

## **Understand and find solutions to the main cause of disputes in construction: Project manager's failures to understand or comply with their contractual obligations<sup>1, 2</sup>**

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### **ABSTRACT**

Contracting imposed on the project manager and the contractor to agree and linked them to one another. However, the project manager doesn't always succeed to understand or comply with its contractual obligations and that is the major disputes cause. To help to solve or at least reduce the problem, we must understand how it happens, the reasons why project managers fail to understand or comply with their contractual obligations and then find a solution to each reason. After findings several solutions, we will define attributes to measure and evaluate the solutions and finally resume our findings. We will see that the failures from the project manager result from him or her directly. But that we can put solutions in contracts to incent the project manager to comply with its contractual obligations.

**Key words:** Disputes, Contractual obligation, Clauses enforcement, Risk management, Technical skills

### **INTRODUCTION**

"Contract is important during every step of the project" according to Jean-Charles SAVORNIN<sup>3</sup>. "The contract contains the term of a mutually binding agreement"<sup>4</sup>. But sometimes after the mutual agreement, it doesn't go as it should be and disputes appear. "Disputes are

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<sup>3</sup> SAVORNIN, J.C. (2016) Contract Management Outils et Méthodes, Pratiques d'entreprises. Retrieved from <http://www.scholarvox.com/catalog/book/docid/88833617?searchterm=contract>

<sup>4</sup> R. Max Wideman. (2017). Wideman Comparative Glossary of Project Management Terms v5.5. (n.d.). Retrieved from <http://www.maxwideman.com/pmglossary/>

disagreements not settled by mutual consent which could be decided by litigation or arbitration”<sup>5</sup>.

According to ARCADIS, the main disputes clause in the contract is the failure to properly administer the contract in construction area<sup>6</sup>. That comes from the issue that a party fails to understand or comply with its contractual obligations. The disputes value and duration will have a bad impact for both parties with more or less on each one or both. Try to avoid or reduce the disputes that can arise is part of risk management, a major concern of the project manager. “Risk management is an organized assessment and mitigation of project risks as well as pursuit of consequential opportunities”<sup>7</sup>. And managing those risks could be done through the contract. Here our interest will be focused on project manager's misunderstandings and failures to comply with their contractual obligations in the construction area.

“Disputes could be as complex as contracts and the reasons why disputes arise are many”<sup>8</sup>. That’s why as future managers, contractors or even investors, understand the disputes in the project linked to the contract can allow us to avoid delays, involving our responsibilities with bad actions or decisions, avoid failures... Simpler, it could help to improve project contracting in general. Giving a review of the reasons why, even possible solutions and consequences of project managers failures to understand or comply with their contractual obligations, will allow us to find solutions to put in place in the contract. In the first time, focusing on the construction area that we are studying here would give more specific and accurate results. Thanks to those results the application of those results on other fields and areas could be studied and a solution might be found to solve the first disputes clause in the contract. Moreover, the number of construction project is increasing over the years<sup>9</sup> and so it would be a good and large based to study the causes of disputes.

As we know, “the costs of construction disputes are huge especially in the Middle East, \$82m”<sup>10</sup> and so deleting the disputes or at least find some ways to reduce them and their impact could save a lot of time and money. “The misunderstandings and failures to comply with contractual

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<sup>5</sup> R. Max Wideman. (2017). Wideman Comparative Glossary of Project Management Terms v5.5. (n.d.). Retrieved from <http://www.maxwideman.com/pmglossary/>

<sup>6</sup> Global construction disputes report 2017. (2017). ARCADIS. *Contract Solutions*.

<sup>7</sup> R. Max Wideman. (2017). Wideman Comparative Glossary of Project Management Terms v5.5. (n.d.). Retrieved from <http://www.maxwideman.com/pmglossary/>

<sup>8</sup> HAMON, K. (2003, October). Resolution of Construction Disputes: a review of current methodologies. *Leadership and Management in Engineering*. Retrieved from <https://ascelibrary.org/doi/pdf/10.1061/%28ASCE%291532-6748%282003%293%3A4%28187%29>

<sup>9</sup> US DEPARTMENT OF TRANSPORTATION. (December 2011). Work Zone Road Users Costs. Concepts and applications. Retrieved from <https://ops.fhwa.dot.gov/wz/resources/publications/fhwahop12005/fhwahop12005.pdf>

<sup>10</sup> LOFTHOUSE, S. (2016, August 31). The cost of disputes in the middle east. MeConstruction News. Retrieved from <https://meconstructionnews.com/16782/the-cost-of-construction-disputes-in-the-middle-east>

obligations of project managers are the first cause of disputes”<sup>11</sup> so find solutions to the first cause of disputes could importantly reduce a lot of disputes themselves. It is logical. Contracting would be easier and safer for both parties reducing that much risks. In studying this subject, we will also find the problems coming from the project manager part but it doesn’t mean that he or she is entirely and only responsible for it. For example, project manager over-optimism of the project manager lead to a quick review of the risks or the requirements and a thought that “everything would be ok no matter how but over-optimism often lead to delays”<sup>12</sup>. The schedule is part of the contract and so delays represent a failure to comply with a contractual obligation. The study will reveal if the project manager is responsible most of the time, the contractors, both parties or just the contract itself. Because the issue could come from the contract and not the parties. “Develop the contracting policies and processes”<sup>13</sup> to avoid disputes causes and so disputes themselves is our main point here.

