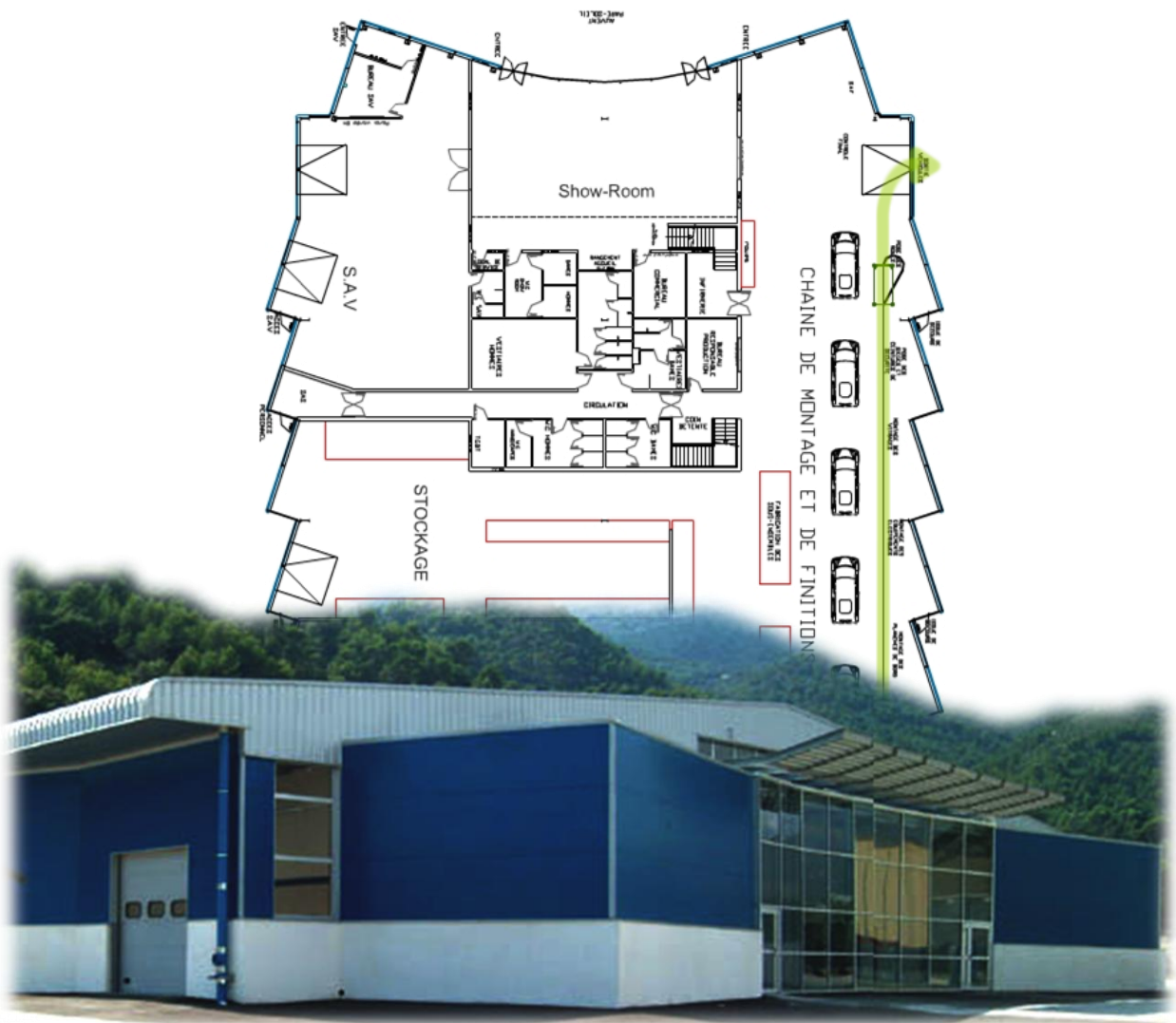


PRODUCTION CONCEPT



Powered by **Compressed Air**

Production concept

Centre of purchases

MDI concept vs. traditional production

Turnkey factory

Advantages of MDI concept

Financial forecasts

How does the concept works

MDI in India





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MDI Production Concept





MDI Production Concept

Turnkey factories to manufacture and sell locally

MDI has created the notion of “**Dealer/Manufacturer/Partner**”, proposing turnkey factories in order to produce and sell cars locally. Contrary to huge conventional assembly factories (that are particularly polluting), the MDI concept sets up numerous **micro-factories** spread all over the world. These factories are all identical. They