – 61).

Illustration 59: Allocation to …nationalities adds value to TP by TP Survey



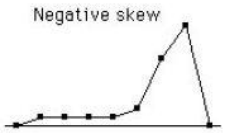
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.7

Illustration 60: Quartile Distance Overview…nationalities add value…by Survey



Source: Author – Quartile analysis if different nationalities add value to TP by a result of the TP survey including the determinants behavior

Illustration 61: Skew Distance Overview…nationalities add value….by Survey



Source: Author – Skew analysis related to different nationalities add value to TP by a result of the TP survey including the determinant behavior

Based on the various analyses of key results, allocation, quartile and skew analysis, the author concludes that the population surveyed regard team members with different nationalities as adding value to Team Performance. Subsequently, the answers to the first questions display a positive trend of the Cluster Behavior: Dimension Team Trust that link to the hypothesis of the hypothesis stating that the higher the heterogeneity of a team, the higher the Team Performance will be.

The H_{y1TT} means that team members with different experiences (e.g. experiences living abroad) lead to greater levels of trust within the team and also asks if team members with different experiences (e.g. experiences living abroad) lead to a better Team Performance. To continue with the questions linked to the heterogeneity H_{y1TT}, the two questions regarding different experiences are evaluated (Illustration 62 and Illustration 63). The evaluation was carried out in parallel by the author, so that the linkage can also be displayed.

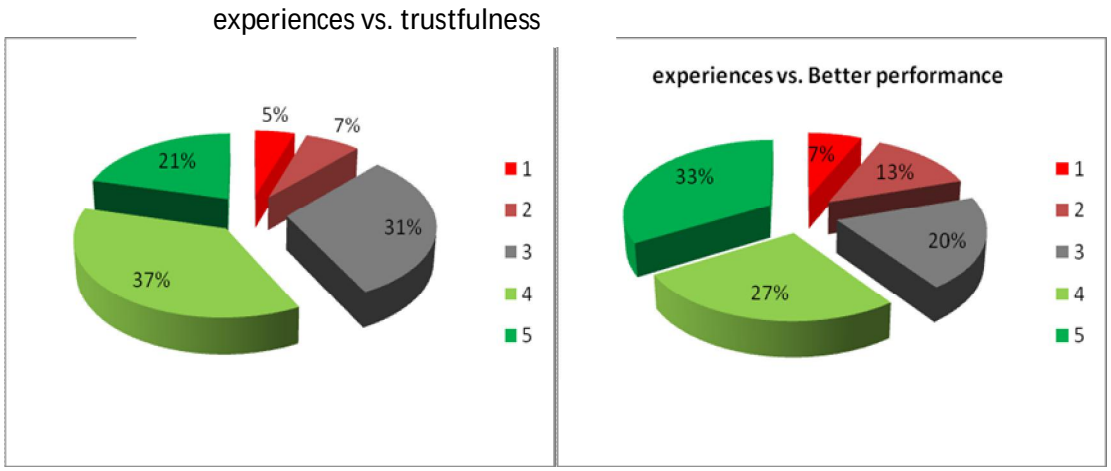
Illustration 62: Key Figures of …experiences.. to TP by TP Survey

	experiences vs. trustfulness	experiences vs. Better performance
N	331 (71% of survey participants)	331 (71% of survey participants)
Range	4	4
Arithmetic Mean	3.62	3.65
Standard Deviation	1.04	0.99
Variance	1.08	0.99
Mode	4	4
Median	4	4
Min	1	1
Max	5	5

Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.8

The author outlines in the comparison view in illustration 61 a representative string support in author's hypothesis, mode, median by 4, arithmetic mean by 3.6 and a fair normal standard deviation of around 1, which supports the hypothesis that Team Performance is influenced by team behavior, that was based here on different experiences (Illustration 63).

Illustration 63: Allocation to …experiences… to TP by TP Survey

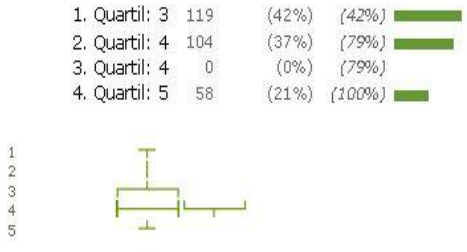


Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.8

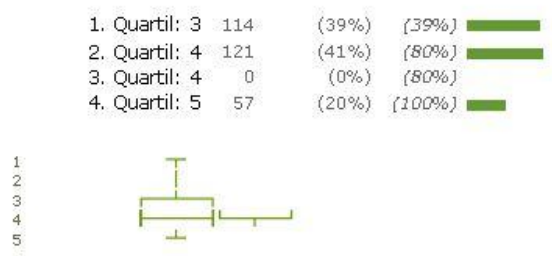
The illustrations of the two questions display a clear allocation. 58% / 60% state that team members with different experiences led to a greater trustfulness within the team and / or lead to a greater Team Performance (Illustration 64).

Illustration 64: Quartile Distance Overview to …experiences….by Survey

experiences vs. trustfulness



experiences vs. Better performance

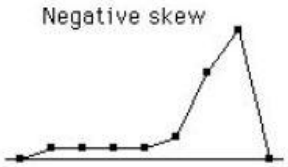


Source: Author – Quartile analysis of experiences in the result of the TP survey

Illustration 63 shows a highly supportive quartile analysis. The analysis supports the hypothesis by the author by quartile 3 with 42%, quartile 4 with 37% in the trustfulness question and by the performance questions even 41% in quartile 4 and 39% in quartile 3.

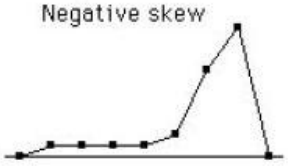
Illustration 65: Skew Distance Overview to …experiences….by Survey

experiences vs. trustfulness



Skew: -0.79

experiences vs. Better performance



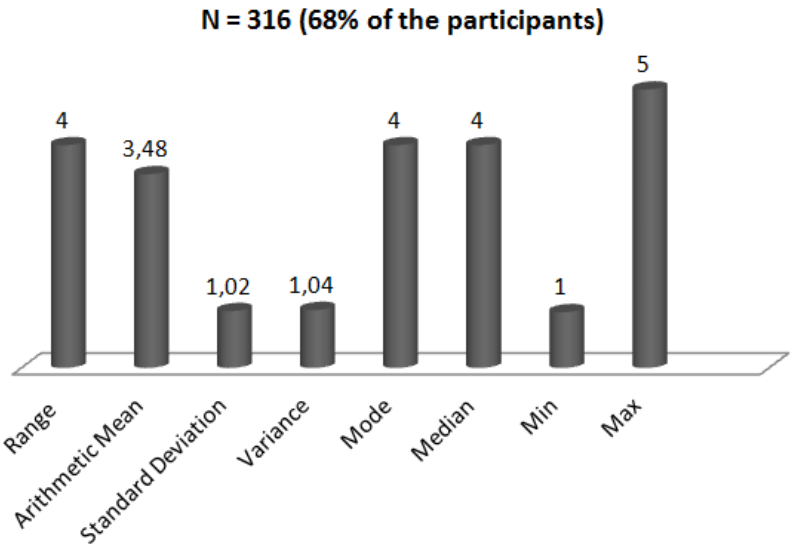
Skew: -0.97

Source: Author – Skew analysis related to experiences impact to TP in a TP survey including the determinants behavior

Lastly, based on the key figures, allocation, box-blog illustration and skew analysis, the answers obtained from the survey population present a clear indication that the presence of team members with different experiences lead to a greater levels of trust and to a greater performance within the team. Subsequently, the previous analysis of the hypothesis of different nationalities adding value and the analysis of the team members' experiences clearly support the hypothesis of the increase of Team Performance by having a higher heterogeneity.

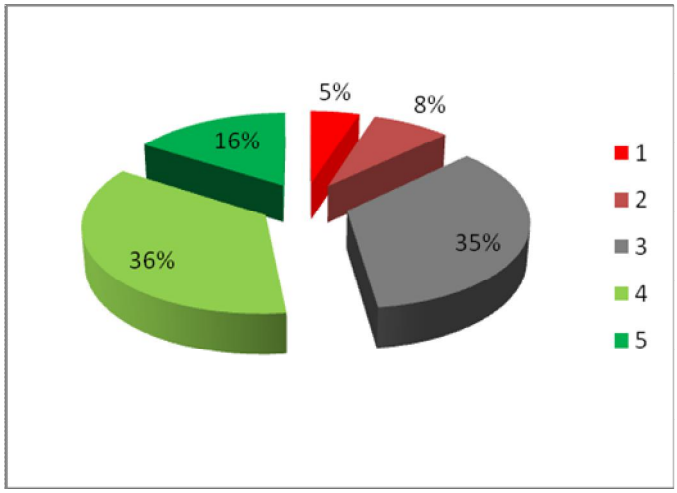
The H_{y2TB} means team members care less about vacation days, but are more interested in increasing the team performance which relates to the dimension of Team Behavior. In the Pre-Test Survey results, no clear trend was recognized. The data obtained from the survey respondents served to provide more clarity with respect to this question. 316 people answered and 52% stated that team members who care less about vacation days, but rather more for their work increases overall Team Performance (Illustrations 66 - 69). A low deviation of around 1, clear median of 4, clear mode 4 and skew of -0.87 support this trend. The arithmetic mean is a bit lower by 3.48 when compared to that of some other previous answers; however, the author would like to point out the high level of the data in general.

Illustration 66: Key Figures of …open vacation days.. to TP by TP Survey



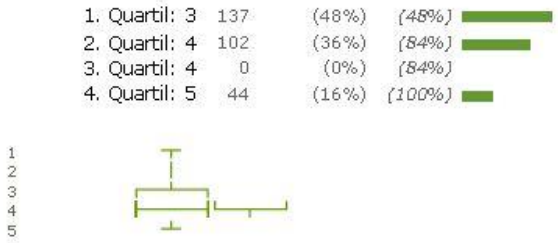
Source: Author – overview of key statistical data of the results of the TP survey including determinant behavior related to if different open vacation days influences TP, December

Illustration 67: Allocation to …open vacation days… to TP by TP Survey



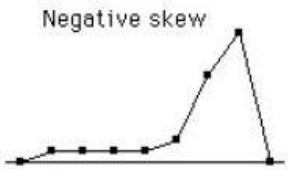
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.8

Illustration 68: Quartile Distance Overview to …open vacation days….by Survey



Source: Author – Quartile analysis of the impact of open vacation days to TP of the TP survey including the determinants of behavior

Illustration 69: Skew Distance Overview to …open vacation days….by Survey



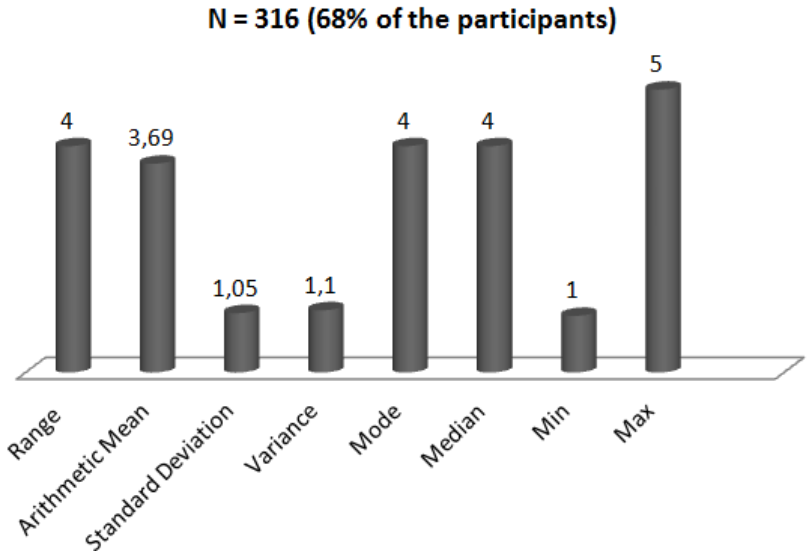
Skew: -0.87

Source: Author – Skew analysis to the impact of open vacation day by the TP survey, including determinants of behavior

In conclusion, the hypothesis of open vacation days delivers a representative trend and the behavior of people has an impact to the Team Performance which supports the hypothesis of the diversity index.

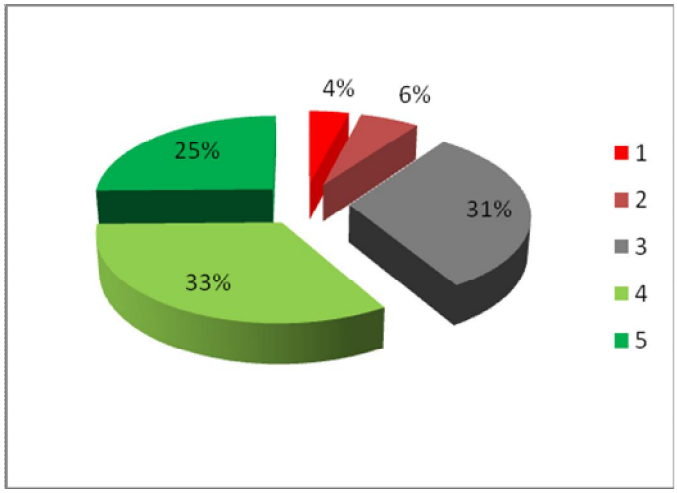
H_{y1TB} means teams with mixed-gender (women and men) lead to better results and the question was answered by the surveyed population with a trend indicating that 58% think mixed-gender teams lead to a better Team Performance and only who 10% do not support mixed-gender teams (Illustrations 70 – 73). A high number of around 31% evaluated with an average. It is important to mention that the allocation of the Pre-Test delivered a clear trend of 90% in supporting this question, and in this population of 316 people a broader perspective can be recognized. The skew with -0.45 delivers also a smaller tendency, but at the end the trend of the diversity index can be stated as supported. Illustration 70 delivery by the author hard facts to a low deviation of 1, high mode and mean of 4 and an arithmetic mean of 3,69 by 68% of population answered the question.

Illustration 70: Key Figures of …mixed gender.. to TP by TP Survey



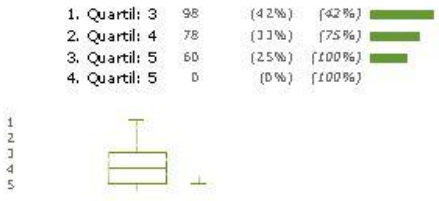
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.9

Illustration 71: Allocation to …mixed gender… to TP by TP Survey



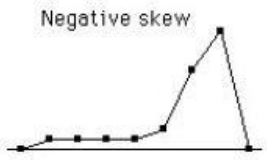
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.9

Illustration 72: Quartile Distance Overview to …mixed gender….by Survey



Source: Author – Quartile analysis of mixed gender impact to TP based on the result of the TP survey including the determinants behavior

Illustration 73: Skew Distance Overview to …mixed gender….by Survey



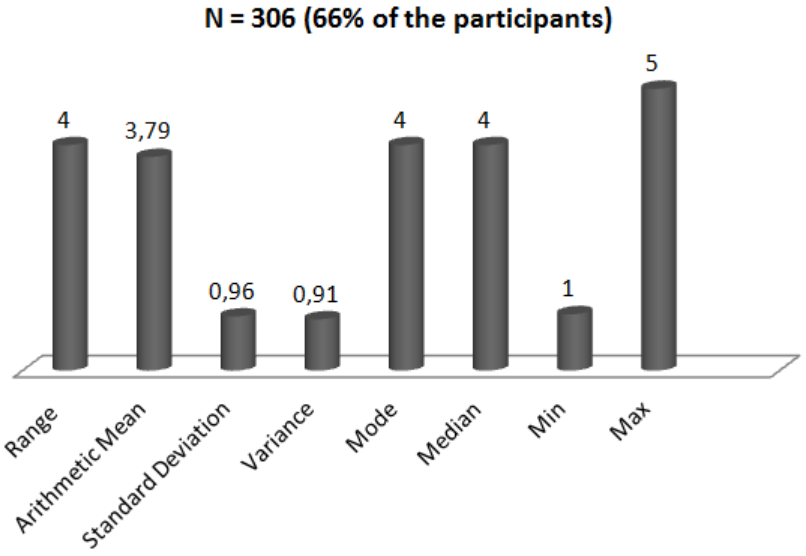
Skew: -0.46

Source: Author – Skew analysis of mixed gender based on the result of the TP survey including the determinants of behavior

To summarize, it is clear that the population surveyed supports the hypothesis that mixed-gender perform better and therefore lead to a improved Team Performance. In linkage to the

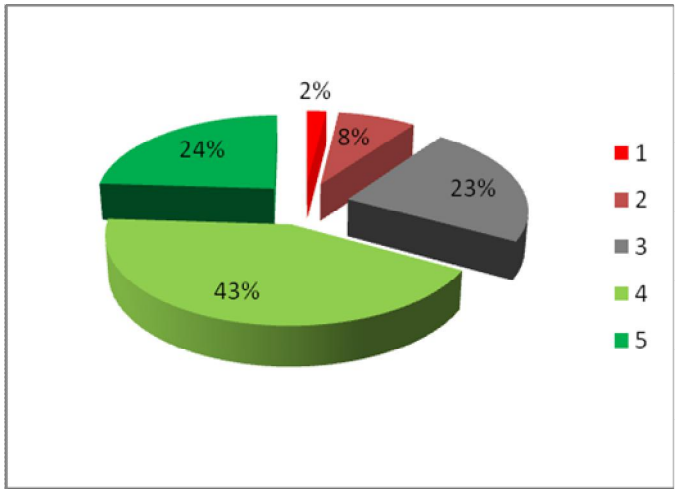
"Dimension Team Behavior", the author states that the hypothesis with the statement H_{y1TB}: The higher the diversity index in a team, the higher Team Performance will be; and H_{y2TB} the higher the amount of not taken vacation days, the higher Team Performance will be; is definitely positively supported by a representative population surveyed. Lastly, the question appears to be linked to the "Dimension of Behavior Personality". The questions of age range and educational level will also be considered. H_{y1TBP} Teams with a wider age range lead to a better performance because overall they are more experienced. The question regarding whether a wider age range leads to a better Team Performance was answered positively by 67% of the respondents (Illustrations 74-77) . A low deviation of 0.96, a variance of 0.91, and only 10% of the population who do not support this statement, drive the clear picture of a strong support of the statement that a wider age range lead to a better Team Performance.

