

A MNE Car Company in Emerging
Countries: Innovation, Skills and Jobs.
*The Renault case in Romania,
Morocco and India*

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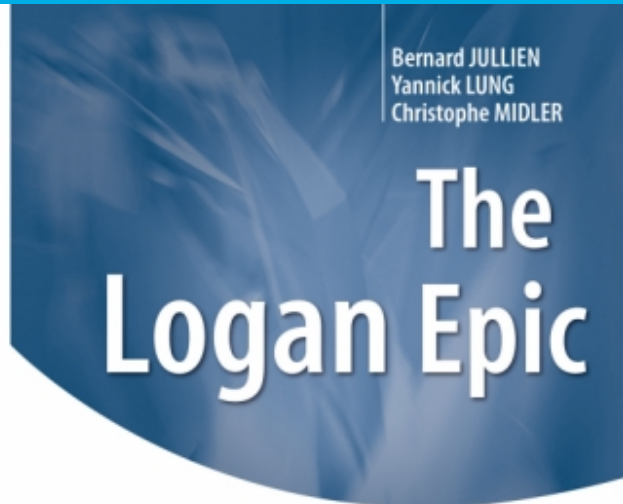
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Key dates in Renault internationalization

- Mid-1990s: Renault was a French public car maker with a limited internationalization
- Privatization (1996) allows the launch of an international strategy
 - › New plants in Brazil and Russia (Aftoframos, Moscou) in 1998
 - › Strategic Alliance with Nissan in 1999
 - › Acquisition of Dacia (Romania) in 1999, Samsung Motors (South Korea) in 2000
- Emerging markets as strategic areas for growth
 - › Commercial brand in India (2005)
 - › Control of Lada AvtoVAZ in Russia (2010)
 - › Acquisition of SOMACA (2005) and new plant in Tanger (2010) in Morocco
 - › China, an area for Nissan



A presentation based on three surveys



New trajectories
for innovation



Foreword
Carlos Ghosn

DUNOD

2012

L'émergence d'un pôle automobile à Tanger (Maroc)

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THE INCREDIBLE KWID



PREFACE BY CARLOS GHOSN

 CRC Press
Taylor & Francis Group
AN AUERBACH BOOK

Special Indian Edition

2017



BUT which models / range for emerging countries?

- Failure of European models in emerging markets (too expensive, not adapted to local infrastructure despite 'tropicalization')
- In 1998, Louis Schweitzer, CEO of Renault, launched the idea of a \$/€5000 car (X90 project)
- Acquisition of Dacia has been a key element of this strategy: Logan's production begun in Romania (Pitesti) in 2004
- The progressive emergence of a strategy based on Entry (low cost) range for new middle classes in emerging markets
- 10 years later Carlos Ghosn (CEO) launched the XBA project



From the Logan (€5000 in 1998 but equivalent to €7000 in 2015) to the Kwid (€3500)



2004



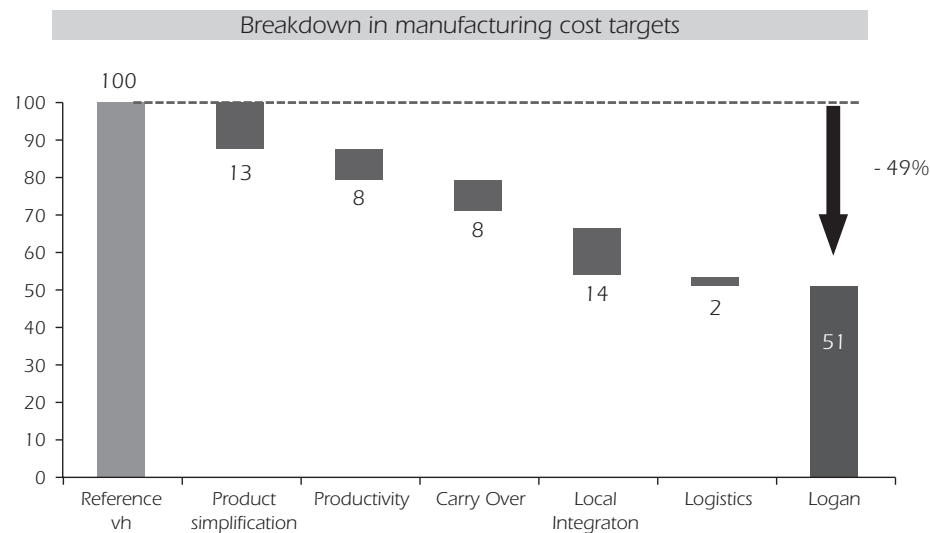
2015



The Logan Epic (from Romania to the world)

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- Initially designed for Romania and Central and Eastern European Countries, the volume planned was about 60.000 to 180.000 units/year
- The problem was : How to reduce by half the manufacturing cost with a low volume (no economies of scale) ? And a limited budget



