Masaryk University
Faculty of Economics and Administration

Field of study: Business Management

OPERATIONS MANAGEMENT
Seminar assignment

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1 How would you apply CCPM and TOC tools (e.g. CRT=Current Reality Tree) for the planning of Your dissertation (writing the dissertation is, in fact, a project)? Can you name the main project risks?

1.1 Introduction of Motivation and description of the project and identification of the main risks

One of my strategic life goals is to spend the time working on thinks I am genuinely interested in. Therefore I have decided to study Business Management as this is the area I have a long-term interest in. When I applied to the Masaryk University, I have also applied to the Faculty of Law. After being accepted to my most preferred field of study – Business Management, I have been weighing whether it is reasonable to study also the second field of study – Law. There was a clear evidence that this combination of expertise creates a solid basis for the type of jobs I would like to practice. However, there was also a very unclear vision, how would it be possible to coordinate all the duties to successfully terminate both studies and not end in a situation, where I will not be able to finish none of them. I have decided to try to study both fields of study, but I understood that there would be necessary to manage the study with a more sophisticated approach. This necessity was further underlined by the fact that I also had to work, and the work duties thus created other factor influencing my ability to meet all the deadlines.

After my first semester, I have also started to think about the topic of my Bachelor Thesis. As I am mostly interested in strategic and financial management, I have decided to focus on Balanced Scorecard in its newest shape: a tool for translating strategy into action creating a bridge between strategic and operative planning. Even though I have prepared the Bachelor Thesis for the strategic management of the large energy company, I realized that the principles and rationale, mainly the cause-effect relationships apply also to my day-to-day life where it is necessary to harmonize different influences which are mutually interconnected and conditioned. These effect does not only restrict to duties arising from studies and work but also from mental performance and physical state, which are also an important factor taken into consideration in modern management methods.

The topic of strategic management, both on corporate, and personal level is an essential topic for me, I have decided to focus this seminar work on it. As I already apply the concepts of Balanced Scorecard in my personal planning, I am deeply considered that the TOC and CCPM approaches can complement and strengthen the effectivity of these tools. The main reason is that I understand life as a chain of day-to-day decision which is long-term, exactly as in corporate management, decide about the successful realization of the Strategy. Thus, the ability to be able to make the right decisions is a critical success factor. This topic will be further discussed in relation to thinking tools and mental model below.

The scope of the Project is, therefore defined as follows:

The above-described activities; 1) Study of Business Management; 2) Work in Corporate Consulting 3) Study of Law and 4) Effort to live a healthy life; create together a set of partial goals which are mutually interconnected and conditioned. ***This group of all activities will be in this seminar work further called as The Plan and the process of its realization as The Execution of The Plan.*** The components of The Plan and main risks stemming from them are briefly described as follows:

1) Study of Business Management currently requires mainly focus on group seminar works where the cooperation with other people must be achieved. Furthermore it requires the preparation of Master Thesis where I want to focus on the area of Strategic Management of Energy Companies. The main risks arising from this project area are (which will be further decomposed):
    a. problems with meeting the time priorities of other group members
    b. lack of time for periodical work on school projects.
2) Work in Corporate Consulting currently requires mainly the time and mental performance for execution of different projects where I am engaged. The time requirements are given by the fact that If I want to develop skills in the area I am interested in, I have to be able to be present at work at least 3 ,5 days in order my colleagues can entrust me with more complex and challenging tasks which can enable me further professional grow. As the projects have to be carried out in tough deadlines, when I am engaged in a project, I have to be able to fulfil all my duties otherwise it would have a negative impact on project performance and especially supervising senior workers who expect me to deliver the required work in time and required quality. The main risks arising from this project area are (which will be further decomposed):
    a. unexpected time requirements due to necessity for increased study of specific areas of the projects
    b. unexpected changes of project causing collision of deadlines between the work areas and time pressure.
3) Study of Law: In order to increase my "expert-generalist" base (which is dicussed below), I have started also the Study of Law as a complement to primary study of Business Management. As this study does not require any group works where I have to cooperate with other people, the successful completion of this project area requires the completion of seminar assignments and exams and the preparation of Master Thesis. As the Master Thesis on Faculty of Law have a different structure, where the "practical" part does not require a cooperation with a specific subject, this study has a

lower risk profile compared to the Study of Business Management. The main risks arising from this project area are (which will be further decomposed):

a. time requirements in collision with the project area 1 and 2
b. the related risky prioritization.

The above described main risks will be further decomposed in Question 2.

1.2 Theory of constraints and related thinking tools

The above described introduction creates a clear bridgehead for the application of Theory of Constraints. In this section, the main principles of the Theory of Constraints will be presented. The development of Theory of Constraints (also TOC) is related to programs for planning and production control (Optimized Production Technology). The theory was conceived by Israeli physicist Dr. Eliyahu Moshe Goldratt, who presented the theory in 70s when developed a finite programming software for optimization of product systems called Optimized Production Technology OPT.[1] The rationale behind the theory providing an effective tool for sourcing of problems and process optimization has caused that the theory originally proposed for manufacturing has broadened out into various areas, such as production, supply chain, projects, accounting, distribution, and retail. The focus of the Theory has thus shifted from the mere bottleneck identification from a management philosophy focused on leveraging performance and competitive advantage. However, the core idea of the TOC is still the identification of cause-effects relationships and global optimization.