are equipped with all the necessary workshops **to manufacture 80 % of the vehicles** and to commercialize their products on the same place where they are produced.

The “Dealers/Manufacturers/Partners” are distributed on definite marketing zones and are owners of MDI factories. They carry out:

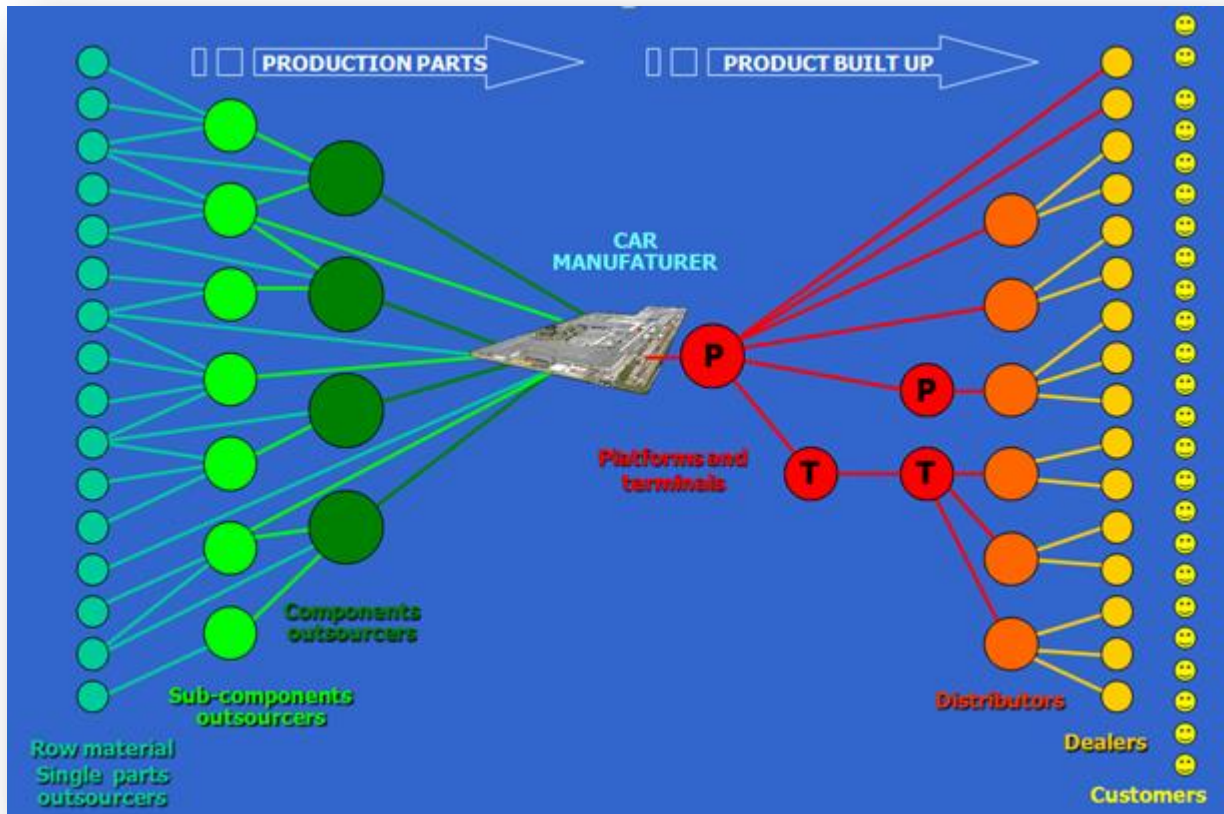
- the manufacturing of the cars
- the cars sales
- the organization of their after-sales network
- the manufacturing of the spare parts



The conventional production method (practised by the global car makers) is based on a logistics of assembly and distribution. A « giga » - assembly factory located on one spot produces the cars that are then delivered towards several countries, to distributors who redistribute the cars to the dealers.