In the construction area and especially in the construction project, project management, program management, portfolio management, and asset management are involved. As the table below (figure 1) prove it because the assess define if a project can continue or not. Managing the risks and so the disputes causes are essential to improve the analysis of dispute causes and also prevent risks and avoid disputes that would create a time and money waste.

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<sup>11</sup> Global construction disputes report 2017. (2017). ARCADIS. Contract Solutions.

<sup>12</sup> PRATER, J. KIRYTOPOULOS, K. MA, T. (2016). Optimism bias within the project management context: a systematic quantitative literature review. International journal of managing project in Business. Retrieved from [https://www.researchgate.net/publication/315933641\\_Optimism\\_bias\\_within\\_the\\_project\\_management\\_context\\_A\\_systematic\\_quantitative\\_literature\\_review](https://www.researchgate.net/publication/315933641_Optimism_bias_within_the_project_management_context_A_systematic_quantitative_literature_review)

<sup>13</sup> Guild of Project Controls Compendium and Reference | Project Controls - planning, scheduling, cost management and forensic analysis (Planning Planet). (n.d.). Retrieved from <http://www.planningplanet.com/guild/GPCCAR-modules>

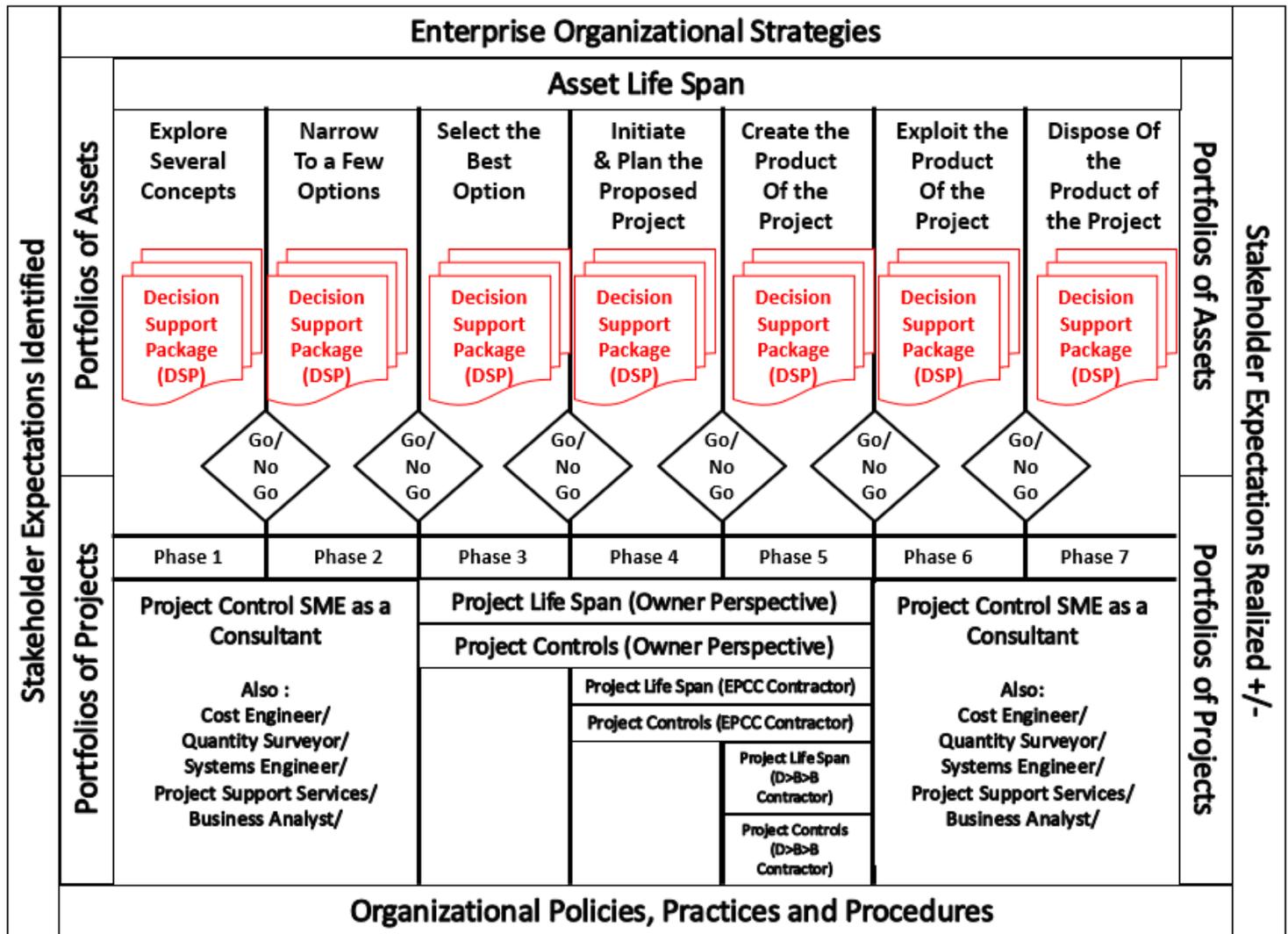
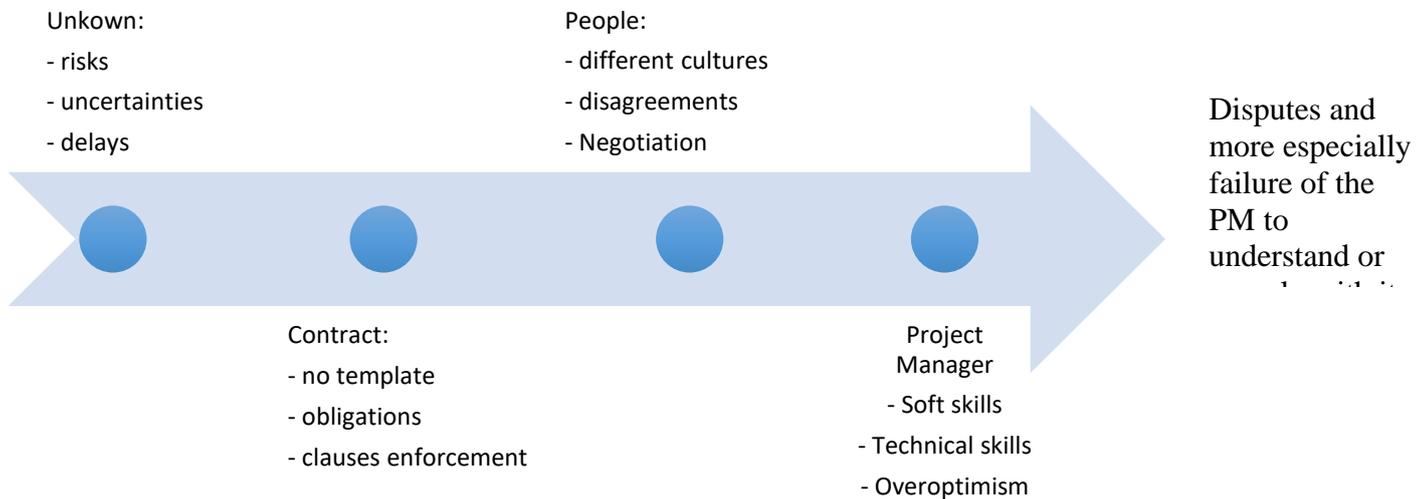


