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**THE IMPACT OF APPLYING MATRIX STRUCTURE IN  
ORGANIZATIONAL LEADERSHIP IN BOARD OF EUROPEAN  
STUDENTS OF TECHNOLOGY**

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I hereby declare that I have compiled the thesis/paper independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

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## **ABSTRACT**

The aim of this thesis is to identify problems that the implementation of a matrix system has caused in the organization Board of European Students of Technology (BEST) and give proposals for improvement. According to this, three research questions are raised:

1. How did the implementation of the matrix structure help to reach the expected outcomes that were set before the structural change?
2. What has been the impact of the matrix structure on the organization?
3. How to solve matrix structure problems in the organization?

The author will use both qualitative and quantitative research to get the answers to the research questions. Six semi-structured interviews will be conducted with people in management positions in BEST. In addition, the author will compile four surveys for fitting the knowledge and experience of each internationally active members segment in BEST.

From the research results it showed that the expected outcomes of the structural change to a matrix structure have not been completely reached in the organization. BEST has some characteristics of a matrix organization but is not properly working in it. In addition, there is lack of flexibility from the people's and structure's side, which is needed to fulfil the needs of BEST's stakeholders. The author suggests doing a re-evaluation of the current organizational structure and implement the missing bodies in the structure to make it more understandable for its members.

Key words: leadership, organizational structure, matrix structure, non-governmental organization

## INTRODUCTION

In today's world, organizations are becoming less centralized, which means the scope of decision-making bodies is becoming bigger and less controlled by the upper management. This results in a need for more flexible characteristics in organization's structure and a greater use of cross-functional working teams. (Wheelen et al., 2017) New types of internal structures are there to meet the external conditions and increase flexibility of the organization's operations. The most known one is called a matrix organizational structure. (Üksvärav 2008, 168)

In 2015 an international non-governmental organization Board of European Students of Technology (BEST) made the decision to change their organizational structure to a matrix system. The transition period and developing new working methods took time and effort. Matrix structure was implemented to increase international involvement, achieve more coherent work throughout the organization, allocate human resources (HR) more evenly and to focus more on strategical development. The performance of reaching these results has not been evaluated in the organization, and at the same time with new matrix structure comes new problems, which restrict the organization to fulfil its full potential. The author who is an active member of BEST sees that the main problems currently are the overall complexity of the organization, financial situation and HR related difficulties. Author wants to find out if these problems are related to matrix internal structure and for BEST to overcome them, which is the reason why this topic has been chosen.

The goal of the thesis is to identify the problems that the implementation of a matrix system has caused in the organization and give proposals for improvement. According to this, three research questions are raised:

1. How did the implementation of the matrix structure help to reach the expected outcomes that were set before the structural change?
2. What has been the impact of the matrix structure on the organization?
3. How to solve matrix structure problems in the organization?

Author uses both qualitative and quantitative research methods in compiling the research. Six interviews will be conducted with people in different management positions in BEST and four surveys fitting the knowledge and experience of the respondents. For reaching the thesis aim, the author has chosen to include multiple parties from Board of European Students of Technology: project coordinators, department coordinators, the board and BESTies (members of BEST) who are involved in the international activities and tasks of the organization.

Bachelor thesis is divided into three chapters of which in the first one the author will bring out the theoretical framework of the topic, including the general concept of organizational structure and leadership. The theoretical background of matrix structure will be explored, bringing out its origin, different forms, advantages and disadvantages. Leadership in a matrix system will be addressed as well as what prior research has been done on the topic.

In the second chapter, the author will give an overview of the organization BEST, focusing more on its current structure. Briefly will be explained the structural transition to a matrix system, bringing out the expected outcomes of the change. In addition, the methodology of the thesis will be explained and described.

The third chapter will provide the results of the carried-out research analysing the answers from the surveys and interviews. The results will be compared with the theoretical points from the first chapter. The author will draw up conclusions and suggest proposals for improvement.

# **1. LITERATURE REVIEW**

The purpose of this chapter is to give an overview of structure and leadership in an organizational setting, explain the concept of matrix structure, its history and characteristics. In addition, author will summarize what prior research has been done on matrix organizational structure.

## **1.1. Concept of organizational structure and leadership**

Each organization has individuals who are brought together to work as a team to achieve organizational and personal objectives. (Naoum, 2011) Organizational activities are divided, coordinated and organized which form a structure. (Rezayian, 2005 referenced in Ahmady et al., 2016) By assigning the right people and resources to required tasks and designating authority and liability for their control, a successful implementation of organizational objectives is reached. (Child, 2015) “Structure can be regarded as the skeleton of the organization and its effectiveness depends on how strong or weak the backbone is.” (Naoum, 2011, 56) Organizational structure results from the strategy that the management has chosen for the organization and it is influenced by the external environment and technological variations. (Üksvärav 2008, 141) This means that every organizations structure can be unique and original, but they do have some similar characteristics.

The division of professional work causes the organization to branch out and the division of management leads to an in-depth branching of the organization. Depending on the size of the organization and power ratios, a shorter or longer ladder of positions called hierarchy is formed. (Üksvärav 2008, 53) Levels of authority helps to maintain efficiency and productivity with large amount of work and activities, however the line of command should be formed judiciously, since many levels of authority can impede the communication in the organization and adversely influence the efficiency of operations. (Sassani, 2017)



Leadership is necessary in an organization, which becomes evident when there is a hierarchical link. Its superior-subordinate relationship is unique and comes from work allocation policies. Leadership is the reason what makes the organization work as a whole and towards the goal. Leading an organization means working with people for the needed outcomes which requires lots of cooperation and teamwork. (Üksväreav 2008, 48) Organizational structure needs someone to coordinate and organize the activities, therefore leadership is an essential part of the organization.

## **1.2. Implementation and performance of a matrix organizational structure**

During the 1960s government contracts were in need of project-oriented system linked directly to top management which is considered as the establishment of matrix organizational structure in the aerospace industry. In order to meet the government's requirement, the aerospace firms developed a new set of horizontal project groups over their existing vertical functional departments. (Knight, 1977 referenced in Kuprenas, 2003) A simple matrix across departments and projects is named a two-dimensional matrix. (Davis, Lawrence, 1977 referenced in Snow, 2015) When adding decision making bodies to a simple matrix structure, which have their own legal flows emerging, a new multidimensional matrix is formed. (Üksväreav 2008, 171)

Matrix management is a combination of traditional hierarchy and lateral authority in project line chain of command. The departments are usually permanent and functional while projects units focus on one specific product for a fixed period of time. (Wheelen et al., 2017) Figure 1 illustrates possible reporting system in matrix organizations with multiple project lines. An employee (illustrated as a circle) reports to a department manager (illustrated by a column) and to the project manager (illustrated by a row).

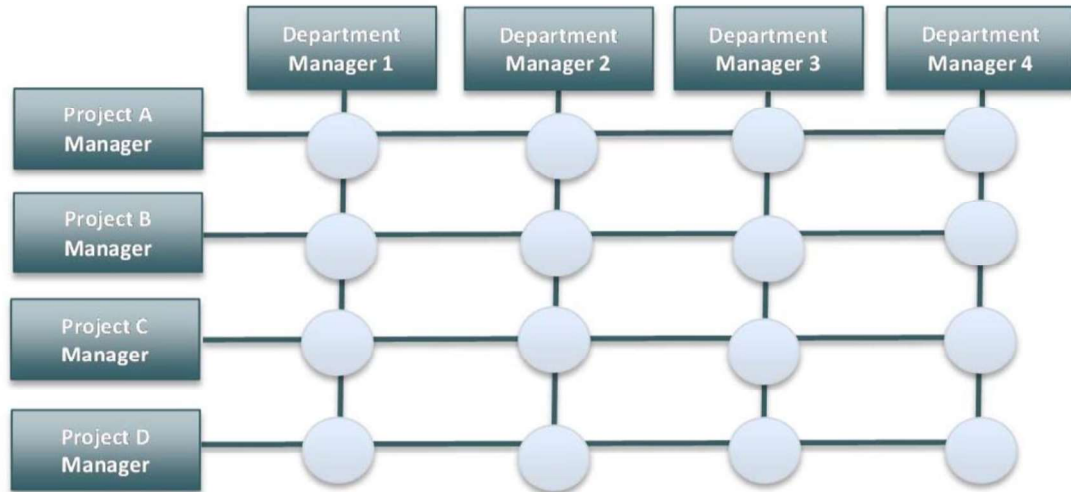


Figure 1. Matrix organizational structure  
 Source: Hanover Research... (2013, 6)

There are many different forms of matrix, but the three most common ones are functional, balanced and project matrix. (Table 1) The balanced matrix is the most known one, where the employees are involved in two dimensions, the project and functional line. It strives for equality in power, authority and in the achievement of multiple business objectives between organizing dimensions. The project managers define what needs to be done and the timeline of it, while functional managers are responsible for how the tasks will be done and the personnel management. In the functional matrix all employees remain under the departments and formal processes and procedures are in place to ensure collaboration between command lines. The responsibilities of the project managers are limited, while functional managers control the designing and the technical requirements completion. As for the project matrix there is a high level of movement between project and departments, during which employees retain membership in multiple units. There is a constant project management overlay in the organization and the project managers are generally responsible for project's direction as well as the resources. Functional managers have limited control and are more in an advisory role, while supervising the team working on the plans established by the project managers. (Sy, D'Annunzio, 2005) It depends on the organizational objective which form of matrix is most optimal and there is always a possibility that the organization can adapt an original form of matrix, which suits best for their needs.

Table 1. Three forms of matrix

Functional Matrix	Balanced Matrix	Project Matrix
<ul style="list-style-type: none"> <li>• Employees are only members of departments</li> </ul>	<ul style="list-style-type: none"> <li>• Employees are members in two organizing dimensions</li> </ul>	<ul style="list-style-type: none"> <li>• Employees move between the departments and projects</li> </ul>
<ul style="list-style-type: none"> <li>• Cross functional collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• Equality in power, authority and business objectives</li> </ul>	<ul style="list-style-type: none"> <li>• Projects dominate over departments</li> </ul>
<ul style="list-style-type: none"> <li>• Project managers overlook the progress of the functional groups</li> </ul>	<ul style="list-style-type: none"> <li>• Project managers define what needs to be done and when</li> </ul>	<ul style="list-style-type: none"> <li>• Project managers are responsible for resources and project's direction</li> </ul>
<ul style="list-style-type: none"> <li>• Functional managers are in main control</li> </ul>	<ul style="list-style-type: none"> <li>• Functional managers are responsible for personnel and functioning</li> </ul>	<ul style="list-style-type: none"> <li>• Functional managers are in a supporting and supervising role</li> </ul>

Source: Sy, D'Annunzio (2005); compiled by the author

For the matrix management system to function efficiently, it should have the following attributes (Slack, Brandon-Jones, 2019):

- effective communication system and channels for all the managers involved;
- formal procedures agreed upon to resolve any management conflicts that should arise;
- thought through encouragement plan for staff to be committed in projects as well in departments;
- project-based work should be seen as the central coordinating role.

This means that before matrix structure is implemented in the organization, the organization needs to reason if they have or could provide all the attributes for an efficient matrix management system.

### 1.3. Leadership in a matrix management

Leaders bring together individuals as well as groups of people to build and maintain an effective group of people. The organizational leaders can be seen as the organizers whose purpose is to reach joint results with variety of individuals. (Meyer, Meijers, 2017) Modern organizational structures, such as matrix, go beyond the “giving orders” mindset. The key issue in these internal structures is achieving coherence in the organizational activities, while teaching leaders to share power and authority. (Üksvārav 2008, 168) The skills that a matrix management leader should master differ from the ones that are needed to navigate and succeed in an old, hieratical

organizational structure. In an article written by Ruth Malloy in 2012, she concludes that there are four competences that leaders who work in a successful matrix organization, repeatedly use: empathy, conflict management, influence and self-awareness.

The challenge is to find leaders with appropriate competences, which is why it is easier to tackle the problem inside the organization with various approaches (Malloy, 2012):

- having diverse teams in the organization;
- creating training programmes in the enterprise-level;
- rotation of tasks, to help employees to gain a wider approach of the company and
- providing different leadership experiences *e.g.* advisory role in another management department.

These actions help to develop and hone the competences that are needed for a matrix management leader and prepare wide-approach mindset.

It is also proven that top-level and mid-level managers face different obstacles when working in a matrix organization. Top-level leaders see misaligned goals as one of the key challenges, which means confusion, conflict and unsynchronized work between bodies of the organization. (Sy, D'Annunzio, 2005) This can result from the fact, that most of the goal setting is done by the top management, without including mid-level managers. (Sy, D'Annunzio, 2005) Top-level managers also point out the lack of a matrix guardian as a problem. Matrix guardian is responsible for tracking the performance of a matrix structure and identifying problems. Without it, the employees feel less motivated from their work performance and some major issues might be overlooked in the organization. (Sy, D'Annunzio, 2005)

Mid-level managers on the other hand see unclear roles and responsibility as the main issue. The problems caused by this are (Sy, D'Annunzio, 2005):

- indistinct guidelines and job descriptions for the positions;
- tension between employees;
- not knowing who is in charge and
- confusion over to whom to turn to for information.