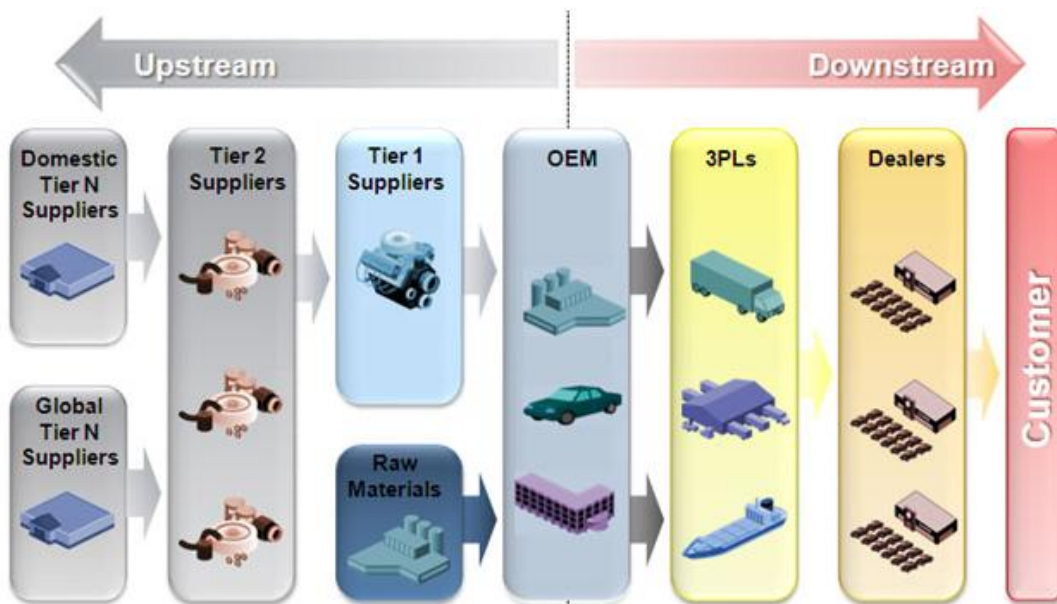
Traditional production





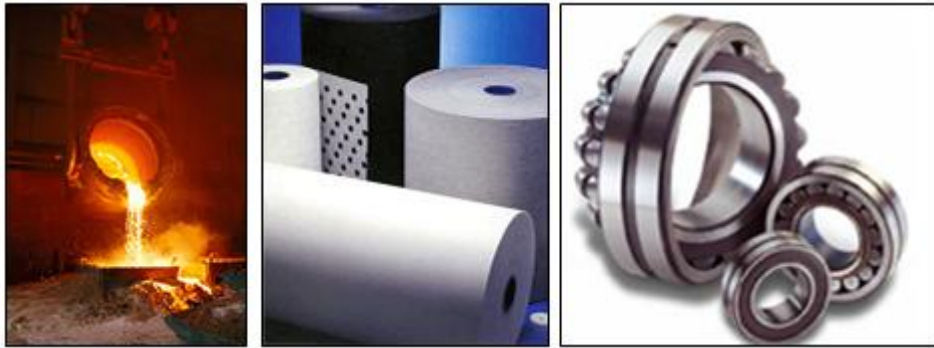
The « supply chain » of the present makers is divided into two large sectors:
The production of parts and components
The distribution of the finished products

Traditional production





- 1) The transformation of raw material into unit parts and through the manufacturing of sub-components by subcontractors (third 3)



