



Presentation of the consultancy activities related to:

DESIGN OF WAREHOUSE

from the Feasibility Study to Hand-Over

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WHO IS SIMCO

The company

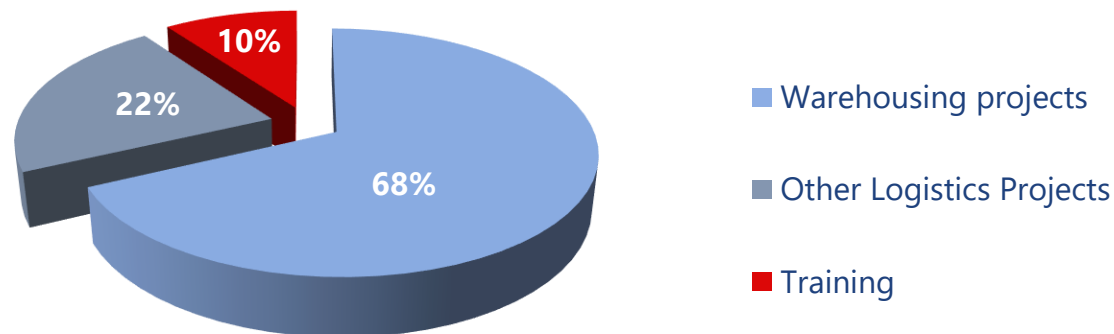
Simco is one of the most important Italian training and consulting companies.

Since 1981, when it was established, Simco has been developing **over 2.400 projects** for **more than 600 Customers** of different sizes and sectors.

Our mission is to combine expertise and technology to analyze and improve processes, motivate and qualify Human Resources in order to control and develop the overall performance of the company.

Our method does not provide standard solutions, but offers a tailored approach, modeled **on the real needs of the Customer** and inspired to **practicality and innovation**.

Particular attention is given in the use of advanced tools in order to make the results of projects certified by sophisticated analysis; Simco can develop a relationship of collaboration that starts from the definition of the actions of improvement and change up to the assistance during implementation, to facilitate and monitor the achievement of objectives.



WHO IS SIMCO

Training



Simco organizes inter-company and in-house courses and workshops (more than 40 courses about logistics in the catalogue).



WHO IS SIMCO

Some of our references



WHO IS SIMCO

Best known companies

ABS Acciaierie, Acraf Angelini, Alstom, Agusta Westland, Bayer, BASF, Binda, Benetton, Bracco, BTicino, Carrefour, Coca-Cola, COOP Italia, Coty, DENSO, Dayco Europe, Diesel, Ducati, Eli Lilly, Facet, FANUC, Ferrero, Fiamm, Fiat Auto, Fischer, Flint Group, Luxottica, Merck Sharp & Dohme, Metelli, Merck Serono, Michelin, Martini & Rossi, Monte dei Paschi di Siena, Novartis Vaccines, Panasonic, Pioneer, Ponti, PSA Peugeot Citroën, Reckitt Benckiser, Richard Ginori, Roche Diagnostics, Samsung, Sipcam, Snam Rete Gas, SOL, Staples, Subaru, Tempur, Teddy, Teva, Thun, TRW, Volkswagen.

Simco has developed many projects and operating consultancies in international contexts in Albania, Austria, Chzec Republic, Belgium, Bulgaria, China, Croatia, France, Germany, Greece, India, Malta, Poland, UK, Romania, Spain, Switzerland, Thailand, Turkey and USA

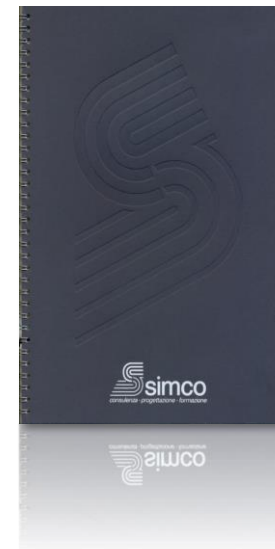
Average revenue generated by each Customer listed above:
about € 130.000,00



WHO IS SIMCO

Our areas of intervention

- **Organisation of distribution network**
- **Master Plan and Factory Lay Out**
- **Warehouse logistics**
 - ✓ *Design of internal material handling systems*
 - ✓ *Design and re-organisation of traditional and highly automated warehouses*
 - ✓ *Dynamic simulation of handling systems*
 - ✓ *Continuous improvement actions (eg. Times and methods)*
- **Outsourcing of Transportation and of Warehouses**
- **Forecast of demand and stock management**
- **Lean Production**
- **Training in Supply Chain**



LOGISTICS OF WAREHOUSE

The method utilized

Audit

We identify the strengths and weaknesses of the actual warehouse and define possible interventions highlighting the expected benefits, the prerequisites for their implementation, any risks, time and resources required.

Feasibility study

It defines the strategic, technological and organizational options, to eliminate the weaknesses and to achieve levels of excellence, with regard to efficiency, accuracy and service. It identifies alternative solutions, which are analyzed and presented defining the valences in terms of obtainable results, budget and ROI, operating costs, operational flexibility, implementation time.

LOGISTICS OF WAREHOUSE

The method utilized

Detail Project

It is the analytical design phase of all components of the Warehouse, to issue drawings and technical and functional specifications necessary for the launch of tenders.

Management of the realization

In support to the Customer, we offer technical assistance to the management of contracts, we verify technical content and project schedule issues. Logistics project management is carried out, the on site supervision of the building yard, staff training and assistance in testing, start-up and commissioning.

Periodic monitoring of the efficiency

After the start-up of the warehouse, the results actually achieved are monitored to identify the reasons for the deviations from the goals that were set. The scope is to establish new goals, by removing the problems with the logic of "continuous improvement".

FEASIBILITY STUDY

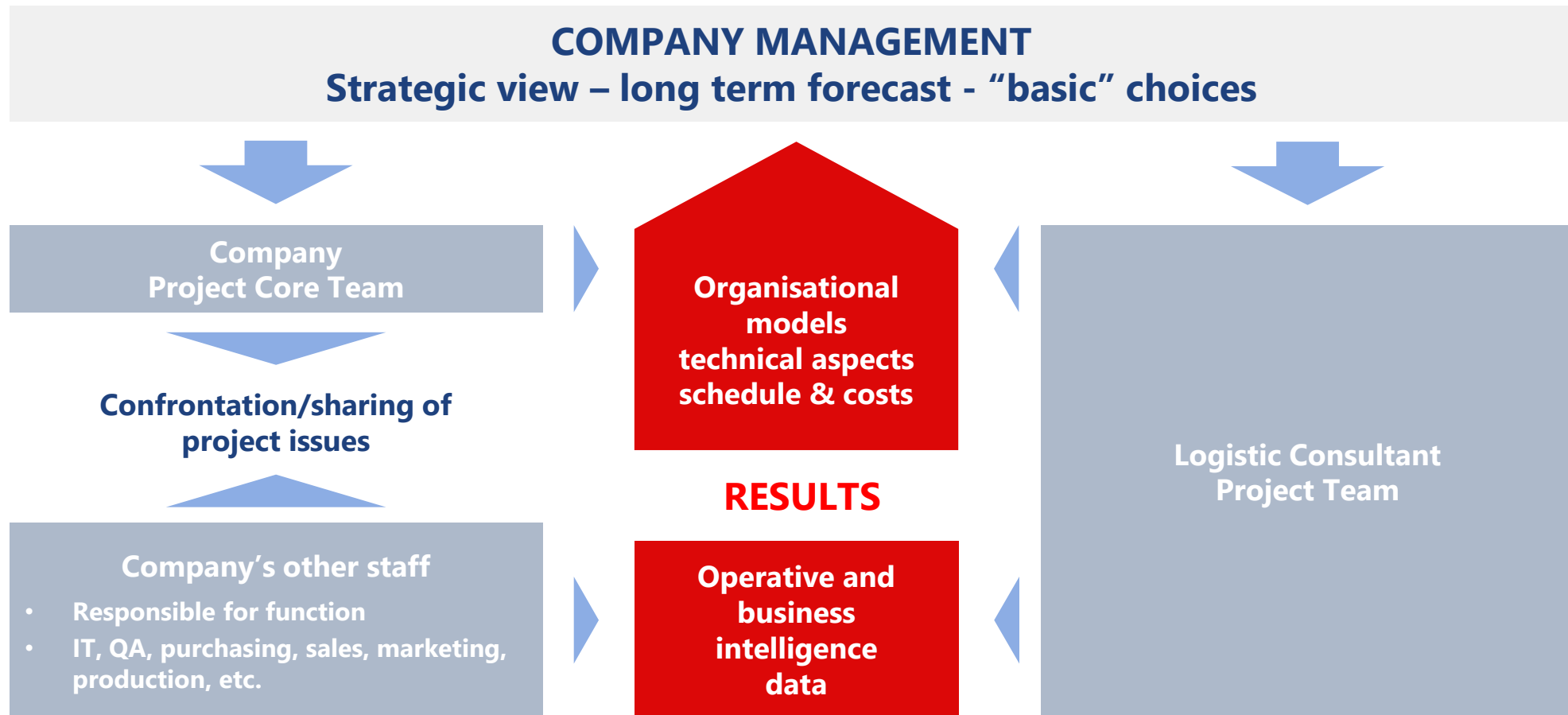
Scope of work

SCOPE: to choose the best possible solution to be developed and implemented

FEASIBILITY STUDY	DESIGN DATA	<ul style="list-style-type: none">• Collection and analysis of current data• Analysis of the main processes• Definition of projection factors
	DEVELOPMENT OF ALTERNATIVE SOLUTIONS	<ul style="list-style-type: none">• Definition of possible alternative solutions for:<ul style="list-style-type: none">✓ Storage and material handling systems✓ Working procedures, IT architecture, organization• Definition of the criteria for the comparison of alternatives
	OPTIMAL SOLUTION	<ul style="list-style-type: none">• Estimate of investment costs (15% accuracy) and costs/benefits analysis• Comparison of alternative solutions• Definition of the optimal solution• Final Report

FEASIBILITY STUDY

Project team



FEASIBILITY STUDY

Collection and data analysis

Items and loading units	Inventory
<ul style="list-style-type: none">• Records• Dimensions and weights• Unit volume• Scheme of packaging and palletisation	<ul style="list-style-type: none">• Volume per SKU• Loading units per SKU• Seasonality• Trends• ABC analysis
Human resources, productivity, analysis of processes	IN&OUT Flows
<ul style="list-style-type: none">• FTE (entity, tasks, qualifications, costs ...)• Hourly productivity• Analysis of processes (times and methods, instant observations)	<ul style="list-style-type: none">• Receiving• Picking (lines/Sku)• Picking (quantity/Sku)• Shipments (boxes, pallet, other Loading units)• Orders for sales channel• Analysis of orders profile• ABC Analysis• Seasonality• Trucks flow In & Out

ANALYSIS & ELABORATION CURRENT SITUATION

PROJECTIONS

- **Flows**
- **SKUs**
- **Lines and quantity In & Out**
- **Evolution of orders profile**
- **New distribution channels**
- **Stock management**
- **Production**
- **Level of service**
- **New items**
- **New clients**
- **New process requirements**
- **Project objectives**