Since matrix is a flexible form of internal structure, which is able to adapt to new environments quickly, roles and responsibilities of the employees must do the same. Poor planning brings dissatisfaction to the employees who are unaccustomed to change. (Sy, D'Annunzio, 2005)

Leadership is an essential part of a matrix organization with new challenges and remarks when comparing to a traditional hierarchical internal structure. Since the matrix system is quite adaptable and transformable, it can be said that the leadership of the organization must be the same.

#### 1.4. The problems and benefits of a matrix organizational system

The aim of the matrix system is to provide innovative ideas and solutions through effective teams consisting of highly skilled individuals. (Stanford, 2007) It strives for high productivity and specialization as well as flexible and customer-centric mindset. The cost of it is complexity in the organization. (Snow, 2015)

The matrix management brings together different managers and employees, so they could efficiently work together and focus on the main outcome. As beneficial as matrix system may seem, it has its own limitations. Table 2 shows the advantages and disadvantages of matrix organizational structure.

Table 2. Advantages and disadvantages of matrix organizational structure

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Easily transformable</li> <li>• Focus on multiple business goals</li> <li>• Innovative solutions</li> <li>• Increases information flow</li> <li>• Quick and easy transfer of resources</li> <li>• Develops communication skills</li> <li>• Employees have companywide focus</li> </ul>	<ul style="list-style-type: none"> <li>• Two lines command</li> <li>• Power struggle</li> <li>• Conflicts and ambiguity</li> <li>• Increases costs</li> <li>• Probable resistance to change</li> <li>• High degree of cooperation is needed</li> </ul>

Source: Lukinaite, Sondaitė (2017); Sy, D’Annunzio (2005); Üksvärav (2008, 170-171); compiled by the author

One of the benefits of matrix management is that it is easily transformable, which means that the organization is more adaptable and has a faster operating speed. (Üksvärav 2008, 170) Both the managers and employees can focus on multiple business goals and come up with innovative ideas when bringing together professional managers and specialists. The overall information flow will increase adding lateral communication channels which will enhance the

communication skills of the employees. Both physical and human resources can be shared and transferred between project and departments. In addition, the decision-making and responsibility of employees can build a sense of belonging and responsibility. (Sy, D'Annunzio, 2005)

There are numbers of problems to matrix management as well. The main one being the two lines of command which can cause contradiction in authority, resource allocation and professional roles. (Üksvārav 2008, 170) This may lead to power struggle between project and functional managers. Due to the complexity of the internal structure, conflicts are easy to arise and there is overall ambiguity in the organization. Matrix management is also expensive to the organization because of the dual authority. Professional managers and specialist are costly and in matrix there are two authorities for every employee. Furthermore, there is an increased likelihood to resistance to change. The employees may sense the loss of authority, status and control of their previous tasks or field. (Sy, D'Annunzio, 2005) Efficient cooperation is substantial in matrix organizations, which might not be so easily achieved or controlled, which may eventually sabotage reaching the outcomes. (Lukinaitė, Sondaitė, 2017)

Matrix structure is complex and it has its strengths and weaknesses. The decision for an organization to implement the matrix, should be considered thoroughly.

## **1.5. Prior research on performance of matrix organizational structure**

The performance and evaluation of matrix structure has been researched in the past, although not much in the previous years. The studies are presented either from the managers and employees' side, which gives different insight from people working in the matrix organization.

In 2001 Zohar Laslo and Albert I. Goldberg did a paper on "Matrix Structures and Performance: The Search for Optimal Adjustment to Organizational Objectives". The research involved ten major Israel industrial companies whose use of matrix in the last decade was investigated. The authors distinguished three resource allocation policies in the companies (Laslo, Goldberg, 2001):

- profit and cost centres;
- directed priorities, and
- comprehensive allocation planning.

A simulation was conducted to show optimal performance while changing the resource allocation policies and work parameters. The goal was to find the optimal influence balance between functional and project managers in a matrix organization. The study found four distinct patterns that all varied considerably based on the organizational objectives. The authors came to a conclusion that: “The optimal distribution of manager influence in a matrix structure for an organization depends on the chosen organizational objective, modified by changes in the character of the project work.” (Ibid.) This means that the form of the matrix is very individual in every organization and can be transformed according to nature of projects.

Two years later International Journal of Project Management released a study by John A. Kuprenas (2003). His paper presents a case study on the implementation and performance of matrix structure in an engineering company in Los Angeles, California. The author confirms the previous research on the implementation difficulties of matrix structure and adds solutions that the organizational leaders developed to overcome these challenges. For example, creating protocols, summary lists and templates to avoid confusion and have a proper monitoring system for the employees and managers. In addition, extensive trainings were held for the employees on change, communication and team work. This study concluded that despite the implementation problems, the performance under matrix system has improved inside the organization. One of the benefits brought out was the evaluation tools used to measure the effectiveness of project management. (Kuprenas, 2003)

In 2005 Thomas Sy and Laura Sue D'Annunzio researched “Challenges and Organizations: Strategies of Matrix: Top-Level and Mid-Level Managers’ Perspectives”, which gave insight from 294 managers working in seven major multinational cooperates. The study found top five challenges in a matrix organization (Sy, D’Annunzio, 2005):

- 1) misaligned goals;
- 2) unclear roles and responsibility;
- 3) ambiguous authority;
- 4) lack of a matrix guardian, and
- 5) silo-focused employees.

It is said that for a matrix organization to succeed and overcome complexity, it should tackle the five key challenges identified in the study. The paper also states that top-level and mid-level managers face different challenges in a matrix organization, for example top-level managers indicate misaligned goals as the main challenge while mid-level managers cite ambiguous and

unclear roles as the main problem. In addition, authors point out that a training curriculum is essential to ensure that all the employees have the proper skills and knowledge to function in a matrix organization. (Ibid.)

Eglė Lukinaitė and Jolanta Sondaitė presented a paper on “Mindset of employees working in a matrix organizational structure in 2017”, which main goal was to understand and reveal the mindset of the personnel who works in a matrix organization. The authors made focus group interviews not only with the employees who work in a matrix structure, but also with a group of employees who do not, to achieve the research objective. Analysing the answers of both groups, the study concludes that the mindset is quite diverse among employees working in a different environment. The personnel who works in a matrix organization “perceive their influence through cooperation, discussion and personal efficiency” (Lukinaitė, Sondaitė, 2017) They are able to think globally and have the attitude to face challenges and tackle problems at work. On the other hand, the employees working in a non-matrix organizational structure, have less belief in own personal power and are more focused on leader’s influence and formal power. They have a narrower approach on the organization’s activities and are less willing to take responsibility. Employees do value cooperation and communication inside the organization and find the values of the company important to reflect upon. (Ibid.)

The four studies are helpful to understand how the matrix works and how the employees and managers perceive the organizational structure. The main learning points are:

- organizational objectives are the basis to choose the form of the matrix and the power ratios between managers; (Laslo, Goldberg, 2001)
- training of the employees is a sign of a successful matrix organization; (Kuprenas, 2003; Sy, D’Annunzio, 2005)
- top-level and mid-level managers face different challenges working in a matrix structure (Sy, D’Annunzio, 2005) and
- the employees working in a matrix organization believe more in their personal power and influence and have a positive attitude towards challenges. (Lukinaitė, Sondaitė, 2017)

Matrix structure is a difficult to manage in an organization, but companies keep implementing an using it to achieve the benefits of a matrix and work in a maximum efficiency.



## **2. METHODOLOGY**

The purpose of this chapter is to give an overview of Board of European Students of Technology (BEST) and its last structural change. Additionally, the author will describe the methodology used to find answers to the research questions to help and solve the research problem.

### **2.1. Overview of Board of European Students of Technology**

Board of European Students of Technology is a non-profit and non-governmental organisation (NGO) founded in 1989. It provides for technology students all over Europe opportunities for communication, cooperation and exchange. The members of BEST are 93 Local BEST Groups (LBGs) from 34 countries which form a strong student networking structure. (What is BEST... 2020) The mission of BEST is to develop students by diversifying education and offering technology students the opportunity to gain practical experience for successfully working in an internationally open economic space already during school years. To fulfil its purpose, BEST has developed its core services: complimentary education; educational involvement and career support. (Identity, 2020) These are organizations prime focus areas and their quality assurance is a priority.

As an organisation that needs to effectively unite thousands of people, BEST has a fairly established structure to achieve its various activities and identity statements. The current internal structure of BEST is a matrix organizational structure. Figure 2 illustrates the matrix system in BEST.

LBGs have always been considered the centre of the organisation, and as such, they are depicted at the centre of the structure of BEST. However, all these LBGs is quite a large group to keep track of and support, which is one of the reasons why they've been split up into 11 regions. For each of the regions there is a Regional Adviser (RA). (Private area of BEST, 2020)



Figure 2. Current internal structure of BEST  
 Source: Private area of BEST (2020)

The board of BEST ensures global coordination of BEST, its bodies and programmes. It is composed of the president, treasurer, secretary, vice president (VP) for projects, VP for services, VP for human resources (HR) and VP of local group support (LGS). (Private area of BEST, 2020)

One of the main pillars of BEST's current structure is departments, which take care of the operational work in the organization. There are nine departments in BEST: educational involvement, training, information technology, grants, design, public relations, competitions, corporate relations and vivaldi (which is in charge of the complimentary education in BEST). (Ibid.) The organizational chart illustrates also projects, which are seen in the middle as well as doctors' team and international HR team, which are under supervision of a specific board position.

## 2.2. Structural change of Board of European Students of Technology

In 2015 BEST decided to change their internal structure to matrix organizational structure. The structure before had six committees which had been transformed into silos and drifting away from their original purpose. (Figure 3)

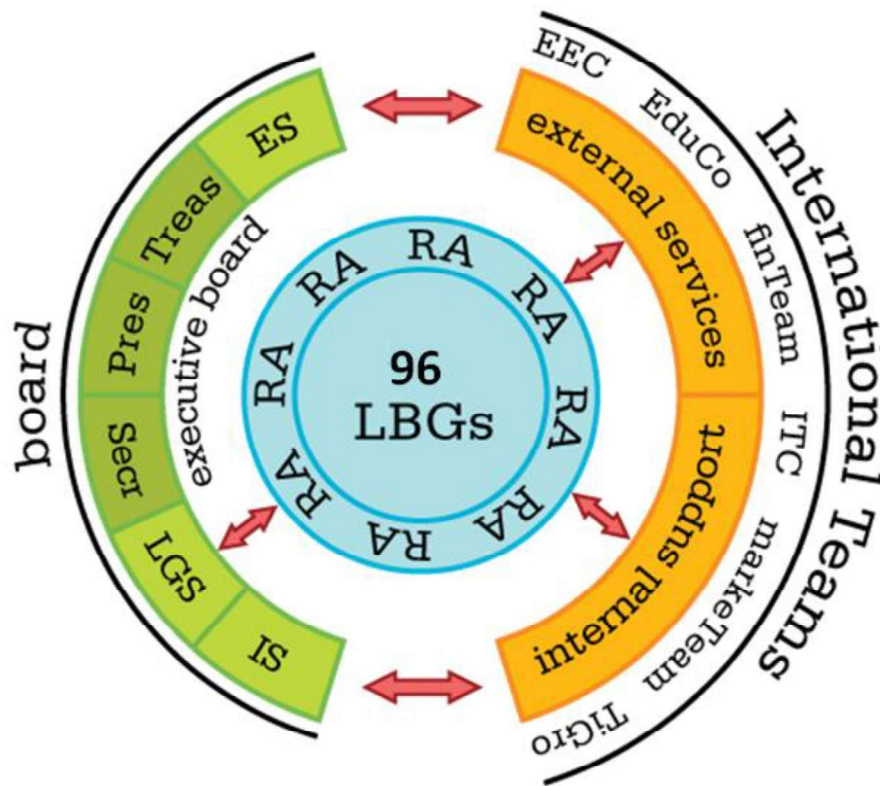


Figure 3. Previous internal structure of BEST  
Source: Private area of BEST (2020)

The new structure was aimed at increasing the efficiency and transparency of the organization and solve communication issues by making strategic projects the main development method. It also aimed to make it easier to become internationally involved by opening up international projects towards members of local groups. (Private area of BEST, 2020)

In the proposal to approve the transition plan of the internal structure towards a matrix system, was listed six expected outcomes of the transition (Ibid.):

- Easier to be internationally involved
- More coherent work throughout the organisation

- Focusing more on strategical development as one organisation
- Better execution of projects
- Human Resources being allocated more evenly
- More flexible structure

The author will focus if and how these expected outcomes are met, to see if the transition of the internal structure fulfilled its purpose.

### **2.3. The purpose of research, sample and description of methodology**

Author uses both qualitative and quantitative research methods in compiling the research to understand the current problems in the matrix organization and present proposals for improvement. The author wishes to involve as many internationally active members as possible, to get different perspectives to the current situation. Therefore four surveys are composed to four segments of the organization: department coordinators, project coordinators, board members and other internationally involved members. In addition, the author will conduct six semi-structured interviews. Three of them with board members, two with project coordinators and one other with a department coordinator. Semi-structured interview uses previously prepared plan and main points, but their order can be changed and additional questions asked (Lepik et al., 2014). In addition, the author will use BEST's Privat Area intranet, to gather some statistics over the years, which are accessible to all members of BEST.