Illustration 74: Key Figures of …Age-Range.. to TP by TP Survey



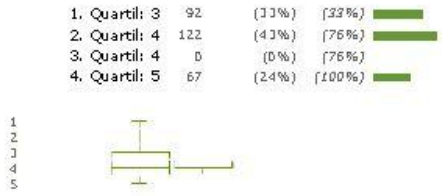
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.10

Illustration 75: Allocation to …Age-Range… to TP by TP Survey



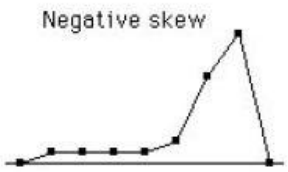
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.10

Illustration 76: Quartile Distance Overview to …Age-Range….by Survey



Source: Author – Quartile analysis to the age-rang impact to TP based on the result of the TP survey including the determinants of behavior

Illustration 77: Skew Distance Overview to …Age-Range….by Survey

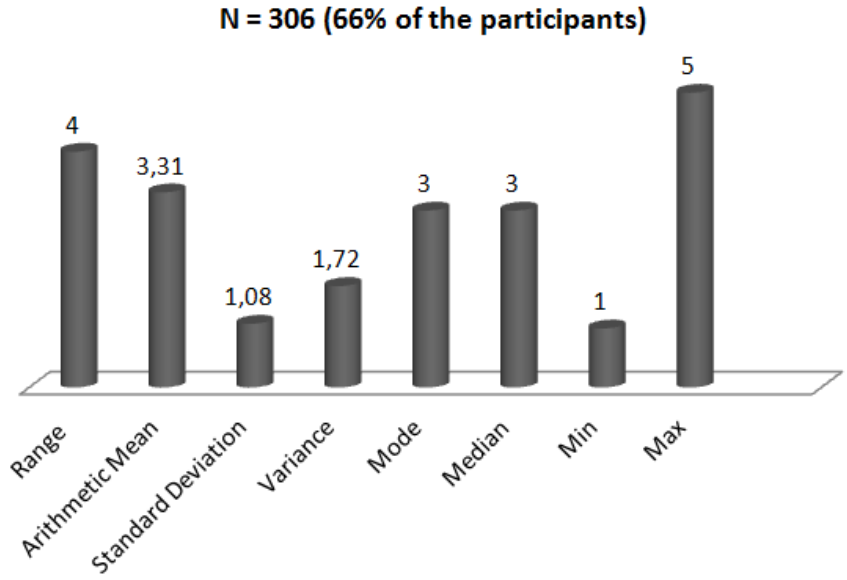


Skew: -1.19

Source: Author – Skew analysis of age-range impact to TP based on the result of the TP survey including the determinants of behavior

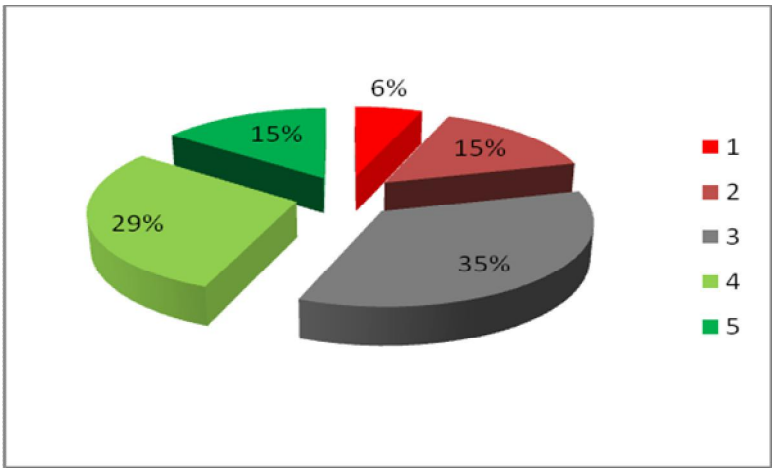
H_{y2TBP} Teams with a high educational level lead to higher performance results. The result of the educational level and its linkage to higher Team Performance does not appear to support any definite trend. This was also the case observed in the Pre-Test Survey. Only 44% of participants supported this statement and 21% disagreed with it. The mode and median support this trend, and also the skew is only by -0.59. However, the key figure (Illustration 77) also shows a lower arithmetic mean by 3.36 and a lower participation of 66% population compared to other questions and answers. In addition, the data displays a higher variance and also the mode and median are on number 3, not on 4 compared to various other results so far. In addition, Illustration 78 shows a large percentage of 35% to the evaluation of 3, mean neutral, and 21% on a negative evaluation. The same trend is observed in the quartile analysis, in which quartile 3 delivers a results of 56% (Illustration 80 and Illustration 81).

Illustration 78: Key Figures of …Educational Level.. to TP by TP Survey



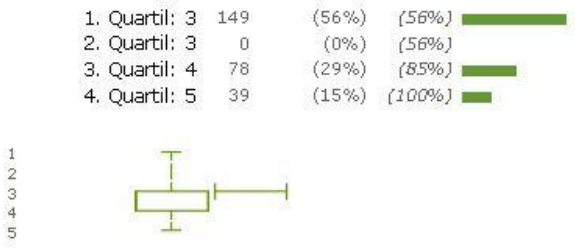
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.10

Illustration 79: Allocation to …Educational Level… to TP by TP Survey



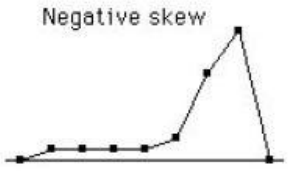
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.11

Illustration 80: Quartile Distance Overview to …Educational Level….by Survey



Source: Author – Quartile analysis to the educational level impact to TP based on the TP survey including the determinant of behavior

Illustration 81: Skew Distance Overview to …Educational Level….by Survey



Skew: -0.59

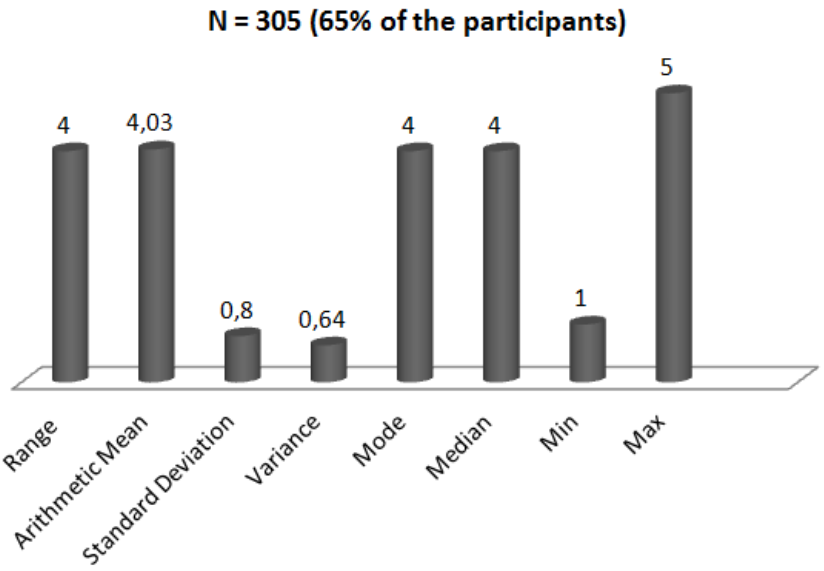
Source: Author – Skew analysis to the educational level impacting TP based on result of the TP survey including the determinant of behavior

The author concludes that the surveyed population evaluated the statement of the educational level leading to a higher Team Performance as not being highly significant. The age

range evaluation is linked to the same “Dimension of Behavior Personality”, which is stronger in supporting the statement, however the “Dimension of Behavior Personality” including therefore H_{y1TBP}: The higher the age range, the higher the Team Performance, and H_{y2TBP} the higher the level of education, the higher the Team Performance will be’, seems to be supported on the lowest level when compared to the other hypotheses. Finally, the hypothesis of educational level might be represented as not being closely linked to this impact.

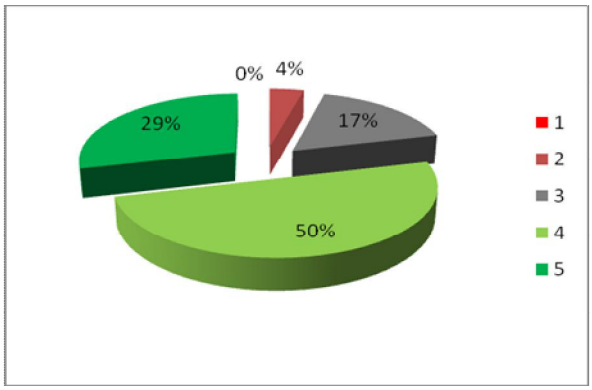
H_{y0} means Team Performance increases by knowing more about the behavior of the others which relates to the fundamental question of the overall hypothesis. The author was able to conclude that the results obtained for this question have had a high impact on this study. The question was answered by 305 participants and 79% answered that Team Performance is increased when team members know more about the behavior of other team members, which results in a clear statement that behavior influences and impacts Team Performance (Illustrations 82 – 85). Only 4% of the respondents did not support this statement. An extremely low deviation of 0.8, variance of 0.64, a clear box blog picture, a strong skew of -1.68 and an arithmetic mean of 4.03 support a clearly positive, representative empirical trend.

Illustration 82: Key Figures of …Behavior.. to TP by TP Survey



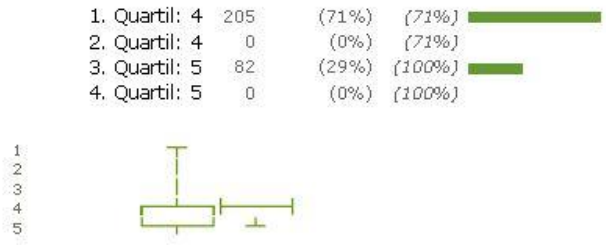
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p11

Illustration 83: Allocation to …Behavior… to TP by TP Survey



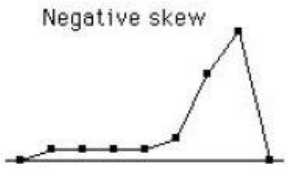
Source: Giesa, Andreas Michael, Measuring Team Performance under the determine of behavior – An Empirical Result – Survey, International Conference, Germany, 2011, p.12

Illustration 84: Quartile Distance Overview to …Behavior….by Survey



Source: Author – Quartile analysis to behavior impact on TP based on the results of TP survey including the determinants of behavior

Illustration 85: Skew Distance Overview to …Behavior….by Survey



Skew: -1.68

Source: Author – Skew analysis to the result of the impact of behavior to TP based on the TP survey including determinant behavior

Reviewing the survey data of the software population of 466 people in total, the author concludes that the survey is representative. Based on the detailed results and analyses, the

author concludes that the survey delivered measurable results for the questions and therefore supports the hypotheses. The data obtained with the focus on behavior and the linkage to the hypotheses has generated a valuable result. The question in the survey regarding whether the Team Performance increases by knowing more about the behavior of the others, links to the generic hypothesis and is clearly supported with 79% responding with a “yes” in the empirical test. A similar result was observed during the Pre-Test. After the first laboratory test, the secondary analysis, the Pre-Test survey and now the final survey test with the representative number of people supports the conclusion by the author that behavior has an impact on Team Performance.

Referring to the dimensions of behavior and the behavioral cluster, the following summary by based on the empirical test can be formulated. In the cluster behavior: dimension Team Trust - H_{y1TT}: The higher the heterogeneity, the higher the Team Performance will be. The questions of team members with different nationalities adding value to the Team Performance and team members with different experiences leading to better levels of trust and Team Performance correlate to this hypothesis. Based on the results, the author concludes that all three questions were answered so clearly that they support the statements above and therefore also this hypothesis. Heterogeneity also seems to have an impact on Team Performance. The final laboratory test should include the dimension Team Trust and finally test it in the laboratory using standard validation methods. In the cluster behavior: dimension Behavior Personality, H_{y1TBP} The higher the age range in the team, the higher Team Performance will be; and H_{y2TBP} the higher the level of education in the team, the higher Team Performance will be, were evaluated. The questions of age range and educational level in the survey of the cluster behavior supports these hypotheses. The results in the test for the effects of age range were clearly positive and showed a strong representative trend. The assumption can thus be made, that age range has an impact on Team Performance. The support for educational level question and so the link to this hypothesis is not clear. The representative data strongly support the hypothesis and it was therefore not included in the final test. The age range hypothesis was supported by the survey results and was tested for validity in the final laboratory test. The results obtained for the question regarding educational level were inconclusive and were therefore not considered in the remainder of the empirical study. In the cluster behavior: Dimension Team Behavior, H_{y1TB} states that the higher diversity index in a team, the higher Team Performance will be while H_{y2TB} states that the higher the amount of

vacation days not taken, the higher Team Performance will be. The questions regarding the mixed-gender and the open vacation days are directly linked to these hypotheses. The answers provided to the mixed-gender question in the survey and the question regarding open vacation status provided clear support for the hypothesis which can be considered representative and hence stated as a trend. The diversity index and the amount of open vacation days are representative and empirically tested and deliver a supporting result. To conclude, strong support for the hypotheses was shown in the survey results and clear empirical trends were provided. One hypothesis has not received been positively supported, however all three dimensions will continue to be considered and thus four hypotheses are considered for validity in the final laboratory test. In addition, the overall hypothesis was clearly proven by means of the empirical Pre-Test, secondary analysis, Pre-Test survey, and the final survey.

4 DESCRIPTION OF THE VALIDATION PROCESS CONDUCTED BY MEANS OF OF LABORATORY EXPERIMENTS

Based on the results, the author validated the proven hypotheses H_{y1TT} (The higher the heterogeneity, the higher the Team Performance will be); H_{y1TBP} (The higher the age range in the team, the higher the Team Performance will be) and H_{y1TB} (The higher the diversity index in a team, the higher the Team Performance will be).The author decided not to validate H_{y2TBP} (The higher the amount of vacation days not taken indicates a higher Team Performance) because the population chosen for the does not fulfill the relevant criteria for this. However, it should be pointed out that this hypothesis has shown a representative and a positive result in the survey evaluation with 52% of 316 participants in agreement and 48% in the first quartile of the box blog analysis. Therefore, the author could assume that the indicator of open vacation rates link to the Team Performance of a team. Of course, the secondary analysis has not clarified the Team Performance impact, but the survey results did indicate a slight positive correlation.

For the validation process, it was decided to test the hypothesis on a different population, independently from the population in which the pre-test, secondary analysis, pre-test survey and survey was conducted. The reason for the validation of these three hypotheses is to find out if the hypotheses have a generic validity out of the software population, in which the researched results appeared so far. For the validation of the three hypotheses, the author developed two real business cases a delivered an ideal solution. An evaluation sheet was also developed, was to be solved by the defined team in the analyzed population. The aim was to determine whether the hypotheses were valid and can be proven by these tests. The population studied was randomly selected from a European scientific environment with global nationalities. Selected bachelor, master and international students from the University of Applied Sciences in Fulda, Germany; University of Riga, Latvia; University of Applied Sciences in Mainz, Germany; and University of Applied Sciences in Kufstein, Austria were studied. The population was randomly chosen by the University and the validation process was defined in a set up of a laboratory approach. The randomly chosen students submitted a personal data sheet prior to the study, as shown in Annex N.5. All personal data received has been added to the attachments. After receiving the data sheets of the students, the author divided the students into teams and grouped them based on the hypotheses prior to predicting expected the Team Performance with respect to which team is expected to perform best, second best, average, and low. The students participated in a class

session and were shown content on the topic and then presented with a case study which the student teams had to solve within a defined time frame. The teams had to present their results during class and deliver written results, which can be found in the attachment. The data was evaluated based on the pre-defined criteria, valuated using a point system approach and matched against the hypotheses results based on the measurement expectation. During the main class sessions, the Professor of the class was present and observed the situation. The author has attached the evaluation form in the Annex N.4 and all data and evaluations including the student results can be found in the appendix. Other Professors, chosen at random, were also invited to be part of the laboratory test in order to provide a neutral perspective on the data.

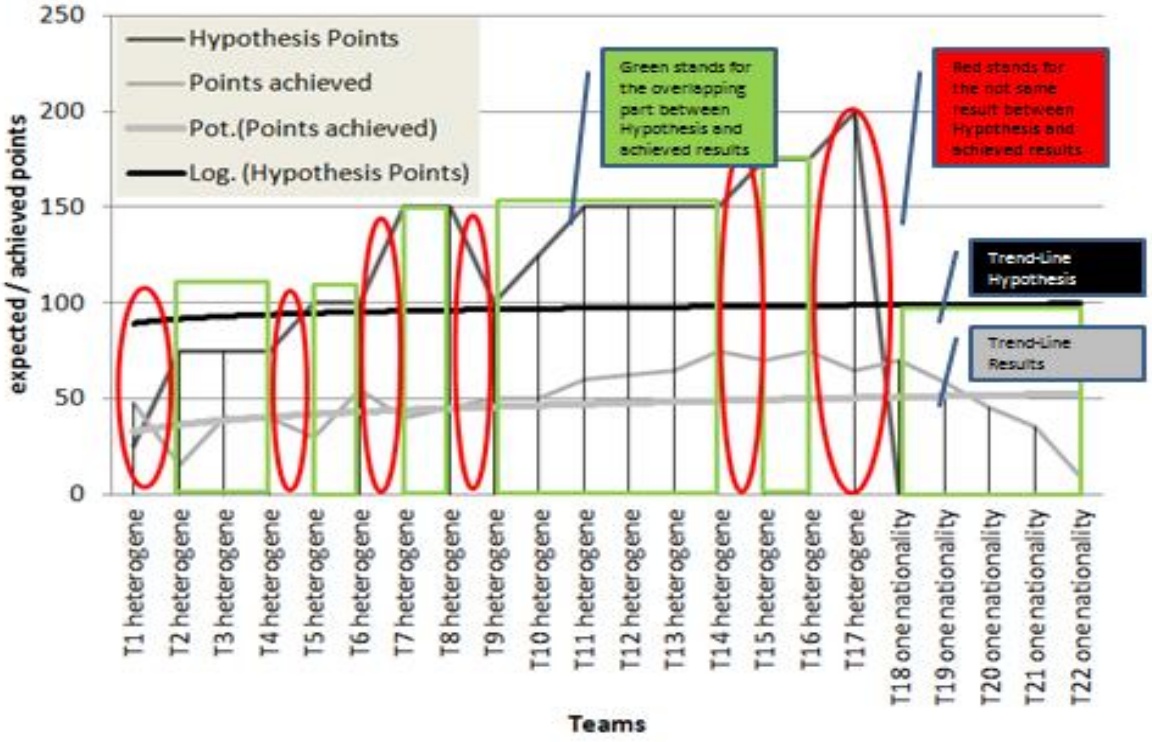
In total, 256 students who were split up into 56 teams were involved in the validation process. Each team consisted of an average 4.57 people as the author followed the research advice from Sutter to have a team with more than three people. The chosen student population who participated in the laboratory test came from the following countries: Austria, Argentina, Belarus, China, Colombia, Cuba, Czech Republic, The Netherlands, France, Germany, Italy, Latvia, Malaysia, Mexico, Poland, Romania, Russia, Slovakia, Spain, South Korea, Thailand, USA, and Vietnam. The majority of the students were Germans and Latvians. The age ranges of the students were from 19 years to 42 years of age. The limitations of the validation process are the limited population, limited case study and that each hypothesis was tested based on the one defined measurement and the other impacts and variables were assumed as neutral. The author took the assumptions due to the fact that the laboratory experiments were able to design the team according to the hypotheses.