Figure 1: Stakeholder expectations realized<sup>14</sup>

<sup>14</sup> Guild of Project Controls Compendium and Reference | Project Controls - planning, scheduling, cost management and forensic analysis (Planning Planet). (n.d.). Retrieved from <http://www.planningplanet.com/guild/gpccar/introduction-to-managing-project-controls>

**ROOT CAUSE ANALYSIS**



2: Root cause analysis<sup>15</sup> Figure

Misunderstandings and failure of compliance from project managers have reasons. So the questions are: Why do project managers fail to understand/ comply with their contractual obligations? How could the contractual obligations be enforced? How could be the understanding and the complying can be guaranteed? How can this issue be solved?

Solve the problem required to understand the reasons why there are failures. First of all, many reasons could lead to a contract misunderstanding or to failure in complying with a contractual obligation. We must identify them, understand why they happen and find some clauses, templates, analysis to avoid them. Our hypothesis is that improving the contract and the way of contracting in construction project will reduce misunderstandings and failures and so disputes. And that reviewing the reasons why project managers misunderstood or fail to comply with their contractual obligation will give guidelines and improve contracting while avoiding disputes.

**METHODOLOGY**

**(1) Summary of the problem**

The big issue here is that the major “cause of disputes in the construction area” is the misunderstandings and lack of compliance from the project manager with its contractual obligations. Which is still a major cause of disputes in contracts in every other area. To solve the

<sup>15</sup> By the author

problem, a review of feasible solutions would be done and attributes would be set up to evaluate each solution and find the best one.

## **(2) The Feasible alternative solutions**

Each solution is linked to different reasons linked to the misunderstandings or lack of compliance from the project manager.

### **- Optimism Bias**

Forecasting is linked to the fact that project managers are often overoptimistic and tend to, as Leslie Brokaw explained in her article: *“be overconfident, always put a positive spin on anything they report or even have a cultural propensity to be silent in the face of bad news.”*<sup>16</sup> This over-optimism create lack of compliance from the project manager because they minimize the risks and create unrealistic scheduling to achieve their goals. The overconfidence pushes also them to ignore bad news and keep quiet to it instead of dealing with it and find something to arrange the situation.