- 2) The assembly of sub-components at the suppliers (third 2)



Production of parts & components

- 3) The manufacturing of main components (either at the suppliers, or in the plants of the maker's group) (third 1)





Final assembly

All those operations require transportation that increases CO₂ emissions





To bring the vehicles to the final customer, it is necessary to:

- 1) Store finished vehicles on platforms and terminals



- 2) Transport them to the importers and distributors in each selling country, who dispatch them to the dealers (by train, by truck and even by ship)



Distribution of the finished products





3) Sell them through a dealers' network



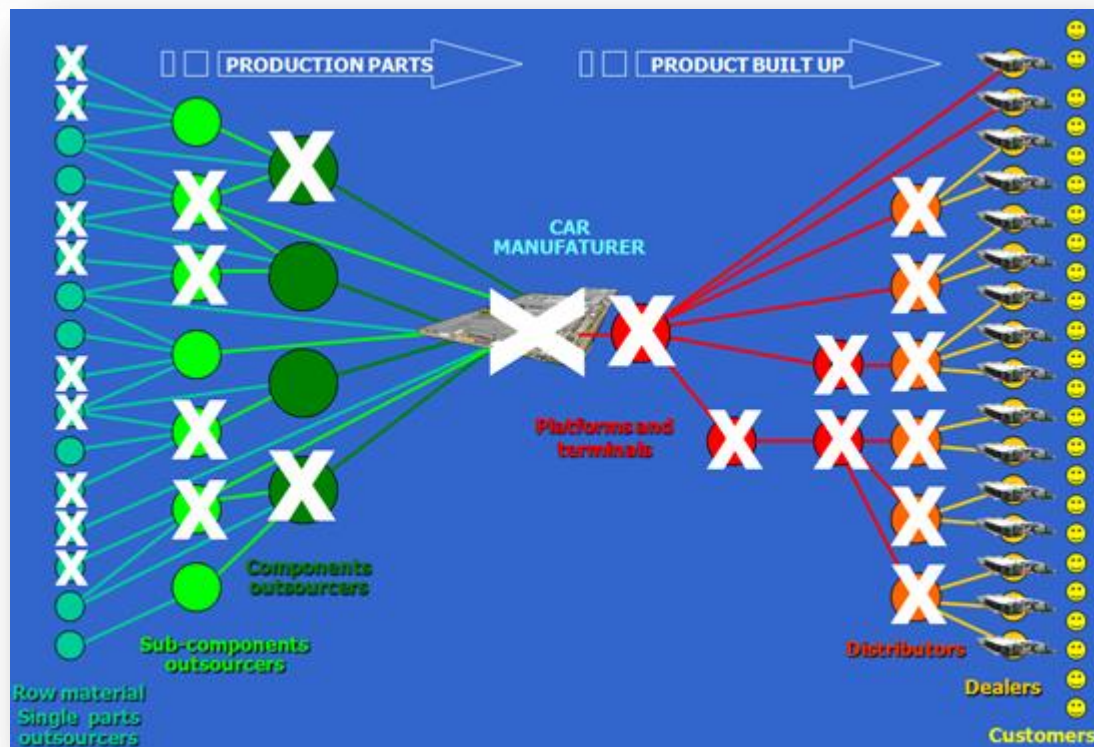
4) To finally reach the end user



Distribution of the finished products

All the linking means between the participants (in the distribution of the finished products) require transportation that contributes to the increase of CO₂ emissions.





