

Enterprise Annual Plan and Its' Software Support

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Abstrakt

Tento příspěvek se zabývá procesem tvorby ročního plánu v podniku, s důrazem na možnosti jeho podpory softwarovými nástroji. Předmětem zájmu je roční plán v podniku realizujícím sériovou výrobu. V příspěvku jsou rozebrány klíčové součásti ročního plánu, jejich vzájemné vazby i specifické možnosti, které nabízí softwarová podpora. Pozornost je věnována také technicko-finanční integraci, což je jeden ze stěžejních rysů ročního plánování.

Key words

Annual plan, integration, software systems, management information systems

1. Introduction

Annual plan has a fundamental position amongst other plans within enterprise planning system. It is a fundamental document which integrates plans of all key areas of business for a year period. Annual plan is related to strategic plan and sets yearly goals, which should, to a large extent, correspond with long-term strategy for several upcoming years. During the period annual plan is created for, it should be evaluated periodically and, in case of significant deviations, an effort should be put to find causes of such deviations of actual values from planned ones. Furthermore, corresponding actions should be taken. Also, it may be necessary to update the annual plan in case of significant changes in conditions it was based upon (for example, prices of input materials, changes in wages caused by labor union negotiations and so on).

Annual plan, in contrast to multiannual plan, contains relatively detailed plans for all key areas of the enterprise. On one hand, this gives us a relatively very detailed picture of where should the enterprise be going in the planned period, what are its' goals and what tasks it must face. However, on the other hand, creating such document can be quite work-intensive.

Creation of the annual plan is, in many enterprises, a multi-stage process which often takes several months to complete (companies often start planning for the upcoming year as early as August or September), employing many key specialists of the enterprise. Such high laboriousness leads in many cases to a situation when the plan isn't regularly reviewed and updated, except for cases when it's absolutely necessary and there is no other way. In such case, the annual plan loses a great portion of its' value, because real achieved results are compared to a plan which was based upon significantly different conditions and periodical evaluation is to a great extent pointless.

Actual form of annual plan, its' creation and, of course, importance of individual "components" of the plan, depend on what kind of enterprise is the plan being created for. Therefore, I feel it's important to define now, that, in the upcoming text, I am going to focus on annual plan in *production* enterprise, which *produces and sells its' own products* and the production can be described as *serial*. These features have impact on several other aspects, vide infra.

As I mentioned before, an important aspect of an annual plan is especially integration of substantive and financial aspects of processes and activities. If we start from Kleinbeckel scheme of integration and planning, we can depict integration of substantive and financial plans in the following figure:

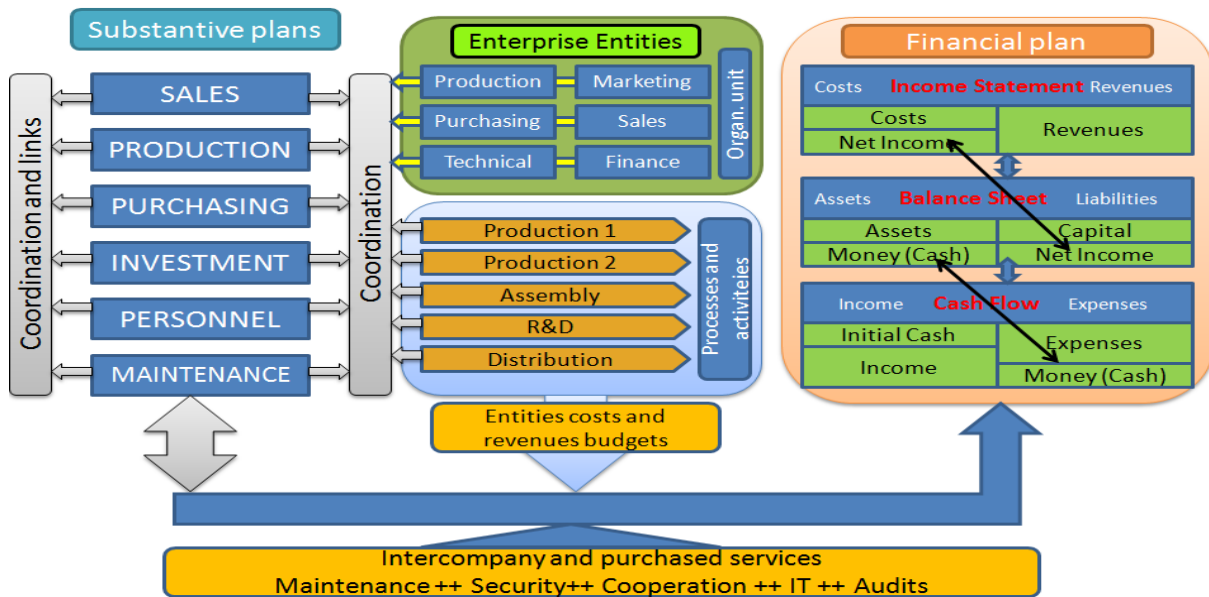


Figure 1: Integration of Financial and Substantive Plans

As the figure above shows, there are fundamental relations not only between *substantive* and *financial* plans, but also within each of these “categories”. Especially substantive plans are very strongly related – sales plan greatly influences production plan, production plan influences purchasing plan etc. Such key relations between plans will be discussed further.

If we simplify the figure above even more, especially in the context of areas where software tools can be of great help with plan creation, we can use the following figure:

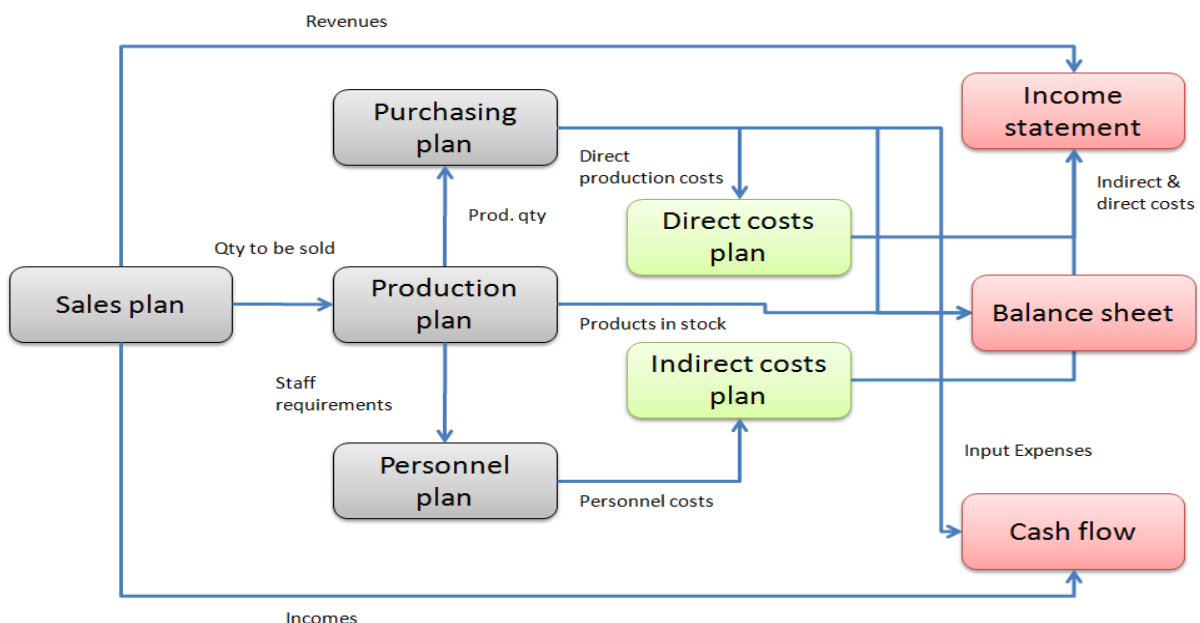


Figure 2: Key links and elements of the planning process

Illustrated key links between plans will be further discussed in the text to follow, from both points of view the *substantive* and also *financial*, emphasizing the role of software support for planning. The figure shown above is not comprehensive, of course, and we could undoubtedly find some more plans to include. The goal, however, is not to create comprehensive figure, but to illustrate the main links between substantive and financial plans and also, illustrate the role of software tools in supporting the planning process. More detailed analysis is topic of the next chapter.

2. Key parts of annual plan

In this part, I will focus on key components of annual plan of abovementioned enterprise type (serial production, produces and sells its' own products). I will also discuss some of the typical situations when sophisticated software tools can provide great benefits.