PROJECT REQUIREMENTS

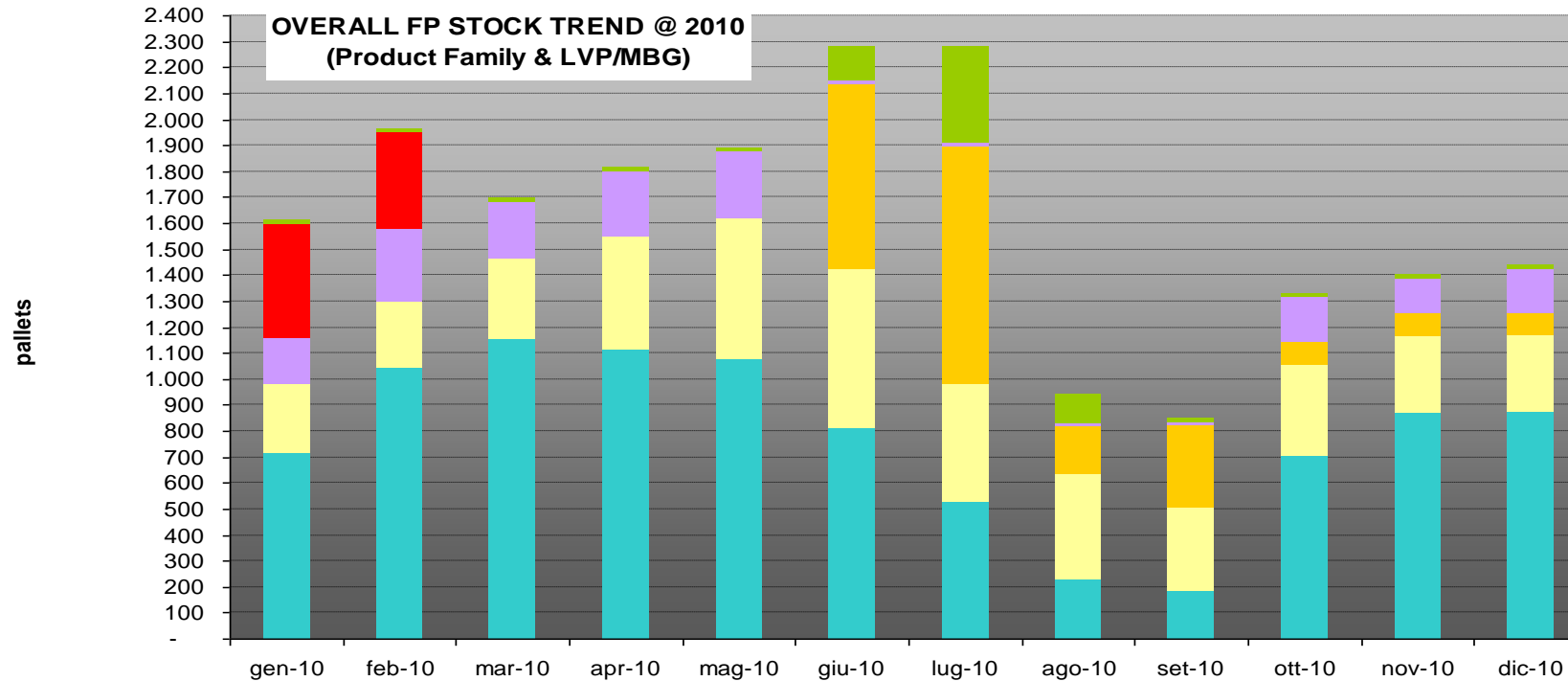
FEASIBILITY STUDY

Stock analysis

Comp.	Descrizione	N° Codici	%	progr	N° Medio Pallet in Giac.	%	progr	pallet x cod
98	MATERIALE VARIO	59	3%	3%	2.018	21,7%	21,7%	34,2
04, 05, 10	BULK e PF per exp	251	14%	18%	1.260	13,5%	35,2%	5,0
20, 21, 22	ASTUCCI	346	20%	38%	937	10,1%	45,3%	2,7
01	ECCIPIENTI	74	4%	42%	921	9,9%	55,2%	12,4
45	CONFEZIONI MULTIPLE	57	3%	45%	797	8,6%	63,7%	14,0
97	PALLET	4	0%	45%	543	5,8%	69,6%	135,8
06, 07, 08 09, 12, 13	PRODOTTI FINITI	118	7%	52%	536	5,8%	75,3%	4,5
90, 94, 99	MISCELLANEA	45	3%	55%	434	4,7%	80,0%	9,6
60, 62, 65	ALLUMINIO	237	14%	68%	424	4,6%	84,5%	1,8
40, 41	FOGLIETTI ILLUSTRATIVI	220	13%	81%	397	4,3%	88,8%	1,8
23	WALLET	63	4%	85%	248	2,7%	91,5%	3,9
80	ROTOLE DI PVC	51	3%	88%	172	1,9%	93,3%	3,4
02	PRINCIPI ATTIVI	15	1%	88%	168	1,8%	95,1%	11,2
36, 38	BOLLINI PREZZO	120	7%	95%	129	1,4%	96,5%	1,1
30, 33, 37	ETICHETTE	52	3%	98%	89	1,0%	97,5%	1,7
14	LOSS REPORT	2	0%	98%	63	0,7%	98,1%	31,6
83	FUSTINI METALLICI	2	0%	99%	46	0,5%	98,6%	23,1
03	SEMILAVORATO INTERNO	9	1%	99%	42	0,5%	99,1%	4,7
84	ALVEOLI	2	0%	99%	37	0,4%	99,5%	18,6
81	POLIETILENE	6	0%	99%	29	0,3%	99,8%	4,8
87	SACCHETTI ANONIMI	4	0%	100%	12	0,1%	99,9%	2,9
50	CAPSULE	2	0%	100%	3	0,0%	100,0%	1,5
55	FLACONI	1	0%	100%	1	0,0%	100,0%	1,0
16	MATERIALE DI SCARTO	1	0%	100%	1	0,0%	100,0%	1,0
15	RESI A PAVIA	1	0%	100%	1	0,0%	100,0%	1,0
Totale		1.742			9.308			

FEASIBILITY STUDY

Stock – Current situation

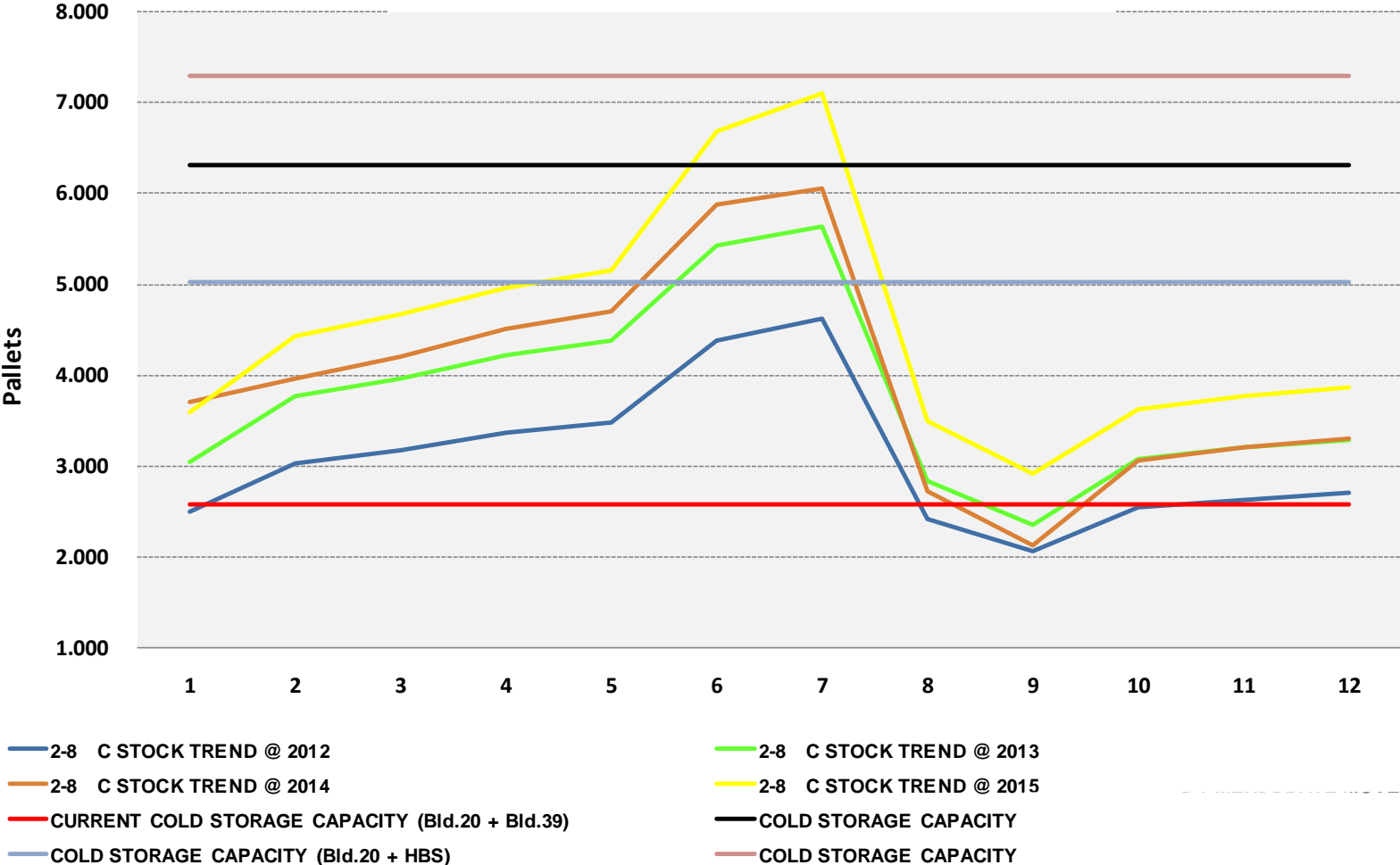


	gen-10	feb-10	mar-10	apr-10	mag-10	giu-10	lug-10	ago-10	set-10	ott-10	nov-10	dic-10
Omissis	15	15	15	15	15	134	372	114	15	15	15	15
	436	370	-	-	-	-	-	-	-	-	-	-
	180	278	217	253	260	16	16	16	16	174	134	170
	-	-	-	-	-	708	914	176	318	86	86	86
	267	258	310	437	538	615	454	412	322	349	299	292
	713	1.043	1.153	1.110	1.078	811	528	226	181	706	866	876

FEASIBILITY STUDY

Stock – Projection design point

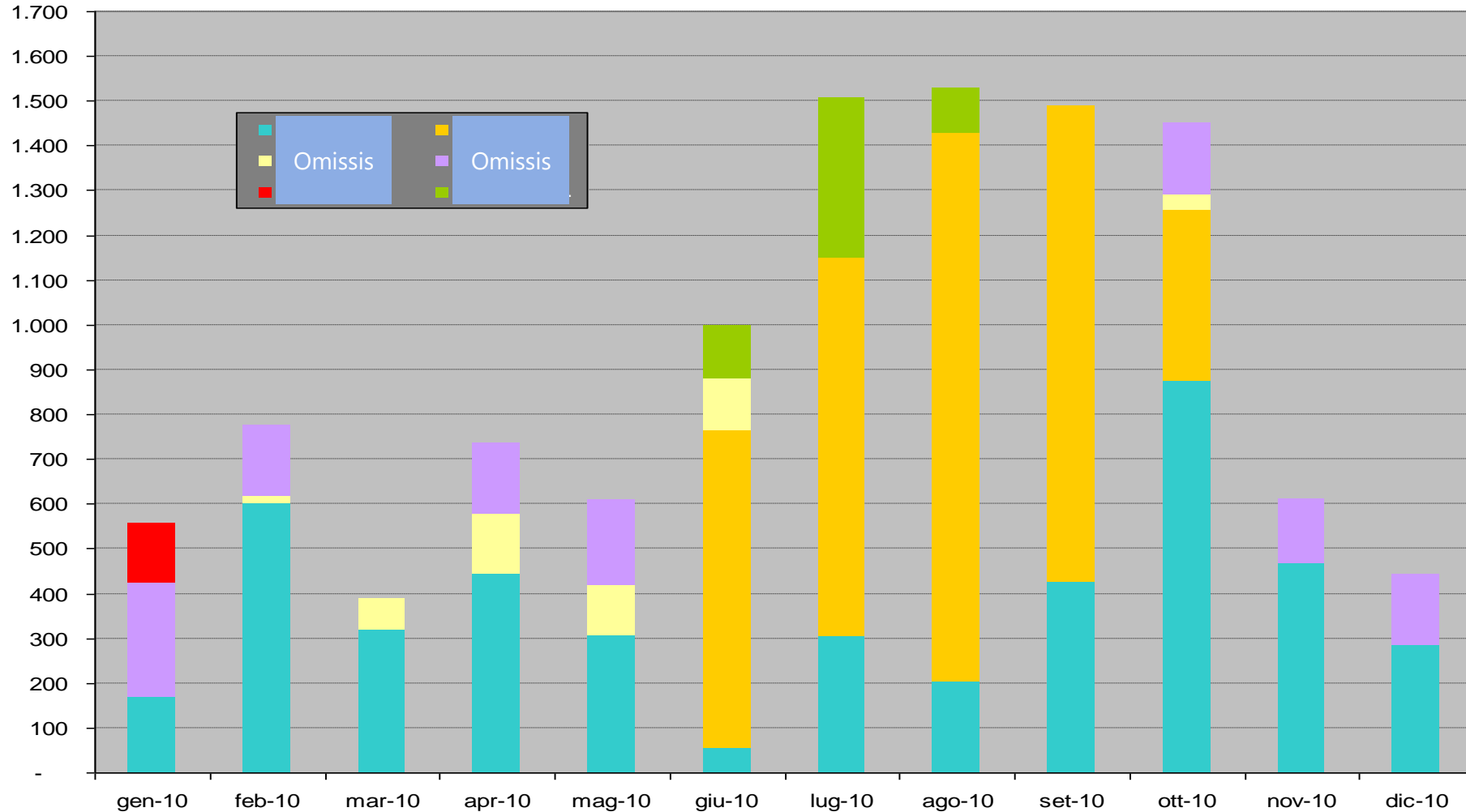
COLD STORAGE YEARLY TREND



FEASIBILITY STUDY

Materials flows analysis

PACKAGING TREND in 2010 (pallets)



