PLANE A MATIC
for Microsoft Excel®

Version 2017

A Financial Model Generator

User's Manual

June 05, 2017.

Content

Chapter 1

A quick tour

Planeamatic is a Financial Model Generator working inside MS-Excel. It produces Financial Statements, customized Charts, KPI[1]'s tables, consolidated reports and comparative scenarios. It is also performs advanced Goal Seek with selected variables.

All Excel capabilities and functions are preserved.

A Financial Model generator

Planeamatic is not a predefined Financial Model Template; it is a Financial Model's Generator. This difference is important. With Planeamatic you can create a Financial Model for any requirement; from a simple investment analysis to a complex integrated model for a public concession, or a real estate development with mixed revenue sources, or a financing operation, or a restaurant franchisee, or your first entrepreneurship, or an online store or a complex O&G [2]operation.

A model generator must deliver maximum versatility, reliability and responsiveness. It is not enough to build FS[3] statements, deliver

[1] *KPI.* Key Performance Index. A standard measure of a project's behavior and profitability (IRR, EVA, ER ratio, etc)

[2] *O&G*. Oil and Gas operation. These models use to be complex.

[3] *FS. Financial Statements*. The most important are: Balance Sheet, Income Statement (or Profit an Lose) and Cash Flow Statement

performance indexes and create scenarios: it must do it under any circumstance, with different scopes, timing sensitivities, financing mixtures, changing scenarios, etc. A model generator must handle all the variables to produce trustable outputs.

Planeamatic is unique in his class. It is a new paradigm. After years of experience, we concluded that a financial model based on formulations tends to *chaos:* every new condition adds complexity and rigidness; this complexity grows exponentially to an unmanageable level pretty soon. The solution to avoid this problem was easy, based in a no brainer reasoning: *If formulas are the problem, remove the formulas*. This conclusion lead us to base our idea in clever programming, leaving the user the opportunity to insert as many formulas as desired *after* the model was created and to generate specific indexes or reports based on the statements, tables and summarization reports generated by this tool.

Model Design guide

There is an international standard for Financial Model's construction. Planeamatic was created to fulfill these rules:

- Versatility
- Flexible Parameterization
- Power to perform deep analysis
- Reliability
- Friendliness
- Consistency and simplicity

- Order and cleanness

Operational overview

Building a financial model inside Planeamatic only requires to feed all the pieces of information in two simple tables:

'*Fixed'* components are fed into a **PARAM** sheet. Once defined, they tend to remain static during model construction and utilization (although they can be modified any moment):

- **model drivers**, like time scope and sensitivity (months, quarters, years)
- **external variables,** like income tax rate, inflation level, exchange rate (if necessary)
- **project asymptotes**, like maximum acceptable leverage, dividend withdrawal criteria and reference discount rate (or WACC, weighted average cost of capital)

'*Variable'* components are fed into an **Input** sheet. Their value assignment and adjustment is used to perform project analysis once the model is built:

- **investments** and depreciation rates (and methods)
- **revenues**, including unitary prices, volumes, volume change drivers (like stationarity, market growth or market penetration)
- **direct and indirect costs**
- **expenses**, like OPEX, SG&A, S&M, I+D, and their behavior, either permanent or temporary

- **funding**, equity and credit lines amounts and conditions (rates, terms, grace periods, revolver)

The user will remain in the **Input** sheet most of the time to load the model and create all the desired scenarios, changing the values of any of the 'variable' components of the model and obtaining a new set of results (a new scenario) every time he executes the program pressing **ctrl-a** ('a' stands for 'action').

These results are stored in a different FS_xx sheet ('xx' is an automatic consecutive numbering). The **Input** sheet is also copied into a Ledger_xx sheet to maintain historical record of the data used to build every scenario. In other words, every time you press **ctrl-a**, a couple of new sheets are added to the file, sharing same number (Ledger_01 and FS_01, for example).

If you want to modify any scenario, simply activate the corresponding Ledger_xx sheet, make the changes and press **ctrl-a** again. It will overwrite previous FS_xx sheet.

To move from FS_xx to Ledger_xx, just press **ctrl-j**, ('j' stands for 'jump back'). If you press it again, you will return to **Input** sheet.

If you wish to build a new scenario, simply go back to the **Input** sheet (press **ctrl-j** if you are in a Ledger_xx sheet, or press it twice if you are in any FS_xx sheet), make the desired changes in the variables and press **ctrl-a** (to obtain a couple of new sheets: Ledger_02 and FS_02, for example).

Navigation commands

Book tables: Command <Ctrl-a> processes data and builds Ledger_xx and FS_xx sheets. Command <Ctrl-j> jumps back from FS_xx to Ledger_xx, and from there to INPUT sheet if pressed again.

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Every scenario contains a complete set of results, including Financial Statements (IS, BS and CF), Consolidated reports, Charts and Key Performance Indexes (KPI's), so you can analyze in detail every aspect of the project, like IRR, EVA, behavior of Cash Flow, breakeven point, initial dividend withdrawal period, funding repayment, etc.

Scenario's comparison may be performed in a snap, leading to exhaustive analysis of the project and obtaining the required documentation to support it; all of it in a single and simple MS-Excel file.

First steps

Start by making a copy of your original Planeamatic file before modifying the original. You can use any name and location and open it in any computer with MS-Excel (according with your User License).

Unlike the usual software you acquire, Planeamatic doesn't need installation. This simplicity gives you astonishing freedom to use it in your laptop, your desktop or in a borrowed PC when travelling. All Planeamatic's power travels inside a small file about 1.2 MB size.

Planeamatic needs activated macros[4] to operate. If you haven't reduced macro protection to a minimum level, do it before attempting to open Planeamatic, or you will get disappointing results. Proceed as follows:

> *Press the "Office" button (upper left corner) and open the "Excel Options" menu (bottom right side of the opened window). Now, select "Trust Center" and a new menu will appear. Press the "Trust Center button" to reach the macro security window. When the security level options appear, choose "Enable all macros" option and press <Enter>.*

Close Excel and reopen it to have these changes applied.

If you still see this message (or something similar), you should contact us for help.

[4] *Macros*. Small programs (pieces of code) built and stored inside the file, launched through a key combination, like <ctrl-a>.

W A R N I N G

Please activate "macros". Proceed as follows:

Press the "**Office**" button (upper left corner) and open the "**Excel Options**" menu (bottom of the opened window). Now, select "**Trust Center**" and a new menu will appear. Press the "**Trust Center Configuration button**" to reach the macro security window. When the security level options appear, choose "**Enable all macros**" option and press <Enter>.

Finally, close the program and restart MS-Excel. Next time you open it, Planeamatic will be ready and this message should disappear.

Tutorials and Sample projects

Planeamatic offers lots of features. You can master this tool easily with the help of samples and tutorials.

Planeamatic file includes sample projects in hidden sheets. Just press F1 to invoke the Tutorial menu and select any of them. You will find simple comparative investment analysis and highly specialized models to be used as 'templates' or starting points for your own models.

You will be surprised to discover how easy is to work with Planeamatic just by adding and adjusting simple instructions in a five column table to create the most versatile and responsive models for any industry and to satisfy the most capricious modeling requirements in a snap.

Modeloff

We have selected, solved and included some problems from the prestigious contest **MODELOFF Financial Model World Championship**; the most recognized event in his class (www.modeloff.com). Complete information for each problem can be found in their website.

We express our gratitude to the organizers for allowing us to utilize their material. Visit their site to know how best model developers in the world participate in a high class competition (the 'Olympics' of financial experts).

> *IMPORTANT. The Organization of the Financial Model World Championship has expressly prohibited the usage of Planeamatic in this test, supposing a definitive advantage during competition.*

Thematic tutorials

Additionally, you will find online some thematic tutorials. Check our site. These tutorials are concise and very specific. You will find quick responses for your doubts.

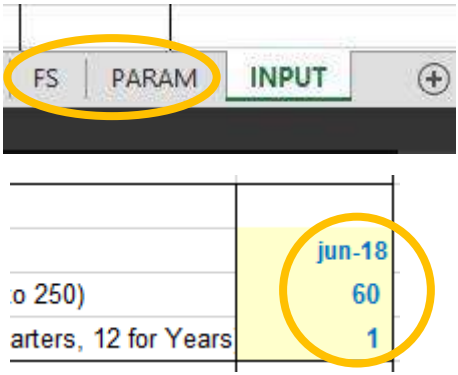
User interaction

Planeamatic is and behaves like any other MS-Excel file. You can add, edit or delete sheets and create your own formulas, tables and charts. However, some restrictions apply:

There are two *special* worksheets (PARAM –short for Parameterization–, and FS –short for Financial Statements–) in which

user access is limited to *pale yellow background* and *blue ink* cells. The rest of the cells in these two sheets should remain untouched.

Configuration sheets and editable cells



FS and PARAM sheets: Only the cells with pale yellow background and blue ink are editable

If you alter or delete these sheets, your output will not behave as expected. In such case the easiest solution is to discard the current workbook after copying your input data to the backup Planeamatic file.

Two simple rules:

- Inside the PARAM and FS sheets do not erase or insert Rows or Columns (except required rows, if any, inside the Financial Statements body), and restrict your data entry to the *pale yellow background* and *blue ink* cells. If you add or delete rows in the FS's, verify summarization formulas
- do not add or delete Columns in the INPUT[5] or Ledger_XX[6] sheets

The rest of the book is yours.

[5] *INPUT sheet*. A special sheet where all the project's information is loaded in a five column table.

Planeamatic commands

Planeamatic does nothing unless you ask it. A few commands exist and they are invoked through the combination of two keys (single handed keystrokes most of them):

ctrl-a action	generates a new scenario[7]
ctrl-b bring to action	copies data from Ledger_XX to INPUT
ctrl-g graphs	creates a chart from the content of the active Row. If more than one Row is selected, initial and final Rows are plotted
ctrl-i index table	it can perform two different functions, depending on active sheet: in FS_xx sheets the KPI's table is displayed; in any other sheet an entire Row is inserted
ctrl- j jump back	jumps from the FS-xx to the corresponding Ledger_xx sheet (or from this to the INPUT sheet)
ctrl-l	jumps between Ledger_xx and FS_xx forward and backwards
ctrl-q quick help	invokes the transaction wizard[8]
ctrl- r reach/replace	performs an advanced search along the whole book. If the @ sign is used, it replaces the text

[6] *Ledger_XX sheet*. Generic denomination for all the instances of the INPUT sheet for a particular 'XX' scenario. Ledger_XX sheets are copies of the original INPUT sheet.

[7] *Scenario*. A particular instance of the Project, combining a set of specific values for key variables. Each scenario generates its own results in a different FS_XX sheet

[8] *Transaction Wizard*. Online help to configure Planeamatic formulations, either arithmetic operations, series and functions.

	before the sign with the text after the sign. Example: corect@correct.
	Note: this function applies to every single sheet in the active workbook, even the hidden ones
ctrl-s scenarios	invokes the comparative Scenarios function (a Ledger_xx sheet must be active)
ctrl-t totals	activates the FS_xx sheet summarization table[9]
ctrl-w accounting help	invokes the accounting wizard[10]
F1 help	invokes the Tutorial's menu
F4 graph	creates a chart (idem ctrl-g)
F5	erases al charts in active sheet
F9	generates a new scenario (idem ctrl-a)

NOTE. If you delete or rename the INPUT sheet, the action command, <ctrl-a> (or F9) will create a new one for you.

Planeamatic operation

Planeamatic generates financial statements and KPI's utilizing the *entry* information loaded in the INPUT sheet (or in any of its subsidiary sheets called Ledger_XX). Operation is simple. There are three steps only:

[9] *Summarization table*. A special report containing consolidated FS's.

[10] *Accounting wizard*. Online help to incorporate model's instructions into the FS's, according with the double entry accounting principle (Debtor and Creditor registers in the Ledger)

- insert the appropriate parameter values in PARAM and FS sheets (check following chapters)
- load data in the INPUT sheet. Five columns are used:
- Col-A Debit account (ledger)
- Col-B Credit account (ledger)
- Col-C CODE id (optional)
- Col-D Description (optional)
- Col-E FORMULA (mandatory)
- press <ctrl-a> (or F9).

Columns 'A' & 'B' must be used together. If either the Debit or Credit account numbers are left blank, an accounting violation will occur.

Pressing <ctrl-a> or F9 activates Planeamatic. The following tasks are performed:

- a brief description of the scenario is asked and copied into a cell in the first row of the sheet for further reference. This text box contains Date, Time and your description

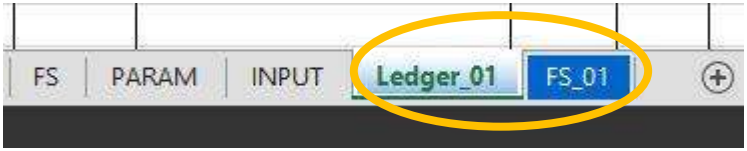
  NOTE. This description is asked only the first time the command is invoked, but you can edit it to modify your comments or scenario description

- a copy of INPUT sheet is made with the name 'Ledger_01' (INPUT sheet remains untouched)
- in the Ledger_01 sheet all formulas are 'developed' into the *data matrix*[11] (column 6 onwards)

[11] *Data matrix*. The collection of columns or periods conforming the project's scope. The matrix includes cells 'F3' to the last cell in the last column of your project's scope

- a new sheet is created, containing all the scenario outputs. This sheet is called FS_01

Ledger_01 and FS_01 added to the book



If you leave the description text box empty or press <Esc> when asked to fill it, the process is interrupted and the FS_01 sheet is not created.

TIP. Use this trick (pressing <Esc> when being asked to insert scenario description) to make quick tests in the INPUT sheet, without creating useless premature Financial Statements and KPI tables.

After this, you will be editing the 'Ledger_01' sheet, not the original INPUT sheet (unless you decide to go back there to create a new scenario using <ctrl-j>, or <ctrl-b> to copy back the Ledger_01 data into the INPUT sheet, overwriting it.

All the changes made to your data in the Ledger_01 sheet will affect only this scenario, leaving the original INPUT data as it was when you pressed <ctrl-a> for the very first time.

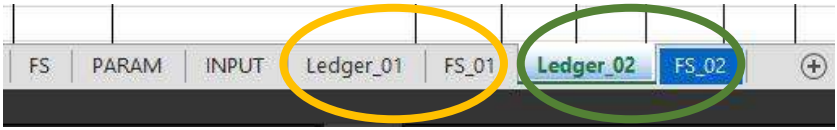
Editing results

Chances are you will not be satisfied with results obtained in the FS_01 reports and tables, or perhaps you will encounter some mistakes in your input data. You have three alternatives, as explained in step 3:

- **press ctrl-j** to return to the Ledger_01 sheet and to edit items on the same scenario. Once finished, press <ctrl-a> to obtain an updated set of financial statements (same FS_01 sheet)
- **press ctrl-j twice** to return to the INPUT sheet and modify original data. Once finished press <ctrl-a> to obtain a new scenario FS_02, leaving FS_01 untouched
- **press ctrl-b** to copy back Ledger_01 data to the INPUT sheet. This is a frequent task when several changes have been made to the original data

The command <ctrl-b> allows to overwrite original INPUT sheet data with the updated values contained in the active Ledger_XX sheet.

New sheets created for each scenario



TIP. You can modify an existing scenario (FS_XX) changing data in the Ledger_XX sheet, or you can create a new scenario modifying the INPUT sheet. In both cases you must press <ctrl-a> to either update or create the new scenario.

Once the new scenario is created, Planeamatic returns to passive mode. You can do with your new information the same tasks that you could do with any other table or sheet in Excel. You can copy, edit, delete, duplicate or insert formulations freely. Doing so will not damage

Planeamatic's internal structure, because Planeamatic is not based in formulas or links. All his power resides in his internal programming.

You can edit and generate the same or new scenarios as many times as you want. Remember the rule:

> *To update or rebuild an existing scenario, go back (<ctrl-j>) to its correspondent input sheet (Ledger_XX), make your changes and press <ctrl-a> again. To create a new scenario, go back to the INPUT sheet and repeat the process.*

Planeamatic features

Planeamatic is user friendly. These are some of his features:

- is a MS-Excel workbook like any other
- No installation is required. Just open the file and start building your model
- No MS-Excel expertise is required (but it helps). Learning curve is very short reading the included tutorials and /or this manual
- Planeamatic creates automatic comparative scenarios to analyze any input data
- Planeamatic creates automatic charts on demand with a single click (F4 or <ctrl-g)
- Planeamatic features advanced online wizards available during data loading (including samples)

- automatic accounting number assignment for each transaction (debit & credit). Advanced accounting knowledge is not mandatory using the default accounting transaction table with the wizard
- flexible parameterization. Open scope and timing (depending on your version), customizable FS structure, charts and KPI table, configurable values for income tax, NPV[12] discount rate[13], etc.
- open summarization by months, quarters[14], semesters, years, bimesters, etc.
- simple and yet powerful functions to insert entry data with maximum flexibility. Even capricious parameter behavior can be configured easily; for example, irregular seasonality[15], atypical growing behaviors, intermittency, etc.
- no formulas in the output statements and reports (except summarization in the FS)
- crystal clear identification and localization of inputs. No need to search or trace weird links and formula dependencies to identify the basic data
- free use of any Excel functions or links to configure or load your existing data into the INPUT sheet. Planeamatic admits usage of other models to provide raw data, for example revenue projections, payrolls, etc. All you have to do is link the source information to the INPUT sheet
- no preset limits (free number of scenarios, entries, etc., depending on user license)

[12] *NPV. Net Present Value*. The equivalent amount of a future (or past) series of Money in the present day, after applying a *discount rate*

[13] *Discount Rate*. The cost applied to a series of Money, expressed as an annual percentage.

[14] *Quarter*. A three month period.

[15] *Irregular seasonality*. The effect of climatological or vacational patrons on revenues, expenses, etc.