- No distributors
- No intermediate stocks
- Less suppliers: 80% of the vehicle are achieved on the spot

MDI concept simplifies the logistics

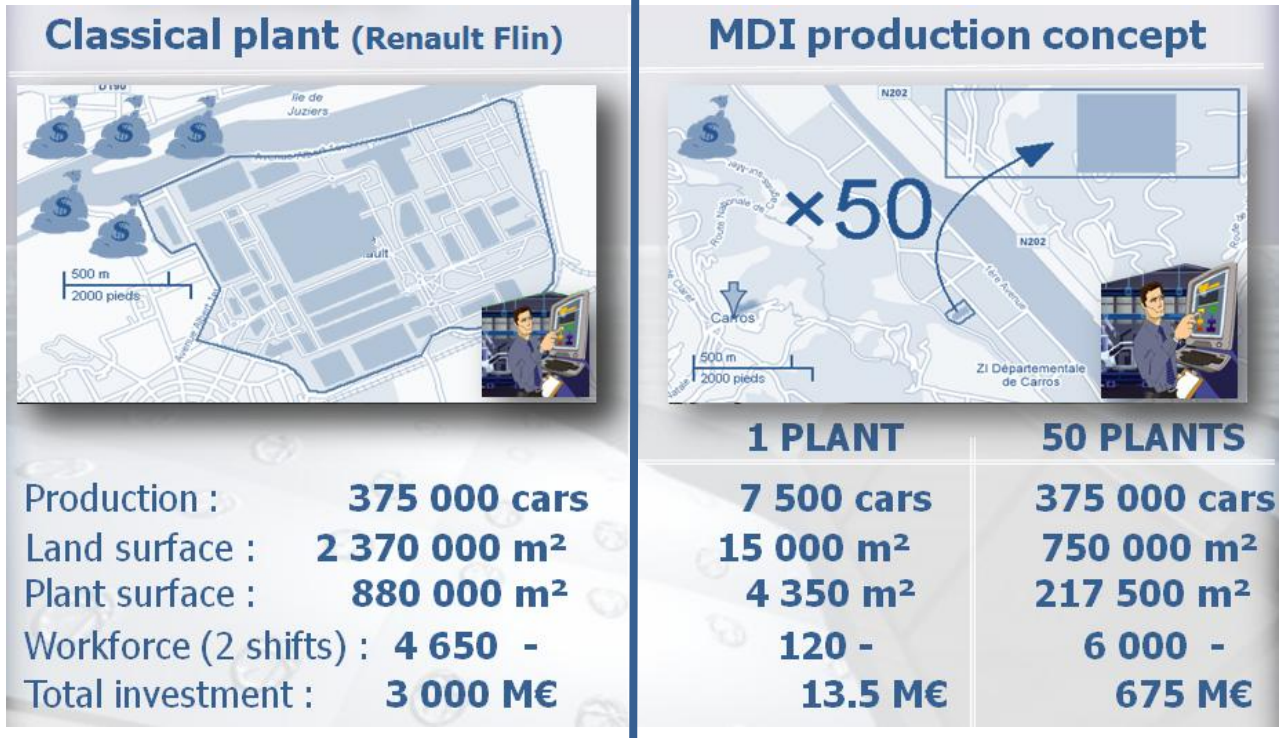
- The assembly plant is replaced by several MDI factories
- The suppliers are selected in view of reducing the costs, the logistics and the transport
- The purchases for all the factories are managed by the MDI Trading Group in order to derive profit from bulk purchases

Considering the number of MDI factories necessary to the production of the same amount of cars produced in a conventional plant, the MDI concept enables:

- A reduction of the CO₂ rate caused by the transport of raw material and finished cars
- A reduction of the logistics costs



To produce the same number of cars as an usual maker in his assembly factory,
50 MDI's concept factories are required



Advantages of the MDI concept

1/3rd of the land surface	1/4th of the built surface
1/4.4th of the investment amount	30% more employees



On the ecological level

Only one third of the ground surface is necessary
Better distribution of the energy used for production
No pollution due to the transport of the finished products

On the economic and social levels

The currency remains in the country → no need for change
Creation of local employment → no population transfer
Sharing out of the knowledge and of the know-how

On the quality level

A car produced every ½ hour → careful production → quality
Use of techniques that are not compatible with mass production

Advantages of the MDI concept

From the marketing point of view

Customers buy cars that are produced locally (especially public services)
Reduction of import duties/taxes (very high in some countries)

