

SYSTEM OF PROJECT MANAGE IN PHASE OF REALIZATION

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Abstract: In the article we point on problem of project manage in phase of project realization and his possible steps. We mention on possibilities like manage this whole hard process. There is no simple way like to manage process of project realization. It depends on specialist skills, social and personal competencies and it depend on praxis of project managers, too. But not least it depends on project team, too.

Keywords: project management, project manage, realization of project, time plan, risk analysis.

1. INTRODUCTION

Project manage feel like simple way, but praxis shows that this problematic isn't simple. Complexities of project manage result from many activities which are needed.

The first place is project planning, which isn't simple. The second place, when we have successfully planed project, his own realization isn't simple way. In the phase of realization is needed to keep plans, which are affecting by many factors (human resources, budget, material, conflicts, meteorological influence and so on.)

In the article we point on problem of project manage in phase of project realization and his possible steps. We mention on possibilities like manage this whole hard process. There is no simple way like to manage process of project realization. It depends on specialist skills, social and personal competencies and it depend on praxis of project managers, too. But not least it depends on project team, too.

Sanjay Golub told: „Negligently done project take thrice time more, like was planed. Carefully done project take only twice more”.

2. REALIZATION OF PROJECT

View of solving ipso facto of project realization may be different. It depends on many factors, which have mainly influence

of project realization. During project realization is very important fact of project type (category of project). It depends of project depth, his complexity, human resources and costs.

Appropriate manner like to make manage system of project realization work according to Nemeč [1] have six part (subsystems), which help to project manager manage project realization. Content of subsystems is:

- **Monitoring** solvency of project realization considers identification, measurement and collects data about pass of project realization (project monitoring).
- **Control** representative fulfill task and terms, exploitation of sources, cost drawdown and make high quality of project work. Scope of control is identifying divergence.
- **Decision making** representative choice of effective variant of project work realization by obtained information's and by using optimal criteria's for appreciate (task of project manager).
- **Regulation** is establishment of harmony between planed and real realization (task of project manager). Scope of establishment is remove divergence from real realization and planed variance.
- **Motivation** is create motivational environment for all stakeholders (task of project manager).

- **Administration and technical support** include lists, documentation work of management, software support, administrative support (task of top management).

For monitoring and control showing project realization is needed point on basic plan document, which is described by triple – imperative (Fig.1) by following:

- What and how we have to do.
- Time - plan – term monitoring,
- Budget monitoring (planned cost on every activity).

Triple - imperative (Fig. 1), which representative: time manage, cost manage, quality manage.

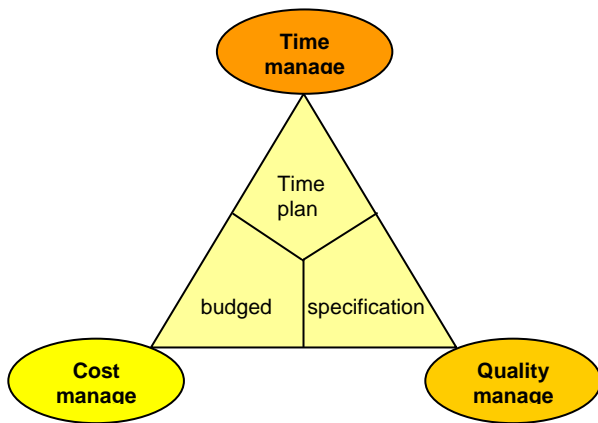


Figure 1 Triple - imperative

Whole three part is re –bound to each other. Change in one parameter is reacting to left over two.

Project manage expressive so – called feedback loop. It matter regularly and systematic evaluate proportion in praxis:

$$\frac{\text{Plan}}{\text{Reality}} = \frac{\text{value planning}}{\text{real (measured value)}} \quad (1)$$

For control to plan fulfill is made interval of its monitoring. It is needed to monitor of project work progress from time to time, it is good for easier detection of problems and following correct realization will be easier.

Project manager may from subordinates demand:

- a) to inform project manager every week by the status of project (workshop of project team),
- b) Every month realize control day of project.

Earned Value Analysis. Scope of earned value analysis is effective support of project manage.

This method makes possible to project manager (or to superior) compare basic plan with realization work according to planed budget. Analysis of earned value uses these basic parameters:

BCWS - Budgeted Cost for Work Scheduled, BCWP - Budgeted Cost for Work Performed, ACWP - Actual Cost of Work Performed.