Source : Baudinot, Chahbit, 2006

Figure 2.5–Breakdown in manufacturing cost targets



From the Logan to the Entry Range

- Designing a car with few electronics and using components developed for other Renault models (engine, transmission, etc.): new design in styling but quite no design for mechanical components (carry over)
- The restructuring of the Pitesti plant (old soviet-style industrial plant)



The restructuring of the Pitesti plant

- Reduce the manpower and intensive training to Renault way of production
- A new pay scale (salary grid): example of the bonus for danger
- A cooperation with local union, not without conflicts and strikes
- Using old unused machine-tools from Renault plants: few automation (3-4 robots for the Logan line in 2010)
- A labor-intensive process associated to low wage costs
- Using competences in manual process: local Romanian engineers and old French Renault managers with strong expertise
- Localizing supplying in Pitesti: MNE suppliers colocation (follow sourcing) and upgrading of selected local suppliers



An example: Automatized vs. Manual Welding



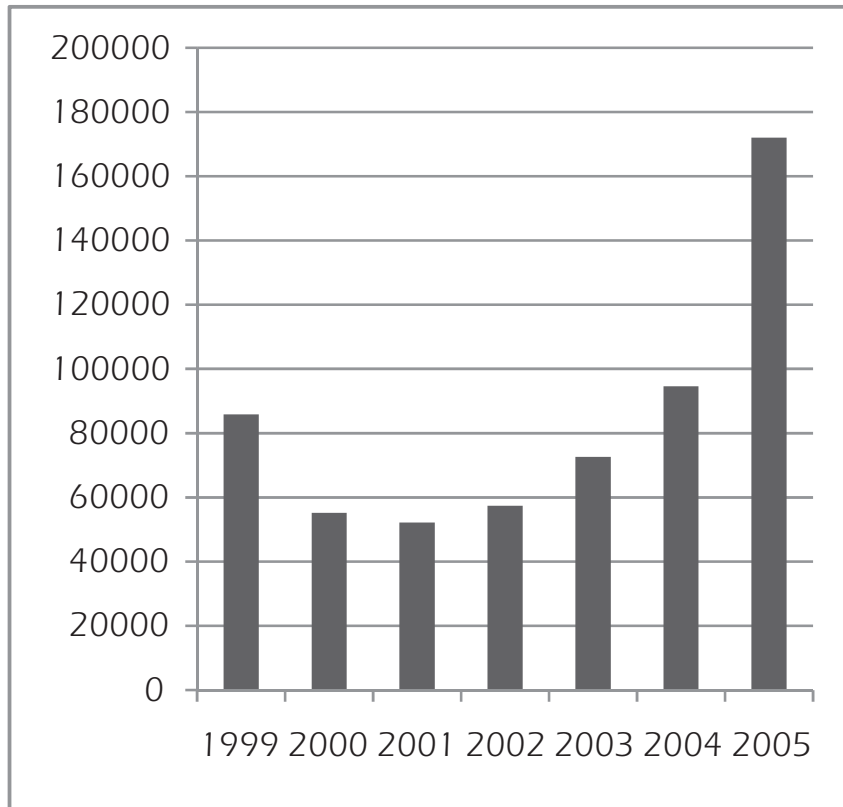
Modern car plant



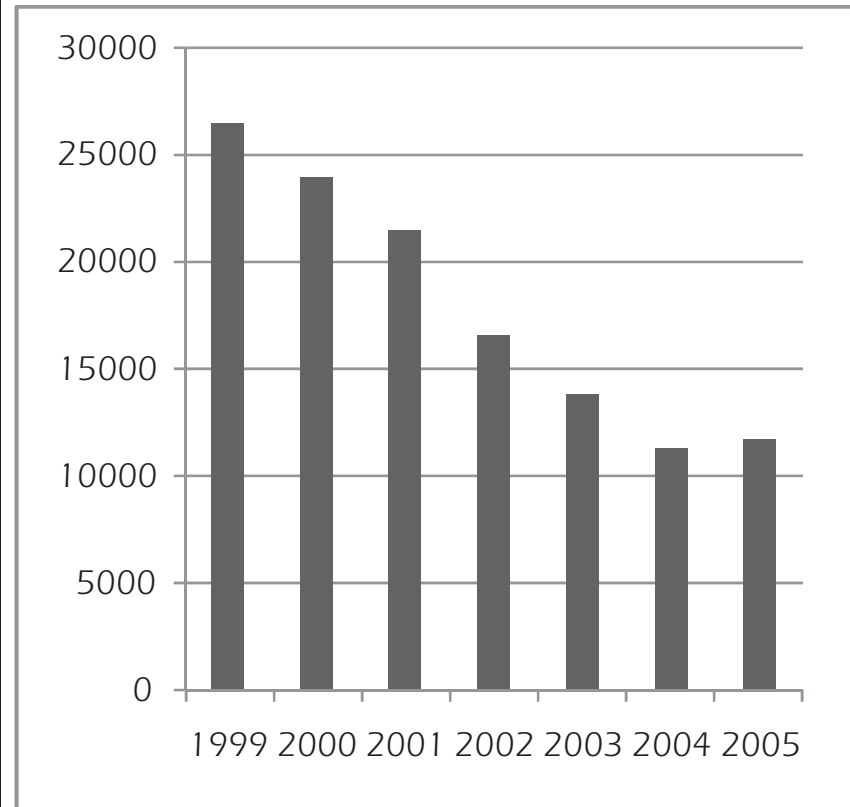
Dacia, Mioveni, Romania

Changes in the Pitesti plant (Romania)

