# INSTITUTO SUPERIOR TÉCNICO

Sistemas Empresariais Integrados
2012/2013

Group2
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## Business Plan

**Business Initiative**

Support business processes with the aim to increase efficiency in management and better patient treatment.

**Business Drivers**

Increase patient satisfaction

Increase business efficiency in attending patients in urgent conditions

**KPI**

| Business Goal | Metric Name | Metric Value | How to Collect | Frequency | Owner |
|---|---|---|---|---|---|
| Decrease time during the patient's treatment process | Attendance time | Hours (Reduce20%) | Patient file | On the treatment of each patient | Doctor |
| Reduce number of complaints | Complaints | Number of Complaints (Reduce 35%) | Patient exit form | Weekly | HSN Manager |
| Reduce HSN expenses by optimizing the medicine stock | Costs | Euros (Reduce 30%) | Pharmacy Database | Monthly | HSN Accountant |
| Waiting times optimization | Waiting times | Hours (Reduce 30%) | Logistics Report | Monthly | HSN Manager |

**Risks**

| Issue | Description | Mitigation | Owner |
|---|---|---|---|
| **Organizational Issues** | | | |
| Patient treatment takes more time than expect due to the lack of the HSN employees *know-how* about the new technologies like JMS, WS, REST, UBL among others | Having new systems requires adapting | Key-users to test the project, training | Key users Representative |
| **Technical Issues** | | | |
| Denial of service of one or more services that provide information on medicine (Infarmed) and confirmation of each patient's address (CTT) | The processes of ordering medication and of receive, confirming and saving each patient's data become compromised and results in even more time and resources wasted than it was before the integration | Provide some sort of services physical or logical redundancy in those services so that if one service gets compromised, it can still deliver its purpose | HSN Technical Manager |
| **Management Issues** | | | |
| Medicine deliveries are delayed | Because of the swiftness of all the process, certain factors like traffic and such can be the cause of a delay in delivering the medicine to the patient just-in-time | Forward the order before the patient gets registered in the HSN Database to the suppliers ordering system. The process should select the supplier's warehouse closest to the HSN | Commercial Director |

**Functional Scope**

Order medication process

Register patient process

Issue invoice process

## Return Of Investment

**Business Initiative**

Support business processes with the aim to increase efficiency in management and better patient treatment.

| Investment Costs | Total | Description |
|---|---|---|
| Project management | 1.700€ | This is the cost of a project manager for the project for two months. |
| Hardware | 3.000€ | This is the cost for All the equipment needed to keep the new system running |
| Software | 500.000€ | This is the cost of buying an ERP solution for the Hospital |
| Training | 3.000€ | This is the cost for all the training that has to be given for the employees to know how to use the system |
| Development | 17.500€ | This is the cost of developers for the project for two months. |
| Support | 3.500€ | This is the cost for support and maintenance |
| **Total Cost** | 527.700€ | |

**Estimated Benefits per trimester**

| | | |
|---|---|---|
| Reduce personnel costs | Reduce customer support costs at the hospital reception | 15.000€ |
| Reduce IT costs | Reduce error rates | 3.000€ |
| | Eliminate rekeying of information | 2.000€ |
| | Reduce system support costs through integration | 2.000€ |
| Reduce business costs | Reduce costs by optimizing the supply of drugs | 8.000€ |
| | Reduce costs through optimized business processes namely the entry and exit of patients, the supply and invoicing process and the management of patients urgency | 30.000€ |
| Increase income | Increase in the number of exams and medical check ups due to an increase in the number of patients | 50.000€ |
| | Increase in the number of drugs sold to the patients due to an increase in the number of patients | 90.000€ |
| | Create new opportunities through integration with partners and suppliers | 15.000€ |
| **Total benefits** | | 215.000€ |

| Trimester | Total Costs | Total Benefits | Profit Margin |
|---|---|---|---|
| 1 | 527.700 € | 215.000 € | - 312.700 € |
| 2 | 0 € | 215.000 € | - 97.000 € |
| 3 | 0 € | 215.000 € | **118.000 €** |
| 4 | 0 € | 215.000 € | 333.000 € |