From above parameters start these indicators of project progress:

1. CV (Cost Variance)
 $CV = BCWP - ACWP$; $CV\% = CV/BCWP$
2. SV (Schedule Variance)
 $SV = BCWP - BCWS$; $SV\% = SV/BCWS$
3. Divergence in ending
 $VAC = BAC - EAC$
4. Cost index
 $CPI = BCWP/ACWP$
5. Planed index
 $SPI = BCWP/BCWS$

Where: BAC - planned budget (complex), EAC - calculation of estimated ending budget at origination divergence.

Using this method is effective, when is integrated to software for project planning. For example Microsoft Project support count and graphic display (Fig. 2) result of earned value analysis.

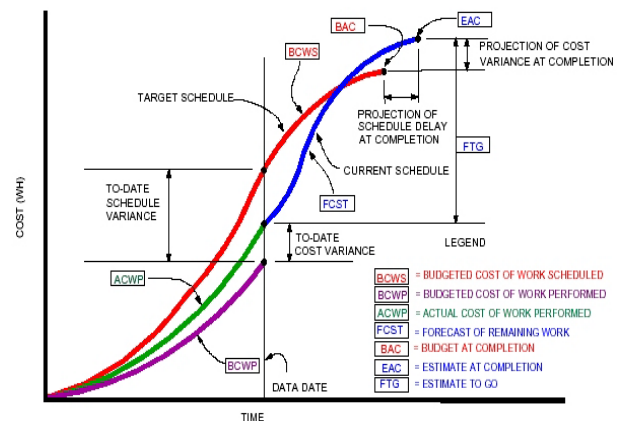


Fig. 2 Graphic display result of earned value analysis

Project would like to manage by following steps:

1. Make effective system of reporting (reporting system).

2. Monitoring of project output in specific dead – lines. (Milestones).
3. Analyze scope, plan and actual divergence.
4. Variants planning and make simulations (What if Analysis).
5. Develop and applied control interference.
6. Modification of project scopes. (Plan Revision).
7. Documented existent phase [3, 4].

In the phase of project realization is needed to monitor situation of project time – plan. We analyze next steps for identification trends and possibilities of uncertainty in remaining part of project work.

For valuation of process we need to use ordinary time – plans. From this plans we can identify and analyze divergences. If divergences are eminent, we have to adequate reacted on it (Example 1).

It is important identify key reason of divergences from time – plan, whether fortunate or unfavorable. The reasons of unfavorable and fortunate divergences we can use for permanent improvement.

Project manager mention **quality manage** to praxis by quality plan, quality control, quality realization and quality improvement in quality manage system.

For **costs manage** is needed to observe these steps:

- Feedback from interested,
- Result from monitoring, budget drawdown of project; quantification of non –planned costs (risk, radical change of specification, failure of contractor, and so on.),
- Interpretation of divergences from budget drawdown which was accredited, identification of causality breach budget drawdown time table, design and manage correction,
- Actualization of time table of budget drawdown and documented of changes.

Causalities of divergences of project costs are:

- Decreasing of costs without time plan change or quality,
- Purchaser compress costs by misuseage competitors (competition of liars),
- Optimistic guess by sources planning and mistake in cost calculation [2, 4].

It is important to prevent from cost divergences (what isn't easy proposition), how to prevent divergence of cost?

- Prevention,
- Good and in detail made financial analysis and budget, avoid changes in project.

During whole phases of project is very important to monitor and manage **risks** by process of risk identification, appraisal risk and attendance with risk.

Project has to be managing by sense, that everything has risk. Plans of risk have to be in stand – by treatment. Reports from risk monitor has to be part of valuation his duration.

In the phase of realization **changes** may have positive influence (opportunities), but negative influence on project. We have to analyze key reasons of negative influence and use result for preventive measure and start – up with improvement [2].

Measuring time divergences, cost divergences, but quality divergences too from plan we can detail analyzed by **5W1H** questions:

- **WHAT** happened?
- **WHEN** did it happen?
- **WHERE** did it happen?
- **WHY** did it happen?
- **WHO** was involved?
- **HOW** did it happen?

Example 1 „Time planning“

Project has 8 activities. The project has to be finished till 16 months. Day limit of workers is maximum **14** workers.

When we control time plan we find out that project duration is 19 months. Project manager have to fulfill time table (16 months) and it is needed to change time plan.

In time plan modification we have more variants, which activities we can move or shorten. It exist one rule, when we change time plan, we can not forget to change sources too.

