

Which contract type is the most appropriate for Agile projects? ^{1, 2}

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ABSTRACT

Agile method, as people say now, has been around for thousands of years. Agile Manifesto has been distributed in 2001, setting up standards and estimations of another undertaking the board technique, contradicted to conventional cascade methodologies.

This paper presents another method for acknowledging inside contracts with the end goal to fit Agile projects. Several techniques will be proposed, examined and compared. We will see that the most proficient method of choosing appropriateness of a contract is to keep up with the base criteria's and do not sacrifice flexibility.

Keywords: Contract type, Agile, methodology, time consumption, efficiency, collaboration, cost cutting, flexibility, collaborative approach, benefits

INTRODUCTION

Trading is a main consideration in the financial advancement of any nation on the planet. Almost any country in the world is involved in some kind of trading experience. In any case, it was an exceptionally troublesome procedure of framing great relations. A standout amongst the most imperative features of trading is the drafting of a contract before starting any project.

At the same time with this, a so-called method of "Trial and Error" method has been around for over a million years, dating back to when our forefathers tamed fire or 6000 years ago when they invented the wheel. In the 12th century, it became known as the "Scientific Method" and was used by Bell to invent the phone and Edison to invent the lightbulb, years passed, and it became known as Agile.

The illustration below perfectly describes the ongoing process of "Scientific method".

¹ Editor's note: Student papers are authored by graduate or undergraduate students based on coursework at accredited universities or training programs. This paper was prepared for the course "International Contract Management" facilitated by Dr Paul D. Giammalvo of PT Mitratata Citragraha, Jakarta, Indonesia as an Adjunct Professor under contract to SKEMA Business School for the program Master of Science in Project and Programme Management and Business Development. <http://www.skema.edu/programmes/masters-of-science>. For more information on this global program (Lille and Paris in France; Belo Horizonte in Brazil), contact Dr Paul Gardiner, Global Programme Director, at paul.gardiner@skema.edu.

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The Scientific Method as an Ongoing Process

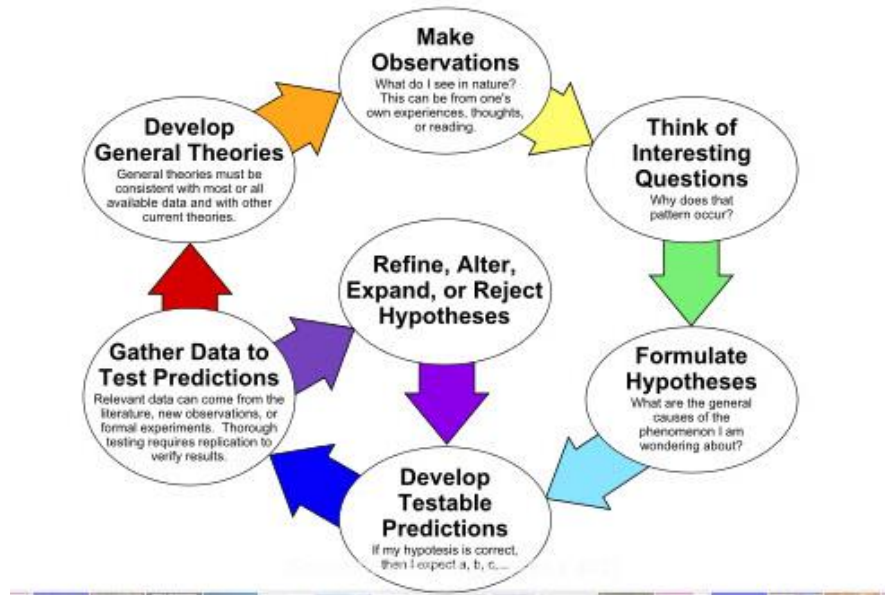


Table 1. The Scientific method as an Ongoing Process³

But before, going deeper into the topic, here is a table with several necessary definitions provided, and which will be used further.