The principles of the Theory of Constraints were outlined by Martins (2008) who presented four major obastacles that prevent effective identification and exploration of improvements:

1) how people deal with complexity,
2) how people deal with conflicts,
3) the tendency to blame and
4) the potential to achieve significant improvements systematically.

[1] IKEZIRI, Lucas Martins et al. Theory of constraints: review and bibliometric analysis. *International Journal of Production Research*. 2019, vol. 57, no. 15-16, s. 5068-5102. ISSN 0020-7543.

The outlined principles demonstrate, that the Theory of Constraints takes into consideration the behavioral aspects of human work which is definitely the reason why it found such a broad application across different sectors. Ikerziri, de Souza et al. summarized 4 main principles of Theory of Constraints as follows[2]:

1) inherent simplicity,
2) harmony,
3) respect,
4) inherent potential.

Finally, Skorkovský points out wider application horizons of TOC as follows[3]:

1) support of decision making,
2) support of process improvements
3) root problems detection

These horizons strongly underline the above described understanding of TOC not only as a process optimization tool but as a holistic corporate management tool.

An important aspect of the Theory of Constraints is the understanding of the concepts of the throughput which is an another important aspect causing the broad portfolio of application of TOC. The TOC is not based on traditional understanding of cause-effect used for example in Cost Accounting, where the improvement process is driven by focus on diminishing of costs. The TOC applies a more structure approach by implementing the throughput approach based on the assumption, that the compactness of the whole chain of corporate is the main driver of the improvement of the process performance. This complies with the overall systemic and synergic approach of TOC as well as the Systems theory.

The practical application as well as above-described overalaps imply the importance of involvement of thinking tools. The (operations) management as a discipline aiming to achieve the desired goals by holistic approach can not rely on quantitative methods only but has to also consider other factors influencing the corporate (process) performance which can not be identified or solved by quantitative approach only. The importance of thinkink tool is an broadly accepted approach of effective management. One of the most famous proponents of this approach is Berkshire Hatthaway´s Vice-President Cahrles Munger, who described, how he uses the thinking tools ("mental models") for proper decision making process.

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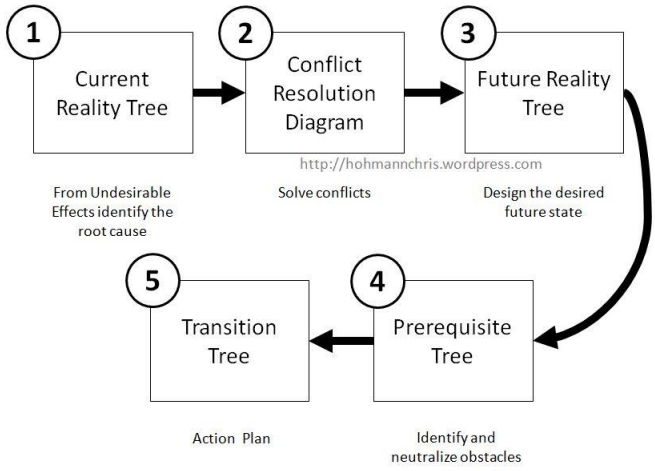
[2] IKEZIRI, Lucas Martins et al. Theory of constraints: review and bibliometric analysis. *International Journal of Production Research*. 2019, vol. 57, no. 15-16, s. 5068-5102. ISSN 0020-7543.
[3] Skorkovský, Jaromír. Study materials for the subject: Operations Management (Introduction to the Theory of Constraints)

Munger stresses out, that the-expert generalist-aproach which tkaes into consideration different thinking models from all disciplines (including e.g. biology) leads for effective decision-making as it enables a holistic approach beyond the "specific industry limited" approach. *"Well, the first rule is that you can't really know anything if you just remember isolated facts and try and bang 'em back. If the facts don't hang together on a latticework of theory, you don't have them in a usable form. You've got to have models in your head. And you've got to array your experience both vicarious and direct on this latticework of models. You may have noticed students who just try to remember and pound back what is remembered. Well, they fail in school and in life. You've got to hang experience on a latticework of models in your head."* [4]

With respect to the above, the theory of constraints uses a broad portfolio of thinking tools where the specific role play "tree diagrams". The picture X shows the interdependent of 5 trees. The rational of the tree diagram is that they provide mental models for the *problem-solving process.* The creation of these 5 trees should lead to crystallization of the most important aspects in the following areas:

1) Undesirable effects
2) Conflicts in their solution
3) Design of desired future state
4) Neutralization of obstacles impeding realisation of desired future state
5) Actions towards realisation of desired future state

Graphic 1: The interdependency between the "tree" thinking tools used for application of Theory of Constraints[5]



[4] *Building Mental Models Are Critical to Success* [online]. United States: Medium (Tom Marsh), 2017 [cit. 2019-11-23]. Dostupné z: https://medium.com/@tom_semantic/building-mental-models-are-critical-to-success-f06ab7f513c5

[5] *Thinking Processes – Future Reality Tree [online]. United States: Chris Hohmann, 2015 [cit. 2019-11-23].* Accesible from: *https://hohmannchris.wordpress.com/2015/04/06/thinking-processes-future-reality-tree/*

1.3 Critical Chain Project Management

Critical Chain Project Management (CCPM) represent a good example of interconnection or even incorporation of TOC methods into an integrated management solution.