4.1 Analysis of the validation results based on the three behavioral hypotheses

The hypothesis H_{y1TT} (The higher the heterogeneity, the higher the Team Performance will be) has been validated by the author with 111 students who were divided into 22 teams with an average size of around 5 people. This correlates to the positive result related to this hypothesis of the Pre-Test, the positive result of the secondary analysis with the view on the productivity rate and the hypothesis indicators, and the positive result of the Team Performance survey with around 60% correlation. A summarized trend of the validation results is shown (Illustration 85 and Illustration 86) with the impact between heterogeneity relation and Team Performance indicated. The author defined heterogeneity in the area of team members who

have the same nationality but have lived abroad for at least six months, or who have a foreign nationality. The more of these individuals are in the team, the higher the heterogeneity, and higher the Team Performance will be. It is important to note that the results obtained in this case derive from a laboratory test and that the assumption was made that there was no influence from other variables. The results of the hypothesis, indicated by means of a black and grey line and the results obtained from the students are shown (Illustration 85). The red circles outline the areas in which there is a lack of correlation between the hypothesis and the result obtained, the green squares show results which positively correlated to the hypothesis. In addition, two trend lines were in order to determine if the trend goes in the same direction of the performance between hypothesis points and obtained results. The results of the validation link to the critical discussion in the literature, in which one research group found a negative relationship and the other the positive relationship with respect to heterogeneous teams versus homogeneous teams and Team Performance. The graphic shows that there is a clear common trend linking heterogeneity and Team Performance, however there are areas in which the results also reflect a different view. The data summary (Illustration 85 and Illustration 86) is a cumulated perspective, which summarizes the entire validation results with respect to the above hypothesis as tested against Team Performance. The individual team results of the University class sessions are not shown at this point, because it was decided to focus on the generic validation approach and to determine whether or not a trend exists with respect to the hypothesis. Illustration 85 clearly shows decreasing performance on the part of the homogenous teams. T18 to T22 delivers a clear trend that one nationality teams do not deliver high Team Performance. The heterogeneous teams (T1 to T17) showed an overall increasing tendency to higher Team Performance. This was especially apparent in the trend observed from T9 to T14 where a marked increase of the Team Performance could be seen. To sum up Illustration 86 shows a validation that correlates with the trend line of the hypothesis points achieved and with the calculated logarithm hypothesis points achieved, thus indicating a positive trend and relation between heterogeneity and Team Performance.

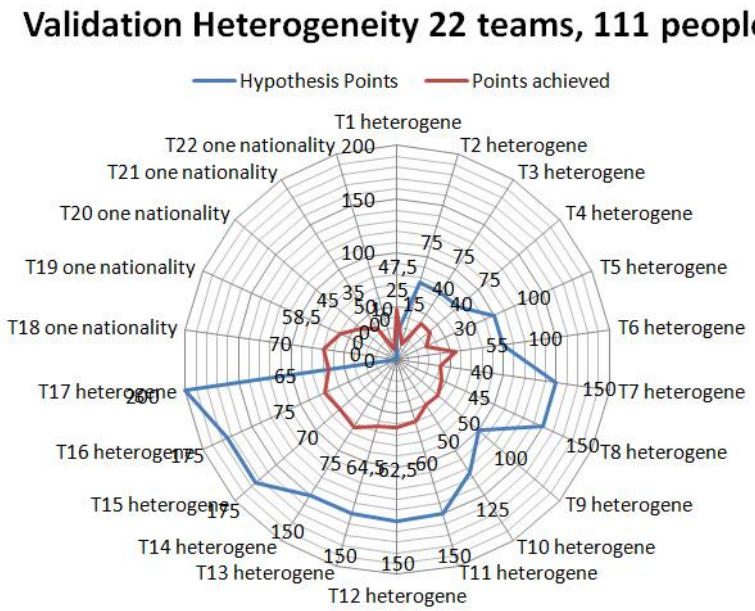
Illustration 86: Cumulated Heterogeneity Validation Result



Source: Author – cumulated validation data of the case studies from the student's populations from Austria, German and Latvian Universities

The possibility of a definite positive correlation to the hypothesis was further investigated (Illustration 87). When examining the result, it can be seen that that homogenous teams (comprising only one nationality) display markedly lower levels of Team Performance than do heterogeneous (comprising different nationalities / foreign experience) teams. The blue and red line in the net illustration (Illustration 87) clearly indicate a low level of achieved points result in the area corresponding to one nationality teams, presented in the left top quarter from T18 to T22. Generally, the blue hypothesis points line and the red points achieved line by the teams have a similar tendency in the area of T7 up to T17. Of course, the form is not a 100% the same and T6 and T9 were shown to deliver different results, but a main trend is identified in this hypothesis by its validation form the author.

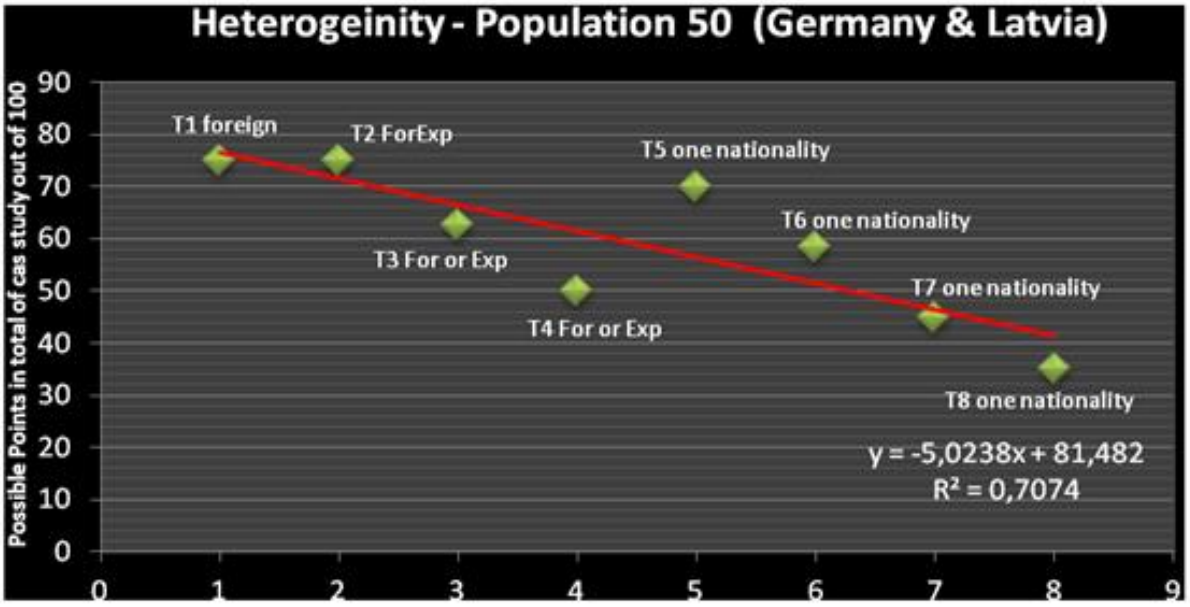
Illustration 87: Cumulated Heterogeneity Validation Result in a Net Format



Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under the influence of behavior – validated in a European Environment, International Conference, New Challenges of Economic and Business Development, Latvia, 2012, p.226

Moreover, selected analysis results of a population of 50 people that was done in one of the laboratory sessions in Germany and Latvia 2012 are shown. The data obtained from this study was included into this overview and R^2 was calculated. A high R^2 value (0.71) was calculated and is shown in Illustration 88. The trend of the f(y) clearly shows that homogenous teams with one nationality perform worse than heterogeneous teams. The author concludes TP ≥ Teams with heterogeneity, and TP ≤ Team with one nationality. As a result, the author proves H_{y1TT} (The higher the heterogeneity, the higher the Team Performance will be) delivers a clear correlation and is supported by the validation. Thus based on the secondary analysis, survey results and the validation process, a more positive Team Performance trend is being recognized as being directly proportional to team heterogeneity.

Illustration 88: Selected cumulated Age Range Validation Result

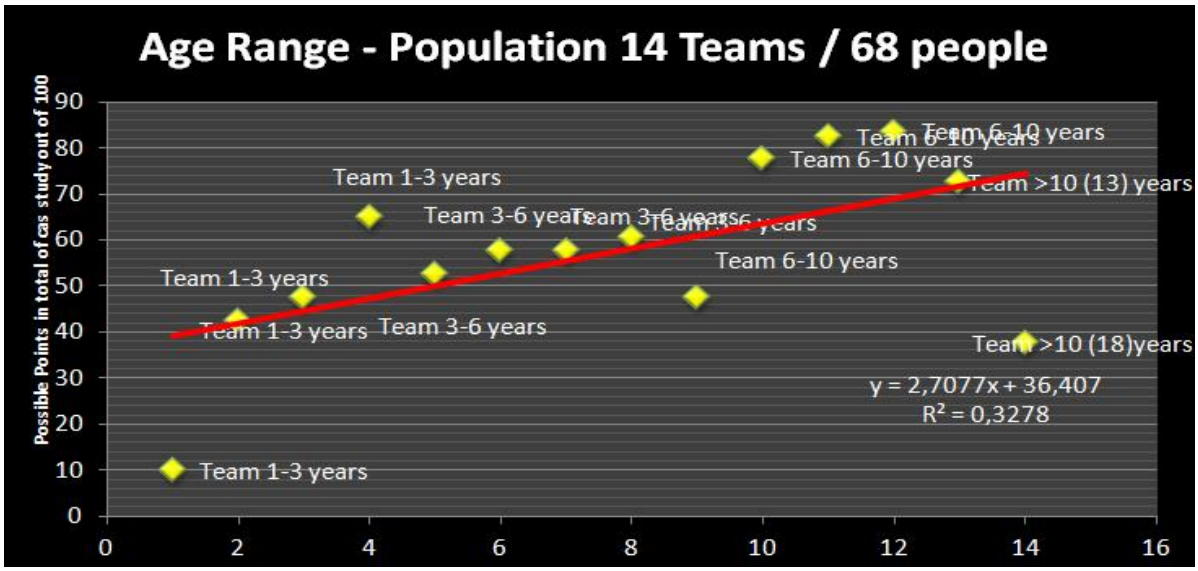


Source: Giesa, Andreas Michael, A Validation Result of an empirical research study in measuring Team Performance under the determine of behavior, International Academy of Business Economics, Winter Conference, USA, 2012, p.4

The second hypothesis tested was in the dimension of behavior personality, namely the age range hypothesis. H_{y1TBP} (The higher the age range, the higher the Team Performance will be). In the validation population the author had no possible test populations for an age range greater than ten years, and therefore the test was limited to three groups of 1-3 years, 3-6 years and 6-10 years. In total, this hypothesis was tested on 68 people who were divided into 14 teams (4.85 people per team), therefore approximately 5 team members. The results both show a strong support of the hypothesis (Illustration 88 and Illustration 89). The author was able to conclude that the results indicate that teams with a higher age range perform better. It must be noted, however, based on the data shown (Illustration 88), that one group which had a big age range performed very poorly. Further research could indicate the presence of a breakeven point in which the positive trend might change back into a more negative one. The author links this result to the work of Katzenbach, Watson and Smith who showed that demographically diverse teams communicate better, show increased cooperation and better collaborative abilities thus increasing the performance outcome. The validation results shown in the present work also show a tendency to support the increase of Team Performance. While the survey results as well as the secondary analysis supports the hypothesis, the validation data does not show any clear

correlation (R^2 is 0.33 and not 1.0) therefore the validation delivers support to the trend already shown in the secondary analysis and survey results.

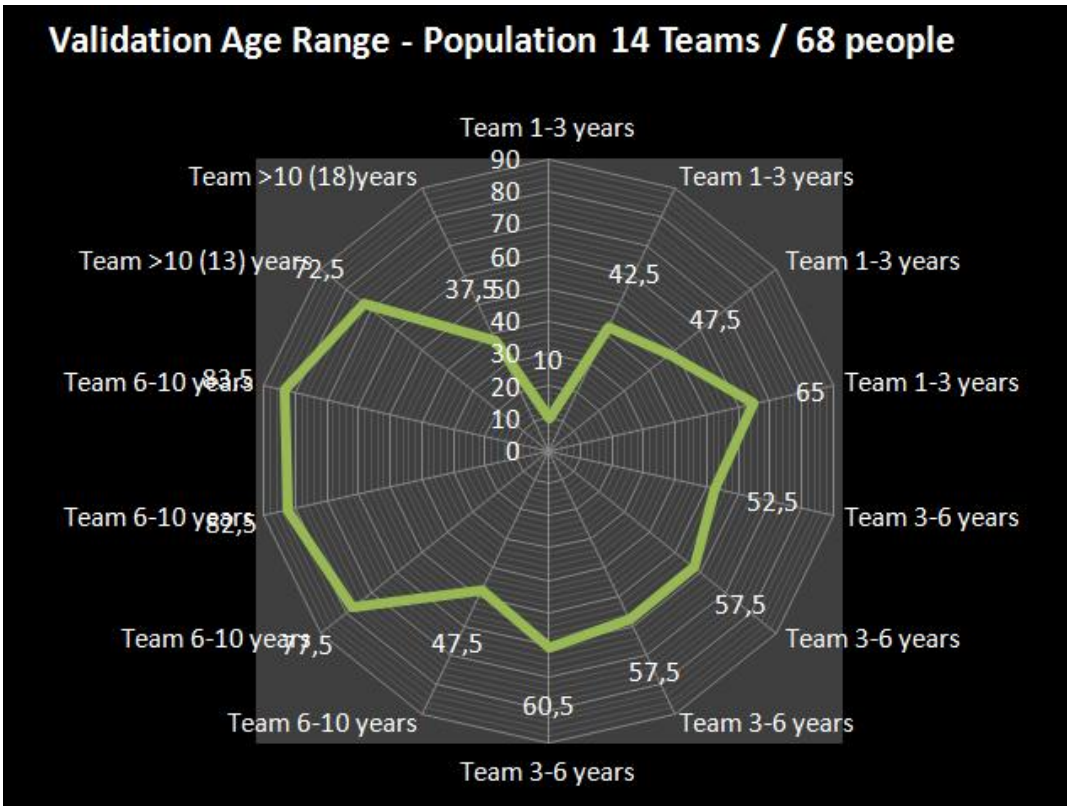
Illustration 89: Cumulated Age Range Validation Result



Source: Giesa, Andreas Michael, A Validation Result of an empirical research study in measuring Team Performance under the determine of behavior, International Academy of Business Economics, Winter Conference, USA, 2012, p.5

The results showing a correlation between a higher age range resulting in higher Team Performance is shown (Illustration 90). The results of the age range 1-3 years are the lowest except for one evaluation, the age range of 3-6 years present a high result number between 52-60 points and the age range result 6-10 years increase the results achieved to up to 72.5 points with the exception of two teams. Based on this analysis, it can therefore be concluded that the validation results show a positive correlation with the defined hypothesis $H_{y1TBP.}$

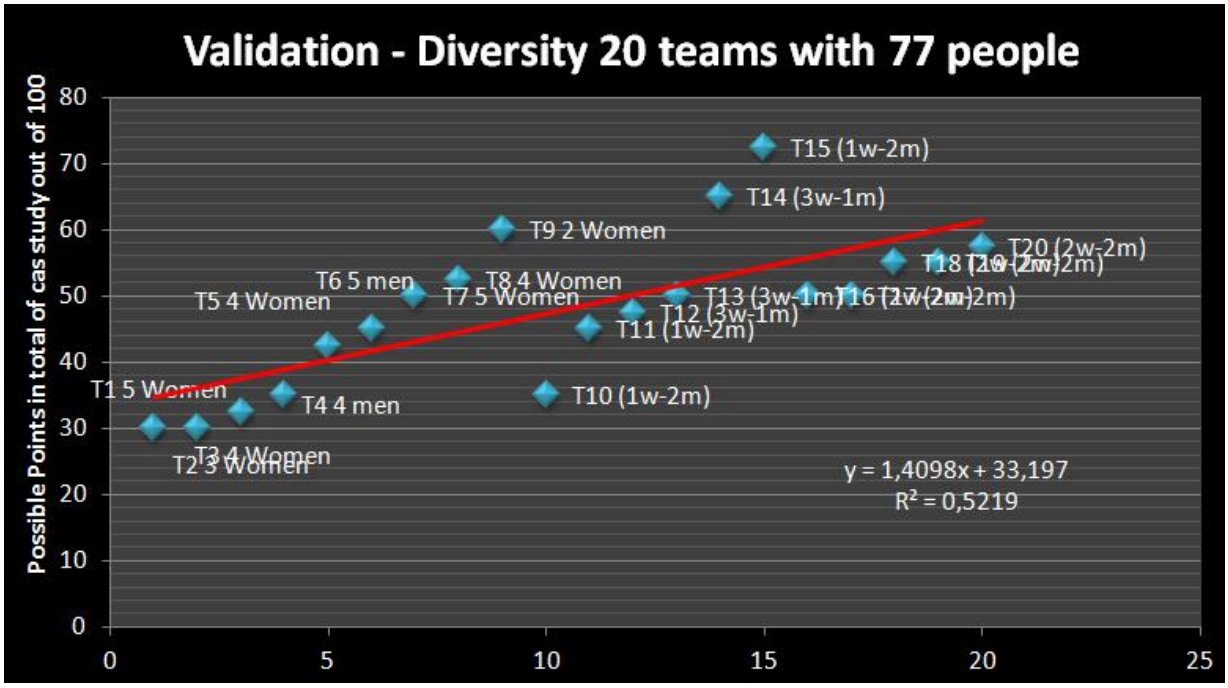
Illustration 90: Cumulated Age Range Validation Result in a Net Result



Source: Author – cumulated validation data of the case studies from the student's populations from Austria, German and Latvia Universities

The hypothesis H_{y1TB} was tested on the diversity index which states that the higher the index, the higher the Team Performance will be. The author tested this with 77 students (20 teams). Each team had an average of 3.85 people, thus 4 members per team. The validation was limited to this evaluated population and it was presumed that other variables remained constant these were therefore not taken into consideration. The validation of the results of impact between gender relation and Team Performance is shown (Illustration 91). The validation results hypothesis appears to deliver a positive trend when aligned with the results of the survey and the secondary analysis. The illustration 91 delivers a clear trend of the dependency of gender in relation to participation to strong or weak Team Performance.