The main research method is quantitative and for identifying the problems in BEST, four different surveys are compiled for fitting the knowledge and experience of each respondent segment. Since mandates in BEST last for one year, the author has chosen to include all current and most recent board members, department coordinators and project coordinators to the sample selection. As for the internationally involved people, the author has chosen to include project members, RAs, international HR team members, working group coordinators, ambassadors, active department members, finance and market officers. All the surveys had three or four background questions, two sections of scaling questions using Likert's rating scale and four or five open questions depending on the respondent segment. From the theoretical views were brought different forms of matrix, which were the basis for questions about projects and departments equality in BEST and the to see if people are involved in multiple units in the organization. Surveys also had questions related to communication, conflict management,

cooperation, information flow, innovation, training and the mindset of employees that link back to theoretical points from the first chapter.

The semi-structured interviews were carried out with six people on different management positions for getting a deeper understanding of the working structure and work performance in BEST. Interviews allows to explore hidden areas that are more delicate and sensitive and cannot be reached with a survey. (Õunapuu 2014, 170) The author prepared a plan for the interviews with 12 main questions that align with the survey questions. (see Appendix 6.) The interviewees were chosen based on their current leadership position, background in the organization and also their availability and interest in the interview. Most of the interview questions were also based on the theoretical views to see if and how much it overlaps with the situation in BEST. They were questions connected to cooperation, equality, communication, HR situation, benefits and problems but also flexibility in the structure and in the organization as a whole.

## **2.4. Description of the research conducting process**

The author conducted both qualitative and quantitative research. The surveys were composed by the author based on research problem and questions. On the 10<sup>th</sup> of April the survey was sent to 182 people - 127 internationally involved people (survey questions Appendix 1.), 19 department coordinators (survey questions Appendix 2.), 22 project coordinators (survey questions Appendix 3.), and 14 board members (survey questions Appendix 4.). The author got appropriate responses from 75 people, which makes the survey response rate 41%. There were 49 answers internationally involved people, meaning 39%, 12 answers from department coordinators, which makes 63%, 9 answers from project coordinators, meaning 41% and 5 answers from the board members, which makes 36%. The answering of the questionnaire was anonymous using Google Forms platform and the author personally sent out the surveys to all the respondents. To analyse the data from the surveys the author will use comparative statistical analysis with the help of Microsoft Excel software.

For qualitative research, six interviews (interview questions Appendix 6.) were carried out with people in leadership positions in BEST. The selected were three current board members, a department coordinator and two project coordinators, one who's coordinating a project inside the department and one who's coordinating a strategic project. The interviews were conducted from

14<sup>th</sup> of April till 21<sup>st</sup> of April using Zoom platform and they lasted from 20min to 35min. All six interviews were recorded and to ensure the anonymity of the interviewees, the author won't refer to interviewees by their name or state their exact position in the organization. The interviews were all transcribed using Happy Scribe and Sonix online platform. Although automatic speech recognition technology was used, transcripts also had to be corrected and adjusted. The transcriptions are accessible with a Google Drive link in the reference list. The author used cross-case analyse method, which focuses on identifying similarities and differences between different cases to analyse all the interviews (Strömpl, 2014).

### 3. RESEARCH RESULTS, CONCLUSIONS AND PROPOSALS FOR IMPROVEMENT

This chapter presents the results of the quantitative and qualitative research, their analysis and conclusions. In addition, the author will suggest proposals for improvement based on the theoretical views from the first chapter.

#### 3.1. Quantitative research results analysis

For quantitative research the author conducted four surveys to different respondent segments. This subsection will give an overview of the quantitative research results and analyse the surveys.

##### 3.1.1. General information on the quantitative research participants

All together 75 people participated in the author’s conducted quantitative research, which means 41% of the population. From the sample the gender distribution was quite even – 37 of the respondents were female and 38 were male. Figure 4 illustrates the age composition of the respondents, which shows that the majority of the respondents were between 21 and 26 years of age.

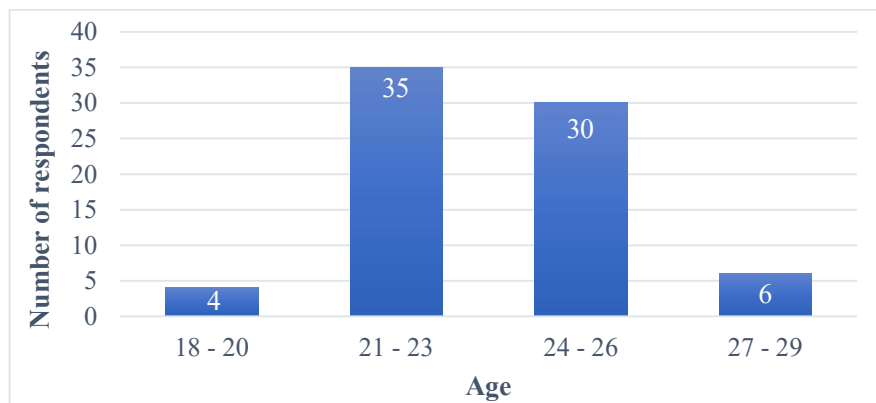


Figure 4. The quantitative research respondents age composition  
Source: compiled by the author

One of the general questions asked from all of the respondents was their nationality in order to get an overview how diverse the people are working in BEST. 27 different nationalities were brought out, the most often repeated were Portuguese and Romanian. (Table 3.)

Table 3. The quantitative research respondents by nationality

Nationality	The number of respondents
Portuguese	9
Romanian	8
Italian	6
Greek, Belgian	5
Estonian, Turkish, Serbian	4
Macedonian	3
Ukrainian, Spanish, Slovenian, Slovak, Polish, Indian, Hungarian, German, French	2
Swedish, Romanian-American, Lithuanian, Dominican, Czech, Croatian, Bulgarian, Bosnian, Austrian	1

Source: compiled by the author

Since BEST is a voluntary organization, the lifespan of the people working there isn't very long and often corresponds with the years spent in the university. The respondents were asked to select how long they have been involved in BEST. From Figure 5 can be seen that most of the respondents have been involved 3 – 4 years in the organization. Which shows that this is the peak time to be internationally active in BEST.

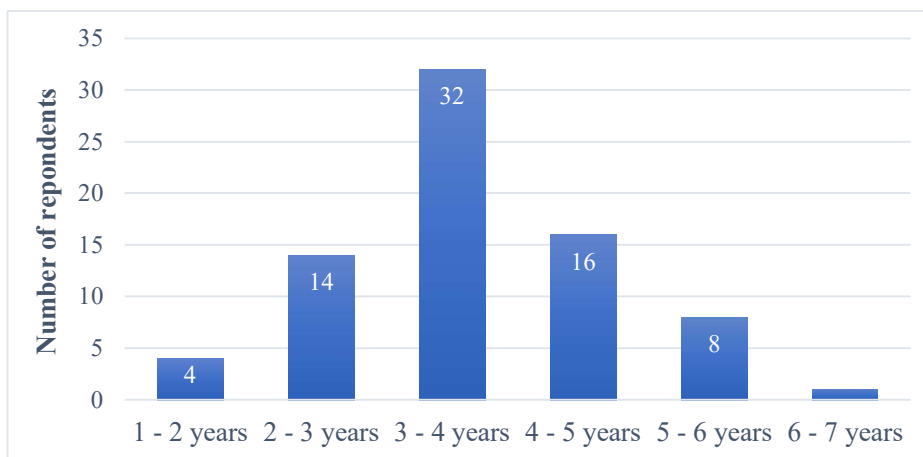


Figure 5. The time how long the quantitative research respondents have been involved in BEST  
Source: compiled by the author



From the 75 respondents 5 were board members, 9 project coordinators, 12 department coordinators and 49 internationally involved people. The internationally involved people had different kind of responsibilities – regional advisor; ambassador; trainer; project, department or working group member etc. This shows that the respondents were diverse in their responsibilities, nationality, years involved in BEST and their age as well.

### **3.1.2. International involvement and human resources allocation in BEST**

One of the potential outcomes of the structural change in BEST was an increased international involvement. Analysis of this metric will gather information from the surveys and the Privat Area of BEST.

Over the years BEST requires its members, the Local BEST Groups (LBGs) to fulfil a LBG report, which gives an overview of the LBGs current state and reveals their strengths as well as improvement points. Figure 6 gathers the information about the internationally involved members of the LBGs and the LBGs' subjective opinion of their international involvement. The data is gathered over the nine years - four and a half years with the old structure and four and half years with the new structure. The data about internationally involved people in 2018 and 2019 is missing since it was not gathered during those years. The LBGs were asked to grade the international involvement in their LBG from very bad to very good and the calculated average is based on the number of respondents to the report.

From the graph can be seen that the general trend of the two metrics is quite similar. The average number of internationally involved people per LBG has slightly risen, but since the data from two years is missing, it is difficult to evaluate how it has changed after the structural change. The LBGs' subjective opinion of their international involvement has gotten higher since 2017, but still remains slightly below 50 meaning below “average”.

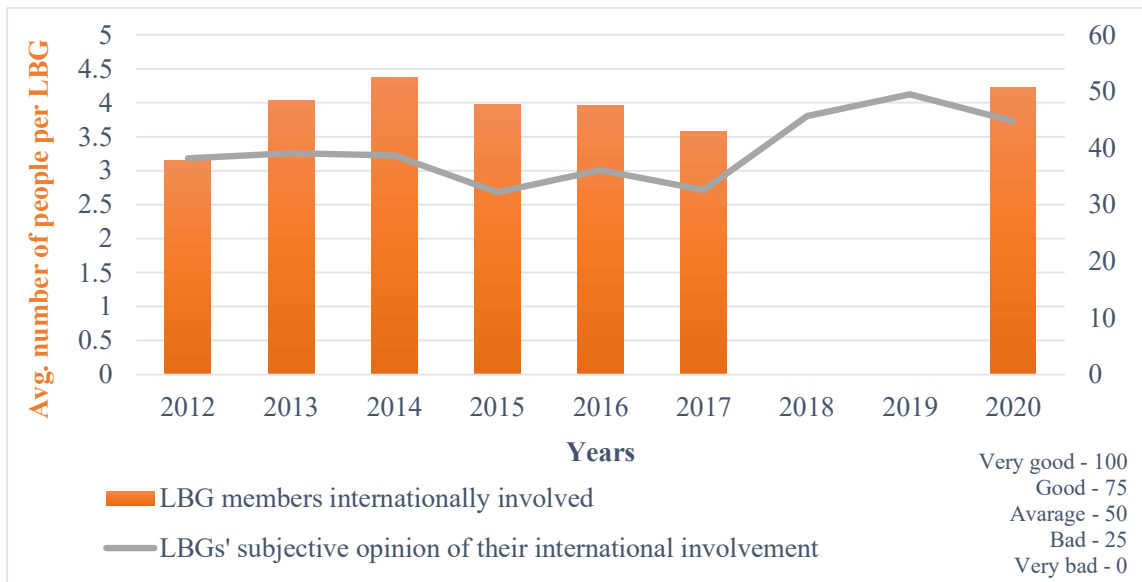


Figure 6. Internationally involved LBG members and LBGs’ subjective opinion of their international involvement over the years  
 Source: Private area of BEST (2020), compiled by the author

In the surveys, from the board members, department coordinators and project coordinators of BEST was asked if the HR situation of international side of BEST is sufficient. 19 answers from 26 were either disagree or strongly disagree, which means 73% of the top-level and mid-level managers see that the HR situation in BEST is not sufficient.

The author’s compiled surveys had four questions regarding the international involvement in BEST. Figure 7 gathers all the answers from the four surveys. It can be seen that the majority of the people, more than two thirds are involved in multiple international teams/projects/departments or positions, which means that they have insight from different perspectives of the organization. 62 people agree on that it is easy to get internationally involved, but only 46 respondents find that it is easy to blend in to international side of BEST. The answers about the experience needed to be internationally involved in BEST are the most diverse-answered from the questions, but disagreement still dominates.

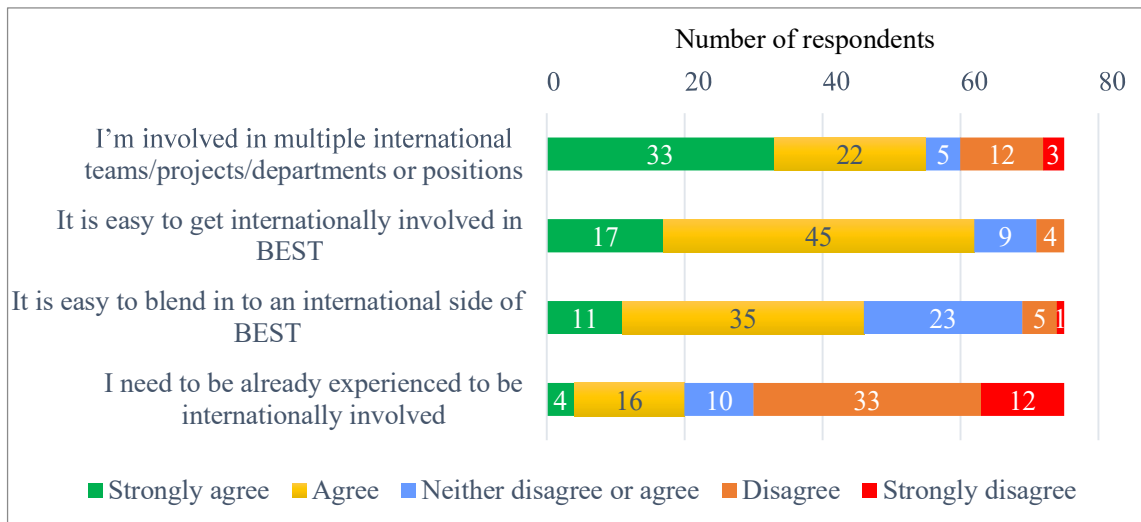


Figure 7. The survey's results on international involvement in BEST  
 Source: compiled by the author

In the surveys was also an open question from where did the person start their international involvement. After clustering the answers, the most popular one was a department project (28) and the second close one a department task (21). They were followed by being involved in a different kind of project than a department one (8), starting from an international position like ambassador, or a RA in BEST (6) or becoming a trainer (5). The rest of the answers were more specific, or the person couldn't recall their first responsibility they took.