- professional look of all reports, charts and statements
- automatic formatting adjustment (column width, font size, etc.)
- customizable formatting for headers, numbers, titles, account descriptions, etc.
- fast response. New scenarios are created in a couple of seconds
- automatic income tax, dividend withdrawal[16], depreciation[17] and loan payment calculation.
- guaranteed Financial Statements integrity. Visual alarms help you find data entry inconsistencies to correct any discrepancy
- guaranteed CF[18] viability: dividend withdrawal an credit lines are automatically controlled to avoid bottlenecks (if correctly configured and enough cash is generated by the project)
- automatic calculation of depreciations for individual investments using either straight line, sum of years digits or double declining methods. Rescue values can be set to avoid full depreciation
- configurable project liquidation at maturity[19], to evaluate consequences of selling remaining assets with unconcluded depreciations or debts
- multiple projects can coexist in the same file
- warning signals when user input is inappropriate

[16] *Dividend withdrawal.* Distribution of company's earnigs to sharholders.

[17] *Depreciation*. The accounting procedure to transfer gradually the value of an asset to the expenses section of the Income statement, recognizing its deterioration.

[18] *CF*. Cash Flow Statement.

[19] *Maturity*. When a project analysis reaches the final stage.

In Brief

Planeamatic is a versatile, reliable, responsive and friendly Financial Model Generator. It can be mastered by any average MS-Excel user to analyze the most complex projects or operations.

Planeamatic is a new paradigm.

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Chapter 2

Basic configuration: the PARAM sheet

Some parameters are defined at the beginning of every new project. They establish conditions that usually remain untouched during project analysis.

The parameterization table

It contains the configuration information that usually remains unmodified once it is defined for each project, like timing (starting or initial date, project name, scope and time sensitivity), output options –like summarization level, numeric formatting and empty rows hiding criteria–, and critical financial parameters, like applicable discount rate for valuation of future cash flows, income taxes, dividend withdrawal criteria and optional leverage[20] limitation:

[20] *Leverage.* The Liabilities (Debt) to Equity (proprietor's capital) Ratio.

The parameterization Table

CODE	PARAMETERIZATION TABLE	
	Project Name	
	Planeamatic 4.0 Demo	
	Basic configuration	
idate	Initial date	2018
scope	Project scope (number periods: 1 to 250)	20
psize	Period size (1 for Months, 3 for Quarters, 12 for Years	3
	Summarization or totalization	
psize_fyear	First year size (in months); for summarization	12
psize_sum	Summarization type (annually=12, Quarterly=3)	12
	Calculation Level	
calc_level	0=Ledger only 1=Ledger, FS & Indexes	1
	Formatting	
	Decimal separator	,
	Numeric format	999.999
	Parameter separator in formulas (default semicolon ;)	;
	Hide unused rows on Financial Statements? (Y/N)	Y
	Standard values	
itax	Income tax rate	35 %
npv	NPV calculation rate	15 %
	Dividends	
div_rate	Dividend withdrawal criteria (0-3)	3
max_debt	Max Debt to Equity Ratio	3,0

- **Project Name**. Use a concise name. It will be used to personalize all the output tables and statements
- **Initial date**. Set the first day of your project and define the date format to appear in the output statements headers. The short month-year format (mmm-yy) is recommended.

- **Project scope**. Number of periods or columns your model will use. They can be months, bimesters, years, etc. Just indicate a number between 1 and 240.

  Not sure about project scope? Think in the following possibilities:

  - the necessary time to amortize your investment. In this case, you should create scenarios with different project scopes and determine the minimum time required to reach this goal
  - the agreement term of the concession, franchisee, etc.
  - the visible horizon for the target market (this could be critical if your product services IT[21] markets)
  - a pre-established operation or sales volume (i.e. 100,000 customers)
  - a five year scope

- **Period size**. Indicate the number of months comprehended by each period (1 for months, 3 for quarters, 6 for semesters, 12 for years). Configure your Planeamatic functions accordingly.

> *Planeamatic functions (INPUT sheet, column E) use Frequency as a standard parameter to define how often an entry must occur. This parameter is established as number of periods (columns), not number of months). Remember this to avoid mistakes and confusions.*

- **Summarization**. It refers to Planeamatic's ability to totalize with versatility your financial statements. For example, suppose you are analyzing a project with Monthly sensitivity, starting in November. If this is the case and you like to adjust your projections to

[21] *IT*. Information Technology

calendar years, then the First year results should include only two months. You can indicate this behavior with the available parameters as follows:

First year size **2**
Summarization type **12**

Project scope can't be smaller than *First year size* or you will get an error message when pressing <ctrl-a>.

- **Calculation Level**. It allows to limit Planeamatic activity each time it is launched with the <ctrl-a> command. There are two possible values:

  Value 0 during data loading
  Value 1 during project analysis

  Calculation level set to zero is useful to perform quick tests on the input formulas before launching the first scenario; no FS_XX sheet is created or updated. Same result is obtained pressing <Esc> when being asked to add some description after pressing <ctrl-a>

  Level one (1) allows FS_XX sheet generation with financial Statements and KPI tables.

> *Calculation process can be interrupted pressing <Esc> when asked to personalize the new scenario with a comment, after you launched the process with the <ctrl-a> combination.*

- **Decimal separator**. Some Countries use the *coma* as decimal separator, while some others use the *point*. Make your choice or leave it blank to use MS-Excel's default

- **Numeric format.** You can establish any desired numeric format for the Financial Statements, including font size and row height (just adjust this cell height). Note: column width is automatically adjusted in FS sheet according with selected numeric format and maximum size requirements to avoid masks ("#####")
- **Parameter separator in formulas**. Planeamatic's internal processor uses the *semicolon* (;) to separate parameters in functions. We recommend to use it always
- **Hide unused rows in FS?** This option allows to present results in condensed format, hiding unused account rows in the Financial Statements
- **Income tax rate.** Insert the applicable tax rate to EBT (Earnings Before Taxes) result in the Income statement

Planeamatic deducts accumulated losses from EBT before applying the income tax rate. This feature solves common necessary adjustments in modeling.

- **NPV calculation rate**. Insert the annual discount rate to apply to future monetary series –either investments, profits, capital disbursements, revenues, costs, expenses, etc.–, to find their equivalent Net Present Value (NPV). Net Present Value allows objective comparison of monetary series along time

When comparing two future cash flow series, an algebraic sum does not work. You must apply the same discount rate to convert them into an equivalent NPV to avoid a 'pears to apples' comparison, given that money has different values over time.

Selecting the right NPV rate may be a hard decision. Many factors are considered: project intrinsic risk, opportunity cost, inflation, current cost of money, etc. Under stable scenarios with low inflation rates and moderate risk, a 12 to 15% discount rate could be reasonable to evaluate a project. If the NPV of future dividends is greater than your initial paid-in equity, then you have a possible winner project.

***NOTE.** IRR (Internal Rate of Return) is the rate that equalizes the cash flow of Equity disbursements and future dividends. So, if your project offers an IRR of 15% and you used a 15% discount NPV rate, then the NPV of your dividends should be equal to your Equity; as simple as that.*

- **Dividend withdrawal criteria**. Planeamatic allows versatile configuration. In all cases, withdrawal is conditioned by present and future cash availability.

  These are the possible behaviors:

  0 No dividend withdrawals (until last period)

  1 dividend withdrawals from net earnings, only after debt and tax payment

  2 dividend withdrawal from net earnings, even when debt is still active

  3 greedy mode: all FCF is withdrawn

  Dividends are automatically calculated by Planeamatic according with this parameter and without exceeding cash availability nor Debt to Equity Ratio –if specified–.

- **Max Debt to Equity ratio**. Dividend withdrawal may be narrowed by limiting this ratio. If assigned, all withdrawals will be omitted while the actual Debt to Equity ratio remains higher than this.

> *Excessive Debt to Equity ratio is dangerous, especially from the creditor's point of view. In some cases, they establish clauses in loan terms to avoid or prohibit any c ash disbursement to pay dividends.*

Personalizing Parameters

When having more than one project in the same file, chances are that different parameterizations are required. It is also possible that some of these variables need to be adjusted frequently while modeling.

In these cases the value of any of them can be set inside the INPUT or Ledger_XX sheets. Just invoke the desired parameter through his CODE and assign it the desired value in these sheets.

It is also recommended the use of the 'FIX' word in the first column (Debit Account) to protect the row from being *processed* (see chapter 4). When the 'FIX' word is encountered during the calculation process, the entire row is ignored (except for updating the invoked parameter) and the inserted values in the *data matrix* are not initialized nor erased.

Personalizing Parameters

	A	B	C	D	E
1			The Cookie Factory		PLANEAMATIC
2	**Debit**	**Credit**	**Code**	**Description**	**Formula**
3				**Parameters**	
4	FIX		scope	Set scope (60 monthly periods)	60
5	FIX		psize	Set period size to months	1
6	FIX		idate	Initial date	ene-18
7	FIX		itax	Set Income Tax to 35%	35 %
8	FIX		div_rate	Set dividend rate to greedy	3
9	FIX		max_debt	max Debt to Equity ratio	0,0
10	FIX		calc_level	Set calculation level to full (charts & totals)	1

INPUT or Ledger sheet: overwriting default parameterization

Warning

Parameters or financial statement's configuration may be modified at any moment during project development. However, this could create confusion and misinterpretation of results previously generated. A simple example will help:

Suppose a project started assuming a Quarterly approach as period size (three months for each column, OK?). Formulas are parameterized according to this, and a couple of scenarios are created. However, then it is decided that a monthly approach (one month per column) will give more precision and it is decided to update the PARAM *sheet.*

It becomes clear that new scenarios will not be fully comparative with the old ones, although both could be valid. Besides, *entry* formulation should be revised and updated to conform to the new period size before creating any new scenario, otherwise the results obtained could be erroneous.

If this is the case just erase (or simply ignore) all previously created scenarios (Ledger_XX and FS_XX sheets) and start creating new ones with the INPUT sheet data adjusted accordingly.

The Key Performance Indexes (KPI) Table

PARAM sheet contains also a table divided in two sections. The first one is protected and contains all the predefined KPI's, like:

- the IRR of the Project (EBITDA vs. INVESTMENTS)
- the IRR for the investors (DIVIDENDS vs. TOTAL EQUITY, including retained earnings[22])
- Max Debt to Total Assets (the maximum and minimum quotient obtained when dividing TOTAL LIABILITIES to TOTAL ASSETS, for any period)
- Max Debt to Equity (the maximum and minimum quotient obtained when dividing TOTAL LIABILITIES to TOTAL EQUITY, for any period)
- NPV of Net Earnings (NE) to Revenues ratio
- NPV of withdrawn dividends
- E.V.A.[23] (EBITDA after income tax minus TOTAL EQUITY cost, valued at NPV discount rate)
- NPV of Revenues, Gross Earnings, EBITDA and Net Earnings, valued at NPV discount rate

[22] *Retained earnings.* Net earnings from previous periods, still not distributed as dividends.

[23] *EVA.* Economic Value Added. A ratio created to measure the capacity of an investment to create true value for the investor, after discounting its own capital cost, but excluding depreciations and financial expenses. Calculation base is called NOPAT: Net Op Profits After Tax

- NPV of Fixed Assets (gross value)

> *Note. EBITDA means Earnings Before Interests, Taxes, Depreciation and Amortization. It is a partial result of the IS showing a company's capability to produce benefits (earnings) before applying figures that can hide them temporally, or that are not inherent to company's pure operation.*

The KPI Table (standard indexes)

	Key Performance Indexes Table (KPI's)	Value
	Primary Indexes	
	I.R.R. Project (%)	
	I.R.R. Investors (%)	
	Debt to Total Assets (Max / Min)	
	Debt to Equity (Max / Min)	
	Net Earnings to Revenues (Max / Min)	
	NPV of other Standard KPI'S	**NPV**
	Max Free Cash Flow	
	Dividend withdrawal	
	EVA (economic value added)	
	Net Revenues	
	Gross Earnings or Profits	
	EBITDA	
	Net Earnings	
	Fixed Assets (gross value)	

The custom Indexes (KPI) Table

KPI Table admits also customized indexes. It has some limitations but you can insert the following entries:

- an account number (or collection; for example 53* to include all the accounts beginning with such prefix)
- a FS subtotal. For example, TL (for Total Liabilities), EBT (for Earnings Before Taxes), etc.
- a CODE defined in column C of the INPUT or Ledger_XX sheets
- any user defined name in MS-Excel book

Planeamatic calculates and displays NPV or value for each selected index according with its nature:

- Initial value of Ledger_ sheet Codes
- Current value of stored MS-Excel Workbook names
- NPV of Balance sheet accounts (final balance)
- NPV of Income St. accounts (totals)
- Current value of CashFlow items:
    - CF.MIN minimum CashFlow value
    - CF.MAX maximum CashFlow value
    - CF.FIN final CashFlow value

The KPI Table (customizable indexes)

Code	Ledger CODES & FS Acc / Subtotals	Value / NPV
TCE	OPEX, SGA & OTHER EXPENSES	
TFE	FINANCIAL EXPENSES	
541	INCOME TAX	
308 NE	NET EARNINGS	
301	EQUITY	
AR#1	Amounts received (Loan or Credit) #1	
PP#1	Principal Payments (Loan or Credit) #1	
IP#1	Interest Payments (Loan or Credit) #1	
	Press ctrl-i to insert rows as required	

Personalized Formulas

Last table in PARAM sheet admits insertion of MS-Excel formulas to perform personalized calculations. Given that this table is rebuilt for each scenario, formula insertion could become a boring and repetitive task. To avoid it, insert your formulas in this table; they will be copied into the FS_xx sheets following these rules:

- full table is copied into each FS_xx sheet
- absolut references should be utilized because destination rows will be different from originals
- avoid links or unnecessary references to other sheets because links are lost each time these sheets are rebuilt, generating inconsistent references and producing errors

KPI table (user formulas)

	User Formulas	Formula
	Press ctrl-i to insert rows as required	

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Chapter 3

Financial statements: the FS Sheet

Planeamatic is not an accounting system. It follows the basic account ledger approach to configure and generate automatically the Balance Sheet, the Income statement (or Profit and Lose St., or P&L St.) and the Cash Flow Statement.

Accounting conventions

Planeamatic Financial Statement's structure is set in the FS sheet. You can add or delete rows and accounts, or even change default accounting enumeration (not recommended).

Planeamatic is pretty lax but requires some consistency to properly build the Financial Statements. Each one of the five basic accounting ledger categories is identified with a single digit enumeration. Every account pertaining to the same accounting category must begin with the same digit. These are the default enumerations:

- 1xx Assets
- 2xx Liabilities
- 3xx Equity or Capital
- 4xx Operational revenues (sales, turnover)

- 5xx Operational costs and expenses (COS, OPEX, SG&A), Depreciation, financial expenses, etc.

Account enumeration is expected to be three digit long with no extra characters. There is no reason to create subaccounts or sub levels. Keep things easy.

> *Accounting default assignments are OK. There is no necessity to match the ledger categories enumerations with your own accounting conventions. In fact, no communication is expected between your current accounting system and Planeamatic.*

Key accounts

Planeamatic must identify several key account numbers to perform automatic tasks when building the statements. These key accounts are:

- The Bank account in the Balance Sheet (BS, Assets category). All INPUT or Ledger_XX *entries* including this account will appear in the Cash Flow Statement
- The Accumulated Depreciation and Amortization[24] account in BS (Assets category).
- The Accumulated Net Earnings (profits, or benefits) account in BS (Equity category). This same account must be the last total in the Income Statement (IS).
- Dividend withdrawal account in the BS (Equity category)

[24] *Amortization.* Refers to depreciation of intangible assets (patents, concessions, goodwill, etc).

- Income tax account in the IS (just before NE, Net Earnings)

> *Both statements (BS & IS) are **linked** through the Accumulated Net Earnings account, and it guarantees **accounting integrity.***

Financial statements structure

The FS sheet contains also the frame for both, BS and IS. You can add or delete accounts according with previously defined conventions. You can also modify headers and titles.

We encourage you to keep the FS default structure; otherwise unexpected errors could appear. In such case, the verification line of the BS (next line after TLE; Total Liabilities and Equity) should display a warning message in column D such like this:

Error in Balance. Check Ledger codification

It should also show the column(s) where the problem appears. This will give you a hint to identify the origin. Usually, the problem arises when an incorrect ledger account number is used. Chances are that an orange colored cell will identify the incorrect cell in that sheet.

Standard Accounting Transactions

In the bottom of the FS sheet there is a table containing the recommended codification for each one of the standard accounting transactions included in the wizard. You can edit the table freely, adding or deleting standard transactions; just be sure to assign existing account numbers in Debit and Credit columns to protect FS

integrity.

The standard accounting transactions Table

	A	B	C	D
204		**STD ACCOUNTING TRANSACTIONS**	**Debit**	**Credit**
205		**Revenues**		
206		Cash sales	101	401
207		Non cash (credit) sales	102	401
208		Collections from non cash revenues	101	102
209		Realization of Fixed asset (Land)	101	111
213		**OPEX & SGA (Costs and expenses)**		
214		Payment of COGS (cost of goods sold)	501	101
215		Payment of OPEX (operating expenses)	511	101
216		Payment of SG&A (salaries, gral exp & admo	512	101
217		Payment of Mktg and sales commisions	513	101
218		**Investments**		
219		Acquisition of Intangible assets	111	101
220		Acquisition of Equipment & other assets	112	101
221		Acquisition of Property	113	101
222		Building construction & improvements	113	101
223		**Depreciation & amortization**		
224		Depreciation of investments	521	121
225		Amortization of intangible assets	522	121
226		**Loans & Credits**	Fin expense	Debt rec
227		Borrowing a Standard Loan	531	212
228		Borrowing a Standard Credit line	531	211
229		**Project Foundation**		
230		Paid in Capital	101	301
231		Capitalization of Accumulated Earnings	308	301

Loans and Credit lines[25] accounting

Planeamatic offers automatic treatment of Loans and Credit lines. In fact, this feature provides incredible analysis capabilities because you do not have to worry about the required amounts to avoid cash flow bottlenecks.

> *This exclusive feature grants Planeamatic users extraordinary simplicity and flexibility to perform advanced financial analysis, without worrying about Cash Flow bottlenecks and construction of amortization tables.*

For accounting purposes, all you have to do is provide two accounts:

- an Income statement account (expenses category) to allocate financial expenses produced by the interests
- a Balance sheet account (liabilities category) to allocate the debt

[25] *Loans and Credit Lines*. The first refers to an agreement where the amount of Money to lend is fully determined: both, amount and date of disposal. The second refers to agreements where the amount is limited, but the actual disposition amount and date are determined along the project development.