Illustration 91: Cumulated Diversity Index Validation Results

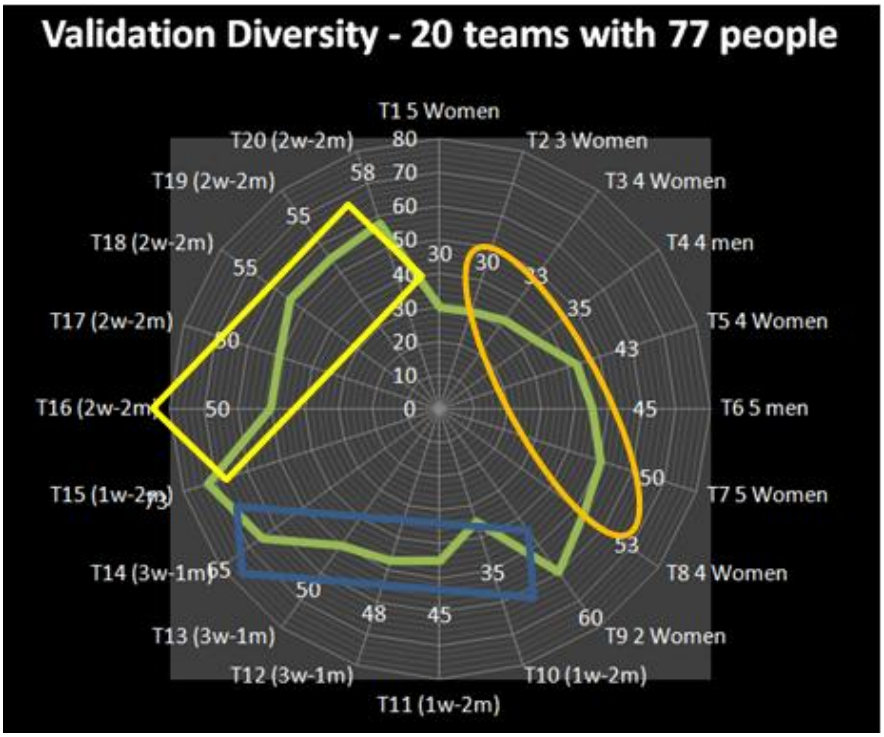


Source: Giesa, Andreas Michael, A Validation Result of an empirical research study in measuring Team Performance under the determine of behavior, International Academy of Business Economics, Winter Conference, USA, 2012, p.6

The R^2 (0.52) confirms the previous results obtained. From the results it is clear that the more equal the gender distribution in a team gets, the higher the increase in performance will be. The mixed gender team with two females and two males received the highest outcome when compared with the other teams. In addition, an interesting outcome is that the development of females only up to the gender mix is directly linked to the performance. At this stage, it is worth noting that this result correlates to results from the literature and to the theoretical part of this research, in which it was stated that the author Wood found that gender-balanced teams had more positive interaction, better communication and reduction in conflict, which leads to a higher performance.[313] Another perspective on the result is shown in Illustration 92. The green line in the net validation diversity illustration 92 presents the achieved points linked to the hypothesis of the teams.

[313]Wood, W.: Meta-analytic review of sex-differences in group performance, Psychological Bulletin, 102, 1987, p.53-71

Illustration 92: Cumulated Diversity Index Validation Results in a net format



Source: Author – cumulated validation data of the case studies from the student's populations from Austria, German and Latvia Universities

The orange circle denotes the performance of teams consisting of males only, while women in teams and the lower achieved results numbers are show clearly. Next, the author outlined with the blue parallelogram that a gender mix of several males and one female or more females and one male. The results present a mixed trend, but are generally higher than that of teams consisting of only one gender. Lastly, the author indicated teams with equal gender composition in form of a yellow square that also presents a high level of achieved points in the area of 50 and above.

In conclusion, the author states with the hypothesis H_{y1TB} a positive tested result. In summary, the research method of the laboratory test for validating the hypothesis were positively implemented by the author and delivered a positive tendency for all three hypotheses.

4.2 Summary and reflection of the research results as linked to the validation in the behavioral TP

The research performed has yielded valuable results for future research and business applications in the field of determinants of Team Performance in business organization empirically researched under influence of humanity and validated with the population of students at Universities in Austria, Germany, and Latvia. The research commenced with a wide scope on the H_{y0} (TP) = f ($H_{y1TT,}$ $H_{y2TT;}$ $H_{y1TBP,}$ $H_{y2TBP;}$ $H_{y1TB,}$ H_{y2TB}) hypothesis and was further developed into a 12 dimension Team Performance model under which the author defined a new cluster behavior with the dimension Team Trust including the hypotheses: H_{y1TT} (The higher the heterogeneity, the higher the Team Performance will be), H_{y2TT} (The higher the knowledge and interests of people in the same business field are closely related, the higher the Team Performance will be), the second dimension Team Behavior with H_{y1TB}(The higher the diversity index in a team, the higher the Team Performance will be), and H_{y2TB}(The higher the amount of vacation days not taken, the higher the Team Performance will be). Lastly, for the dimension Team Behavior Personality there were two hypotheses: H_{y1TBP} (The higher the age range in the team, the higher Team Performance will be)[314] and H_{y2TBP}(The higher the level of education in the team, the higher Team Performance will be). Based on the research methods used, including a laboratory pre-test, secondary data analysis of around 68 teams consisting of 602 individuals, a survey with around 320 replies and a laboratory validation process of approximately 56 teams comprising 256 international students in a scientific University European wide environment, three hypotheses delivered a strong trend analysis and one hypothesis gave results but without validation.

H_{y1TT} represents the team trust dimension in the 12 dimension model in the cluster behavior. The secondary analysis showed that the heterogeneity and productivity rate measured in the Team Performance showed a high overlap, so that a clear linkage could be concluded. The survey result supported this hypothesis with a 58%-60% majority. The validation also supported the hypothesis that teams consisting of members from one nationality perform on a

[314]Kluge, Annett, "mixed aged teams become in advance in the German economy", University Duisburg-Essen, Computer Woche, Edition 46/10, p.40

lower level when compared to teams that are heterogeneous. Based on the research results, the author can conclude that H_{y1TT} has been positively validated.

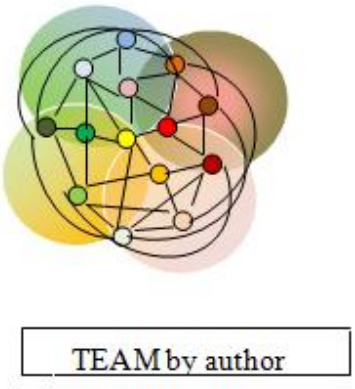
H_{y1TB} defines the measurement of the second dimension Team Behavior. The secondary analysis did not show a clear linkage between Team Performance and the diversity index. However, the Team Performance survey strongly supports the hypothesis with the result of 58% agreement obtained from 316 people answering the question. In addition, the independent validation in the laboratory test of European University environment proved a clear support for this hypothesis with a $R^2 = 0.52$. The second hypothesis for this dimension (H_{y2TB}) was also proven in the secondary analysis. The survey delivered a 52% positive trend, so that the H_{y2TB} can be seen as having a positive correlation, even though no validation was done. In conclusion, the author includes this H_{y2TB} with a positive trend in the research, but a validation should be done in future studies.

H_{y1TBP} stands for the dimension of Team Behavior Personality in the 12 dimension Team Performance model in the cluster of behavior. At the commencement of the current research, a mild correlation between Team Performance and productivity rate was observed in the secondary analysis. However, the Team Performance survey changed the perspective and showed a strong correlation of 67% with a low deviation (0.96), variance of 0.91 that supported the H_{y1TBP}. The validation process also showed a positive trend of the H_{y1TBP} in which it could be observed that a positive correlation between broad age ranges of team members and increased Team Performance existed.

As a result, the author concludes that the main H_{y0} were positively proven as tested by H_{y0} (TP) = f ($H_{y1TT,}$ H_{y1TB}, H_{y1TBP}) + (H_{y2TB}*z); in which z stands for the unknown impact of the validation that was not implemented in this hypothesis.

In conclusion, it can be stated that the original TP = f(TPr, Fr, Vr); f (AR,Ed,H,DI) + (BR) can be reduced to TP = f(TPr, Vr); f(AR, H, DI). Furthermore, based on the results, the author concludes that the definition of a team can follow Weinert's definition but should include the definition based on the author's approach, which includes the behavioral component. In this model, each individual, present in a circle has a different color because of a different behavior, and each individual is connected to the other individuals that make up the team. The color of the team reflects the diversity in behavior (Illustration 92).

Illustration 93: Definition of a team by the author

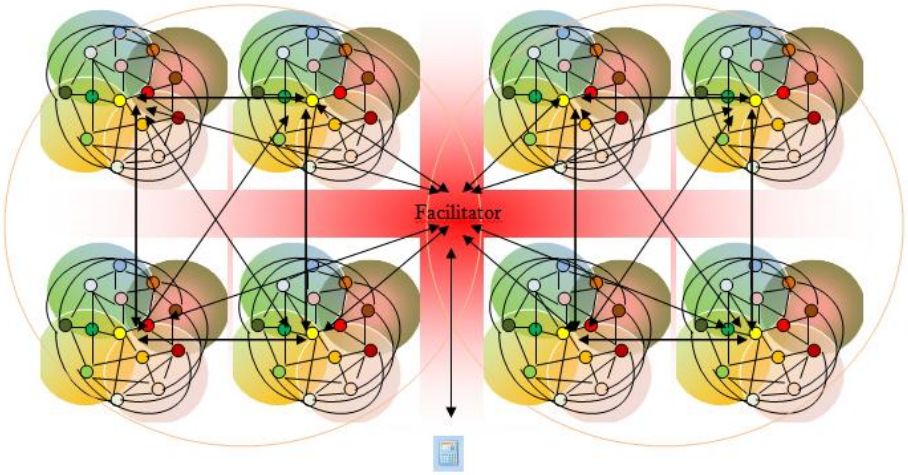


Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under the influence of behavior – validated in a European Environment, international Conference, New Challenges of Economic and Business Development, Latvia, 2012, p.216

The author is able to conclude, based on the empirical research results that Hy_0 is valid if Team Performance is measured in business organizations, and it will be affected by behavior which is measurably impacted by the other team members. In addition, it was shown that behavior can be measured based on clearly defined key indicators and that one can thus evaluate the impact on Team Performance. As a result, the author concludes that the definition of team development should include determinants of behavior and be measured in the field of Team Performance. It can also be concluded that because of the H_{y0} (TP) = f ($H_{y1TT,}$ $H_{y1TBP,}$ H_{y1TB}) + (H_{y2TB}*z) the 12 dimension model can be defined as a valid approach to evaluate Team Performance including the behavioral determinants. The present work has clearly shown, by means of empirical research, that there is a positive correlation between Team Performance and behavior and it can therefore be concluded that Team Performance measurement should include a behavioral dimension. A model was presented, tested and implemented by the author (Illustration 94) that includes cluster behavior which should regularly be used when evaluating Team Performance. Further should continue empirically in the field of behavior and move to the next research step by starting to analyze the interrelations and correlation among behavioral patterns and behavioral measurements. The author proposes that empirical studies in the behavioral impact arena should be conducted because the result of this behavioral empirical research including the European wide validation process has proven that behavioral research can be made measurable and be evaluated based on hard indicators, but that it will also remain

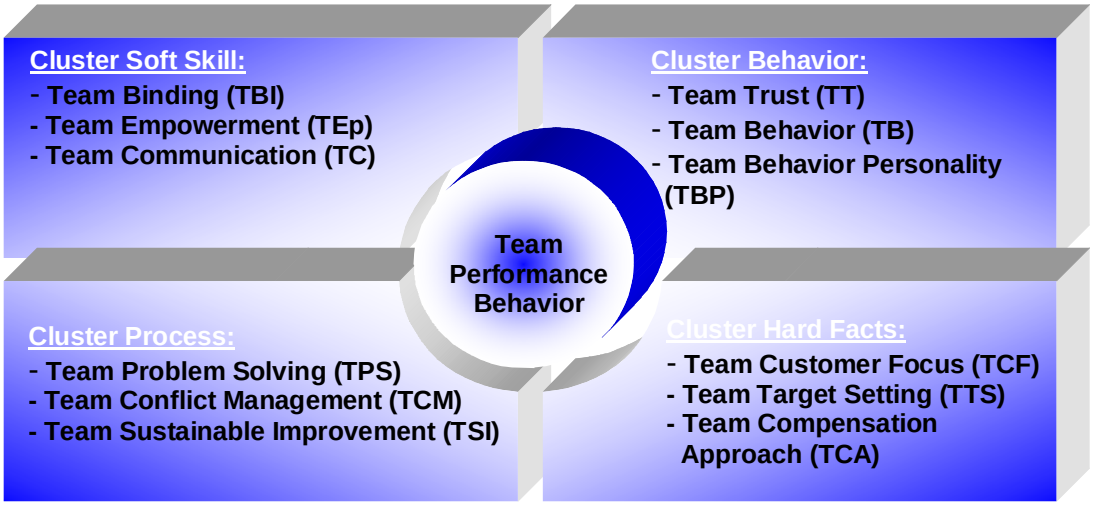
somewhat limited due to the selection of specific countries. On the other hand, the author also expects further implications with respect to a change of the team definition aspects including the behavioral dimension as the present work has developed a new definition of a team.

Illustration 94: Theoretical trend: Composition of teams under determinants of behavior



Source: Giesa, Andreas Michael, Reflection on the definition of "Team" based on a result of measuring team performance under the determinant of behavior, International Business and Economics Conference, Innovative Approaches of Management Research for Regional and Global Business Development, Austria, Kufstein, August 3-5th, 2012, in progress of publishing

Illustration 95: The 12 Dimension-Model for Team Performance incl. context of behavior



Source: Giesa, Andreas Michael, Determinants of Team Performance in Business Organizations empirically researched under the influence of behavior – validated in a European Environment, International Conference, New Challenges of Economic and Business Development, Latvia, 2012, p.217

Beyond this, the author proposes a novel method for setting up teams to increase Team Performance. Based on the research H_{y0} (TP) = f ($H_{y1TT,}$ $H_{y1TBP,}$ H_{y1TB}) + (H_{y2TB}*z), which leads the author to propose that in further empirical studies in addition to practical settings to test the variables relating to Team Performance and to set up teams based on the research result.

A team with H_{y1TT} compared to a non heterogeneous team should automatically perform better. It can also be concluded that a team based on H_{y1TBP} with a higher age range, means combining more experienced, older people with less experienced, younger people with a fresh outlook and will drive a higher Team Performance result than teams in the same age level. H_{y1TB} delivered a positive result that a gender mix in teams appears to have an impact on Team Performance, therefore a 50% mix of genders should be set into teams for increasing the Team Performance result. In summary, the author has delivered an interesting behavioral result and impact to teams and further research should align and build on these trend analyses.

In closing, it can be stated that the empirical research results give evidence that behavioral economics is continuing to enter the field of economic research. The author has empirically proven a trend corresponding to Cammerer's statement that behavioral economics increases the explanatory power of economics due to realistic psychological, measurable and empirically proven foundations. The author supports, and hopes to initiate, further studies in the field of behavioral economics and study further implications in continuing empirical studies.

Conclusions and Suggestions

The author was able to confirm a trend based on the empirical research result that H_{y0} if Team Performance is measured in business organizations, and that it will be affected by behavior which is measurably impacted on by other team members. Beyond that, the author showed that behavior can be measured based on defined key indicators and can be used to evaluate the impact on Team Performance. The author empirically supports the trend of behavioral economics entering the economic environment and showed that an analysis of Team Performance should include a behavioral dimension in addition to team definitions needing to consider behavior. To summarize, the author has delivered a behavioral result and impact on teams in order to build on these trend analyses. As a final point, the delivered empirical research results give evidence that behavioral economics is continuing to enter the economic measurable environment. The author has empirically proven a trend of Cammerer's, C.F., Loewenstein's and Rabin's, M. statement that behavioral economics increases the explanatory power of economics due to its realistic psychological, measurable and empirically proven foundations.

Based on the conclusions and findings from the most significant research papers by other countries and authors:

1. Mullainthan and Thaler defined behavioral economics, which the author chose as a basis for the present study because of the key linkage between psychology, economics, and the external market environment. "Behavioral economics is the combination of psychology and economics that investigates what happens in markets in which some of the agents display human limitations and complications." The definition thus relates and combines economic and psychological theories and methods and it focuses on psychology and economics. A key factor is the aspect of social and cognitive psychology.
2. The perspective of the term varies with the author. For example Van Dick *et al.* define a team as any group of people, who work together. This work can be cooperative or interdependent in order to produce goods or services. Schneider *et al.* emphasize the responsibility of each team member for reaching the goals. The purpose is to meet the needs of customers of the organization. Weinert advocates the need for performance in a

team. The author shows, that in this context, a team is not only a group of people working together, but a self-organized connection of individuals who work closely together.