Leach (2014) has created a basic steps of the process to create a single Critical Chain in case of not using Critical Chain Computer:

1. *Identify the critical chain[6]:*
    a. *Lay out the late-finish network of tasks.*
    b. *Identify the critical chain as the longest chain of dependent events.*
2. *Exploit the critical chain:*
    a. *Review your schedule to determine if resequencing can shorten the overall project duration. If so, do it. Do not trial-and-error too many solutions; you are seeking a good-enough result, not an optimum answer.*
    b. *Add the project buffer to the end of the critical chain.*
3. *Subordinate the other tasks, paths, and resources to the critical chain:*
    a. *Protect the critical chain by adding feeding buffers to all chains that feed the critical chain. You can identify the feeding buffer locations working backwards along the critical chain.*
    b. *Recheck resource levelling*
    c. *Elevate (shorten) the lead time of the project using added resources for certain windows of time to break overload.*

The application of CCPM method on the Execution is highly conditioned by the main risks arising from the project which were presented above. **The main global of the risk can be summarized as a combination of partial tasks which is not possible to performed simultaneously in required time and quality.** This implies that the effective tool for mitigation of this risk is a decomposition of Ciritical Path and creation of time buffers which will create room to reiterate in case of unexpected duties.

This area will be further discussed below.

1.4 Aplication of ToC and CCPM

The above described theories have a broad portfolio of application in the project management of the "The Plan". The main are of focus of the Author of this seminar work is strategic and financial management and

[6] Leach, Lawrence P.. Critical Chain Project Management, Artech House, 2014. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/techlib-ebooks/detail.action?docID=1641591.

its interdependency. Therefore has decided to focus his Bachelor Thesis on Balanced Scorecard in the modern form presented in the Book "Exectuion Premium" where the Balanced Scorecard is presented as a tool of strategic Management; as o tool which serves to "Translating Strategy into Action." The principles of Balanced Scorecard, which are based on cause-effect relations and focus on lead and lag indicators are already used by the Author of this seminar work.

The above described theory is thus a very complementary contribution as it further developes these principles into detail and also stresses the time frame in which the execution of The Plan must be ensured. From the above described general risk is thus clear, that the risks related to the time represent the main potential events which could negatively impact the performance of the project.

2 Do you know how to diminish (to reduce) these risk factors (to avoid obstacles)? Name at least ten obstacles

In section 1.1., the main project risks of The Plan were presented. In this section, these risks will be further decomposed to identify the main risks jeopardizing the execution of The Plan and present their possible mitigation.

	List of potential risks of The Plan	
	Risk description	**Risk mitigation**
1.	**Lack of time for successful completion of all tasks**	The lack of time represents the essential risk and arises mainly when the workload from all main 3 areas is not properly distributed during the semester. Therefore, it is necessary to take following measures: 1) At the beginning of the semester, create the critical path of all duties taking into consideration all possible unexepected duties (mainly in work) and create corresponding time buffer 2) systematically follow the plan of works during the semester in order to maintain the time buffer and the end of the critical path
2.	**Wrong estimation of time requirements**	Wrong estimation of time requirements is an immanent risk in case of the environment of project which often require adoption of new skills or diving into a new areas (both in Study and in Work). As this is a logical part of professional growth, the mitigation of this risks must be understood as a creation of

		corresponding time buffers which provide enough time for these activities.
3.	Mismatch between the necessity of time for school and for work	This risk has to be mitigated by the same actions as the risk No 1.
4.	Decline in productivity	As the Ececution of The Plan requires a good mental performance and ability to execute the tasks in the shortest time possible, the decline in producitivity poses a significant risk. This risk has to be mitigated mainly by the following activities: 1) Sleep at least 6 hours per day 2) Include stress-releasing sport activities in day itinerary 3) Ensure strict delineation of work-day
5.	Conflict situations	Conflict situation arise as a consequence of lack of coordination with other "stakeholders" who are mainly members of project groups in school and my collegues. In order to mitigate this risk, it is better to discuss my own time capacity and desired work distribution of the project in advance in order to eliminete prioritisation and reitration which does not comply with their priorities.
6.	Lowered quality of outputs	Lowered quality of outputs is combination of lowered mental performance and other factors, which lead to decreased producitivity and creativity. Therefore, it is necessary to be focused on all factors mitigating the this risk which are mainly: 1) Time management 2) Mental hygiene 3) Work environment
7.	Wrong assumption of the project work	The wrong assumption of the project work is mainly caused by not consulting them with the senior collegues (in work) or with work supervisors/teachers (in school). This risk leads than to time-consuming (and

