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Monitoring of the Budget Execution

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Abstract

In the context of the methodology elaboration of the government control and audit of the project "Electronic Russia 2002-2010" there are introduced and discussed some results about monitoring of the IT-budget execution.

Diagr. 2, ref. 2.

Intoduction

July 5, 2001 the Government of Russian Federation has accepted the program "Electronic Russia 2002-2010" or e-Russia. It is considered that this project has priority value among all complex federal programs. The program "Electronic Russia" (e-Russia) includes three key units:

- development of education;
- development of business;
- providing people with access to the information.

The budget of "Electronic Russia" makes rather large sums considering conditions of Russia: 2.4 billion USD (at current rate USD/RUR) from which 200 million should be spent next year. Mainly, it is the government money: federal and local budgets should finance 81% of the cost of the project.

Acceptance of the federal program "Electronic Russia" is an important political step, though the document has caused criticism in press and among experts as an insufficiently concrete and a contradictory project. But, as long as the political decision was made, it should be executed. The task of the government audit is that IT-initiatives of authorities would not become a senseless expenditure of budgetary funds. There is not enough of the experience for implementing such scale IT-projects in Russia. A pledge of success of the project as a whole, in opinion of authors, is an effective government control and the audit of the project based on the high quality information about the project. Quality control of the information and related technology in Russia now approaches Information Systems Audit and Control Association (ISACA) standards, but there is accumulated not enough of experience to manage such scale IT-projects as "Electronic Russia".

The methodology of the government control and audit of the project "Electronic Russia" is expedient for testing within the framework of the pilot-project, for example, "Electronic Moscow" (e-Moscow). The similar idea is incorporated in the program "Electronic Russia", but is not formulated concretely. The situation becomes more complicated as the project and R&D are to be governed simultaneously under the methodology of control and audit of information and related technology. Direct copying of tricks and methods of operation of transnational companies specializing in IT-business, same as their direct management of the project as a general contractor is hardly possible. Discussion of this question is behind the frameworks of this paper. We shall consider that the project e-Russia evenly has a problem of optimization of financial resources.

Let us consider some aspects of optimization with reference to strategic management of information in the project, especially monitoring of the budget execution.

The Framework

Open standard COBIT, defining rules of governance, control and audit of information and related technology, represents the following management guidelines of the project. It is required to have the following units of the methodology:

Maturity Model permits to define the fact of completion of a stage of the project by the criteria that are appropriate to the specifications of this branch.

Critical Success Factors should be taken to notice at planning of controlling actions in process of IT-project.

Key Goal Indicators should be observed jointly to have an objective picture.

Such rules of governance allow working out true picture about real execution of the project, basing on duly, relevant and capacious information. The indicators defining development of the project in a strategic perspective and displaying a trajectory of the project on the long time intervals (for example, during 2002-2010, as in the e-Russia project) are especially important.

We shall concentrate attention on defining factors of success. We shall believe, that those are:

1) duly and sufficient financing of all project stages;

2) the obtainment of duly, relevant and capacious information at all stages of the project.

What are the main target indicators responding to these factors of success?

Answering to this question broadly, a metric of sustainable development of the project should be recognized as the most important indicator in strategic plan. There doesn't exist a universal metric of such type. But as the question is financing the federal program, it is logical to use macroeconomic indicators for the analysis of its fulfillment. This metric whenever it is possible should be visual and understandable to businessmen and authorities, but at the same time objective.

Intuitively it is clear, that a sustainable development is an absence of fluctuations. In practice, an absence of fluctuations is a guarantee of a project completion. It is known that overwhelming part of IT-projects is not being completed, but those projects that are completed become outdated morally and function unsatisfactorily. Normally, it occurs because of the errors while choosing the principles of strategic management at the initial stage of a project's life cycle.

Thus, an optimal allocation of financial assets among the major (strategic) expenses should become a main target indicator supplying a project manager with duly, relevant and capacious information. Such approach is well known in macroeconomics. It demands to define an optimal relation between two types of strategic expenses:

1) capital expenses on a project;

2) the investments in development, i.e. expenses on R&D in connection with the project.

Neglecting a role of any component of budgetary expenses of the project or defining a relation between them "approximately" results in negative consequences, and as a final - in crash of the project.