3. The author defines Team Performance in the same was as given in the work of Sundstorm, i.e. that Team Performance is “the extent to which a work team meets the performance expectations of key counterparts - managers, customers, and others - while continuing to meet members’ expectations of work with the team”.
4. Hackmann states that the Multidimensionality of Team Performance could be determined by means of three criteria: Firstly, the team’s productivity; secondly, the social, intellectual or material rewards given to the team members; and thirdly, the sustainability of the team as a social unit over time. Moreover, the facilitator and the behavioral determinants need to be included in this assessment.
5. Researchers as Mc Carrey, Mc Leod, Jackofsky, Slocum, Quaid, and Shaw have analyzed the relationships of cultural diversity in team and concluded that cultural differences lead to a higher quality of decision making characterized by a diversity of ideas and inputs as well asmany behavioral styles that lead to a higher quality of problem solving.
6. In contrast, researchers such as Williams and O’Reilly or Chatman and Flynn in their analysis showed that diversity in gender, nationality and time with the company lead to a decreased performance.
7. Wood has shown in his analysis that mixed gender teams generally appear to perform better than homogeneous-gender teams. In addition, the author has also shown that women tend to perform better than men and teams with a higher educational level tend to perform better by gender diversity.
8. Sutter found that group membership changes individual behavior . For this, the “in group” does not need to have an interaction with an “out group”. The stress is put on the membership of the group. Sutter’s findings ties in with those of Chariness *et al.*, who have shown that group membership makes individual behavior more competitive.
9. The background of individual behavior in a team context is illuminated by the findings for example of Rosenthal, who showed that acting as a team member is a special behavior for individuals. The relationship between the people within a team gains great importance and the connections are valued highly.

Conclusions

After gathering the research data and analyzing the results, the author has confirmed the thesis put forward in the Promotion Thesis and arrived at the following key conclusions out of this empirical research in measuring Team Performance under the determinants of behavior:

1. Behavioral economics is becoming more significant to the economic research environment. The defined measurable indicators proposed by the author have proven the clear trend based on the impact of the determinant behavior in measuring Team Performance and shown that behavior is measurable. The author has also shown by means of an empirical research method (representative survey) that behavior impacts Team Performance. The Pre-Test, the secondary analysis as well as the Pre-Survey delivered a positive correlation to this hypothesis.
2. The author has also shown that the definition of teams and Team Performance should be broadened to include the criteria of behavior because it measurably impacts the Team Performance.
3. Business organizations that measure Team Performance should include a behavioral determinant because it has a measurable impact to the performance and also on the way teams are put together.
4. Business organizations that are profit-oriented should adjust their people strategy to a different gender focus based on the author's research results. People strategy should focus more on heterogeneity as well as gender criteria.
5. Business organizations must recognize, when setting up project teams and other teams in general, that heterogeneity directly impacts Team Performance. Teams comprising members of only one nationality or without international experience of at least six months do not perform as well as teams that are made up of individuals from different nationalities or with international experience of at least six months. The author's research delivered a positive trend in the research methods of a laboratory pre-test, a clear trend in the secondary analysis, 60% positive feedback in the pre-test of the survey, 68% (out of n=331) answered in the survey that heterogeneity has a positive impact on Team Performance. Lastly, the author has proven in the validation by involving 22 teams with in total 111 people a positive trend with R^2 of 0.7 and a function of $y = 5x+81$.
6. Business organizations measuring Team Performance or setting up teams should focus on the age range in teams. The higher the age ranges in a team, with the limit of age range of

around 18 years, the better the Team Performance. In the research method of the survey, the author has shown a clear positive trend (67% of 306 survey participants) regarding the fact that a broader age range within teams has a positive impact on Team Performance. Only 10% of respondents did not agree with this statement. During the validation process of 14 teams with 68 people a positive trend with $y = 2.7x+36$ was also given.

7. Business organizations also need to be aware of a balanced team set up with respect to gender. Teams are ideally always set in a 50:50 split between men and women which comprises the best performing team (in theory). The change of the gender mix will directly impact the result and the one similar gender team (only men or only women) will generally exhibit lower performance than other gender mix constellations. The result of the author's survey, in which by this question was answered by 316 people, yielded a 58% level of support for the statement claiming that gender diversity positively impacts Team Performance. In addition, the validation with 20 teams consisting of 77 people delivered a positive trend with $R^2 = 0.5$ and a positive trend function of $y = 1.4x+37$.
8. Business organizations subject to legal requirement regarding the number of vacation days to be taken consider in teams with a high open vacation status an indicator for a high performing team and employees are not to be punished for not having taken their allotted vacation days. The author outlines at this stage that there is a German law who give employees the right to take at least 25 days of vacation per calendar year, mostly 30 days and employees have the right to take them any time or postpone them. The result of the research methods in the survey stated that 52% of the 316 survey respondents stated that they care more for the Team Performance than for the opportunity to take the right of vacation. Only 10% of respondents did not support this statement.
9. Business organizations have to develop a more gender equal and also age oriented work environment that includes adjustments in working style, working environment, working hour flexibility to be attractive for more women or men depending on their workforce structure and business. New aspects such as childcare and healthcare should be part of a benefit scheme.
10. Business organization should adjust their training programs due to a more heterogenic, diverse and aging population and consequently different existing leadership and management styles.

11. Business organizations should change their recruiting strategy and try to adjust it to the research results and their own needs according with respect to employee age, gender and heterogeneity.
12. Business organizations should also review their existing organization and people structure and initiate and define ways to align into a more performance-oriented approach based on the results of the research. Companies should form their teams according to the research findings.
13. Business organizations can benefit from aligning their people development, people target settings and succession plans with the research results in order to have an age range focus, incorporate gender aspects and a heterogeneity element into their plans.
14. Business organizations that operate in legal framework as seen in Germany with respect to vacation day status should review their current strategy of how to deal with the right of the employee to take vacations at will and balance this with the performance driver that was identified in this research. In other words, it may not make sense to force employees to use their right to go on vacation when it is clear that the Team Performance is a priority for them and that a reduction in days leave taken will the business performance will increase as well.
15. Business organizations could initiate an audit to review their Team Performance and team set ups in general and try to identify improvements and actions for change according to the research findings.
16. Business organizations should adjust their human resource manuals, project management manualsand management training manuals with respect to the setting up of teams and link these to the empirical research findings.
17. Business organizations working in an international environment should adjust their guidelines and policies with regard to sending people into teams, leadership and management functions based on the delivered research results.

The hypothesis put forward in the dissertation "If Team Performance is measured in business organizations, it will be affected by behavior and is measurably impacted by the other team members" has been proven.

Suggestions

The author suggests the following on the basis of the scientific studies:

1. The author recommends that all business organizations, companies, legal entities, and project business that measure Team Performance and are profit oriented, should include a determinant behavior and individually define the indicators.
2. The author recommends that all business organizations that are working with teams should start measuring Team Performance by including behavioral criteria and reviewing the performance development.
3. Since the balancing of professional, family and private life is an often unsolved issue for women and men, companies should invest more into a working environment that men and women can equally participate in and therefore make a 50:50 gender participant ratio in teams. The author does not support simply moving women into upper managerial functions in order to achieve an equal ratio, but to drive the diversity aspect on all levels of a business organization. also In so doing, the author bases his opinion on the findings that teams with an unequal gender distribution or just one gender exhibit lower Team Performance.
4. To solve the problems regarding the participation of women in various positions throughout industry, the author proposes that gender equality should become a feature in all daily routines in business organizations. It is required to evaluate the overall market situation of gender equality and set up initiatives to become more balanced in this field. Business organizations invest long-term in educational and social environment to increase workplace suitability with respect to all gender requirements.
5. Business organizations, consulting companies, firms that specialize in reorganization, outplacement companies, headhunters and psychologists should take the research results into consideration and encourage organizations to set up their teams to include the behavioral approach.
6. Business organizations should also encourage their Human Resources department and training institutions to align their strategy, programs and development plans according to the research findings.
7. The author proposes that business organizations should invest in long-term relationships with schools and universities in order to encourage young people to join their organization, and should also invest in the acquisition of new talent by by means of mentoring programs,

scholarships, trainee programs and working student program to obtain the targeted resources they need for their ideal teams.

8. Hobby clubs that are involved in organized competitions could use the research results to define their teams and leverage their performance via a smarter team set up.
9. The author suggests in general to business organizations that are bound to a similar legal law with respect to vacation days as is the case in Germany to develop an employee vacation account without limitation and to drive the business project instead of forcing employees to take the right of vacation up to a specific date. The advantage would be an increase of flexibility for the employee and organization and, based on the research, will drive an increase of performance.
10. To increase the heterogeneity in business organizations, the author suggest to hire more managers with a heterogenic background and to search in the recruiting phase not only in the country where the position should be based but also in neighboring or culturally related countries.
11. In some countries around the world, the population graphic is prominently skewed towards ageing. The author suggests that business organizations should focus more on an effective age ranged distribution in their teams, department and company and not force older employees to leave and in so doing lose the benefit that their experience brings the company. Based on the research results, it is clear that teams consisting of both younger and older team members show increased Team Performance.
12. Many business organizations are also driven by sales and services functions. The author proposes to use the age range approach for increasing the sales and service profit by aligning their sales and service teams according to the research results.
13. A broader team age range led to an increase in Team Performance. The author suggests building this into the composition of research and development teams as well as in innovation teams an age range focus so that the result of the innovation increases in organizations.
14. The author also proposes that even organizations that are not driven by profit e.g. universities, schools and kindergartens should take the result of the research into consideration to improve their teaching style , effectively dividing students into different classes, groups and teams as far it is possible. It would have the advantage of improving

performance and the students would then already be used to the approach when they graduate and start their first job.

15. Based on the strong result in the empirical research by the survey that 79% of the answered people out of 305 stated that behavior has a strong impact on Team Performance and only 4% disagree, the author suggests that business organizations should focus more on the topic behavior in general and concentrate and deliver guidance to those working in teams, groups and departments.
16. The Ministry of Education in Germany should take into consideration that diversified and heterogeneous classes deliver a higher output for the communities and should therefore financially such groups. Such programs would further encourage diversity with respect to culture and gender.
17. The Ministry of Family, Women and Youth in Germany should develop programs that foster a positive environment and develop a political framework for businesses organizations to become more open and flexible, so that women enter more into all business areas thus allowing for a 50:50 % gender ratio in teams.
18. The Ministry of Labor in Germany include diversity in their job agencies so that they focus on the age range, heterogeneity and diversity results in order to successfully place suitable candidates in new jobs.

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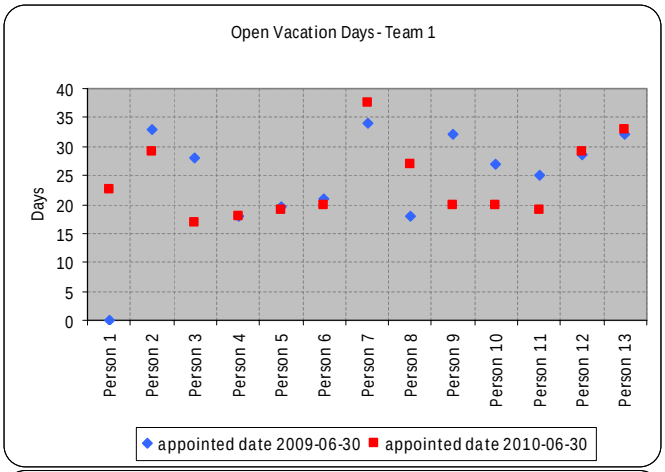
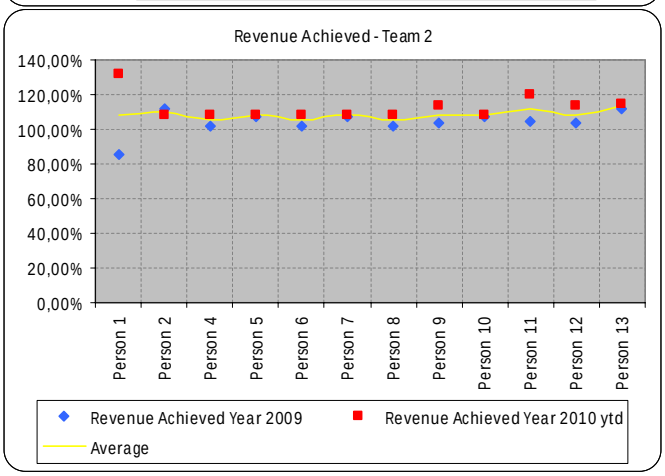
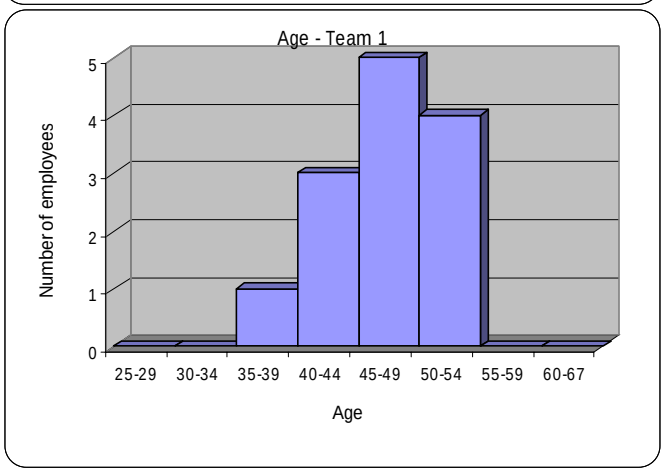
Annex N.1 – Overview of publications

1. Giesa, Andreas Michael, **Laboratory Case Study on Behavior Change: Is it possible to train behavior and trigger a sustainable change?**, Current Issues in Management of Business and Society Development, Riga, Latvia, May 5th-7th, 2011, p. 1-16.
2. Giesa, Andreas Michael, **Team Performance & Behavior Economics linked to a brief laboratory Pre-Test of measured behavior influence as a determine of Team Performance**, International Conference, Academy of Business Administration, London, UK, August 3rd-7th, 2011, p. 80-87.
3. Giesa, Andreas Michael, **Measuring Team Performance under the determinants of behavior a result of a Pre-Test Survey**, International Conference in Current Issues in Economic and Management Sciences, Riga, Latvia, November 10th-12th, 2011, p. 216-230.
4. Giesa, Andreas Michael, **Measuring Team Performance under the determine of behavior - An Empirical Result – Survey**, International Conference, Fulda, Germany, December 1st-3rd, 2011, in progress of publishing 2012
5. Giesa, Andreas Michael, **A Secondary Analysis in Team Performance to Determine Behavior in a Software Population**, The Journal of American Academy of Business, Cambridge, Conference in Miami, USA, December 8th-10th, 2011, p. 179-188.
6. Giesa, Andreas Michael, **A Validation Results of an empirical research study in measuring Team Performance under the determine of behavior**, International Academy of Business and Economics, Winter Conference, Key West, Florida, USA, March 9th-11th, 2012, p. 78-83.
7. Giesa, Andreas Michael, Inesa Voroncuka, **Determinants of Team Performance in Business Organizations empirically researched under influence of behavior – validated in a European Environment**, International Conference, New Challenges of Economic and Business Development, Riga, Latvia, May 10th-12th, 2012, p. 215-230.
8. Giesa, Andreas Michael, **Reflection on the definition of "Team" based on a result of measuring team performance under the determinant of behavior**, International Business and Economics Conference, Innovative Approaches of Management Research for Regional and Global Business Development, Austria, Kufstein, August 3rd-5th, 2012 in progress of publishing

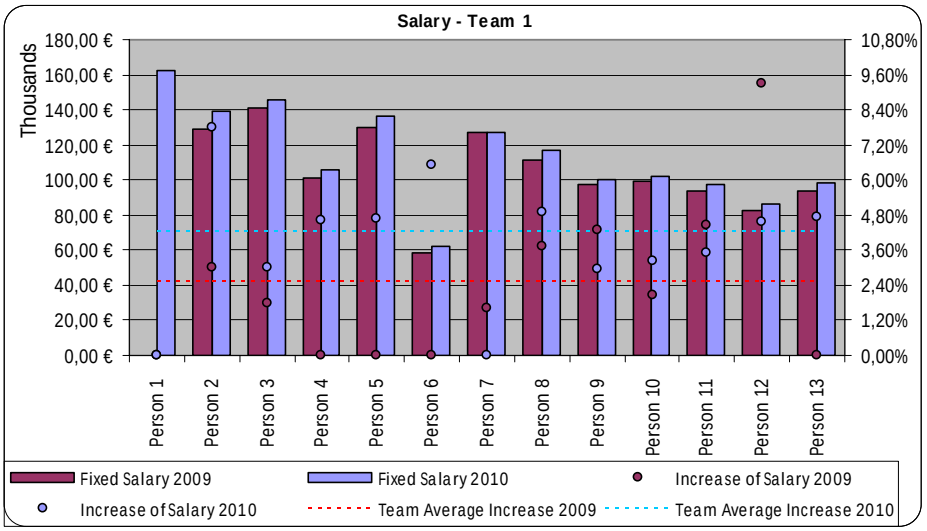
Annex N.2 – Example of secondary analysis