The standard accounting transactions Table for loans

STD ACCOUNTING TRANSACTIONS	Debit	Credit
Depreciation & amortization		
Depreciation of investments	521	121
Amortization of intangible assets	522	121
Loans & Credits	Fin expense	Debt rec
Borrowing a Standard Loan	531	212
Borrowing a Standard Credit line	531	211
Payment of financial interests & commisions	531	101
Project Foundation		
Equity	101	301
Capitalization of Accumulated Earnings	308	301

With such information, Planeamatic builds three ledger transactions:

- **debits** (charges) the Bank cash account (BS, Assets) with de disposed amount(s), and **credits** the long term liabilities account (BS, Liabilities)
- **debits** (charges) the financial expenses account (IS, expenses category) with the amount of the calculated interests for each period and **credits** the Bank cash account to pay them
- **debits** the long term liabilities account with each one of the calculated principal repayments and **credits** the Bank cash account to pay them

In later chapter you will learn how to configure Loans and Credits in the INPUT or Ledger_XX sheets.

The Cash Flow Statement

There is no default structure for the Cash Flow Statement inside the FS sheet. The reason is simple: CF is built *on demand* with the transactions included in the INPUT or Ledger_XX sheet; there is not a predefined set of default items or accounts incorporated in the CF structure, except headers, subtotals and opening and closing cash residues.

All the instances of an account in different entries are summarized before being incorporated to the CF according with their 'accounting nature' (debtor or creditor):

- Assets (BS) and Expenses (IS) are debtor accounts: their balance is increased with *debit* transactions and decreased with *credit* transactions
- Liabilities (BS), Equity (BS) and Revenues (IS) are creditor accounts: their balance is increased with *credit* transactions and decreased with *debit* transactions

In the Cash Flow statement the transactions that produce a *debit* record in the Bank account will appear as inflows, while the transactions that produce a *credit* record in the Bank account will appear as outflows (with negative sign).

> *Only transactions affecting the Bank account (default 101) - either as debit or credit-, are included in the Cash Flow statement.*

The opening Balance

Some projects have an opening cash residue or balance. Opening balance of each account must be loaded in the FS sheet (column E):

The Opening Balance in FS sheet

	C	D	E
16	**Account**	**BALANCE SHEET (BS)**	**Initial**
17		**ASSETS**	
18		**Current Assets**	
19	**101**	Cash	1,000
21	103	Inventory	500
23	**TCA**	**Total Current Assets**	**1,500**
24		**Fixed Assets**	
27	113	Equipment	2,000
29	**121**	Acc. depreciation & amortization	
30	**TFA**	**Total Fixed Assets**	**2,000**
31	**TA**	**TOTAL ASSETS**	**3,500**
32		**LIABILITIES**	
33		**Current Liabilities**	
34	201	Accounts payable	750
36	**TCL**	**Total Current Liabilities**	**750**
37		**Long term Liabilities**	
38	211	Credits, bonds, capital leases	
40	**TLTL**	**Total Long Term Liabilities**	**0**
41	**TL**	**TOTAL LIABILITIES**	**750**
42		**EQUITY**	
43		**Shareholders Equity**	
44	301	Paid-in Equity	2,750
45	**308**	Retained earnings (loses)	
46	**309**	Dividend withdrawal	
47	**TE**	**Total Equity**	**2,750**
48	**TLE**	**TOTAL LIABILITIES & EQUITY**	**3,500**
49			

FS PARAM INPUT

Planeamatic will incorporate each account balance properly:

- initial Bank account balance (BS, Assets) will appear as opening Cash Flow Balance
- accumulated earnings or loses (BS, Equity) will be incorporated in the calculation of Income tax, avoiding tax payment until the loses are fully amortized
- If there are pending debts in the opening Balance, they can be amortized through the configuration of a standard loan without amount withdrawal, only payments of interests and principal (detailed instructions in following chapters)
- Incomplete depreciations of preexistent fixed assets can be configured to be projected forward

There is a second option to establish the opening balance through transactions in the INPUT OR Ledger_XX. For example:

Opening Balance in Ledger_XX sheet

	A	B	C	D	E
1			Planeamatic 2017 Demo		PLANEAMATIC for Microsoft Excel®
2	**Cargo**	**Abono**	**Código**	**Descripción**	**Fórmula**
13				**Opening Balance**	
14	101	301		Bank	1000 ; ; 1
15	103	301		Inventories	500 ; ; 1
16	113	301		Fixed Assets	2000 ; ; 1
17	301	201		Accounts payable	750 ; ; 1

Observe that the ‘301’ account (Equity) appears in every transaction of this example (it could be any of the others). The reason is that the

opening balance of Equity should equalize the Balance Sheet equation:

A = L + E (Assets = Liabilities + Equity)

In this example, the opening balance of Equity is 2,750 Cy. Obviously, any of the other accounts in the opening balance could be used the same way. For example, the Cash account '101':

The same opening Balance

	A	B	C	D	E
1			Planeamatic 2017 Demo		PLANEAMATIC for Microsoft Excel®
2	**Cargo**	**Abono**	**Código**	**Descripción**	**Fórmula**
13				**Opening Balance**	
19	103	101		Inventories	500 ; ; 1
20	113	101		Fixed Assets	2000 ; ; 1
21	101	201		Accounts payable	750 ; ; 1
22	101	301		Equity	1000 ; ; 1

Planeamatic is versatile and accepts this behavior, but we recommend to use the *standard* way, loading opening balance in the FS sheet.

An exception to this recommendation occurs when you have different projects in the same file. In such case, the second option must be used to load opening balances for each project.

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Chapter 4

Data entry: the INPUT sheet

The INPUT sheet will be your battlefield. All the action occurs here. Project information is loaded with values, Excel formulas or Planeamatic functions (the election is up to you). Once loaded, it is developed or projected into future periods and inserted in the Financial Statements.

Planeamatic processing flow

Probably you have now an idea of how Planeamatic works. A quick review will help to clarify things. Let's see the workflow.

Preliminary tasks

Once you have conceived your idea, defined your project (a 'Business Plan canvas'[26] helps) and collected data, then you have to establish the basic conditions, key variables and goals to analyze it. Some questions arise: How far in time should the analysis go? Should it be analyzed in real or nominal terms? Is it worth to play with different gross profit[27] margin scenarios, or should this variable be considered

[26] *Business Plan Canvas*. A template to clearly define projects, including revenues, costs and expense, key activities, markets, distribution channels, products, etc.

[27] *Gross profit margin.* The partial result after deducting direct costs from the revenues. Direct costs may be identified through this question: *Would this cost still exist if the revenues not?*

fixed? Is it possible to rise Equity funds from 3F's[28]? Which discount rate should be applied? What is it going to be the financial cost rate? Which is it going to be the dividend withdrawal politics?, etc.

All these questions should be made during preliminary analysis. So, when Planeamatic is opened you will have a clear idea of what information will be loaded.

Configuration

As explained in previous chapters, Planeamatic must be prepared to work before loading transaction data in the INPUT sheet. PARAM and FS sheets should be configured according with project requirements. Default values have been loaded. Just modify those you think need some adjustment.

Data input

Following section will explain in detail how transactional data is loaded in the INPUT or Ledger_XX sheets.

Program execution

When command <ctrl-a> or F9 is pressed, control is momentarily transferred to Planeamatic. The following tasks are performed (according with 'Calculation Level' set in PARAM sheet):

Calculation level set to zero (0)

- INPUT or Ledger_XX sheet is updated (format, number of columns or periods, initial date, etc)

[28] *3F*. Funny definition to refer to typical early project capital sources: Friends, Fools and Family.

- INPUT data is verified
- Formulas are processed and projected into the 'data matrix' (column 'F' onwards), except Transfers and Credit Line calculations
- comments for the scenario are requested from the user (process may be interrupted at this point pressing <Esc> key, even if Calculation Level would be established to 1

Calculation level set to one (1)

- FS_XX sheet is created
- Financial Statements are loaded with the specified transactions
- KPI's are created and activated. Control returns to the user

All this action is performed almost instantly. Once the results are reviewed/analyzed, several things may happen:

- you decide the project is OK and proceed to print your results
- you wish to try the same scenario with a little difference in some parameter (press <ctrl-s> to go to the Ledger_XX sheet)
- you decide to analyze an alternate scenario. Then you have to verify that INPUT sheet contains the last version of your information and then execute again the program from there (using <ctrl-b> to update INPUT sheet data from current scenario Ledger_XX before proceeding)

As you can see, the cycle is simple and it provides an efficient way to perform advanced project analysis without worrying about complex formulas to generate and evaluate results. Once they are satisfactory, then you have on hand all the supporting information to submit your

scenario(s) to discussion. You can even work with Planeamatic during the project meeting, answering questions on the fly.

> *NOTE. Changes made to the INPUT or Ledger_XX sheets do not affect, update or propagate to other existing scenarios. For example, if you make a modification in the INPUT sheet after creating a couple of scenarios (say Ledger_01 and Ledger_02), such change will not be incorporated to these sheets. Only the new scenarios generated after the change was made will incorporate it (Ledger_03 onwards).*

Multiple scenarios

As you have seen, multiple scenarios (MS) can coexist in Planeamatic. All of them are generated from the same source (the INPUT sheet) when launching the calculation process <ctrl-a>. In other words, the Ledger_XX sheets are copies of the INPUT sheet for a particular scenario (XX means number of scenario. OK?)

There is no reason to create a new scenario each time you try a new formula while building your model. If so, you could get hundreds of useless sheets in few minutes. For that reason, it is recommended to keep *calculation level* set to zero during preliminary tasks of loading and testing data (or pressing <Esc> when asked to add the scenario description).

MS are great to provide enough support (with FS statements, charts and KPI's) to all the alternatives evaluated during project analysis, and to keep record of project changes according with new directives. MS should not be used to trace back the process of loading data. We

strongly recommend to use a single scenario until your project has been fully loaded.

INPUT sheet organization

There are no preestablished rules to organize entries (project data) in the INPUT sheet. Planeamatic gives you freedom to insert them in any order. However, it is recommended to organize the variables. Different criteria may be applied:

- project relevancy
- categorization (costs, investments, revenues, financing)
- hierarchicalization
- none of them

This means that you could allocate your parameters with different sequences. The following organization is proposed:

- **environment variables**. These entries allow to modify any of the default values in the PARAM sheet, like scope, starting date, income tax, calculation level or dividend withdrawal criteria for a particular scenario. If you define it locally, then each scenario will be able to have different values for the same environment variable; for example, when trying to detect the minimum *Project term* to reach some goal.

  Environment variables are not recommended but accepted in the INPUT sheet.

- **driving indexes**, like sales volumes (in units), number of employees, sq meters of construction, unitary prices and costs

(unitary sales price, monthly labor cost, EBITDA percentage, marketing budget as percentage of sales, etc)

- operating revenues
- operating costs and expenses
- investments and depreciations
- **financing** (loans, credits, equity)
- **transfers and deferrals**

There is no perfect rule for this categorization; it is not even mandatory at all, but it helps other model users to find rapidly the parameters.

INPUT sheet components

Every entry or transaction (row) in the INPUT or Ledger_XX sheets can have these components:

- Col A Debit account (a valid account in the Ledger)
- Col B Credit account (idem)
- Col C Code[29] (avoid special characters and names starting with digits)
- Col D Description (free)
- Col E Formula (see following section)

In fact, all these components are optional (even the Formula in some special cases).

[29] *CODE*. A short name to identify the entry in later planeamatic formulas (expressions or functions)

Debit / Credit account numbers (cols 'A' & 'B')

Account numbers are used to load the Financial Statements with the transactions included in the INPUT sheet. They must be used only in entries representing *accounting transactions*. There is no reason to add ledger accounts to '*number of employees'* or *'annual growth rate'*.

> *Not all entries in the INPUT sheet are accounting transactions. Only actual accounting transactional entries (those affecting the Financial Statements) must be coded with account numbers.*

If Debit or Credit numbers are missing or incorrect, the Balance sheet will fail and an error will appear in the FS_XX sheet.

A codification error in the INPUT Sheet

	A	B	C	D	E
1			Planeamatic 4.0 Demo		PLANEAMATIC
2	**Debit**	**Credit**	**Code**	**Description**	**Formula**
3					
4	103	60A		Inventories	500 ; ; 1

Invalid Credit account number

An error in the Balance Sheet

	C	D	E	F	G	H	I	J
1	The Cookie Factory						(Planeamatic 2017 D	
2	Acc	BALANCE SHEET (BS)	Initial	ene-18	feb-18	mar-18	abr-18	may-18
26	TLTL	Total Long Term Liabilities	0	5.000	10.033	16.730	21.657	26.577
27	TL	TOTAL LIABILITIES	0	5.000	10.033	16.730	21.657	26.577
28		EQUITY						
29		Shareholders Equity						
30	301	Equity		30.000	60.000	90.000	90.000	90.000
31	308	Retained earnings (loses)		-5.250		-7.447	-13.124	-18.794
32	309	Dividend withdrawal		0	0	0	0	0
33	TE	Total Equity	0	24.750	60.000	82.553	76.876	71.206
34	TLE	TOTAL LIABILITIES & EQUITY	0	29.750	70.033	99.283	98.533	97.783
35		Error in Balance. Check Ledger codification			10.783	10.783	10.783	10.783

FS_xx Sheet: An error in BS due to accidental erasing or incorrect account number

*Any Orange colored cell indicates errors. They can appear either in the Ledger_XX or in the FS_XX sheets. All the output generated under **error** condition should be discarded.*

The Accounting Wizard <ctrl-w>

For non certified public accountants, the accounting details of financial modeling becomes tricky and hard to formulate. The links between accounting statements are hard to establish with formulas.

Happily, that is not the case with Planeamatic. All what is required is to identify the accounting transactions in the INPUT sheet and assign them the right account numbers. You can do it manually or with the help of the accounting wizard (ctrl-w).

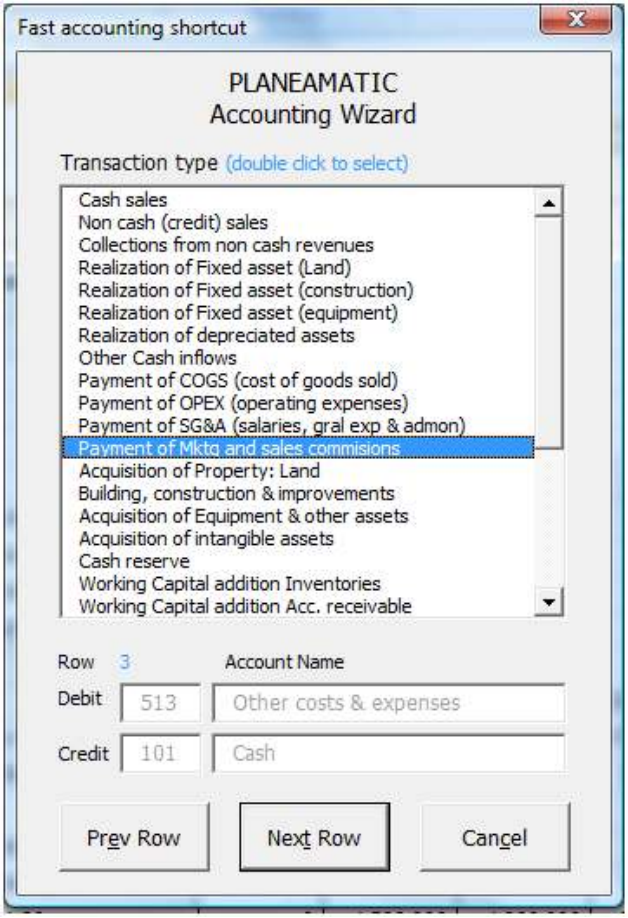
This wizard is the perfect tool for non CPA's[30]. It inserts the necessary account numbers in columns 'A' and 'B' according with the nature of the selected transaction. All you have to do is select the option that describes the nature of the transaction and make double click on it with the mouse, or using <up> and <down> arrows and the <Enter> key to confirm your selection. As simple as that.

Additional accounting wizard transactions can be configured in the FS sheet (see chapter 3 –standard Accounting Transactions).

Accounting wizard is invoked pressing the <ctrl-w> combination. And the desired transaction is selected pressing <Enter>.

[30] *CPA.* Certified Public Accountant.

The Accounting Wizard



Transaction Code (column ‘C’)

Every INPUT sheet entry (row) can be addressed using a Code. These Codes can be later included in Planeamatic formulas.

Following example shows how CODES are used to build simple formulas. The only condition is that a code included in a formula be defined in a previous row.

Usage of CODES in formulation

	A	B	C	D	E
1			Your project name		
2	**Debit**	**Credit**	**Code**	**Description**	**Formula**
3				**Unitary prices and costs**	
4			uCost	Unitary production Cost	3
5			volume	Expected production volume	1000++5
6				Total production direct cost	uCost * volume

INPUT sheet: User defined Codes to be invoked in a later function

Codes may be aggregated using wildcards. The next example illustrates how the formula in row 22 “Working Capital adjustment…” uses a wildcard to include all the previously defined Codes ‘wc_01’, ‘wc_02’, etc.

The formula in row 22: ‘ **wc_ * >> 1** ’ generates a time deferral of one period for all ‘working capital provisions of Inventories, Accounts receivable and Accounts payable’. Do not care if you don’t get it, the only important thing is that you used a single instruction or formulation to aggregate several previous transactions.

Usage of wildcards

	A	B	C	D	E
1			Your project name		
2	**Debit**	**Credit**	**Code**	**Description**	**Formula**
18				**Working Capital**	
19	103	101	wc_01	Inventory	cost % 30
20	102	101	wc_02	Acc receivable	rev % 10
21	101	201	wc_03	Acc payable	cost % 12
22	101	103		WC adjustment, prev year, Inventory	wc_* >> 1

Caution

In above example, the usage of the wildcard is unnecessary. In fact, the same result could be obtained with the formula : ' **wc_ >> 1** ' (omitting the wildcard). This is due to the way Planeamatic deals with Codes inside the formulas: It is assumed that a Code will be included in the formula if the Code fragment (in this case the particle 'wc_') exists **inside** the code field (cell) of any previous entry.

This behavior leads to frequent mistakes hard to debug when coding. Observe the example in the following table. This time a previous entry in row 17 includes the Code '**newc_1**' for '*New Component Expenses*', apparently disconnected from the '*Working Capital*' entries. However, all these codes share the particle '**wc**_'. For that reason, the formula in row 22 will generate an undetectable error when aggregating row 17 amounts together with the *working capital* rows.