FEASIBILITY STUDY

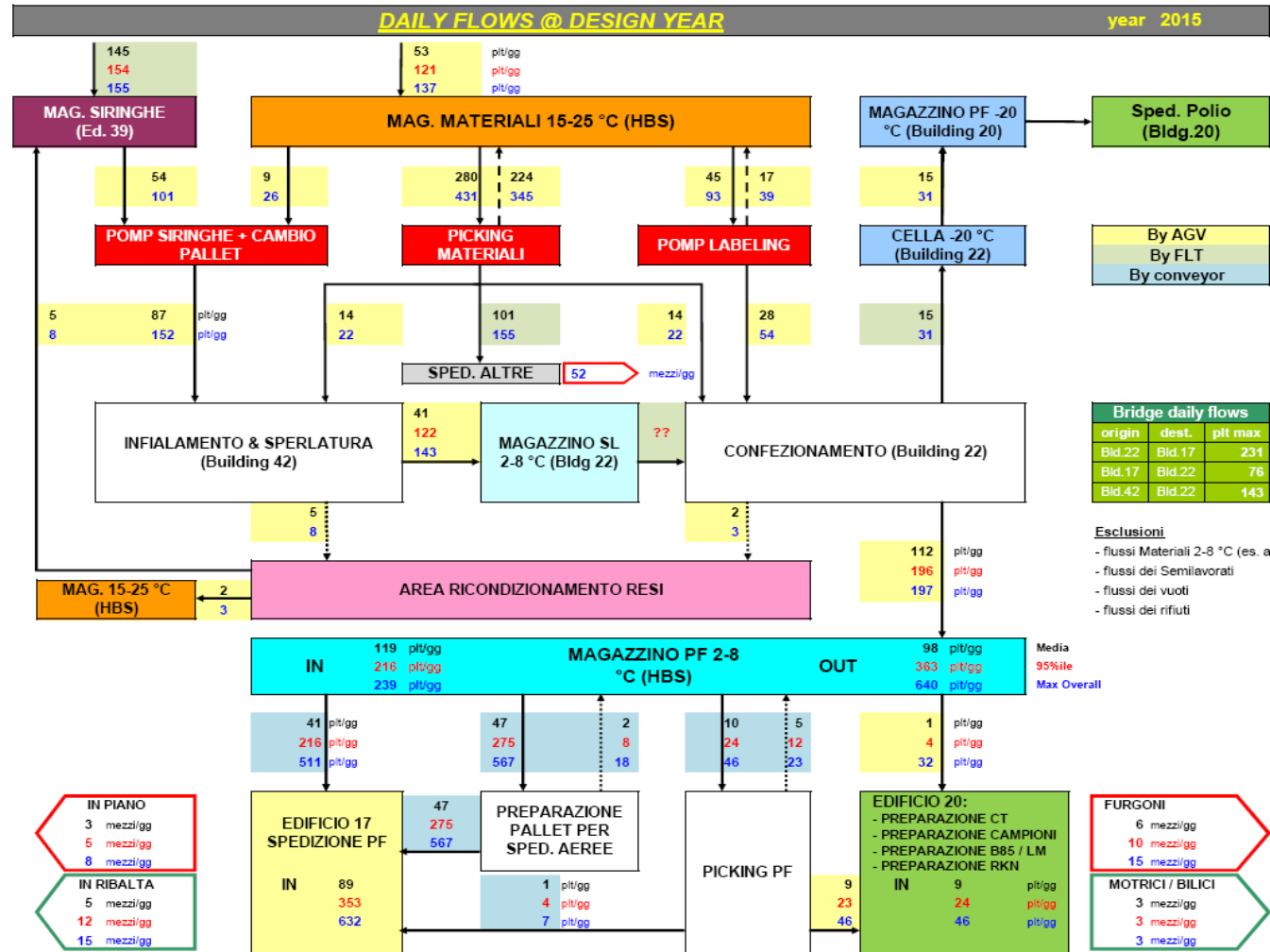
Materials flows analysis

FROM TO CHART: SITUAZIONE DI PROGETTO (flussi medi giornalieri)

ORIGINE / DESTINAZIONE		MISSIONI PER														
		Ingr.	Sampl.	Mag. (HBS)	Mag. (NWH)	Weigh.	Pre Weigh.	Fraz. Bulk	Assem.	Manuf.	Pack.	Pick.	Stag.	Waste	Ship.	De/Sta STA
MISSIONI DA	Ingresso			106	54											
	Sampling			19												
	Magazzino (HBS)	24	19			45	18		89	59	96	9			37	
	Magazzino (NWH)							11			94	21			120	
	Weighing			15						1				18		
	Pre Weighing			36												
	Fraz. Bulk				22											
	Assembling			36						7			30			
	Manufacturing			7	58									24		
	Packaging			48	80									16		
	Picking			21	49											
	Staging									30						
	Waste			58												
	Shipping															
	De/Stacker PT - STA11					11	32	11								
	Stacker 1P - STA21			19												
De/Stacker 1P - STA31			3					55								
TOTALE		24	19	368	263	56	50	22	144	97	190	30	30	58	157	38

FEASIBILITY STUDY

Materials flows analysis



FEASIBILITY STUDY

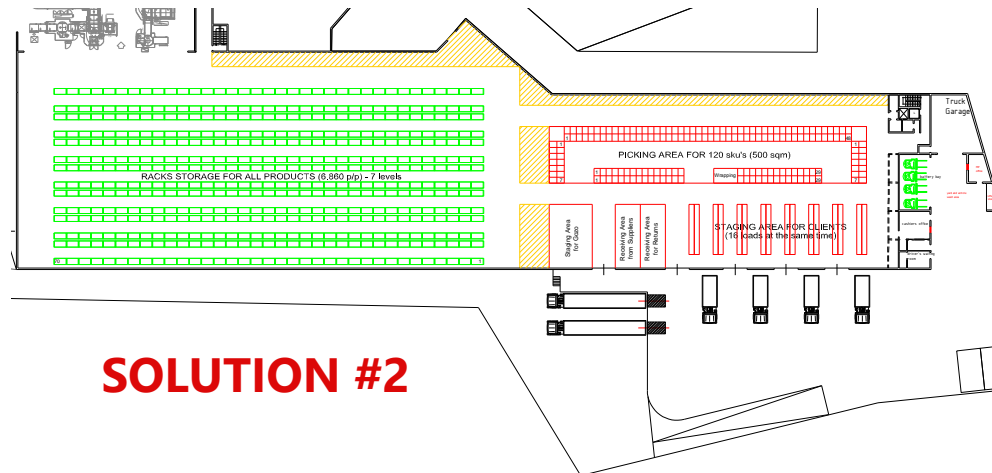
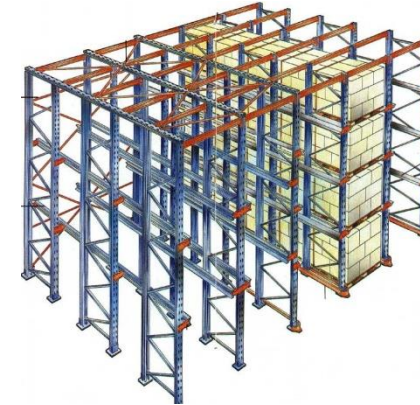
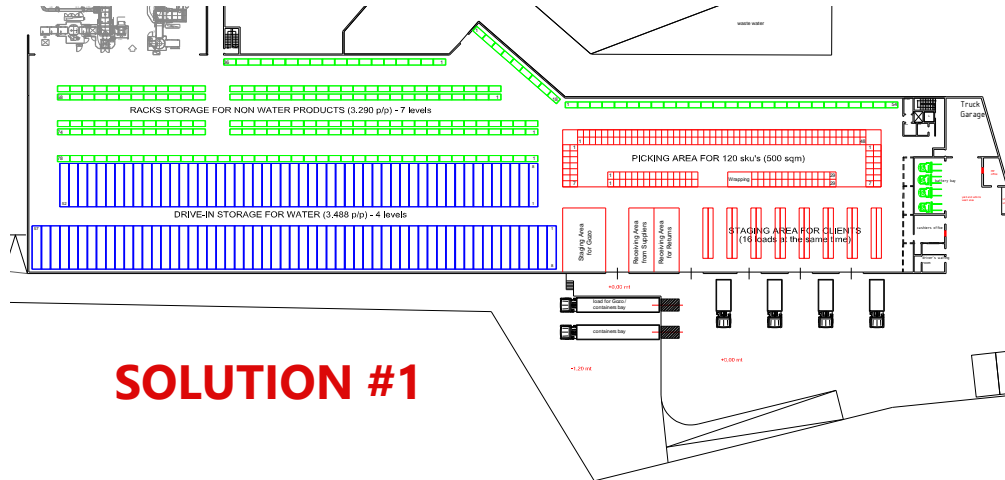
Development of alternative solutions

Each alternative solution must be characterized in terms of:

- **Master Plan of the site**
- **Warehouse layout:** design of logistic equipment (storage and material handling means) according to project requirements
- **Operative criteria:** put-away rules, warehouse storage mapping, picking processes (per single order, batch order picking, sorting, etc.), handling processes
- **Commitment of the staff** (and relevant running costs)
- **Other running costs** (maintenance, consumption materials, insurance, consumptions etc.)
- **Investment costs and computation of return**
- **Project time schedule / planning of implementation stages**

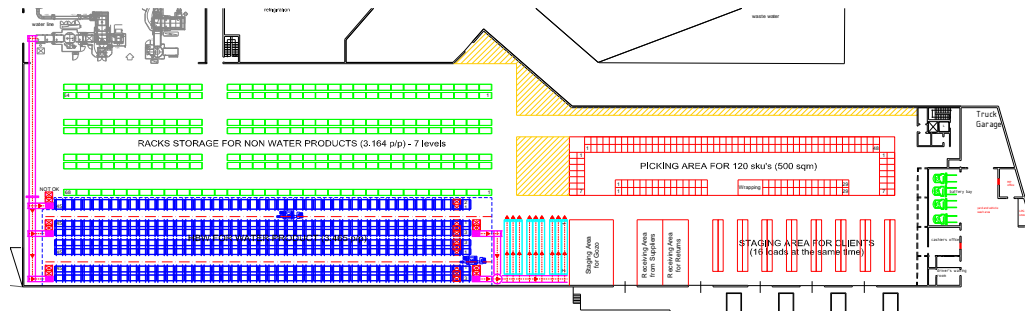
FEASIBILITY STUDY

Development of alternative solutions

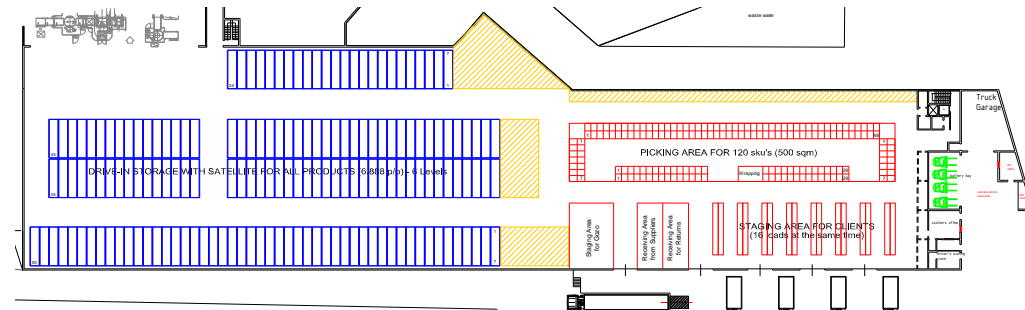


FEASIBILITY STUDY

Development of alternative solutions



SOLUTION #3



SOLUTION #4



FEASIBILITY STUDY

Estimate of investment

DESCRIPTION		QUANTITY		Unit cost	TOTAL		on total
		q.ty	uom	€	€	%	%
1	AUTOMATED WAREHOUSE FOR PALLET						
1.1	Self-supporting racks	4.368	bays	450	1.970.000	37	
1.2	Monofork stacker cranes	6	n°	300.000	1.800.000	34	
1.3	Sprinkler system	4.368	bays	105	460.000	9	
1.4	Slab self-supporting warehouse	3.300	sqm	250	825.000	16	
1.5	Project cost of supply			4%	205.000	4	
Total 1					5.260.000	100	68
2	MATERIAL HANDLING						
2.1	Head conveyors	250	m	4.000	1.000.000	78	
2.2	Connecting conveyors	25	m	2.500	65.000	5	
2.3	Elevators	2	n°	45.000	90.000	7	
2.4	Idle roller conveyors cascaded warehouse	160	pp	250	40.000	3	
2.5	Loading points	5	n°	8.000	40.000	3	
2.6	Project cost of supply			4%	50.000	4	
Total 2					1.285.000	100	17
3	OTHER ACTIVITIES						
3.1	Demolitions and transports	1.900	sqm	50	95.000	18	
3.2	Excavation and transports for aut. warehouse	11.400	cubic m	5	57.000	11	
3.3	New buildings & structural adjustments	350	sqm	1.000	350.000	66	
3.4	Project cost of supply			4%	25.000	5	
Total 3					527.000	100	7
4	INFORMATION TECHNOLOGY						
4.1	WMS, Synopt., interf. with ERP	1	#	250.000	250.000	100	
Total 4					250.000	100	3
TOTAL					7.322.000		
UNEXPECTED EVENTS					370.000		5
SUPERTOTAL					7.692.000		100