2.1 Sales plan

Sales plan is in many cases of enterprise types defined above an “entry point”. It sets the goals in the area of sales based on expected demand after products that the enterprise produces and sells. The sales plan specifies which products should be sold to which customers and under which conditions (prices, discounts, bonuses...) in the planned period. In case case of extensive product and customer portfolio, creating a high-quality sales plan can be quite time consuming and work-intensive activity.

In serial production, where we can consider the product portfolio to be steady (to some extent), software tools for planning support, for example MIS (Management Information Systems) can help quickly and easily create an “initial version” of annual plan using for example actual data of past period. Such “initial data” are the then further modified.

An interesting feature can also be a capability to plan either “from quantity”, where you set goals in the form of quantity of product sold to individual customers (and then, calculating through product prices, we get planned revenues), or “from revenues”, where the goal is set in the form of revenues and then, through calculation with price, we get goals in the form of planned quantities sold to individual customers.

Apart from simple quantity and prices planning, a great attention is being paid to items decreasing real revenues, discounts and especially bonuses. Such bonuses usually come in the form of delivering some percentage of achieved customer turnover “free” in the upcoming period.

Such bonuses can become a real “trap” for many enterprises, if not planned transparently enough. The situation can be that high revenues in one period (year) result in serious problems in the period (year) to follow, where customer starts “collecting” his bonuses. Sophisticated software support should offer an option (feature) to discover this “hidden menace” early enough and calculate “real selling price”, including such additional customer costs in the form of bonuses.

Software support should also fundamentally simplify the creation of variant plans and scenarios – modeling for example influence of season sales or legislative changes (consumption tax rates...).

In *substantive* part, the sales plan has an essential relation to production plan, because the production plan has to be made in order to “cover” the needs of sales, in other words to produce enough products to satisfy customers. In *financial* part, sales plan is related mainly to

planned income statement, to be specific, to its' revenues part (revenues from own products), furthermore, it's linked to cash-flow, where, transformed through term of customer debts, we can plan incomes using the plan of revenues.

2.2 Production plan

Production plan is strongly related to sales plan. One of the reasons is that currently, very few enterprises can afford to "produce into stock", and therefore, the production needs to be planned according to sales plan during the planned period. Especially in the case of products with strong "seasonality", creating a quality production plan can be quite a difficult task, where, on one hand, it needs to provide enough products to cover sales needs, but on the other hand, the production needs to be planned in order not to consume too much of capital in the form of products in stock.

Production plan is in the *substantive* part strongly linked to sales plan. It takes planned sales volumes and, considering facts mentioned in the previous paragraph, it further describes production goals in the planned period (also considering product production times, safety stock etc.). Furthermore, production plan is substantively linked with purchasing plan (see further), for which it provides the data describing what amount of which products will be produced during the planned period. Last, but not least, production plan is also linked to personnel plan in the context of personal provision of production capacities.

From the *financial* point of view, the production plan has significant link to planned income statement, either from revenue side (changes in inventory of finished and unfinished products), or costs side (material consumption...). Furthermore, it is of course linked to balance sheet (stock items).

Considering the possibilities of software tools utilization, it's evident that software tools can serve to create various models and solving task in the area of production distribution optimization, mainly in the aspects of stock levels, production capacity needed etc. To achieve the maximum possible simplification of production plan creation, it's great if the planning tools is linked to product technological data base, to immediately reflect any change to products that would change (shorten, lengthen) production time.

2.3 Purchasing plan

This partial plan results, as mentioned above, from production plan. Based on planned production volumes, it's necessary to plan purchases of material (and eventually product subcomponents produced in cooperation) in order to meet the production requirements and to not have any production stops caused by lack of inputs, but on the other hand, it's also necessary to keep the stock levels low enough to not put much unnecessary capital into purchased input materials, so that such capital can be used elsewhere..

As I already mentioned, from *substantive* integration point of view, the purchasing plan is strongly related to production plan. Production volumes data are supplied into purchasing plan, where, with the help of bills of materials and product databases, input materials quantity is being calculated to provide enough inputs for production.

From *financial* integration point of view, there is significant relation mainly to planned income statement, concretely on its' cost part (costs of material acquisition), also relation to planned balance sheet (material in stock, semi-finished goods...) and last but not least, also

cash-flow, concretely its' expenses part (after transforming costs into planned expenses using terms of debts to our suppliers).