Frequent coding error

	A	B	C	D	E
1			Your project name		
2	**Debit**	**Credit**	**Code**	**Description**	**Formula**
17	511	101	newc_1	New components Expenses	30000 , 2
18				**Working Capital**	
19	103	101	wc_01	Inventory	cost % 30
20	102	101	wc_02	Acc receivable	rev % 10
21	101	201	wc_03	Acc payable	cost % 12
22	101	103		WC adjustment, prev year, Inventory	wc_ >> 1

To avoid these problems, be sure to utilize standard and unique codes in all your projects. For example. 'rev_' for revenues, 'cost_' for operating costs, etc. If they work fine once, they will work fine always.

Description (column 'D')

This field is free. Planeamatic ignores it, except when the accounting wizard is invoked. It will load this column with the transaction description if the field or cell is empty.

To precise text description inside the Cash Flow statement, follow these conventions when inserting 'Description' column in the INPUT or Ledger_xx sheet (examples in next table):

- minus sign (-) cuts subsequent text (will not appear in CashFlow)
- plus sign (+) establishes starting point of appearance of the text

These conventions facilitate accommodation of descriptions pertaining to different items in a single row. It also permits to insert descriptive or

clarifying notes in the Ledger sheet preventing them to appear in the Cash Flow:

Configuration of descriptive texts

	A	B	C	D	E
1			The XLS Coffee Shop		PLANEAMATIC
2	**Debit**	**Credit**	**Code**	**Description**	**Formula**
3				**Revenues**	
4	101	401	rev_c	Coffee- revenues (constant)	5.000
5	101	401	rev_d	Donuts revenues -(annual growth: 15%)	3000 %% 15%
6				**Direct costs**	
7	501	101		Direct cost Coffee	rev_C * 25%
8	501	101		Direct cost +Donuts	rev_D * 30%
9				**Expenses**	
10	511	101	temp_code	OPEX (includes rent, salaries & energy)	3300 ++ 50
11	512	101		SGA: Mktg expense- (5% of all revenues)	rev_ * 5%
12	512	101		SGA: +insurance -(paid every other month)	150 ; ; ; 2
13				**Investments**	
14	113	101	invest_1	Investments; civil construction- (in first month)	20000 ; 1 ; 2
15	113	101	invest_2	Investments; +furniture -(in second month)	30000 ; 2 ; 1
16	521	121		Investment's depreciation -(in 3 years)	invest_ [DEP] ; ; 36

INPUT or Ledger_xx sheet: Partial text selection to be applied in Cash Flow statement

Aplication of descriptive texts to Cash Flow

	C	D	E
65	**Acc**	**CASH FLOW**	**TOTALS**
66		**Initial Cash Flow**	
67		**Cash received:**	
68	CF_301	Equity (to cover civil construction)	**40.000**
69	CF_401	Coffee, Donuts revenues	**558.992**
70	CF_AR#1	(#1) Amounts received	**26.445**
71	**TCI**	**Total Cash In**	**625.437**
72		**Expenditures:**	
73	CF_113	Investments; civil construction, furniture	**-70.000**
74	CF_501	Direct cost Coffee, Donuts	**-152.698**
75	CF_511	OPEX (includes rent, salaries & energy)	**-286.500**
76	CF_512	SGA: Mktg expense, insurance	**-32.450**
77	CF_PP#1	(#1) Principal payments	**-26.445**
78	CF_IP#1	(#1) Interest payments	**-6.138**
79	CF_541	Income tax	**-3.922**
80	CF_309	Dividend withdrawal	**-47.284**
81	**TCO**	**Total Cash Out**	**-625.437**
82			
83	**FCF**	**Final Cash Flow**	**0**

FS_xx sheet: Application of decriptive texts in Cash Flow

- Row 4. Text '*revenues (constant)'* has been truncated, because item description in Ledger sheet included a leading minus sign. Same thing happened in row 5 with the text '(*annual growth: 15%)'*. Resulting text appear in row 69 of Cash Flow statement:

  Coffee, Donuts revenues

Without edition, the text would have appeared as:

Coffee revenues (constant), Donuts revenues (annual growth 15%)

- Row 8. Only text after plus sign '*Donuts'* is incorporated to Item description in Cash Flow, together with the text in row 7 (because both items share same account number. Coma is inserted automatically
- Rows 11 and 12. Texts are truncated after minus sign

These tricks become useful when several items are concatenated in a single account number.

Formula (column 'E')

Planeamatic allows any of the following operations:

- a numeric value or percentage. Default numeric format is assigned. If the formula will manage fractions or percentages, it is a good idea apply the appropriate format
- a simple Planeamatic arithmetical expression using the operands '+, –, *, / and %'. Only one operand is accepted in each formula
- a simple growth series
- a compound growth series
- a bounded growth range (initial / final values)
- an investment depreciation
- a fixed term loan
- a revolving credit line

- an accounting transfer
- an instruction to differ previously defined Codes
- an Excel formula

Select the right one to provide you with enough flexibility when analyzing the project.

If your entry couldn't be reproduced by one of the listed operations; for example, a capricious seasonal behavior for *sales volume*, then you could load 'manually' the value or formula for each period (see 'FIX' next section).

This simple procedure will allow you to keep using your existing tables or models for revenues, costs, expenses, payroll, investments, etc., pulling them together into a robust financial model structure inside Planeamatic

Protecting an Entry Row

Some rows may be used to allocate configuration parameters or manually inserted entries. The word 'FIX' in the *Debit Account* column will prevent them from being erased during processing.

FIXed entries are ignored (except for updating the invoked parameter), and the values in the *data matrix* (columns 6 onwards) are not initialized nor erased.

If you decide to load manually an entry, or if you want a row to be ignored, just add the word 'FIX' in column 'A' (Debit Account). 'FIX' will protect your entry data and will not initialize the content of the entire row when the calculation process be launched.

Usage of 'FIX'

	A	B	C	D	E
1			The Cookie Factory		PLANEAMATIC
2	Debit	Credit	Code	Description	Formula
3				Parameters	
4	FIX		scope	Set scope (60 monthly periods)	60
5	FIX		psize	Set period size to months	1
6	FIX		idate	Initial date	ene-18
7	FIX		itax	Set Income Tax to 35%	35 %
8	FIX		div_rate	Set dividend rate to greedy	3
9	FIX		max_debt	max Debt to Equity ratio	0,0
10	FIX		calc_level	Set calculation level to full (charts & totals)	1

INPUT or Ledger Sheet: Row protection using fix Code in column A. These items are ignored by Planeamatic processor

Tip

Be pragmatic; avoid unnecessary detail. When dealing with future projections, always exist an uncertainty level. For that reason becomes irrelevant trying to project amounts with *penny precision*. Some entries can be grouped if their individual analysis is irrelevant for the project, for example those fixed inevitable expenses like SG&A (salaries, general expenses and administration). Identify and focus on the critical variables for your project.

The Formulation Wizard

During data entry process the formulation wizard (FW) can be invoked (<ctrl-q>). It will open a window offering individualized guidance for

each Formulation option, including parameter description and examples.

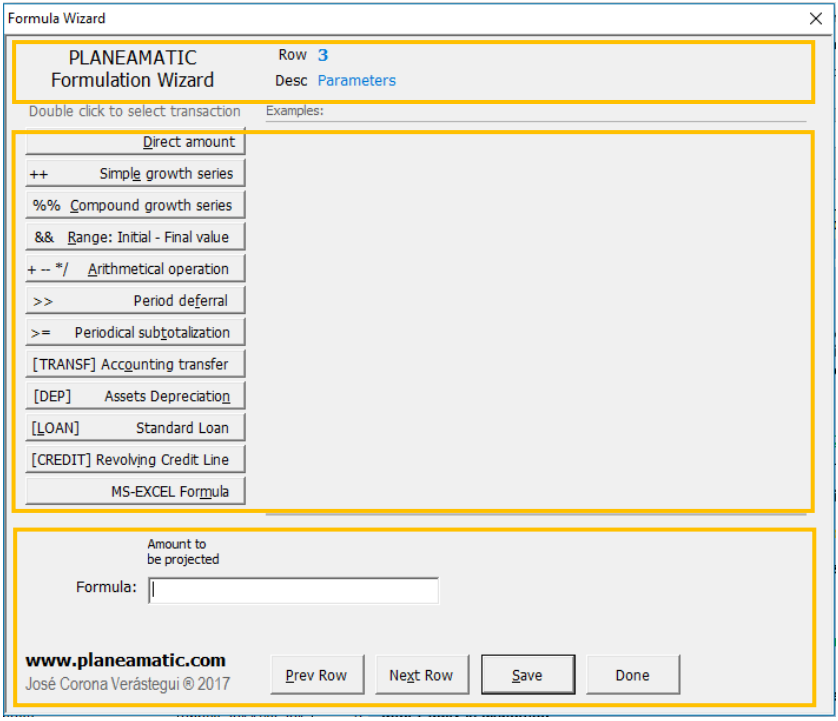
FW is a three vertical section window:

- the first one displays item information (row number and Description)
- the second one is a menu of formulation options (transaction types) with personalized fields and examples
- the third one is a block of fields to load the formula. It also contains the current formula and navigation buttons to navigate through the rows and to save formulas

Every transaction type of the FW offers detailed examples to understand all the required parameters. When navigating through the sheet entries with the up and down buttons, the FW menu is automatically selected for each entry and the corresponding fields are loaded and displayed. You can edit them and update the formula column pressing the <Save> button.

NOTE. If an 'arithmetical operation' exists in the current row formula and a different transaction type is selected, pressing the <save> button will erase the formula.

The Formulation Wizard



INPUT or Ledger Sheet, Formulation Wizard sections: 1) reference information; 2) transactions menu; 3) formula and command bar

Usage of Formulation Wizard is optional. Experienced users prefer loading the formula column manually, but it always helps when some parameter needs clarification. Following chapters explain parameterization for each transaction option.

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Chapter 5

Arithmetical expressions

The formula field (column 'E') accepts different arithmetical operations to reproduce the future behavior of each transaction. For example: fixed values or growing values, simple formulas and numeric ranges.

Basic format

When loading numerical values or arithmetical expressions, the following parameterization must be applied inside the column 'E':

numerical value or arithmetical expression ***; start ; instances ; frequency***

- **numerical value or expression**. May be any number or basic operation of addition, subtraction, multiplication, division or percentage calculation between two operands (use standard signs + - * / %). Operands may be either values, previously defined CODES or Excel predefined names.
- **start**. Indicates the starting column (period) in the projection. Initial period is assigned if omitted.

- **instances**. Indicates how many columns or periods the value or expression will be projected ahead from the **starting** period. Appearance is continuous if omitted (all periods).
- **frequency**. Establishes the number of periods or columns between instances of this Entry.

Basic formulation

	C	D	E
1	La Parrilla II		PLANEAMATIC for Microsoft Excel®
2	**Code**	**Description**	**Formula**
9		**Drivers**	
10	init_vol	Hamburger initial sales volume	10.000
11	growth_rate	Hamburger growth rate	12% && 5% ; 3
12	u_price	Unit Price	3,0
13	num_hamb	Number of sold hamburgers	{init_vol} %% growth_rate ; 3
14		**Revenue**	
15	rev_ham	Hamburger revenues	{u_price} * num_hamb
16	rev_other	Beverage- revenues	10000 ++ 200 ; 3
17	rev_other	Icecream revenues	5000 %% 10% ; 4
18		**Costos y Gastos**	
19		Hamburger- Costs	rev_ham * 40%
20		Beverage an icecream Costs	rev_other * 25%
21		SGA operating expenses	18000 && 22000; 2
22		SGA insurance policies	1500 ; 2 ; ; 4
23		Other expenses	rev_ * 5%

INPUT Sheet. Arithmetical expressions

This table shows usage of the first parameter. Let's review these basic arithmetical expressions:

- '*u_price'* and ''*init_vol*' are fixed values. 'u_price' is projected ahead and appears in every period or column. On the other hand, {curly} brackets indicate an absolute reference to the value contained on column 5.
- Hamburger revenue and direct costs (rows 15, 19 & 20) are calculated with simple arithmetic operations. No equal sign is used (these are nor Excel formulas, nor Excel names).
- Beverages sales (row 16) is not an arithmetic sum but a simple growth series (see Chapter 6), starting at 3rd period
- Row 23 '*Other expenses*' demonstrates how to aggregate codes through the usage of common Code fragments; in this case the particle '*rev_*'. In the example, codes '*rev_hamb'* and *'rev_other'* are added and then multiplied times 5%
- Hamburger's volume and ice-cream revenues are calculated through compound growth series. In first case, growth rate is variable and depends on a previous function which makes it change from 12% on 3rd period to 5% at the end of the project (see row 11). In the 2nd case, ice-cream revenues grows at 10% annual, starting on 4th period
- '*SGA operating expenses*' are calculated with another bounded growth series, starting on 2nd period and grows from 18,000 to 22,000 in the last period

Now let's see the usage of the other parameters in the formula field. They refer to the '*initial period',* the number of *'instances'* and the instance *'frequency*'. The same entries will help to explain them:

Basic formulation

	C	D	E	F	G	H	I
1	La Parrilla II		PLANEAMATIC				(Planeam
2	**Code**	**Description**	**Formula**	**ene-17**	**feb-17**	**mar-17**	**abr-17**
9		**Drivers**					
10	init_vol	Hamburger initial sales volume	10.000				
11	growth_rate	Hamburger growth rate	12% && 5% ; 3			12%	12%
12	u_price	Unit Price	3,0				
13	num_hamb	Number of sold hamburgers	{init_vol} %% growth_rate ; 3			10.000	10.094
14		**Revenue**					
15	rev_ham	Hamburger revenues	{u_price} * num_hamb	0	0	30.000	30.282
16	rev_other	Beverage- revenues	10000 ++ 200 ; 3			10.000	10.200
17	rev_other	Icecream revenues	5000 %% 10% ; 4				5.000
18		**Costos y Gastos**					
19		Hamburger- Costs	rev_ham * 40%	0	0	12.000	12.113
20		Beverage an icecream Costs	rev_other * 25%	0	0	2.500	3.800
21		SGA operating expenses	18000 && 22000; 2		18.000	18.069	18.138
22		SGA insurance policies	1500 ; 2 ; ; 4		1.500		
23		Other expenses	rev_ * 5%	0	0	2.000	2.274

INPUT or Ledger Sheet. Arithmetical expressions with timing configuration

- Items without temporary parameterization appear on every period
- Items on rows 11, 13 and 16, 'Hamburger growth rate', '*Number of sold hamburgers'* and '*Beverage revenues'* are set to start on 3rd period
- Items on row 21 and 22, '*SGA operating expenses'* and '*SGA insurance policies'* is set to start on 2nd period
- Item on row 17, '*Ice-cream revenues*' starts on 4th period

*These parameters (**initial period**, **instances** and **frequency**) are standard for all Planeamatic expressions.*

Tips

To avoid confusions, get used to add leading and trailing spaces between parameters, operands, operators and commas. The following formulas are equivalent, but the 2nd one looks cleaner. The usage of spaces helps to clarify things:

rev_%%10%;4;5

rev_ %% 10% ; 4 ; 5

When using a number as the left operator in an arithmetical expression, be sure Planeamatic will not confuse it with an account number of the Ledger or with previous Codes. We strongly recommend avoid using numerical Codes and procure using numbers as the second operators in expressions:

*220 * labor* (not recommended. Use *labor * 220*)

110_item (not recommended. Use *item_110*)

– o –

Chapter 6

Simple & compound Growth Series

Frequently, some values must be projected like an increasing or decreasing series to represent changes in operations volume, inflation, price rise, etc

Basic format

Simple or compound growth series follows the same parameterization than arithmetical expressions in column 'E':

Simple growth series:

Initial value ++ increment ***; start ; instances ; frequency***

Compound growth series:

initial value %% growth rate ***; start ; instances ; Frequency***

Simple growth series adds increment (2nd parameter) to previous value, while compound growth series multiplies previous value times (1 + increment). In both cases the left operator in the first parameter indicates the starting value; it may be a numerical value or a previously defined Code. Simple growth series uses a double sign operand, either '++', while compound growth series uses the double percentage `%%'. The second operator is the increment.

Both series work fine when combining the timing and frequency parameters, allowing versatile behaviors:

Simple growth series

	D	E	F	G	H	I	J	K	L	M	N	O
1	matic 2017 Demo											
2	**Description**	**Formula**	**ene**	**feb**	**mar**	**abr**	**may**	**jun**	**jul**	**ago**	**sep**	**oct**
3	Set periods to months	1										
4	**Simple growth series**											
5	Monthly growth	100 ++ 10	100	110	120	130	140	150	160	170	180	190
6	Quarterly growth	200 ++ 10 ; ; ; 3	200			210			220			230
7	Monthly growth, bounded	35 ++ 15 ; ; 2	35	50								
8	Monthly growth, delayed	60 ++ 5 ; 3			60	65	70	75	80	85	90	95
9	Monthly growth, delayed	60 ++ 5 ; 3 ; ; 2			60		65		70		75	
10	Negative monthly growth	80 ++ 4-	80	76	72	68	64	60	56	52	48	44
11	Negative startup; pos month growth	80- ++ 4	-80	-76	-72	-68	-64	-60	-56	-52	-48	-44
12	Negative startup; neg month growth	80- ++ 4-	-80	-84	-88	-92	-96	-100	-104	-108	-112	-116

INPUT Sheet. Simple growth series with timing configuration

- **monthly growth**. Initial value is set to first period. Every subsequent period is increased by the specified increment
- **quarterly growth**. Initial value is set to first period. Every Quarter, the amount appears increased by the specified increment
- **monthly growth, bounded**. Initial value is set to first period. Every subsequent period is increased by the specified increment, but appearance is interrupted after 2 instances
- **monthly growth, delayed**. Initial value is set to initial period specified (3rd). Every subsequent period is increased by the specified increment
- **negative growth.** As expected, Initial value is set to first period. Every subsequent period is added or decreased by the specified increment

This parameterization can be combined to produce intermittent, delayed and or bounded projections, for example:

Simple growth series, combined parameters

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	matic 2017 Demo													
2	**Description**	**Formula**	**ene**	**feb**	**mar**	**abr**	**may**	**jun**	**jul**	**ago**	**sep**	**oct**	**nov**	**dic**
3	Set periods to months	1												
4	**Simple growth series**													
5	Combined parameters	35 ++ 5 ; 2 ; 4 ; 2		35		40		45		50				
6	Idem	50 ++ 25- ; 6 ; 3						50	25	0				

INPUT Sheet. Simple growth series with timing configuration

In compound growth series, the second operator is the annual growth rate (in this case is 10%). Planeamatic adjusts automatically intermediate increments:

Compound growth series, monthly projection

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	matic 2017 Demo														
2	**Description**	**Formula**	**ene**	**feb**	**mar**	**abr**	**may**	**jun**	**jul**	**ago**	**sep**	**oct**	**nov**	**dic**	**ene**
3	Set periods to months	1													
15	**Compound growth series**														
16	Serie #1	100 %% 10%	100	101	102	102	103	104	105	106	107	107	108	109	110
17	Serie #2	100 %% 10% ; ; ; 3	100			102			105			107			110
18	Serie #3	100 %% 10% ; 2 ; 4 ; 2		100		102		103		105					
19	Serie #4	100 %% 10% ; 3			100	101	102	102	103	104	105	106	107	107	108
20	Serie #5	100 %% 10% ; 4 ; 3				100	101	102							

INPUT Sheet. Compound growth series, Monthly projection

Important

Second and third series shows a difference between simple and compound growth: in the late series, the growth is set by year, not by period: intermediate values are calculated accordingly, while in simple

growth series, the growth is applied to each instance period (if no instance, no growth).

If the project timing is set to years in the PARAM sheet, the growth is adjusted accordingly:

Compound growth series, annual projection

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	matic 2017 Demo	PLANEAMATIC													
2	**Description**	**Formula**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
3	Set periods to years	12													
15	**Compound growth series**														
16	Serie #1	100 %% 10%	100	110	121	133	146	161	177	195	214	236	259	285	314
17	Serie #2	100 %% 10% ; ; ; 3	100			133			177			236			314
18	Serie #3	100 %% 10% ; 2 ; 4 ; 2		100		121		146		177					
19	Serie #4	100 %% 10% ; 3			100	110	121	133	146	161	177	195	214	236	259
20	Serie #5	100 %% 10% ; 4 ; 3				100	110	121							

INPUT Sheet. Compound growth series, Annual projection

The growth frequency

Planeamatic series features an additional parameter (5th parameter, after frequency), called 'Growth frequency'. If used, it allows to configure how frequently the growth is applied to a series:

Personalized growth frequency

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	matic 2017 Demo	PLANEAMATIC													
2	**Description**	**Formula**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
3	Set periods to years	12													
75	**Variable Growth series**														
76	Serie #1	100 ++ 10	100	110	120	130	140	150	160	170	180	190	200	210	220
77	Serie #2	100 ++ 10 ; ; 6 ; ; 2	100	100	110	110	120	120							
78	Serie #3	100 ++ 10 ; 4 ; ; ; 2				100	100	110	110	120	120	130	130	140	140
79	Serie #4	100 ++ 10 ; 3 ; ; ; 4			100	100	100	100	110	110	110	110	120	120	120
80	Serie #5	100 %% 10% ; ; 5 ; 2 ; 3	100		100		133		177		177				

INPUT Sheet. Usage of 'Growth frequency' parameter

Series propagation <++> , <- - > , <%%>

Optionally, the initial and ending values of a bounded series, either simple or compound growth, can be extended to the beginning and the ending periods of a projection. To apply this feature, the operand must be enclosed in angular brackets '< >'. Following examples explain *series propagation*:

Series propagation

	D	E	F	G	H	I	J	K	L	M	N	O	P
1	matic 2017 Demo	PLANEAMATIC for Microsoft Excel®											
2	**Description**	**Formula**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
83	**Series propagation**												
84	Std Serie #1	100 ++ 10 ; 3 ; 4			100	110	120	130					
85	Extended series #1	100 <++> 10 ; 3 ; 4	100	100	100	110	120	130	130	130	130	130	130
86	Std Serie #2	100 %% 10% ; 5 ; 3					100	110	121				
87	Extended series #2	100 <%%> 10% ; 5 ; 3	100	100	100	100	100	110	121	121	121	121	121

INPUT Sheet. Series propagation, Annual projection

Bounded growth series &&

A special series can be set with initial and final values. This special series are complimentary to simple and compound growth series and it is called *bounded growth series*.

As expected, *bounded growth series* follows the standard parameterization in column 'E':

initial value ***&&*** *final value* ***; start ; instances ; frequency***

The 5th parameter (*growth frequency)* is not applicable to bounded growth series: periodical growth is automatically calculated to distribute

the difference between initial and final values between the number of instances and its frequency. The user can not modify it.

Bounded growth series

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	matic 2017 Demo														
2	**Description**	**Formula**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
3	Set periods	12													
88	**Bounded growth series**														
89	Serie #1	100 && 200 ; ; 11	100	110	120	130	140	150	160	170	180	190	200		
90	Serie #2	100 && 200 ; 2 ; 5		100	125	150	175	200							
91	Serie #3	100 && 200 ; 3 ; 4			100	133	167	200							
92	Serie #4	100 && 200 ; 5 ; 3					100	150	200						
93	Serie #5	100 && 200 ; 4 ; 2				100	200								
94	Serie #6	100 <&&> 200 ; 4 ; 2	100	100	100	100	200	200	200	200	200	200	200	200	200
95	Serie #7	100 && 200 ; 3 ; 3			100	150	200								
96	Serie #8	100 <&&> 200 ; 3 ; 3	100	100	100	150	200	200	200	200	200	200	200	200	200
97	Serie #9	100 && 200 ; 3 ; 3 ; 2			100		150		200						

INPUT Sheet. Bounded growth series, Annual projection

These examples show behavior of *bounded growth series* configuration. Orange tinted values represent the effect of the automatic propagation applied to each entry.

Series #9 demonstrate how growth is calculated. The *instance* parameter specifies three periods and *frequency* indicates '*every 2 periods*'. Period growth is calculated taking both parameters in consideration

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Chapter 7

Investment's depreciation (& amortization) function

These concepts refer to recognition of the loss of value of fixed assets, transferring them gradually to the Income statement as expenses. The term *depreciation* is applied to tangible assets, while *amortization* refers to intangibles like patents, goodwill, licenses, etc. Planeamatic applies the same treatment to both concepts.

Basic format

Fixed assets may be fully or partially depreciated or amortized and they can do it over a straight line or in an accelerated way. The parameterization of functions is different than the used in Planeamatic expressions.

In Planeamatic, a function is identified with a label. In this case with the label [DEP] or simply [D].

Asset Code [DEP] *rescue value pctg* ***; method ; term***

Let's explain each parameter:

- **Asset code**. It points to a previously defined entry containing the asset(s) to be depreciated. A Code is mandatory; numeric value is not acceptable
- **[DEP] or [D].** This is the label to invoke the depreciation function
- **Rescue value percentage**[31]. (optional) This percentage indicate the final value of the asset (if any) after applying the depreciation function
- **method**. Planeamatic offers three methods:
- **0** straight line (default)
- **1** sum of years digits[32] method (accelerated)
- **2** double digit[33] method (accelerated)
- **term**. The number of periods to depreciate the asset. Term must be defined according with project sensitivity: term = 5 may represent five years if project sensitivity is years, but it could represent five months if the sensitivity were months. Accelerated depreciation methods requires terms bigger than one year.

All amounts appearing in the Code row (in any period) will be depreciated. If Code aggregates more than one entry, all the amounts appearing in different rows from the same column will be summarized before applying the depreciation.

[31] *Rescue Value.* An estimation of the potential revenue obtained at the end of an Asset's life; either as a functional item or as waste material.

[32] *Sum of years digits method.* If depreciation term is 'n' periods: First year depreciates n / (n –1 + n – 2 + n – 3… + n – n + 1), second year depreciates (n – 1) / (idem), etc

[33] *Double digit method.* If depreciation term is 'n' periods: First year depreciates 2 / n, second year depreciates the remainder value at the same rate (2 / n), etc. The last year is adjusted to match rescue value (if any).

During accounting codification, the Debit column must contain an expense account to be charged in the Income statement, while the Credit column must contain a complimentary asset account to be credited in the Balance sheet. This complimentary asset account–called Accumulated depreciation–, is usually allocated as the last line of the Fixed asset group in such statement and must show negative increasing values to be deducted from the fixed asset total. The accounting wizard does it for you.

Investment depreciation

C	D	E	F	G	H	I	J	K	L	M	N
Planeamatic 2017 Demo											
Code	**Description**	**Formula**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
psize	Set periods to years	12									
	Investments										
inv_01	Machinery, equipment	8000 ; ; 3 ; 2	8.000		8.000		8.000				
inv_01	Machinery, installation expenses	1500 ; 5 ; 1					1.500				
inv_02	Vehicles	1000 ; ; 2	1.000	1.000							
inv_pat	Patents	3000 ; 2 ; 1		3.000							
inv_21	Computers	2000 ; 3 ; 1			2.000						
	Straight line dep machinery (5 yr)	inv_01 [DEP] ; ; 5	1.600	1.600	3.200	3.200	5.100	3.500	3.500	1.900	1.900
	Straight line dep vehicles (4 yr; RV 20%)	inv_02 [DEP] 0,2 ; 4	200	400	400	400	200	0	0	0	0
	Straight line dep patents (8 yr)	inv_pat [DEP] ; ; 8	0	375	375	375	375	375	375	375	375
	Duble digit dep computers (4 yr)	inv_21 [DEP] ; 2 ; 4	0	0	1.000	500	250	250	0	0	0

INPUT Sheet. Depreciation function. Annual projection

This example contains four different investments identified with Codes. Depreciations has been formulated as follows:

- **Machinery** is depreciated linearly with the straight line method over five years. In each column, they are aggregated before depreciated. The sum of their depreciations equals the investments over the years (25,500)
- **Vehicles** are linearly depreciated over a four year period with a 20% rescue value

- **patents** are fully linearly amortized over an eight year period
- **computers** are fully depreciated on four years accelerated with the Double digit method (last year is adjusted)

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Chapter 8

Loans & Credit lines

These functions automate calculation and codification of amortization tables[34]. The revolving credit lines calculate automatic dispositions to avoid cash flow bottlenecks. This feature provides astonishing flexibility, releasing the analyst from manual adjustments to fulfill project monetary requirements, a process called sculpting[35]

Loans a Credits

Loans are assumed to be prearranged cash lending contracts, where the amount disposed is fixed, as well as the term, the interest rate and the grace period if any.

Credit Lines are assumed to be 'flexible' cash lending contracts, where the maximum cash withdrawal is preset, as well as the term, the interest rate and the grace period[36]. The difference inside Planeamatic is that Credit Lines are automatically administrated: the program decide how much cash to dispose and when, in order to avoid any future bottlenecks and excessive withdrawals.

[34] *Amortization tables.* This term refers to the matrix where the loan or credit line disposal, interests and repayments are calculated. It is not related with intangible Asset's amortization.

[35] *Sculpting.* An analogy to describe the tedious and complicated manual process of calculating the total cash requirements to fulfill the operative, fiscal and financial requirements of the project in each period, including the interests of the credit itself

[36] *Grace period.* A prestablished initial period after loan or credit line disbursements, in which no principal repayments are made, only interests.

His powerful internal algorithm calculates the interests and the fiscal effects for each period present and future and determines the cash amounts to dispose from the credit line. It also releases cash for dividend distribution after reserving resources to comply with fiscal and financial duties along the project.

Automatic Cash Flow control

Planeamatic guarantees zero partial Cash Flow balances (residue cash) while the Credit Lines are *opened* for cash withdrawal; and, if the repayment is set to automatic (no term), it also guarantees zero partial Cash Flow balances while the Credit is repaid (repayments are set to apply all disposable cash to credit amortization, after income tax is paid). Obviously, enough cash should be generated by the project to allow repayments.

This feature, regarding the automatic control of the partial Cash Flow residues is an advanced tool. It works in combination with the established *dividend withdrawal* politics to prioritize debt fulfillment. It means the analyst can make a faster, deeper and better project analysis without worrying about project cash availability.

Basic format

Loans and Credit Lines use the same parameterization:

Amount* [LOAN]** ***interest rate ***; withdrawal ; term ; Repayment frequency ; grace***

Let's explain each parameter:

- **[LOAN] or [LOANS].** This is the label for the Loan function (use the label [CREDIT] or [CREDITS] for credit lines). Default repayment method is '*equal total payments' (principal plus interest payment)*. For '*equal principal payments'* use [LOANS] instead of [LOAN] (or [CREDITS] instead of [CREDIT]). Short names are valid ([L] and [LS])
- **Amount**. The amount to receive
- **% sign and annual interest rate**. The interest rate is applied to outstanding balances, assuming Loan withdrawals and repayments are made at the end of each period
- **withdrawal**. The period or range of periods when the Loan is received. If a period range is specified, the Loan amount is equally distributed in those periods. For example if withdrawal is set to 1:3 it means that the Loan amount will be divided into three consecutive withdrawals, starting on first period. If withdrawal is set to 2:1 or 2, the Loan will be fully applied in second period.

> *If withdrawal period or range is omitted, it is assumed the Loan is an outstanding debt (it should appear in the opening balance). No amounts are disposed; only interests and Loan repayments are calculated.*

- **term**. The number of periods to repay the Loan, after withdrawal period(s). If omitted, the Loan is repaid along the project life
- **frequency** Establishes the number of periods or columns between partial payments. If omitted, frequency is set to one (1)

- **grace**. The number periods between Loan withdrawal and first repayment. If omitted is set to zero.

Loan and Credit Lines are automatically numbered in reverse order and a three row amortization table is created for each one. When the process is launched, a total of four rows will appear in the Ledger_XX sheet:

- the Loan or Credit line function as inserted by user
- amount(s) received
- principal payments
- interest payments

Each one of the inserted rows is tinted in green color to clearly indicate that the row is part of the amortization table for that Loan or Credit Line. The user should avoid any modification to these rows.

The [LOAN] function

C	D	E	F	G	H	I	J	K	L	M	N	O
Code	**Description**	**Formula**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
psize	Set periods to years	12										
	Loans											
	(#6)	10000 [LOAN] 0,1 ; 2:1 ; 6										
AR#6	(#6) Amounts received			10.000								
PP#6	(#6) Principal payments				1.296	1.426	1.568	1.725	1.898	2.087		
IP#6	(#6) Interest payments			0	1.000	870	728	571	398	209		
	(#5)	10000 [LOAN] 0,1 ; 1:3 ; 6										
AR#5	(#5) Amounts received		3.333	3.333	3.333							
PP#5	(#5) Principal payments					1.296	1.426	1.568	1.725	1.898	2.087	
IP#5	(#5) Interest payments		0	333	667	1.000	870	728	571	398	209	
	(#4)	10000 [LOAN] 0,05 ; 1 ; 7 ; 3										
AR#4	(#4) Amounts received		10.000									
PP#4	(#4) Principal payments			3.172			3.331			3.497		
IP#4	(#4) Interest payments		0	500	500	500	341	500	500	175		
	(#3)	10000 [LOAN] 0,05 ; ; 10										
AR#3	(#3) Amounts received											
PP#3	(#3) Principal payments		795	835	877	920	966	1.015	1.065	1.119	1.175	1.233
IP#3	(#3) Interest payments		500	460	419	375	329	280	230	176	120	62
	(#2)	10000 [LOANS] 0,05 ; 1 ; 9 ; 3 ; 2										
AR#2	(#2) Amounts received		10.000									
PP#2	(#2) Principal payments					3.333			3.333			3.333
IP#2	(#2) Interest payments		0	500	500	500	333	333	333	167	167	167
	(#1)	10000 [LOANS] 0,05 ; ; 10										
AR#1	(#1) Amounts received											
PP#1	(#1) Principal payments		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
IP#1	(#1) Interest payments		500	450	400	350	300	250	200	150	100	50

INPUT Sheet. The Loan function

Let's explain each Loan:

- Loan #6 is a 10,000 withdrawal in a single exhibition (2nd period). Term is six periods, no grace period. Annual interest rate is 10%. Mortgage style payments (equal total payments)
- Loan #5 is a 10,000 withdrawal on three equal consecutive exhibitions starting on first period. Term is six periods and there is no grace period. Annual interest rate is 10%. Mortgage style

- Loan #4 is a 10,000 withdrawal in a single exhibition (first period). Term is seven periods, payment is made every 3 periods and there is no grace period. Annual interest rate is 5%. Mortgage style
- Loan #3 is an outstanding Debt repayment of 10,000 with no withdrawals. Term is ten periods and there is no grace period. Annual interest rate is 5%. Mortgage style
- Loan #2 is a 10,000 withdrawal in a single exhibition (first period). Term is nine periods, payment is made every three periods and there are two grace periods. Annual interest rate is 5%. German style payments (equal capital payments)
- Loan #1 is an outstanding Debt repayment of 10,000 with no withdrawals. Term is ten periods and there is no grace period. Annual interest rate is 5%. German style

Each Loan's amortization table is built according with the parameterization provided. No consideration is made about Cash availability. If not enough cash is generated during Loan repayment, the Cash Flow statement will reflect a negative balance.

The syntax for the Credit Line is the same as the Loans. However, calculation process is completely different. First of all, Credit Lines are disposed *after* the financial statements are built and the income Tax has been calculated. This allows to detect cash requirements for every single project requirement: costs, expenses, investments, Loan repayments and taxes (dividend withdraws are calculated after Credit repayments).

Secondly, Credit Line repayments (if repayment is set to *automatic)* take in consideration Cash availability not only for the period, but for the periods ahead. This way, a credit repayment avoids generation of a bottleneck in a later period.

It is mandatory to insert the required account numbers to properly incorporate the loans and credit lines into the financial statements. The Debit account must be the Financial expenses account in the Income Statement and the Credit account must be the Long term liabilities account in the Balance sheet (see chapter #3).

Following table shows the amortization table calculated for a 100,000 Credit Line at 8% annual interest rate, *fully revolving* during project term (Credit #1). It means that both disposals and repayments will be made according with cash requirements (and availability), for that reason disposals and repayments are *irregular*.

The Cash Flow statement shows how withdrawals have been calculated to avoid negative outstanding balances. This example refers to a project in which an additional Loan (Loan #2, for 30,000) has been borrowed.

A Revolving Credit Line

C	D	E	F	G	H	I	J	K	L	M
Code	Description	Formula	ene-18	feb-18	mar-18	abr-18	may-18	jun-18	jul-18	ago-18
	(#2) Loan: 20,000 at 5%; 2 tranches; Term:48	20000 [LOAN] 0,05 ; 4:2 ; 48								
AR#2	(#2) Amounts received					10.000	10.000			
PP#2	(#2) Principal payments							377	379	380
IP#2	(#2) Interest payments					0	42	83	82	80
	(#1) Credit #1	100000 [CREDIT] 0,08 ; ; 60								
AR#1	(#1) Amounts received		5.000	5.033	6.697			24.957	23.309	
PP#1	(#1) Principal payments					5.073	5.080			2.314
IP#1	(#1) Interest payments		0	33	67	112	78	44	210	366

INPUT Sheet. The Credit Line function

The Cash Flow

C	D	E	F	G	H	I	J	K	L	M
Acc	CASH FLOW	TOTALS	ene-18	feb-18	mar-18	abr-18	may-18	jun-18	jul-18	ago-18
	Initial Cash Flow			0	0	0	0	0	0	0
	Cash received:									
CF_301	Equity	90.000	30.000	30.000	30.000	0	0	0	0	0
CF_401	standard cookies revenues, de luxe cookie	2.371.800	0	0	21.000	21.000	21.000	21.525	21.525	35.055
CF_AR#2	(#2) Amounts received	20.000	0	0	0	10.000	10.000	0	0	0
CF_AR#1	(#1) Amounts received	64.996	5.000	5.033	6.697	0	0	24.957	23.309	0
TCI	**Total Cash In**	2.546.796	35.000	35.033	57.697	31.000	31.000	46.482	44.834	35.055
	Expenditures:									
CF_113	Production line for both cookie's models, A	-126.000	-30.000	-30.000	-30.000	0	0	-18.000	-18.000	0
CF_501	Direct production cost (std & lux cookies)	-1.224.031	0	0	-13.000	-13.000	-13.000	-13.325	-13.325	-17.922
CF_511	Factory overhead (monthly fixed)	-300.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000	-5.000
CF_512	SG&A, Insurance policies (paid quarterly),	-589.543	0	0	-9.630	-7.815	-7.801	-9.653	-7.838	-8.993
CF_PP#2	(#2) Principal payments	-20.000	0	0	0	0	0	-377	-379	-380
CF_PP#1	(#1) Principal payments	-64.996	0	0	0	-5.073	-5.080	0	0	-2.314
CF_IP#2	(#2) Interest payments	-2.150	0	0	0	0	-42	-83	-82	-80
CF_IP#1	(#1) Interest payments	-4.585	0	-33	-67	-112	-78	-44	-210	-366
CF_541	Income tax	-59.934	0	0	0	0	0	0	0	0
CF_309	Dividend withdrawal	-155.557	0	0	0	0	0	0	0	0
TCO	**Total Cash Out**	-2.546.796	-35.000	-35.033	-57.697	-31.000	-31.000	-46.482	-44.834	-35.055
FCF	**Final Cash Flow**	0	0	0	0	0	0	0	0	0

FS Sheet. The application of credit line into the Cash Flow St.Please observe how disposals and repayments are fully automated to guarantee zero ending cash flow balance

Balance Sheet and Income Statement are also shown. In both statements, the Credit line #1 and the Loan #2 balances and financial expenses appear summarized:

- The Balance Sheet & Income St.

C	D	E	F	G	H	I	J	K	L	M
The Cookie Factory		PLANEAMATIC				(Planeamatic 2017 Demo jun/07 19:36). Your first p				
Acc	**BALANCE SHEET (BS)**	**Initial**	**ene-18**	**feb-18**	**mar-18**	**abr-18**	**may-18**	**jun-18**	**jul-18**	**ago-18**
	ASSETS									
	Current Assets									
101	Cash		0	0	0	0	0	0	0	0
TCA	**Total Current Assets**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Fixed Assets									
113	Equipment		30.000	60.000	90.000	90.000	90.000	108.000	126.000	126.000
121	Acc. depreciation & amortization		-250	-750	-1.500	-2.250	-3.000	-4.125	-5.625	-7.125
TFA	**Total Fixed Assets**	**0**	**29.750**	**59.250**	**88.500**	**87.750**	**87.000**	**103.875**	**120.375**	**118.875**
TA	**TOTAL ASSETS**	**0**	**29.750**	**59.250**	**88.500**	**87.750**	**87.000**	**103.875**	**120.375**	**118.875**
	LIABILITIES									
	Current Liabilities									
TCL	**Total Current Liabilities**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Long term Liabilities									
211	Credits, bonds, capital leases		5.000	10.033	16.730	21.657	26.577	51.157	74.087	71.393
TLTL	**Total Long Term Liabilities**	**0**	**5.000**	**10.033**	**16.730**	**21.657**	**26.577**	**51.157**	**74.087**	**71.393**
TL	**TOTAL LIABILITIES**	**0**	**5.000**	**10.033**	**16.730**	**21.657**	**26.577**	**51.157**	**74.087**	**71.393**
	EQUITY									
	Shareholders Equity									
301	Equity		30.000	60.000	90.000	90.000	90.000	90.000	90.000	90.000
308	Retained earnings (loses)		-5.250	-10.783	-18.230	-23.907	-29.577	-37.282	-43.712	-42.518
309	Dividend withdrawal		0	0	0	0	0	0	0	0
TE	**Total Equity**	**0**	**24.750**	**49.217**	**71.770**	**66.093**	**60.423**	**52.718**	**46.288**	**47.482**
TLE	**TOTAL LIABILITIES & EQUITY**	**0**	**29.750**	**59.250**	**88.500**	**87.750**	**87.000**	**103.875**	**120.375**	**118.875**

C	D	E	F	G	H	I	J	K	L	M
Acc	**INCOME STATEMENT (IS)**	**Initial**	**ene-18**	**feb-18**	**mar-18**	**abr-18**	**may-18**	**jun-18**	**jul-18**	**ago-18**
	Revenues									
401	Revenues Line A		0	0	21.000	21.000	21.000	21.525	21.525	35.055
NR	**Net Revenues**	**0**	**0**	**0**	**21.000**	**21.000**	**21.000**	**21.525**	**21.525**	**35.055**
	Operating Cost									
501	Cost of goods sold (COGS)		0	0	13.000	13.000	13.000	13.325	13.325	17.922
GE	**Gross Earnings or Gross Profit**	**0**	**0**	**0**	**8.000**	**8.000**	**8.000**	**8.200**	**8.200**	**17.133**
	Operating expenses									
511	Operating expenses (OPEX)		5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
512	Sales, Gral & Admve expenses (SG&A)		0	0	9.630	7.815	7.801	9.653	7.838	8.993
TCE	**Total Cost & Expenses**	**0**	**5.000**	**5.000**	**14.630**	**12.815**	**12.801**	**14.653**	**12.838**	**13.993**
EBITDA	**EBITDA**	**0**	**-5.000**	**-5.000**	**-6.630**	**-4.815**	**-4.801**	**-6.453**	**-4.638**	**3.140**
	Dep & Amort									
521	Depreciation Cost		250	500	750	750	750	1.125	1.500	1.500
	Total Dep. & Amort.	**0**	**250**	**500**	**750**	**750**	**750**	**1.125**	**1.500**	**1.500**
EBIT	**EBIT**	**0**	**-5.250**	**-5.500**	**-7.380**	**-5.565**	**-5.551**	**-7.578**	**-6.138**	**1.640**
	Financial Expenses									
531	Financial expenses		0	33	67	112	119	127	292	446
TFE	**Total Financial Expenses**	**0**	**0**	**33**	**67**	**112**	**119**	**127**	**292**	**446**
EBT	**Earnings before taxes**	**0**	**-5.250**	**-5.533**	**-7.447**	**-5.677**	**-5.670**	**-7.705**	**-6.430**	**1.194**
	Taxes									
541	Income tax									
308 NE	**NET EARNINGS**	**0**	**-5.250**	**-5.533**	**-7.447**	**-5.677**	**-5.670**	**-7.705**	**-6.430**	**1.194**

FS Sheet. The application of credit line into Balance and Income Statements

Previous example demonstrates also how Planeamatic incorporates the INPUT sheet entries into the Financial Statements. Negative signs are automatically applied to outflows. The Balance sheet shows Debt outstanding balance in each period (net of withdrawals and repayments) and the Income statement incorporates the interests as financial expenses.

It is important to notice how the Credit Line realizes dispositions even to pay its own interests in order to avoid negative ending Cash Flow balances.

> *Accounting codification of Loans and Credit Lines is explained on Chapter 3: An Income Statement financial expense account to charge the interests, and a Balance sheet Liability account to register the Debt and repayments.*

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Chapter 9

Accounting transfers and period deferrals

It is a common practice to 'close' the Balance Sheet at project maturity or ending. This practice is required when a concession finishes or when the realization value of the assets at the end must be considered to calculate IRR. Sometimes it is also necessary to indicate a 'time delay' between revenues and collections or simply to move some accounting transactions in time.

Accounting transfer

This function '*transfer'* **[TRANSF]**, performs the residue transfer from one account in the Balance sheet to another at the indicated period. All you have to do is indicate the account numbers and the period to occur.

Assume a five year project with a significant asset value at maturity, for example: inventories and a fleet of vehicles. These assets utilized resources to be acquired and should be converted into Cash Flows to be included in the IRR calculation to compensate investors.

This conversion is easily simulated with a transfer function. The parameterization follows the standard format, although not all the parameters are required:

Acc to cancel [TRANSF] ***; start*** ***; instances*** ***; frequency***
Acc to increase

In other words, you specify the Account number to be cancelled and the Account number to receive its outstanding Balance. Some rules apply:

- only the Balance Sheet accounts may (and need to) be cancelled
- the Cash Account cannot be cancelled through this procedure. The dividend withdrawal process takes care of it
- the Account number to 'receive' the final residue of the cancelled account should pertain to the Income Statement (this is not mandatory):
- asset cancellation generates a cost (it also may generate a revenue by receiving some cash when selling the asset)
- accumulated depreciation cancellation generates a credit to the depreciation expense
- outstanding debts should be liquidated through the proper stream, adjusting the term of its amortization table
- Equity should be cancelled through dividend withdrawals, except if the parameterization of *dividend withradawal criteria* would prevent it. Ending retained earnings not distributed should be considered a mistake

Following example cancels outstanding balances of fixed assets, transferring gross book values to Income Statements as 'Costs' and Accumulated depreciations as negative 'Depreciation expense' for the last period. It also shows the asset realization.

Accounting transfers

A	B	C	D	E
		The GoGo Bar		
Debit	**Credit**	**Code**	**Description**	**Formula**
			Project realization: Assets cancelation	
501	111		Land, book value cancellation from Assets	111 [TRANSF] 501 ; 60
501	112		Construction, book value cancellation from Assets	112 [TRANSF] 501 ; 60
501	113		Equipment, book value cancellation from Assets	113 [TRANSF] 501 ; 60
521	121		Acc depreciation (cancelation from assets)	121 [TRANSF] 521 ; 60
101	403		Bar sale: Land realization price (25% superavit)	1250000 ; 60 ; 1
101	403		Bar sale: realization price (60% construction cost)	1200000 ; 60 ; 1

INPUT Sheet. Configuration of an accounting transfer

Debit and Credit columns are automatically filled (and overwritten) with the account numbers in Formula. The second parameter, 60, indicates the period to apply the transfer (in this case is the last of a five year monthly projection).

Observe that the first account is the one to be cancelled, no matter its accounting nature: a debtor account will be credited and a credit account will be charged.

Accounting transfers can lead to invalid or illegal transactions. They must be carefully validated by a CPA.

The Balance Sheet & Income St.

Before the transfer

C	D	BK	BL	BM
The GoGo Bar				
Acc	BALANCE SHEET (BS)	oct-22	nov-22	dic-22
	ASSETS			
	Current Assets			
101	Cash	0	0	0
TCA	Total Current Assets	0	0	0
	Fixed Assets			
111	Property, Land	1.000.000	1.000.000	1.000.000
112	Property, Construction	2.000.000	2.000.000	2.000.000
113	Equipment	300.000	300.000	300.000
121	Acc. depreciation & amortization	-1.170.833	-1.191.667	-1.212.500
TFA	Total Fixed Assets	2.129.167	2.108.333	2.087.500
TA	TOTAL ASSETS	2.129.167	2.108.333	2.087.500
	LIABILITIES			
	Current Liabilities			
TCL	Total Current Liabilities	0	0	0
	Long term Liabilities			
TLTL	Total Long Term Liabilities	0	0	0
TL	TOTAL LIABILITIES	0	0	0
	EQUITY			
	Shareholders Equity			
301	Equity	3.300.000	3.300.000	3.300.000
308	Retained earnings (loses)	849.864	882.822	2.508.279
309	Dividend withdrawal	-2.020.698	-2.074.489	-3.720.779
TE	Total Equity	2.129.167	2.108.333	2.087.500
TLE	TOTAL LIABILITIES & EQUITY	2.129.167	2.108.333	2.087.500

C	D	BK	BL	BM
Acc	INCOME STATEMENT (IS)	oct-22	nov-22	dic-22
	Revenues			
401	Revenues Line A	124.416	124.416	124.416
403	Other Revenues	0	0	2.450.000
NR	Net Revenues	124.416	124.416	2.574.416
	Operating Cost			
501	Cost of goods sold (COGS)	43.546	43.546	43.546
GE	Gross Earnings or Gross Profit	80.870	80.870	2.530.870
	Operating expenses			
512	Sales, Gral & Admve expenses (S	15.583	9.333	9.333
TCE	Total Cost & Expenses	15.583	9.333	9.333
EBITD	EBITDA	65.287	71.537	2.521.537
	Dep & Amort			
521	Depreciation Cost	20.833	20.833	20.833
	Total Dep. & Amort.	20.833	20.833	20.833
EBIT	EBIT	44.454	50.704	2.500.704
	Financial Expenses			
TFE	Total Financial Expenses	0	0	0
EBT	Earnings before taxes	44.454	50.704	2.500.704
	Taxes			
541	Income tax	15.559	17.746	875.246
308 N	NET EARNINGS	28.895	32.957	1.625.457

After the transfer

C	D	BK	BL	BM
The GoGo Bar				
Acc	BALANCE SHEET (BS)	oct-22	nov-22	dic-22
	ASSETS			
	Current Assets			
101	Cash	0	0	0
TCA	Total Current Assets	0	0	0
	Fixed Assets			
111	Property, Land	1.000.000	1.000.000	0
112	Property, Construction	2.000.000	2.000.000	0
113	Equipment	300.000	300.000	0
121	Acc. depreciation & amortization	-1.170.833	-1.191.667	0
TFA	Total Fixed Assets	2.129.167	2.108.333	0
TA	TOTAL ASSETS	2.129.167	2.108.333	0
	LIABILITIES			
	Current Liabilities			
TCL	Total Current Liabilities	0	0	0
	Long term Liabilities			
TLTL	Total Long Term Liabilities	0	0	0
TL	TOTAL LIABILITIES	0	0	0
	EQUITY			
	Shareholders Equity			
301	Equity	3.300.000	3.300.000	3.300.000
308	Retained earnings (loses)	849.864	882.822	1.151.404
309	Dividend withdrawal	-2.020.698	-2.074.489	-4.451.404
TE	Total Equity	2.129.167	2.108.333	0
TLE	TOTAL LIABILITIES & EQUITY	2.129.167	2.108.333	0

C	D	BK	BL	BM
Acc	INCOME STATEMENT (IS)	oct-22	nov-22	dic-22
	Revenues			
401	Revenues Line A	124.416	124.416	124.416
403	Other Revenues	0	0	2.450.000
NR	Net Revenues	124.416	124.416	2.574.416
	Operating Cost			
501	Cost of goods sold (COGS)	43.546	43.546	3.343.546
GE	Gross Earnings or Gross Profit	80.870	80.870	-769.130
	Operating expenses			
512	Sales, Gral & Admve expenses (S	15.583	9.333	9.333
TCE	Total Cost & Expenses	15.583	9.333	9.333
EBITD	EBITDA	65.287	71.537	-778.463
	Dep & Amort			
521	Depreciation Cost	20.833	20.833	-1.191.667
	Total Dep. & Amort.	20.833	20.833	-1.191.667
EBIT	EBIT	44.454	50.704	413.204
	Financial Expenses			
TFE	Total Financial Expenses	0	0	0
EBT	Earnings before taxes	44.454	50.704	413.204
	Taxes			
541	Income tax	15.559	17.746	144.621
308 N	NET EARNINGS	28.895	32.957	268.582

FS Sheet. The application of accounting transfers into Balance & Income statements.

Period deferrals

Let's say that *working capital* is all that 'extra cash' needed to fulfill the gaps or bottlenecks that occur in real life and that usually are ignored when modeling a project. Working capital is necessary to support time delay between revenues and actual collections, to load the inventories before production or to recover VAT tax from initial investments. The opposite is also possible, when income tax calculation and actual payment occur in different periods.

Planeamatic allows to reflect the impact of 'working capital' into the project, just by adding some delay (or advance) in the transactions.

Basic format

Time deferral function uses these parameters:

Code >> (or <<) # of periods ; start ; instances ; frequency

Let's explain each parameter:

- **Code.** Any previously defined entry to be delayed or advanced, plus the corresponding sign '>>' or '<<' and the number of periods (columns) to be translated forward or backwards
- **start**. Indicates the starting column (period) in the projection. Initial period is assigned if omitted.
- **instances**. Indicates how many columns or periods the value or expression will be projected ahead. Appearance is continuous if omitted (all periods).

- **frequency**. Establishes the number of periods or columns between instances of this Entry.