If it is duration of critical way all right, you can finish solving. If it is duration of critical way bad, try to devise modification (Step 6):

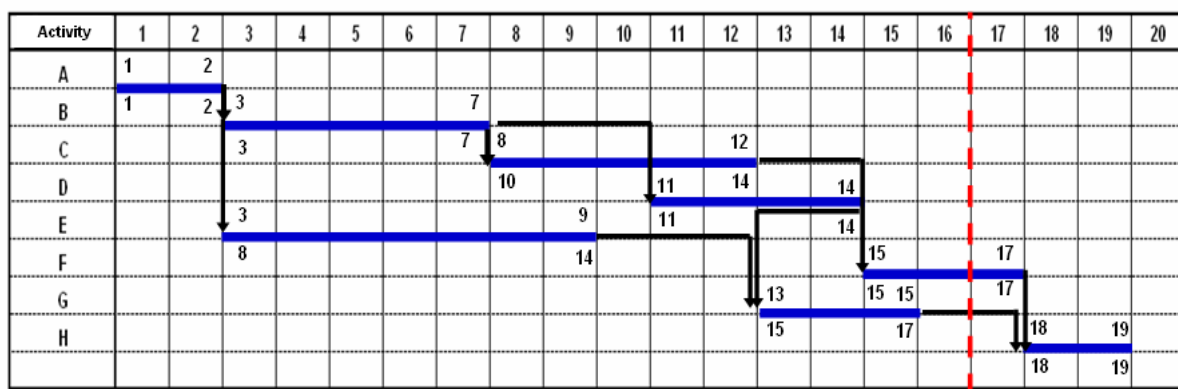
- point what and why you are changing on chosen activity.

System of Project Manage in Phase of Realization

Step 1

Activity	Previous activity (links)	Quantity on activity (costs in thousand €)	Productivity of labour on 1 worker in thousand €/per month	Count of workers on activity	Months
A	-	120	20	3	2
B	A	170	17	2	5
C	B	270	9	6	5
D	B fs +3	320	20	4	4
E	A	560	20	4	7
F	C, D	540	30	6	3
G	D fs -2, E	620	41	5	3
H	F, G	400	25	8	2

Step 2 Gantt graph

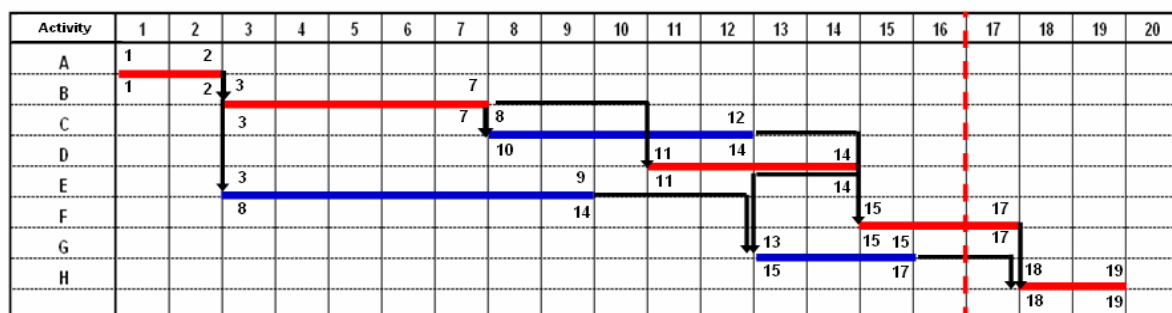


Step 3 Table of activities duration

Activity	Duration in months	Time of beginning activity		Time of ending activity	
		At first possible	At the furthest allowed	At first possible	At the furthest allowed
A	2	1	1	2	2
B	5	3	3	7	7
C	5	8	10	12	14
D	4	11	11	14	14
E	7	3	8	9	14
F	3	15	15	17	17
G	3	13	15	15	17
H	2	18	18	19	19

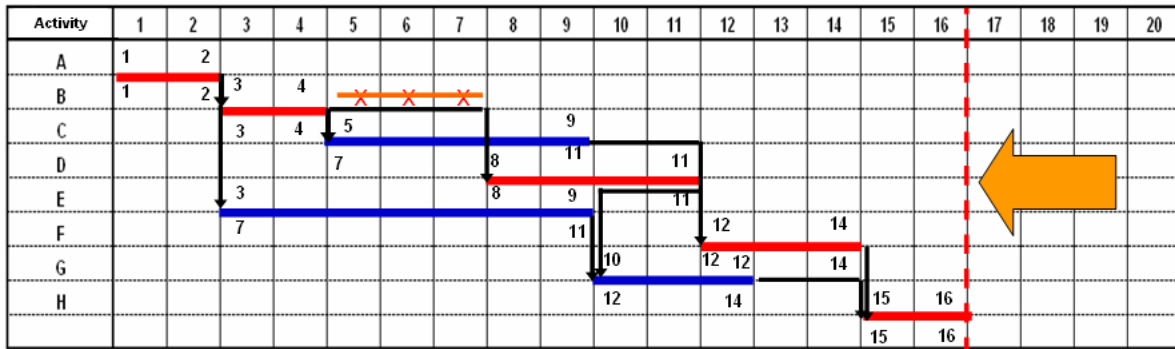
Step 4 Gantt graph

Critical way A-B-D-F-H has duration 19 months.