We shell consider some formal aspects of dynamic allocation of the project's budget between capital expenses on the project and the investments in development. Let's suppose that the investments in development are that part of financial assets from the project's budget, which is allocated on the project audit. In other words - on collection, processing and the analysis of the information about the execution of the budget and about correction on the basis of this analysis of project solutions. Such approach, basically, is not new. The attention that is paid to a role of the project audit and to its concrete share in the project's budget is new in Russia.

Solution

Before proceeding directly to the presentation of formalism of the model, we shall emphasize, that this model as any other models, is constructed on some assumptions. The assumptions that simplify the reality are an inadvertent evil. But it is important not to pass a border of allowable simplification of preconditions. The basic assumption of this paper is the following. We shall believe, that all budget of the project *Bt* is entirely spent on:

- the capital outlays on realization of the project, P_t ;

- the investments in R&D in connection with the project, in particular, on development of IT-audit, I_t;

- the expenses for management, G_t.

$$\begin{cases} B_t = P_t + I_t + G_0 \\ P_t = \gamma B_{t-1} & (0 < \gamma < 1) \\ I_t = \alpha (P_t - P_{t-1}) & (\alpha > 0) \end{cases}$$

Now, let us assume that the project budget B_t is made up of three component expenditure streams: the project itself, P_t; investment in development (especially in IT-audit), I_t; and the government expenditure, G_t. Project costs P_t is envisaged as a function not of current budgetary appropriations but of the assignment of the prior period, B_{t-1}. For simplicity, it is assumed that P_t is strictly proportional to B_{t-1}. Investment, which is of the "induced" variety, is a function of the prevailing trend of working capital P_t spending. It is through this induced investment, of course, that the acceleration principle enters into budgeting model. Specifically, we shall assume I_t to bear a fixed ratio to the project as such consumption increment $DP_{t-1} = P_t - P_{t-1}$. The third component G_t, on the other hand, is taken to be exogenous; in fact, we shall assume it to be constant and simply denote it by G_0. These assumptions can be translated into the following set of equations [1] :

$$I_t = \alpha(\gamma P_{t-1} - \gamma P_{t-2}) = \alpha\gamma(P_{t-1} - P_{t-2})$$

where g represents the project marginal propensity to consume, and a stands for the acceleration coefficient (accelerator). If the induced investment is expunged from the model, we are left with a first-order difference equation which embodies the dynamic multiplier process. With induced investment included, however, we have a second-order difference equation that depict the interaction of the multiplier and the accelerator.

By virtue of the second equation, we can express I_t in terms of budgeting as follows:

Upon substitution this and the C_t equation into the first equation and rearranging, the model can be condensed into the single equation

$$B_t - \gamma(1+\alpha)B_{t-1} + \alpha\gamma B_{t-2} = G_0$$

or, equivalently (after the subscripts forward by two periods),

$$B_{t+2} - \gamma(1+\alpha)B_{t+1} + \alpha\gamma B_t = G_0$$

Because this is a second-order linear difference equation with constant coefficients and constant term, it can be solved by the method just learned.

A simple variety of second-order difference equations takes the form

$$y_{t+2} + a_1 y_{t+1} + a_2 y_t = c$$

It is clear that this equation is linear, nonhomogeneous, and with constant coefficients *(a_1, a_2)* and constant term *c*. The solution of this equation may be expected to have two components: a particular integral y_p representing the intertemporal equilibrium level of *y*, and a complementary function y_c specifying, for every time period, the deviation from the equilibrium. The particular integral, defined as any solution of the complete equation, can sometimes be found simply by trying a solution of the form $y_t=k$. Substituting this constant value of *y* into equation, we obtain

$$k + a_1 k + a_2 k = c \qquad and \qquad k = \frac{c}{1 + a_1 + a_2}$$

Thus, so long as *(1+a1+a2)¹0*, the particular integral is

$$y_p (= k) = \frac{c}{1 + a_1 + a_2} \qquad (case\ of\ a_1 + a_2 \neq -1)$$

As a particular integral, we have

$$B_p = \frac{G_0}{1 - \gamma(1+\alpha) + \alpha\gamma} = \frac{G_0}{1-\gamma}$$

It may be noted that the expression *1/(1-g)* is merely the multiplier that would prevail in the absence of induced investment. Thus $G_0/(1-g)$ - the exogenous expenditure item times the multiplier - should give us the equilibrium budget in the sense that this budget level satisfies the equilibrium condition *“current budget = total expenditure”*. Being the particular integral of the model, however, it also gives us the intertemporal equilibrium budget.