FEASIBILITY STUDY

Comparison of alternative solutions

		SOLUTION 1		SOLUTION 2	SOLUTION 3		SOLUTION 4	SOLUTION 5
Product type	[type]	WATER	NO WATER	ALL	WATER	NO WATER	ALL	ALL
Storage pallet places	[#]	3.488	3.290	6.860	3.465	3.164	6.888	6.454
Warehouse saturation	[%]	95%	91%	92%	96%	95%	92%	98%
Area utilization factor	[pp/sqm]	2,1	1,9	2,6	2,6	1,9	2,6	1,9
Area requirements	[sqm]	4.850		4.150	4.600		4.150	4.850
Area availability	[sqm]	-		700	250		700	-
Workers / day (peak conditions)	[#]	21		26	17		20	19
Total logistic investment costs	[€]	1.200.500		1.611.000	2.187.000		1.548.500	956.500
Total running costs / year	[€/y]	344.000		462.000	291.000		348.000	305.000

FEASIBILITY STUDY

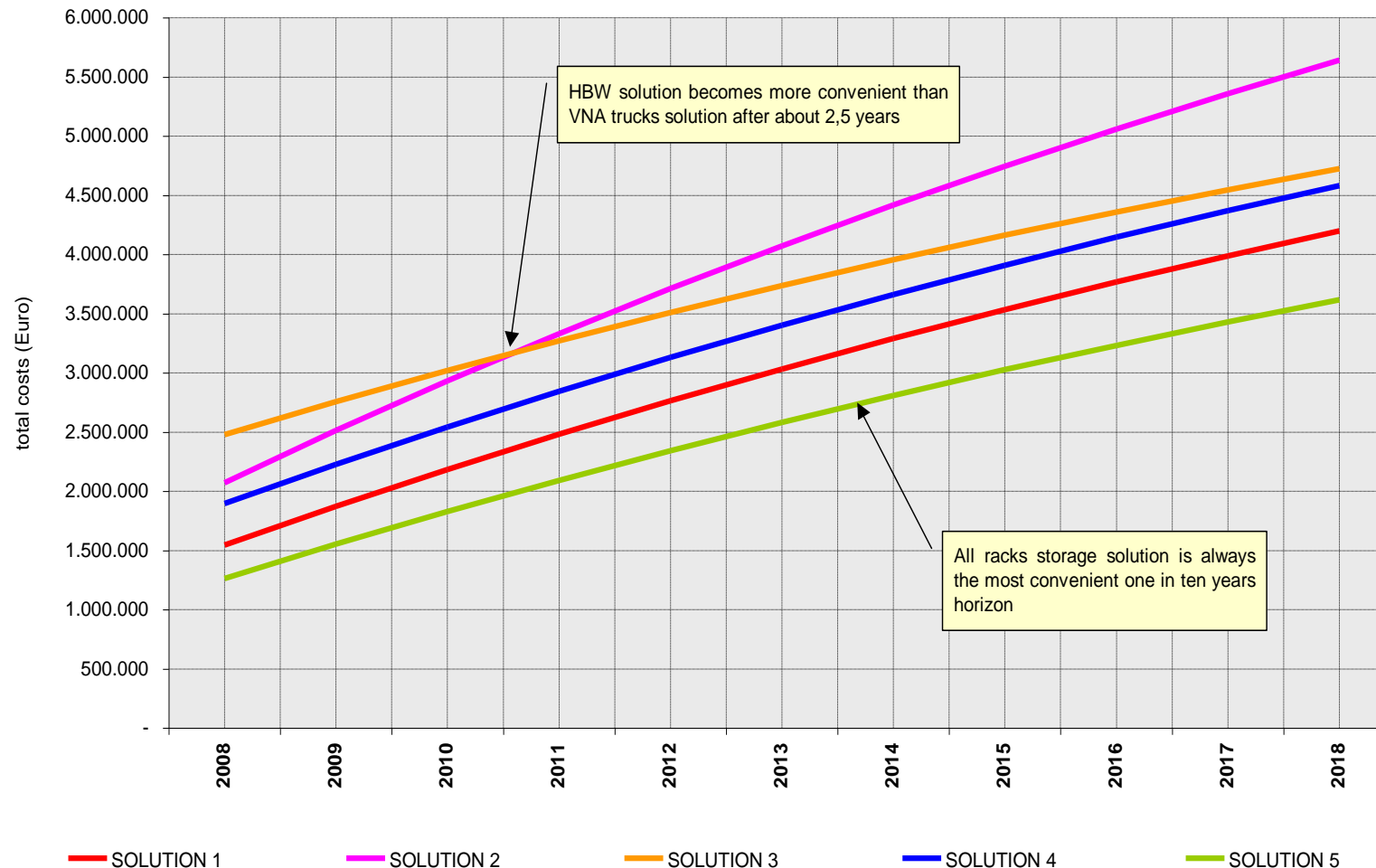
Comparison of alternative solutions

Factor description		Weight	Solution 1		Solution 2		Solution 3		Solution 4		Solution 5	
			vote	score	vote	score	vote	score	vote	score	vote	score
1	Overall costs (investment + running) in the mid term (5 years)	25%	9,0	2,3	7,5	1,9	5,0	1,3	7,5	1,9	10,0	2,5
2	Investment costs impact	10%	8,2	0,8	7,4	0,7	5,0	0,5	6,6	0,7	10,0	1,0
3	Safety & ergonomy	10%	6,0	0,6	9,0	0,9	9,0	0,9	8,0	0,8	7,5	0,8
4	Area savings	10%	5,0	0,5	10,0	1,0	6,8	0,7	10,0	1,0	5,0	0,5
5	Project complexity and lenght	5%	9,0	0,5	8,0	0,4	5,0	0,3	7,0	0,4	10,0	0,5
6	Process & Operations control and accuracy	10%	7,0	0,7	8,0	0,8	10,0	1,0	7,0	0,7	9,0	0,9
7	Flexibility to long term changes	5%	8,5	0,4	5,0	0,3	7,5	0,4	7,0	0,4	9,0	0,5
8	Flexibility to overtime	5%	7,0	0,4	7,0	0,4	10,0	0,5	7,0	0,4	7,0	0,4
9	Flexibility to short peaks of the workload	5%	7,0	0,4	5,0	0,3	6,0	0,3	6,5	0,3	8,0	0,4
10	Sensitivity to failures; availability	5%	10,0	0,5	9,0	0,5	8,0	0,4	7,0	0,4	10,0	0,5
11	Sensitivity to manpower costs dynamics & avaliability	5%	7,0	0,4	5,0	0,3	10,0	0,5	7,0	0,4	8,0	0,4
12	Corporate image benefits	5%	8,0	0,4	7,0	0,4	10,0	0,5	9,0	0,5	7,0	0,4
Total		100%	7,7		7,6		7,2		7,6		8,6	

FEASIBILITY STUDY

Comparison of alternative solutions

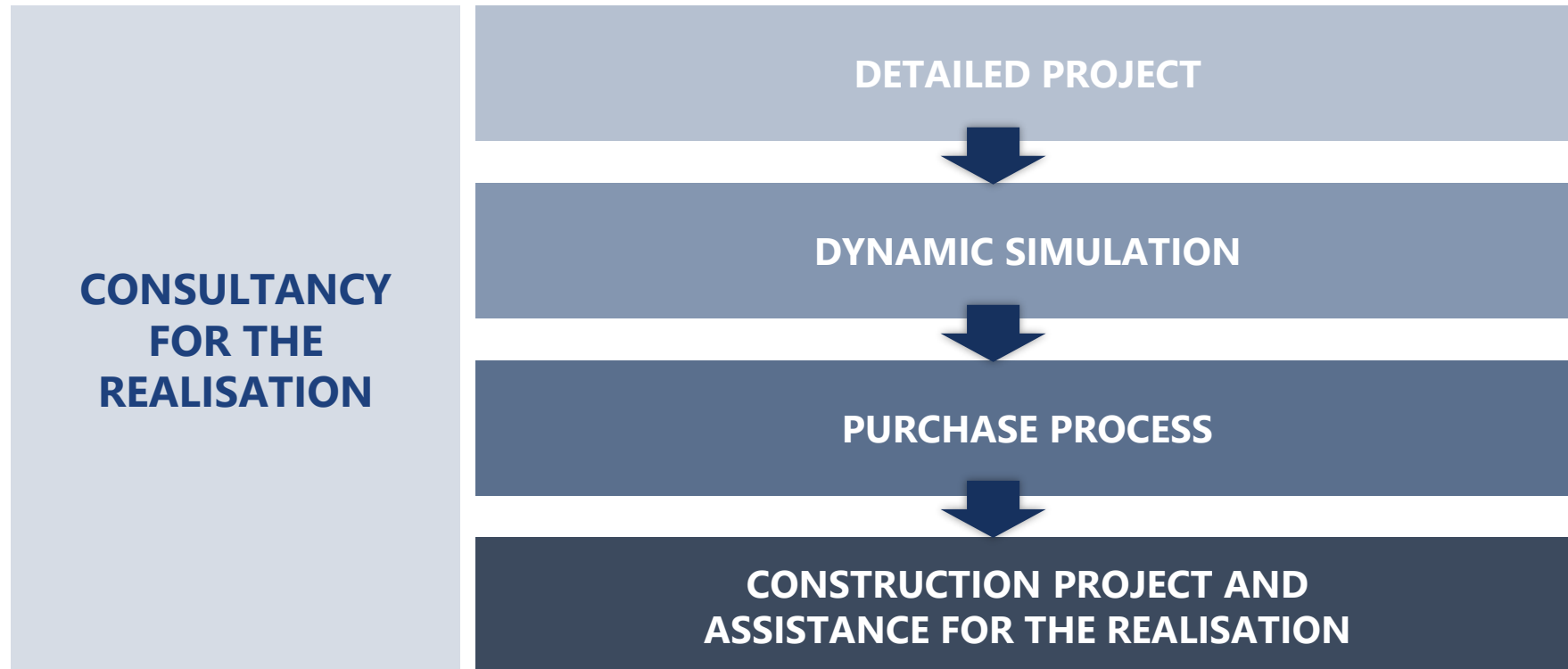
FINANCIAL & ECONOMICAL COMPARISON (interest rate = 5%)



CONSULTANCY FOR THE REALISATION

The objectives

OBJECTIVE: to develop and manage the project to maximise the performances in accordance with budget and realisation times