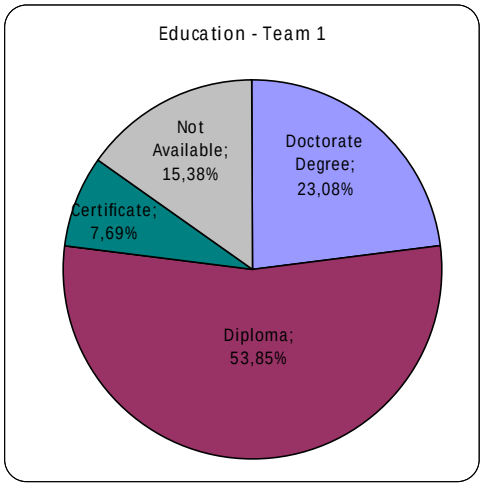


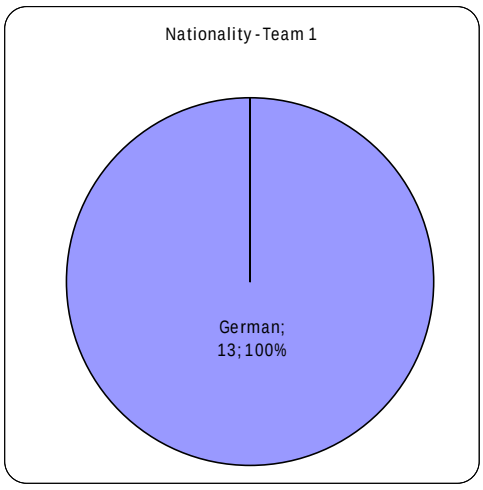


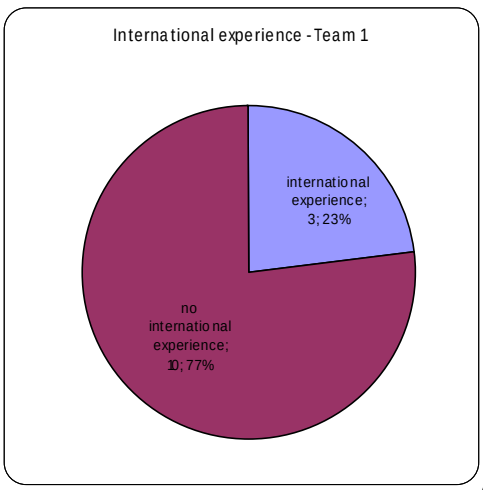


1


Salary - Team 1
Thousands
180,00 €
160,00 €
140,00 €
120,00 €
100,00 €
80,00 €
60,00 €
40,00 €
20,00 €
0,00 €
10,80%
9,60%
8,40%
7,20%
6,00%
4,80%
3,60%
2,40%
1,20%
0,00%
Person 1
Person 2
Person 3
Person 4
Person 5
Person 6
Person 7
Person 8
Person 9
Person 10
Person 11
Person 12
Person 13
Fixed Salary 2009
Fixed Salary 2010
Increase of Salary 2009
Increase of Salary 2010
Team Average Increase 2009
Team Average Increase 2010


Education - Team 1
Not Available; 15,38%
Doctorate Degree; 23,08%
Certificate; 7,69%
Diploma; 53,85%


Nationality - Team 1
German; 13; 100%


International experience - Team 1
international experience; 3; 23%
no international experience; 10; 77%

2

Excel Overview Extract:

			F/M		YesNo	Below Bachelor, Bachelor, Master, Dr
			Diversity	Heterogeneity Topic		Education
Name		Person	Gender	Nationality	Living Exper Abroad	Education
	Teamleader	1				
	TeamMemeber	2				
	Total per Team					
Person 1	Teamleader	1	M	German	yes	Doctorate Degree
Person 2	TeamMember	2	M	German	yes	Diploma
Person 3	TeamMember	2	M	German	no	Certificate
Person 4	TeamMember	2	M	German	no	Diploma
Person 5	TeamMember	2	M	German	no	Doctorate Degree

				Amount	Number	Naumber Range
			Business Relation	Fluctuation Rate	AGE Topic	
Name		Person	Business Field	Fluctuation in Team	Age	Team Age Rage
	Teamleader	1		2009-06-30 - 2010-06-30		2009-06-30
	TeamMemeber	2				
	Total per Team					
Person 1	Teamleader	1	Unit 1		49	
Person 2	TeamMember	2	Unit 2		45	
Person 3	TeamMember	2	Unit 3		53	
Person 4	TeamMember	2	Unit 4		51	
Person 5	TeamMember	2	Unit 5		53	

			Days	Days	
			Vavation Topic		
Name		Person	Open Vacation Days Year 1	Open Vacation Days Year 2	Average per employee
	Teamleader	1	appointed date 2009-06-30	appointed date 2010-06-30	
	TeamMemeber	2			
	Total per Team				
Person 1	Teamleader	1	Not Available	22,5	22,5
Person 2	TeamMember	2	33	29	31
Person 3	TeamMember	2	28	17	22,5
Person 4	TeamMember	2	18	18	18
Person 5	TeamMember	2	19,5	19	19,25

			Days	Euro	Euro
			Vavation Topic		
Name		Person	Team Average Vacation Rate of 2 years	Current Fixed Salary year 0	Current Fixed Salary year 1
	Teamleader	1	Average		appointed date 2009-06-30
	TeamMemeber	2			
	Total per Team				
Person 1	Teamleader	1		Start 2010-04-01	Start 2010-04-01
Person 2	TeamMember	2		125.000,00 €	128.750,00 €
Person 3	TeamMember	2		138.666,00 €	141.166,00 €
Person 4	TeamMember	2		101.295,00 €	101.295,00 €
Person 5	TeamMember	2		129.903,00 €	129.903,00 €

			Euro	%	%
				Salary / Performance	Productivity - Topic
Name		**Person**	**Current Fixed Salary year 2**	**Increase of Salary 2009**	**Increase of Salary 2010**
	Teamleader	1	appointed date 2010-06-30		
	TeamMemeber	2			
	Total per Team				
Person 1	Teamleader	1	162.000,00 €	Start 2010-04-01	Start 2010-04-01
Person 2	TeamMember	2	138.750,00 €	3,00%	7,77%
Person 3	TeamMember	2	145.400,98 €	1,80%	3,00%
Person 4	TeamMember	2	106.000,00 €	0,00%	4,64%
Person 5	TeamMember	2	136.000,00 €	0,00%	4,69%

			%	%
			Revenue / Productivity Topic	
Name		**Person**	**Revenue Achieved Year 1**	**Revenue Achieved Year 2**
	Teamleader	1		
	TeamMemeber	2		
	Total per Team			
Person 1	Teamleader	1	Start 2010-04-01	Start 2010-04-01
Person 2	TeamMember	2	85,20%	131,60%
Person 3	TeamMember	2	108,76%	116,22%
Person 4	TeamMember	2	65,07%	91,05%
Person 5	TeamMember	2	64,87%	56,74%

Annex N.3 – Sample of the survey

Wissenschaftliche Studie - Empiricial Study - Online Survey - PreTest

Liebe Mitarbeiterin, lieber Mitarbeiter,

zunächst einmal vielen Dank, dass Du bereit bist an dieser Umfrage teilzunehmen und Deine Zeit investierst.

Das Ziel dieser Untersuchung ist es mehr über den Zusammenhang und die Auswirkungen von Teamzusammenstellungen auf das Teamverhalten zu erfahren. Diese Erhebung wird im Rahmen einer wissenschaftlichen Studie durchgeführt und Deine Angaben werden natürlich absolut vertraulich behandelt und anonymisiert.

Für die Beantwortung des Fragebogens brauchst Du etwa 10 Minuten. Der GBR wurde über die Umfrage informiert und genehmigt die Durchführung. Bitte fülle den Fragebogen bis zum 2. November aus.

Wenn Du Fragen bezüglich der Umfrage hast, dann melde Dich bitte unter folgender Telefonnummer: +49 (221) 20802 395

Vielen Dank,
Andy Michael Giesa

Vor der Befragung ist es wichtig, dass Du Dir kurz einen Moment Zeit nehmt und die Prozesse und Abläufe in Deinem Team vergegenwärtigt. Bitte beziehe alle Antworten auf das derzeitige Team. Deine Meinung ist hier wichtig!

---

in English:

Dear employees:

First of all I want to thank you for participating in this survey and taking the time to fill out the questionnaire.

The objective of this study is to find out more about the correlation and impact of a team's constellation on the team behavior. This survey is conducted within the course of an academic research study and your data will be handled absolutely confidential and anonymous. It will take you about ten minutes to complete the questionnaire. The works committee was informed about this study and approves it. Please complete the survey until November 2nd, 2010.

If you have any questions regarding the content of the questionnaire, please contact +49

(221) 20802 395

Thank you very much,
Andy Michael Giesa

Before you start filling out the questionnaire, please take a minute and visualize your current team situation. Please refer to your current team with your answers.
Your opinion is important.

Doktorand / Doctoral Student

Andy Michael Giesa

Persönliche Informationen / Personal Data
Question 1

Alter / Age

- below 20
- 20 - 29
- 30 - 39
- 40 - 49
- 50 - 59
- above 60

- Don't know/no answer

Persönliche Informationen / Personal Data
Question 2

Ausbildung / Education

- FH Diplom / Bachelor
- University / Master
- Dr. / Phd.
- Others
- Nothing

- Don't know/no answer

Persönliche Informationen / Personal Data
Question 3

Auslandserfahrung / Lived abroad in another country

- yes
- no

- Don't know/no answer

Persönliche Informationen / Personal Data
Question 4

Resturlaub in 2010 / Open Vacation Days in 2010

- 0
- 1 - 5
- 5 - 10
- 11 - 15
- 16 - 20
- 21 - 25
- 26 - 30
- above 30

- Don't know/no answer

Cluster Verhalten / Behavior
Question 5

Vertrauen im Team / Team Trust

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Ideen von Team-Mitgliedern werden aufgenommen./ The ideas team members mention are listened to.	○	○	○	○	○	○ do not know

Team-Mitglieder vertrauen sich untereinander./ Team members trust each other.	○	○	○	○	○	○ do not know
Team-Mitglieder unterschiedlicher Nationalitäten liefern einen zusätzlichen Wert im Team./ Team members with different nationalities add value to the team's performance.	○	○	○	○	○	○ do not know
Team-Mitglieder mit unterschiedlichen Erfahrungen (z.B. Auslandsaufenthalten) stärken eine vertrauensvolle Beziehung im Team./ Team members with different experiences (e.g. experiences living abroad) lead to a greater trustfulness within the team.	○	○	○	○	○	○ do not know
Team-Mitglieder mit unterschiedlichen Erfahrungen (z.B. Auslandserfahrung) führen zu einer besseren Teamleistung./ Team members with different experiences (e.g. experiences living abroad) lead to a better performance.	○	○	○	○	○	○ do not know
Teams mit unterschiedlichen kulturellen Hintergrund sind kommunikativer miteinander./ Teams with different cultural backgrounds are more communicative with each other.	○	○	○	○	○	○ do not know

Cluster Verhalten / Behavior
Question 6

Verhalten im Teams / Behavior in Teams

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Team-Mitglieder wissen wer im Team sich eher introvertiert verhält. / Team members know who in the team behaves more introverted.	○	○	○	○	○	○ do not know

Die Team-Mitglieder wissen wer im Team sich eher extrovertiert verhält. / Team members know who in the team behaves more extroverted.	○	○	○	○	○	○ do not know
Die Team-Mitglieder interessieren sich weniger für ihre Urlaubstage sondern mehr für die Erhöhung der Leistungen des Teams. / Team members care less about vacation days, but are more interested in increasing the team performance.	○	○	○	○	○	○ do not know
Die Team-Mitglieder kennen ihren gegenseitigen Wert und schätzen die Stärken des anderen. / Team members know the value each team member adds to the team and they appreciate each other's strength.	○	○	○	○	○	○ do not know
Die Team-Mitglieder wissen wie die anderen sich in bestimmten Situationen verhalten und wie sie reagieren. / Team members know how a team member will act/react in specific situations.	○	○	○	○	○	○ do not know
Teams mit gemischten Geschlechtern (Frauen und Männer) erzielen bessere Ergebnisse. / Teams with mixed-gender (women and men) lead to better results.	○	○	○	○	○	○ do not know

Cluster Verhalten / Behavior
Question 7

Verhaltenspersönlichkeit / Team Behavior Personality

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Team-Mitglieder kennen den Charakter ihrer Kollegen/Kolleginnen. / Team members have an understanding of their	○	○	○	○	○	○ do not know

colleagues colleague's.						
Teams mit einer hohen Altersbandbreite realisieren eine höhere Leistung, weil sie insgesamt mehr Erfahrung haben. / Teams with a wider age range lead to a better performance because overall they are more experienced.	○	○	○	○	○	○ do not know
Team-Mitglieder wissen wer im Team der kreative "Chaot" ist. / Team members know who in the team has a more chaotic and imaginative working style.	○	○	○	○	○	○ do not know
Team-Mitglieder teilen ihre Erfahrungen und die Kollegen/Kolleginnen schätzen dies. / Team members are open to share experiences and colleagues appreciate this.	○	○	○	○	○	○ do not know
Team-Mitglieder kennen den/die eher weichherzige(n) und helfende(n) Kollegen/Kollegin in ihrem Team. / Team members know who has a more softhearted and helpful personality.	○	○	○	○	○	○ do not know
Teams deren Mitglieder über einen hohen Bildungsgrad verfügen erreichen höhere Ergebnisse. / Teams with a high educational level lead to higher performance results.	○	○	○	○	○	○ do not know

Cluster Verhalten / Behavior
Question 8

Allgemeine Fragen zum Verhaltenscluster / General Question to the Cluster Behavior

Die Teamleistung steigt, wenn das Team mehr über das Verhalten der Kollegen/Kolleginnen weiß. / Team Performance increases by knowing more about the behavior of the others.	○ trifft nicht zu / does not apply	○	○	○	○ trifft voll zu / fully applies	○ do not know

Cluster Soft Skills
Question 9

Team Zusammenhalt / Team Binding

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Team-Mitglieder unterstützen sich gegenseitig. / Team members support each other.	○	○	○	○	○	○ do not know
Die Team-Mitglieder respektieren sich gegenseitig. / Team members respect each other.	○	○	○	○	○	○ do not know
Die Team-Mitglieder verlassen sich aufeinander. / Team members rely on each other.	○	○	○	○	○	○ do not know
Die Team-Mitglieder arbeiten effektiv zusammen. / Team members collaborate effectively.	○	○	○	○	○	○ do not know
Die Team-Mitglieder respektieren und unterstützen sich in ihren Rollen und Aufgaben. / Team members respect and support the roles and responsibilities of the others.	○	○	○	○	○	○ do not know

Cluster Soft Skills
Question 10

Verantwortung / Team Empowerment

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Das Team hat einen guten Manager, der wichtig für das Team ist und der akzeptiert wird. / The team has a good team leader that all need and	○	○	○	○	○	○ do not know

accept.						
Die Team-Mitglieder partizipieren aktiv an der Lösung von Problemen. / Team members are actively involved in solving problems.	○	○	○	○	○	○ do not know
Entscheidungen über den Lösungsweg für ein Problem werden im Team getroffen. / Decisions on how a problem is approached are made within the team.	○	○	○	○	○	○ do not know
Die Team-Mitglieder kümmern sich umeinander. / Team members really care for one another.	○	○	○	○	○	○ do not know
Die Team-Mitglieder haben aktiv die Möglichkeit an Entscheidungen mitzuwirken. / Team members are able to take an active part in decisions.	○	○	○	○	○	○ do not know

Cluster Soft Skills
Question 11

Kommunikation / Team Communication

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Team-Mitglieder nehmen aktiv an Besprechungen teil. / Team members actively participate in meetings.	○	○	○	○	○	○ do not know
Dem Team liegen notwendige Informationen vor und es ist gut informiert. / The team information is well informed and the information level is high.	○	○	○	○	○	○ do not know
Die Team-Mitglieder und die Führungskraft hören einander zu. / Team members and the manager listen to each other.	○	○	○	○	○	○ do not know

Rollen und Verantwortungsbereiche sind den Team-Mitgliedern bekannt. / Roles and responsibilities are clear for all team members.	○	○	○	○	○	○	do not know
Die Team-Mitglieder teilen Informationen. / Team members share information.	○	○	○	○	○	○	do not know

Cluster Process
Question 12

Problemlösung / Team Problem Solving

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Team-Mitglieder analysieren und diskutieren ein Problem zusammen. / Team members analyze and discuss a problem together.	○	○	○	○	○	○ do not know
Die Team-Mitglieder lösen ein Problem zusammen. Team members solve problems together.	○	○	○	○	○	○ do not know
Die Team-Mitglieder analysieren ein Problem alleine. / Team members analyze a problem individually.	○	○	○	○	○	○ do not know
Die Team-Mitglieder lösen ein Problem alleine. / Team members solve a problem individually.	○	○	○	○	○	○ do not know
Die Team-Mitglieder diskutieren Probleme im Team pro aktiv. / Team members proactively discuss problems within the team.	○	○	○	○	○	○ do not know

Cluster Process
Question 13

Konfliktmanagement / Team Conflict Management

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Team-Mitglieder versuchen Konflikte gemeinsam zu lösen. / Team members try to solve conflicts together.	○	○	○	○	○	○ do not know
Team-Mitglieder diskutieren Themen respektvoll aber trotzdem kritisch. / Team members discuss a topic respectfully but critical.	○	○	○	○	○	○ do not know
Die Team-Mitglieder diskutieren inhaltlich ohne sich persönlich anzugreifen. / Team members lead discussions without personal attacks and concentrate on the content.	○	○	○	○	○	○ do not know
Die Team-Mitglieder versuchen neue und innovative Wege zu finden um einen Konflikt zu lösen. / Team members try to find new and innovative ways to solve a conflict.	○	○	○	○	○	○ do not know
Die Team-Mitglieder diskutieren offen über einen Konflikt. / Team members openly discuss a conflict.	○	○	○	○	○	○ do not know

Cluster Process
Question 14

Nachhaltige Verbesserung / Team Sustainable Improvement

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Team-Mitglieder haben einen persönlichen Entwicklungsplan. / Team members have personal development plans.	○	○	○	○	○	○ do not know

Die Team-Mitglieder versuchen regelmäßig ihre Arbeitsprozesse zu verbessern. / Team members regularly try to improve their work processes.	○	○	○	○	○	○ do not know
Erfolge des Teams werden besprochen und analysiert. / Successes achieved by the team are debriefed and discussed.	○	○	○	○	○	○ do not know
Die Team-Mitglieder wollen dazu lernen. / Team members strive to learn.	○	○	○	○	○	○ do not know
Die Team-Mitglieder kennen die Lernfelder der anderen und unterstützen diese bei ihren Entwicklungsfeldern. / Team members know about the basic learning fields of the other team members and they support each other's learning development.	○	○	○	○	○	○ do not know