Role of software support is in this case quite evident from previous paragraphs. Sophisticated software planning tools enable users to do seamless transformation of production requirements into purchasing requirements thanks to utilization of technological standards and bills of materials. In case of product changes (and thus, changes to standards and bills of materials) can a sophisticated software planning support enable users to quickly project such changes into updated version of purchasing requirements plan.

Some very sophisticated tools, reaching partially to the area of expert system, can further develop purchasing planning in the form of solving complex tasks of deliveries structure optimization. Such tools are (for example) able to answer a question if it's better (considering price, risk of failed delivery, necessary amount in stock, capital in stock items and so on) to order purchased inputs (for example) in the form of more often and smaller batches with shorter delivery time from European supplier, or if it's better to order them from cheaper Asian supplier, where the downside is larger "batches" and longer delivery times, which can be problematic in case of some unexpected temporary higher requirements.

Last but not least, purchasing plan software support tool should also enable users to perform continuous supplier reliability evaluation, which also enables better estimation of failed delivery risk, which is so important these days, in the times of just-in-time policy.

2.4 Personnel plan

All areas of the enterprise, especially production in the case of production enterprise, need to have provided adequate staffing, so that required production capacity is available. Personnel plan of (not only) production processes is in substantive relation mainly to production plan, which results into required production capacities in order to reach required production volumes.

The necessity of providing a precise plan of personnel staffing of production becomes crucial especially when the production is significantly "seasonally influenced". It may then be necessary to balance the number of employees and term workers. This is one of the areas where sophisticated software support can be of great help, because users can simulate and evaluate not only capacity, but also financial and flexibility aspect of planned "staffing solution".

As stated before, personnel plan is *substantively* integrated (mainly, but not only) with production plan, *financially*, it is integrated mainly with planned costs and expenses related to employees. Therefore, personnel plan also influences planned economic results, concretely its' costs part.

2.5 Direct costs plan

All plans stated before were first of all of "substantive" character, although they undoubtedly had their financial aspects. On the contrary, direct costs plan is primarily financial. It is based mainly on purchasing plan, where prices of purchased inputs are used to calculate costs of acquisition of such inputs (financial part). Such financial expression is then transferred to direct costs plan.

Good software support should preferably provide seamless reflection of changes in the precedent step (i.e. purchasing plan), no matter if it's input quantity or input price change.

2.6 Indirect costs plan

Aside from direct costs, which are planned mainly based on production and purchasing plan, there is quite a large amount of indirect costs in every enterprise. These aren't derived from technological standards, as it can be done for direct costs, but are quite typically planned based on data of previous period, if they are expected to have similar trends (with some % of rise, of course).

Indirect costs plan can be integrated for example with personnel plan, because direct wages are used less and less often these days. It can also be integrated with investments plan (if created separately) in the form of depreciation.

Software support can mainly provide faster creation of "initial version" of plan for the upcoming period using data of last period. Such initial data can then be adjusted (raised, lowered or new items can be added).

2.7 Plan statements

The apex of the whole planning process can be creating of planned values of financial statements, specifically balance sheet, income statement and cash-flow statement. These plan statements take financial values from previous steps of planning process. The role of software support is mainly providing immediate and seamless reflection of all changes in the preceding steps into plan statements.

2.7.1 Plan balance sheet

Plan balance sheet has, in the context of preceding planning steps, integration links to sales plan (claims, after that also money on bank accounts), production plan (stock inventory of finished and unfinished products), purchasing plan (material in stock) in the part of assets. In the part of liabilities, plan balance sheet is integrated mainly with purchasing plan in the form of debts towards suppliers and with personnel plan in the form of debts towards employees. Also, plan balance sheet is linked with plan income statement through net income.

2.7.2 Plan income statement

Income statement is a balance of costs and revenues, where difference between revenues and costs gives us the net income. In costs part, it's integrated mainly with purchasing plan, personnel plan and indirect costs plan. In the revenues part, plan income statement is integrated mainly with sales plan (revenues from own products), but also with production plan (changes in inventory of finished and unfinished products).