On the costs

The MDI plants are small and easy-to-manage infrastructures (SME)
Logistics expenses are drastically reduced
No stocks of spare parts. These are manufactured « after-time »



In industrialised countries, the turnkey factory is designed to be setup on a zone where 110 000 new cars are sold (MDI target being to take 1 to 1.5% of new and recent second hand car's market). Each zone is defined so that the plant's annual production is absorbed by its specific market, taken into account:

- The current market area (new and used)
- A potential market for MDI (about 1% to 1.5%)
- The country's GDP and Population in urban areas



For example in France:

21 production plants

can be owned by many

« Dealer/Manufacturer/Associate »

(For example 7 associate)

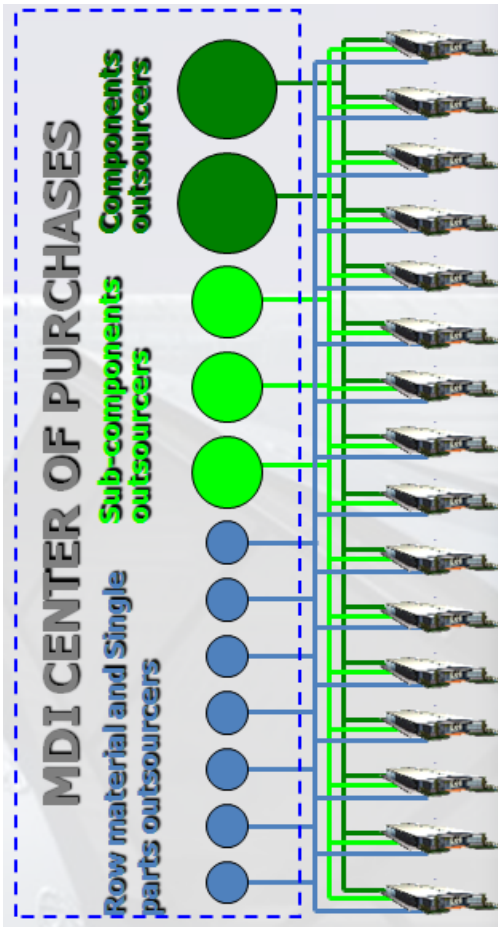
1-2-3-4-5-6-7

that together with MDI are the
shareholders of
«MDI France» Managed by MDI

How does the concept work?

If many « Dealers/Builders/Partners » owns the various production plants of a country, the « **MDI country** » company will:

- Manage the relationship and competition between the plants inside the country and with foreigners « Dealers/Builders/Partners » trough a share holders agreement
- Manage solidarity between its share holders in case of a « force majeure » event that should occur to one of them
- Own licence and the know how
- Coordinate huge fleet contracts from big companies or administrations of the country, in view to distribute fairly the orders to all the plants of the country
- Make the link with the MDI centre of purchases

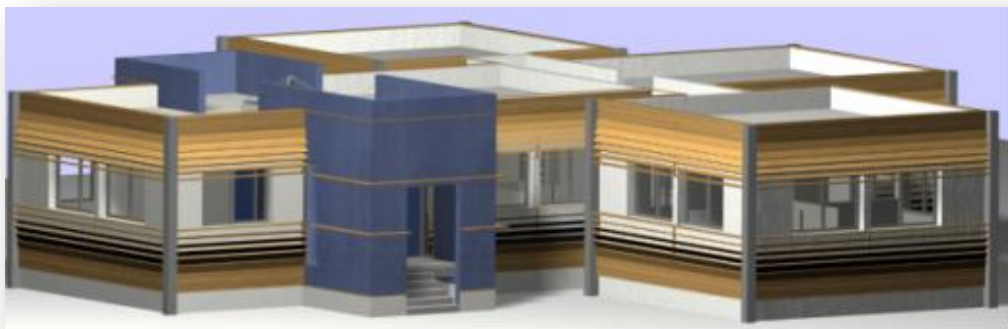


○ To benefit from volume effects, the " MDI center of purchases" in Luxembourg will negotiate directly with suppliers for orders of all plants.

