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Comparison of ISO 21500 and PMBOK® Guide[1]

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[1] Version improved after comments of Jesus Guardiola and Francesca Montanari.

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History of ISO 21500

ISO, the world leading standardization organization, must have its own project management standard. Currently its document dealing with this subject is marked with ISO 10006 symbol and is titled *Quality management systems – Guidelines for quality management in projects.* ISO 10006 has been originally published in 1997 and after so has been updated in 2003. But it has not gained popularity equal to ISO's norm of quality of the series 9000 nor as the world leading project management standards like PMBoK® Guide or Prince 2®. Even some ISO member countries had more popular PM standards – BSI 6079 is a good example. And the world-wide PM standard defining industry was working intensively. Japan, Australia or Germany developed their own PM standards. International Project Management Association developed IPMA Competence Baseline. Several initiatives aiming at creating global PM standards have been established. Global Project Management Forum (created as an initiative of David Pells), Global Working Groups (initiative of Lynn Crawford), Operational Level Coordination Initiative (OLCI), or Global Alliance for Project Performance Standards make evidences that there is a need for one global project management standard. The ISO 21500 initiative creates another hope that we will have one such standard. This initiative has been initiated in 2006 by British Standard Institute, a member organization of ISO. ISO agreed and created work item ISO/PC 236 to prepare ISO 21500 standard on project management. There were 31 countries involved into this work and 5 observing it. The chairman of the group, Dr. Jim Gordon, was from United Kingdom and the secretariat was hosted by USA ANSI (which adopted PMI PMBoK® Guide as national standard for project management in 1999). The final version of ISO 21500 has been published in September 2012.

Basic concepts

There are two issues worthy of deeper analysis: the very definition of a project and the types of projects in which ISO 21500 is interested.

Project definition

The definition of project may be found in the 3.2 section. This is ***a unique set of processes consisting of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective***. This definition makes a progress with comparison to PMBoK® Guide, which was probably the last definition saying that project are performed with the goal of producing deliverables. Products are absent from ISO 21500 definition. But the definition retains the word "unique" in relationship to the set of project processes, which in fact causes the same problems as in PMBoK® Guide definition[2].

[2] http://www.pmworldtoday.net/letters/2009/Apr/On_the_Definition_of_Project.html

When a project is initiated the set of project processes is not defined. According to ISO 21500 the set of project processes are defined as a result of performing process 4.3.3 Develop project plans, long after project initiation. So you do not know whether this set of processes is unique (or have any other characteristics) when you initiate a project. So if you strictly follow such definition, you may initiate something what is not a project according to this definition.

And, especially in the domain of routine, commercial projects (e.g. building a standard house for client) it is difficult to assign an adjective of *unique* to the set of project processes.

Please also note that according to analyzed definition, it does not require the **processes** to be unique. Only its **set** must be unique. Thus the very document in a sense is internally inconsistent: yet it just describes the set of 40 standard processes for project execution. From one point of view ISO 21500 requires the unique set of processes while at the same time it defines its standard set. Anyway understanding the concept of project requires understanding of the *unique* word and may lead to many problems in interpreting this concepts.

Types of projects

In real life there are generally two types of projects: investment projects, which change the way of organizations' works and commercial projects which directly generate income for performing organization.

The *Overview* section defines project environment in an organization. Though it is not clearly stated it seems that ISO 21500 is interested in investment projects only: project in ISO 21500 provide deliverables to operations and only these operations generate benefits (Figure 1). This is not the case for commercial projects where benefits are generated directly by producing required deliverables.

Benefits realization is at customer side only (section 3.4.3). But for organizations performing commercial projects just collecting benefits is the main reason for performing projects.

Projects are undertaken as a results of opportunities. Opportunities "may address, for example, a new market demand, a current organizational need, or a new legal requirement". An opportunity of client demand, which is the most popular opportunity for commercial projects, is absent from this list.

All this statements are evidences that ISO 21500 does not describe commercial projects.

In section 3.7 Projects and operations the standard says that "Projects (…) create original deliverables". This is inconsistent with contemporary understanding of projects. For instance Bower and Walker[3] or Brady and Davies[4] define and analyze projects which produce repeatable deliverables. The first of these papers deals with projects which serially implements the same products, the second deals with progress in performing project of the same type (i.e. producing similar deliverables). You can find much more on this topic in

[3]Bower, D. C., Walker, D., H., T., 2007, Planning Knowledge for Phased Rollout Projects. Project Management Journal. 38 (3): 45-60.