2.7.3 Plan cash-flow

While income statement is a balance of costs and revenues, cash-flow statement is balance of income and expenses. In the context of integration to preceding planning steps, it can be seen as very similar to income statement (to some extent), with the exception of time shift arising from terms of expiration of either claims of customers (transformation of revenues into incomes) or debts towards suppliers (transformation of costs into expenses). In the case of negative difference between incomes and expenses, credit financing plan can be the next step, to provide sufficient additional cash to cover temporary negative cash-flow situation.

3. Real Life Example – Brief Description of Planning Process in Management Information System

Business Navigaton System (BNS) developed and implemented by the company of Inekon Systems s.r.o. is one of the products that can be referred to as software tools for planning support. It includes many features to support either plan creation or its' continuous evaluation. It utilizes OLAP (On Line Analytical Processing) database technology, where data is stored in so called "multidimensional data cubes" enabling the users to create various "views" of data and also enabling more sophisticated data processing than it's possible when using just "normal" tools such as MS Excel, which is still main planning tool in many enterprises.

The "entry point" of planning process in BNS is the sales plan, where sales volumes for upcoming period are planned, typically for customers, distribution channels and products. In the case of serial production with steady product and customer portfolio, it's possible to use past values to create approximation of future sales, using either simple "transfer and adjust", or more sophisticated tools such as past data trends extrapolation.

Next step is usually production plan, where planned sales volumes are transferred from sales plan into production plan and production is planned according to available production capacities and sales requirements.

Data from production plan are then transferred into a module for processing purchasing plan, where, using technological standards and bills of materials, purchasing requirements are planned and calculated, all in just a few easy steps.

Depending on processes complexity and customer preferences, a personnel plan can follow (if necessary to deal with in the terms of production capacity, in *substantive* point of view), in simplified case, only personnel costs in indirect costs plan are being planned.

As the planning goes further, indirect costs plan is created, most often using past values as "initial plan version" with following corrections and adjustments (either plus or minus). While direct costs plan is created in the structure of planning to particular products or more precisely, their inputs, indirect costs plan is created in the structure of cost centers and accounts.

One of the final steps is creating the above mentioned financial statements. Data from all other plans are transferred into financial module, using "conversion maps" (to convert product/customer structure to centre/account structure, for example). Sales plan provides revenues, which are further transformed into claims and incomes. Direct costs plan provides direct costs, further transformed into expenses. Indirect costs plan provides more costs data and also debts and expenses.

Knowing all the direct and indirect costs, plan calculation can be done, to allocate indirect costs to particular products.

This whole process begins in sales plan in *substantive* point of view and ends up in *financial* point of view of the business in the form of financial statements. Well trained users with some experience in planning in this software tool can create complete version of annual plan in two or three weeks, which is significantly shorter time than a few (two, three) months, which is duration of plan creation in "classical" way, using for example MS Excel sheets.

4. Conclusion and summary

In my paper, described some of key components of enterprise annual plan, using the model of production enterprise with serial production of own products. It's evident that annual plan is a complex document, integrating many different enterprise entities. Having this in mind, it's also necessary to realize that creation of such plan is time consuming activity, taking a few months and employing many of key employees within the enterprise.

This often leads to a situation that, during the planned period, the plan isn't updated at all or just in the situations where there simply "isn't any other way". But this approach greatly decreases the value of annual plan for the enterprise, because comparison between planned and actual values is often pointless, comparing to a plan based on conditions no longer valid.

But not just the creation, but also evaluation of plan fulfillment can be a problem – in the case of absence of adequate tools, "controllers" may spend their time mainly by collecting and adjusting data into reports, whereas their main role should be in doing analyses and giving suggestions (and also give early warning) to the management, all this based on analyzing the differences between plan and reality.

Advanced software tools for supporting plan creation and evaluation can help solve large part of above mentioned problems. They often include features which simplify plan creation and help significantly reduce the time needed to create the plan. For example, the length of plan creation process can be shortened from 3 months to just 3 weeks. Sophisticated reporting tools are also available. This enables key personnel to focus on making decisions, not gathering data to base decisions upon.

Potential users are often concerned about return on such investment into these software tools. In absolute majority of cases, we can say that this is a good investment and sophisticated software planning tool pays back in a short time. Aside from directly "calculable" benefits (saving time of many key – and thus well paid – employees), an even more interesting benefit can be the fact that key employees get rid of "mechanical" work related to annual plan creation and their free capacity can be used for something that computer still isn't able to imitate – creative human thinking.

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