To find the complementary function, we must concentrate on the reduced equation

$$y_{t+2} + a_1 y_{t+1} + a_2 y_t = 0$$

It is well known that the expression Ab^t plays a prominent role in the general solution of such an equation. Let us therefore try a solution of the form $y_t=Ab^t$, which implies that $y_{t+1}=Ab^{t+1}$, and so on. It is our task now to determine the values of *A* and *b*.

Upon substitution of the trial solution into the latest expression, the equation becomes

$$Ab^{t-2} + a_1 Ab^{t+1} = 0$$

or, after canceling the (nonzero) common factor Ab^t,

$$b^2 + a_1 b + a_2 = 0$$

This quadratic equation - characteristic equation of second-order difference equation type - possesses two characteristic roots

$$b_1, b_2 = \frac{-a_1 \pm \sqrt{a_1^2 - 4a_2}}{2}$$

Each of them is acceptable in the solution Ab^t. In fact, both b_1 and b_2 should appear in the general solution of the homogenous difference solution must consist of two linearly independent parts, each with its own multiplicative arbitrary constant.

Three possible situations may be encountered in regard to the characteristic roots, depending on the square-root expression.

Case 1 (distinct real roots) When $a_1^2>4a_2$, the square root in characteristic equation is a real number, and b_1 and b_2 are real and distinct. In that event, b^t_1 and b^t_2 are linearly independent, and the complementary function can simply be written as a linear combination of these expressions; that is,

$$y_c = A_1 b_1^t + A_2 b_2^t$$

Case 2 (repeated real roots) When $a_1^2>4a_2$, the square root in characteristic equation vanishes, and the characteristic roots are repeated:

$$b(= b_1 = b_2) = -\frac{a_1}{2}$$

Now, if we express the complementary function as above, the two components will collapse into a single term:

$$A_1 b_1^t + A_2 b_2^t = (A_1 + A_2) b^t \equiv A_3 b^t$$

This will not do, because we are now short of one constant.

To supply the missing component, which should be linearly independent from the term A_3b^t - an old trick of multiplying b^t *by* the variable t will work out again. The new component term is therefore to take the form A_4tb^t should be obvious, for we can never obtain the expression A_4tb^t by attaching a constant coefficient to A_3b^t. This A_4tb^t is indeed a quality solution of the initial homogeneous equation, just as A_3b^t does, can easily be verified by substituting $y_t=A_4tb^t$ (and $y_{t+1}=A_4tb^{t+1}$, etc.) into starting equation and seeing that the latter will reduce to an identity $0=0$.

The complementary function for the repeated-root case is therefore

$$y_c = A_3 b^t + A_4 t b^t$$

Case 3 (complex roots) Under the remaining possibility of $a_1^2<4a_2$, the characteristic roots are conjugate complex. Specifically, they will be the form

$$b_1, b_2 = h \pm vi$$

where

$$h = -\frac{a_1}{2} \quad and \quad v = \frac{\sqrt{4a_2 - a_1^2}}{2}$$

The complementary function itself thus becomes

$$y_c = A_1 b_1^t + A_2 b_2^t = A_1(h+vi)^t + A_2(h-vi)^t$$

As it stands, y_c is not easily interpreted. But, thanks to de Moivre’s theorem, this complementary function can easily be transformed into trigonometric terms.

According to the said theorem, we can write

$$(h \pm vi)^t = R^t(\cos \theta t \pm i \sin \theta t)$$

where the value of R (always taken to be positive) is owing to $R^2=h^2+v^2$

$$R = \sqrt{h^2 + v^2} = \sqrt{\frac{a_1^2 + 4a_2 - a_1^2}{4}} = \sqrt{a_2}$$

and q is the radian measure of the angle in the interval *[0,2p]*, which satisfies the conditions

$$\cos \theta = \frac{h}{R} = -\frac{a_1}{2\sqrt{a_2}} \qquad and \qquad \sin \theta = \frac{v}{R} = \sqrt{1 - \frac{a_1^2}{4a_2}}$$