	Definition	Example
Project	"An investment that requires a set of logically linked and coordinated activities performed over a finite period of time in order to accomplish a unique result in support of a desired outcome" ⁴ .	Project may be simple (taking bath), complicated (re-design and construction of a new city hall), or complex (adaptation and implementation of a new Agile based project management methodology)
Program	"A program is a collection of projects that are managed as a group in order to achieve efficiencies of scale" ⁵ . There are four types of programmes – Strategic programme, operational programme, multi-project programme, and Megaproject.	Development of ASD (Agile Software Development) by several teams in order to fulfill company's needs Strategic program: mapping the changes in organization in a way to make the processes transparent and clear to all employees

³ By Dr. Paul D Giammalvo

⁴ Duncan, W. R. (2018, January 13). Bill Duncan on LinkedIn: "Once more into the breach ... what exactly is a "project"? Retrieved from <https://www.linkedin.com/feed/update/urn:li:activity:6357416976318558208/>

⁵ Forrest, D., Williams, J., LeServe, M., Dua, M. R., Giammalvo, D. P. D., Pope, R., ... Yasir, R. (n.d.). GPCCAR M01-1 Introduction to managing project controls, Revision 1.02. In GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR).

		Operational program: Reorganization of several departments in a company Multi-project program: Program which is oriented on defining customer preferences Megaproject: Expansion of a business to a new country
Asset	<p>"A tangible or intangible resource with economic value that an individual, corporation or country owns or controls with the expectation that it will provide future benefit"⁶.</p> <p>Human Assets are controlled by HR; Physical Assets are controlled by either operation ("plant manager") or other functional entities such as "heavy equipment shop"; Financial Assets are controlled by accounting or finance and lastly; Intangible Assets which are defined to be the difference between a company's book value and market capitalization value is controlled by sales and marketing or public relations departments.⁷</p>	<p>Human asset: Employees with knowledge in Agile Information asset: Projects Physical asset: Computers, Software Financial asset: Cash, contracts Intangible asset: Company's reputation</p>
Projects	<p>Revenue Generating or "Top Line" Projects - Sales and Marketing Initiatives, New Plant Construction (Capital Investment) o Mergers/Acquisitions/IPO's (New Market Penetration) 2. Cost Containment or "Bottom Line" Projects - Reorganizations, Outsourcing, Enterprise Software Solutions, Process Reengineering, Project/Program/Portfolio Management Offices 3. Government Mandated Projects - SOX/BASIL II, Environmental Protection o Labor Law Compliance 4. Community Service or "Good Will" Projects⁸</p>	Development of a new plug-in for the company website which will maximize customer satisfaction to a certain level on international company level
Portfolio of assets	"Portfolio of assets (resources) available to dedicate of projects, with the objective being to develop the best 'mix' of projects which will generate the most favorable return on those assets" ⁹	Recruitment of employees with high level of expertise in Agile methodology, equipment, office buildings, ideas, furniture

Table 1. Definition and examples of the Guild terms¹⁰

⁶ Forrest, D., Williams, J., LeServe, M., Dua, M. R., Giammalvo, D. P. D., Pope, R., ... Yasir, R. (n.d.). GPCCAR M01-1 Introduction to managing project controls, Revision 1.02. In GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR).

⁷ Forrest, D., Williams, J., LeServe, M., Dua, M. R., Giammalvo, D. P. D., Pope, R., ... Yasir, R. (n.d.). GPCCAR M01-1 Introduction to managing project controls, Revision 1.02. In GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR).

⁸ Forrest, D., Williams, J., LeServe, M., Dua, M. R., Giammalvo, D. P. D., Pope, R., ... Yasir, R. (n.d.). GPCCAR M01-1 Introduction to managing project controls, Revision 1.02. In GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR).

⁹ Forrest, D., Williams, J., LeServe, M., Dua, M. R., Giammalvo, D. P. D., Pope, R., ... Yasir, R. (n.d.). GPCCAR M01-1 Introduction to managing project controls, Revision 1.02. In GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR).

¹⁰ By author

So, a contract for quite some time, have been viewed as settled instruments with clear orders and serious punishments for not respecting the terms. For a considerable length of time, there was steadfast unbending nature in the terms in which contracts were arranged, created and oversaw. The thought was for the gatherings to perceive legally binding composed commitments as settled, with clearly defined rules of performance and the need in undeniable obedience to the terms. As a rule, the value, volume and term of the agreement were obviously characterized, and had to be followed.

Taking into account that this conventional way to deal with the contracts still exists, it is progressively retreating from such strictness, since adherence to these strict standards has become more time consuming and cost-effective debates. Rather than investing a huge measure of energy arranging and settling question, there is acknowledgment that the gatherings should work for achieving the result, cooperate and have a shared goal. Such method is mostly known as flexible contracting, and it changes the way contracts, bargaining and preparation procedure is done. This brings us to the point that Agile methodology is same kind of flexible and furthermore it will be discovered which contract type best suites this method.