The author wanted also to get an overview of the human resources allocation in the organization. The quantitative research had several questions related to this topic, which were modified and directed to specific segment group.

Project coordinators had very diverse answers whether their project members are from different department or not. Three of them agreed, four disagreed and two stayed neutral. Similar answer pattern was with department coordinators when asked if their department has enough HR to fulfil projects' and departments' needs. 5 agreed, 5 disagreed and 2 stayed neutral. 52% of the project and department coordinators answered that their units' members have other responsibilities from different international teams/projects/departments or positions. 28% of the respondents stayed neutral and 20% disagreed with the statement. On this basis, only 1 of the coordinators answered that the team members do not have enough time to work on the project or department tasks due to other responsibilities.

Figure 8 shows three more questions about HR situation that were directed to project coordinators and department coordinators. The respondents generally do not think it is easy to find department or project members. It is worth mentioning that four out of five positive answers came from project coordinators, which shows that most of the department coordinators find it difficult to find department members or stayed neutral answering this question. There were very diverse answers whether the project or department has enough HR, but the statement “International HR team is providing enough support...” got mostly disagreeing or neutral answers.

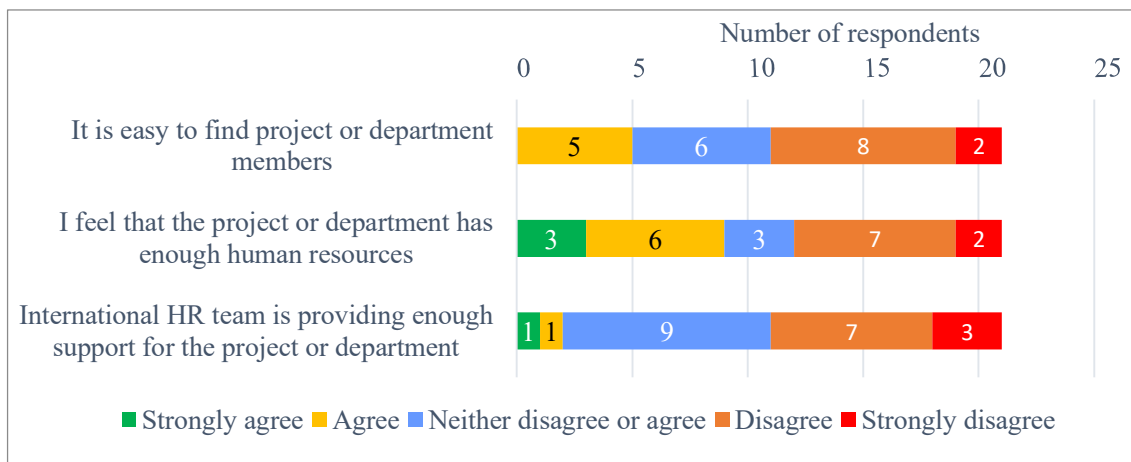


Figure 8. Project coordinators and department coordinators surveys’ results on human resources  
Source: compiled by the author

From the board members was asked if the workload in BEST is generally evenly distributed. Four people out of five disagreed with it and one stayed neutral. At the same time, from the internationally involved people was asked if they feel overloaded with the work from international side of BEST and the majority of them (65%) disagreed with it. This segment also rated the statement “I feel that the workload is evenly distributed in the departments/projects/teams or positions which I’m involved in”. There the answers were more scattered. 4 strongly agreed, 16 agreed, 15 neither agreed or disagreed, 9 disagreed and 5 strongly disagreed.

### 3.1.3. Coherent work and strategical development in the organization

Board of European Students of Technology (BEST) strives for coherent work throughout the organization and matrix internal structure should be a helping tool to reach it. In the quantitative

research the author had questions about cooperation, communication, information flow to see if the internationally involved people in BEST see the coherency in the organization.

From all the quantitative research respondents was asked how they see the information flow in the organization from three different perspectives. Figure 9 show the answers. It can be seen that the information flow between board and rest of the international bodies is perceived either as something that works, or it could use some improvement. From the respondents, the project coordinators were the surest that it is something that is working (8 answers from 9). The other segments had quite mixed answers. Information flow between project, departments and teams is mostly perceived as something that could use some improvement, while the information flow inside the international bodies is rated as something that is working or even seen as a strength.

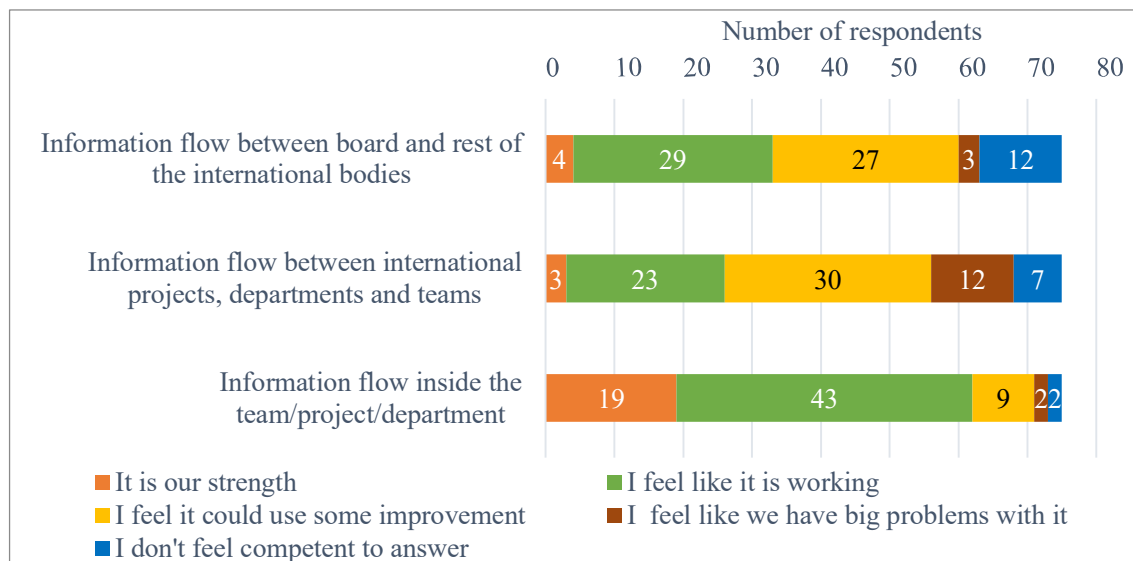


Figure 9. The survey’s results on information flow in the organization

Source: compiled by the author

Figure 10 illustrates cooperation in the organization from three different perspectives. The general trend of the answers is quite similar to the three questions about information flow. An exception is the cooperation between board and rest of the international bodies, which is perceived mostly as something that is working. The cooperation between international projects, departments and teams had variable answers, but most of the board members, department and project coordinators, 70% of them, see it as something that could use improvement or that the organization has big problems with it.

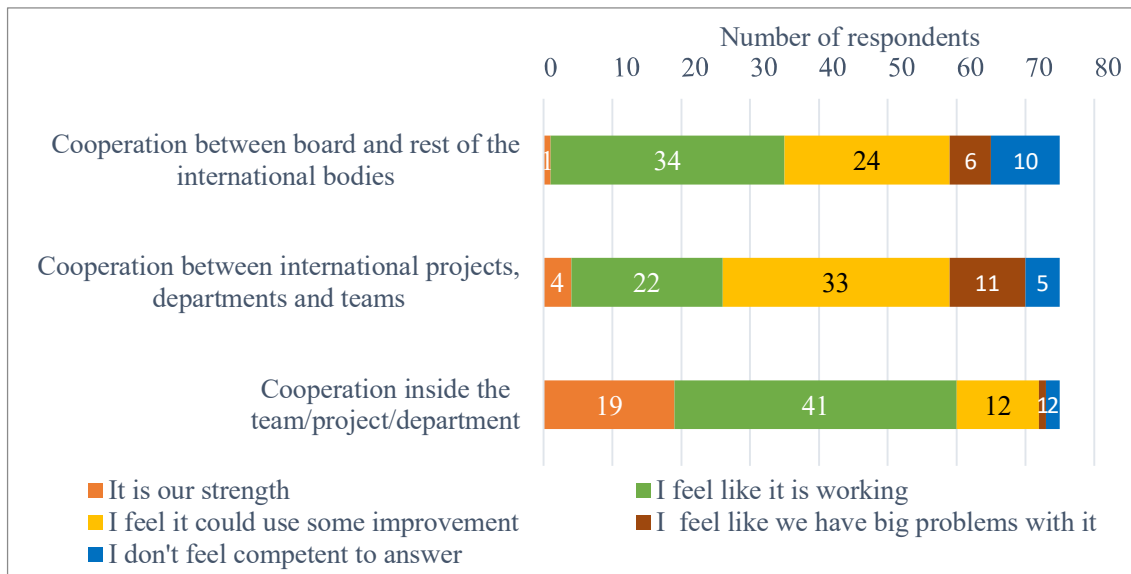


Figure 10. The survey’s results on cooperation in the organization.  
 Source: compiled by the author

The quantitative research respondents were also asked to rate if they feel that if the organization is working together to achieve common goals. The two most common answers were “I feel it could use some improvement” (28) and “I feel it is working” (25). It is important to point out that the most often emerged answer from the board members, project and department coordinators was that this aspect could use some improvement, while the other internationally involved people saw it mostly as something that is working.

In the first section of the surveys were also three questions related to coherence. Figure 11 gives an overview of the answers. From the results it is clear that most of the respondents (84%) see that internationally involved people are cooperative. The answers about effective communication flow in the organization were diverse throughout all the respondent’s segments, showing that people perceive effective communication flow very differently in the organization. The respondents’ answers about projects and departments working closely were even more diverse. 80% of the board members, department and project coordinators did not answer agree or strongly agree, showing their general attitude towards it. However, the internationally involved people most commonly answered that they agree with the fact that projects and departments work closely with each other.

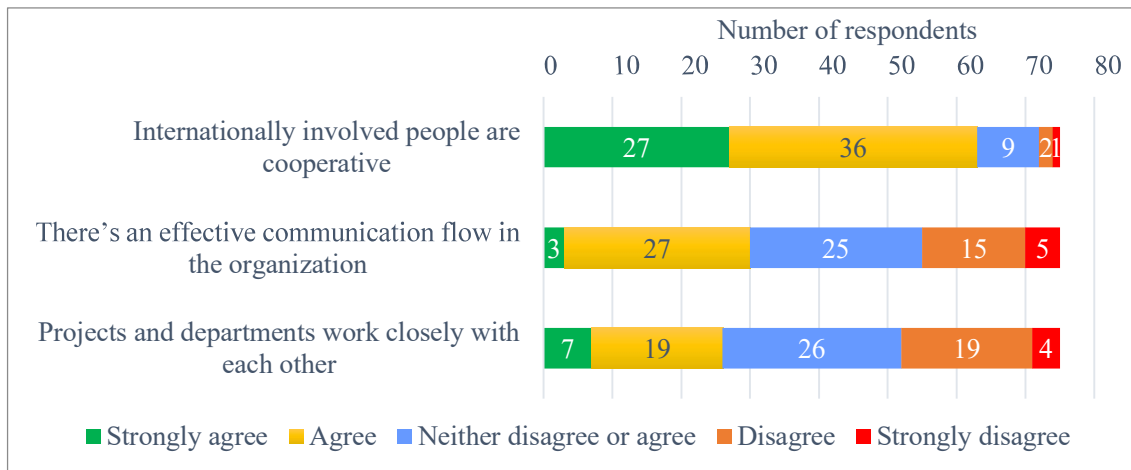


Figure 11. The survey's results on cooperation and communication flow  
 Source: compiled by the author

In addition, 61% of the respondents did not find that departments and projects are equal in BEST in terms of power and authority, while 29% stayed neutral and only 10% agreed.

For strategical development BEST has created a Long-Term Strategic Plan (LTSP) which lasts for three years. Since the mandate of the board members and department coordinators of BEST last for one year they also prepare Annual Action Plans (AAPs) for the year. The department AAPs should be aligned with the LTSP of BEST and AAP of BEST. The author's compiled surveys had this topic related questions to the board members, department coordinators and project coordinators modified for each segment.