Therefore, the complementary function can be transformed as follows:

$$\begin{aligned} y_c &= A_1R^t(\cos \theta t + i \sin \theta t) + A_2R^t(\cos \theta t - i \sin \theta t) \\ &= R^t[(A_1 + A_2)\cos \theta t + (A_1 - A_2)i \sin \theta t] \\ &= R^t(A_5 \cos \theta t + A_6 \sin \theta t) \end{aligned}$$

Where we have adopted the shorthand symbols

$A_5{}^oA_1+A_2$ *and* $A_6{}^o(A_1-A_2)i$

The later complementary function has an important quality. We have switched from the Cartesian coordinates (*h* and *v*) of the complex roots to their polar coordinates (*R* and *q*). The values of *R* and *q* can be determined once *h* and *v* become known. It is also possible to calculate *R* and *q* directly from parameter values a_1 and a_2. Out of this we make certain that $a_1^2<4a^2$ and that the roots are indeed complex.

Thus, with regards to the complementary function, there are three possible cases.

This tripartite classification, with its graphical representation in Fig.1, is of interest because it reveals clearly the conditions under which cyclical fluctuations can emerge endogenously from the interaction of the multiplier and the accelerator. But this tells nothing about the convergence or divergence of the time path of B. It remains, therefore, for us to distinguish, under each case, between the damped and explosive subcases. We could , of course, take the easy way out by practical illustrating such subcases by citing specific numerical examples (see below, in diagram Fig.2). But let us attempt the more rewarding, if also more arduous, task of delineating the general conditions under which convergence and divergence will prevail.

Our second-order difference equation in the form has the characteristic equation

$$B_{t+2} - \gamma(1+\alpha)B_{t+1} + \alpha\gamma B_t = G_0$$

Case 1 ($a_1^2>4a^2$), in the present context, is characterized by

$$\gamma^2(1+\alpha)^2 > 4\alpha\gamma \quad or \quad \gamma(1+\alpha)^2 > 4\alpha \quad or \quad \gamma > \frac{4\alpha}{(1+\alpha)^2}$$

Similarly, to characterize Cases 2 and 3, we only need to change the > sign in the last inequality to = and <, respectively. In diagram Fig.1, we have drawn the graph of the equation $g=4a/(1+a)^2$. According to the above discussion, the (*a,g*) pairs that are located exactly ***on*** this curve pertain to Case 2. On the other hand, the (*a,g*) pairs lying ***above*** this curve (involving higher g values) have to do with Case 1, and those lying ***below*** the curve with Case 3.

This tripartite classification, which its graphical representation in diagram (Fig.1), is out of interest because it reveals clearly the conditions under which cyclical fluctuations can emerge endogenously from the interaction of the multiplier and the accelerator. But this tells nothing about the convergence or divergence of the time path of *B*. Therefore in each case we should distinguish the damped and the explosive subcases. We could take an easy way out practically illustrating such subcases by citing specific numerical examples (see below in Fig.2). But let us attempt more rewarding task of delineating the general conditions under which convergence and divergence will prevail.

The difference equation in form

$$B_{t+2} - \gamma(1+\alpha)B_{t+1} + \alpha\gamma B_t = G_0$$

has the characteristic equation

$$b^2 - \gamma(1+\alpha)b + \alpha\gamma = 0$$

which yields the two roots

$$b_1, b_2 = \frac{\gamma(1+\alpha) \pm \sqrt{\gamma^2(1+\alpha)^2 - 4\alpha\gamma}}{2}$$

Since the question of convergence versus divergence depends on the values of b_1 and b_2, and since b_1 and b_2 in their turn depend on the values of the parameters *a* and *g*, the conditions for convergence and divergence should be expressible in terms of the values of *a* and *g*. To do this, we can make use of the fact that two characteristic roots are always related to each other by the following two equations:

$$b_1 + b_2 = \gamma(1+\alpha)$$
$$b_1 b_2 \quad = \alpha\gamma$$

On the basis of these two equations, we may observe that

$$(1-b_1)(1-b_2) = 1-(b_1+b_2)+b_1b_2$$
$$= 1-\gamma(1+\alpha)+\alpha\gamma = 1-\gamma$$

In view of the model specification where $0<g<1$, it is necessary to execute the following condition:

$$0 < (1-b_1)(1-b_2) < 1$$

Let us now examine the question of convergence under Case1, where the roots are real and distinct. Since, by assumption, *a* and *g* are both positive, $b_1b_2>0$, which implies that b_1 and b_2 possess the same algebraic sign. Furthermore, since $g(1+a)>0$, both b1 and b2 must be positive. Hence, the time path B_t cannot have oscillations in Case 1.