But coming back to the modern days, Agile approach deals with drive change in both IT and Business spheres is rocketing drastically. This methodology, if implemented correctly, will augment companies' advantages on the market or reduce risk in drafting a contract. Also, the company needs to ensure that they have an approach to a flexible contract that will force them to build strong relationships with suppliers and maintain their adaptable delivery, which will furthermore develop companies' position and fasten the cooperation with suppliers.

The "Flexible Contract is defined to be an outcome-based contract and has been designed to work with complex projects, products and services."¹¹ "The term 'complex' is used to refer to a situation where the solution is neither obvious nor predictable at the outset and where changes are requested throughout the term."¹² "If the customer knows what their needs are before the project starts and the environment is fairly stable, it may be that a traditional contract would be applicable."¹³ This would require the requirements to be known and not change, and the technical, regulatory and competitive landscape not change as well. In our experience and based on the amount of changes requests we see with traditional contracts; these projects are extremely rare.

Plainly the organization ought to not constrain the model time and materials at the determination of an agreement for a flexible project. Such contracts are unique, however the advantages of arranging and settling costs can be accomplished by utilizing adaptable standards and implementation of them into contracts.

¹¹ What is a flexible contract? — flexible contracts. (2013). Retrieved from <http://www.flexiblecontracts.com/what-is-a-flexible-contract/>

¹² Advanced Topic – Agile Contracts – Scaled Agile Framework. (2018, October 18). Retrieved from <https://www.scaledagileframework.com/agile-contracts/>

¹³ Naughter, T. (2018, June 26). Three Types of Agile Contracts. Retrieved from <https://www.contractworks.com/blog/three-types-of-agile-contracts>

Step 1: Problem statement

This Fishbone Diagram below illustrates the problem and its main causes:

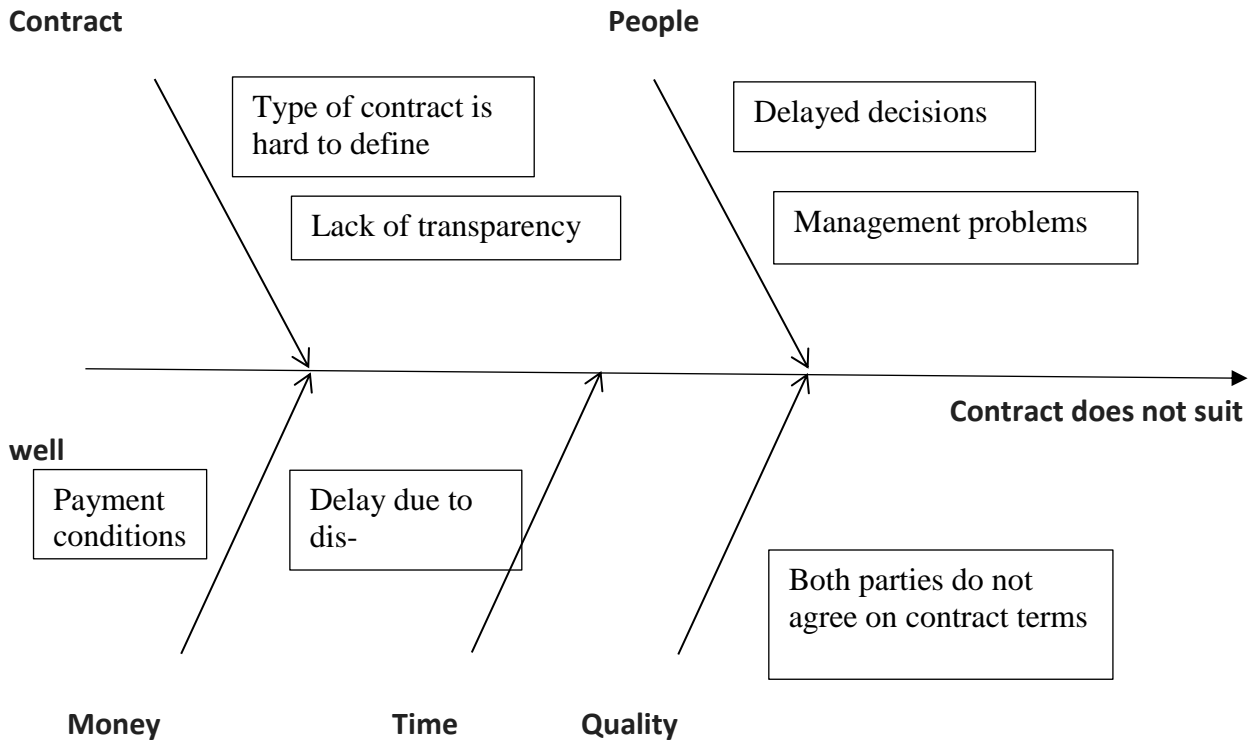


Diagram 1 Root Cause Analysis- Defining appropriate contract type for Agile projects¹⁴

This paper comes up with a very common problem nowadays. Thus, this paper is going to compare the differences between several contract types, define what conditions suit the best for Agile projects, and figure out which contract type fits the best for agile projects.