DETAILED PROJECT

The objectives

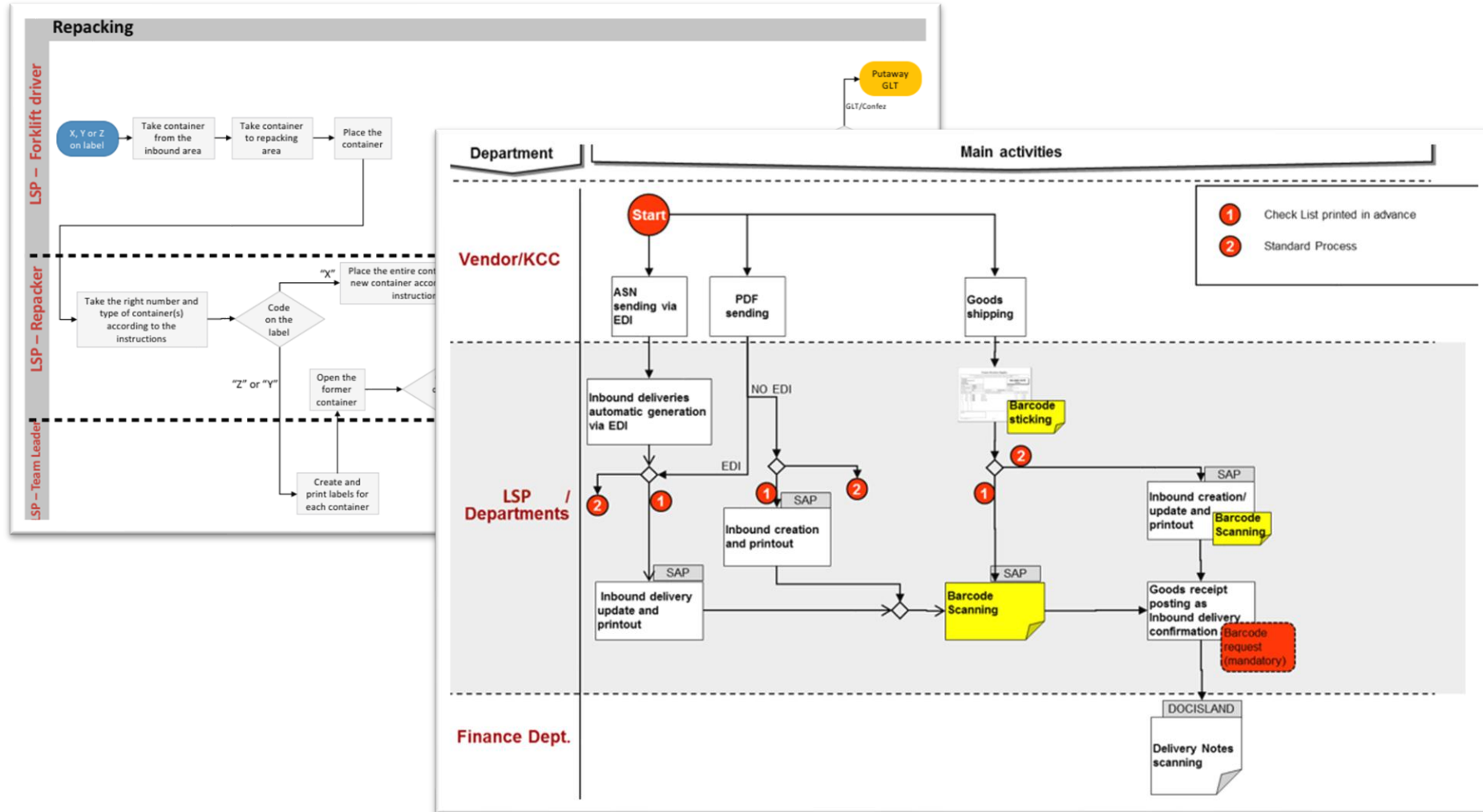
**DETAILED
PROJECT**



- Detailed analysis of functional, technical, management, system aspects developed in the Study of Feasibility
- Detailed analysis of project data, where necessary
- Definition of definitive layout, drafting of drawing (plant, views, sections, particulars)
- Integration of logistics project with building and plant aspects (sprinkler, heating/cooling system, lighting, compressed air, etc.)
- Definition of the processes and drafting of operative procedures
- Drafting of a detailed Gantt

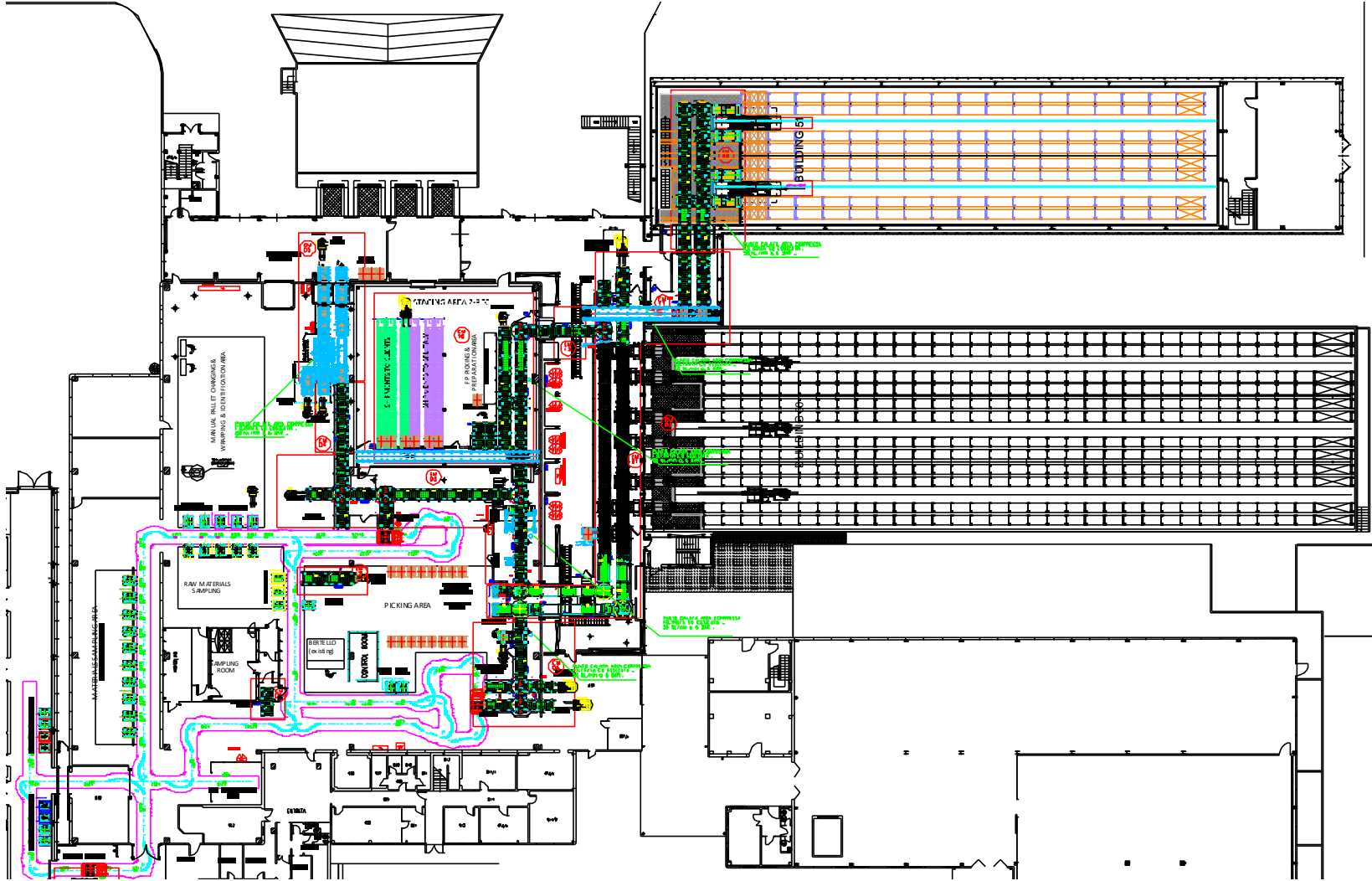
DETAILED PROJECT

Operational procedures



DETAILED PROJECT

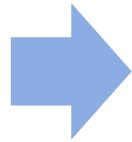
Construction drawings



DYNAMIC SIMULATION

The objectives

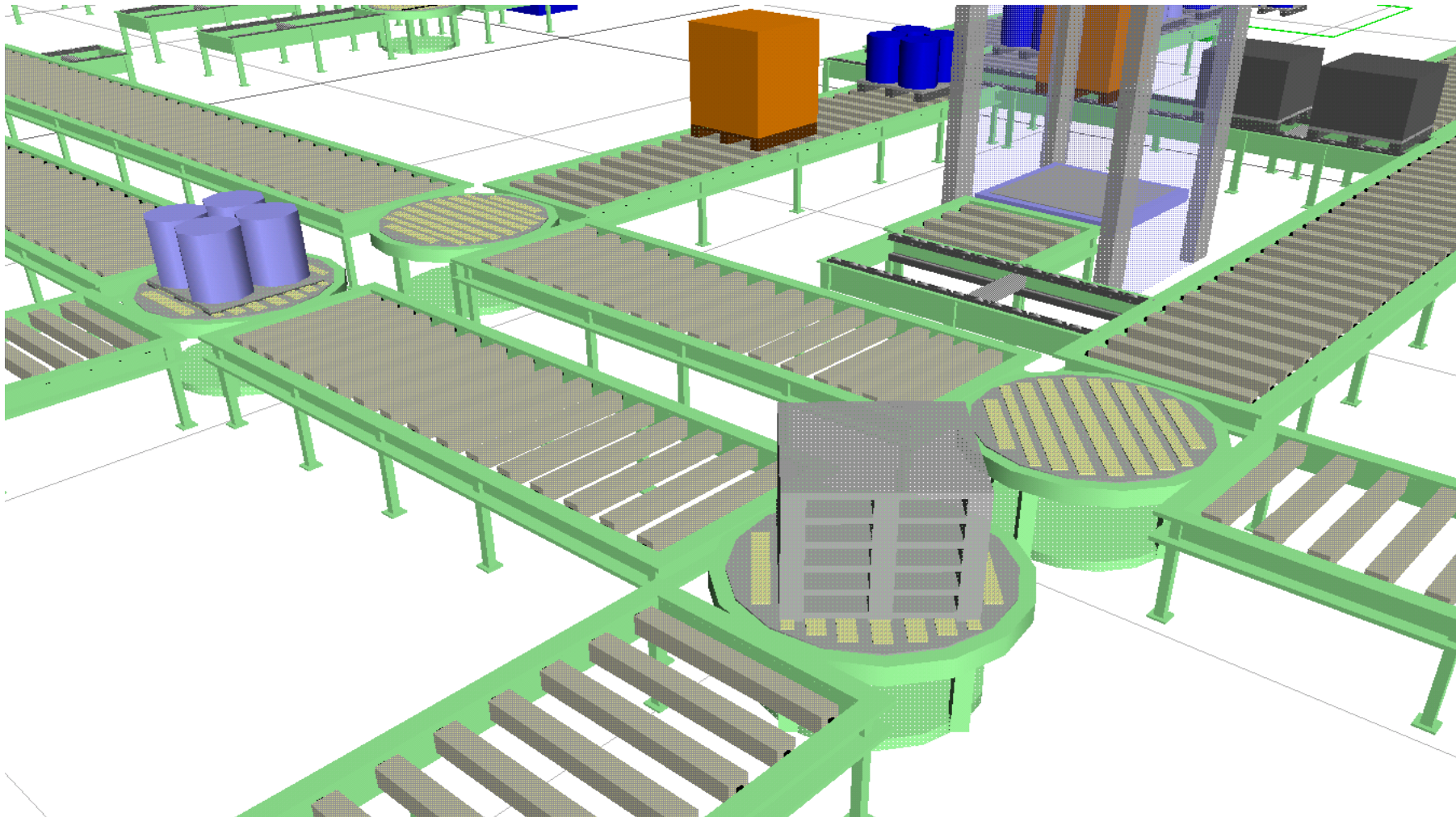
**DYNAMIC
SIMULATION**



- Collection and design of the conceptual model
- Development of the model with Automod
- Development of simulation experiments
- Analysis and validation of results
- Identification of eventual points of improvement at plant level and of operational strategies