Cluster Hard Skill
Question 15

Kundenfokus / Team Customer Focus

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Das Team richtet sich an den Bedürfnissen des Kunden aus. / The team focuses on the needs of the customer.	○	○	○	○	○	○ do not know
Dem Team ist eine starken Kundenbeziehung wichtig. / A strong customer relationship is important to the team.	○	○	○	○	○	○ do not know
Das Team erfragt pro-aktiv Feedback vom Kunden. / The team is proactively asks for customer feedback.	○	○	○	○	○	○ do not know
Das Team weiß was der Kunde will. / The team knows what the customer expects.	○	○	○	○	○	○ do not know

Das Team fragt den Kunden nach Input. / The team seeks for input from the customer.	○	○	○	○	○	○ do not know

Cluster Hard Skill
Question 16

Ziele setzen / Team Target Setting

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Die Team-Mitglieder haben für sich definierte Ziele./ The goals of each team member are defined.	○	○	○	○	○	○ do not know
Die Team-Mitglieder überschreiten ihre Ziele des Öfteren. / Team members generally over achieve their defined goals.	○	○	○	○	○	○ do not know
Team-Mitglieder sprechen Leistungsprobleme an./ Team members address performance problems.	○	○	○	○	○	○ do not know
Team-Mitglieder definieren ihre Ziele SMART (Specific, Messbar, Erreichbar, Realistisch, Zeitorientiert)./ Team members targets are defined SMART (Specific, Measurable, Achievable, Realistic, Target oriented).	○	○	○	○	○	○ do not know
Die Einzelziele der Team-Mitglieder tragen zur Erreichung des Gesamtzieles bei./ The targets of each team member support the achievement of the overall team goal.	○	○	○	○	○	○ do not know

Cluster Hard Skill
Question 17

Abgeltungsmodelle/ Team Compensation Approach

	trifft nicht zu / does not apply				trifft voll zu / fully applies	do not know
Das Gehaltsmodell motiviert die Team-Mitglieder./ The Compensation Approach motivates the team members.	○	○	○	○	○	○ do not know
Die Führungskraft schätzt jedes einzelne Team-Mitglied und macht dies deutlich./ The team leader shows appreciation for each team member.	○	○	○	○	○	○ do not know
Die Führungskraft kommuniziert und feiert Erfolge von erfolgreichen Team-Mitgliedern./ The team leader communicates and celebrates the successes of great team members.	○	○	○	○	○	○ do not know
Die Team-Mitglieder verstehen das Gehaltsmodell./ Team members understand the Compensation Approach.	○	○	○	○	○	○ do not know
Die Team-Mitglieder sind mit dem Gehaltsmodell zufrieden./ Team members are satisfied with the Compensation Approach.	○	○	○	○	○	○ do not know

Wissenschaftliche Studie - Empiricial Study - Online Survey - PreTest

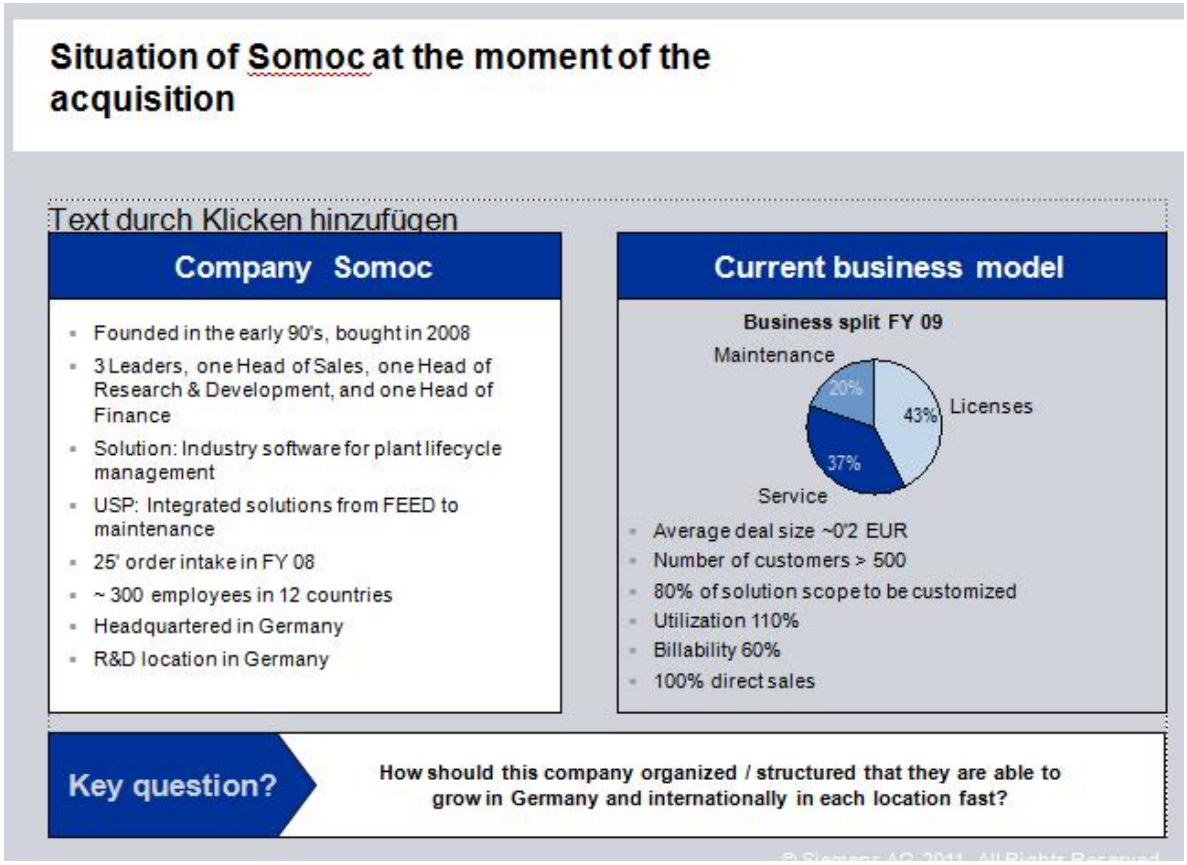
Herzlichen Dank für die Teilnahme an der Befragung / Thank you very much for taking part in the survey.

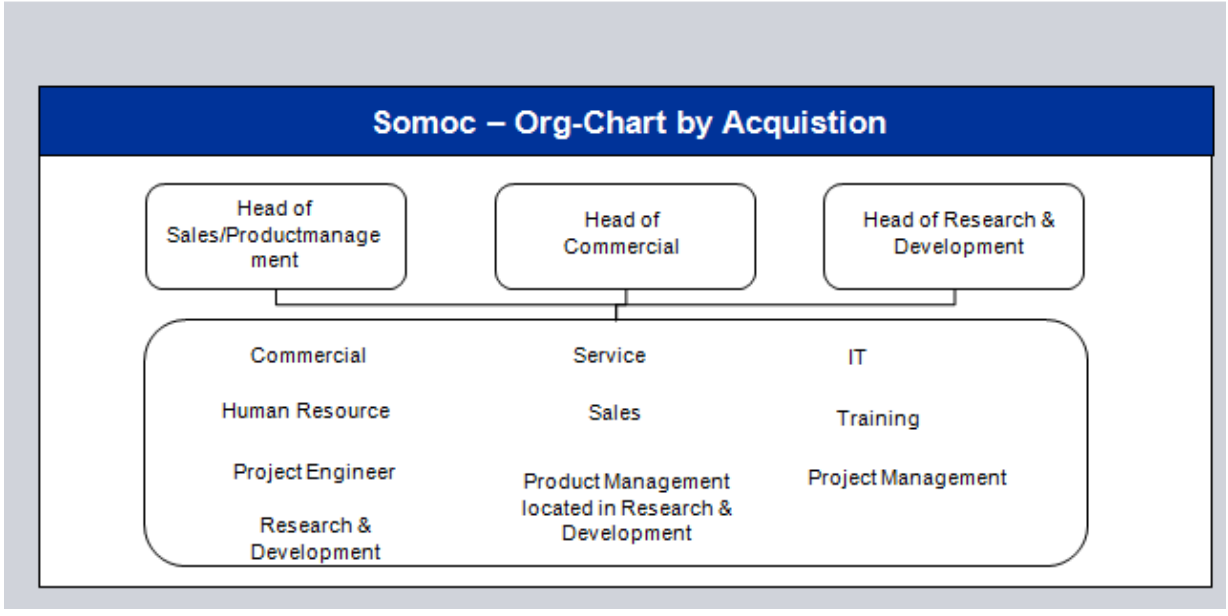
Andy Michael Giesa

Doktorand / Doctoral Student
Andy Michael Giesa

Annex N.4 – Sample of the validation Case Studies

First Case:





About Somoc

- Today, no department and no Team Leaders. Departments exist are Software Sales with 100 employees, Software Software Service with 60 employees, Research and Development with 120 employees, one HR person, five finance people, and the rest are administration and Sales Support. In each of the countries: Austria 35 Sales and one General Manager, Switzerland 16 people with one General Manager, Denmark 15 people with one General Manager, USA 4 people with one General Manager, China 1 General Manager, Brazil five people with one General Manager, Netherlands with one General Manager.
- The three heads are located in Germany, are the owner of the company and sold the company.
- The company has no Organizational Structure, there are only these three heads and two Senior Sales Manager in Germany, and one Service Senior Manager.
- The company has a software product which is unique in the market. The biggest growth potential is in Germany, Brazil, China, Russia and Denmark.
- The plan of the aquired company is now to grow in the next five years from 30 Million to 100 Million.
- The question is, how do they have to set up this organization to be able to manage the organization, to be complained with all leagal laws, and how they should be look the Organizational Chart!

More about Somoc

- Finance: There is no standardization in Finance. They do everything manually and no Financial Balance is made. They have one controller and the Head of Finance.
- HR: There is one lady in HR, there are no standardized contracts, they have no standardized compensation system, they have outsourced payroll, they have no Administration HR Tool, there is no personnel development, no sourcing and recruitment specialist.
- IT: They have three IT people who are taking care of the network and of the hard- and software.
- Procurement: There is no procurement department, Finance and some assitant are taking care of it.
- Sales Group: They have roles of Sales Managers, Sales Specialist, Sales Support Functions, the administration is done by the Secretary. People are in general three days in a week on the road, Monday and Friday they are in the office. They have one Senior Manager.
- Service Group: They have roles of Service Manager, Implementation Consultants, Project Manager. There is one Senior Manager and a training manager as well as one who plays a senior role.
- Research and Development: One Head, five knowledge people, and roles they have are software developers, product manager, project manager.

Case study deliverables

1. Analyze the given details of the Case Study carefully and reflect various alternatives! Present also the alternatives of three and decide which version you would choose!
2. Use the delivered information, ask for more, if necessary and design a realistic set-up!
3. Based on your previous answers / analysis, describe challenges regarding product and organization. Provide an organizational setup! In this case study, source and staffing problems need not to be considered!

Preparation

- Split up into groups
- xx minutes of preparation
- Answers / Analysis results to be written on
  - Flipchart or
  - Pin board
  - PowerPoint
- Additional business and market data to be provided by Software expert via interview:
  - Interview time: max. xx min
  - Interview can be carried out any time within the xx minutes (schedule your interview carefully – there is one Software expert and you only have one interview)

Presentation of results

- Presentation time: 5 minutes
  - Some useful hints:
    - Summarize your key findings in an executive summary
    - Define and outline the Org-Chart in total and include the international countries (maybe a Zone Concept)
    - Draft an OrgChart for the Company, for Sales and Service, for Finance, for HR
    - Think out of the box
    - Presentation
- Discussion time: 5 minutes

Hints

- Use the intverview to ask more questions
- The aquired company is an international organization
- Think about Organizational Setups:
  - Regional Approach
  - Zone Approach
  - Global Approach
- Think about Orgnizational Charts:
  - Functional Organization
  - Matrix Organization
  - Disciplinary Reporting Lines

  . Content/functional reporting lines
- Think about that the Organizational Set Up has to handle a growth potential
- Behave as you were the Top Management of the acquired Company

Hints for presentation / teamwork

- Think about because of the limited time to define clear roles in your team
  - define a teamleader
  - define a presenter
  - define a clock watcher

  . Define the expert group
- The output should be Org-Charts and give reasonable explanation of it.
- Deliver an output that can be handed in for evaluation

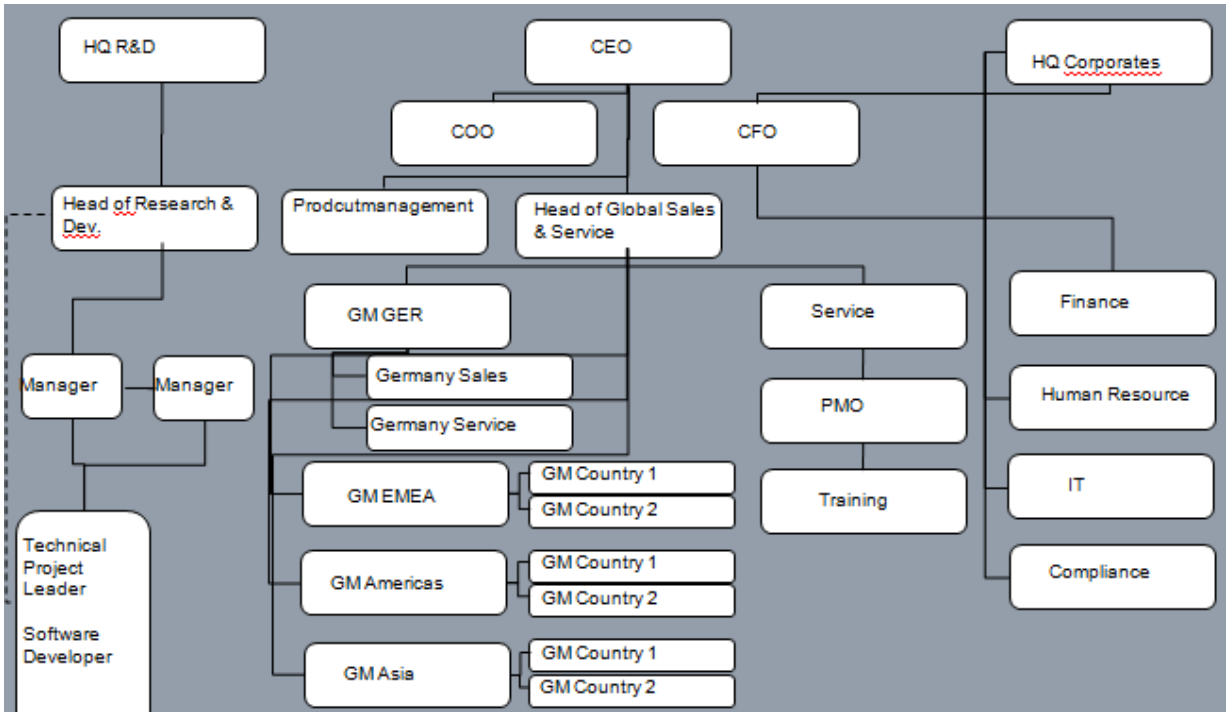
Case Study for Validation of the Doctoral Thesis

The Somoc Case

Location, date

Solution

Andy M Giesa
MBA, MSL, Diplom Int. Betriebswirt
Doktoral Student


HQ R&D
CEO
HQ Corporates
COO
CFO
Head of Research & Dev.
Prodcutmanagement
Head of Global Sales & Service
GM GER
Service
Finance
Manager
Manager
Germany Sales
Germany Service
PMO
Human Resource
GM EMEA
GM Country 1
GM Country 2
Training
IT
Technical Project Leader
Software Developer
GM Americas
GM Country 1
GM Country 2
Compliance
GM Asia
GM Country 1
GM Country 2

Achievement Evaluation Scheme for Case Study - Hypthesis Evalutation

Sheet for: Age Range Diversity Index Heterogeinity

Understanding of the content	Max 15 points
Deliver an introduction into the topic incl. Parahrasation Deliver reason for each step linked to the case Deliver a finished version	

Approach to reach the result	Max 25 points
Present details of various Org-Charts Present details of each stept how to get to the final result	

Questions in the 10min session	Max 10 points
Asked questions of understanding Asked open questions more than 50%	

Three seperate business Lines	Max 20 points
Present an Orgstructure for Research & Development Present an Orgstructure of the Business Present the idea of the central function reporting lines	

Result with 1st presentation and explanations	Max 30 points
Deliver for each desicion a reason Deliver a final OrgChart The presentation is made by the entire group	

Total Points	100 points

2nd Case Study

CHANGE CASE COMPETITIONCase – China – Tea company

For more than 20 years, Blue Orient Tea Company has grown and thrived by creating off-beat and gourmet Asian flavors of iced tea beverages, such as “Lemongrass” and “Starfruit”. Their target has been upper class, young, professional women in Asia. The heavy glass bottles and engraved-looking labels indicated a premium product, and the teas are priced at more than 30% higher than mass market ice teas. But now the company finds its margins are being squeezed more and more. Distributors and retailers want to charge them more for delivery and shelf space. The costs of getting the bottles around the various countries in Asia and clearing customs swiftly (Blue Orient Tea boasts of “no preservatives”) are also costing more. Meanwhile, the costs of the ingredients that differentiate it from cheaper beverages are climbing, and the volume of sales appears to have reached a plateau. There are rumors that industry giants may now get into the game with copycat teas.
The company predicts the current trends mean it will start losing money within the next year if something doesn’t CHANGE now.

Task focus:

- As a change manager, your CEO just briefed you with this information.
- He asks you to come up with a change strategy for the organization as soon as possible.
- Your focus should lie on dealing with the possible organizational implications and how to communicate them to employees.
- Thus, you would have to come up with one rough organizational strategy outline/scenario first.

However, the assignment is not about making a new marketing plan! It is about how to deal with change inside the company once you have decided on a rough organizational strategy mentioned above.

- Use of relevant frameworks is encouraged and they should be used in a way to support your argument.

Facts:

- Company has 3.500 employees, never been reorganized, exists for 20 years, works locally in Asian Tradition
- Focus on short, middle and long term by costs, define minimum and maximum
- Average Lay off costs is 20k USD
- CEO wants short term: increasing again sales margins by at least 10% in 6 months, long term: increasing Ebit by double digit growth in 5 years

Outcome expected:

A. Description of 4 symptoms that are happening
B. Key Problem

C. Proposed Change Model Process
D. Rough Communication Plan from July – Jan
E. Rough estimation of costs and investments for the change process
F.

Question:

What do you propose to him considering the expected outcome? Present it via Flipchart and include your team!