After conducting root cause analysis to the point in the difficulty in choosing appropriate contract type for Agile projects, the following questions will be answered:

- 1) Which criteria's need to be taken in order to choose appropriate contract type?
- 2) What are the worst appropriate contract types?
- 3) How to make the contract transparent and acceptable to both parties?

¹⁴ By Author

METHODOLOGY

Step 2: Identification of feasible alternatives

In each project, there is always a certain set of tasks that must be implemented to successfully complete it. And if the project is large, then this set will have quite a lot of weight. Decomposition of conceptual requirements can be deep, and to keep it all in mind is simply unrealistic. Paper technologies have long been a thing of the past, this is inconvenient and less reliable, but nevertheless it is necessary to prescribe the terms of the contract for the performance of certain tasks.

Therefore, an overview on the topic has been made by identifying the definition, processes, history. Next, we are going to have an analysis of the four types of contracts from different spheres, where Agile projects can be represented. Finally, an analysis through a Multi Attribute Decision Making (MADM) analysis by using the NON-COMPENSATORY MODEL of Disjunctive Reasoning will be done.

Step 2.1: Four types of contracts

As it can be seen from above four types of contracts are going to be used:

- The American Institute of Architects (AIA) document
- The Engineers' Joint Contract Document Committee (EJCDC) document
- The Consensus Docs
- The International Federation of Consulting Engineers (FIDIC) document

Step 3: Development of outcomes

- **AIA**

"The documents produced by The American Institute of Architects (AIA) are the most widely used standard form contracts in the construction industry. They facilitate communications among all the parties involved in construction, which makes it easier to produce a high-quality project in a timely and economical fashion."¹⁵

As indicated by the AIA, it can be seen that the architect/member of a team is entirely responsible for checking the exactness and fulfillment of the work and data given by the contractor to successfully draft and do the project.

¹⁵ American Institute of Architects. (n.d.). Why Use AIA Documents | AIALA. Retrieved from <https://www.aiala.com/why-use-aia-documents-2/>

- **EJCDC**

“A coalition of stakeholders in the project delivery process who have developed a set of engineering and construction contract documents with a specific focus on horizontal infrastructure in the United States.”¹⁶

While examining the provisions of EJCDC it can be noticed that The Engineer task is essentially to explain the questions occurred in case they happen to be between the proprietor and contractual worker however in the primary discernment we can't consider it as impartial substance in light of the fact that, as indicated by the EJCDC, the proprietor is the one who employees the Engineer to work on a specific project. It is the Engineer who checks that every one of the requirements are met: the contractor made every one of the amendments previously requested in the last examination, a project is performed by the contract terms: timing, bonds and etc.

- **Consensus Docs**

“It is the product of 40 leading design and construction industry associations, dedicated to identifying and utilizing best practices in the construction industry for standard construction contracts. The participating associations represent Designers, Owners, Contractors, Subcontractors, Specialty Contractors and Sureties that literally spell the DOCS in ConsensusDocs.”¹⁷

Consensus docs was formed by all stakeholders, along these lines the distinction lies in giving power to all stakeholders: Engineers, Architects, contractors subsequently it makes a specific balance however now and again gives this method more complexity. Also, this method has certain level of flexibility while depending on structures and required archive since this kind of agreement considers each agreement as an exceptional case to be dealt with independently.

- **FIDIC**

“FIDIC is an international agency that formulates conditions of contract recommended for construction works where tenders are invited on an international basis. FIDIC conditions of contract are also widely used in domestic projects with minor modifications.”¹⁸

This type gives power to the engineer/architect, they are the one having the authority over the contractor, that means that to have the payment the contractor needs to receive an approval from architect/engineer. Payment can be diverse or made after finish of the project or with the estimation of work done.