From the board members and project coordinators was asked if they feel that the projects of BEST are aligned with the AAP and LTSP of BEST. All the respondents (14) answered that they feel that the projects are aligned with the AAP of BEST. For the alignment with the LTSP of BEST, 8 project coordinators and 2 board members agreed with it, while 3 others answered, "neither disagree or agree" and one board member disagreed with the statement.

From the board members and department coordinators was asked if they feel that the departments' goals are aligned with the AAP and LTSP of BEST. Figure 12 illustrates the results from both respondent segments.

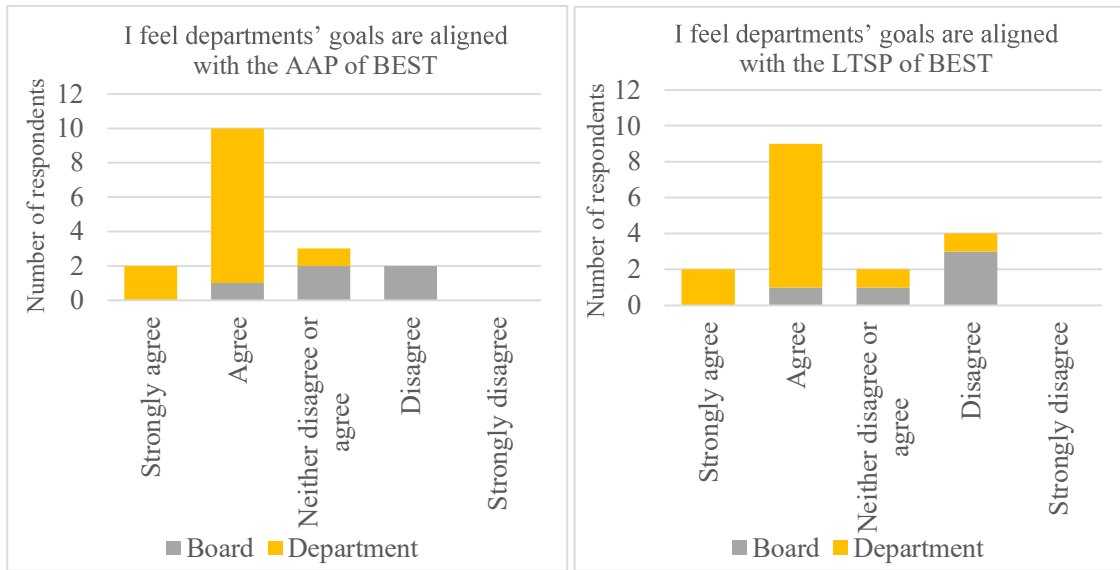


Figure 12. Board members and department coordinators surveys' results on the department goals alignment with the AAP and LTSP of BEST  
 Source: compiled by the author

It can be seen that the department coordinators mostly feel that their departments goals are aligned with AAP as well as the LTSP of BEST. However, only one of the board members agrees with. The other board members either saw that the departments' goals do not align with the AAP and LTSP of BEST or stayed neutral, by choosing "neither disagree or agree".

**3.1.4. Development and innovation in BEST**

Since training and development programmes are characteristic to a matrix organization, the quantitative research had some questions related to it as well. Figure 13 illustrates the respondent's satisfaction with the investment BEST makes in developing either the LBGs of internationally active members. The developing includes Knowledge Transfer (KT), trainings, mentoring and any other supporting systems that have been used in the organization to ensure the development of the people. It can be from the figure that the respondents were generally more satisfied with investment BEST makes in developing the LBGs than internationally active members. Even though both statements are mostly agreed with. All together 27% of the respondents are not satisfied with the investment BEST makes in developing the internationally active members and 17% in developing the LBGs.



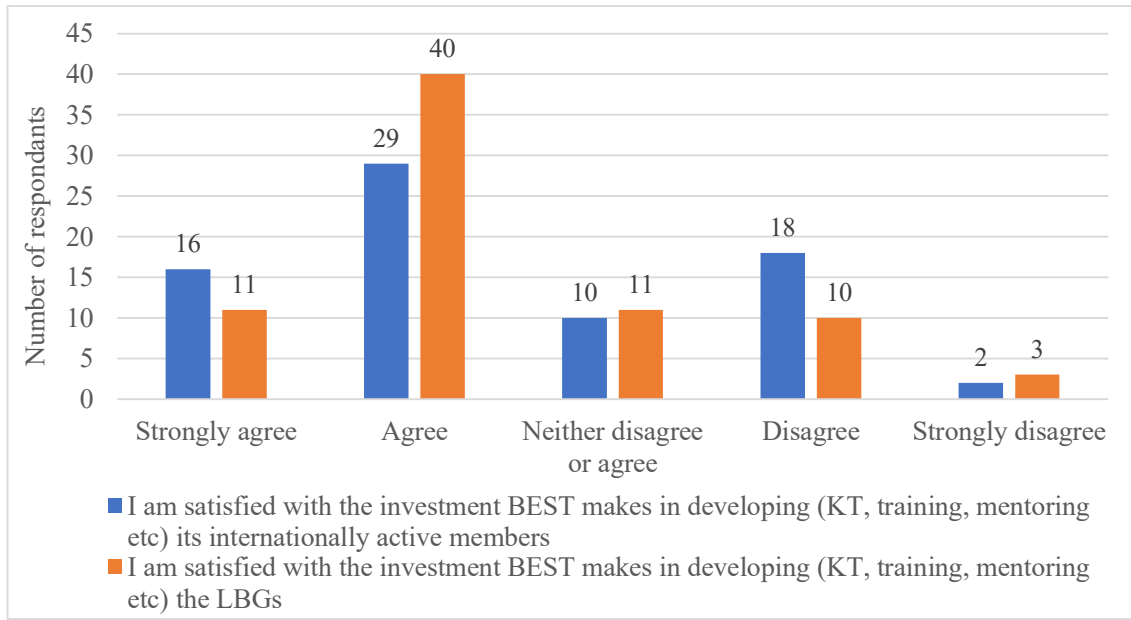


Figure 13. The survey’s results on the respondent’s satisfaction with the investment BEST makes in developing the LBGs and internationally active members  
 Source: compiled by the author

In addition, 67 respondents (89%) found the fact that people have a chance to get different self-development opportunities in BEST as something that is working or even as a strength in the organization.

In the surveys was two questions addressed to innovation. The first one being “Innovative thinking is being encouraged in the organization.” There 44 respondents, 59% agreed or strongly agreed with the fact, 22 respondents, 29% neither disagreed or agreed and 9 (12%) disagreed. The second question was if they feel innovation is an important part of the organization. Figure 14 shows that the majority of the respondents agree with the fact and only 12 people out of 72 disagree.

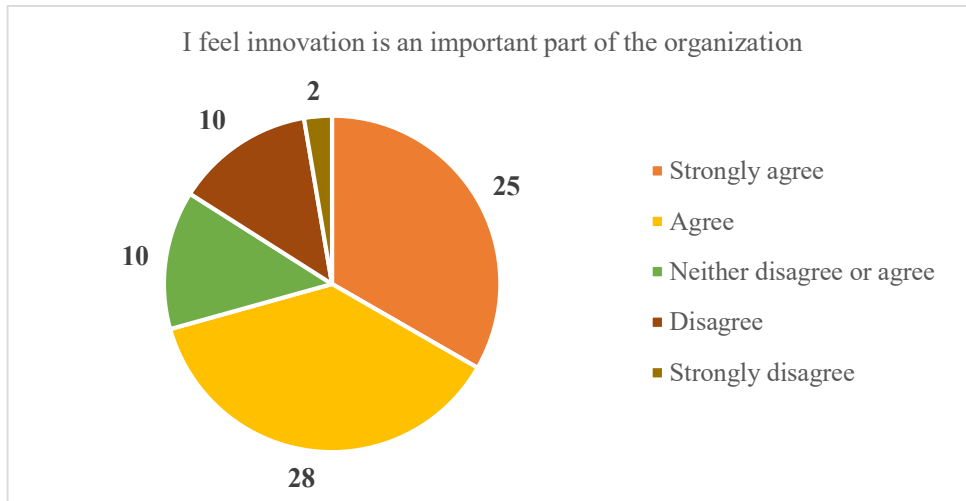


Figure 14. The survey’s results on innovation.  
Source: compiled by the author

There was also a comments section on the surveys, which had quite some comments about innovation. The author will bring out some of them.

*“Innovation is something I think we are lacking and also knowledge how to do it. We tend to reinvent the wheel a lot.”*

*“We have regulated the department/teams/projects too strictly separated, each its own 'box' as if it was not a flowing dynamic structure... That is why I also feel like BEST is not really able to be encourage innovative thinking”*

*“Innovation - We want it to be a part of our work, but we resist it with all our force.”*

All the comments related to innovation in BEST were rather critical and showed dissatisfaction with the current system.

### 3.1.5. Mindset of internationally active people in BEST

The author asked several questions in the surveys to get an overview of the mindset of the people working on the international side of BEST. Figure 15 illustrates six points on the radar chart which were rated by the respondents from strongly disagree to strongly agree. The author gave numeric values to the answer choices from 0 to 100. All four surveys answers were summed up and then the average calculated, which can be seen on the Figure 15. All averages were above 50, meaning above “neither disagree or agree” answer choice. The highest rated statement was “I feel proud volunteering and working at international teams/projects/departments or positions”. It was followed by three statements with an average 81, which means above “agree”. The lowest score got the statement “I feel my opinions are taken into consideration in the organization”

which ended up with an average 74, meaning slightly below agree. There was also an additional comment from a respondent about this statement: *“We mostly ask for opinions, people in charge don't really take much of them into account if they feel they know more.”*

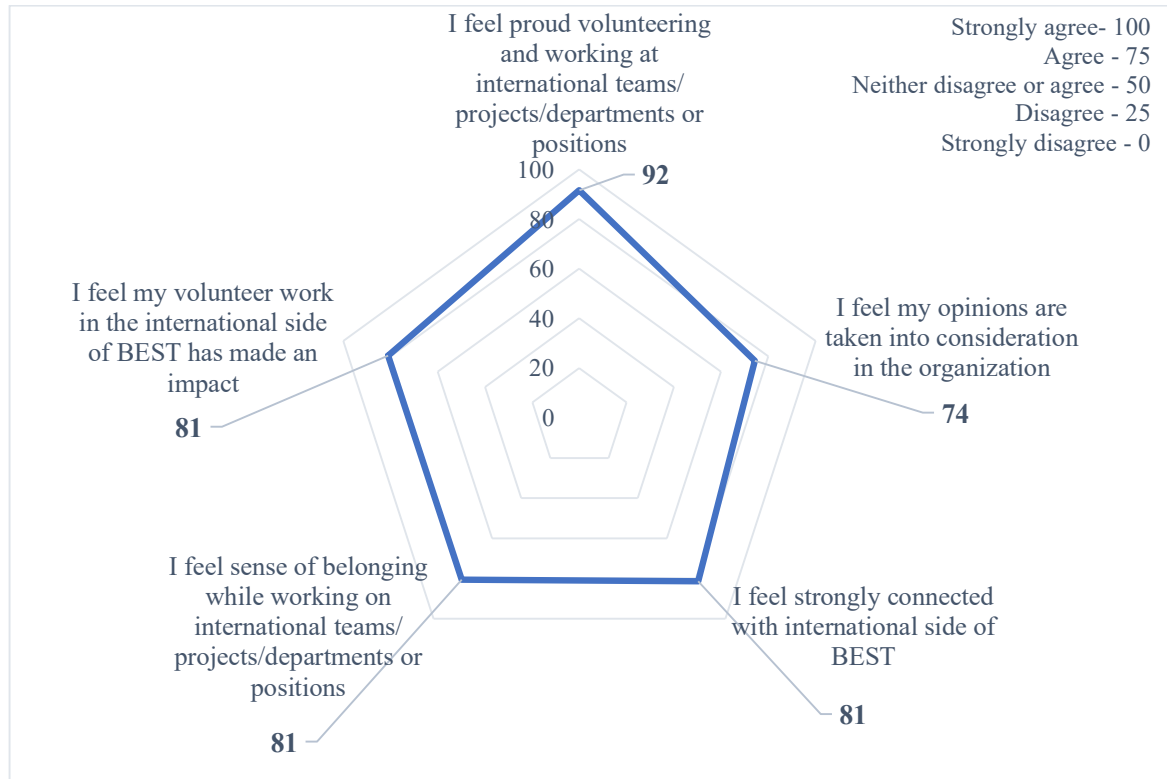


Figure 15. The survey’s results on the mindset of all the respondents  
Source: compiled by the author

The respondents were asked if they think that people in BEST feel included in the decision-making process. 53% answered that it is working or is the strength of BEST, while 41% thought it could use some improvement or that BEST has big problems with it. 6% did not feel competent to answer. The question if BESTies are encouraged to be part of projects as well as departments had generally positive answers, 72% agreed or strongly agreed with it.

### 3.2. Qualitative research results analysis

For qualitative research the author conducted six interviews with people in different management positions in BEST – 3 board members, 1 department coordinator, 1 strategic project coordinator and 1 department project coordinator. To analyse the results from the qualitative research, the

author decides to use cross-case analyse. The cross-case analyse (see appendix 6.) gathers the information from all six interviewees on seven topics:

- 1) cooperation between projects and department,
- 2) equality in power and authority between projects and department,
- 3) communication system and channels,
- 4) the HR situation,
- 5) benefits of working in a matrix system,
- 6) flexibility and adaptability in a matrix structure and
- 7) the key challenges in the organization.