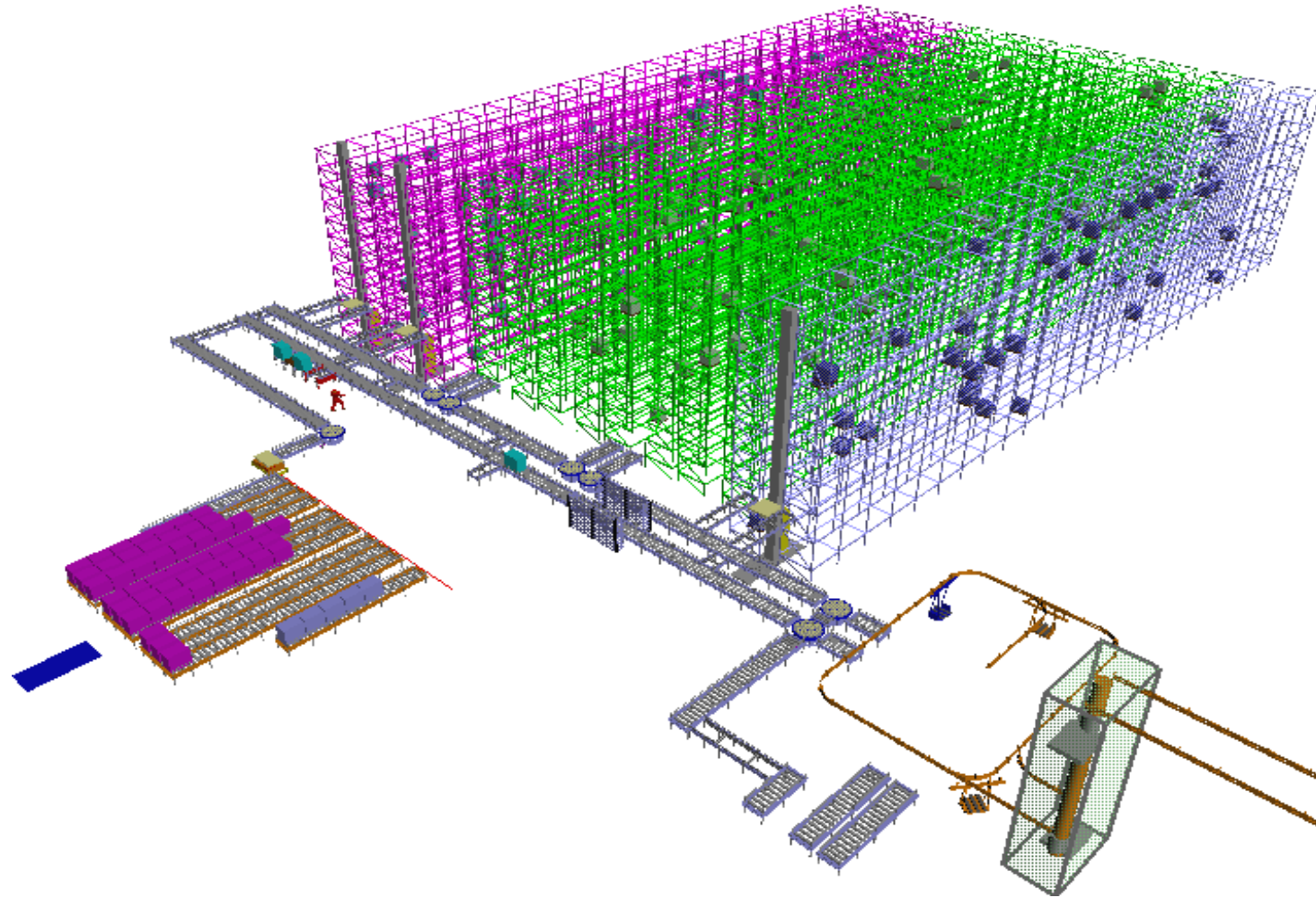
DYNAMIC SIMULATION

3D animation



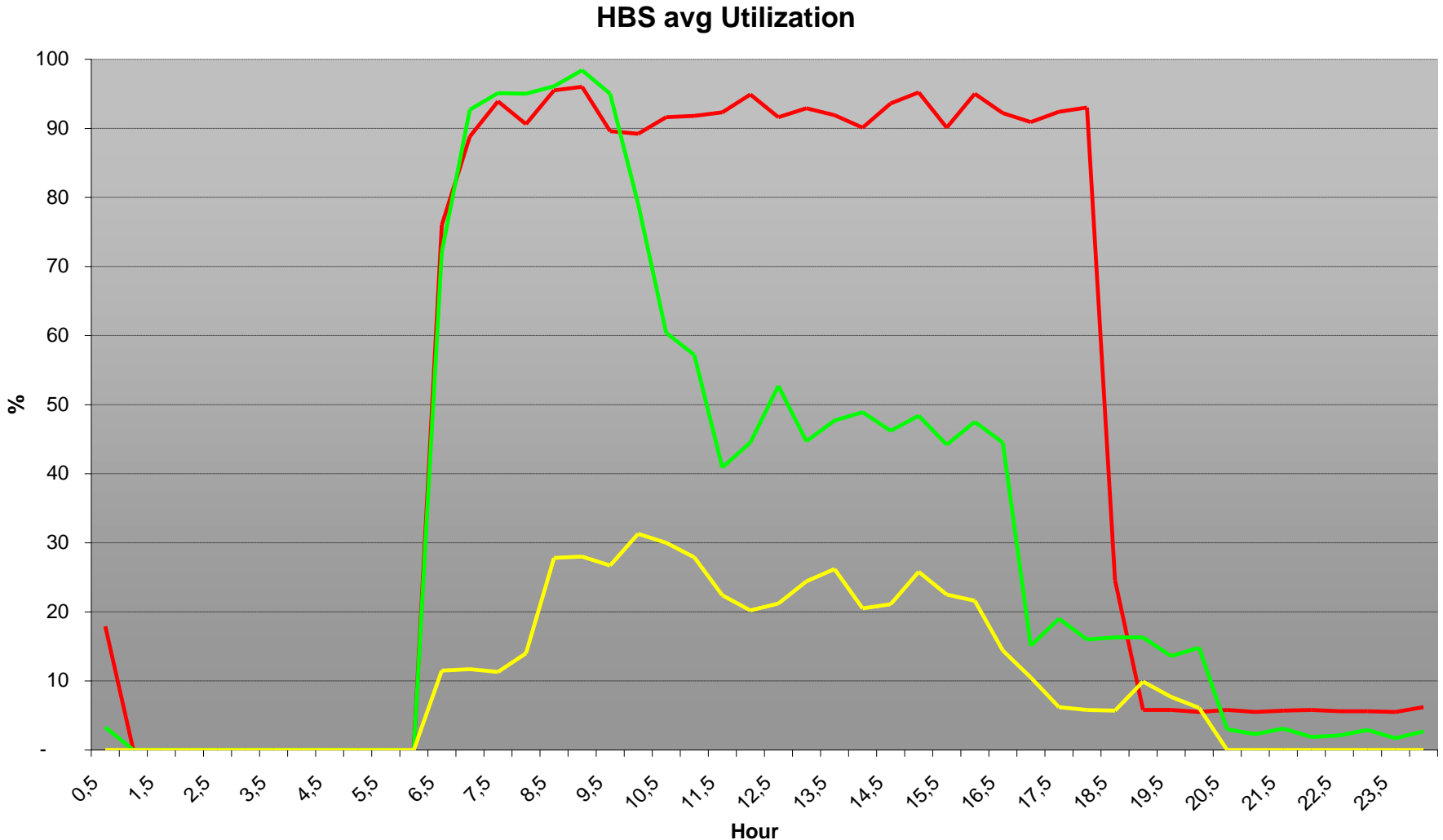
DYNAMIC SIMULATION

3D animation



DYNAMIC SIMULATION

3D animation



PURCHASE PROCESS

The objectives

**PURCHASE
PROCESS**



Definition of Vendor List and of purchase methods

Issuance of tender documents:

- General tender specification (according to practices of the supplier)
- Technical specifications
 - ✓ Handling and storage systems (stacker cranes, LGV, conveyors etc.)
 - ✓ Racks (self-supporting, traditional PP, with shelves, etc.)
 - ✓ Fork-lift trucks
 - ✓ Other equipments (pallettisers, taping machines, end-line packaging, points of truck loading/unloading, etc.)
- User Requirement
 - ✓ Software of operational management
 - ✓ Terminals RF, voice, etc.
- Collection and bids analysis
 - ✓ Critical analysis of suppliers' bids and drawings
 - ✓ Clarification and uniformisation of proposals
 - ✓ Technical specification
 - ✓ Economic specification
- Support to negotiations
- Technical verification of the contracts

PURCHASE PROCESS

Technical specifications

SUMMARY

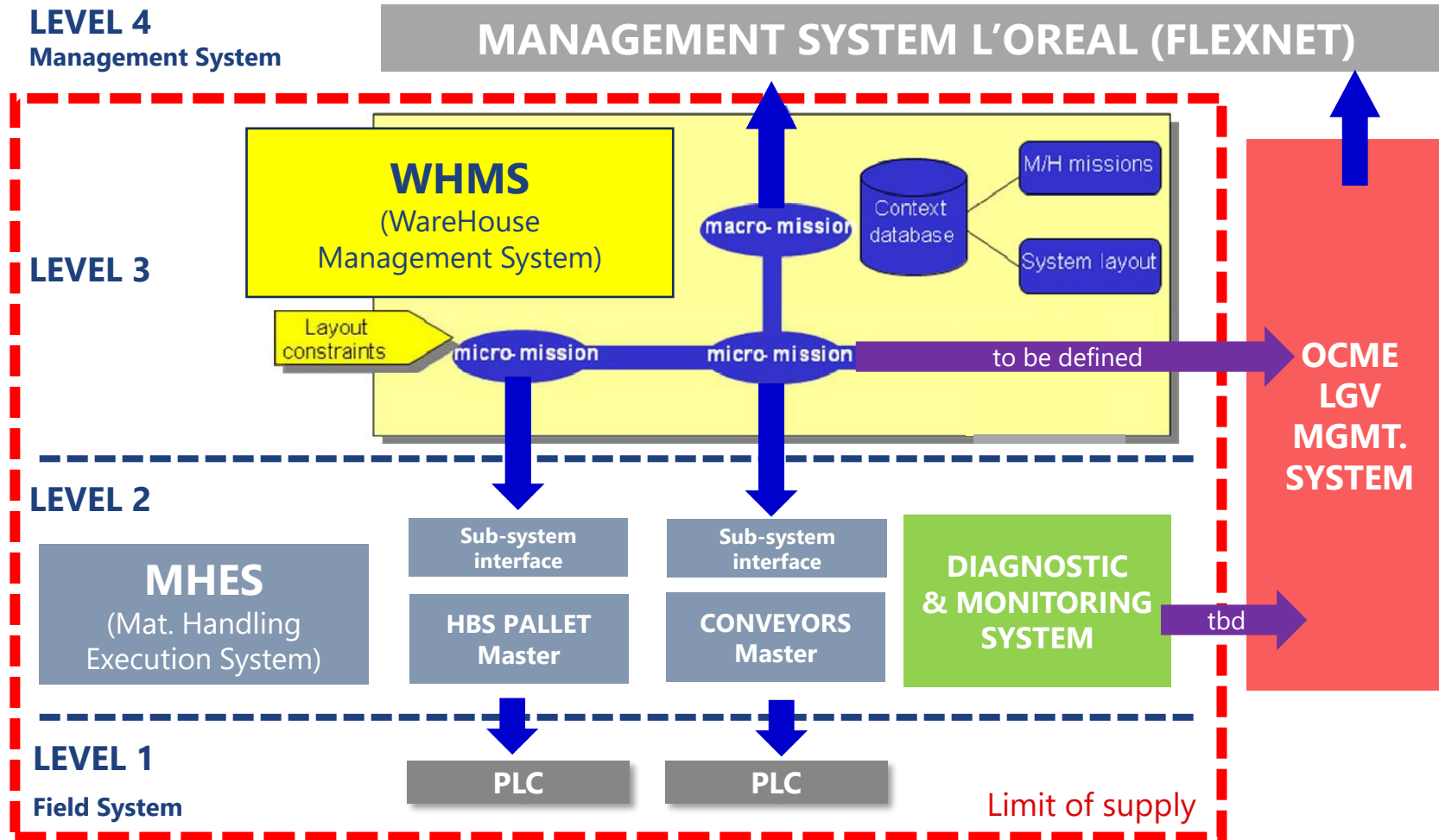
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PURCHASE PROCESS

Hw and Sw Structure



PURCHASE PROCESS

Technical tabulation

IMPIANTO DI CONVOGLIAMENTO CONVEYING SYSTEM



Generalità		OVERALL INFORMATIONS					
Portata	Payload	[Kg]	1.200	1.200	1.200	1.200	1.200
Dimensioni max UdC movimentabili	Load Unit max dimensions	[L x P x H]	1250x1250x1400	1250X1250X1400	1250x1250x1400	120X120X140	1250x1250x1400
stima potenza installata complessiva (inclusa navetta)	Total installed power (including shuttle)	[kw]	87	59	74	52	119
Convogliatori a rulli motorizzati		ROLLER CONVEYORS					
sviluppo lineare	total length	[m]	155,80	140,00	154,50	133,00	3,10
motori installati	total installed engines	[n°]	58	56	70	42	2,00
potenza installata	installed power	[kw/each]	0,37	nd	0,55	0,55	0,75
motoriduttore	engine supplier	[name]	SEW	SEW	SIEMENS	ROSSI	ROSSI
regolazione della velocità tramite inverter	speed control by inverter	[Y/N]	si	si	si	no	si
rulli		motorized rollers					
diametro	diameter	[mm]	89	80	89	89	89
passo	roller interval	[mm]	150	120-200	198	195	180
guide e/o dispositivi centraggio	guide/centering devices	[Y/N description]	si	si	si	si	si
metodo di accumulo	accumulation	[description]	si (1 motore = 1 posto)	si (1 motore = 1 posto)	si (1 motore = 1 posto)	si (1 motore = 1 posto)	no
velocità nominale	speed	[m/s]	0,20	0,30	0,25	0,07	0,30
Convogliatori a catene		CHAIN CONVEYORS					
sviluppo lineare	total length	[m]	92,40	56,00	30,00	30,00	89,60
motori installati	total installed engines	[n°]	36,00	26,00	8,00	10,00	46,00
potenza installata	installed power	[kw/each]	0,37 - 0,55 - 1	nd	0,75	0,55	1,10
motoriduttore	engine supplier	[name]	SEW	SEW	SIEMENS	ROSSI	ROSSI
superficie complessiva fornita		[sqm]	55	nd	144	nd	
valutazione economica		[Euro]	€ 6.500	nd	da valutare	nd	
Altre forniture		OTHER EQUIPMENT					
Navette automotore a pavimento	monorail shuttles	[Y/N type]	-	-	-	-	SVL (n° 6)
tipologia	type	[single/double fork]	-	-	-	-	automotore
sistema di recupero energia	Energy recovery system	[Y/N]	-	-	-	-	no
dispositivo presa del pallet	Load-handling device	[description]	-	-	-	-	catene telescopiche
potenza installata	installed power	[kw/each]	-	-	-	-	11
potenza installata	installed power	[kw/tot]	-	-	-	-	66
prestazioni	performances	[pallet/h Max]	-	-	-	-	da richiesta
velocità di traslazione	travel speed	[m/s]	-	-	-	-	2,5
accelerazione di traslazione	travel acceleration	[m/s ²]	-	-	-	-	1,0

BUILDING PROJECT/ASSISTANCE TO REALIZATION

Technical tabulation

BUILDING PROJECT AND ASSISTANCE TO REALIZATION



Among the main activities we can mention:

- critical examination of building drawings and review of the different documents issued by suppliers concerning automation
- collaboration of project Gantt updating drafted and managed by Customer
- assistance to the execution of the necessary *Factory Acceptance Test (FAT)*, regarding the relative documentation drafted by Suppliers and approved by Customer
- execution of periodic audits on field and assistance to the compilation of certificates that demonstrate the completeness of supply and the construction completion
- monitoring of Suppliers work and supervision during *commissioning phase*
- review of documents and assistance to the execution of *Site Acceptance Test (SAT)*
- compilation, in collaboration with suppliers, and joint approval with Customer, of *hand-over document*
- collection of *as-built documentation of suppliers and transmission to Customer*

SOME INTERVENTIONS BY SIMCO

Design of warehouse

Here we list some references related to the projects managed by **SIMCO** that, for almost the whole, have been monitored in all of the phases from Feasibility Study to commissioning.