[4] Brady, T., Davies, A., 2004, Building Project Capabilities: From Exploratory to Exploitative Learning. Organization Studies. 25 (9): 1601-1621

literature. The very area of organizational learning is based on the assumptions that organizations repeat works (projects among them) and that they learn while repeating these works.

Project Management Processes

When analyzing ISO 21500 its difficult to abstract from PMBoK® Guide[5] which gave main ideas for its creation. The next sections contain comparison of PMBoK® Guide 5th Edition and ISO 21500.

Project Management Process Groups

ISO 21500 divides project processes into five process groups. You may find the comparison below.

Table 1. ISO 21500 and PMBoK® Guide process groups comparison

ISO 21500	PMBoK® Guide
Initiating	Initiating
Planning	Planning
Implementing	Executing
Controlling	Monitoring and Controlling
Closing	Closing

The differences between these two standards are really minimal here. Changing the names is the only difference.

Subject Groups

PMBoK® Guide's ***knowledge areas*** has been renamed to ***subjects*** in ISO 21500. Their comparison may be found at table Table 2.

[5] Stanisław Gasik is a significant contributor to PMBOK® Guide 5th Edition and to PMI Standard for Program Management 3rd Edition.

Table 2. ISO 21500 Subjects and PMBoK® Guide Knowledge Areas

ISO 21500 Subjects	PMBoK® Guide Knowledge Areas
Integration	Integration
Stakeholder	Stakeholder
Scope	Scope
Resource	Human Resources
Time	Time
Cost	Cost
Risk	Risk
Quality	Quality
Procurement	Procurement
Communication	Communication

It is clearly seen from both comparisons that ISO 21500 is strictly based on PMBoK® Guide. The Human Resources knowledge area has been renamed to Resource subject in order to cover both types: human and other project resources.

Structure of Process Description

The structure of description of processes in ISO 21500 differs from that in PMBoK® Guide. The main difference is that ISO 21500 does not provide description of tools and techniques. The description of each process in ISO 21500 consists of general description and a table containing primary inputs and primary outputs. ISO 21500 descriptions are substantially shorter than those of PMBoK® Guide; roughly speaking description of two ISO 21500 processes fits at one page while in PMBoK® Guide it takes several pages to describe one process.

Integration

Table 3. ISO 21500 and PMBoK® Guide Integration Processes

ISO 21500	PMBoK® Guide
4.3.2 Develop Project Charter	4.1 Develop Project Charter
4.3.3 Develop Project Plans	4.2 Develop Project Management Plan
4.3.4 Direct Project Work	4.3 Direct and Manage Project Work
4.3.5 Control Project Work	4.4 Monitor and Control Project Work
4.3.6 Control Changes	4.5 Perform Integrated Change Control
4.3.7 Close Project Phase or Project	4.6 Close Project or Phase
4.3.8 Collect Lessons Learned	

Adding 4.3.8 Collect lessons learned process focused on project knowledge management to ISO 21500 is a move in the right direction. But as more and more practitioners and methodologist say that knowledge is the most important project resource and thus it deserves to be treated as separate subject in the discipline of project management. Gasik[6] prepared theoretical basis for such approach to project knowledge management.

ISO 21500 requires development of three types of plans. The project plan describes project baselines: what should be achieved by the project in separate subjects like scope, time, cost and any other. The project management plan describes project management processes. The third type of plans are subsidiary plans – any part of project management processes may be placed in separate document. In PMBoK® Guide there is one project management plan which consolidates and integrates all planes needed by a project.

Stakeholder

Table 4. ISO 21500 and PMBoK® Guide Stakeholder Processes

ISO 21500	PMBoK® Guide
4.3.9 Identify Stakeholders	13.1 Identify Stakeholders
	13.2 Plan Stakeholder Management
4.3.10 Manage Stakeholders	13.3 Manage Stakeholder Engagement
	13.4 Control Stakeholder Engagement

PMBOK® Guide has two more processes in the newly introduced in its 5th edition area of stakeholder management: Plan Stakeholder Management and Control Stakeholder Management.