Following entries explain the parameterization of the Accounting deferral function:

Accounting deferral examples

Code	Description	Formula	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
base		100 ++ 10 , , 12	100	110	120	130	140	150	160	170	180	190	200	210		
		base >> 2			100	110	120	130	140	150	160	170	180	190	200	210
		base >> 2 , 4						130	140	150	160	170	180	190	200	210
		base >> 2 , 4 , 3						130	140	150						
		base >> 2 , 4 , 5 , 2						130		150		170		190		210

INPUT Sheet. Codification of Deferral function

The next example shows how Revenues are temporally transferred to Accounts Receivable account (two months) before the actual collection is carried out, then transferred to the Cash account. This delay has an impact in the project, which is reflected as Cash Flow bottleneck.

An accounting deferral

Debit	Credit	Code	Description	Formula	Jan	Feb	Mar	Apr	May	Jun	Jul
102	401	revenues	Rev to Acc receivable (A.R.)	100 <++> 10 , , 4	100	110	120	130	130	130	130
101	102		Actual collection (A.R. to cash)	revenues >> 2			100	110	120	130	130

INPUT Sheet. Codification of Revenues to A.R. and from there to Cash account (2 months later)

Balance sheet & Income St. fragments

Account	BALANCE SHEET (BS)	Initial	Jan	Feb	Mar	Apr	May	Jun	Jul
	ASSETS								
	Current Assets								
101	Cash		0	0	100	210	330	460	590
102	Receivables		100	210	230	250	260	260	260
TCA	**Total Current Assets**	**0**	**100**	**210**	**330**	**460**	**590**	**720**	**850**

Account	INCOME STATEMENT (IS)	Initial	Jan	Feb	Mar	Apr	May	Jun	Jul
	Gross revenues								
401	Revenues Line A		100	110	120	130	130	130	130
NR	**Net Revenues**	**0**	**100**	**110**	**120**	**130**	**130**	**130**	**130**

FS Sheet. Representation of Revenue delay

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Chapter 10

Planeamatic outputs

When the model loading process is finished, it is time to analyze the project. Planeamatic offers all the necessary information to perform this task.

The output sheet (FS_XX)

As you have seen, all the model's loading process is performed in a single sheet with multiple options. The same criteria has been applied to outputs: all model's outputs are concentrated in a single sheet with multiple sections. There are some reasons to this:

- **simplicity**. It is easier to analyze results and variables interaction in a single sheet tan having to move between multiple sheets or books
- **consistency**. Once you start creating scenarios, it will be very easy to compare them 'jumping' between each scenario, knowing you will find the same outputs in the same rows and columns
- **grouping**. It is easier to handle all the outputs of one scenario to print it, copy it or delete it
- Let's take a look to FS-XX sheet structure:
- Balance sheet
- Income Statement

- Cash Flow
- KPI table (<ctrl-i>)
- Personalized formulations
- Summarization (<ctrl-t>)

As you have probably noticed, layout is consistent in all Planeamatic's sheets: same columns for same concepts. This discipline becomes handy to create new formulas when performing advanced comparative analysis between scenarios. You will always find the first projected period in column 'F' and no *intermediate* columns used to beautify the reports or to obtain partial subtotals that complicate formulations. (All necessary subtotals can be found in summarization report).

The Financial Statements

Planeamatic builds the three fundamental accounting reports for each scenario. Balance Sheet and Income Statement are linked through the *Net Earnings account*.

The three reports may be edited but the integrity of the information must be protected by the user. Any change in the statements must obey the *double entry accounting principle*, otherwise the reports will show an error.

Suppose you accidentally modify the *Retained earnings* cell in the third period of the following Balance Sheet:

The Balance Sheet / error detection

Account	BALANCE SHEET (BS)	Initial	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17
	ASSETS								
101	Cash		15,000	29,938	28,227	23,333	18,455	0	0
TCA	**Total Current Assets**	**0**	**15,000**	**29,938**	**28,227**	**23,333**	**18,455**	**0**	**0**
113	Equipment		30,000	60,000	90,000	90,000	90,000	108,000	126,000
121	Acc. depreciation & amortization		-250	-750	-1,500	-2,250	-3,000	-4,125	-5,625
TFA	**Total Fixed Assets**	**0**	**29,750**	**59,250**	**88,500**	**87,750**	**87,000**	**103,875**	**120,375**
TA	**TOTAL ASSETS**	**0**	**44,750**	**89,188**	**116,727**	**111,083**	**105,455**	**103,875**	**120,375**
	LIABILITIES								
211	Credits, bonds, capital leases		15,000	30,000	29,434	28,866	28,295	33,779	55,939
TLTL	**Total Long Term Liabilities**	**0**	**15,000**	**30,000**	**29,434**	**28,866**	**28,295**	**33,779**	**55,939**
TL	**TOTAL LIABILITIES**	**0**	**15,000**	**30,000**	**29,434**	**28,866**	**28,295**	**33,779**	**55,939**
	EQUITY								
301	Paid-in Equity		35,000	70,000	105,000	105,000	105,000	105,000	105,000
308	Retained earnings (loses)		-5,250	-10,813	-8,000	-13,076	-18,132	-25,196	-30,856
309	Dividend withdrawal		0	0	0	0	0	0	0
TE	**Total Equity**	**0**	**29,750**	**59,188**	**97,000**	**91,924**	**86,868**	**79,804**	**74,144**
TLE	**TOTAL LIABILITIES & EQUITY**	**0**	**44,750**	**89,188**	**126,434**	**120,790**	**115,163**	**113,583**	**130,083**
	Error in Balance. Check Ledger codification				9,708	9,708	9,708	9,708	9,708

FS Sheet. Error detection row

The error line detects any difference between TA (Total Asset row) and TLE (Total Liabilities and Equity row). The Cash Flow offers similar feature detecting differences between final Cash Flow of the period and the Cash row of the Balance Sheet.

Planeamatic report's formatting has been carefully designed to deliver maximum clarity and a professional appearance. However, it is possible to make small changes to your personal preferences; for example, heading color, font and font size, numeric format, etc. All these changes can be realized in the FS sheet and will be applied to next scenario. If these changes should be applied to an existing scenario, then you would have to create it again, overwriting the existing one.

The FS summarization report

As explained on Chapter #2, Planeamatic can summarize the financial statements according with your requirements. For example, a monthly sized model could be summarized in quarters or semesters or years; a quarterly sized model could be summarized in semesters or years, and so on. All you have to do is indicate the summarization size, expressed as number of months in such table:

The PARAM Table / fragment

CODE	PARAMETERIZATION	
	Project Name	
	Your project name	
	Basic configuration	
idate	Initial period date	Jan-17
scope	Project scope (number periods: 1 to 250)	60
psize	Period size (1 for Months, 3 for Quarters, 12 for Years)	1
	Summarization or totalization	
psize_fyear	First year size (in months); for summarization	12
psize_sum	Summarization type (annually=12, Quarterly=3)	12

PARAM Sheet. Summarization parameters

Be careful, a Quarterly sized model cannot be *expanded* into months, so *summarizations* must be bigger than *period size*. It is also mandatory that *project scope* be bigger than *First year size*.

To activate this report press <ctrl-t> (for summarization).

Following example shows two different summarization reports for the same scenario:

The Cash Flow, quarterly summarization

CASH FLOW	Mar-2017	Jun-2017	Sep-2017	Dec-2017	Mar-2018	Jun-2018	Sep-2018	Dec-2018	Mar-2019	Jun-2019	Sep-2019	Dec-2019
Initial Cash Flow		**78,227**	**53,943**	**37,497**	**44,365**	**52,150**	**60,560**	**70,216**	**80,733**	**88,490**	**96,650**	**105,644**
Cash received:												
Credit #1 Amounts received	0	0	0	0	0	0	0	0	0	0	0	0
Loan #2 Amounts received	30,000	0	0	0	0	0	0	0	0	0	0	0
Paid-in Equity	105,000	0	0	0	0	0	0	0	0	0	0	0
standard cookies revenues	24,000	72,600	88,260	118,110	120,900	123,690	126,480	129,270	132,060	134,850	137,640	140,430
Total Cash In	**159,000**	**72,600**	**88,260**	**118,110**	**120,900**	**123,690**	**126,480**	**129,270**	**132,060**	**134,850**	**137,640**	**140,430**
Expenditures:												
Production line	-40,000	-8,000	-8,000	0	0	0	0	0	0	0	0	0
Credit #1 Principal payments	0	0	0	0	0	0	0	0	0	0	0	0
Loan #2 Principal payments	-566	-1,712	-1,733	-1,755	-1,777	-1,799	-1,822	-1,845	-1,868	-1,891	-1,915	-1,939
Direct production cost	-15,000	-45,375	-51,934	-64,056	-65,569	-67,082	-68,595	-70,108	-71,621	-73,134	-74,648	-76,161
Factory overhead (monthly fixed)	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000
SG&A	-6,900	-17,100	-17,100	-17,100	-17,406	-18,018	-18,018	-18,018	-18,342	-18,991	-18,991	-18,991
Marketing and ad campaign	-3,120	-9,336	-10,600	-13,014	-13,067	-13,108	-13,138	-13,155	-13,161	-13,155	-13,138	-13,109
Credit #1 Interest payments	0	0	0	0	0	0	0	0	0	0	0	0
Loan #2 Interest payments	-188	-361	-339	-318	-296	-273	-251	-228	-205	-181	-157	-133
Income tax	0	0	0	0	0	0	0	-400	-4,106	-4,336	-4,797	-5,263
Total Cash Out	**-80,773**	**-96,883**	**-104,706**	**-111,242**	**-113,114**	**-115,281**	**-116,823**	**-118,754**	**-124,303**	**-126,689**	**-128,646**	**-130,596**
Final Cash Flow	**78,227**	**53,943**	**37,491**	**44,365**	**52,150**	**60,560**	**70,216**	**80,733**	**88,490**	**96,650**	**105,644**	**115,478**

FS Sheet. Cash Flow summarization by quarters

The Cash Flow, annual

CASH FLOW	Dec-2017	Dec-2018	Dec-2019	Dec-2020	Dec-2021
Initial Cash Flow		**44,365**	**80,733**	**115,478**	**161,138**
Cash received:					
Credit #1 Amounts received	0	0	0	0	0
Loan #2 Amounts received	30,000	0	0	0	0
Paid-in Equity	105,000	0	0	0	0
standard cookies revenues	302,970	500,340	544,980	589,620	634,260
Total Cash In	**437,970**	**500,340**	**544,980**	**589,620**	**634,260**
Expenditures:					
Production line	-56,000	0	0	0	0
Credit #1 Principal payments	0	0	0	0	0
Loan #2 Principal payments	-5,766	-7,243	-7,614	-8,003	-1,373
Direct production cost	-176,364	-271,354	-295,564	-319,774	-343,984
Factory overhead (monthly fixed)	-60,000	-60,000	-60,000	-60,000	-60,000
SG&A	-58,200	-71,460	-75,316	-79,403	-83,735
Marketing and ad campaign	-36,069	-52,468	-52,563	-51,906	-50,497
Credit #1 Interest payments	0	0	0	0	0
Loan #2 Interest payments	-1,205	-1,047	-677	-287	-9
Income tax	0	-400	-18,501	-24,588	-31,571
Total Cash Out	**-393,605**	**-463,972**	**-510,234**	**-543,961**	**-571,168**
Final Cash Flow	**44,365**	**80,733**	**115,478**	**161,138**	**224,230**

FS Sheet. Cash Flow summarization by years

The Key Performance Indicators Table

Planeamatic groups in a single table the most significant ratios and indexes for each scenario. To activate this report press <ctrl-i> (mnemonic for indicators or indexes).

The KPI Table

itable	Key Performance Indexes Table (KPI's)	Value
	Primary Indexes	Neg C.Flow Neg Equity
	I.R.R. Project (%)	8,4 %
	I.R.R. Investors (%)	8,6 %
	Debt to Total Assets (Max / Min)	2,2 / 0,0
	Debt to Equity (Max / Min)	**9,5 / -8,9**
	Net Earnings to Revenues (Max / Min)	0,3 / -0,4
	NPV of other Standard KPI'S	**NPV**
	Max Free Cash Flow	0
	Dividend withdrawal	3.296
	EVA (economic value added)	-10.654
	Net Revenues	77.729
	Gross Earnings or Profits	77.307
	EBITDA	17.038
	Net Earnings	-6.981
	Fixed Assets (gross value)	68.318
Code	**Ledger CODES & FS Acc / Subtotals**	Value / **NPV**
TCE	OPEX, SGA & OTHER EXPENSES	60.269
TFE	FINANCIAL EXPENSES	9.492
541	**INCOME TAX**	1.434
301	EQUITY	8.329
	User Formulas	**Formula**
	Press ctrl-i to insert rows as required	

FS Sheet. The Key Performance Indicators

KPI is divided in four sections. Sections 1 & 2 are fixed and contain the most common indexes and ratios to evaluate an investment project. Obviously, These ratios could not be the most important for a particular project, so you can formulate your personalized indexes and ratios in the third and fourth sections.

Primary indexes and ratios

These are the standard outputs generated for each scenario in the KPI table:

- **Project IRR**. The internal rate of return of the Project, contrasting EBITDA vs. Investments. EBITDA stands for Earnings Before Interests, Taxes, Depreciation and Amortization. This index is a clear indicator of how efficient is a project generating *operative earnings* taking in consideration the supplied assets. It does not include the *cost of the money*, neither Equity nor Liabilities
- **Investors IRR**. The internal rate of return for the Investors, contrasting Dividend withdrawal vs. Equity. This index tells the potential investor how profitable will result the project for his capital investment (Equity)
- **Max Debt to Equity ratio**. A useful indicator of how risky could the project be from the creditors point of view. It divides TL (total liabilities) by TE (total equity). The higher the ratio, the most leveraged the project could be, increasing the risk for the money lender. This index changes along the project, it grows with initial loan's dispositions and losses and reduces with loan's repayments and expected future earnings; for that reason is important to measure the maximum value

This ratio can be used as a parameter to limit or prevent dividend withdrawal while the loans and credit lines haven't been fully paid. See chapter #2

- **net Earnings to Revenues ratio**. This ratio is an operational index to measure the management efficiency. It divides the net earnings (after taxes) by the gross Revenues.

  This index is not necessarily a valid metric to decide on the project viability. Net earnings depends on depreciation criteria, accounting maneuvers and project financing; all of them can conceal the true potential of an investment project.

- **dividend withdrawal.** This is an accurate metric to decide on an investment project. It shows the net present value of future dividend withdraws after paying debt (principal and interests) and income taxes. Negative sign indicates that is an outflow in the Cash Flow statement

- **EVA**. The net present value of the Economic Value Added measures how efficiently the investor's capital is utilized by the project.

  The formula deducts WACC (Weighted Average Cost of Capital) from NOPAT (Net Operating Profits After Tax; in other words, EBITDA * (1 – income tax rate). It helps to determine if the Equity invested in a project generates true value after deducting an arbitrary cost for it.

  This indicator reveals subsidized projects and enterprises –which are capable to generate cash–, but that are utilizing and wasting resources; for example a big old *mom and pop* store occupying a great commercial space without paying rent because the site pertains to them. If the market value of the store is calculated and

its opportunity cost (or potential leasing price) charged to the *mom and pop* operation, then it will expose the true EVA of the store.

- ***Net Revenues***. The NPV of all the operative Revenues of the project
- ***Gross earnings***. Idem
- **EBITDA**. Idem
- ***Net Earnings***. Idem.
- ***Fixed Assets (gross values)***. The NPV of all the investments valued at acquisition price, without deducting depreciation nor amortization

Selected results and personalized formulations.

The third section allows the insertion of Codes, Account numbers or financial statement's subtotals and then calculate the sum and the NPV at selected discount rate (see chapter #2).

The fourth section is free to insert MS-Excel formulas. They can be just copy-pasted or copy-pasted and expanded (to every project column or period). This feature allows the automatic insertion of formulas to every new scenario. Just be careful to utilize absolute Row references instead of relatives (you know, =A$1 instead of =A1), given that the formulas will be copied to different Row numbers inside the FS_XX sheet.

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Chapter 11

Comparative scenarios

Planeamatic builds tables for the comparative analysis of results under distinct values of the selected variable. With them it becomes really easy to evaluate the impact of changes in project assumptions for any '**driver**'.

Drivers selection

The scenarios builder can be invoked pressing ctrl-s when a Ledger_xx sheet is active and the desired item to be evaluated or analyzed has been selected (selected drivers should contain values, not formulas).

If you wish to evaluate a driver with formulas, proceed as follows:

Rigid revenue parameterization

Code	Description	Formula
	Revenues	
rev_ham	Hamburger revenues	30000 ; 3
rev_other	Beverage- revenues	10000 ++ 200 ; 3
rev_other	Icecream revenues	5000 %% 10% ; 4

INPUT or Ledger sheet. Hamburger's revenues are 'hard coded'

This table contains a fixed revenue value for hamburguers, starting at 3rd period. However, to build a comparative scenarios table under

diferent revenue amounts and growth rates you can make these simple changes:

Dynamc revenue parameterization

Code	Description	Formula
	Drivers	
init_vol	Hamburger initial sales volume	10.000
growth_rate	Hamburger growth rate	12% && 5% ; 3
u_price	Unit Price	3,0
num_hamb	Number of sold hamburgers	{init_vol} %% growth_rate ; 3
	Revenues	
rev_ham	Hamburger revenues	{u_price} * num_hamb
rev_other	Beverage- revenues	10000 ++ 200 ; 3
rev_other	Icecream revenues	5000 %% 10% ; 4

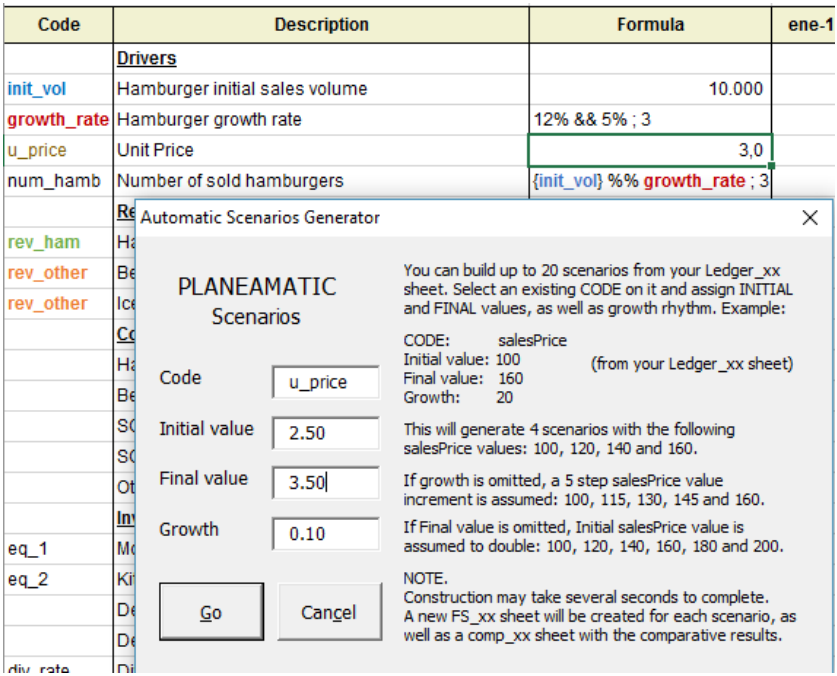
INPUT or Ledger sheet. Hamburger revenues can be modified easily

Now you can invoke the comparative scenarios processor (ctrl-s).