Case Tea Company CASE Solution Andy M. Giesa; MBA, MSL

Letter:

To:
President
Blue Orient Tea Company
Singapore

Proposal for Change for "Blue Orient Tea Company"

Dear Mr.:

Thank you for choosing our Organizational Change Agency "Andy's Manage Global Change Consultancy". We appreciate that you have chosen our agency, which is known for its strong international, intercultural and global perspectives. In this letter, I propose to you one possible solution to focus on change for reaching:

1. short term: increasing again your sales margins by at least 10% in 6 months,
2. long term: increasing your ebit by double digit growth in 5 years, and

I will describe to you how to deal, how to communicate and how you could implement the change.

In summary, the objective is that Blue Orient Tea Company will again be a valuable and highly profitable business in the long run. The workforce and their customers should be satisfied. The business along with its workforce should have a real potential to enlarge the business in a long-term focus.

Based on this objective and your given information to us, our organization has developed the following Change proposal.

In this proposal, we assume that your organization has never been reorganized in the last 20 years, does not have more than 3,500 employees, and is working locally. Furthermore, I assume your structure is hierarchical and is based on your country culture and the history of your organization.

I think, based on your described symptoms of:

- distributors and retailers want to change more
- costs of ingredients are climbing
- margins are squeezed by the market
- sales decrease

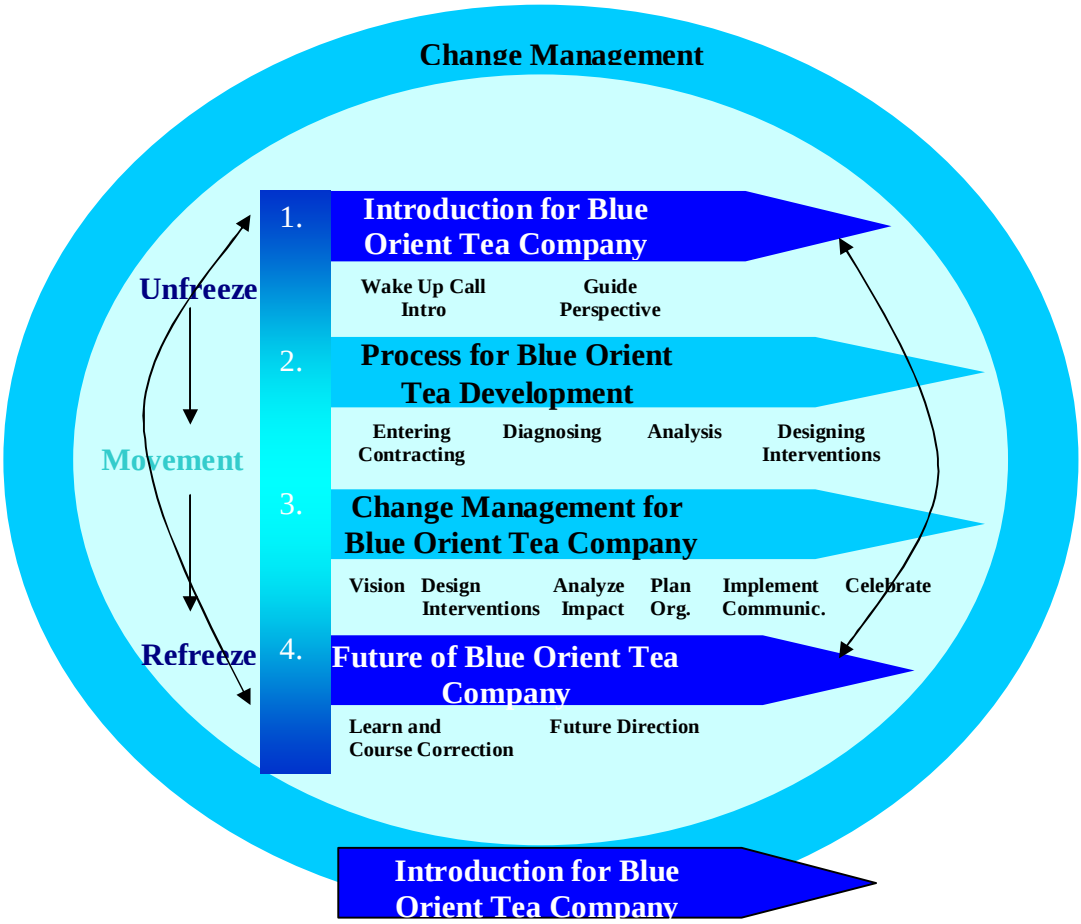
that the key current problem is sourced:

- in the external developments, which forces Blue Orient Tea Company to change internally and to adapt to the new business environment.

My change organization is of the opinion that through the current external changes, the organization has to change internally into a flexible, dynamic organization with a lean management with the goal to change quickly by means of external, forced developments. In the past growth period of 20 years in your company, many jobs were created. A big company system – with probably high administration effort, lengthy decision making processes, high political and hierarchical management was built, which needs now to be analyzed and possibly changed. We propose that you reduce 10% of the personnel in your business because, after 20 years without any previous reorganization, it is necessary to become leaner. A 10% reduction of personnel will not harm your ongoing business.

As a result, the following proposal will focus on ideas for change at Blue Orient Tea Company. Please be aware that in this proposal I focus on your given objective and that I try to optimize the Tea Company business in the long-term, the level of communication, and the possibility for your employees to build and live trust in difficult business times. One important long-term perspective for enlargement of your business would be to use new sales ways e.g. internet sales.

Proposed Change Process



The introduction phase, which is to unfreeze the current situation which means starting the communication process by informing all employees of the fact that the business is undergoing major challenges and that sales are decreasing. In this communication process through your managers, employees, reports in the newspapers and intranet, you will let all know that the CEO has heard the “wake up” call and that after 20 years of growing business is a need to change. You will hold a meeting with all employees and share the relevant information. Furthermore, you will outline that the next step will be to run a detailed analysis after which there will be a new information meeting in which you could imagine to form groups for developing possible solutions.

You will not communicate that there might be lay-offs, however you will communicate via intranet, emails, meetings that employees have always been treated well at your company and that you know how important all employees are for your business. Furthermore, you will inform them that your employees are the capital of the company and that there is no need to develop fear; 20 years of business together has developed trust, but now there needs to be changes to be more productive and to adapt to the new circumstances that your business is facing.

In conclusion, at the beginning of the communication of planned change, it would be necessary to communicate that there is a need of change and that plans will be developed for a new structure in future. During the time of communication, it is important to make it clear that the change will help to improve communication, to run the business more efficiently and that there are plans to flatten the hierarchy. A few days after the initial communication, it will be necessary to form listen groups, who just listen to the problems and issues of the employees of the organization. The results of these listen groups will influence the following process.

Furthermore, you have, at this stage already communicated that you will work with all employees together to change.

In the second stage of this process, the idea is to understand the situation, to collect all data, diagnose and analyze the current situation and lastly start to design interventions. The communication process is not explicitly described at this stage because it has already been discussed. In this part of the process, I would like to develop the milestones, which are derived from the analysis with the goal of changing the old behavior, the old structure and each individual to a new level of the organization. In addition, I will conclude with possibilities and designed interventions. Values and attitudes will be changed. In this step I will focus on creating a vision, manage the transition and sustain and institutionalize the change. To develop this, I will build a focus group consisting of managers and employees at all levels. After these groups are formed, it is necessary that you as the CEO will inform the entire staff to work together and to develop the future.

Entering and Contracting in this context means to understand the problems that your organization are faced with and to also present the perspective that problems can also be opportunities. In your case, it seems to be clear that the problem is sourced by the external influences. The Analysis Process of looking for symptoms, objectives and problem definition has already been described at the beginning this proposal and therefore I will not repeat it at this stage.

First, after STEP 2 it will be necessary to communicate the changed vision and strategy to your employees. In your case, I propose so set the vision of being a highly valued and well-known tea company with the strategy to double growth and enlarge your business. Furthermore, you will start to talk with selected employees to change their current jobs, so you will focus on job rotation and low performers will be laid off without drawing undue attention. By doing this, you will communicate that the organization is in a change process and rather of becoming bankrupt, and that you have decided to fairly lay off low performers and do some restructuring in a positive manner.

As previously mentioned I propose to lay off 10 % of your workforce and reach a specific amount of cost reduction. The 10% lay offwhich amounts to a headcount reduction of 350 people at an average cost of around $ 20,000 per person will amount to approximately $ 7,000,000 lay off costs in total. However, by a salary of $ 30,000 average per year per person, you will save approx. $ 3,500,000 in the first year. Regarding the costs of the reorganization in detail, I refer to this at the end of the proposal. The job rotation I plan to follow will additionally increase the sales force because I will increase the sales team by 15 % of existing employees and change their contract into salaries with high flexibility. By the contract changes I try to adapt their salary, which would leave the salary of the person in total, but I change their fix salary of 100% into a 60% fix salary and 40% flexible solution. This means costs can either remain the same or be reduced by 40% sales targets are not reached. This means that on average, by 15% of the employees(525 employees), I assume the 40% are $ 500 per person month means $ 3,150,000 per year in total.

Secondly, I think it is very important to involve the entire staff as much as possible. Because of this, I would create two focus groups consisting of key teams that concentrate on two different topics. One is how to arrange and structure the lean management and how to run meetings, communication patterns etc. and the other one is to ensure that the staff influences and develops together with the manager mission, vision and objectives for after the change on a long term basis. Both teams are working independently and their results will influence, build and support the topics. At the end, the result is developed by the employees and everyone will be identified with them, which supports business in the long run as well as improving morale. Performance and communication will positively increase. The Focus Groups of course are mentored by us - the consultants.

After this is accomplished, I would like to offer a training workshop combination, in which employees are set into a conflict and learn sales tactics as wells as new sales entries during a role play situation. Employees and managers will be placed in different critical situations and then each person has to describe their feelings. The idea is to move away from purely technical and functional behavior into greater understanding and feeling behavior. I think it is important to teach them that they are able to start seeing things from the customer's perspective. I think that these training will help the sales team to develop more skills for convincing customers to buy the product. During this process of change, it is necessary to focus on the controlling at your company and evaluate the numbers of sales and costs and how the company in result is developing on a weekly basis.

Lastly, after the reduction of the number of personnel by 10%, job rotation by 15% into the sales force, flattening the hierarchy and investing in the sales force, I think a good base is created for enlarging the tea product on a new basis. New sales approaches will enlarge the sales power of the organization. The strong sales team will able to find new ways to sell the product and will also contribute to sourcing cheaper ingredients. The new sales agents with diversified background and experience will be able to add new value into the sales force.

In parallel to the above, I would start to form another focus group which will check and analyze the current production process, because there might be possibilities to work more efficiently.

In the last STEP 4 of the change process, it will be necessary to stabilize the Blue Orient tea company and fix it in the new state of equilibrium. Furthermore, I plan to review the changes and evaluate their effectiveness. At this stage, I will reinforce the new organizational state, culture, norms, policies and structures.

Finally, I propose to start with a key strategic intervention by implementing the Balanced Scorecard (BSC) for the Blue Tea Orient Company. The BSC provides a comprehensive view of an organization's overall performance by integrating financial measures with other key performance indicators centered on customer satisfaction, internal business processes, organizational growth, learning and innovation. At this stage, I will make sure by using this strategic instrument, that the change will have a positive long-term business affect by being able to measure the result. Finally, because of the implementation of the BSC, strategic changes and other interventions will be more quickly apparent.

Dear Mr , as you can find below, I have proposed a time schedule for implementing the proposed changes at your Blue Orient Tea Company. In total I am planning on an implementation period of six months, so that we would have the company re-organized with the

new system including the start of various new sales workforce excluding possible changes in the production. The schedule as well as the costs of Total: $ are described in detail below.

Proposed Change Schedule 2004/5 for Blue Orient Tea Company

TASK	July04	Aug04	Sep04	Oct04	Nov04	Dec04	Jan05
Communicate Problem & Need for Change, Reevaluation							
Communicate Change & Begin with Reorganization, Job Rotations, Lay Offs							
Focus Groups							
Training							
Implementing BSC for Blue Orient Tea Company							
Analysis & check of production process							

Description of the Time Schedule:

Dear Mr B-, as you can see in the time schedule, I propose a time of six months for the Change process. The first part of July will be used to communicate to your workforce that problems exist in the organization and that there is a need for change. During this period, it is very important that everyone understands the necessity for change and that this program is developed to help all employees to get back into business and for the business not to go bankrupt. At the end of July, new proposed structure should be published and communicated to the workforce, and the idea of job rotation and that low performers will need to leave the organization should be mentioned at this stage. During the middle of July, I plan to talk to the people who will be affected by the change directly. At the beginning of August, I will already have started to realize and implement the new structure including lay offs, which will enlarge the sales force dramatically. At the same time, I will start with sales programs that are necessary to increase the effectiveness of the sales force. I expect, that due to our cost reduction with respect to personnel and the change to increasing the sales force that the Blue Orient Tea company will find new delivery ways e.g. the internet and direct delivery in to shops that the organization will change and adapt to the new circumstances. After seeing the need for the Organizational Development, I have started to build focus groups with mixed employees from each position to develop and work on various topics. Their results will influence the Organizational Development of the programs of the sales force. At the end of the focus groups, the organizational development will include their input and end up with their proposed concept and structure. The program will be ready after this time. Next, I focus on the change process and will evaluate how the new structures are functioning and what effect they have had on the organizational climate. After the organizational development process and the focus groups have completed their work, it might be necessary to adapt and change some aspects again. The review and change time will last throughout October. In case everything is going smoothly, I propose to start with a project of the BSC, which focuses on how to live the vision and strategy. In general it concentrates on employee relationships, financial aspects, customer focus and internal organization. Because it is a proven tool and a useful instrument for growing a business, I propose to start with this project in October and keep it up until December. Then, at the beginning of November, I would like to start with the analysis of the production process, so

that the new organization is able to develop spirit and innovation at this stage by working together and finding alternatives to the existing ways of doing things. During this process, I will start to closely review the change process again to see if there is a necessity for further changes. At the end of January, the change process should then be complete. With the success of the change and the new instrument of the BSC a sustainable success in your business and the ready for growth should be realistically possible.

Dear Mr B, in the following table you can see in detail the costs, which appear by starting a change process at the Blue Orient Tea Company. I have the cost split into short-term – 3months -, into medium-term –2nd 3 month- and lastly into long-term, after 6 months. Furthermore, I differentiate between costs and investments. The difference is that costs appear once only and are necessary to succeed in the change process. The investment is also necessary, but here you will definitely have a positive return on the investment, as described. Next, I added your costs for implementing the change process, and lastly, I included possible unexpected costs that could occur. The costs have been rounded off and include tax and all services. All the programs that I plan are included in these costs.

Expected Costs & Investment for the Change Process at Blue Orient Tea Company in US$

Type of Costs:	Costs	Investment	ROI	AMGConsulting Salary	Unexpected Costs
Short-Term 1st three month	- Lay offs 10%: 7,000,000$ - JobRotation 15% 0$	Bonus for Projects: 40,000$	In	per hour: 3 Associates 1,500$ 1 Consultants 750$ 1 Senior Cons. 1,000$ ---------- for 3 month expect: 3 Associates 108,000$ 1 Consultant 54,000$ 1 Senior Cons. 24,000$	could be more labor costs: possible add on cost 50,000$-200,000$
Middle-Term 2nd three month	- Implementing BSC incl . Soft- ware 75,000$	- Sales Programs 50,000$ Programs 40,000$		for 3 month expect: 4 Associates 144,000$ 2 Consultant 108,000$ Total: 252,000$	could be the necessity of the use of Senior Consultant by 1,000$ per hour
Long-Term After 6 month	- Start BSC 0$ - Change of Production System			- Review Change 7,500$ - AMG AgentSupport Monthly 2,000$	
Subtotal:	**7,075,000$**	**90,000$**		**447,500$**	**50,000$-200,000$**
	Total:	**Minimum 7,662,500$**		**Maximum 7,812,500$**	

(I assume that there are 3,500 employees and an average lay off cost approx.: 20,000 $ per Person

I hope with this proposal I could convince you of our proposed Change Process for Blue Orient Tea Company. I'm convinced that by following this dramatic change process in your organization you will have set the milestones to firstly react to the new external environment and then proactively with the sales force and new sales agents to increase your selling capabilities. With this proposal, the Blue Orient Tea Company is not only back to business, but can develop competitive strengths, which allows for rapid growth.

The last question, which perhaps arises at this point is that regarding your next steps.
In answer to this, I propose the following next steps:

1. Send me the confirmation that I have your order to work with you on the change
2. Meet me for two hours for discussing to start the process of change
3. Start to communicate the need of change in your Blue Orient Tea Company

I hope we will receive your confirmation until the end of next week, so that I can plan, start and organize the change process at Blue Orient Tea Company in detail.

We hope to hear from you soon,

Kind regards,

Achievement Evaluation Scheme for Case Study - Hypthesis Evalutation

Sheet for: Age Range Diversity Index Heterogeinity

Descriptions of the 4 Symptoms		Max 30 points
Distributors and retailers want to change more	5	
costs of ingredients are climbing	5	
margins are squeezed by the market	5	
sales decreases	5	
Key Problem	10	

Approach to reach the result	Max 10 points
Process of a Change Modell Introduction, Process, Change Management, Future Perspective	

Questions asked by the Team	Max 15 points
Open Questions Understanding Questions Targeted Questions	

Communication	Max 15 points
Rough Communication Plan from July to Jan	

Presentation, Cost Estimation, Proposal in total	Max 30 points
Presentation Cost Estimation Proposal	

Total Points	100 points

Annex 5: data participant's collection sheet

Dear Student:

In the framework of the research to measure Team Performance (TP) in the context of behavior, it is important to define and group specified teams to measure the TP and validate the current hypothesis in this area. In conclusion, I like to ask to fill out the following questions. The single data will not be distributed or published, it is only required for the team definition. The data is necessary to form the group aligned with the hypothesis for the validation procedure.

Quick Data Survey

Name: _____

Your age: _____ **years**

Your Gender: ☐ **Female** ☐ **Male**

Your Nationality: ☐ **German**

☐ **other nationality, please name it** _____

Have you lived abroad longer than 6 months: ☐ **Yes** ☐ **No**

Thank you very much!
Andy M Giesa