Step 5 Gantt graph

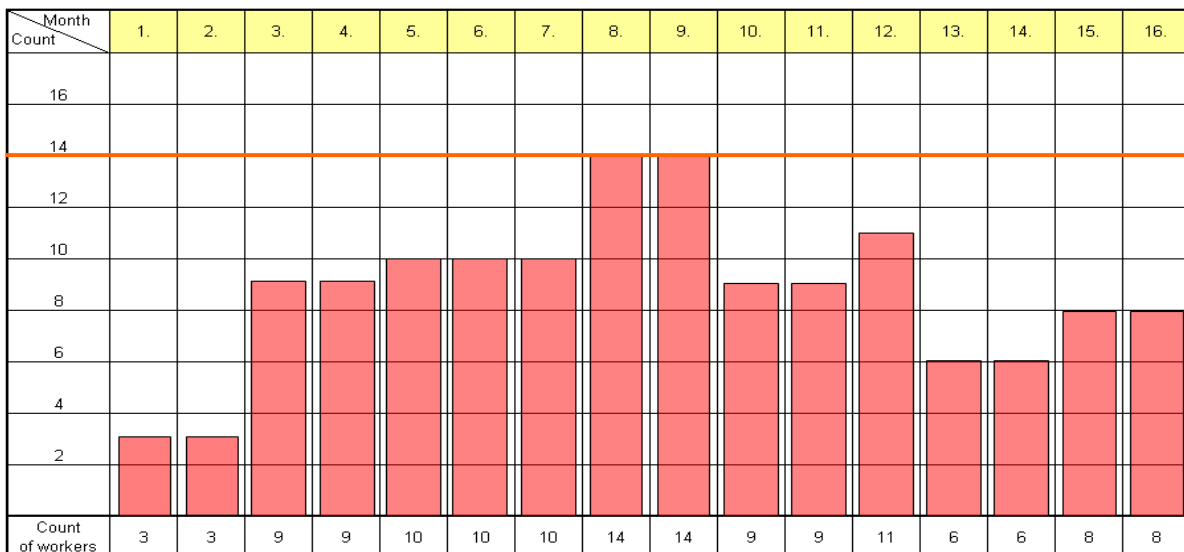
Activity B (lies on critical way) will shorten about 3 months.



Step 6 Table of activities duration

Activity	Previous activity (links)	Quantity on activity (costs in thousand €)	Productivity of labour on 1 worker in thousand €/per month	Count of workers on activity	Months
A	-	120	20	6/ 3	2
B	A	170	17	10/ 5	2
C	B	270	9	30/ 6	5
D	B fs +3	320	20	16/ 4	4
E	A	560	20	28/ 4	7
F	C, D	540	30	18/ 6	3
G	D fs -2, E	620	41	15/ 5	3
H	F, G	400	25	16/ 8	2

Step 7 Table of human resources planning



We fulfill day limit of workers max. 14 workers /per day

3. CONCLUSIONS

Manage and decision making in project realization is very hard process which is made by many professionals.

It is very important that this work is made by skilled persons, because process during project realization have to be monitor and with right interpretation. If the project manager observe this progress it will be ensure continuity of whole process within project manage and success of achievement scopes.

Invest labour to manage every project is in its success realization and in addition for area in which is project made.

REFERENCES

1. Němec, V., *Projektový management*, Grada Publishing, Praha, 2002;
2. STN ISO 10006, *Systémy manažérstva kvality. Návod na manažérstvo kvality v projektoch*, Slovenský ústav technickej normalizácie, Bratislava, 2004;
3. Všetěčka, P., Belan, L., *Projektový manažment I*, Liptovský Mikuláš, 2006;
4. SPS-3, *Súbor požadovaných schopností pre odborníkov na projektové riadenie (podľa ICBv3.0)*, Spoločnosť pre projektové riadenie, 1, vydanie, Bratislava, 2008.