

# ERP guide and questions

Sometimes client asks you a short questions - how much would cost integration of customers ERP? And sometimes they provide some data on objects to be imported e.g. products, orders from magento to ERP, categories.

In fact, ERP integration can be costly, take 2-3 times more effort than web project development itself. But - to be able to preapre client for it, to make him understand the complexity and resulting high fee and long dead-

line + long time for PM investigation that also should be billed, we have to explain what it all about and how many options it involves.

This document by Scandiweb.com overview main areas of ERP integration and can be used a template to answer client to make him aware of complexity of the task and array of questions we will need to clarify to make it all work.

## Things that occur inside customer ERP

### ① Exporting module in ERP

We suppose it will not be one button or they just tell their IT stuff that we need "export". There are some parameters that we should be aware of. For example, exporting of inactive products, that is products that are not in production anymore and last time were sold some 5 years ago.

However, if the same client wants to show their logged in Magento users their historical purchase then we better have this product in Magento as inactive (Out of

stock and market as not be shown in front end), so that we can display it in customers last orders.

A note on what happens in Magento at least in v1.7 when there is a product in your orders history that is not in store anymore. What happens is that all order becomes text only, so reorder link is not active. But if all products exist than you can reorder entire order, there is no option to click on products individually and see them.

## ② Adjustments

Theoretically, customer may adjust its ERP to better suit exporting needs, for example, add image field to the product description and export images directly from ERP. However, in practice it usually takes more time and

money to order it from their ERP integrator than to get solution for this from Magento developers (mass image upload to FTP with certain naming conventions e.g. SKU.jpg).

# How do we establish a connection for data exchange?

## ① Data exchange

There should be a way we can get data from ERP (e.g. stock statuses, newly added products, ...), send data to ERP (about orders, new customers registered online, ...), or make online calls e.g. check stock status on the go, when product is loaded and inform that it is reserved to ERP, if it is added to the basket.

The fastest way to do synchronization would be to POST data from ERP on any update e.g. once new customer is created they call our URL with POST data and we update Magento via REST API or our custom functions. The same is similar with update from Magento, once some action is done e.g. new order is made, we call their URL and post data there and they update it via their API.

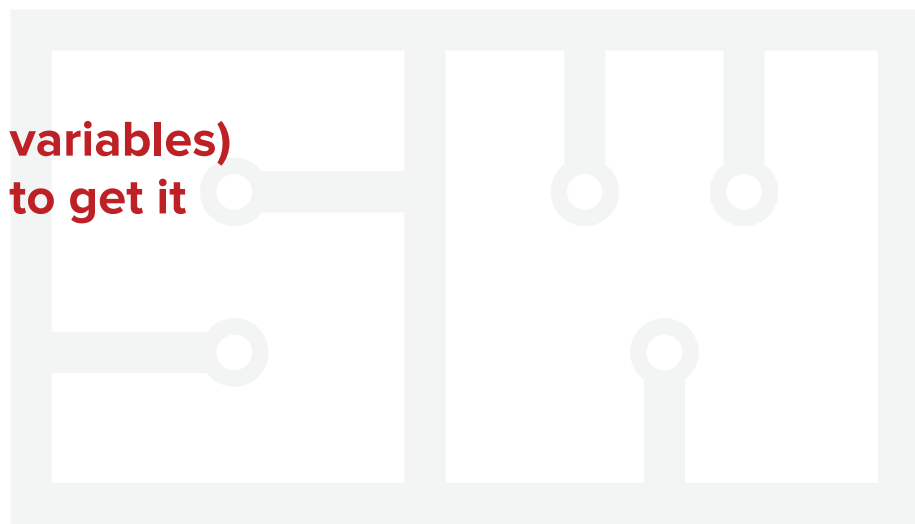
- Usually, we do it via calling certain URL and getting certain XML output on that page. For example, we can call `http://erp.customerdomain.com/products/` and get listing of all products.
- Also, there can be FTP access where customer is placing a file with summary of activities of the day, for example new products added, so we download it and add this updates to Magento database.
- Discussing interfacing with client it has to be assessed in relation to the scope of ERP integration. For example, if synchronization is necessary, meaning that once e.g. customer makes changes online in his profile this information immediately appears in ERP and vice versa, then even if this data will be saved to FTP both Magento and ERP should have means of "pinging" each other. For example, with request to read certain data from FTP.