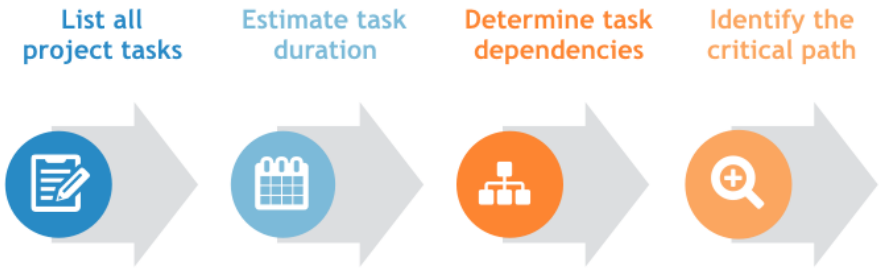
		thus buffer consuming) reiterations which can be prevented by timely consultation of the work assumptions at the very beginning.
8.	Time collision between mandatory duties	The time collsision between mandatory duties is mainly an outcomes of lack of communication with other "stakeholders" and lack of efficient project and time management (the mitigation is described in corresponding sections).
9.	Environment which does not support productive work	The work in environment which does not provide conditions for productive work is mainly an outcome of lack of efficient project and time management (the mitigation is described in corresponding sections). However, this risk might be mitigated by awareness of all possible working places (e,g, libraries, CPS MUNI, etc.) where there is a productive environment in case of being in an environment where there is hard to establish productive mindset (e. g. after long time of work at home or at work).
10.	Increased tendency to errors	Increased tendency to errors is an aggregated effect of the previous risks which has to be mitigated by addressing these risks.

3 What kind of effects do you expect by possible using buffers (time buffers) during the working out of your thesis (dissertation or other chosen project)? Can you explain what the time buffer is? What is project buffers its penetration? How you can measure reached results (used metrics such as time, resource capacity, costs, good-will and so on).

The description of the main risks of The Project and its decomposition in the previous section points clearly out that time Time Buffers represent the main tool for risk mitigation of the risk jeopardizing the Exectuion of The Plan. Furthermore, the structure of potential risk and especially its description demonstrates that there is also strong interconnection or even precondition between them and the process of determination of time buffers has to be interconnected with application of Theory of Constraints and related thinking tools as the definition of Critical identification of the cause-effect relationships and the dependences between

the Undesired Effects. This approach is shown on Graphic 2 where the methodological approach of identification of Critical Part and the outlined interconnection is presented.[7]

Graphic 2: Methodological approach for determination of critical path[8]



The List of all project tasks will summarize all requirements for successful completion of semester both of Business Management Study and on Law Study. These requirements will further be complemented by the expected work schedule in work, taking into consideration the type of Project and the complexity of tasks for which I will be responsible at work.

However, as I already pointed in the presentation of Theory of Contraints, the cause-effect should take into consideration not only the "logical" cause-effect but also "psychological" aspects influencing these effect. Therefore, the determination of tasks dependences outlined in the Current Reality Tree takes into consideration also these aspects. However, they are considered as a prereqisity for mental performance on desired level and the work does not expect an attempt to quantification of the impact. This approach is fully compliant with the Leach´s approach stressing the importance of searching for *"good-enough solution and not an optimum".*[9]

As The Exectuion of The Plan is mostly based on consistent approach and systematic identification of deviation from plan and desired performance, the principle which is applicable to the scope of The Palan are the **"Buffer Trigger Points".** [10]

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[7] *How Understanding Critical Path Can Drive Project Management Success* [online]. United States: Software Advice™, 2016 [cit. 2019-11-23]. Accesible from: https://www.softwareadvice.com/resources/what-is-critical-path/

[8] *Thinking Processes – Future Reality Tree [online]. United States: Chris Hohmann, 2015 [cit. 2019-11-23].* Accesible from: *https://hohmannchris.wordpress.com/2015/04/06/thinking-processes-future-reality-tree/*

[9] Leach, Lawrence P.. Critical Chain Project Management, Artech House, 2014. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/techlib-ebooks/detail.action?docID=1641591.

[10] Leach, Lawrence P.. Critical Chain Project Management, Artech House, 2014. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/techlib-ebooks/detail.action?docID=1641591.

Buffer Trigger points in The Plan can be considered the sitatuions, in which is highly likely, that there will arise one of the risk or 1-4 or the risks 5-10 have already arised. The rationale behind this logic is, that the Risks 5-10 pose a Lead Indicators for risks 1 – 4.

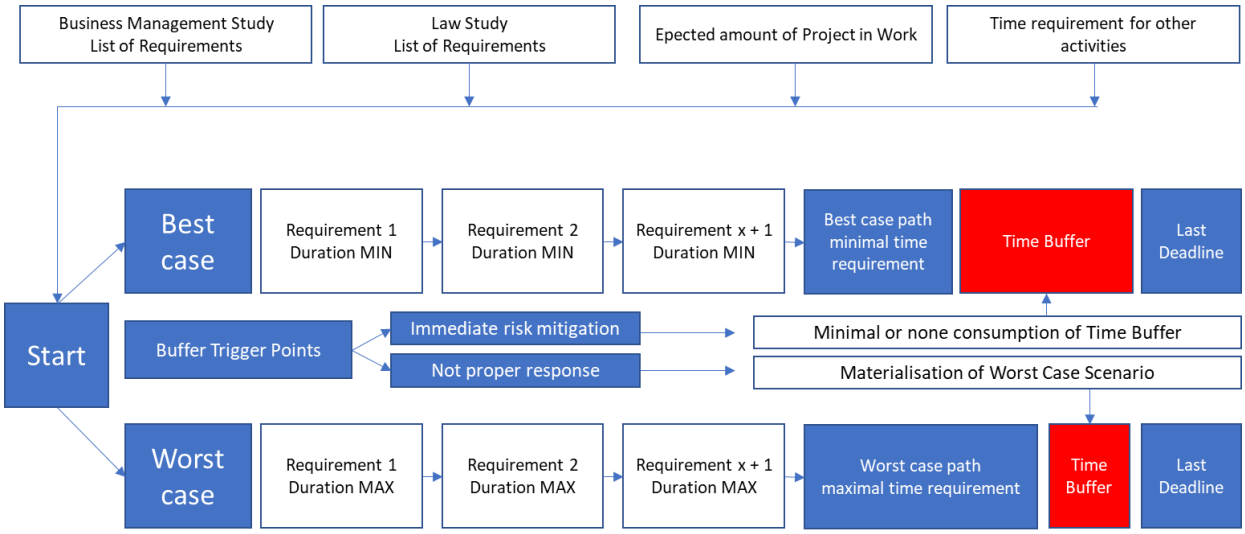
The Lead Indicators should aim to timely information about the possible risk exposition of the Plan and should lead to immedation action in order to maintain the Time Buffers of the project. In case the immediate action would not have been taken, there is a risk that for example due to lowered performance, the duties will be delivered at longer time and there will no be a room left for errors and especially the time buffer of the project will have been already consumed.

The Graphic X shows the intended approach in using of time buffers in The Execution of The Plan.

1) At the beginning of every semester, all deadlines and requirement for its succesfull completion are gathered and ordered in time sequence. The latest deadlines for the requirements are set.
2) The two scenarios for identification of critical path are created:
    a. Best case where the desired realisation for individual requirements is assigned and then summed up resulting in a *Best case path minimal time requirement* value
    b. Worst case where the time for realisation of the requirements is calculated with duration longer by 50 % points and then summed up resulting in a *Worst case path minimal time requirement* value
3) The intended time dedicated to work is determinated (currently 35-40 hours per week).
4) The volume of Time Buffer is calculated
5) Buffer Triggers are set
6) Identification of Critical Path (Worst Case)

During the semester, the compliance with the plan is systematically controlled and in case of materialization of Buffer Triggers, immediate action toward risk mitigation should be taken. If not proper response is taken, there is a high probability of Worst case materialization and thus the consumption of Time Buffer.

Graphic 3: Application of the Time Buffers to the Execution of The Plan (Author)

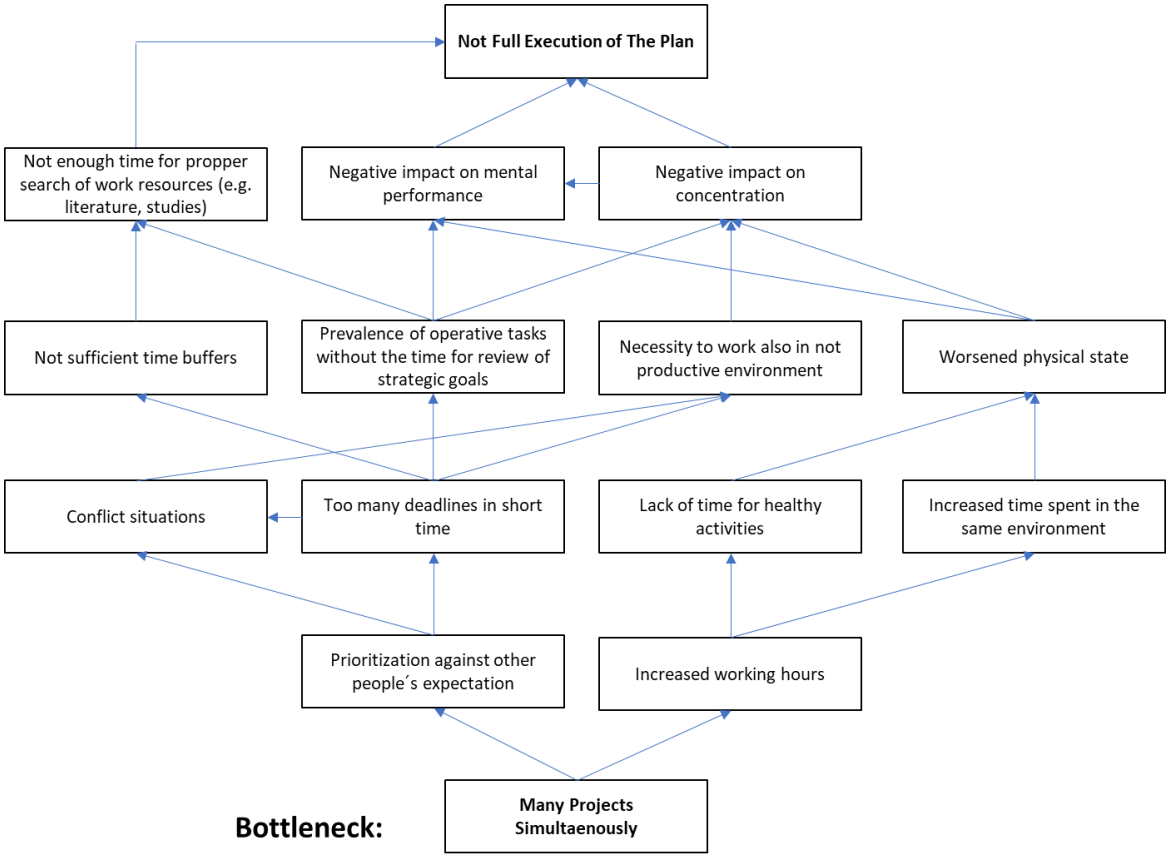


4 Can you specify by use of Thinking Process Tools Your bottleneck as far as studying processes or writing work or working on assigned school tasks (by other tutors) is concerned? Create CRT (see full meaning above) and create a list of Undesirable Effects (named by You as it was mentioned already in clause 1).

The specification undesirable effect will be based on identified risks. The listed undesirable effects will be further ordered into a system of cause-effects in a a Current Reality Tree which will define the Bottleneck of The Execution of The Plan. There were identified the following undesirable effects:

1) Conflict situations
2) Increased time spent in the same environment
3) Increased working hours
4) Lack of time for healthy activities
5) Many projects simultaneously
6) Necessity to work also in not productive environment
7) Negative impact on concentration
8) Negative impact on mental performance
9) Not enough time for proper search of work resources (e.g. literature, studies)
10) Not Full Execution of The Plan
11) Not sufficient time buffers
12) Prevalence of operative tasks without the time for review of strategic goals
13) Prioritization against other people´s expectation
14) Too many deadlines in short time
15) Worsened physical state

Graphic 4: Current reality tree of The Execution of The Plan (Author)



Based on the identification of cause-effects which will be discussed futher, the Current Reality Tree was created. As a root problem and thus the bottleneck of the Execution of The Plan was itendified the situation when Many Project have to be exeucuted simultanouesly. The Project has to be in this respect understood not only a Project Engagement in the Work but also semminar works in school or other related tasks which require intensive work for more than one hour and have a specific deadline set.

5 Create with use of already existing set of UDE´s Ishikawa fishbone diagram and put some weights meaning numbers specifying the importance of assign reasons. It was clearly shown in Ishikawa FBD power-point presentation. Based on the set of assigned score, create Pareto Lorenz curve (use Excel please). The principle is also shown in just mentioned presentation. Specify most important reasons. Compare with root problem found by use of Current Reality Tree.

5.1 Theroretical background

In the section focused on Thinking Tools, the Charlies Munger´s approach to effective decision making was presented. This approach, inter alia, recommends, that every decision and every assumption should be

challenged by diferent thinking tool in order to take into consideration more possible influence and adress the issues from different perspectives. Therefore, the Ishikawa´s diagram will be applied on already existing set of UDE´s and the Pareto-Lorenz curve will be constructed.

Luca (2016) has published an article where presents A new model of Ishikawa diagram for quality assessment. The article presents a basic theory of application of the Ishikawa´s Diagram which is considered as one out of 7 Tools for Quality Management. The Author presents the following four steps in which the Diagram should be built[11]:

1) Identify the problem.
2) Work out the major factors involved.
3) Identify possible causes.
4) Analyze your diagram.

As Luca further outlines, Causes are usually grouped into major categories to identify the sources of variation. The categories typically include:

5) People: Anyone involved with the process;
6) Methods: How the process is performed and the specific requirements for doing it, such as policies, procedures, rules, regulations and laws;
7) Machines: Any equipment, computers, tools, etc. required to accomplish the job;
8) Materials: Raw materials, parts, pens, paper, etc. used to produce the final product;
9) Measurements: Data generated from the process that are used to evaluate its quality;
10) Environment: The conditions, such as location, time, temperature, and culture in which the process operates.

5.2 Practical application

In this section, the Theory of Ishikawa´s Diagram will be applied. The first step in the application process is the *determination of a problem*. Based on the analysis of interdependence of parital UDEs, there was idetnfified the the problems which is the result of combinations and interdependencies between the parital UDEs: Not Full Execution of The Plan.

The second step of the application process is *working out the major factors involved*. In order to balance with the above desribed theory and the pricniples of the Diagram and the Specifics of the Exection of The

[11] A LILIANA, Luca. A new model of Ishikawa diagram for quality assessment. *IOP Conference Series: Materials Science and Engineering*. 2016, vol. 161, s. 12099. ISSN 1757-8981.

Plan, the presnted Ishikawa´s Diagram was slightly modified into the following Groups representing the main areas impacitng its realisation:

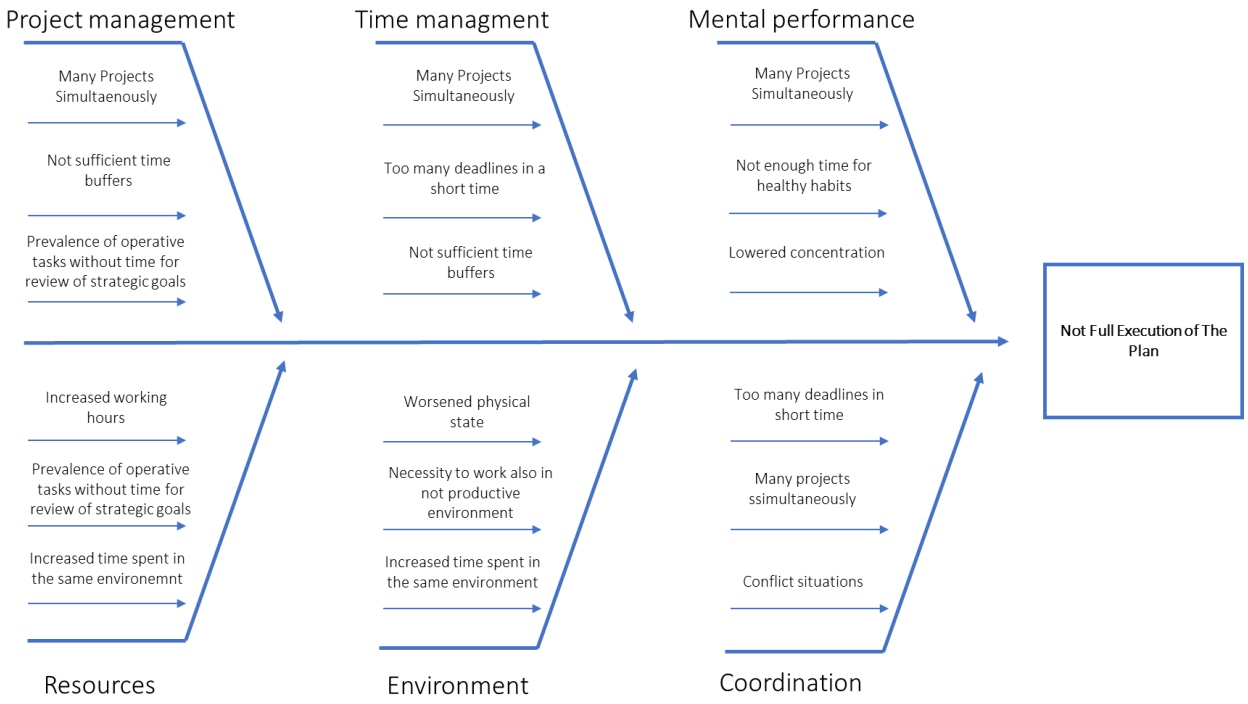
1) Project management: the Project Management within this assignment has to be understood as ability to prioritise the projects (duties and requirements) in order in most effective order. The effective order is mainly influenced by area 2 – 6.
2) Time management: the Time Management within this assignement has to be understood as ability to propperly estimate the duration of tasks, right timing of their realisation as well as ability to realise them in shortest time possible without impact on quality.
3) Mental performance: the Mental Performance within this assignment has to be understood as the ability to constantly maintin the required level of concentration and performance required for succesfful Execution of The Plan.
4) Resources: Resources within this assignmen has to be undersood as the infrmation soruces from different areas (Fields of Study, Work, Time management, Psychology, etc.) which enable the Execution of the Plan
5) Environemnt: Enivronment within this assignmen has to be undersood as the place and its atmposhere imapaciting mainly the Mental performance and thus indirectly other factors influencing the Execution of Project.
6) Coordination: Coordination within this assignmen has to be undersood as the ability to maximally influence the deadlines of requirements or time schedules of other people in ordeer to minimze overlaps and potential materialisation of risks identified.

The third step of application process is *idnetification of possible causes.* These have been already identified in Question 4 and thus have been applied to the Ishikawa´s diagram.

The last step of the application process is the *analysis of the diagram*. The outcomes of the analysis support the conclusions derived from the Current Realiy Tree where as the root problem and the bottleneck of The Execution of the Plan Process was identified the situation when Many Project have to be executed simultanously. Other imporatant aspect influencing almost all major factors is the time framework of the realisation identification of the following causes: 1) not sufficient time buffers; 2) too many deadlines in a short time; 3) not enough time for healthy habits; 4) increased working hours and 5) increased time spent in the same environemnt.

The main conclusion of the analysis is that there is a stron neccecity to ensure that the workolad is elaborated in a smooth and costant workflow in which does not cause the situation where the activities are delayed and the risks 5-10 may arise. In other words, it is important to ensure, that there is ensure an **appropriate througput of workload.**

Graphic 5: Ishikawa´s diagram ot The Execution of the Plan (Author)



The concept of Throughput, which is a core rationale of the ToC, is in my opinion also applicable to The Execution of Project. The main idea is, that instead of focusing e.g. on duration of every tasks and its measurement, there is a aim to identify one bottleneck which has has a *global optimization effect.* The development of the Management as a scientific discipline in the last decades stresses the importance of behavioral aspects. The situation, when there are too many projects in the same time together with risks 5-10 has a negative impact on mental performance and thus on the “throughput of the workload”.

In order to construct Pareto Lorenz curve, it is necessary to assign the importance to all Undesired Effects which have been identified. In compliance with the modern management approach as well as other literature (e.g. The One Thing: The Surprisingly Simple Truth Behind Extraordinary Results by Gary Keller), the main importance was put on psychological aspects as these have in my opinion the highest impact on mental performance and thus the *Mental Throughput* necessary for global optimization of the Execution of The Plan.

The Inputs for construction of Pareto-Lorenz Curve				
Reject	Type	Importance	Importance (%)	Accumulative (%)
1	Many projects Simultaneously	80	13%	13%
5	Too many deadlines in short time	75	12%	26%
14	Negative impact on concentration	70	12%	37%
13	Negative impact on mental performance	60	10%	47%
6	Lack of time for healthy activities	55	9%	56%
9	Prevalence of operative tasks without the time for review of strategic goals	50	8%	64%
11	Worsened physical state	40	7%	71%
8	Not sufficient time buffers	35	6%	77%
12	Not enough time for propper search of work resources (e.g. literature, studies)	32.5	5%	82%
3	Increased working hours	30	5%	87%
2	Prioritisation against other people´s expectation	25	4%	91%
4	Conflict situations	20	3%	94%
10	Neccecity to work also in not productive environemnt	20	3%	98%
7	Increased time spent in the same environemnt	15	2%	100%
Total		**607.5**	**100%**	**100%**

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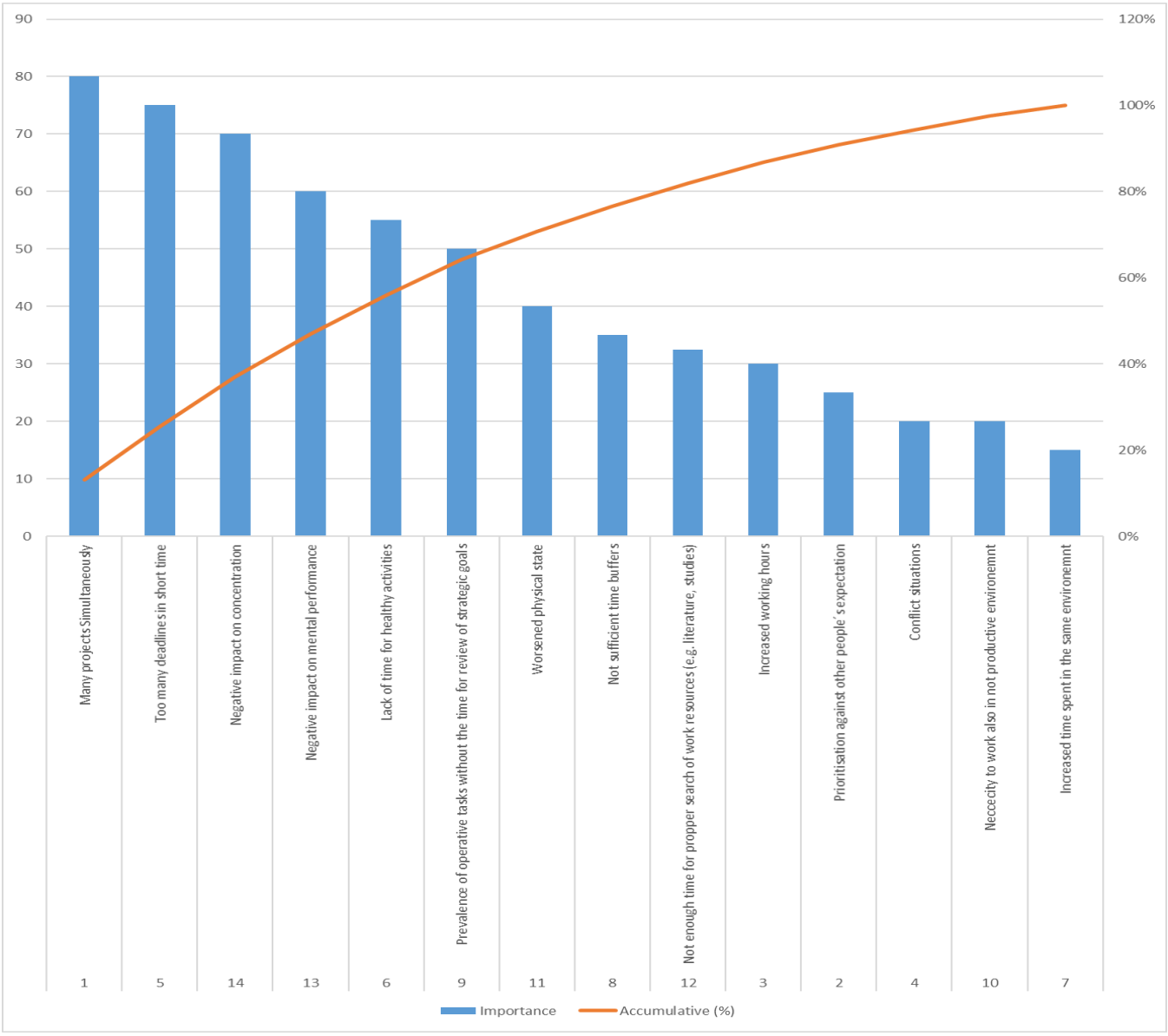
Graphic 6: Pareto-Lorenz curve resulting from analysis of UDEs and assignments of weights (Author)



6 State clearly Your suggestions on how to improve your dissertation writing (or any other chosen project) and related benefits.

The analysis above has shown, that the are following actions can ensure the bettering of The Execution of the Plan:

1) Implementation of Time Buffers to planning of work during the semester
2) Systematic mitigation of causes which have negative effect on mental throughput
3) Addressing the undesirable effects with highest impact based on Pareto-Lorenz analysis
4) Increase the cooperation with other "stakeholders" (colleagues and team members) in order to try to find a best possible time schedule and work distribution on the projects and thus eliminate the potential conflicts
5) Use the current reality tree to systematically revmind the undesirable effects
6) Immediately react when Buffer Trigger Points arise

However, the main suggestion to improve the Execution of the plan is in my opinion the holistic "throughput" approach which has to be beard in mind on day-to-day basic as a main principle which in the long-term ensures the realization of all goals defined in The Plan.

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