The table shows that overall idea behind the managers answers is quite similar in most of the cases. The two managers that stand out with some of the answers are the department coordinator and the department project coordinator.

- **Cooperation between projects and departments**

All of the board members and the strategic project coordinator see that the cooperation is not working as it should between the projects and departments. Board member 1 brings out that: *“...they're (projects are) not that known, not that respected, although they are the same reporting level.”* The department coordinator mentions that there is very good cooperation with the department projects, but the department does not have any common ground with the other projects of BEST. While the department project coordinator sees good cooperation and communication between projects and departments. Two of the board members also mentioned that it is caused by the way matrix structure was implemented. Board member 2 stated *“We wanted to move towards a matrix structure, but we making compromises towards the old structure. We resulted in having the departments still being a separate level than the projects.”*

- **Equality in power and authority between projects and department**

None of the interviewees think that projects and departments are equal in power and authority in BEST and four of them mentioned that they should not be, considering the way how projects and departments are defined now. Board member 1 commented *“...usually it's easier because they are continuous bodies, the departments, it's easier for people to know departments and value them higher than the projects.”*, while the strategic project coordinator mentioned *“the departments are way larger in scope than a project, so it's kind of normal that it's not equal.”*

- **Communication system and channels**

All of the interviewees named emails as the primary communication system in in BEST. Online meetings and the usage of instant messaging platform WhatsApp was also mentioned multiple times. The department project coordinator was the only one calling the current communication system very effective. Board member 1, Board member 2 and the department coordinator said that the current system gets the job done, although there were other problems pointed out connected to communication, like Board member 2 said *“The main problem that is there or has been there is the storage of information.”* Board member 3 and the strategic project coordinator did not find the current system effective. Board member 3 stating *“...the problem is that mail is not used to communicate fast anymore. Now there's many different channels to it better than mail does.”* However, bringing out the reason of the current system *“We don't have the money to really get one of these big workspaces.”*

- **The human resources situation**

The answers about the HR situation in the international side of BEST were quite diverse. Board member 1 sees that there are mostly the same people doing most of the work and if there would be more resources available then that would probably improve the situation. Board member 2 thinks that the resources are there, but the problem is their allocation. Board member 3 describes the HR situation as a “huge mess” and points out that the international HR team is not completely fulfilling its purpose and should have more experts in it. Strategic project coordinator also mentions that the resources are there, but it’s time-consuming and difficult to get to them. Department project coordinator compares the last two year and says the situation is getting better. The department coordinator only mentions that the HR in the department is OK but does not wish to generalize or speak for other international bodies.

The main challenges mentioned when recruiting people in international bodies were finding the motivation or courage of people, awareness of the international opportunities and tackling with the first impression on the complexity of the structure and the work.

- **Benefits of working in a matrix system**

When asked the benefits of working in a matrix system, most of the interviewees were not able to come up with any and started focusing more on the downsides. Some of them brought out the theoretical benefits but mentioned that that are not really seen in BEST. Board member 2 stated “...*I have not really considered BEST to be actually working in a matrix structure.*” The department project coordinator mentioned “*I’ve been approached many times by higher ups, even board members who have really down to earth discussion with me*”, which he sees as a benefit of the matrix structure.

- **Flexibility and adaptability in a matrix structure**

Only the department coordinator agreed with the fact that matrix structure is a flexible and adaptable form of an organizational structure by stating “*it kind of gives us flexibility to see how...two or three different bodies...can support one thing.*” All the other interviewees said that they do not see the flexibility and adaptability in BEST. Board member 1 mentioning “*Even if the matrix structure is flexible BESTies are not necessarily*”, Board member 3 stating “*I think that we don't understand it enough to be able to play with it enough*” and the strategic project coordinator saying, “*It's not very flexible in BEST because we regulated everything.*”

- **The key challenges in the organization**

All the board members and the strategic project coordinator mentioned that biggest challenge for BEST is to be still relevant to the society in the future. Board member 2 said “*We need to change fast and to be flexible and reactive to society and the needs of our stakeholders, which comes down to a structural challenge of implementing some type of flexibility.*” The department coordinator brought out the internal and external branding of the organization as the key challenge and department project coordinator mentioned motivation of the people as the main challenge.

- **Improvement points**

From the interviewees was also asked what they would improve in the organization. The author will bring out main points that the top-level and mid-level managers brought out:

- Increase board governance and decision-making power
- Take more into account that BEST is a voluntary based organization and change regulating, structuring and managing accordingly.
- Do a re-evaluation of the structure and redistribute the knowledge areas.
- Organize more face-to-face meetings with the people you work with.
- Modernize the way we communicate within the network.
- Organize more project simulations and explore the possibilities to do longer projects.

Most of the improvement points brought out did not overlap with each other. Only increasing board decision-making power was mentioned twice by two board members.

### **3.3. Discussion**

The goal of the thesis is to identify problems that the implementation of matrix system has caused in the organization and give proposals for improvement. In addition, the author evaluated if and how the implementation of matrix structure has reached the expected outcomes of the structural change.

It can be said that the international involvement on BEST has slightly risen since the structural change, but the key problem still is the reasonable allocation of the resources. Projects were hoped to be the main entry point for international involvement and indeed the department projects are, but the strategic or ad-hoc projects are not. The coherence of work in the organization is not in the place that it was expected to be. The fact is that there are many people working in different international bodies and the cooperation and information flow inside of the teams is generally quite good, but the problem is still the collaboration between other international bodies, including the board. The projects and departments are not seen as equal in power and authority in BEST and the current structure does not really allow them to be. One can say that the projects of BEST do contribute to the strategical development of BEST, however the departments are seen very differently depending on the department coordinator or a board member perspective. In addition, the flexibility in the current organizational structure is not really seen, even though it is characteristic for a matrix structure. The author did not manage to evaluate if projects are more successful in the matrix structure than they were before. Altogether, the author claims that the structural change in BEST did not completely fulfil its purpose as it

should have. The reason behind it could be the implementation of the matrix structure, which is something the organization should look more into.

The training and development opportunities are quite well covered in BEST, which is characteristic for a matrix structure, however the innovation in the organization is perceived differently and even though the overall quantitative research results support it, then the additional comments and interviewees answers do not. To get a deeper understanding how innovation is perceived and implemented in BEST, additional questions should have been added in the surveys and interview questions. The overall mindset of the internationally active people is positive. However, there are some improvement points on how to involve people and their opinions in the decision-making process to get actual value out of it. The current communication system gets the work done, but for better and faster communication some other possibilities can be considered, like internal communication softwares. The main challenge seen in the organization is to fulfil the needs of the stakeholders and not get left behind, which requires flexibility and change both from the structure's and people's perspective.

Overall, the author would like to point out that in her opinion BEST is not actually working in a proper matrix organization. Since this is what is communicated to the organization, but not actually followed properly, it makes an already complex organizational structure even more complex to understand for its members. BEST has some characteristic of a functional matrix structure, but the programs, teams and department projects do not have a clear spot in the current structure.

### **3.4. Proposals for improvement**

This subsection will give an overview if the author's suggested improvement points for Board of European Students of Technology. The suggestions will be based on the theoretical views from the first chapter, which will be modified to the needs of the organization.

The author of the bachelor's thesis makes the following proposals for improvement:

- Since the current organizational structure in BEST is quite unclear and not well defined, the author suggests doing a re-evaluation of the current structure.
- If BEST wants to follow a matrix internal structure it should:



- Define which kind of form of matrix the organization is currently at and where does it want to belong (functional, balanced or project matrix) based on the organizational objectives.
- Take into account that BEST is a voluntary non-governmental organization and shape its internal structure and working methods accordingly.
- Prepare a new organizational chart, which would follow the matrix structure shape and fit the programs, teams, working groups and department projects there as well.
- Communicate the organizational structure more clearly to its members, so it would not seem so complex to an outsider.
- Plan carefully the changes and their implementation in the organization, so there would be less resistance to change.

From the literature review and the knowledge on BEST's working structure, the author has compiled a simplified version of the current internal structure of BEST. (Figure 16.)

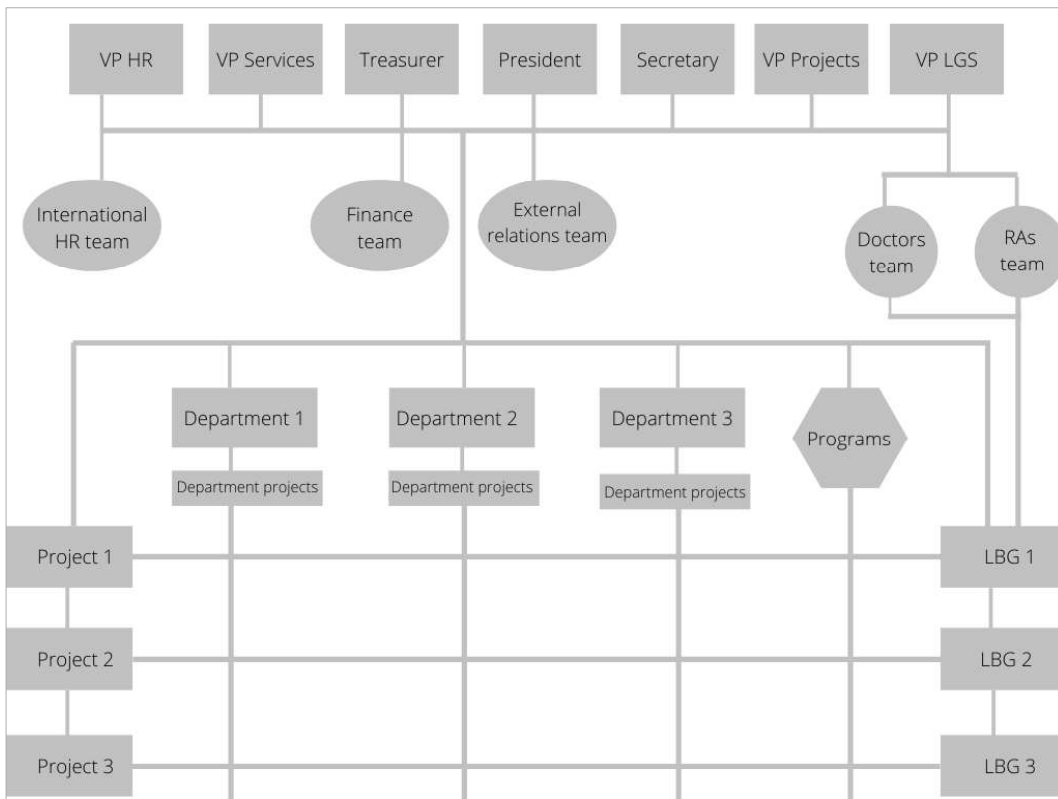


Figure 16. Author's interpretation of the current organizational structure of BEST  
Source: compiled by the author

The author added programs and Local BEST Groups (LBGs) as decision-making bodies to the organizational chart, which makes it a three-dimensional matrix with projects, departments/programs and LBGs. The internal structure could be made even more detailed by adding international positions and working groups on it.

## **SUMMARY**

The aim of this thesis was to identify problems that the implementation of a matrix system has caused in the organization and give proposals for improvement. To reach the aim, the author read relevant literature, gave an overview of the matrix organizational structure, its different forms, problems and benefits as well as what prior research has been done on matrix organizational system. According to the aim, the author has set up the following research questions:

1. How did the implementation of the matrix structure help to reach the expected outcomes that were set before the structural change?
2. What has been the impact of the matrix structure on the organization?
3. How to solve matrix structure problems in the organization?

The author used both quantitative and qualitative research to get the answers to the research questions. Conducted four surveys to specific respondent segments - board members, department coordinators, project coordinators and other internationally involved people. In addition, carried out six interviews – 3 with board members, 1 with a strategic project coordinator, 1 with a department coordinator and 1 with a department project coordinator.

Based on the research analysis it can be said the structural change to a matrix system did not completely fulfil its purpose nor reached the expected outcomes. The matrix system has had a positive effect on the international involvement in BEST, projects fulfilling the strategical development in BEST and the cooperation and information flow inside the teams/projects and departments. However, the resource allocation, coherence throughout the organization and flexibility in the structure are still very existing problems. The author did not manage to evaluate if the projects are more successful in the matrix structure than they were before.

The impact of the matrix structure has been both positive and negative effects on the organisation. The projects are the main entry point for international involvement in BEST as expected, the training and development in BEST is highly rated and the mindset of internationally active people is rather good. The main problem that is currently relevant is the

complexity of the current structure, which has some characteristics of a matrix structure, but does not follow it properly. This includes the missing places of teams, programs and department projects in the current structure. In addition, the lack of flexibility from the people's and structure's side, which is needed to fulfil the needs of the stakeholders and not get left behind.

The author of the bachelor's thesis makes the following proposals for improvement:

- Since the current organizational structure in BEST is quite unclear and not well defined, the author suggests doing a re-evaluation of the current structure.
- If BEST wants to follow a matrix internal structure it should:
  - Define which kind of form of matrix the organization is currently at and where does it want to belong (functional, balanced or project matrix) based on the organizational objectives.
  - Take into account that BEST is a voluntary non-governmental organization (NGO) and shape its internal structure and working methods accordingly.
  - Prepare a new organizational chart, which would follow the matrix structure shape and fit the programs, teams, working groups and department projects there as well.
  - Communicate the organizational structure more clearly to its members, so it would not seem so complex to an outsider.
  - Plan carefully the changes and their implementation in the organization, so there would be less resistance to change.