Even through the signs of b_1 and $b_{2,}$ which are already known, there actually exist under Case 1 as many as five possible combination values of (b_1,b_2), each of them_corresponds to the combination values of *a* and *g*:

$$(i) \quad 0 < b_2 < b_1 < 1 \Rightarrow 0 < \gamma; \alpha\gamma < 1$$
$$(ii) \quad 0 < b_2 < b_1 = 1 \Rightarrow \gamma = 1$$
$$(iii) \quad 0 < b_2 < 1 < b_1 \Rightarrow \gamma > 1$$
$$(iv) \quad 1 = b_2 < b_1 \quad \Rightarrow \gamma = 1$$
$$(v) \quad 1 < b_2 < b_1 \quad \Rightarrow 0 < \gamma < 1; \alpha\gamma > 1$$

Possibility *i*, where both b_1 and b_2 are positive fractions, duly satisfies condition (see above) and hence conforms to the model specification $0<g<1$. The product of the two roots must also be a positive fraction under this possibility, and this implies that $ag<1$. In contrast, the next three possibilities all violate the last condition and result in inadmissible *g* values. Hence they must be ruled out. But possibility *v* is again acceptable. With both b_1 and b_2 greater than one, condition is again satisfied, although this time we have $ag<1$ (rather than <1) from condition $b_1b_2=ag$. The result is that there are only two admissible subcases under Case 1. The first - possibility *i* - involves fractional roots b_1 and b_2, and therefore yields a convergent time path of *B*. The other subcase - possibility *v* - features roots greater than one, and thus produces a divergent time path. As far as the values of *a* and *g* are concerned, however, the question of convergence and divergence only hinges on whether $ag<1$ or $ag>1$. This information is summarized in the top part of Table 1, where the convergent subcase is labeled ***1C***, and the divergent subcase ***1D***.

Table 1. Cases and subcases of the budget model

Case	Roots	Subcase	Values of a and g	Time path B_t
1	Distinct real roots	***1C***: 0<b2<b1<1	ag<1	Nonoscillatory and nonfluctuating
	g>4a/(1+a)^2	***1D***: 1<b2<b1	ag>1	
2	Repeated real roots	***2C***: 0<b<1	ag<1	Nonoscillatory and nonfluctuating
	g=4a/(1+a)^2	***2D***: b>1	ag>1	
3	Complex roots	***3C***: R<1	ag<1	With stepped fluctuation
	g<4a/(1+a)^2	***3D***: R³1	ag³1	

In Case 2 with repeated roots, the roots are $b=g(1+a)/2$, with a positive sign because *a* and *g* positive. Thus, there is again no oscillation. This time we may classify the value of *b* into three possibilities only:

$$(vi) \quad 0 < b < 1 \quad \Rightarrow \quad \gamma < 1; \alpha\gamma < 1$$
$$(vii) \quad b = 1 \quad \Rightarrow \quad \gamma = 1$$
$$(viii) \quad b > 1 \quad \Rightarrow \quad \gamma < 1; \alpha\gamma > 1$$

Under possibility *vi*, $b(=b_1=b_2)$ is positive fraction, thus the implications regarding *a* and *g* entirely identical with those of possibility *i* under Case 1. In an analogous manner, possibilities *viii*, with $b(-b_1=b_2)$ greater than one, yields the same results as possibility *v*. On the other hand, possibilities *viii* violates the condition for (b_1,b_2) and must be ruled out. Thus there are again only two admissible subcases. The first - possibility *vi* - yields a convergent time path, whereas the other - possibility viii - gives a divergent one. In terms of *a* and *g*, the convergent and divergent subcases are again associated, respectively, with *ag<1* and *ag>1*. These result are listed in the middle part of Table 1, where two subcases are labeled ***2C*** (convergent) and ***2D*** (divergent).