For many of Customers mentioned **SIMCO** has developed consultancy activities also in other contexts of logistics (demand forecast, stock management, distribution network, transport, outsourcing, investigations on logistic service and other)

We selected the main SIMCO references in the sector of warehouses according to two methods:



Highly automated warehouses (Stacker cranes, sorter, LGV).
For the most complex ones Simco has realised the dynamic simulation.



Warehouses that, while not expecting automated systems for stock, represent for dimensions, systems of operational management adopted and end of line packaging and shipment interesting and innovative solutions.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses

IVECO

Torino - Restructuring world distribution warehouse for spare parts (about 180,000 sqm) characterized by high technological standards: two automatic warehouses with stacker cranes have been installed: one for heavy products in large metal loads units and the other for small boxes Odette (50.000 in stock) and picking system with high performances. The intervention, which has made provision for a radical transformation process, had to take account of a marked heterogeneity of stored products, ranging from small parts (mechanical and body) to truck cabins. Training of personnel.



Verona – Realization of the new spare parts warehouse Italy for all trademarks of the Group (about 55.000 sqm. covered with railway); characterized by high technological standard: two automated warehouses, one for big boxes loading (h = 27 m) and one for small parts (h= 14 m). There are also other traditional warehouses, such as: valuable products, paints, printed products, non-standard, etc. Following the realization and commissioning, consultancy activities aimed at continuous empowerment and improvement have been commissioned to us.

FERRERO

Basic Design for four new / enlarged Hubs for the trans-national distribution of Finished Products from four different European countries. Those four warehouses were all integrated with Production Lines, characterized by large capacity (from 35.000 to 95.000 pallet positions, with a self-supporting shelf up to 40 m high) and by significant hourly flows of goods, with stringent requirements in terms of storage temperature to be kept inside and mainly based on highly automated storage and handling techniques. In some cases, it was necessary to foresee the enlargement of the existing warehouse and integration of the new sector with the existing ones, by means of sophisticated conveying systems (mono-rail shuttles), without disturbing ongoing operations.

In some cases, huge volumes of picked cartons and "layers" were absolutely relevant and led to consider also totally automated picking solutions.

The project was run in an international environment, with direct involvement of the final users.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses

FERRERO

FERRERO (VILLERS ECALLES) From detailed project to implementation of the new warehousing system (finished products, packaging materials) of the French plant. The solution includes one self supported automated warehouses for pallets (approximately 20.000 pallet positions) served by stacker cranes with three different storage temperature sectors integrated with the Manufacturing Departments and with Receiving area and Shipping Area (equipped with an advanced and semi automated buffering system). For this plant Simco has also developed a dynamic solution.

MERCK

MERCK SERONO (BARI) From detailed design to implementation of the new warehousing system (finished products, packaging materials) of the Italian Plant dedicated to the production of innovative and high-tech products in the pharmaceutical and chemical sectors. The solution includes one self supported automated warehouses for pallets served by stacker cranes (approximately 6,000 pallet positions) with two different storage temperature sectors (2-8 °C and 15-25 °C) integrated with the manufacturing departments and with receiving area (equipped with an advanced and fully automated pallet changing machine) and shipping Area.

DENSO

DENSO THERMAL SYSTEMS S.p.A.

Poirino (TO) Realization of a new warehouse for ORSA division for storing components aimed at feeding assembly lines; based on automated stacker cranes for handling palletized units and miniload stacker cranes for handling small plastic boxes with double depth. The warehouse was built about 22 meters high with self-supported racks. Simco has followed all the steps of the project, from Feasibility Study to commissioning.

LUXOTTICA

Sedico(BL) – From Feasibility Study, passing through the executive design and the assistance to realization phases of the new distribution centre for EMEA area. The realization consists in a warehouse of about 35.000 sqm, highly technological content to deal with very high flows guaranteeing extremely rapid execution times. The automation concerns also complementary operations to the traditional ones of warehouse (that move from training and automated distribution of shipping cartons to feeding areas of personalization and so on). Storage and handling system is based on different sub-areas adequately equipped depending on the performed processes and from handling intensity; multishuttle, pick and put to light, decision point are expected, following a perspective of operational flexibility and possible further expansions.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses



Nogara (VR) - Master Plan and Project for the new finished goods warehouse (approx. 46,000 sqm) dedicated to the main Italian production plant. The scope of work has also led to the optimization of the bottling end of the line / packaging (by dynamic simulation), the rationalization of the layout and of the processes of storage of raw materials, evaluation of payback time of automated solutions (consisting in a double deep AS/RS warehouse for the slow-moving products), and planning for implementation of the warehouse.



Settimo Torinese (TO) - Feasibility study, detailed project, assistance for the purchase and construction phases of the new automated warehouse for the storage of raw materials, semi-finished products and packaging materials. The warehouse (3,700 bins over 6 corridors 70 meters long) is 12.5 meters high and served in double-deep storage by AS/RS for palletized units. The conveying system links the warehouse with raw materials weighing area – integrated with the plant served by a distribution shuttle – and with the interface stations with the existing LGV system for linking the production departments. After 4 years from the commissioning Simco was asked to develop a project consisting in doubling the automated warehouse and restructuring the loading bays for trucks.



ELY LILLY (Sesto Fiorentino - FI)

Feasibility study, Detailed Project, assistance for the purchase and construction phases of the extension of the existing automated warehouse for the storage of raw materials, packaging materials, semi-finished and finished product. The warehouse is 15 meters high, self-supported version, and served in double-deep storage by AS/RS for palletized units with two different storage temperature sectors (2-8 °C and 15-25 °C).



Mantova – From Feasibility Study to commissioning of the new Distribution Center (approximately 35,000 sqm) equipped with technologically advanced equipment for the preparation of orders: pick to belt, pick to light, voice picking, high throughput sorter (about 20,000 pieces sorted / hour), automated forming machines, automated shipping end-of-line, antropomorphic robots for the composition of the shipping pallet. Simco also provided for the drafting of the procedural manual and training of operating personnel.

SIMCO REFERENCES

Warehouses
with high level
of automation

Complex
warehouses

Design of warehouse



Carmagnola (TO) – From Feasibility Study to commissioning of a new After Sales warehouse based on automatic stacker cranes for both handling of palletized units and storing/picking loose packages of different dimensions and stored in multi-deep; this last one is aimed at feeding an automated picking system. The warehouse was built about 22 meters high with self-supported racks.



Rosia (SI) – From Master Plan to implementation of the warehousing system (Finished Products, Packaging Materials) of the plant dedicated to the production of vaccines, passing from the phase of purchase assistance. The solution includes two automated warehouses for pallets (approximately 15,000 bins) served by stacker cranes in double deep, systems of connection with departments with monorail shuttles and LGV automated trucks. The intervention was carried out in two steps; in both phases, given the complexity of the project, Simco carried out a dynamic simulation.



Ghemme (NO) - Construction of the new central distribution warehouse for vinegars and preserves, consisting of an automated stacker cranes in multi-deep racks (shuttle) connected with an automated shuttle with the preserves production building and with a system of automated un/loading of trucks with vinegars production plant distant few kilometers from warehouse. Creation of a traditional picking area, managed with WMS and RF hand-held terminals.



Benevento - Site Master Plan (built in phases) and project for the construction of a new automated warehouse for finished goods, adopting self-supported racks (h = 33 m, with capacity of 40,000 pallet bins) served by four double deep stacker cranes for finished products, direct fed from the palletizers on continuous cycle (3 shifts for 7 days). For this Customer it has developed other interventions in transports, process analysis and organization of fore area.



Fossano (CN) – Realization of a new distribution centre dedicated to electric material. The warehouse is also structured with highly technological solutions, in particular we consider an automated warehouse with stacker cranes for cable coils with double deep integrated with an automated system for cutting cable and a miniload warehouse that moves 4 loading units at the same time (4 aisles h 15 mt) automatically linked with picking stations (pick and put to light), to the automated system for closing labelling packages and to sorting for trucks.

SIMCO REFERENCES

Warehouses
with high level
of automation

Complex
warehouses

Design of warehouse

FERRERO

Pozzuolo Martesana (MI) – From Detail Project to the implementation of a new system of warehouses (finished products and packaging materials) of the plant. The solution includes a self-supported automated warehouse for pallet (about 20.000 pallet positions) served by stacker cranes with three different stock temperatures.



Sala Bolognese (BO) – Basic Design for the identification of the reference ideal solution and management of tender for the assignment of logistics services for new warehouse for worldwide distribution of spare parts and accessories. The solution, in addition to include a traditional management for voluminous goods and hanging garments provides a miniload automated warehouse (5 aisles for about 35.000 box bins in double depth) for managing small parts, with ergonomic and performing picking bays «goods to picker».

LUXOTICA

Atlanta (USA) – Pre-project analysis for the review of intra-logistic system with the objective of optimising the preparation process of Finished Products for supplying the stores, focused to guarantee a high level of service. The analysis has taken in consideration different solutions of sorting with different levels of automation (Multi-shuttle, Robot, Unit sortr, Put-to-light, etc.) in order to guarantee, in addition to the overall efficiency of the system, also timeliness in the preparation of orders, flexibility to the variations of scenario, scalability during time and occupied space optimisation.



Monvalle (VA) - Construction of the new General Distribution Warehouse (loose and packaged finished products, packaging materials). The warehouse is also designed with high-tech solutions, in particular we consider an automated warehouse with stacker cranes per pallet (4 self-supported aisles h = 27 m) and a miniload warehouse (2 aisles h = 12 m with gravity channels) automatically linked with packaging stations and intended for picking (pick & pack). There is also, for mixed packaged products, an automated end-line for shipping.

SIMCO REFERENCES

Warehouses
with high level
of automation

Complex
warehouses

Design of warehouse



Novedrate (CO) – Design and realization of two automated warehouses equipped with stacker cranes: one for semi-finished products (handling of containers quadruples with independent torques) and one for finished products; for the latter, based on self-supported racks, it was implemented a robotized picking station, adopting Cartesian axes equipment.



Collegno (TO) - Site Master Plan and implementation of two automated warehouses. For the warehouse for components, semi-finished products and packaged finished products we proceeded with the review of the loading units and the installation of stacker cranes with independent pairs of forks for handling containers of different sizes (one twice the other). For the warehouse for raw materials (granulated pallet), it has been installed a plant, with a trapezoidal surface, with stacker cranes that feed gravity channels in counter-slope.



Settimo Milanese (MI) - Reorganization of Italian distribution warehouse, based on automatic receipt and palletizing of products from factories (trucks unloading and conveyance to 3 Cartesian robots for 48 automatic palletizing stations and automated evacuation of loading units there formed) and in the preparation of orders: gravity flow racks, served by a conveyor system with "decision points" and pick to light; automated end-line until the loading of trucks.



Concesio (BS) – Feasibility Study, Executive Project and drafting of technical specifications for the realization of a new automated warehouse intended for the storage of components to feed with lean techniques the installations and to stock finished products made on forecasts.



Pavia - For this multinational company of the pharmaceutical sector, there have been several studies over the 35 years of life of Simco. The latest deal concerns a complete project path, which has spanned a period of about two years: it started with an audit on the criticality of the systems of handling and storage facility, to get the full management by Simco of the detailed project of revamping the automated warehouse and its "heads". It was previously developed a program, then realized, for the expansion of storage and to feed packaging lines by means of automated LGV.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses



Brescia – Feasibility Study and detailed project concerning the realization of a new distribution centre dedicated to brake parts. The project included the complete reconfiguration of one of the production sites of the group, to make it suitable for distribution (substantial increase of the number of managed items, decrease of lead-time of orders processing, increase of overall capacity of storage). The solution identified includes traditional pallet racks and shelves for packages for voluminous goods and an automated warehouse for the smaller ones. Miniload (2 stacker cranes, for a total of about 19,000 small box positions with double depth) is completed with a mechanized conveying system with ergonomic picking bays, put-to-light systems and an anthropomorphic robot for inbound management.