Scope

Table 5. ISO 21500 and PMBoK® Guide Scope Processes

ISO 21500	PMBoK® Guide
	5.1 Plan Scope Management
4.3.11 Define Scope	5.2 Collect Requirements
	5.3 Define Scope
4.3.12 Create Work Breakdown Structure	5.4 Create WBS
4.3.13 Define Activities	6.2 Define Activities (taken from Time Management Knowledge Area)
	5.5 Validate Scope
4.3.14 Control Scope	5.6 Control Scope

[6]Gasik, S., 2011, A Model of Project Knowledge Management, Project Management Journal, 42 (3), 23-44. Accessible also at http://www.sybena.pl/dokumenty/PMI%20PMJ%20A%20Model%20of%20Project%20Knowledge%20Management%20V2.1.2.pdf

ISO 21500 does not require a separate process for planning scope management. ISO 21500 Define Scope Process includes collecting requirement – at least project requirements are one of process' main output. There is no process like Validate Scope in ISO 21500. No ISO 21500 process produces output like Accepted deliverables, which is the most important output of Validate Scope PMBoK® Guide process. The minor change is moving the process of Define Activities from time management knowledge area to the subject of scope in ISO 21500.

Resource

Table 6. ISO 21500 and PMBoK® Guide Resource Processes

ISO 21500	PMBoK® Guide
	9.1 Plan Human Resource Management
4.3.15 Establish Project Team	9.2 Acquire Project Team
4.3.16 Estimate Resources	6.4 Estimate Activity Resources (taken from Time Management Knowledge Area)
4.3.17 Define Project Organization	
4.3.18 Develop Project Team	9.3 Develop Project Team
4.3.19 Control Resources	
4.3.20 Manage Project Team	9.4 Manage Project Team

The ISO 21500 Resource subject covers all types of resources: human, equipment, materials etc. This is more than in PMBoK® Guide HR Management Knowledge Area.

ISO 21500 does not require a separate process for resource planning. The process of defining project organization in ISO 21500 is performed **after** establishing project team. The Establish project team process works on "flat" structure: only characteristic of single roles are needed for obtaining human resources. Relationships between them are defined later, in Define Project Organization. There is different approach in PMBoK® Guide: you have first to define roles and project organization in Plan Human Resource Management and after that you hire skilled people.

The process of resources estimation has been moved to the subject of resources.

There is no separate process for controlling resources in PMBoK® Guide. The purpose of ISO 21500 Control resource process is to assure that required resources are available to the project. A similar process may be found in ISO 10006 which requires controlling resources in its 6.1.3 section.

Time

Table 7. ISO 21500 and PMBoK® Guide Time Processes

ISO 21500	PMBoK® Guide
	6.1 Plan Schedule Management
Moved to Scope subject	6.2 Define Activities
4.3.21 Sequence Activities	6.3 Sequence Activities
Moved to Resource subject	6.4 Estimate Activity Resources
4.3.22 Estimate Activity Durations	6.5 Estimate Activity Durations
4.3.23 Develop Schedule	6.6 Develop Schedule
4.3.24 Control Schedule	6.7 Control Schedule

ISO 21500 does not require a separate process for planning schedule management. Two processes have been moved from Time Management Knowledge Area to other subjects. The other processes seem to be stable.

Cost

Table 8. ISO 21500 and PMBoK® Guide Cost Processes

ISO 21500	PMBoK® Guide
	7.1 Plan Cost Management
4.3.25 Estimate Costs	7.2 Estimate Costs
4.3.26 Develop Budget	7.3 Determine Budget
4.3.27 Control Costs	7.4 Control Costs

ISO 21500 does not require a separate process for planning cost management. The other ISO 21500 processes strictly follow those from PMBOK® Guide.

Risk

Table 9. ISO 21500 and PMBoK® Guide Risk Processes

ISO 21500	PMBoK® Guide
	11.1 Plan Risk Management
4.3.28 Identify Risks	11.2 Identify Risks
4.3.29 Assess Risks	11.3 Perform Qualitative Risk Analysis
	11.4 Perform Quantitative Risk Analysis
4.3.30 Treat Risks	11.5 Plan Risk Responses
4.3.31 Control Risks	11.6 Monitor and Control Risks

There is no planning of risk management in ISO 21500. Two analytical PMBoK® Guide processes have been merged into one Assess Risks process of ISO 21500 but it is not clear if quantitative risk management is required by ISO 21500.