○ All « Dealers – Manufacturers – associates » will be shareholders of the center of purchase to verify that the prices negotiated with suppliers are applied without margins

○ Step by step, using the network of partners, other providers offering better prices will be identified, which will reduce the cost of purchases and therefore the price of cars

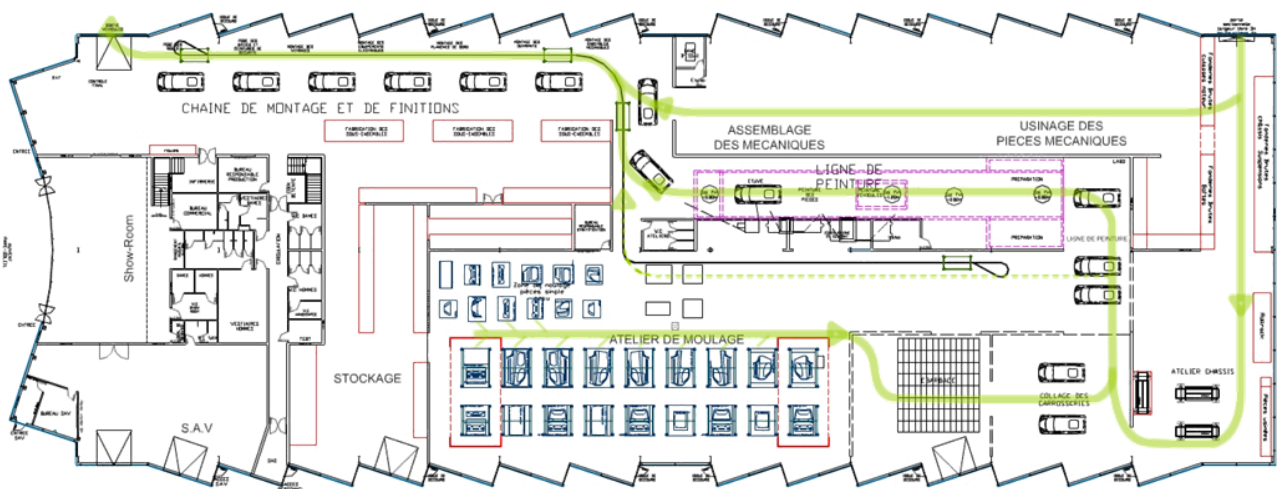
Centre of purchase





The factory should be located on a site near a big city, if possible in a commercial estate. A land of 15 000 m² is sufficient to set up an MDI plant.

- **Ground surface : 4 500 m²**
- **Show-room and commercial surface: 600 m²**
- **Production area: 4 000 m²**
- **Storage surface: 1 000 m²**



Turnkey factory





The totality of the means and tooling necessary to the manufacturing of the MDI cars is provided by MDI:

Chassis workshop



Assembly tooling – Gluing gauges

Bodyworks- and assembly workshop



Moulding line (MDI patent) – Production moulds – Injection tooling – Foaming moulds
Foaming tooling - Laser cutting – 5 axis digital trimming – Template

Turnkey factory

Painting line



Preparation – Painting cabin – Painting robot – Drying room



Mechanical machining workshop



Digital machining centre – Specific machines – Special tooling
Three-dimensional control material - Metrology

Mechanical assembly



Specific tooling – Engine test bench – General tooling – Gear-box control

Turnkey factory

Assembly line



Tooling and handling material – Subsets assembly benches along assembly line
Storage along assembly line