¹⁶ Engineers Joint Contract Documents Committee. (2017, September 21). Retrieved from https://en.wikipedia.org/wiki/Engineers_Joint_Contract_Documents_Committee

¹⁷ ConsensusDocs. (n.d.). ConsensusDocs Guidebook. Retrieved from https://www.consensusdocs.org/FooterSection_Resources/Guidebook

¹⁸ What is fidic? (n.d.). Retrieved from https://www.howtoexcel.info/Civil_Engineering/What_is_FIDIC.htm

Step 4: Selection of criteria

In order to decide which alternative best suits Agile projects, it is necessary to identify criteria's which are important in drafting a contract. These criterions will rank alternatives from the best to the worst one.

First, but not the least is **flexibility**¹⁹, these criteria is one of the basic which should be taken in consideration when it comes to Agile. Second is **time**²⁰, to keep the project in proper time gapes and do not extend the budget, **cost**²¹ is the third necessary criteria. And also, it is necessary to keep both parties satisfied with the terms of the contract, it is necessary to make it **fair**²², this is the fourth criteria.

Next five criteria's will be following SMART Goal matrix, to keep the high level of credibility of the research, they are:

S- Specific²³

M- Measurable²⁴

A- Action-oriented²⁵

R- Relevant²⁶

T- Trackable²⁷

	AIA	EJDC	Consensus Docs	FIDIC
Flexibility	Medium	Medium	High	Low
Time	Medium	High	Medium	Medium
Cost	Medium	High	Low	Medium
Fair	Low	Medium	High	High

¹⁹ Sherwin, P., Vermal, A., & Figueira, E. (n.d.). Perceived advantages and disadvantages of international arbitration - Proskauer on international litigation and arbitration. Retrieved from <https://www.proskauerguide.com/arbitration/19>

²⁰ Sherwin, P., Vermal, A., & Figueira, E. (n.d.). Perceived advantages and disadvantages of international arbitration - Proskauer on international litigation and arbitration. Retrieved from <https://www.proskauerguide.com/arbitration/19>

²¹ Cost | meaning in the cambridge english dictionary. (n.d.). Retrieved from <https://dictionary.cambridge.org/dictionary/english/cost>

²² Merriam-Webster. (n.d.). Definition of fair. Retrieved from <https://www.merriam-webster.com/dictionary/fair>

²³ YourCoach BVBA. (n.d.). s.m.a.r.t | goal setting | smart | coaching tools | yourcoach gent. Retrieved from <https://www.yourcoach.be/en/coaching-tools/smart-goal-setting.php>

²⁴ YourCoach BVBA. (n.d.). s.m.a.r.t | goal setting | smart | coaching tools | yourcoach gent. Retrieved from <https://www.yourcoach.be/en/coaching-tools/smart-goal-setting.php>

²⁵ YourCoach BVBA. (n.d.). s.m.a.r.t | goal setting | smart | coaching tools | yourcoach gent. Retrieved from <https://www.yourcoach.be/en/coaching-tools/smart-goal-setting.php>

²⁶ MindTools. (n.d.). smart goals how to make your goals achievable. Retrieved from <https://www.mindtools.com/pages/article/smart-goals.htm>

²⁷ MindTools. (n.d.). smart goals how to make your goals achievable. Retrieved from <https://www.mindtools.com/pages/article/smart-goals.htm>

Specific	Medium	Medium	High	Medium
Measurable	Medium	High	Medium	Low
Action-oriented	High	High	Medium	Medium
Relevant	Medium	High	Low	Medium
Trackable	Low	Medium	Medium	High

Diagram 2 Non-compensatory model²⁸

This method leads us to choose and analyze which approach contains the best attributes.

FINDINGS

Step 5: Comparative Analysis

Flexibility	
High	2,00
Medium	1,00
Bad	0,00

Time	
High	2,00
Medium	1,00
Low	0,00

Cost	
High	2,00
Medium	1,00
Low	0,00

Fair	
High	2,00
Medium	1,00
Low	0,00

Specific	
High	2,00
Medium	1,00
Bad	0,00

Measurable	
High	2,00
Medium	1,00
Low	0,00

Action-oriented	
High	2,00
Medium	1,00
Low	0,00

Relevant	
High	2,00
Medium	1,00
Low	0,00

Trackable	
High	2,00
Medium	1,00
Low	0,00

Diagram 3. Compensatory model – Relative weighting²⁹

²⁸ By Author

²⁹ By the author: Compensatory Model – Relative weighting

	AIA	EJCDC	Consensus Docs	FIDIC
Flexibility	1,00	1,00	2,00	0,00
Time	1,00	2,00	1,00	1,00
Cost	1,00	2,00	0,00	1,00
Fair	0,00	1,00	2,00	2,00
Specific	1,00	1,00	2,00	1,00
Measurable	1,00	2,00	1,00	0,00
Action-oriented	2,00	2,00	1,00	1,00
Relevant	1,00	2,00	0,00	1,00
Trackable	0,00	1,00	1,00	2,00
TOTAL	8,00	14,00	10,00	9,00