The ISO 21500 Treat Risk process may be treated as equivalent to Plan Risk Responses of PMBoK® Guide. The ISO 21500 process replicates the old shortcoming of PMBoK® Guide: though it claims that there may be positive and negative risks, the measures to treat risks are adequate only for threats: mitigation, deflection and contingency plans. This issue has been fixed in PMBoK® Guide 3rd Edition in 2004.

Quality

Table 10. ISO 21500 and PMBoK® Guide Quality Processes

ISO 21500	PMBoK® Guide
4.3.32 Plan Quality	8.1 Plan Quality Management
4.3.33 Perform Quality Assurance	8.2 Perform Quality Assurance
4.3.34 Perform Quality Control	8.3 Quality Control

There is no substantial difference between PMBoK® Guide and ISO 21500 processes in the subject of quality.

Procurement

Table 11. ISO 21500 and PMBoK® Guide Procurement Processes

ISO 21500	PMBoK® Guide
4.3.35 Plan Procurement	12.1 Plan Procurement Management
4.3.36 Select Suppliers	12.2 Conduct Procurements
4.3.37 Administer Contracts	12.3 Control Procurements
	12.4 Close Procurements

The purpose of ISO 21500 Select supplier process is generally the same as PMBoK® Guide's Conduct Procurements: to sign contracts. There is no separate process of closing contracts in ISO 21500 – closing contracts is a part of Administer Contracts process there.

Communication

Table 12. ISO 21500 and PMBoK® Guide Communication Processes

ISO 21500	PMBoK® Guide
4.3.38 Plan Communications	10.1 Plan Communications Management
4.3.39 Distribute Information	10.2 Manage Communications
4.3.40 Manage Communication	10.3 Control Communications

ISO 21500 processes match those of PMBOK® Guide. Both standards use different naming style. Manage Communications of PMBOK® Guide have the same functions as Distribute Information of ISO 21500 while the goal of ISO 21500 Manage Communication is to control and improve project communications – and this is the goal of PMBOK® Guide's Control Communications process.

Summary

The set of ten ISO 21500 subjects strictly follows the set of PMBOK® Guide knowledge areas.

There are 39 processes in ISO 21500 and 47 processes in PMBoK® Guide. 33 processes of ISO 21500 have their direct equivalents in PMBoK® Guide (for one of them its place in the sequence of processes has been changed). 4 processes have been moved between subjects (PMBoK® Guide knowledge areas).

3 pairs of PMBoK® Guide processes have been merged to 4 single processes in ISO 21500.

8 PMBoK® Guide processes are absent from ISO 21500:

- 5.1 Plan Scope Management
- 5.5 Validate Scope,
- 6.1 Plan Schedule Management,
- 7.1 Plan Cost Management,
- 9.1 Plan Human Resource Management,
- 12.1 Plan Risk Management,
- 13.2 Plan Stakeholder Management,
- 13.4 Control Stakeholder Engagement.

3 new processes have been introduced to ISO 21500:

- 4.3.8 Collect Lessons Learned,
- 4.3.17 Define Project Organization,
- 4.3.19 Control Resources.

Table 13. Summary of quantitative comparison of ISO 21500 and PMBoK® Guide

	Summary		**Integration**		**Stakeholder**		**Scope**		**Resource**	
	ISO	**PMBOK**	ISO	PMBOK	ISO	PMBOK	ISO	PMBOK	ISO	PMBOK
The same	**33**	**33**	6	6	2	2	3	3	4	4
Merged	**3**	**6**					1	2		
Only PMBOK® Guide	**-**	**8**				2		2		1
Only ISO 21500	**3**	**-**	1						2	
Total	**39**	**47**	**7**	**6**	**2**	**4**	**4**	**7**	**6**	**5**

Time		**Cost**		**Risk**		**Quality**		**Procurement**		**Communication**	
ISO	PMBOK	ISO	PMBOK	ISO	PMBOK	ISO	PMBOK	ISO	PMBOK	ISO	PMBOK
4	4	3	3	3	3	3	3	2	2	3	3
				1	2			1	2		
	1		1		1						

4	**5**	**3**	**4**	**4**	**6**	**3**	**3**	**3**	**4**	**3**	**3**