Ancona – Realization of a study on the entire intralogistics of the production centre in Ancona; development of executive projects for the realization of two first phases of intervention related to the transformation of warehouse «loose picking» realized with high productivity picking systems and realization of automated link with a robotic shuttle that moves 6 pallets at the same time from production site to finished products warehouse.



Lucca – Realization of a new automated warehouse with stacker cranes with double depth for the handling of pallet of finished products in boxes; in front of it there is station of automated picking equipped with an antropomorphic robot.



Lissone (MI) – Realization of central warehouse of distribution of electrical equipment for customers and subsidiaries. The warehouse includes different sections in relation to the nature of products and to their handling speed. In addition to long loads warehouses (with cantilever and 4-way truck) and small parts and pallet (with shelves racks and trucks with elevating cabin) 2 automated warehouses have been realized: one for small parts on 8 horizontal carousels and handling head with put to light system and another one for cable coils with steering automated stacker crane and automatic feeding of machines for cutting and wrapping cable.



Torino – New distribution centre of technical items structured in different zones in relation to the nature and the quantity of the goods to be managed. The small parts warehouse has been realized by using automated stacker cranes miniload at high speed.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses



INDUSTRIE CARTARIE TRONCHETTI (POLAND)

Polonia – Verification of supplies from Suppliers regarding technologies for an automated warehouse, for collecting and distributing Finished Product. New design of a reference solution, that consists in a self-supporting automated warehouse with high speed of storing (about 50,000 positions of loading units), provided with conveying system from Production Lines to the Warehouse itself (monorail) and from this one to the Shipping area, adapted to face very high handling speeds (> 300 loading units/h IN and as many OUT).



Gerenzano (VA) – Master Plan of the plant, layout of production sectors and design of an automated warehouse for components, served by stacker cranes with triple pick-up equipment, for handling of standard boxes to serve the assembling lines.



Ala (BZ) – New distribution warehouse for sport items realized by using an automated warehouse miniload with double depth for standard cassettes (600x400 mm. And 600x800 mm.) and traditional systems for voluminous palletised products. Packaging area of mixed parcels is supported by an automated line of conveying, strapping, labeling and accumulation.



Trezzano S.N. (MI) - Implementation of an AS/RS warehouse coils of semi-finished goods, served by automatic stacker cranes working in multi depth counterslope racks, served by shuttles.



Bologna – Design and procurement assistance for a warehouse for finished products characterized by few references, each one with high stock. It has been realized with automated stacker cranes that store in multi depth by using a satellite.



Passirano (BS) – Realization of two inter-operational automatic warehouses, for handling palletised products used in the machining process of the rubber-metal.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses

Pharmaceutical distribution (Italia – various location)

ARCA FARMACEUTICA, ASA DENTAL, CATENA FARMACEUTICA, CEDIFAR, CEFLA GROUP, COFAPI, COFARDIS, COFARM, COFARMA TOSCANA, CONSORZIO ONDA, COOFARMA SALENTO, COROFAR, COSAFACA, COSIFAR, COTAFARTI, DM BARONE, EDL, ENRICO MOLLICA, FAP, FARDIS, FARMACAMPANIA, FARMACEUTICI SVIMA, FARMACIE COMUNALI RIUNITE REGGIO EMILIA, FARMADISTRIBUZIONE, FARVIMA MEDICINALI, GALATINA MED, ITRIAFARMA, NASTRI, NUOVA SIGNORINI, PHARMAIDEA, REVELLO, RICCOBONO, SAF, SAFAR, SOFAD, SOFARMAMORRA, SPEMITAL, UMBRAFARM, UNIONE FAR. LIGURI, VEM, VIM.

For these customers we developed at least 100 projects regarding about 50 Distribution Centre that are characterized by very high outgoing flows (from 20.000 to 70.000 lines per day), concentrated in few hours during the day and distributed on a high number of references.

Most part of projects includes Feasibility Study and, successively, all the activities linked to the realization of warehouse with high automation during storing, picking (automated A frame, conveying with decision point), on the end-line of shipping (automated packing system, sealing and labeling of shipping boxes, automated sorting on the different accumulation bays).

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses



Ospedaletto L. (LO) – First realization of a centralized warehouse for Legrand (Zibido S.G. - PV) and later construction of the new finished products warehouse, in Ospedaletto, dedicated to palletized goods, products in boxes, long loads (cabinets, carpentry etc.). Issuing of detailed warehouse operating procedures and staff training. First warehouse in Italy to adopt and use the WMS software "Catalyst".



Milano - For this customer Simco was choosed as logistics consultant at European level; in the synthesis were realized the following projects (Europe, different locations):

ANNO	NAZIONE	LOCALITA'	TIPO DI PROGETTO
2003	ITALIA	NOGARA	Master plan
2004	ITALIA	NOGARA	Warehouse layout optimization
2004	ITALIA	NOGARA	Assistance to the realization of warehouse re-layout
2004	ITALIA	GAGLIANICO	Warehouse layout optimization
2004	ITALIA	NOGARA	Raw materials warehouse + automated connection systems to Production
2005	ITALIA	NOGARA	Feasibility report for automated warehouse
2005	ITALIA	NOGARA	Optimization of end-of-line buffers vs fork-lift trucks (dynamic simulation)
2005	ITALIA	BUCCINASCO	Feasibility study to assess sustainability of "Go-to-market" project as far as picking is concerned
2006	ITALIA	HQ	Parametric model for design of warehouse layout and handling resources
2006	ITALIA	HQ	Training class about warehousing issues
2007	GRECIA	SCHIMATARI	Master plan
2007	BULGARIA	KOSTINBROD	Maser plan + Warehouse layout optimization
2008	BULGARIA	KOSTINBROD	Mapping of Warehouse processes (flow charts)
2008	GRECIA	AIGIO	Feasibility report for finished products warehouse
2008	CROATIA	ZAGREB	Feasibility report for finished products warehouse
2009	CROATIA	CROATIA	Optimization of distribution network (using advanced simulation tools)
2009	ITALIA	MARCIANISE	Feasibility report for finished products warehouse
2009	ITALIA	MARCIANISE	Master plan
2010	CROAZIA	ZAGREB	T&M study for picking activities (making recourse to advanced specialistic software tools)
2010	ITALIA	CAGLIARI	Warehouse layout optimization
2011	ITALIA	ORICOLA	Warehouse layout optimization (on-going)
2012	AUSTRIA	EDELSTAL	Feasibility report for finished products warehouse

SIMCO REFERENCES

Warehouses
with high level
of automation

Complex
warehouses

Design of warehouse



Pordenone (PN) – Reorganisation of warehouses of the different business units aimed at centralized finished products characterized by the dimensions of loading units that are out of standard. Evaluation of the convenience to the realization of a big automated warehouse and of a distribution centre of 60.000 sqm principally managed with conventional equipments supported by advanced IT tools.



Milano – Assistance to the realization of the new distribution model for spare parts in Italy with the design of layout, organisation, operational procedures of more than 15 distribution platforms. For each of these we also proceeded with the draft of the technical specifications of equipments, tender specification for transports and the outsourcing of operational activities, staff training.



Padova – Warehouse for semi-finished products and finished products organized with an equipped section with relevant height racks, for finished products to repack in mixed parcels for the shipment to the customers, with gravity racks for parcels, small boxes and pallet and racks with shelves served by a line for scrolling of parcels to be prepared (technique pick and pack per orders batch) that allows to obtain picking activities with high productivity and accuracy; this system flows to a mechanized packing end-line, labeling and sorting.



LUXOTTICA (CHINA) Basic Design, Executive design and assistance for the assignment of logistics equipments for the future First Tier (according to the philosophy of the network of the worldwide distribution) Finished Products warehouse, that also operates as Local Distribution Centre.



Modena – Feasibility Study, executive design and assistance for the contracts for Armani Jeans warehouse and equipments that includes palletised areas, mechanized warehouse for hung garments and the warehouse for flat-packed garments for which the process of orders preparation, planned with systems of equipped trucks with put to light integrated with conveying systems and a mechanized packing end-line, labeling and paletisation, has been completely renewed.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses



Sala Bolognese – New distribution centre for spare parts world. Warehouse of about 20.000 msq organized most part in a traditional way and articulated in different operational areas in relation to the nature of products, to their handling intensity and to the necessity to do complementary operations (packing, kitting...). Four vertical warehouses, with translating cassettes for the handling of fast moving small parts, have been planned.



Codogno (LO) – Reorganization of the central warehouse for materials, in the light of the need to increase efficiency and to dedicate storage areas (in order to achieve synergy of Group) to Italgas. The warehouse is arranged both on covered areas and on extensive outdoor areas for bulky materials (pipes, valves, structural...). The study identified new ways for picking sequences, aimed at the rationalization of transports; steps were also taken to identify a group of materials that, due to their characteristics (cost, lead time, procurement, strategic, etc.) can be managed by passing the central warehouse.



Arona (VB) – Reorganization of the finished products warehouse: it is divided into two sections respectively for the storage of stocks and for the preparation of customer orders. The first area is developed with pallet racking served by turret trucks so as to obtain the best volumetric efficiency, the second zone provides different solutions for storage/withdrawal in relation to the intensity of the flows: e.g. for fast mover we have gravity racks with stock on the upper floors respect with that one of picking in counterslope. The warehouse is managed by an advanced WMS with RF terminals.



Salerno (LO) – Design of finished products warehouses, raw materials and packages. Each of warehouse is articulated in different storage and operational areas in relation to the chemical nature of the products (level of hazardousness), to the entity of stock, to the handling intensity and to the necessity to do picking activities. The warehouses collectively occupy a surface of 30.000 msq and the utilized storing systems include pallet racking, drive-in racks and especially systems with dynamic channels with shuttle. All of these areas and some automated cabinets with translating shelves are managed by WMS.

SIMCO REFERENCES

Design of warehouse

Warehouses
with high level
of automation

Complex
warehouses



Verona – Distribution warehouse for dental products designed by dividing it in operational areas in relation to the quantity of stored goods: pallet area and area with mechanized conveying line for orders to be prepared according to pick and pack technique.



Binasco (MI) – Renovation of Casarile warehouse and then project for a new Distribution Centre, organized on pallet racks and gravity systems for parcels aimed to optimise the routes during picking activities. The activities are supported by WMS (RF) and end of line packaging, sealing, labeling and sorting parcels with a high content of automation.



Molvena (TV) – For this company we designed and followed the realization of finished products warehouse for export (located in Breganze) and, in Molvena, and of raw materials warehouse (rags of denim, textile and and leather) and accessories; this last one has been relized with three automated horizontal carousels and headroom lifting platform.



Firenze – Study on the reorganization of several Distribution Centers in Tuscany (Sesto Fiorentino, Pontedera, Castiglione del Lago, Perugia), with evaluation of the opportunity of development (or closing) interventions and verification of the correct geographical position.



Ala (TN) – Re-layout and expansion of the existing warehouse. Simco has developed the Mater Plan of the existing facility, focusing on the warehouse functionality in relation to the planned extensions and carrying out a Feasibility study, especially for the verification of flows of internal handling of goods and for verifying the correctness of the logistics techniques that subaru intended to to adopt in order ti implement the extension.



Ceprano (FR) – Construction of a new distribution warehouse of different technical materials (small, palletised, non-standard size products). Detailed study to redefine loading units, organization of storage areas, activation of WMS with RF communications from/to hand-held end truck terminals, and mechanized conveying ines for incoming and outcoming products.

SIMCO REFERENCES

International projects

Simco intervened on behalf of Customers placed in Italy and abroad, with qualification at international level, in some specific projects that we briefly mention:

BIESSE: Albania, Czech Republic

COCA COLA: Austria, Bulgaria (2 projects), Croatia (3 projects), Greece (2 projects)

COTY: United Kingdom

ECSA GROUP: Switzerland

EPTA GROUP: Thailand

FERRERO: India, Turkey, Poland, France, Germany

FIAMM AUTOMOTIVE: Czech Republic

INDUSTRIE CARTARIE TRONCHETTI: Poland

IRSAP: Romania

L'OREAL: France (14 projects), Poland (3 projects), Spain (6 projects)

LUXOTTICA: China (2 projects), USA

RED BULL: Austria

STAPLES: Spain

TEMPUR: France

THE GENERAL SOFT DRINKS: Malta

SIMCO REFERENCES

Management of outsourcing

Simco carried out many projects for the outsourcing of distribution and logistics activities, by performing the analysis of convenience to the outsourcing of activities, preparing and managing the tender for the award of service on the basis of a technical specification, where we also defined the default tariff structure, based on the main cost drivers.

Here a list of some of our major Customers:

