



Reliability through Experience

De Smet Engineers & Contractors and the Vegetable Oil Industry



Your project is...

- ✓ *Building a new plant...*
- ✓ *Revamping existing units...*

...and you would like it to be implemented efficiently

- ✓ *Avoiding extra expenditures and overruns...*
- ✓ *With the most appropriate technologies...*
- ✓ *With the advice and assistance of professionals...*
- ✓ *In compliance with the tightest quality standards.*



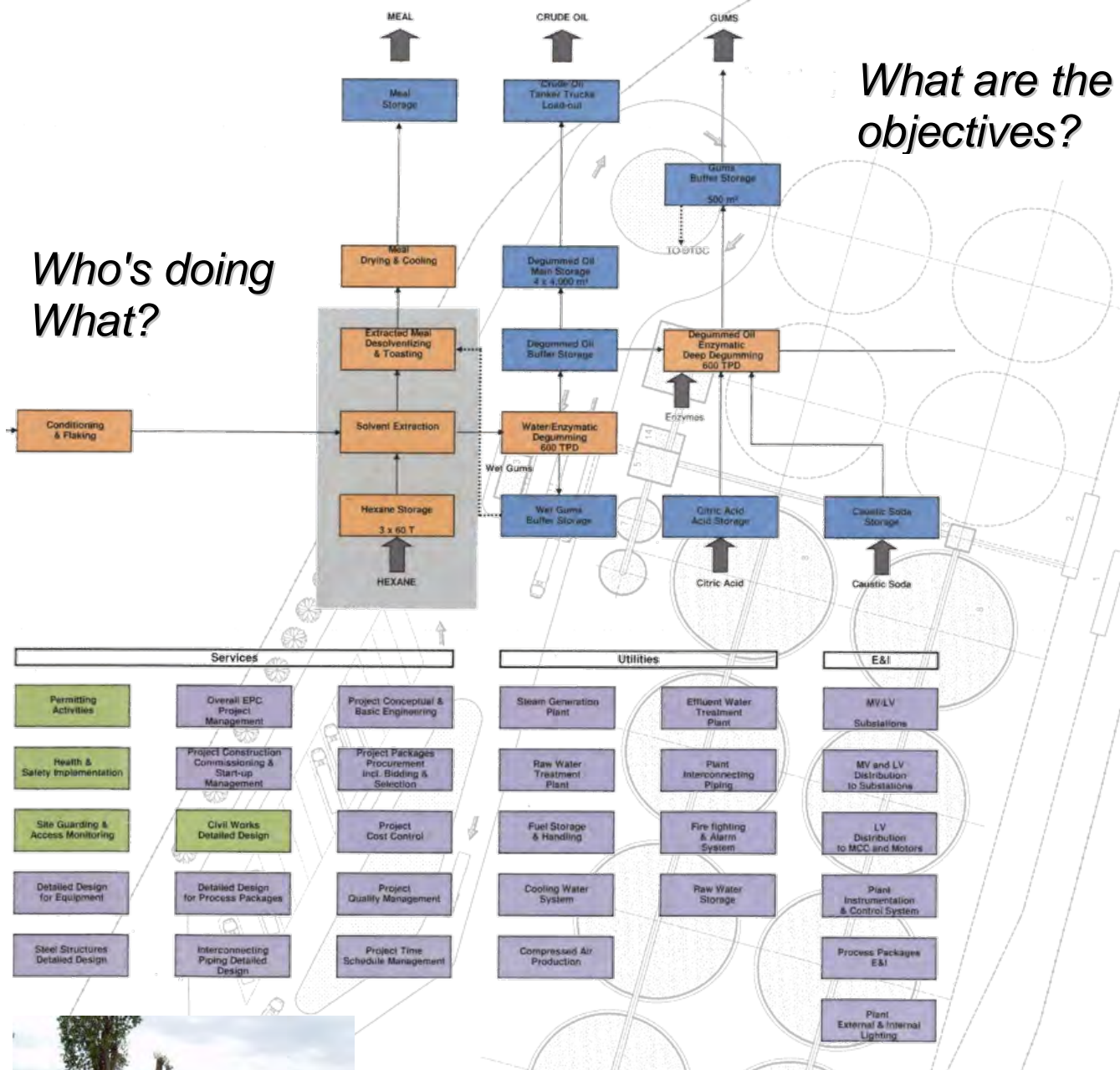
De Smet Engineers & Contractors (DSEC) is your partner for:

- ✓ *Technical and commercial assessments*
- ✓ *Selection of appropriate technologies*
- ✓ *Utilities engineering and interfaces design*
- ✓ *Civil engineering and structural steel design*
- ✓ *Selection and purchase of equipments*
- ✓ *Equipments reception and quality survey*
- ✓ *Equipments transport to the site*
- ✓ *Coordination of all related project activities*
- ✓ *Plant automation standardization*
- ✓ *Supervision of civil engineering and erection works*
- ✓ *Plant start-up and commissioning*
- ✓ *Plant management assistance*



A well defined project:

3,000 TPD Soybean Crushing Plant - 600 TPD Refinery
Preliminary Project Block Diagram

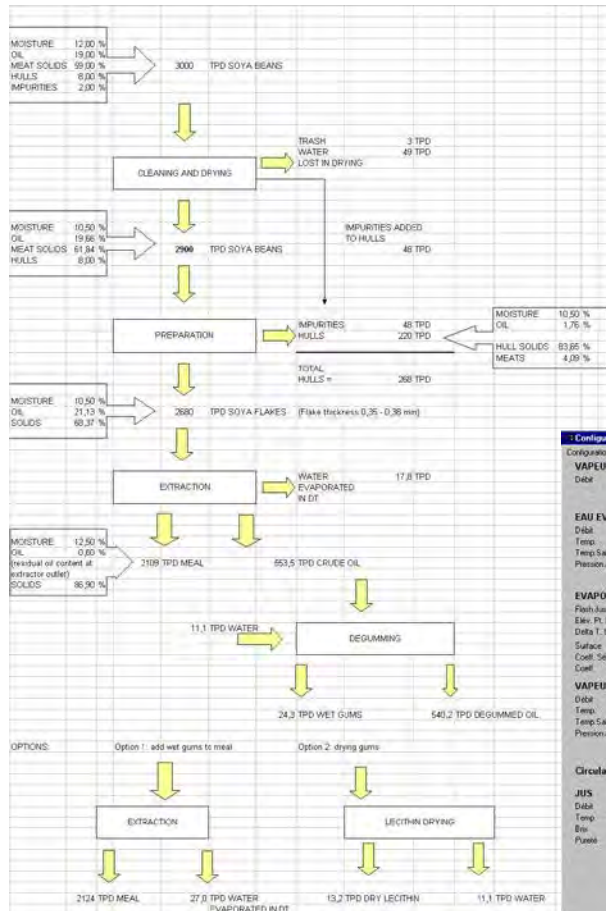


How is the site?



Establishing a constructive dialogue

Efficient installations:



Optimization of:

- ✓ processes
- ✓ storage
- ✓ utilities

Configuration									
Configuration E version 1.0									
Vapeur Prelevée									
Date: 10/08									
EAU EVAPOREE									
Date: 10/08									
Evaporateur									
Date: 10/08									
Vapeur de Chauffage									
Date: 10/08									
Circulation du Jus									
Date: 10/08									
Jus									
Date: 10/08									
Jus									
Date: 10/08									

Savings in consumptions:

- ✓ water
- ✓ energy
- ✓ reagents

Reducing wastes:

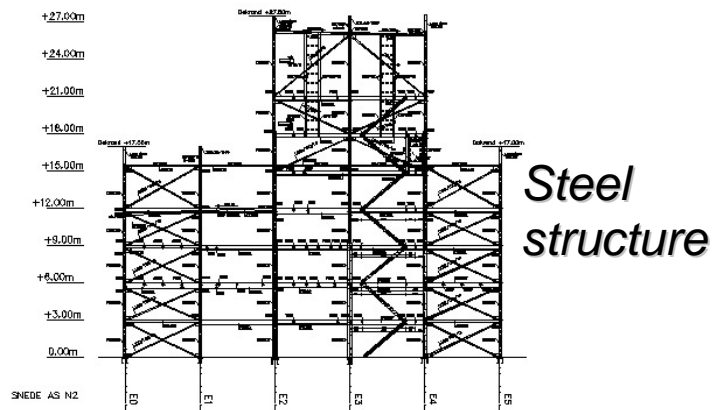
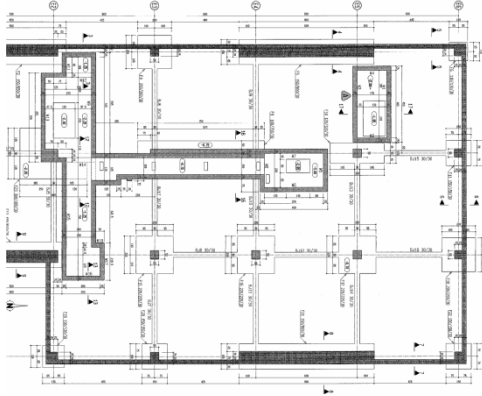
- ✓ zero effluents
- ✓ incineration

STORAGE TANK DATA SHEET		(C)
PROJECT : Palapa	LOCATION : Medan	
OFFER No : 00.008	DAILY ABS MIN AIR TEMP (Deg C) : 25	
COUNTRY : INDONESIA	DAILY AVER MIN AIR TEMP (Deg C) : 30	
TANK DATA		
SECTION : 5400RD OIL	QUANTITY : 3	LIQUID : OLEIN
TANK ITEM : 5402OL	DIA (m) : 12.00	DENSITY : 0.90
CAPACITY (t) : 1.489	VOL (m³) : 1.555	12.00
INSULATED : NO	STIRRER : YES	77.5
STEAM COIL : YES	TEMP (Deg C) : 133	0.40
WATER COIL : NO	TEMP (Deg C) : 90 IN	10
TEMP (Deg C) : 70 OUT	TEMP (Deg C) : 100	30
TRANSMISSION COEFFICIENT		
NON INSULATED TANK WALLS (Kcal / m².h.C) :		25
INSULATED TANK WALLS (Kcal / m².h.C) :		100
TANK BOTTOM (Kcal / m².h.C) :		10
COIL WITH STIRRER (Kcal / m².h.C) :		140
COIL WITHOUT STIRRER (Kcal / m².h.C) :		100
Sizing and Energy Consumption		
1. Maximum heat losses with tank full and oil at (Deg C) :	35 (Kcal / h) :	86.569 Steam (Kg / h) : 167
2. Maximum heat demand for full tank re-heating including possible re-melting - from (Deg C) :	30 (Kcal / h) :	270
- within (Days) :	1 (Kcal / h) :	437
3. Total maximum heat demand (Kcal / h) :		226.179 Steam (Kg / h) :
4. Coil dimensioning :		
4.1. Delta T h (Deg C) :	100	
4.2. Coil exchange surface (m²) :	16	Water Flow (m³/h) : N.A.
SUMMARY		
1. ALT 1 : All tanks full with minimum average outside temperature (Kg / h) :		502
2. ALT 2 : All tanks full with minimum average outside temperature except - half full & - empty (Kg / h) :		251
3. ALT 3 : Re - heating of - tank(s) only after shut - down (Kg / h) :		437

Meeting the customer's needs

Global and accurate engineering:

Civil engineering



Material storage and handling



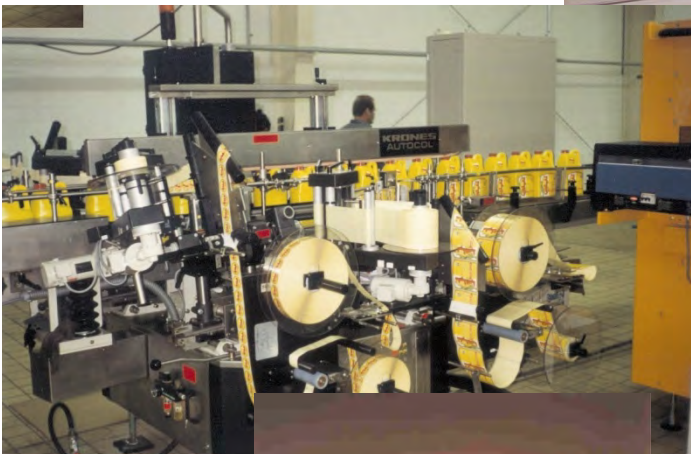
Utilities (steam production, compressed air generation, effluent water treatment, fire fighting, electricity distribution,...)

Every small detail is important!

Appropriate auxiliary units:



From raw material storage...



...to finished products packaging...



...DSEC selects equipment all over the world

Equipment at the best quality/price ratio

Coordinated activities:

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Tasks management

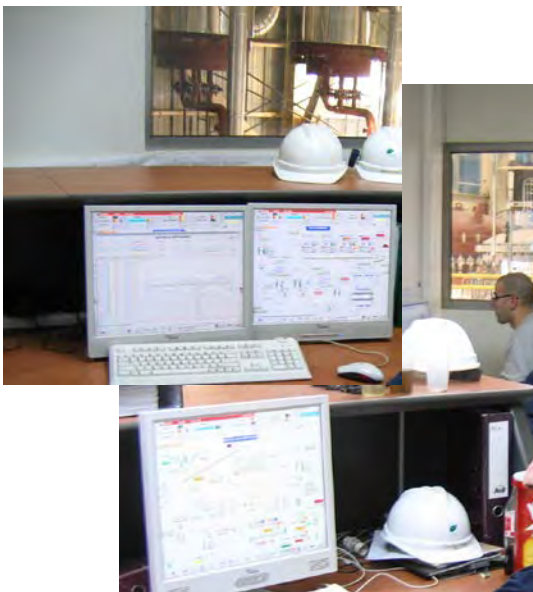


Transport



Civil engineering

Erection

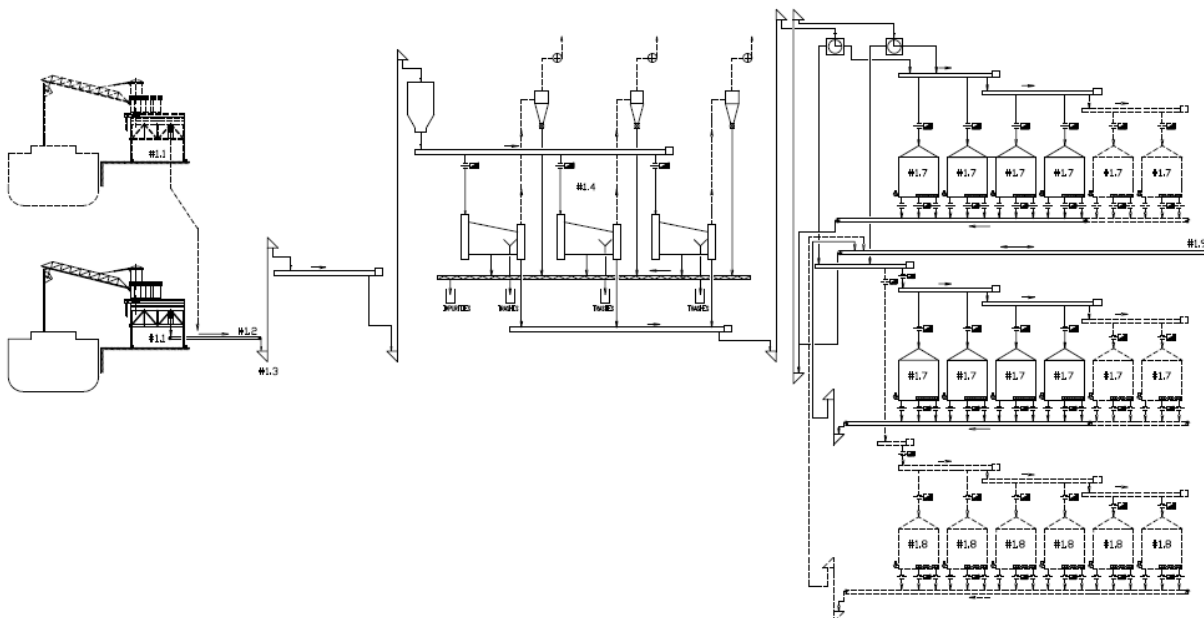


Start-up

The key to a successful site management

Other DSEC skills:

✓ *Technical analysis*



- ✓ *Budgetary assessments*

EQUIPMENT PRICE SUMMARY				
SECTION	DESCRIPTION	Total Eqpt Cost Price local (EUR)	Total Eqpt Cost Price import (EUR)	Total Eqpt Cost Price EUR
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SECTION	DESCRIPTION	Total Eqpt Cost Price local (EUR)	Total Eqpt Cost Price import (EUR)	Total Eqpt Cost Price EUR
1600B1	BEARING AUTOMATION	0	703.315	143.3
1600B2	PRE-TREATMENT AND BLENDING	0	362.496	362.4
1600B3	WATER HEATING UTILITIES	0	463.465	463.4
1600B4	CRUDE OIL STORAGE IN THE PLANT	0	573.013	273.0
1600B5	REFINER OILS AND FATS STORAGE	0	147.756	194.7
1600B6	PRODUCTS FILLING AND PACKAGING	63.969	75.247	156.2
1600B7	ACRYLIC STORAGE UTILITIES	0	77.000	97.0
1600B8	CRUDE OIL STORAGE IN THE PLANT	144.337	92.788	239.1
1600B9	REFINED OILS AND FATS STORAGE	0	194.375	194.3
1600B10	SOLVENTS AND DRUMS STORAGE	18.319	38.902	249.9
1600B11	WATER FILLING AND PACKAGING 1-I	27.775	39.310	567.6
1600B12	BOTTLES FILLING AND PACKAGING 5-I	11.582	67.752	76.9
1600B13	200 L DRUMS FILLING	0	279.250	299.2
1600B14	BOTTLES FILLING AND PACKAGING UTILITIES	0	225.967	281.9
1600B15	WATER COOLING SYSTEM	0	108.525	108.5
1600B16	BOTTLES FILLING AND PACKAGING 1-I	0	567.640	567.6
1600B17	BOTTLES FILLING AND PACKAGING 5-I	0	75.000	75.0
1600B18	200 L DRUMS FILLING	0	69.406	69.4
1600B19	BOTTLING AND PACKAGING UTILITIES	0	281.002	281.0
1600B20	WATER COOLING SYSTEMS	0	108.525	108.5

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- ✓ *Investment advisory services (business plan)*

Your partner from the beginning

Some of our references: Studies

PRODUCT	CUSTOMER	COUNTRY	SUBJECT	YEAR
Soya	Nutris	Algeria	Preliminary studies and CAPEX elaboration of a 5,000 TPD crushing plant with refining unit	2015
Soya	Groupe Mazouz	Algeria	Preliminary studies and CAPEX elaboration of a 3,000 TPD crushing plant with refining unit	2014
Rapeseed	Cargill	Belgium	Basic & detailed engineering studies and CAPEX elaboration of a 4,300 TPD extraction unit	2014
Soya	Soybean Crushing & Derivatives	Saudi Arabia	Basic engineering study and CAPEX elaboration of a 3,000 TPD crushing plant	2014
Lecithin	Cargill	The Netherlands	Basic engineering study and CAPEX elaboration of a refining unit	2013
Oils	KARE International	Angola	Basic engineering study and CAPEX elaboration of a refining unit	2013
Sunflower	LDC	Ukraine	Basic engineering study and CAPEX elaboration of a 1,500 TPD crushing plant	2012
Soya	KOU GC	Algeria	Preliminary studies and CAPEX elaboration of a 5,000 TPD crushing plant	2011
Soya	La Belle	Algeria	Preliminary studies and CAPEX elaboration of a 4,000 TPD crushing plant with refining unit	2011
Sunflower	Central EU Biofuels	Hungary	Preliminary studies and CAPEX elaboration of a 1,200 TPD crushing plant with refining including biodiesel production unit	2009
Soya	Westcom	Nigeria	Preliminary studies and CAPEX elaboration of a 5,000 TPD crushing plant with refining	2008
Sunflower	CIG Biodiesel	Austria	Preliminary studies and CAPEX elaboration of a 1,200 TPD crushing plant with refining including a biodiesel production unit	2008
Oils	AE Biofuels America	Argentina	Preliminary studies and CAPEX elaboration of a 800 TPD biodiesel production plant	2008
Oils	Biofuel	Belgium	Preliminary studies and CAPEX elaboration of a 300 TPD biodiesel production plant	2007
Oils	Ineos Chlor	Belgium	Preliminary studies and CAPEX elaboration of a 2 x 800 TPD biodiesel production plant	2007
Rapeseed	European Biofuels	The Netherlands	Preliminary studies and CAPEX elaboration of a 4,000 TPD crushing plant including biodiesel production	2006
Soya	Muuga Sojatehas	Latvia	Basic engineering study and CAPEX elaboration of a 1,500 TPD crushing plant	2006

Some of our references: Turnkey installations



Yanbu Oil Mill – K.S.A.:

Construction of a complete soybean crushing plant with harbour transfer and storage facilities.

Capacity: 2,200 TPD soybean.

Investment value: 60 M€.



Rosendaal Energy, Sluiskil – The Netherlands:

Turnkey construction from greenfield of a biodiesel production plant.

Capacity: 250,000 TPY biodiesel.

Investment value: 45 M€



Dutch BioDiesel – The Netherlands:

Turnkey construction from greenfield of a biodiesel production plant.

Capacity: 250,000 TPY biodiesel.

Investment value: 50 M€.



Ineos Enterprises, Baleycourt – France:

Turnkey construction from greenfield of a crushing plant (rapeseed) including a biodiesel production unit.

Capacity: 1,200 TPD rapeseed;

2 x 100,000 TPY biodiesel.

Investment value: 100 M€.



KOG Edible Oils – The Netherlands:

Civil engineering and erection works of a palm oil refining and fractionation plant.

Capacity: 1,000 TPD palm oil.

Investment value: 20 M€.

**DSEC is present all over the world
for more than 25 years**



DE SMET ENGINEERS & CONTRACTORS is a privately held limited liability company incorporated in Belgium in 1989. It has an established reputation as a general contractor, specializing in the agro-industrial field where it is a fully-integrated world class provider of engineering, procurement and construction services.

It brings a compelling business offering that combines excellence in execution, safety, cost containment, experience and reliability with particular care towards energy saving and sustainability.

Sugar as well as **Oils & Fats** have been the core of **DE SMET ENGINEERS & CONTRACTORS's** fields of activity. A major diversification towards the **Biofuels, Biochemicals** and **Agrochemical** industries has now taken place, based on its specific competence in agro-industrial engineering and project management acquired over the years.

DE SMET ENGINEERS & CONTRACTORS provides the industry with general contracting services from project management (**EPCM** - *Engineering, Procurement and Construction Management* or "*For and on Behalf*" operations) to full turnkey construction (**EPC** - *Engineering, Procurement and Construction*) allowing industrial operators to concentrate on their production commitments.

From conceptual study to vocational training, **DE SMET ENGINEERS & CONTRACTORS** has the ability and skill to **successfully complete large turnkey projects on brown- or greenfields**, all within the pre-established budget and delivery time, in a variety of geographical environment.



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