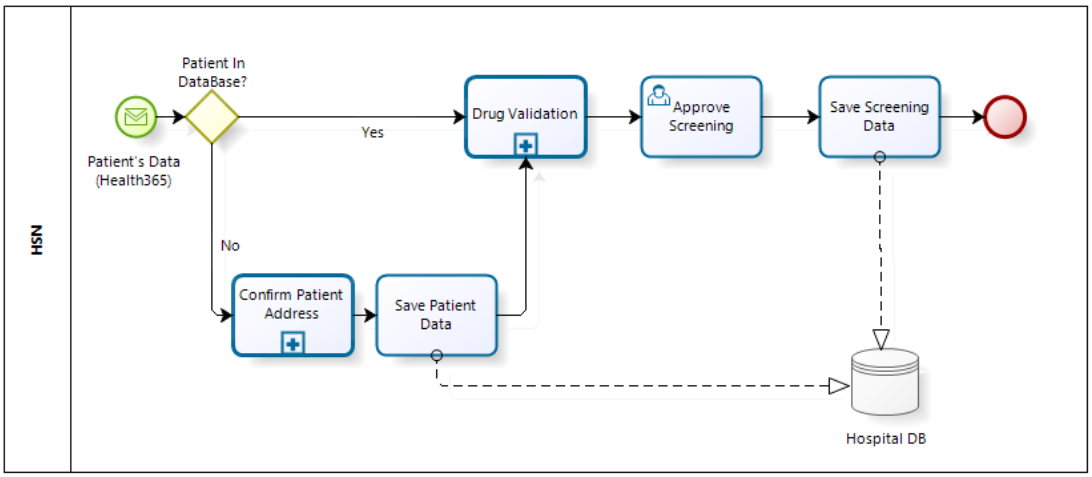
## Integration Strategy

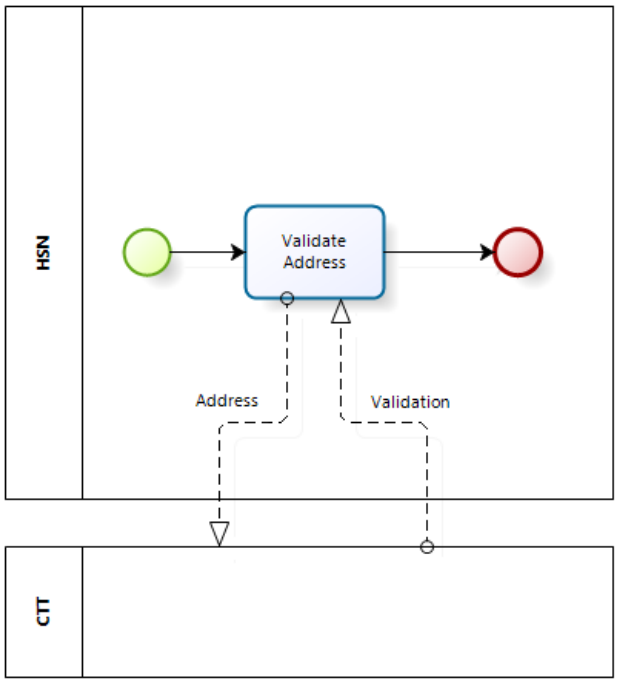
One of the main purposes of this integration project is to provide a robust and strong infrastructure in order to provide longevity and re-utilization of this and future integration projects, in other others, making this integration a strategic one. We are confident that, this integration project will be the cornerstone of a great service platform providing, by means of integrating more technologies, a wide range of services here at HSN that still need to be digitalized and decentralized.

## Main stages of the business services

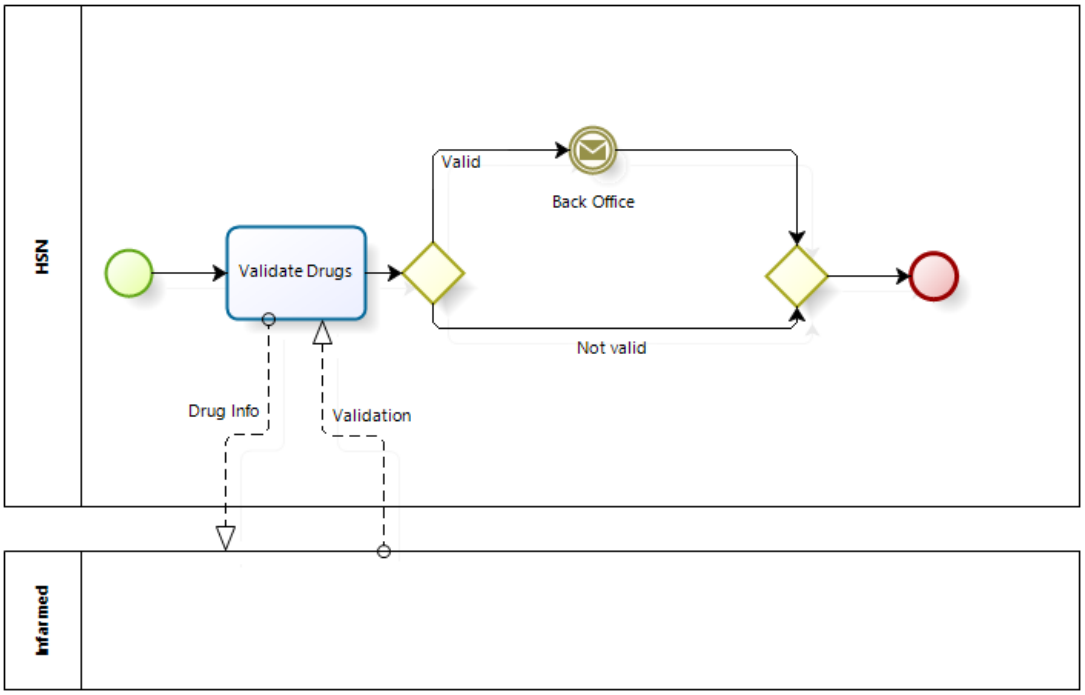
### FRONT OFFICE

#### Register patient process



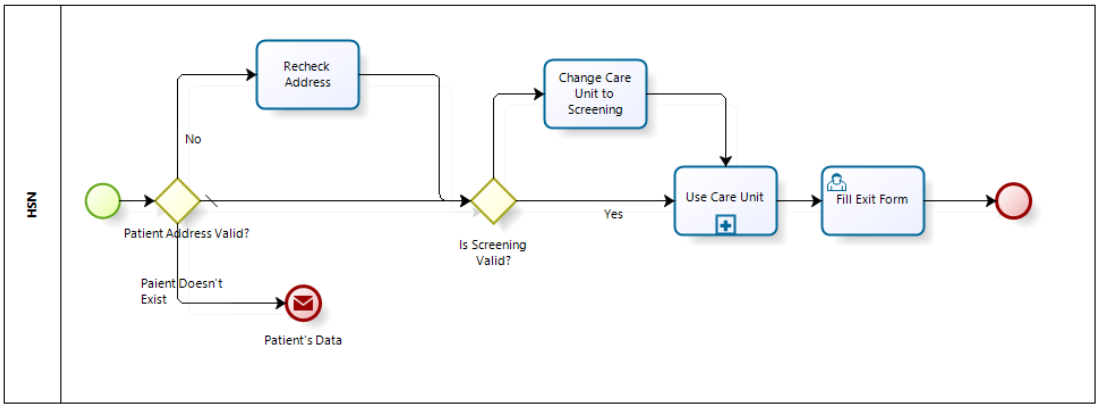



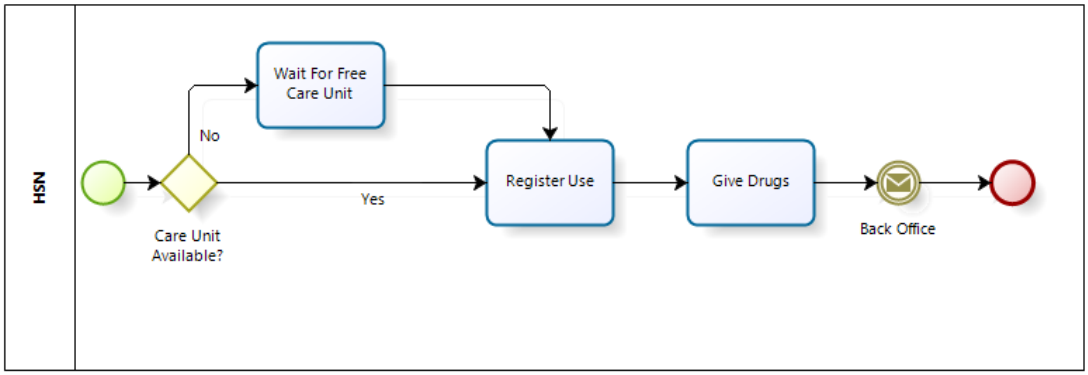

**Register Patient Sub-Process 1. Confirm Patient Address**




**Register Patient Sub-Process 2. Drug Validation**

## Patient Entry Process

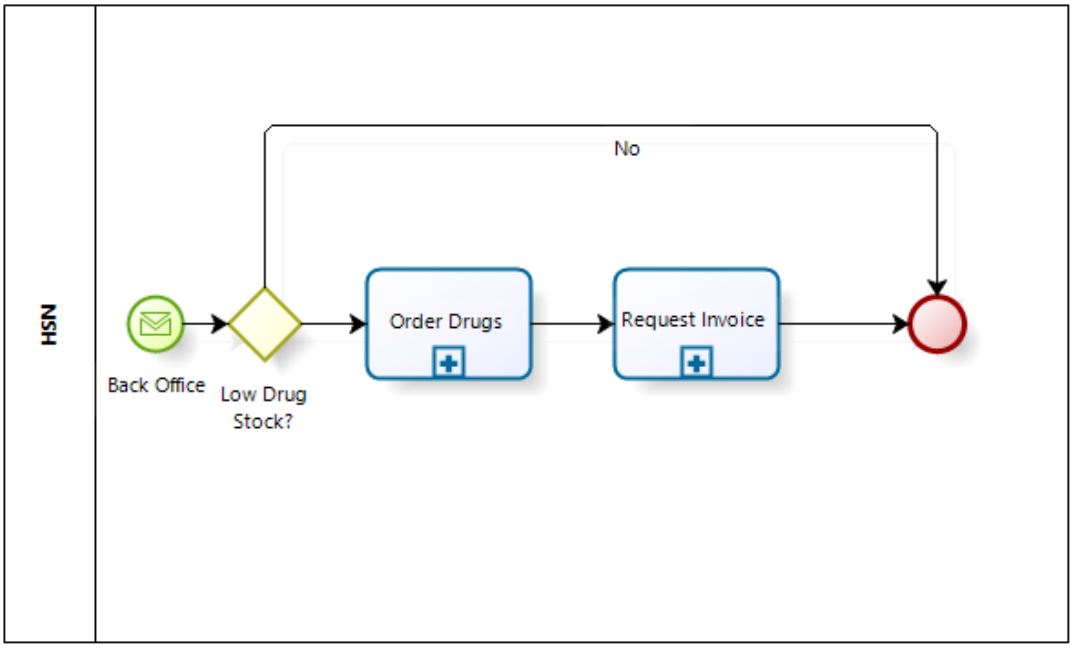


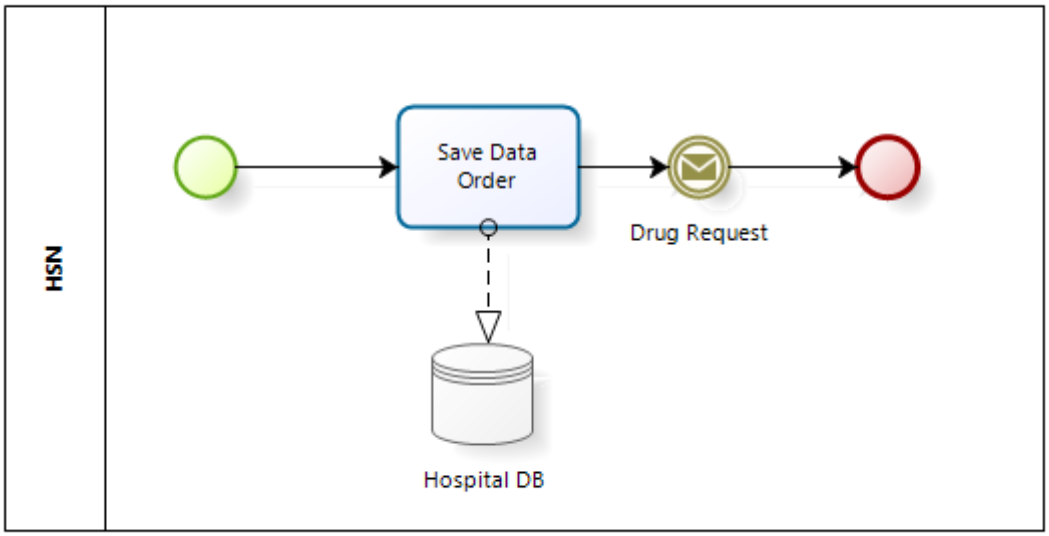

**Patient Entry Sub-Process 1. Use Care Unit**

## BACK OFFICE

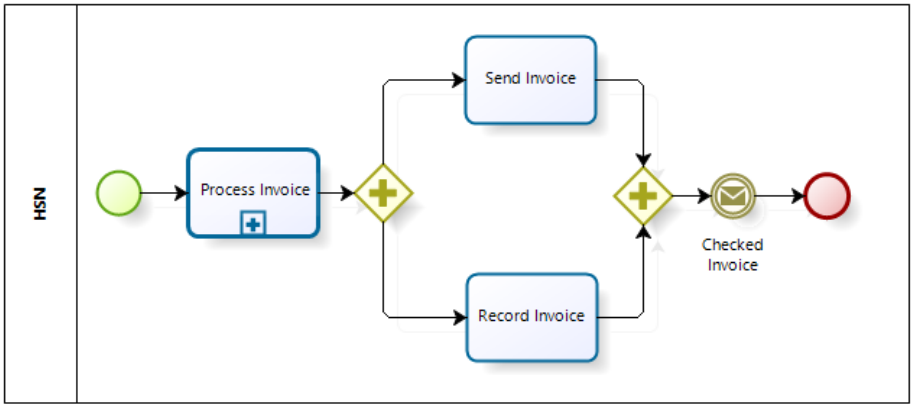
### Drugs Management Process

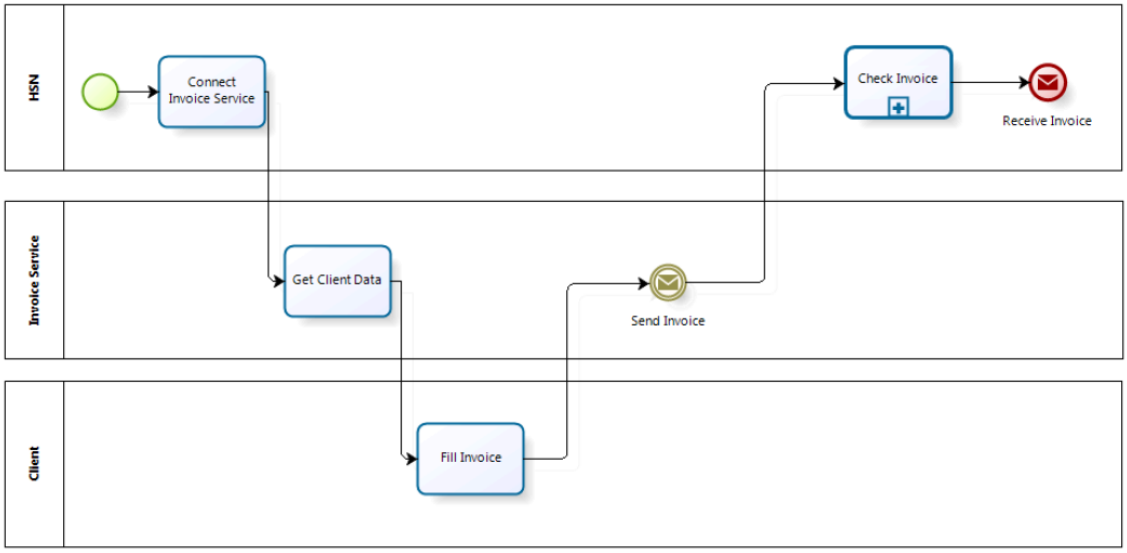



### Order medication process

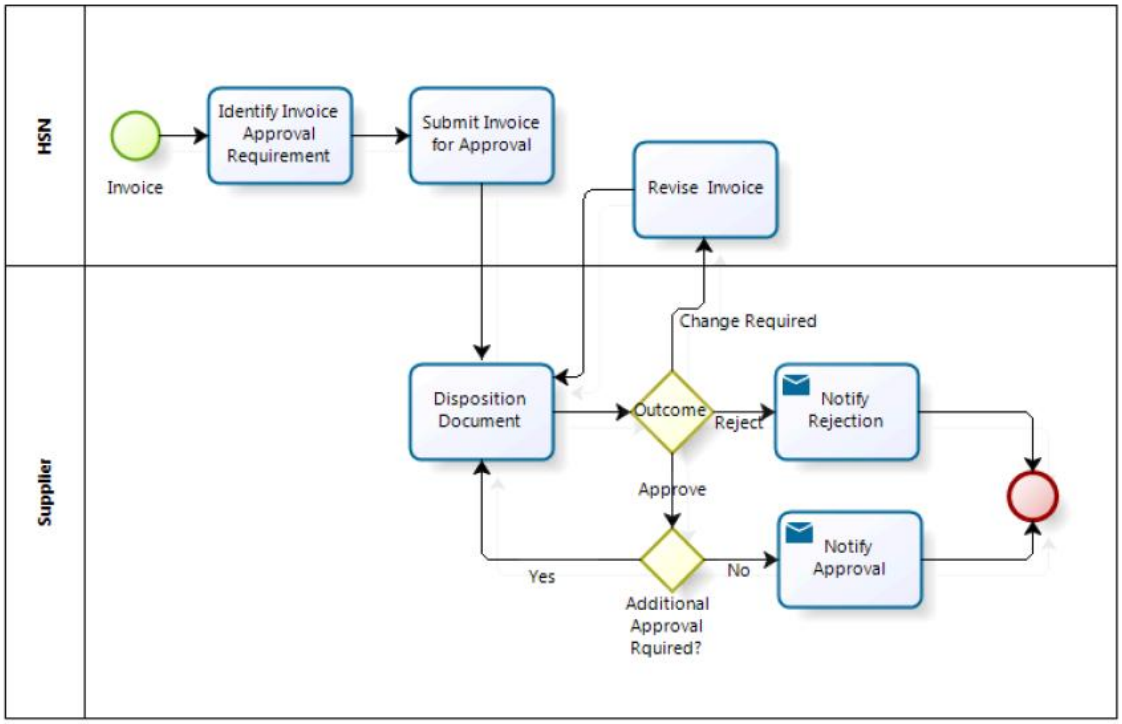


### Issue invoice process



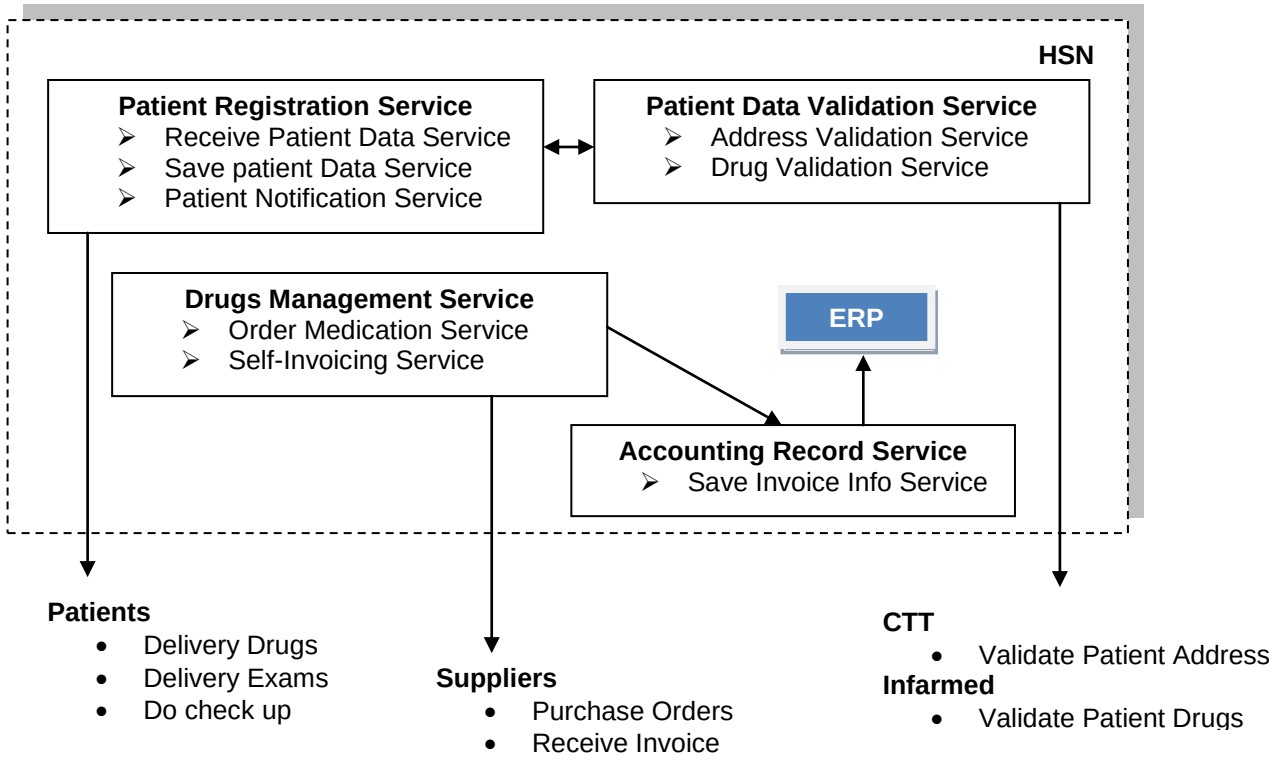




**Issue Invoice Sub-Process 1. Process Invoice**




**Issue Invoice Sub-Process 2. Check Invoice**

## External and internal services




## Information entities

Below we define all the information entities that are relevant for each business process:

| Process | Entity |
|---|---|
| Order medication process | Order XML file according to the UBL 2.0 Schema |
| Patient entry process | Patient Report XML file according to the Health 365 schema;<br>Patient exit XML file |
| Register patient process | Patient Report XML file according to the Health 365 schema;<br>CTT address validation XML file;<br>Infarmed's website |
| Issue invoice process | Invoice request XML file according to the schema defined by Saphety |

## Technological architecture

The architecture we are going to use in order to integrate all the services related to the processes specified above is the SOA architecture. **SOA** is an architecture based on the notion that the assets of Information Systems in an organization are described and exposed as services. These services can be composed and orchestrated in business processes. For each external and internal entity we are using different types of components based on different types of technology to interact with our SOA bus. Those technologies are as follow:

- **XSD** (Health 365)
- **Web Scrapping** (Infarmed)
- **REST** (CTT, Nexmo)
- **SQL** (Hospital Database)
- **UBL** (Supplier)
- **FTP** (Saphety)
- **MQ** (ERP)

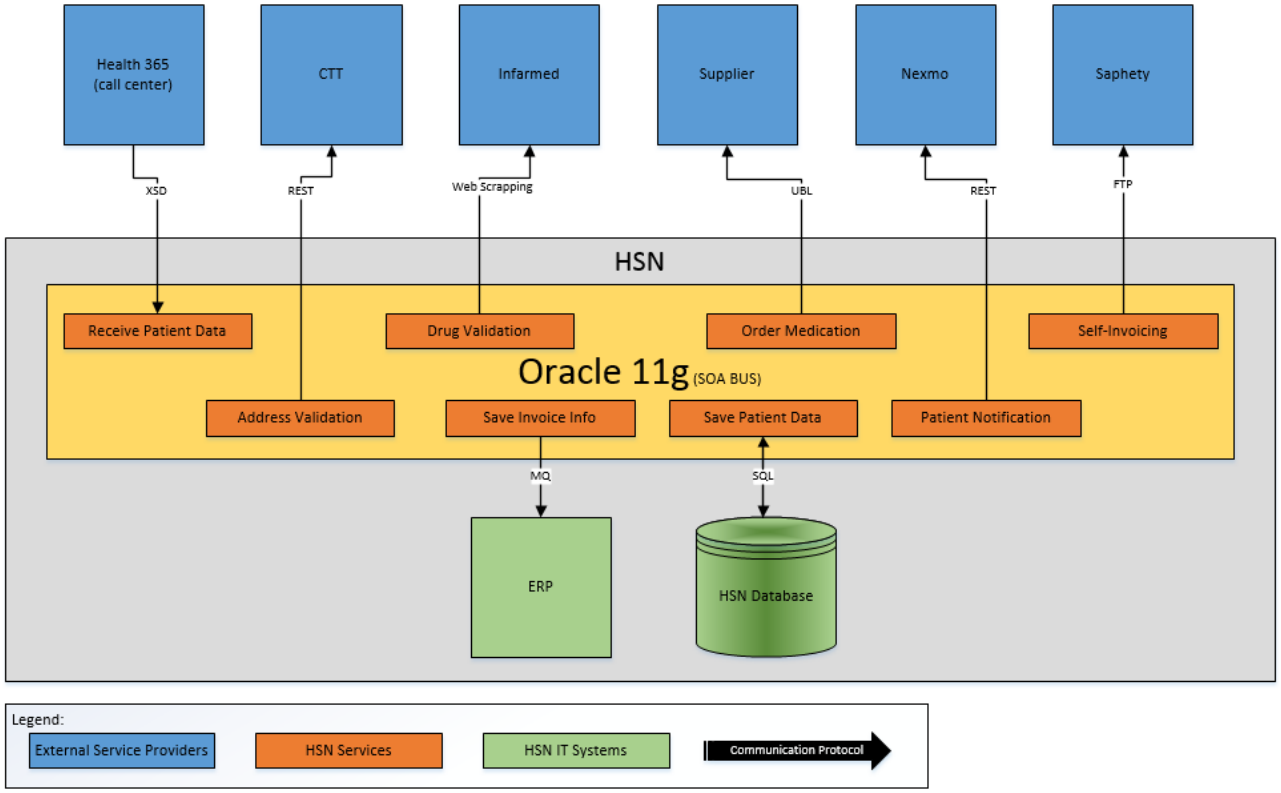



**Image 1. HSN Technological Architecture**

## Extensions

The purpose of the extensions is to deal with the type of urgency from each patient with utmost efficiency, meaning patients that don't have an urgent case would get a message from HSN to go there once the wait times were lower. Patients would also be notified once their drugs and exams were available.
With the above-mentioned objectives in mind, the extensions we purpose are as follow:

**EXT 1**: In the case of not very urgent patients, send them a text message telling them to go to the hospital when the wait times are lower
**EXT 2:** Notify the patient via text message when the results for his exams and his drugs are available

## Conclusions

By going forward with this integration project we can guarantee not only an economical raise in the hospitals economy but also a more efficient business in terms of its processes and how it deals with each patient accordingly to the severity of their condition. Obviously the perspectives of each patient related to HSN will be the best since an overall raise of their satisfaction is foreseen.