Saddlery – upholstery



Necessary means

Tanks workshop



Liners blower – Wire coiling machine – Control implements - Drying room

Turnkey factory

Storage means



Pallets carrier – Shelving – Fork-lift – Handling material

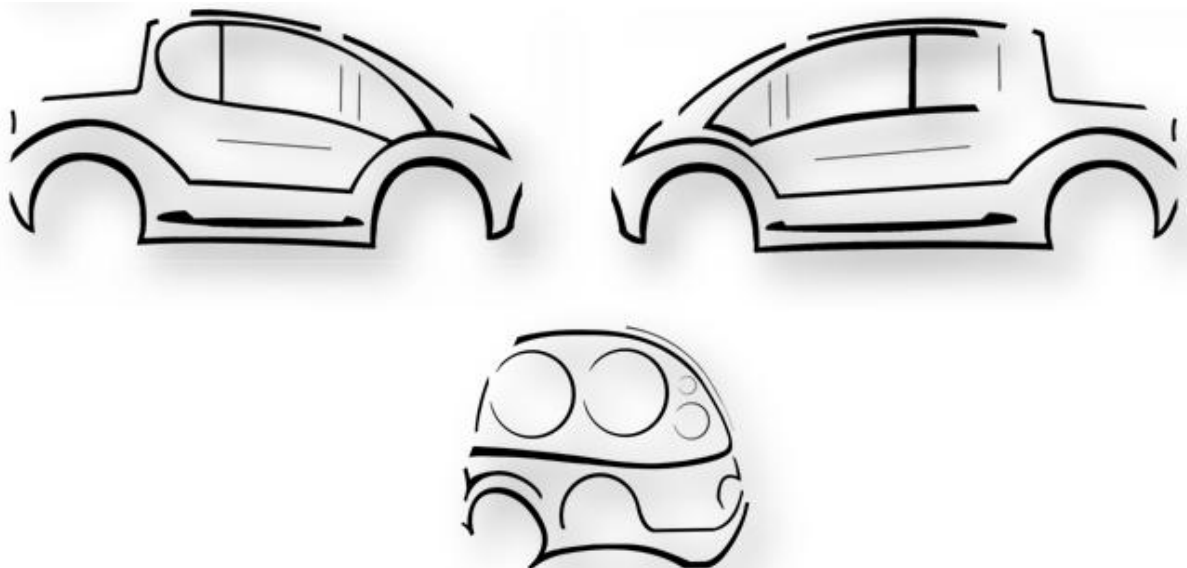


The innovative and efficient production concept, conceived by MDI can be applied to various products (mainly into our automotive range). MDI has defined several turnkey units that are able to produce one or more models. All the plants are designed in view to cover a specific market and they all have similar financial results. All the turnkey factories (and their associated licences) are at the same price whatever product is concerned:

A total of 8 different plants are adapted to each product or group of products as listed below:

1. **AirPod**, Urban vehicle (cars less than 3 meters long): **Licence 1**
2. **AirOne and AirCity** (cars from 3 to 4 meters long): **Licence 2**
3. **AirFamily** (cars over 4 meters long): **Licence 3**
4. **AirVan** and light utility vehicles (less than 20 m³ and 3.5 tons): **Licence 4**
5. **AirMultiBus and mini buses**: **Licence 5**
6. **AirTransContainer**: **Licence 6**
7. **Generators**: **Licence 7**
8. **Industrial tractors and forklift tractors**: **Licence 9**

Application of the concept to MDI products





For each MDI product that can be produced following MDI concept, a financial forecast has been elaborated (based on European parameters). These forecasts are available and can be easily adapted to other countries.

The simplification of the global supply chain, the reduction of the number of intermediates, and the reduction of logistics costs, enable financial returns that can't be achieved with a traditional production.

The main financial results of an MDI turnkey unit are:

- A breakeven point at around 1000 cars produced per year.
- A Net margin > 35% (for 1 shift 8 hours).
- A return on investment within one year.

Financial forecasts





MDI has signed a **license agreement** with Indian car manufacturer TATA Motors. This agreement, regarding the MDI engine technology, is **limited to the Indian Territory**. Tata Motors can produce any of its products using the compressed air and dual energy engines without the rights to export them.



This **exception to the MDI production concept** has been agreed because of TATA's car manufacturer status, and of Mr. Ratan TATA visions for his country.



MDI in India