#### **o Forecasting**

Making forecast, try to know what would happen and what would be needed in more details would help to go against the “over-optimism of the project” manager and maybe make him or she realize that risks and uncertainties would always appear. The reference class forecasting, for example, is a “technique to forecast cost, demand and other impacts of planned projects by referencing the same kind of projects, establish probability and compare the project with the reference base”<sup>17</sup>. It allows the contractor and the owner to forecast the risks and be more precise. And it is considered “a very good way to mitigate over-optimism in project management and in contracting”<sup>18</sup>. It helped the project manager realized the unrealistic schedules, cost or other he or she tried to achieve. It used the lessons learned process and improve the quality of forecasting. Another way to forecast is to forecast performance instead of risks. Methodology to forecast the performance of a project is provided by the Guild of Project Controls through planning planet and consists in “analyzing inputs, then the tools and techniques that would be used and finally the outputs (current and predictive) with performance metrics”<sup>19</sup>. This analysis

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<sup>16</sup> Brokaw, L. (2014, August 4). How to Compensate for Over-optimistic Project Leaders. Retrieved from <https://sloanreview.mit.edu/article/how-to-compensate-for-overoptimistic-project-leaders/>

<sup>17</sup> Flyvbjerg, B. (2006). From Nobel Prize to Project Management: Getting Risks Right. *Project Management Journal*, 37(3), 5-15. doi:10.1177/875697280603700302. Retrieved from <https://pdfs.semanticscholar.org/1ded/6194f28ad2a50424e132417b6b42e8c7da65.pdf>

<sup>18</sup> PRATER, J. KIRYTOPOULOS, K. MA, T. (2016). Optimism bias within the project management context: a systematic quantitative literature review. *International journal of managing project in Business*. Retrieved from [https://www.researchgate.net/publication/315933641\\_Optimism\\_bias\\_within\\_the\\_project\\_management\\_context\\_A\\_systematic\\_quantitative\\_literature\\_review](https://www.researchgate.net/publication/315933641_Optimism_bias_within_the_project_management_context_A_systematic_quantitative_literature_review)

<sup>19</sup> Guild of Project Controls Compendium and Reference (CaR) | Project Controls - planning, scheduling, cost management and forensic analysis (Planning Planet). (n.d.). Retrieved from

allows the project manager and owner to predict results and performances of the project through time and could be, in the end, compared with the effective performance of the project to be more precise in further forecasting.

- Intentional lack of compliance from the project manager

One of the reasons why project manager failed to comply with their contractual obligations is that they have obligations about “timing, the quality, the performance and so on but that the real problem is often bound to the enforcement of contractual obligations”<sup>20</sup>. The project managers are aware of their contractual obligations but don’t comply with it. What could be done to give them incentives to comply?

- o **Good enforcement procedures**

There are several ways to force the project managers to respect and comply with their contractual obligations. As the OECD preconized, to ensure the enforcement of contractual obligation, “Self-enforcement (e.g. posting bonds, ending a commercial relationship), reputation (e.g. risking a future commercial relationship), organisational (e.g. third-party audits), technology (e.g. to monitor sales) and of course contract law”<sup>21</sup> are the different tools that provide effective enforcement procedures. About the course contract law, nothing can be done put clauses on ending a commercial relationship or instituting an audit by a third party or again monitoring are possible techniques to implement. But all those techniques are quite negative, there are just punishment if the project manager doesn't fulfill its obligation and not incentives.

- o **Schedule focus contracting**

A better way to force project manager to comply with their contractual obligations is to give them incentives more than punish them for the non-compliance. A non-traditional contracting was developed in the construction area but can be applied in other areas. This method is called the schedule-focus contracting. The principle is to give incentives and disincentives to the project manager/ contractor to finish the work ahead of the schedule<sup>22</sup>. There are penalties mechanisms like good enforcement procedures but not only, it also includes positive incentives for the project

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<http://www.planningplanet.com/guild/gpccar/project-performance-forecasting>

<sup>20</sup> Contractual Obligations & Their Enforcement. (2017, February 24). Retrieved from <https://www.slideshare.net/bogeybear/contractual-obligations-their-enforcement>

<sup>21</sup> Contract enforcement and dispute resolution - OECD. (n.d.). Retrieved from <https://www.oecd.org/investment/toolkit/policyareas/investmentpolicy/contractenforcementanddisputeresolution.htm>

<sup>22</sup> US DEPARTMENT OF TRANSPORTATION. (December 2011). Work Zone Road Users Costs. Concepts and applications. Retrieved from <https://ops.fhwa.dot.gov/wz/resources/publications/fhwahop12005/fhwahop12005.pdf>

manager. This system of incentives and disincentives is not only used in construction project management but also in “Oil and Gas projects taking lost opportunities instead of road user costs concept”<sup>23</sup>. It results from this study that giving incentives and disincentives to the project manager for early completion is very useful and that most of the time the projects are completed on time earlier but without quality concession.

- Non-intentional lack of compliance/ misunderstandings

The lack of compliance from the project manager is not always intentional. It is possible that the project manager doesn't fully understand the contract's terms and so fail to comply with it. Lack of compliance and misunderstandings are linked. As Glenn Butts explained it, “underestimation from the project manager and particularly omitting probable scope, possible risks or have unrealistic, optimistic assumptions represent 74% of Cost Growth in Project”<sup>24</sup>. So it is essential for saving money to solve those underestimations linked to misunderstandings from the project managers. But misunderstandings are not the only consequence of underestimation. Underestimation and misunderstandings would also result in non-intentional lack of compliance from the project manager because if he or she underestimate something or not understand something it will have problems to reach objectives and so would probably not reach it. But we cannot say that it is clearly intentional lack of compliance here so we will focus on non-intentional lack of compliance and misunderstandings and how to solve it.

- o **Improve understanding**

To improve the understanding of the project manager of the contract and its terms, each party should be clear about the requirements and what is expected but it is not enough. A solution found by M. ATOUT is to “obligate the project manager or recruit a project manager with technical knowledge corresponding to the field of the project”<sup>25</sup>. Having technical knowledge is not enough for a project manager, soft skills are also, maybe more needed to lead a project but in a large and complex project, especially in construction, technical knowledge is appreciated and obligatory according to this author. It is logical that technical knowledge would limit misunderstandings because the project manager would directly know what is the contract and obligations about. Moreover, if the project manager has technical knowledge, it would probably have experienced too and so it would mitigate the lack of compliance.

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<sup>23</sup> Paterson, S. (2017). Incentivizing early completion of major oil and gas projects. *PM World Journal*, 6(11). Retrieved from <https://pmworldjournal.net/wp-content/uploads/2017/11/pmwj64-Nov2017-Paterson-incentivizing-early-completion-of-oil-and-gas-projects.pdf>

<sup>24</sup> Butts, Glen (2010) “[Mega Projects Estimates - A History of Denial](http://www.planningplanet.com/guild/gpccar/introduction-to-managing-cost-estimating-budgeting)” Retrieved from <http://www.planningplanet.com/guild/gpccar/introduction-to-managing-cost-estimating-budgeting>

<sup>25</sup> ATOUT, M. (2008, December). The obligations of the contractor's project manager in construction projects. *World of Engineering*. Retrieved from [http://fidic.org/sites/default/files/The%20Design-Build-Operate%20Form%20of%20Contract%20%28DBO%29\\_0.pdf](http://fidic.org/sites/default/files/The%20Design-Build-Operate%20Form%20of%20Contract%20%28DBO%29_0.pdf)

### **Attributes to measure the feasible solutions**

- **Cost** of the solution

Disputes cost a lot and especially disputes caused by misunderstandings and lack of compliance from the project manager because it is the main cause of dispute in the construction area and an important cause in general. So it is really important to evaluate the cost of putting in place the solution in place. Finding the solution would allow contractors to save a lot of time and money but the cost is still a major attribute to take into account to be able to define the profitability of a solution, which is the major concern of investors “Investors have three major concerns when buying stocks: making a profit on their investment...”<sup>26</sup>.

- **Time**

As the cost, time is a major concern because it determines if the solution would belong to implement or short and so if it is wise to invest in it or not taking into account cost, time, duration and other criteria. Indeed, the duration of the implementation can cause certain stakeholders to commit themselves, it can also have economic consequences or even put to heat the project. As Linh Tran said: “For project managers, it is particularly important to possess time management skills to be successful”<sup>27</sup> and that’s why we are so interested in not wasting our time in developing a solution that could be effective only once or that is not completely satisfying.

- **The effectiveness** of the alternative

The goal of those solutions is to reduce the number of disputes. But why reduce the number of disputes? Because disputes are extremely costly and so the original goal is to save time and money. Effectiveness could be measured in many ways with KPI's but here by effectiveness, it is meant a quantitative measurement. The solutions’ effectiveness would be measured by the number of disputes. If it is more or less reduced after putting in place the solution, we can consider that the solution is effective or quite or not at all. But that is not all, the financial benefits would also be calculated. Because the solution is supposed to make enterprise earn more in reducing disputes and not earn less in spending more money in resolving disputes but without

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<sup>26</sup> Investors' Three Major Concerns When Buying Stocks. (n.d.). Retrieved from <http://www.investorwords.com/tips/753/investors-three-major-concerns-when-buying-stocks.html>

<sup>27</sup> The Importance of Time Management (Aspects of Project Management Part 1) - InLoox. (n.d.). Retrieved from <https://www.inloox.com/company/blog/articles/the-importance-of-time-management-aspects-of-project-management-part-1/>

earning anything or worst waste money. Moreover, “Financial benefits are the most commonly used measures for assessing the success of an organization in delivering its strategy”<sup>28</sup>.

- **Impact on the PM understanding**

To reduce the misunderstanding from the Project manager, the logic wants the impact on project manager's understanding to be measure because some solutions may have an impact on understandings, other on compliance and some on both. This impact could be high, medium or low.

- **Impact on the PM compliance**

It is also logical that the impact on project manager compliance would be measured to know if the solution work or not, because to work the solution has to reduce misunderstandings or the project manager's lack of compliance. Either if the non-compliance is intentional or not it should be impacted because the misunderstandings almost always create a lack of compliance from the project manager.

**(3) Evaluation of the feasible solutions**

Now that we have listed what we consider to be our 5 main attributes, we have to rank them from the most important to the least important. In order to do so, we are going to use a non-compensatory model of the Multi-Attribute Decision Making (MADM) method.

First, we will use what is call the disjunctive reasoning method, which “takes a look at all the attributes and conduct a Pair-Wise comparison to determine which attributes are the most important by asking “which is more important?” and give a score of 1 to the winning option and a score of 0 to the losing option”.<sup>29</sup>

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<sup>28</sup> Linenberg, Y. & Gudka, A. (2004). The learning organization—the benefits of tracking project benefits. Paper presented at PMI® Global Congress 2004—EMEA, Prague, Czech Republic. Newtown Square, PA: Project Management Institute. Retrieved from:  
<https://www.pmi.org/learning/library/learning-organization-benefits-track-measure-8409>

<sup>29</sup> Sullivan, Wickes & Kroelling (2014) Engineering Economics 15th Edition Using the approach. Retrieved from:  
<http://www.planningplanet.com/guild/gpccar/managing-change-the-owners-perspective>

Attributes	Cost	Time	Sustainability	Effectiveness	Impact on the understanding of PM	Impact on the compliance of the PM	Total
Cost		1	1	0	0	0	2
Time	0		1	0	0	0	1
Sustainability	0	0		0	0	0	0
Effectiveness	1	1	1		1	1	5
Impact on the PM's understanding	1	1	1	0		0	3
Impact on the compliance of the PM	1	1	1	0	1		4

Figure 3: Ranking of the attributes with a compensatory model<sup>30</sup>

So the ranking obtained is the following (from the most to the less important):

1. Effectiveness
2. Impact on the Project Manager's willingness to comply
3. Impact on the Project Manager's understanding
4. The cost of setting up the alternative
5. The time needed to put in place the alternative solution
6. The sustainability of the alternative solution

Still using the non-compensatory model of the Multi-Attribute Decision Making (MADM) method, we will now look at another method, called the dominance technique. The goal here is to assess the impact of each possible solution listed on step 1, on the attributes. We will use colors to reflect those impacts:

- Green = good
- Yellow = medium
- Red = bad

	Forecasting	Good enforcement procedures	Schedule focus contracting	Technical knowledge requirements
Effectiveness	High	Medium	High	High
Impact on compliance	Medium	High	High	Medium
Impact on the understanding	High	Low	Low	High
Cost	Medium	Low	High	Medium
Time	Medium	Low	High	Medium
Sustainability	Medium	Low	High	High

<sup>30</sup> by the author

Figure 4: Qualitative analysis of feasible alternatives against attributes<sup>31</sup>

Now that we have analyzed attributes against solutions, we are going to give weight to this analysis to quantify the solutions between 0 and 1 for each. With this analysis, we will be able to rank the solutions and eliminate some of them to continue analyzing only the best.

	Forecasting	Good enforcement procedures	Schedule focus contracting	Technical knowledge requirements
Effectiveness	0,85	0,5	1	0,9
Impact on compliance	0,5	0,8	1	0,5
Impact on the understanding	0,8	0	0	1
Cost	0,5	1	0,25	0,5
Time	0,5	1	0,25	0,5
Sustainability	0,5	0	1	0,8
<b>TOTAL</b>	3,65	3,3	3,5	4,2

Figure 5: Qualitative analysis of feasible alternatives against attributes<sup>32</sup>

#### (4) Acceptance criteria

Thanks to this second technique, we are able to determine the minimum acceptable level an alternative must reach to keep being analyzed. We will set this minimum to 3,5 so only good enforcement procedures is eliminated and the others kept.

The good enforcement procedures solution is the less effective one. It has an impact on compliance but is not sustainable at all and have absolutely no impact on understanding. The cost and time to implement the solution are interesting but useless if the solution doesn't work.

Among the 3 last solutions, namely, the technical knowledge requirements seem to be the best solution for now.

## FINDINGS

#### (5) Summary and choices rank

As the three solutions have closed weight, we will use normalization to give weight to each attribute according to the solutions.

<sup>31</sup> By the author

<sup>32</sup> By the author

Attribute	Normalization			Forecasting		Schedule focus contracting		Technical knowledge requirements	
	Relative rank	Normalized weight (A)		(B)	(A)*(B)	(C)	(A)*(C)	(D)	(A)*(D)
Effectiveness	1	6/21	0,28	0,85	0,24	1	0,28	0,9	0,25
Impact on compliance	2	5/21	0,24	0,5	0,12	1	0,24	0,5	0,12
Impact on the understanding	3	4/21	0,19	0,8	0,15	0	0	1	0,19
Cost	4	3/21	0,14	0,5	0,07	0,25	0,03	0,5	0,07
Time	5	2/21	0,10	0,5	0,05	0,25	0,02	0,5	0,05
Sustainability	6	1/21	0,05	0,5	0,02	1	0,05	0,8	0,04
<b>TOTAL</b>	21	1	1	3,65	0,65	3,5	0,62	4,2	0,72

Figure 6: Relative weight of each attribute against the three chosen solutions<sup>33</sup>

The three solutions here have still closed weight but we can rank them. The best solution is the one with the more weight and the worst with the less.

So the ranking is like the following:

1. Technical knowledge requirements
2. Forecasting performance/ risks
3. Schedule focus contracting

So the best solution is supposed to be: technical knowledge requirements. Technical knowledge requirements alternative solution is the fact that for each different type of project or are of the project, the project manager should have some knowledge and skills about the specified area. In this paper, we focused on the construction area, a very specify area in which project is often very big and the knowledge of the project manager in the field would have an important impact.

Technical requirements would be included in the contract and so the company hiring the project manager or the owner will have first to set up knowledge and skills requirements to put in the contract. Then it will have to choose a project manager completing the requirements asked in the contract or give him or her training to make him or her complete the requirements.

### (6) Preferred choice

The alternative solution: technical requirements is the preferred one. But how can it be explained?

<sup>33</sup> By the author

This result could be explained by the fact that the technical requirement solution will increase the project manager understandings because it will have knowledge and skills to better understand the environment he or she is working for and in. By so it will erase the non-intentional lack of compliance factor to cause dispute.

The technical requirement would often imply that the project manager already worked in such project and by knowing the working environment, its risks, and codes, he/she will be more aware and so will less tend to be optimistic. So it impacted the optimism bias too. Unfortunately, this solution would have no impact on the intentional lack of compliance from the project manager.

By impacting the optimism bias and non-intentional lack of compliance, we can say that this solution would be effective. Moreover, it will not be very complicated to put in place this solution and will not cost a lot and take a lot of time.

### **(7) Pareto analysis**

After all, we have now a preferred choice. But how can we be sure that it works? How can we measure it and report its impact?

To answer those questions, we are going to use a Pareto analysis. This is a technique used for decision making on an 80/20 basis.<sup>34</sup> It helps to see the effect of our feasible alternative comparing the results of putting in place the solution against the non-use of the solution. By resolving the major disputes cause, our goal is to reduce the delays in the project, reduce money waste, improve the effectiveness of project manager and of course we want that the project manager respects the contract clauses to reduce disputes.

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<sup>34</sup> Momoh, O. (2017, October 26). Pareto Analysis. Retrieved from <https://www.investopedia.com/terms/p/pareto-analysis.asp>

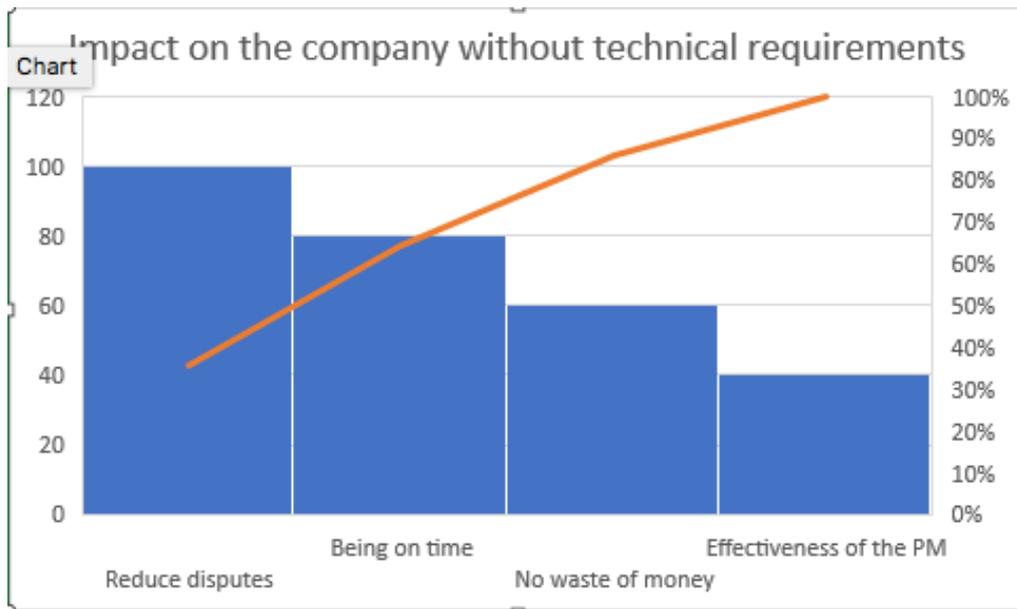


Figure 7: Impact on the company with technical knowledge requirement<sup>35</sup>

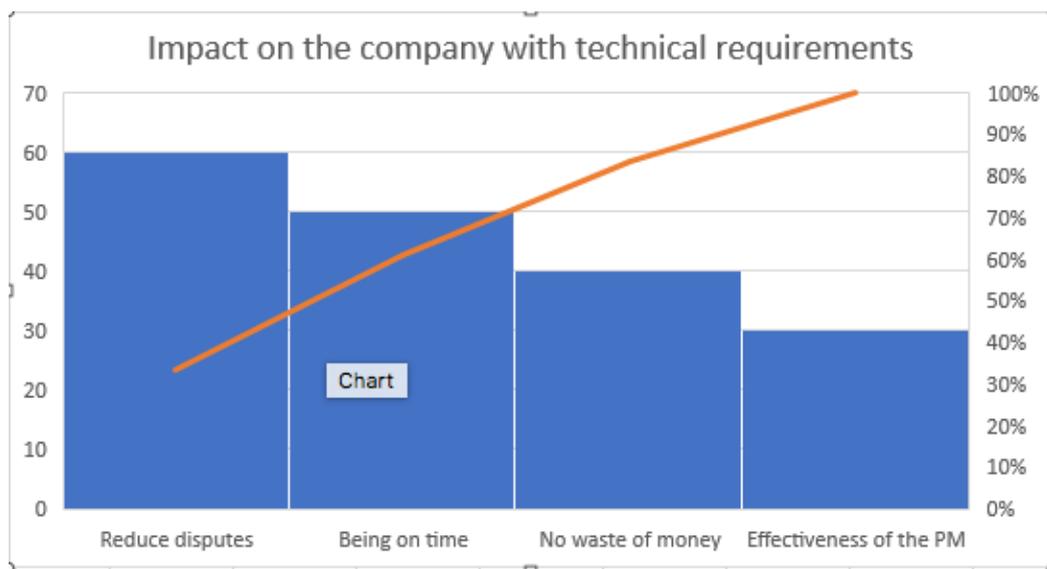


Figure 8: Impact on the company without the technical knowledge requirement<sup>36</sup>

Thanks to this Pareto analysis we can clearly see that with technical requirements for the project manager, the impact on the company are reduced and so it is useful for the company to put this technical requirements obligation in the contract.

<sup>35</sup> By the author

<sup>36</sup> By the author

## CONCLUSION

As future project managers and project managers of the future, it is important for us to understand how international contracts are linked to the project management. And we will be able to improve the way of contracting to avoid waste of time and money for us and our clients from hell caused by disputes.

This research is very important because the major cause of disputes: the misunderstandings and failures to comply from project manager to their contractual obligation represent a lot of money lost, time waste that could be used in other ways. Thanks to this paper, we learned more about the action and power of project manager on contract. We are now able to list some reasons for the misunderstandings and failures to comply with the project manager among them: optimism bias, intentional lack of compliance, non-intentional lack of compliance or simply lack skills.

List those reasons helped us to find some feasible solutions to solve or at least reduce the causes of the misunderstandings and failures and so the disputes. The feasible alternatives found were forecasting, good enforcement procedures, schedule focus contracting and technical requirements. Then we evaluated them thanks to criteria and we found that required technical skills from the project manager seem to be the best solution to reduce misunderstandings and failures to comply and so dispute.

The work and study were based on construction area finding and so we may apply what we found on this sector and on others but further studies on other areas or application of the different feasible solutions found could be very interesting. The feasible alternatives could be proven as efficient and some other could appear.

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## About the Author



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**Pauline Vanneste** is a young business student in Project Management with just a few years of experience, certified with Prince 2 and AgilePM. Born in the north of France, she spends two years in a preparatory class to the best business schools in France and succeeds to enter SKEMA. She lived 6 months in Sweden and 6 months in Brazil during her master's degree. After two years studying management, finance, marketing and business she decided to specialize in Project Management by doing an MSc Project Management and Business Development during she studied International contracts. Studying the contracts and especially the causes of disputes in international contracting, she focused on the construction area. The main topic of her study was to understand the main cause of disputes in the contract: the project manager failures to understand or comply with its contractual obligations, propose solutions and evaluate them in order to have a review of the reasons why it happens and solutions for each reason.

She just completed his last assignment in December of 2018 under the tutorage of Dr. Paul D. Giammalvo, CDT, CCE, MScPM, MRICS, GPM-m Senior Technical Advisor, PT Mitrata Citra Graha, to attain Guild of Project Controls certification.

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