Finally, in Case 3, with complex roots, we have stepped fluctuation, and hence endogenous business cycles. In this case, we should look to absolute value $R=(a_1)^{1/2}$ for the clue to convergence and divergence, where a_2 is coefficient of the y_t term in the starting difference equation. In the present model we have $R=(ag)^{1/2}$, which gives rise to the following three possibilities:

(*ix*)	$R<1$	$\Rightarrow$	$\alpha\gamma<1$
(*x*)	$R=1$	$\Rightarrow$	$\alpha\gamma=1$
(*xi*)	$R>1$	$\Rightarrow$	$\alpha\gamma>1$

Only the possibility R<1 entails a convergent time path and qualities as subcase ***3C*** in Table 1. The other two are thus collectively labeled as subcase ***3D***.

In sum, we may conclude from Table 1 that a convergent time path can be obtained if and only if *ag<1*.

The above analysis has resulted in a somewhat complex classification of cases and subcases. It would help to have a visual representation of the classificatory scheme. This is supplied in Fig.1.

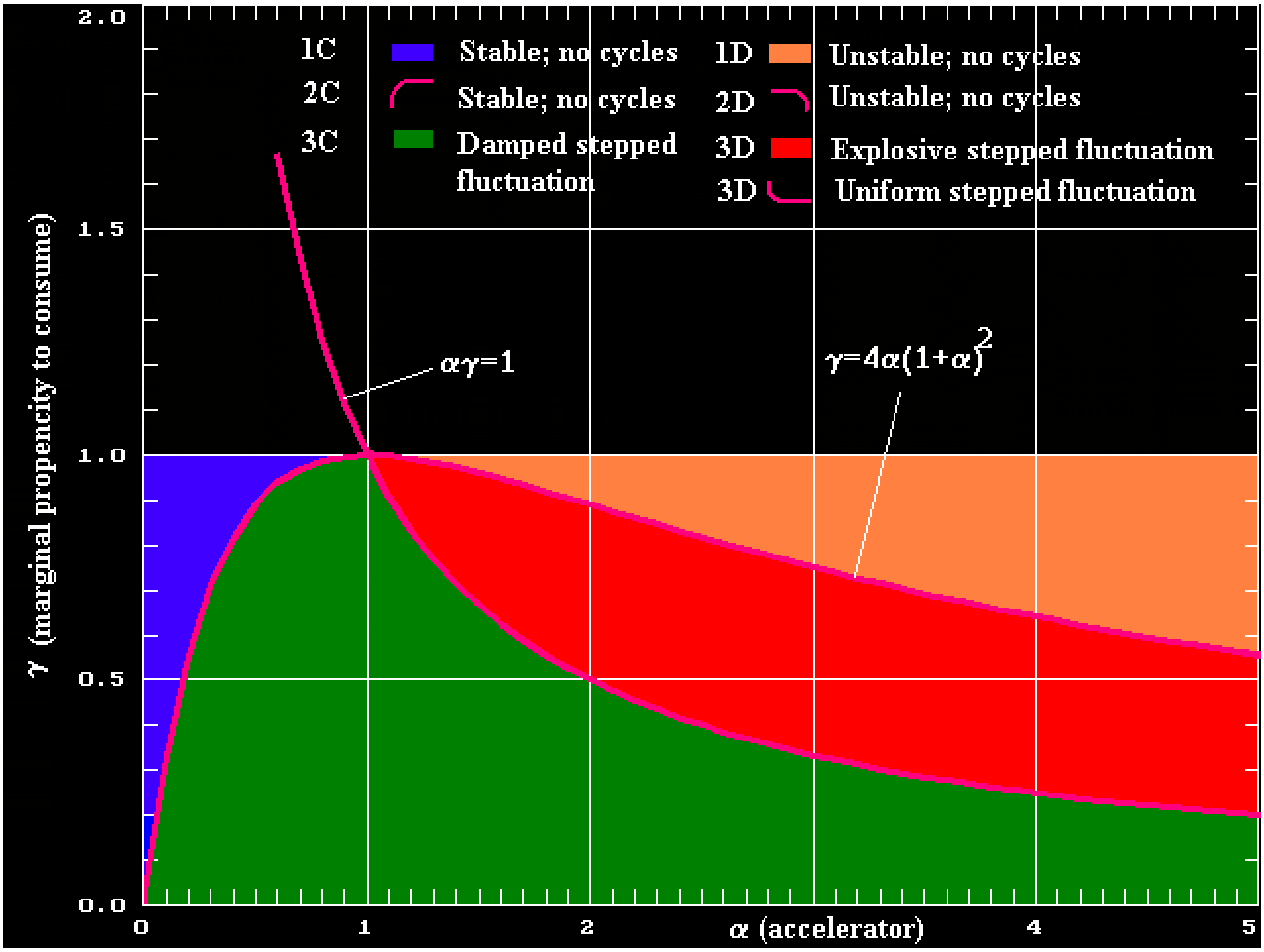

Fig.1. The budget monitoring diagram.

The set of all admissible (*a*,*g*) pairs in the model is shown in the variously shaded rectangular area. Since the values of $g=0$ and g=1 are excluded as the value $a=0$, the shaded area is a sort of rectangle without the sides. We have already graphed the equation the $g=4a/(1+a)^2$ to mark off three major cases of Table 1. The points of that curve pertain to Case 2; the point lying to the north of curve (representing higher g values) belong to Case 1; those lying to the south (with lower g values) are of Case 3. To distinguish between the convergent and divergent subcases, we