## ② Security measures on the ERP side.

Usually, ERP servers were not meant to be accessed from outside or respond to certain http calls. Therefore, this aspect has to be outlined and it is best to provide IP and domain from where these requests will be executed, so that customer can whitelist these IPs and allow these requests.

If your requests to ERP return error or no data it can be one of the reasons. Thus, check that you have cleared what you need to access ERP data e.g. a) your IP whitelisted, b) username and password to FTP, c) secure connection, d) ...

## What content (format, variables) is being sent and how to get it



## ① Addressing different types of content (customers, categories, products, taxes, orders)

Once you are clear with the scope, you need to understand how to implement it practically. That is, if you are to import categories to Magento then how to get their list, how it will look like, what will be the format. For example, there is a API call to retrieve Customers <http://erp.clientserver.com/webapi/TCustomers> - that will return you the list of customers with their IDs and

<http://erp.clientserver.com/webapi/TCustomers/345/> will return full info including billing, shipping address for the customer with ID-345. And if in your scope you have other import objects, make sure you know what request will return you necessary data and how it will be formatted/structured/what variables you will get. The best is to get sample data.

## ② What is the format ERP is sending data?



## ③ Format consistency

If your format is CSV or TXT then empty values should be sent for consistency.

# Objects of synchronization

## ① Product import

### Simple products

with standard attributes: default attribute set (price, description, product title, stock count, images)

### Images import from ERP

Usually not done from ERP, but from FTP where customer place archives with images that can be matched to products via SKU. If one product has more than one image it can be named SKU\_1.jpg, SKU\_2.jpg, ... When we import, Magento automatically resizes images and makes upload.

### Custom attributes

For example product has an attribute cover "hard" or "soft". Then we create in import script SQL script that creates these attributes + assigns then certain parameters (show in product view, layered navigation, etc).

### Configurable products

First, check if they have these type of products at all. If not, we can offer to import their simple products, but to create configurable products out of them based on certain parameter - for example, model\_type (all products with the same model type will be associated as configurable) or certain rules for SKU numbers e.g. if SKUs have first four symbols the same then these products we can merge into configurable.

Second, confirm rule for creating of configurable product itself. What images you will publish? One random or all images from associated simples, what image will be main image.

Alternatively, if their ERP in some way follows magento logic, that is, they already have configurable product, then you can import it directly instead of confirming its generation rule.

## ② Product updates from ERP

### Grouped, Bundled products

Similar logic, but rarely seen in ERPs.

### Custom options set up by customer purchasing product

Examples.

We make one Excel file, which has columns of all possible attributes and custom options. Each row cell has it's own rules how to be filled, for example, custom option cell should be like dropdown:Angle=15;45;60.

Each product has it's own attributes, therefore unnecessary attributes are ignored by leaving row cell empty for certain columns - these attributes will be not shown on frontend.

We created a custom script that generates Magento friendly .csv import file from Excel file.

Using Magento import in backend we import our file.

Please note that all categories should be already within Magento, either way we will get error from Magento.

Ideal option is when ERP can feed to us difference between previous export and current state of their products DB. Then we take each product and update the changed information.

If they can not give change file then it means that they give us daily all products they have in DB. So, several options are available

1. Import everything from new again. Works fine if it is less than 5.000 products and updates are not very frequent. Wait during the time of import.
2. Try to filter products that were updated yourself with script that reads date modified if ERP has this field
3. Some other script that will produce difference file.
4. Live update - they call our service when they have any update on products (they clicked save button editing product or adding new one) and send the data and we update it immediately.

## ③ Product on-line updates on stock status

Can be done in product view page loading. Then we send request with product SKU.

We can check inventory every time user opens product page and there are following concerns related:

- if we send request to ERP while user is opening a page it may slow down loading of product view;
- we can make this request to be fulfilled after page is loaded with AJAX that will send this request when page is loaded. Note, that it will require to disable Add to Cart button while we are waiting for the request results;
- high-load resistance of ERP server has to be assessed as well, if certain product is on promotion and 200 people will open it simultaneously.

So, that some 50 requests simultaneous do not crash ERP server.

Another option is to check product status only when person is in Cart and on the last step of Checkout. It may frustrate customers as they feel like already having the products, but in the last moment they are informed that this is not available anymore.

Of course, all calls to the ERP will be implemented using AJAX, so that user can see the page during data gathering from ERP.