Building comparative scenarios

In any Ledger_xx sheet press ctrl-s. The following screen will appear:

Scenarios configuration screen: changing prices



Ledger sheet. Preparing a comparative scenarios table. It will generate eleven scenarios with hamburger prices from 2.50 to 3.50 (2.50, 2.60, 2.70, …, 3.40, 3.50)

Parameterization is pretty simple. You could leave in blank the '*Growth'* and Planeamatic would create 5 scenarios, distributing growth in four stages (2.50, 2.75, 3.00, 3.25 and 3.50). You could also leave in blank the *'Final value*'. In such case this Final value would be estimated (double of initial value: 5.00). If you leave in blank both ('*Final value'* and '*Growth*'), the applied unitary prices would be (2.50, 3.125, 3.75, 4.375 and 5.00)

Comparative scenarios table: unit price change

TABLE OF COMPARATIVE SCENARIOS	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9	Sc-10	Sc-11
Unit Price	2,50	2,60	2,70	2,80	2,90	3,00	3,10	3,20	3,30	3,40	3,50
Primary Indexes	Neg Proj NPV Neg Equity	Neg Proj NPV Neg Equity	Neg Proj NPV Neg Equity	Neg Proj NPV Neg Equity	Neg Equity	Neg Equity	Neg Equity	Neg Equity	Neg Equity	Neg Equity	Neg Equity
I R R Project (%)	-3,7 %	-1,0 %	1,7 %	4,3 %	6,9 %	9,4 %	11,9 %	14,3 %	16,8 %	19,2 %	21,6 %
I R R Investors (%)	-32,8 %	-16,9 %	-7,8 %	-1,0 %	3,1 %	6,6 %	9,9 %	13,2 %	16,4 %	19,5 %	22,6 %
Debt to Total Assets (Max / Min)	15,6 / 0,7	4,6 / 0,7	2,4 / 0,7	1,9 / 0,7	1,6 / 0,7	1,4 / 0,7	1,4 / 0,7	1,3 / 0,7	1,2 / 0,7	1,2 / 0,7	1,1 / 0,7
Debt to Equity (Max / Min)	3,0 / -15,3	3,1 / -18,7	3,0 / -18,0	3,1 / -19,8	3,7 / -12,1	4,6 / -13,6	4,0 / -15,7	6,1 / -18,5	8,2 / -14,3	11,5 / -14,7	13,1 / -13,7
Net Earnings to Revenues (Max / Min)	0,2 / -0,4	0,2 / -0,4	0,2 / -0,4	0,2 / -0,4	0,2 / -0,3	0,2 / -0,3	0,2 / -0,3	0,2 / -0,3	0,2 / -0,2	0,2 / -0,2	0,2 / -0,2
NPV of other Standard KPI'S	NPV	NPV	NPV	NPV	NPV	NPV	NPV	NPV	NPV	NPV	NPV
Max Free Cash Flow	2.108	7.325	11.027	15.092	19.460	21.584	24.035	27.364	29.611	30.429	33.222
Dividend withdrawal	4.190	11.149	17.960	24.693	29.671	34.333	39.057	43.875	48.719	53.650	58.594
EVA (economic value added)	-67.530	-60.224	-53.449	-47.068	-40.867	-34.817	-28.840	-22.874	-16.977	-11.208	-5.565
Net Revenues	574.086	588.703	603.319	617.935	632.552	647.168	661.784	676.401	691.017	705.633	720.250
Gross Earnings or Profits	375.754	384.523	393.293	402.063	410.833	419.603	428.372	437.142	445.912	454.682	463.452
EBITDA	81.384	89.423	97.462	105.501	113.540	121.579	129.618	137.657	145.696	153.735	161.774
Net Earnings	-54.689	-45.557	-35.822	-28.338	-21.807	-15.758	-9.776	-3.836	2.009	7.815	13.583
Fixed Assets (gross value)	194.800	194.800	194.800	194.800	194.800	194.800	194.800	194.800	194.800	194.800	194.800
Ledger CODES & FS Acc / Subtotals	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV
OPEX, SGA & OTHER EXPENSES	294.370	295.100	295.831	296.562	297.293	298.024	298.754	299.485	300.216	300.947	301.678
FINANCIAL EXPENSES	16.523	17.429	18.734	18.299	16.009	15.619	15.644	15.469	15.343	15.226	15.106
INCOME TAX	0	0	0	0	1.787	3.966	6.200	8.474	10.793	13.144	15.532
NET EARNINGS	-54.689	-45.557	-35.822	-28.338	-21.807	-15.758	-9.776	-3.836	2.009	7.815	13.583
EQUITY	46.600	46.600	46.600	46.600	46.600	46.600	46.600	46.600	46.600	46.600	46.600
Amounts received (Loan or Credit) #1	31.912	30.663	29.664	28.656	27.657	26.658	25.659	24.551	23.662	22.663	21.664
Principal Payments (Loan or Credit) #1	24.895	25.192	25.182	24.815	24.215	23.488	22.738	21.988	21.168	20.336	19.564

Comp_xx sheet. A table containg KPI's table for 11 scenarios created under different hamburger unitary sales price, from 2.50 to 3.50. For each scenarios, a full FS_xx sheet has been created.

You can activate any of the Financial statement sheets (FS_Sc-01, FS_Sc-02, etc. Just double click on the table header with the selected scenario number. To return from the Fs_Sc-xx sheet to the Comp_ sheet, just double click the cell in row 1 containing the number of scenario in such sheet.

Comparative scenarios with descending values can also be created. Let's say you would like to know the impact of a slow starting volume of hamburgers: say initial sales of 5.000 instead of 10.000:

Scenarios configuration screen: volume reduction

Code	Description	Formula	ene
	Parámetros		
psize	Sensibilidad	3	
scope	Alcance	20	
max_debt	Máximo apalancamiento admisible	3	
div_rate	Política de dividendos	3	
calc_level	Nivel de cálculo	1	
	Drivers		
init_vol	Hamburger initial sales volume	10.000	
growth_rate			
u_price			
num_hamb			
rev_ham			
rev_other			
rev_other			
eq_1			
eq_2			

Automatic Scenarios Generator

PLANEAMATIC
Scenarios

Code: init_vol
Initial value: 10000
Final value: 5000
Growth: 1000

Go | Cancel

You can build up to 20 scenarios from your Ledger_xx sheet. Select an existing CODE on it and assign INITIAL and FINAL values, as well as growth rhythm. Example:

CODE: salesPrice
Initial value: 100
Final value: 160
Growth: 20
(from your Ledger_xx sheet)

This will generate 4 scenarios with the following salesPrice values: 100, 120, 140 and 160.

If growth is omitted, a 5 step salesPrice value increment is assumed: 100, 115, 130, 145 and 160.

If Final value is omitted, Initial salesPrice value is assumed to double: 100, 120, 140, 160, 180 and 200.

NOTE.
Construction may take several seconds to complete.
A new FS_xx sheet will be created for each scenario, as well as a comp_xx sheet with the comparative results.

Ledger sheet. Preparing a comparative scenarios table. It will generate six scenarios with hamburger revenues volume of 10,000, 9,000, …, 6,000 and 5,000

Comparative scenarios table: volume reduction

TABLE OF COMPARATIVE SCENARIOS	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6
Hamburger initial sales volume	10.000	9.000	8.000	7.000	6.000	5.000
Primary Indexes	Neg Equity	Neg Inv IRR Neg Equity	Neg C.Flow No Dividends Neg Equity	Neg C.Flow No Dividends Neg Equity	Neg C.Flow No Dividends Neg Equity	Neg C.Flow No Dividends Neg Equity
I.R.R. Project (%)	9,4 %	1,7 %	-6,5 %	-15,4 %	-25,6 %	-38,1 %
I.R.R. Investors (%)	6,6 %	-7,8 %	N/A	N/A	N/A	N/A
Debt to Total Assets (Max / Min)	1,4 / 0,7	2,4 / 0,7	8,1 / -0,8	11,1 / -13,3	7,8 / -12,2	9,5 / -5,9
Debt to Equity (Max / Min)	4,6 / -13,6	3,2 / -18,0	2,9 / -14,3	2,9 / -11,9	2,9 / -10,2	2,9 / -9,0
Net Earnings to Revenues (Max / Min)	0,2 / -0,3	0,2 / -0,4	0,2 / -0,5	0,2 / -0,6	0,1 / -0,7	0,1 / -0,8
NPV of other Standard KPI'S	NPV	NPV	NPV	NPV	NPV	NPV
Max Free Cash Flow	21.584	11.027	0	0	0	0
Dividend withdrawal	34.333	17.960	0	0	0	0
EVA (economic value added)	-34.817	-53.449	-75.473	-99.451	-121.390	-143.651
Net Revenues	647.168	603.319	559.470	515.621	471.772	427.923
Gross Earnings or Profits	419.603	393.293	366.984	340.674	314.365	288.056
EBITDA	121.579	97.462	73.345	49.228	25.111	994
Net Earnings	-15.758	-36.822	-64.174	-92.134	-116.922	-141.075
Fixed Assets (gross value)	194.800	194.800	194.800	194.800	194.800	194.800
Ledger CODES & FS Acc / Subtotals	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV	Value / NPV
OPEX, SGA & OTHER EXPENSES	298.024	295.831	293.639	291.446	289.254	287.061
FINANCIAL EXPENSES	15.819	16.734	19.968	23.812	24.483	24.519
INCOME TAX	3.968	0	0	0	0	0
NET EARNINGS	-15.758	-36.822	-64.174	-92.134	-116.922	-141.075
EQUITY	46.600	46.600	46.600	46.600	46.600	46.600
Amounts received (Loan or Credit) #1	26.658	29.654	33.741	42.046	36.088	36.139

Comp_xx sheet. A table containg KPI's table for 6 scenarios created under different hamburger sales volume, from 10,000 to 5,000. For each scenarios, a full FS_xx sheet has been created.

Note. When you create each comparative table from the same source sheet (Ledger_xx), the previous table is overwritten. To prevent this, rename your Ledger_xx sheet (to Ledger_xy, for example) before launching the process.

Absolute references {curlys}

You can use an absolute reference in Planeamatic's functions (same as MS-Excel's A1 reference style). Previous examples use absolute references to invoke the same column 5 (cell E10) when asking for the initial volume {*init_vol}* of hamburgers. This reference style was used also to refer to the {*unit_price*}. Every cell in the projection matrix will refer to the same value contained in column 5 to calculate the actual number of hamburgers and the total revenues.

Charts

Same as in Ledger_xx and FS_xx sheets, you can create automatic charts (ctrl-g or F4) of any item in the comparative scenarios table, except from the rows without valid numeric data (Debt ratios, for example).

If you choose to create a single row chart, the graph will include the driver variable used to create the table. So you will have it as a reference of change in value.

To erase the created charts in any sheet, press F5.

Elimination of comparative scenarios

To delete the sheet containing the comparative scenarios table (comp_xx sheet) and all the corresponding FS_ sheets created for each scenario, just double click cell 'A2' in the comp_xx sheet.

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Chapter 12

Tips and tricks

The following collection can facilitate your work and help you to obtain faster and better results.

Goal & drivers definition

Probably, the most important recommendation is to preset your goals and project drivers before starting the financial model generation. These considerations may include:

- **define the asymptotes for the key indicators**. In other words, which is going to be the minimum acceptable IRR?, which is the maximum possible Equity disbursement? which is the projected market share? etc. A Business model Canvas will help
- **which are the key variables?** Some projects have known values for revenues (for example, public service concessions) and the important analysis is to determine maximum investment capacity, while other projects (like innovative products) depend on potential revenue and growth. Each project has its particular needs; that is the main reason to build a model instead of using a standard template

  If several variables are going to be analyzed, it is highly recommended to do one at the time, trying to define low and high limits for each one, commencing with the least uncertain ones.

Once acceptable ranges are created for each one, worst and best case scenarios can be created.

- **who is going to use the model?** INPUT sheet formulation, organization and documentation could require more detail if the model you create will be used by other users in your organization
- **Are the Charts going to be used to present the project?** If so, do your best to create clever charting groups of variables to facilitate your presentation and let the others rapidly visualize the project input and outputs

Select the right period size and scope

A long term model (say five or more years) should not go into monthly details. When dealing with long term, strategic decisions are the most important things to analyze.

Create a Base scenario

After finishing the model construction, some fine tuning and testing must be performed before accepting the behavior of all the inserted entries and accounting transactions.

Once the model satisfies the tests and behaves as expected, a Base scenario can be created. We recommend to eliminate all previously created Ledger_XX sheets, copying the last version of the Ledger sheet to the INPUT sheet before deleting them. This Base scenario should be the reference point of further analysis.

Discard useless scenarios

Many scenarios can be created to verify a new entry or formula, or just to evaluate the response of the model in front of an extreme value for some variable. It is recommended to avoid keeping unnecessary scenarios. They overload the file size and complicates project logging.

Be optimistic

A financial model must satisfy two necessities at least: determine the viability of an investment project and (hopefully) be converted into a map if the project is finally approved. The paradox is that the scenario that causes project approval should be different of the scenario to define real targets. This is obvious, because you could hardly approve a project assuming the best case scenario. However, once the project is launched you shouldn't conform with the project assumptions.

In brief, it is recommended to be optimistic after the project has been deeply analyzed, not before, especially if the project relates to some innovation without clear market historical data. Remember that more than 90% of innovation projects fail.

During project analysis stage, you should not be pessimistic either: Just try to be objective and conservative.

Deal with uncertainty

Financial analysis implies dealing with uncertainty. Based on this fact:

- **do not try to reproduce real world accounting.** Round numbers, avoid ultra-precise calculations, etc
- **group irrelevant concepts.** For example, fixed or semi variable expenses, small investments. Avoid detailing the list of investment items (two PC's, one printer, three desks, etc); group them into a single entry (although they have different depreciation rhythms)
- **don't expect to have all the information on hand.** You will have to make some assumptions. Your are not building a budget, but a financial model
- **test, and test and test.** The key variables in your project should be carefully analyzed. You must find minimum (or maximum) values and observe the consequences in the outputs. For that reason, the most uncertain parameters most be loaded at the end of the model construction

Be creative

One of the advantages of using Planeamatic is that you get extra time to deeply analyze your projects.

After loading and testing all your input data, it is time to launch questions: What if …? Why not …? What is the minimum …? It is the perfect moment to improve your idea, to detect failures, to test potential risks, to solve your doubts, to give you certainties, to test project's stress resistance, to find new ways, to create alternative paths ('B' plans) and perhaps to convince yourself that your bright idea it is not a chimera.

Do not force results

Few things are harder to accept than one's idea is unviable. Models are risky tools because they can spit any result you want, and the analysis process generates the perfect environment to convince yourself that your project is really *the holy grail*. It is a good idea to ask someone else to analyze objectively the project and the assumptions. Fortunately, Planeamatic will graciously answer any question raised by the interlocutor.

Navigate easily

Planeamatic offers some shortcuts to move between sheets and reports (explained in chapter #1). They help to avoid use the mouse.

All these shortcuts are pretty simple and clear. Only the *step back* <ctrl-j> could be tricky. It depends on the current position:

- if the active sheet is FS_XX, then it activates the Ledger_XX sheet
- if the active sheet is Ledger_XX, then it activates the INPUT sheet

Otherwise, it does nothing.

Load one project only

It may be a bad idea to pretend analyze more than one project in the same workbook. There are at least two reasons for that:

- parameters (Project size, scope, etc) are specific for each project, and misuse of one of them can lead to unnoticed mistakes

- a principle of order is always recommended when analyzing a Project. Separating projects is as easy as saving each one in a different workbook

Be methodical: classify your input

The INPUT sheet will contain all the project's information. It is a good idea to have it properly separated into categories. The examples included in the file provide some useful hints. You can select your own criteria. Colors are optional and they could improve the visualization of the parameters.

Document your project

Planeamatic offers a textbox to insert the desired information about every scenario. However, this could not be enough documentation. It is recommended to open a Log sheet with at least two columns: Date and Description. Additional columns can be created: User initials, number of scenario, etc.

Change period size

Just to verify your parameterization in the INPUT sheet formulation, it is a good idea to create a test scenario with different period size. Compare the results and determine if the differences are logical or if something weird occurs. This will help you to find potential errors.

Try different approaches

Planeamatic saves you hundreds of boring hours formulating financial statements, indexes, etc. It may be a good idea to dedicate some minutes to try a different approach to build the same model; for example a simplified version of it, and observe the results. This can help you to calibrate your entries and detected hidden errors.

Learn by example

Take advantage of the multiple online tutorials. Even if you are a seasoned expert, chances are you can find a different way to insert, formulate or deal with a particular variable. Visit our page and check the new examples that we load periodically.

Create a SWOT table

Planeamatic is an incredible tool to help building a SWOT table when finishing the project analysis. SWOT stands for Strengths, Weaknesses, Opportunities and Treats.

The project analyst is the best person to identify all these categories, providing partners and investors with this valuable piece of information –complimentary to the financial model outputs–.

Happy modeling!

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Contact

Thank you for using our tool. Planeamatic was created thinking in the users, trying to provide them with a powerful, versatile and reliable tool to perform professional financial analysis. We need your feedback

Comments, suggestions, doubts

Your feedback is invaluable for us. We want to know if Planeamatic is really what you expected and if it really *does the job*. Please help us to improve it. We are working in version Nº 4 and are very excited with all the ideas and suggestions received so far to include them into the next release

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