In conclusion, the author has found out that even though matrix structure is officially the internal structure that BEST uses and the one communicated to its members all over the Europe, then following it is not really supported in BEST. This is making the understanding of the current structure more difficult to its members.

Further research should take into consideration the fact that BEST is a voluntary non-governmental organization and find a way how to shape its internal structure and working methods accordingly. Since the author could not find any prior research connecting matrix structure and NGOs then this topic could also be looked into.

# KOKKUVÕTE

## MAATRIKSSTRUKTUURI RAKENDAMISE MÕJU ORGANISATSIOONI JUHTIMISES BOARD OF EUROPEAN STUDENTS OF TECHNOLOGY NÄITEL

Liisbeth Laasik

*Board of European Students of Technology* (BESTi) näol on tegemist rahvusvahelise tudengiorganisatsiooniga, mille siseehituseks on olnud viimased neli ja pool aastat maatriksstruktuur. Moodsa siseehituse rakendamist ega mõju pole varasemalt analüüsitud ning puudub ka info, kas struktuurimuudatus täitis enda eesmärgi. Autor, kes on BESTi aktiivne liige, näeb hetkel peamisteks probleemideks üleüldist keerukust organisatsiooni töö organiseerimises ning personaliga seotud ja finantsilisi raskusi. Autor soovib välja uurida, kas need probleemid on seotud maatriksi siseehituse rakendamisega, ja kuidas BEST neile lahendusi leiaks. Bakalaureuse töö eesmärgiks on välja selgitada maatriksstruktuurist tekkinud probleemid ning esitada parandusettepanekuid olukorra edendamiseks. Eesmärgist lähtuvalt püstitas autor järgmised uurimusküsimused:

1. Kuidas täitis maatriksstruktuuri rakendamine oodatavad tulemused, mis olid paika pandud enne struktuurimuudatust?
2. Millise mõju organisatsioonile on maatriksstruktuuri rakendamine endaga kaasa toonud?
3. Kuidas lahendada maatriksstruktuuriga kaasnenud probleeme organisatsioonis?

Autor kasutas töö koostamisel nii kvalitatiivseid kui ka kvantitatiivseid uurimismeetodeid. Viidi läbi kuus poolstruktureeritud intervjuud – kolm juhatuse liikmetega, üks osakonna juhiga, üks strateegilise projektijuhiga ja üks osakonna projektijuhiga. Lisaks koostas autor neli küsimustikku vastavalt rahvusvaheliselt aktiivsete inimeste positsioonidele – juhatuse liikmetele, osakondade juhtidele, projektijuhtidele ja teistele rahvusvaheliselt kaasatud liikmetele. Kvantitatiivsete andmete analüüsimiseks kasutati võrdlevat statistilist analüüsi ning kvalitatiivsete andmetel *cross-case* analüüsi.

Uurimisanalüüsi põhjal võib öelda, et struktuurimuutus ei täitnud täielikult oma eesmärki ega saavutanud oodatud tulemusi. Maatriksüsteem on parandanud projektide sidusust organisatsiooni strateegilise plaaniga, rahvusvahelist kaasatust liikmete seas ning koostööd ja infovoogude liikumist tiimides/projektides ja osakondades. Lisaks on projektid BESTi rahvusvahelise kaasatuse peamine lähtepunkt nagu seda ka loodeti. Probleemideks on siiski jäänud personali ressursside jaotamine, sidus ja ühtne töö läbi organisatsiooni ning ka struktuuri paindlikkus ja kohanemisvõime BESTis. Autoril ei õnnestunud hinnata, kas projektid on maatriksstruktuuris edukamad olnud kui varasemas struktuuris.

Maatriksstruktuuri positiivne mõju väljendub ka selles, et BESTi koolitust ja arengut hinnatakse kõrgelt ning organisatsioonis töötavate rahvusvaheliselt aktiivsete inimeste mentaliteet on pigem hea. Negatiivsest küljest saab välja tuua, et peamine aktuaalne probleem on struktuuri keerukus, millel on küll mõned maatriksstruktuuri tunnused, kuid ei hõlma seda täielikult. See väljendub selles, et osadel struktuuri üksustel nagu rahvusvahelistel tiimidel, programmidel ja osakondade projektidel puudub koht praeguses organisatsiooni struktuuri skeemis. Lisaks saab väita, et puudub nii inimeste kui ka struktuuri paindlikkus, mis on vajalik huvirühmade vajaduste täitmiseks ja kiirelt muutuva ajaga kaasas käimiseks.

Bakalaureusetöö autor teeb järgmised parandusettepanekud:

- Kuna BESTi praegune organisatsiooniline struktuur on üsna ebaselge ja pole täpselt määratletud, soovib autor praeguse struktuuri ümber hinnata.
- Kui BEST soovib järgida maatriksi siseehitust, peaks see:
  - Lähtudes organisatsiooni eesmärkidest määrama, millises maatrikstüübis organisatsioon praegu asub ja kuhu ta soovib kuuluda (funktsionaalne-, tasakaalus- või projektimaatriks).
  - Võtma arvesse, et BEST on vabatahtlik valitsuseväline organisatsioon, ja kujundama vastavalt sellele enda siseehituse ja töömeetodid.
  - Koostama uue organisatsiooni struktuuri skeemi, mis järgib maatriksstruktuuri kuju, lisades sinna ka programmid, tiimid ja osakondade projektid.
  - Kommuniqueerima organisatsiooni struktuuri oma liikmetele selgemalt, et see ei tunduks kõrvalseisjale nii keeruline.
  - Planeerima hoolikalt muudatusi ja nende rakendamist organisatsioonis, nii et muutustele oleks vähem vastupanu.

Kokkuvõttes leiab autor, et kuigi maatriksstruktuur on ametlikult BESTi siseehitus, mida oma liikmetele üle kogu Euroopa kommunikeeritakse, siis BEST seda otseselt ei järgi. See aga muudab praeguse struktuuri mõistmise ning selles töötamise keeruliseks BESTi liikmetele.

## REFERENCES

- Ahmady, G. A., Mehrpour, M., & Nikooravesh, A. (2016). Organizational Structure. *Procedia - Social and Behavioral Sciences*, 230(May), 455–462.  
<https://doi.org/10.1016/j.sbspro.2016.09.057>
- Child, J. (2015). Components of Organization. In *Organization: Contemporary Principles and Practice*. (2nd ed., pp. 7–10). New York: John Wiley & Sons, Incorporated.
- Davis, S. M., & Lawrence, P. R. (1977). *Matrix*. Addison-Wesley.
- Hanover. (2013). Best Practices in Matrix Organizational Structures. *Hanover Research*, December.
- Identity. (2020). Board of European Students of Technology. Retrieved from <http://best.eu.org/aboutBEST/identity.jsp> 24 April 2020.
- Knight, K. (1977). *Matrix Management: a cross-functional to organisation*.
- Kuprenas, J. A. (2003). Implementation and performance of a matrix organization structure. *International Journal of Project Management*, 21(1), 51–62. [https://doi.org/10.1016/S0263-7863\(01\)00065-5](https://doi.org/10.1016/S0263-7863(01)00065-5)
- Laslo, Z., & Goldberg, A. I. (2001). Matrix structures and performance: The search for optimal adjustment to organizational objectives. *IEEE Transactions on Engineering Management*, 48(2), 144–156. <https://doi.org/10.1109/17.922474>
- Lepik, K., Harro-Loit, H., Kello, K., Linno, M., Selg, M., & Strömpl, J. (2014). *Intervjuu*. <http://samm.ut.ee/intervjuu>
- Lukinaitė, E., & Sondaitė, J. (2017). Mindset of employees working in a matrix organizational structure. *Business: Theory and Practice*, 18, 144–151.  
<https://doi.org/10.3846/btp.2017.015>
- Malloy, R. (2012). Managing Effectively in a Matrix. *Harvard Business Review*, 1–5.  
<https://hbr.org/2012/08/become-a-stronger-matrix-leade/>
- Meyer, R., & Meijers, R. (2017). The Practice of Leadership. In *Leadership Agility: Developing Your Repertoire of Leadership Styles* (pp. 16–36). Taylor and Francis.  
<https://www.gileadsanders.com/leadership-agility>
- Naoum, S. (2011). Organizational Structure. In *People and Organizational Management in Construction* (pp. 55–100). ICE.



- Private area of BEST.* (2020). Board of European Students of Technology.
- Rezayian, A. (2005). *The basics of organization and management.*
- Sassani, F. (2017). Organizational structure. In *Industrial Engineering Foundations - Bridging the Gap between Engineering and Management* (pp. 7–25). Mercury Learning and Information. <https://doi.org/10.1123/jsm.1.1.74>
- Slack, N., & Brandon-Jones, A. (2019). How are projects controlled and learnt from ? In *Operations Management* (pp. 689–693). Pearson Education Limited.
- Snow, C. C. (2015). Organizing in the Age of Competition, Cooperation, and Collaboration. *Journal of Leadership and Organizational Studies*, 22(4), 433–442. <https://doi.org/10.1177/1548051815585852>
- Stanford, N. (2007). Organisational structures. In *Guide to Organisation Design* (pp. 46–79). Profile Books LTD. <https://doi.org/10.4324/9781003022121-7>
- Strömpl, J. (2014). *Juhtumiuurimus*. Tartu Ülikool. Retrieved from <http://samm.ut.ee/juhtumiuurimus>
- Sy, T., & D'Annunzio, L. S. (2005). Challenges and Organizations: Strategies of Matrix: Top-Level and Mid-Level Managers' Perspectives. *Human Resource Planning*, 28, 39–48.
- Transcriptions of interviews with board members, department coordinator and project coordinators (2020). Accessible: <https://drive.google.com/drive/folders/1jbKh3qtYr1oAW-0wBC6qTFHPJ1TZfi6Z?usp=sharing>
- Üksväärv, R. (2008). *Organisatsioon ja juhtimine* (4. trükk). Tallinna Tehnikaülikooli Kirjastus.
- What is BEST.* (2020). Board of European Students of Technology. Retrieved from <http://best.eu.org/aboutBEST/welcome.jsp> 24 April 2020.
- Wheelen, T. L., Hunger, J. D., Hoffman, A. N., & Bamford, C. E. (2017). Flexible Types of Organizational Structure. In *Strategic Management and Business Policy* (pp. 310–314). Pearson Education Limited.
- Õunapuu, L. (2014). *Kvalitatiivne ja kvantitatiivne uurimisviis sotsiaalteadustes*. Tartu Ülikool.

## APPENDICES

### Appendix 1. Survey for internationally involved people

Dear internationally involved person,

I'm Liisbeth Laasik, a member of BEST from LBG Tallinn and currently in the process of writing my bachelor thesis on "The Impact of Applying Matrix Structure in Organizational Leadership in Board of European Students of Technology". Based on this, I'm conducting a survey among internationally involved people. The purpose of this survey is to evaluate BEST's structure and work performance.

I would be very grateful if you would find the time to answer this survey. It takes about 10min.

The survey is anonymous and the answers obtained will be generalized for the bachelor thesis.

Gender	Male	Female						
Age	Under 18	18 - 20	21 - 23	24 - 26	27 - 29	Over 30		
Nationality	<i>writes himself</i>							
How long have you been involved in BEST?	less than 1 year	1 - 2 years	2 - 3 years	3 - 4 years	4 - 5 years	5 - 6 years	6 - 7 years	8 years or more
Name the current or most recent team/ project/department/ position you're involved in BEST	<i>writes himself</i>							

**In what extent would you agree or disagree with the following statements?**

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
I'm involved in multiple international teams/projects/departments or positions					
It is easy to get internationally involved in BEST					

It is easy to blend in to an international side of BEST					
I need to be already experienced to be internationally involved					
Projects and departments work closely with each other					
Projects and departments are equal in power and authority in BEST					
Internationally involved people are cooperative					
There's an effective communication flow in the organization					
Working in international side of BEST is stressful					
I feel overloaded with the workload from international side of BEST					
I feel that the workload is evenly distributed in the departments/projects/teams or positions which I'm involved in					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) its internationally active members					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) the LBGs					
I was given sufficient training/KT and support when I took my latest responsibility					
BESTies are encouraged to be part of projects as well as departments					
Before implementing a change in the organization BESTies have a chance to give feedback or input.					
I feel proud volunteering and working at international teams/projects/departments or positions					
I feel innovation is an important part of the organization					
I feel my opinions are taken into consideration in the organization					
I feel strongly connected with international side of BEST					
I feel sense of belonging while working on international teams/projects/departments or positions					
I feel my volunteer work in the international side of BEST has made an					

impact					
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Comments	<i>writes himself</i>
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**In your opinion, are the following aspects problematic in BEST?**

	I am not competent to answer	I feel like we have big problems with it	I feel it could use some improvement	I feel like it is working	It is our strength
Information flow between board and rest of the international bodies					
Information flow between international projects, departments and teams					
Information flow inside the team/project/department					
Cooperation inside the team/project/department					
Cooperation between international projects, departments and teams					
Cooperation between board and rest of the international bodies					
Organization is working together to achieve common goals					
People working in international side of BEST know how to find necessary information					
People feel included in decision-making process					
People have a chance to get different self-development opportunities					
Innovative thinking is being encouraged in the organization					

From where did you start your international involvement in BEST? (project, department task etc?)	<i>writes himself</i>
Do you have any additional comments, questions, or concerns you would like to share?	<i>writes himself</i>

## Appendix 2. Survey for department coordinators

Dear department coordinator,

I'm Liisbeth Laasik, a member of BEST from LBG Tallinn and currently in the process of writing my bachelor thesis on "The Impact of Applying Matrix Structure in Organizational Leadership in Board of European Students of Technology". Based on this, I'm conducting a survey among the current and most recent department coordinators of BEST. The purpose of this survey is to evaluate BEST's structure and work performance.