Diagram 4. Compensatory model – Relative weighting³⁰

Attribute	Step 1	Step 2			AIA		EJCDC		Consensus Docs		FIDIC	
	Relative Rank	Normalized Weight (A)			(B)	(A)x(B)	(C)	(A)x(C)	(D)	(A)x(D)	(E)	(A)x(E)
Flexibility	9	9/45	=	0,2	1,00	0,20	1,00	0,20	2,00	0,40	0,00	0,00
Time	6	6/45	=	0,13	1,00	0,13	2,00	0,26	1,00	0,13	1,00	0,13
Cost	8	8/45	=	0,18	1,00	0,18	2,00	0,36	0,00	0,00	1,00	0,18
Fair	7	7/45	=	0,16	0,00	0,00	1,00	0,16	2,00	0,32	2,00	0,32
Specific	2	2/45	=	0,04	1,00	0,04	1,00	0,04	2,00	0,08	1,00	0,04
Measurable	1	1/45	=	0,02	1,00	0,02	2,00	0,04	1,00	0,02	0,00	0,00
Action-oriented	4	4/45	=	0,09	2,00	0,18	2,00	0,18	1,00	0,09	1,00	0,09
Relevant	3	3/45	=	0,07	1,00	0,07	2,00	0,14	0,00	0,00	1,00	0,07
Trackable	5	5/45	=	0,11	0,00	0	1,00	0,11	1,00	0,11	2,00	0,22
SUM	45		SUM	1,00	SUM	0,82	SUM	1,49	SUM	1,15	SUM	1,05

Figure 5. Compensatory model - Additive Weighting Technique³¹

³⁰ By the author: Compensatory Model – Relative weighting

³¹ By the author: Compensatory model - Additive Weighting Technique

Step 6: Selection of preferred alternative

After conduction of the Compensatory Model of the Multi-Attribute Decision Making (MADM) method, it can be seen that the preferred alternative is “EJCDC” type of contract, it has the highest score: 1,49. This alternative is better by 155% than “AIA” contract type.

Ranking from the best to the worst alternative is: EJCDC > Consensus Docs > FIDIC > AIA.

Step 7: Performance monitoring and post-evaluation of results

In this paper several types of contracts have been explored, compared and exhibited on a multidimensional scale having same similar criteria empowering to make a research on which contract type better suits Agile projects. Author's advice is to firstly use EJCDC. Indeed, this alternative sometimes does not have enough flexibility. Moreover, it from time to time it can be unfair towards both parties of the contract. If EJCDC does not enable to achieve the balanced agreement, then the author suggests using Consensus Docs which is a better choice by 129% and which would be a second option in choosing contract type.

CONCLUSIONS

In this paper was intended to state and analyze the appropriate contract type for Agile projects. And now it is important to answer questions this paper asked:

- 1) Which criteria's need to be taken in order to choose appropriate contract type?

The author found that there 9 major criteria's which should be take into consideration. They are: Flexibility, Time, Cost, Fair, Specific, Measurable, Action-Oriented, Relevant, Trackable. They all have different spectrums, and this makes the determination of the best-fitted alternative easier.

- 2) What are the worst appropriate contract types?

According to the research AIA contract type is the worst one, due to low level of fairness, trackability, flexibility and other criteria's

- 3) How to make the contract transparent and acceptable to both parties?

According to the author analysis of different alternatives, it is necessary to follow the criteria's highlighted in the research and choose the best-fitting contract type, which is EJCDC.

FOLLOW ON RESEARCH

Taking into account that there is a high probability of occurrence of new contract types, it is very interesting to develop a unified system in which it would be possible to track updates in contracting sphere, and if needed choosing several criteria's to reveal the most appropriate contract not only for Agile projects, but for PRINCE2, CAMP and others.

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During his studies at SKEMA Business School Sergey has obtained certifications in AgilePM Foundations, Lean Six Sigma Yellow Belt and Project Excellence Preparation. All the above justifies that Sergey presents a motivated and promising profile with international outlook.

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