## 4 Product reservation

Is communicated to ERP once customer adds product to the basket in online store. After certain amount of time ERP is either automatically

un-reserves this product or we ourselves have to track it and send un-reserve call after agreed time e.g. 20 minutes.

Purpose, not to sell this product to somebody else in customer's physical store. So, when they check availability they see that this product is

reserved already, so maybe somebody is right in check-out with it.

## 5 Products and stock statuses (allow pre-order and disallow pre-order)

By default Magento has Backorder functionality which works as follows: products has status In Stock, Qty=0 and when you go to the Cart, you

see message under product that there is not enough Qty in the shop and product will be Backordered.

To map this to ERP system we might proceed as follows:

- Products that are in stock will be marked as in

stock with some positive stock level;

- Products that are out of stock and are not meant to be pre-ordered will be marked as Out Of Stock and stock level = 0;
- Product that are out of stock and can be pre-ordered will be marked as Stock level = 0, but status inside Magento will be In Stock.

## 6 Product discounts

a) price and special price (optional with date range when it becomes active);

b) fixed discount on all products for certain customer group (example of customer group can be Consumers or Companies);

c) custom prices for certain customer groups (from v 1.7) - big wholesalers, medium, new partners... Instead of setting flat discount you can set up custom pricing for

each of them. Also, this method allows to make custom prices for every company on every product - then each company has to belong to separate customer group;

d) tier prices.

For this ERP has to have it in format convertible to 1 product NNN price, 2 and more products, sold for MMM price, 5 and more products sold for OOO price,

# Categories

## 1 Import from ERP

**Client ERP category tree can be used to generate on-line shop tree (not 1 to 1, but they are similar).**

For example, ERP has 50 categories, but shop should have 30, so we will merge some ERP categories into one e-shop category

We can make a mapping e.g. they still create a tree of navigation for the shop and indicate category\_IDs from

ERP that will be linked to them.

E.g. category at the shop that client can name "Maternity clothes" can be mapped to ERP category IDs 23404 and 24909 that correspond to categories with clothing for pregnant woman and for accessories.

Visual way of doing this would be to in Magento category edit let customer see their ERP category tree and to mark

with checkboxes the categories he or she wants to assign to categories created in Magento.

Note on category update: if customer will have new category in ERP we have to import it (once a day or on creating it) and then customer will have to create corresponding new category in Magento or assign that category to already created.

### **Client ERP category tree can be published directly to the site.**

One way is to have file with category tree and periodic updates to it in relation to categories added and deleted. Another approach would be to import products and create necessary categories while importing (e.g. you import product from category Mens Clothes, but you see there is no such category in the shop, so you create it from script). However, with this approach you do not know what is deleted then you need to get deletion information separately.

In one specific case, categories were available in product info as path e.g. MEN -> CLOTHES -> SOCKS, so we were checking if that category exists we were assigning this product there and if not - created it and assigned. And

arrows “->” were indicating depth of the category tree.

**Client category tree** has three categories Men, Women, Children, but in the shop they want to have 10 categories with many sub-categories.

In that case client has to either update its category tree and re-assign all products or alternatively we have to use other ERP parameters to create assigning rules. Usually, ERP have some product types and attributes in addition to category tree. So, you might assign products to category Men/ Clothes / Swimwear based on the rule that it is product that in ERP is assigned to category Men, has product type = clothes and attribute swimwear.

### **Client can use some of ERP system fields in the product description that at the moment are empty and not used.**

For example, fields lie weight, certificate number, sub-title, short description, etc... Customer can run through all products and insert there either Magento category ID (or IDs) where to assign this product or its name 1:1 as it appears in Magento. For sub-categories there can be some rule e.g. main-cat/sub-cat/sub-cat.

## **② Import from buffer resource**

### **Excel sheet**

Customer exports all SKUs and assigns to each SKU name or ID of category in Magento

### **Direct assigning of products in Magento back end**

Note that in order for product import to be assigned to categories we have to amend Magento category table with a column that will list ERP category IDs. So, when you import a product from ERP and see that it is assigned to ERP category with ID 345002 you can understand to what

Magento category it has to be assigned.

Other way is to map directly by name. Then category has to be created in Magento - full category tree and the name of category/sub-category in ERP should match 100% what is created in Magento. This way also CSV import to Magento works. For example, if you want to assign product to sub-sub-category in Magento Digital Accessories/Phones/iPhones that it has to have a field that is exactly “Digital Accessories/Phones/iPhones”



# Customers

## ① Basic case - import of customers from ERP

We take e-mail and Name and pass it along new user generation script. In result magento sends welcome e-mail with password.

More secure option, we create custom Welcome e-mail telling that please provide to this URL and create your password. tegory edit let customer see their ERP category tree and to mark

## ④ Sync of customers: Magento and ERP

Preferred - live, when we make changes - we save them and ping them to read them if they make changes - preferably do the same. if not - in the end of the day

## ② More advanced case - import of client addresses from ERP

Billing, Shipping, and several of them.

## ③ Export of customers from Magento to ERP

Usually, exported without passwords as Magento stores them as hash.

## ⑤ Customers as Companies Private persons

From v 1.7. Magento has on-line company VAT registration number check for EU companies. So, new registration can be checked as Company and assigned automatically to B2B group (with custom code). It has tax issue as if you are a company from EU you can get VAT off the price.

# Orders

## ① Scope of Magento for orders handling

Does customer want to handle Magento order flow only for orders done via Magento or also for ERP orders? Example - somebody from our existing clients makes over the phone order - we insert it into ERP, ERP updates with this order Magento and since this customer is already created in Magento, Magento will send order confirmation e-mail, send invoice, and order status updates. Also, customer will be able to log in and review made order.

Going further, Magento can be also used to handle pay-

ments... If data on credit cards comes over the phone, so they insert it and Magento will make reservation and capture of funds.

Less extended scope would mean that information about the order will be stored and updated in Magento, but will not trigger any Magento-specific actions e.g. send confirmation, send invoice, send e-mail when order status changes or charge customer credit card or other-payment instrument.

## ② Customer credit

Some ERPs track how much certain customer owes to the company and forbid to make new orders unless they settle their debt. Naturally this adds complexity to your project. Magento does not have this feature by default, so you have to discuss with client functionality e.g. as follows:

a) do we need to show customer, who is logged in reminder that they are exceeding their debt limit?

b) when do we show alert that you can not order? When they add products to basket, try to browse the shop at all? In the basket when they try to proceed to checkout or in checkout?

### ③ Tree structure

Some ERPs also allow to have tree like structure for their clients e.g. there is a client then they have some sub-divisions that are different legal entities and different persons, who are allowed to make orders

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### ④ Invoice number

Think about Magento ordering flow and internal company flow available in ERP. Do they map? For example, invoices naming conventions, order statuses.

These are all additional jobs that has to be investigated to finish the project smoothly. Of course, you have to budget PM time for investigation and then create detailed task list to estimate development effort.

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### ⑤ Order creation if they want to use Magento as main platform

There was a case, when company has poor ERP and wanted to use Magento as a main platform, so that they can communicate with customers via Magento, customers can see their orders, etc. It meant that we had to describe the flow of how they create order in Magento or import order from ERP + possibly create a password

for the client and then all the other things were done in Magento without interfacing with ERP. Alternative case, when we still had to update ERP with order statuses, but in that case ERP served only as a tool to pass order to Magento and later company was managing all there.

### ⑥ Physical persons = guests

If purchase is made as Guest then we will report it to ERP as Guest.

### ⑦ Import previous orders - Purchase History

Magento has default Purchase history available at Customer Account under My Orders. Theoretically, we can update it with Customer orders stored at ERP. Of course, if some product that was bought some years ago is not present at the store, we can only list it as text based (not possible to re-order). And it will complicate re-order as it is re-ordering whole order - not individual products.





# Taxes

Taxes in Magento, taxes in the world... different taxes for different product groups/types, different countries, B2B, B2C....

## Tax codes for different countries

Magento has product tax (VAT) and shipping tax, so it is interesting to know what kind of taxes ERP system has

at the moment? Of course, we can import VATs for different countries, but if customer has different tax classes for different types of products e.g. lower VAT for some groups

e.g. press, pharmaceuticals, and higher for consumer goods it has to be known.

# Other notes

## Layered navigation ambition versus information available in ERP

Sometimes, client wants to have user friendly filtering options in layered navigation, but in ERP they have just product title, price and description.

Then, client should be advised that to reach that ambition they will need to either update ERP with this information (maybe they already have attribute functionality or similar they can use for it and then we have to research how to map it to Magento attributes or client can just enter this data in Magento back end)

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**Category** Training materials

**Title** ERP guide and questions

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