I would be very grateful if you would find the time to answer this survey. It takes about 10min.

The survey is anonymous and the answers obtained will be generalized for the bachelor thesis.

Gender	Male	Female						
Age	Under 18	18 - 20	21 - 23	24 - 26	27 - 29	Over 30		
Nationality	<i>writes himself</i>							
How long have you been involved in BEST?	less than 1 year	1 - 2 years	2 - 3 years	3 - 4 years	4 - 5 years	5 - 6 years	6 - 7 years	8 years or more

### In what extent would you agree or disagree with the following statements?

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
I'm involved in multiple international teams/projects/departments or positions					
It is easy to get internationally involved in BEST					
It is easy to blend in to an international side of BEST					
I need to be already experienced to be internationally involved					
Internationally involved people are cooperative					
There's an effective communication flow in the organization					
Projects and departments work closely with each other					
Projects and departments are equal in power and authority in BEST					
There's tension and conflict between					

department and project managers					
There are formal procedures agreed upon to resolve any conflicts that should arise between international bodies					
Department goals fulfill BEST's AAP					
Department goals fulfill BEST's LTSP					
The HR situation of international side of BEST is sufficient					
It is easy to find new department members					
It is easy to integrate new members in the department					
I feel that the department has enough human resources					
Department has enough HR to fulfill projects' and departments' needs					
International HR team is providing enough support for the department					
Department members have other responsibilities from different international teams/projects/departments or positions					
Taken into consideration department members' responsibilities, they have enough time to work on their department tasks					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) its internationally active members					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) the LBGs					
BESTies are encouraged to be part of projects as well as departments					
I understand my role and responsibilities in the organization					
I feel proud volunteering and working at international teams/projects/departments or positions					
I feel innovation is an important part of the organization					
I feel my opinions are taken into consideration in the organization					
I feel strongly connected with international side of BEST.					
I feel sense of belonging while working on international teams/projects/departments or positions					
I feel my volunteer work in the international side of BEST has made an impact					
I feel my volunteer work in BEST has made					

an impact.					
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Comments	<i>writes himself</i>
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**In your opinion, are the following aspects problematic in BEST?**

	I am not competent to answer	I feel like we have big problems with it	I feel it could use some improvement	I feel like it is working	It is our strength
Information flow between board and rest of the international bodies					
Information flow between international projects, departments and teams					
Information flow inside the team/project/department					
Cooperation inside the team/project/department					
Cooperation between international projects, departments and teams					
Cooperation between board and rest of the international bodies					
Organization is working together to achieve common goals					
People working in international side of BEST know how to find necessary information					
People feel included in decision-making process					
People have a chance to get different self-development opportunities					
Innovative thinking is being encouraged in the organization					

From where did you start your international involvement in BEST? (project, department task etc?)	<i>writes himself</i>
What do you think is the main challenge in your position as a leader?	<i>writes himself</i>
Do you have any additional comments, questions, or concerns you would like to share?	<i>writes himself</i>

### Appendix 3. Survey for project coordinators

Dear project coordinator,

I'm Liisbeth Laasik, a member of BEST from LBG Tallinn and currently in the process of writing my bachelor thesis on "The Impact of Applying Matrix Structure in Organizational Leadership in Board of European Students of Technology". Based on this, I'm conducting a survey among the current and most recent project coordinators of BEST. The purpose of this survey is to evaluate BEST's structure and work performance.

I would be very grateful if you would find the time to answer this survey. It takes about 10min.

The survey is anonymous and the answers obtained will be generalized for the bachelor thesis.

Gender	Male	Female						
Age	Under 18	18 - 20	21 - 23	24 - 26	27 - 29	Over 30		
Nationality	<i>writes himself</i>							
How long have you been involved in BEST?	less than 1 year	1 - 2 years	2 - 3 years	3 - 4 years	4 - 5 years	5 - 6 years	6 - 7 years	8 years or more

#### In what extent would you agree or disagree with the following statements?

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
I'm involved in multiple international teams/projects/departments or positions					
It is easy to get internationally involved in BEST					
It is easy to blend in to an international side of BEST					
I need to be already experienced to be internationally involved					
Internationally involved people are cooperative					
There's an effective communication flow in the organization					
Projects and departments work closely with each other					
Projects and departments are equal in power and authority in BEST					
There's tension and conflict between					



department and project coordinators					
There are formal procedures agreed upon to resolve any conflicts that should arise between international bodies					
The project's goals fulfill BEST's AAP					
The project's goals fulfill BEST's LTSP					
There's a working KM system within project					
I was given sufficient training/KT and support when starting working on the project					
The HR situation of international side of BEST is sufficient					
It is easy to find project members					
I feel that the project has enough human resources					
International HR team is providing enough support for the project					
Project members have enough knowledge for their position					
Project members are from different departments					
Project members have other responsibilities from different international teams/projects/departments or positions					
Taken into consideration team members' responsibilities, they have enough time to work on the project you lead					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) its internationally active members					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) the LBGs					
BESTies are encouraged to be part of projects as well as departments					
I understand my role and responsibilities in the organization					
I feel proud volunteering and working at international teams/projects/departments or positions					
I feel innovation is an important part of the organization					
I feel my opinions are taken into consideration in the organization					
I feel strongly connected with international side of BEST.					
I feel sense of belonging while working on international teams/projects/departments or					

positions					
I feel my volunteer work in the international side of BEST has made an impact					

Comments	<i>writes himself</i>
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**In your opinion, are the following aspects problematic in BEST?**

	I am not competent to answer	I feel like we have big problems with it	I feel it could use some improvement	I feel like it is working	It is our strength
Information flow between board and rest of the international bodies					
Information flow between international projects, departments and teams					
Information flow inside the team/project/department					
Cooperation inside the team/project/department					
Cooperation between international projects, departments and teams					
Cooperation between board and rest of the international bodies					
Organization is working together to achieve common goals					
People working in international side of BEST know how to find necessary information					
People feel included in decision-making process					
People have a chance to get different self-development opportunities					
Innovative thinking is being encouraged in the organization					

From where did you start your international involvement in BEST? (project, department task etc?)	<i>writes himself</i>
What do you think is the main challenge in your position as a leader?	<i>writes himself</i>
Do you have any additional comments, questions, or concerns you would like to share?	<i>writes himself</i>

## Appendix 4. Survey for board members

Dear board member,

I'm Liisbeth Laasik, a member of BEST from LBG Tallinn and currently in the process of writing my bachelor thesis on "The Impact of Applying Matrix Structure in Organizational Leadership in Board of European Students of Technology". Based on this, I'm conducting a survey among the current and most recent board members of BEST. The purpose of this survey is to evaluate BEST's structure and work performance.

I would be very grateful if you would find the time to answer this survey. It takes about 10min.

The survey is anonymous and the answers obtained will be generalized for the bachelor thesis.

Gender	Male	Female						
Age	Under 18	18 - 20	21 - 23	24 - 26	27 - 29	Over 30		
Nationality	<i>writes himself</i>							
How long have you been involved in BEST?	less than 1 year	1 - 2 years	2 - 3 years	3 - 4 years	4 - 5 years	5 - 6 years	6 - 7 years	8 years or more

### In what extent would you agree or disagree with the following statements?

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
I'm involved in multiple international teams/projects/departments or positions					
It is easy to get internationally involved in BEST					
It is easy to blend in to an international side of BEST					
I need to be already experienced to be internationally involved					
Internationally involved people are cooperative					
There's an effective communication flow in the organization					
Projects and departments work closely with each other					
Projects and departments are equal in power and authority in BEST					
There's tension and conflict between					

department and project managers					
There are formal procedures agreed upon to resolve any conflicts that should arise between international bodies					
I feel departments' goals are aligned with the AAP of BEST					
I feel departments' goals are aligned with the LTSP of BEST					
I feel projects of BEST are aligned with the AAP of BEST					
I feel projects of BEST are aligned with the LTSP of BEST					
There's a proper KM system within projects in BEST					
The HR situation of international side of BEST is sufficient					
International HR team is providing enough support for recruitment in BEST					
BESTies generally work in multiple international teams/projects/departments or positions					
Workload in BEST is generally distributed evenly					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) its internationally active members					
I am satisfied with the investment BEST makes in developing (KT, training, mentoring etc) the LBGs					
BESTies are encouraged to be part of projects as well as departments					
I understand my role and responsibilities in the organization					
I feel proud volunteering and working at international teams/projects/departments or positions					
I feel innovation is an important part of the organization					
I feel my opinions are taken into consideration in the organization					
I feel strongly connected with international side of BEST.					
I feel sense of belonging while working on international teams/projects/departments or positions					
I feel my volunteer work in the international side of BEST has made an impact					

Comments	<i>writes himself</i>
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**In your opinion, are the following aspects problematic in BEST?**

	I am not competent to answer	I feel like we have big problems with it	I feel it could use some improvement	I feel like it is working	It is our strength
Information flow between board and rest of the international bodies					
Information flow between international projects, departments and teams					
Information flow inside the team/project/department					
Cooperation inside the team/project/department					
Cooperation between international projects, departments and teams					
Cooperation between board and rest of the international bodies					
Organization is working together to achieve common goals					
People working in international side of BEST know how to find necessary information					
People feel included in decision-making process					
People have a chance to get different self-development opportunities					
Innovative thinking is being encouraged in the organization					

From where did you start your international involvement in BEST? (project, department task etc?)	<i>writes himself</i>
What do you think is the main challenge in your position as a leader?	<i>writes himself</i>
Do you have any additional comments, questions, or concerns you would like to share?	<i>writes himself</i>

## **Appendix 5. Interview questions**

1. Tell me a bit about your role in the organization.
2. How do you see the cooperation between departments and projects in BEST?
3. Do think that the projects and departments are equal in BEST in terms of power and authority? Why?
4. What communication system and channels BEST uses when communicating with its international bodies? Would you call it effective?
5. How would you describe the HR situation in international teams/projects/departments BEST?
6. What do you see as the main challenge when recruiting people in international teams/projects/departments BEST?
7. Would you say that the workload in BEST is evenly distributed? Why?
8. What are the main benefits of working in a matrix system, according to you?
9. It is said that a matrix structure is flexible and adaptable from of an organizational structure. Would you agree with it? Do you see it in BEST?
10. What kind problems has the organization faced, since matrix system was implemented?
11. What do you see as the key challenges in the organization?
12. What would you improve in the organization?

## Appendix 6. Cross-case analyse

	<b>Board member 1</b>	<b>Board member 2</b>	<b>Board member 3</b>	<b>Department coordinator</b>	<b>Strategic project coordinator</b>	<b>Department project coordinator</b>
<b>Cooperation between projects and departments</b>	Usually comes down to individuals. Implementation problem	Not enough collaboration with the projects. Implemented not in a correct matrix way	There is not much cooperation. Depends on the people	Overall good cooperation with department projects. No common ground with other projects	Does not see the cooperation that much	Good cooperation
<b>Projects and departments equal in power and authority</b>	Theoretically, they are. In practice, they're not	They are not even close to the same level	They are not at all	They are not equal	They are not equal	They are not equal
<b>Communication system and channels</b>	Email Online meetings WhatsApp	Email Online meetings	Email Online meetings WhatsApp	Email Online meetings Discord	Email WhatsApp	Email Online meeting WhatsApp Messenger
<b>Current communication effective</b>	Gets the job done	It works	Not really	Gets the job done	Not really	Very effective
<b>HR situation</b>	The same people doing most of the things. More people would be better	Resources are there, but the problem is their allocation	It is not really working. In the international HR team are not experts as they should be	In the specific department, the situation is good	Resources are there, but it is hard to get to them. Not enough support from the international HR team	HR situation is getting better
<b>Benefits of working in a matrix system</b>	Did not bring out any (only theoretical)	Does not consider BEST to be actually working in a matrix structure	Did not bring out any (only theoretical)	Did not bring out any	Did not bring out any	Been approached by higher ups and had down-to-earth discussions
<b>Matrix structure as flexible and adaptable</b>	Even if the matrix structure is flexible BESTies are not necessarily	Theoretically yes, but it is not seen in BEST	We do not understand it enough to be able to play with it enough	Thinks it is quite flexible	Does not see it in BEST. Everything is regulated	Does not think it is flexible
<b>Key challenges in the organization</b>	BEST's focus points are not up to date with the needs of the people	Not relevant to society anymore	Services development	Internal and external branding	Being still relevant to the society in the future	Motivation of people

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