now add the graph of $ag=1$ (a rectangular hyperbola) as another demarcation line. The points lying to the north of this rectangular hyperbola satisfy the inequality $ag>1$, whereas those located below it correspond to $ag<1$. It is then possible to mark off the subcases easily. Under Case 1, the broken-line shaded region, being below the hyperbola, corresponds to subcase ***1C***, but the solid-line shaded region is associated with subcase ***1D***. Under Case 2, with relates to the points lying on the curve $g=4a/(1+a)^2$, subcase ***2C*** covers the upward-sloping portion of that curve, and subcase ***2D***, the downward-sloping portion. Finally, for Case 3, the rectangular hyperbola serves to separate the discolor-shaded region (subcase ***3C***) from the bright-shaded region (subcase ***2D***). The later also includes the point located ***on*** the rectangular hyperbola itself, because of the ***weak inequality*** in the specification $ag^{3}1$.

Since Fig.1 is the repository of all the qualitative conclusions of the budget model, given any ordered pair (*a*,*g*), we can always find the correct subcase graphically by plotting the ordered pair in the diagram.

As an example we shall consider the accounts of the Russian Federation of the year 1998. Those days default has taken place in the course of execution of the budget. On the diagram Fig.2 we see a trajectory of the budget–98 day by day in coordinates of accelerator-multiplier. Default point corresponds to the position of the pair (a,g) on the line 3D. Fig.2 illustrates an undesirable type of the development of the budgetary process, caused by an incorrect strategic management.

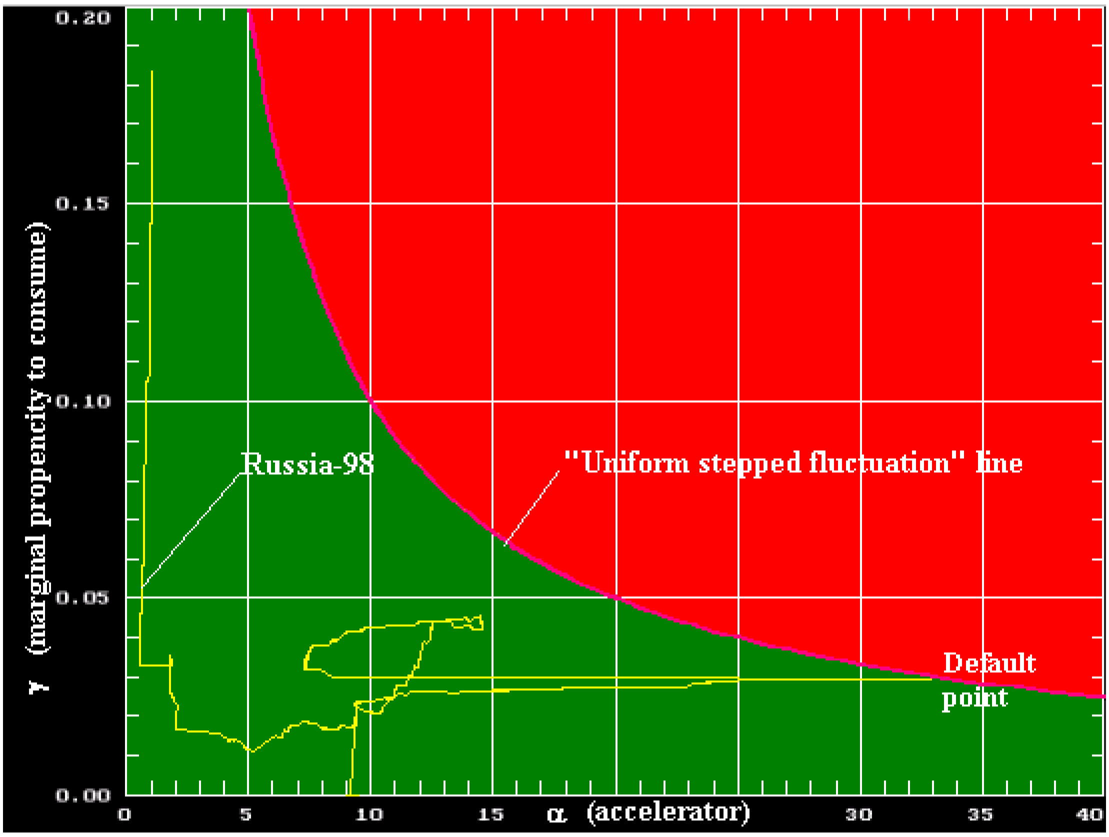

Fig.2. An example of the monitoring of the Budget Execution.

Conclusion

Thus, on the basis of the assumptions and according to the open standard COBIT, defining rules of governance, control and audit for information and related technology, a certain principle of monitoring of the budgetary expenses, providing a stable trajectory of a project development is formulated.

We shall underline difference between the results of monitoring and a statistical analysis. Statistics on its definition eliminates the factor of time. The statistical data are given as the total of some accounting period (month, quarter, year). Monitoring is not a total as it fixes changes in time with a discretization of the data arrival (day, week, month, year). Due to this specification in the formal device of monitoring there is a derivative - as a speed of change of an objective data, calculated between adjacent instants t and t+1. As consequence, the differential equation and its qualitative analysis with usage of radicals of the secular equation make an ideological essence of monitoring. It shouldn’t be said that monitoring or statistics is better or worse than one another. They are two complementary resources of comprehension of economic reality. However, it is important to realize that statistics is unsuitable for the tasks of project audit, but monitoring is irreplaceable.

This unusual output demands not prejudiced attitude. In reality, the statistics allows to say something about the processes only when they are already completed, i.e., underline an analogy with medicine, we could say, that statistics fulfils the same functions, as necropsy. Monitoring deals with such values which are, as a matter of fact, derivative (gradients) and gives the results in a context of tendencies of changes of a macroeconomic state of an IT-project. Therefore, there is a possibility of navigating in the space of macroeconomics, i.e. the arrangements in order not to allow a representing point to drift in such zones on the diagram to which the undesirable scripts of development of macroeconomic situation correspond. Simpler, a project manager watching a trajectory of a point, representing the project development during its life cycle should react to tendency of the point to leave the area ***3C*** to force a point to return back to this zone of steady development. Let the trajectory of the point develop in a direction to zone ***1C***. It means, that there is a dangerous tendency to stagnation and to degeneration of the financial and economic mechanism of the IT-project. If the trajectory of the point develops in a direction to the area ***3D,*** then it is possible to expect shocks such as that characterize crash of financial "bubbles". The "normal" trajectory of the project development will always balance between extreme measures: hyper-stability and explosive instability. The instability of development is objective. It is obliged to be so, as without it there are no impulses to development, but this instability should be controlled on every step. This is the basic principle to which the modern vision about the development of projects corresponds in the field of economy, public processes, and ecology - sustainable development.

The reason that the classical model is attracted here for modeling the budget dynamic is that there is a necessity of introduction of the project audit in a mode of monitoring into a problem.

Also, it is necessary to say, that apparently a harmonious and completed theory of project audit does not exist for today. This paper is only a small step to the experimental method estimation of the current state of the IT-project considering operative financial data.

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