(a) Production volumes



(b) On-site staff number



From the Logan to the Entry Range

- Initially designed for CEEC, the car sold under the Dacia brand has a great success in European market (Germany and France), and the Entry range is now at the core of Renault brand in Emerging countries
- In both cases, to propose a vehicle for consumers that could not buy a new car (substitute to used cars)
- A complete range is progressively developed:





Lodgy



Dokker



Duster



Sandero

Logan Pickup

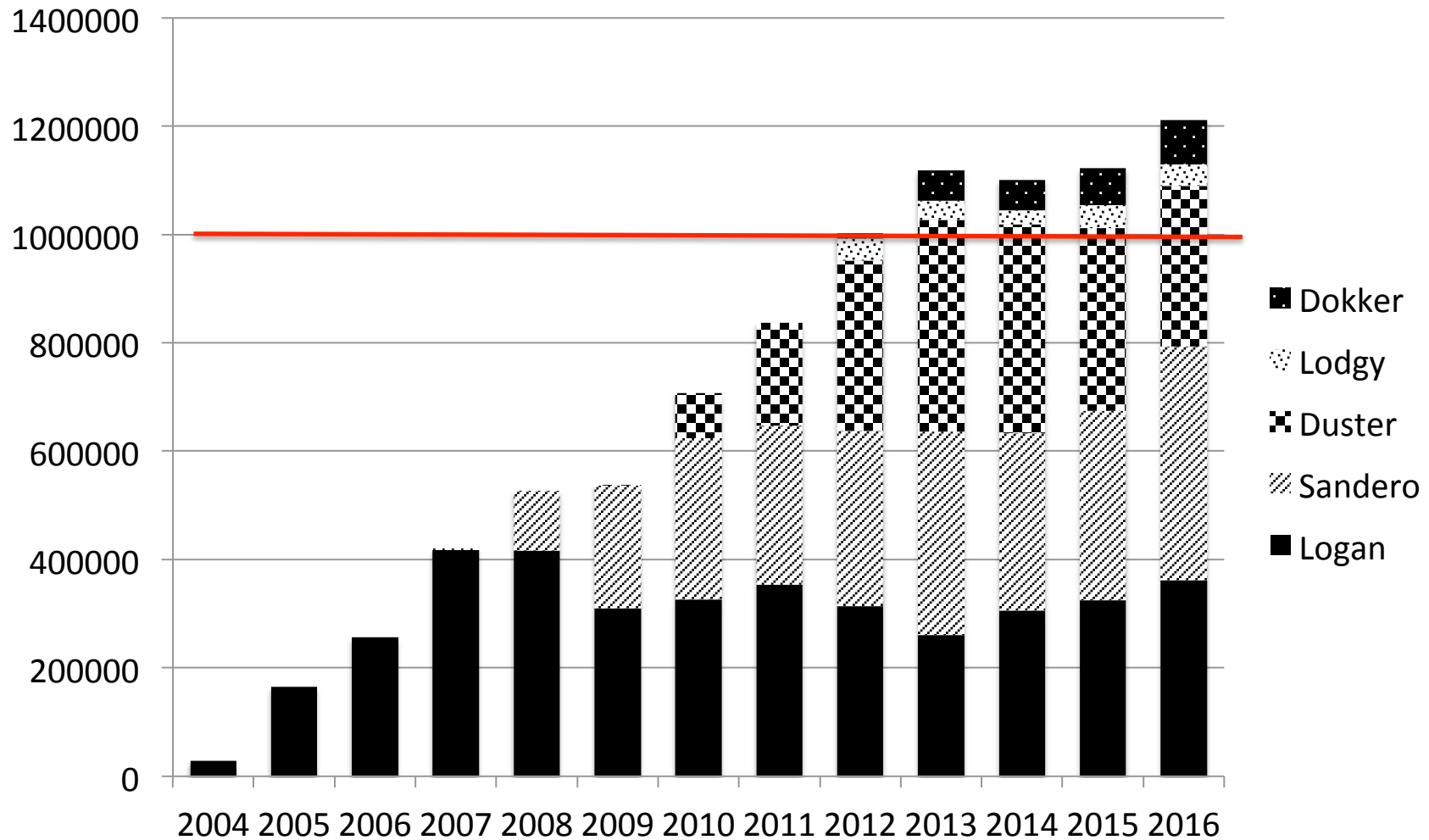


Logan

Logan MCV



Evolution of the Renault / Dacia Entry Range



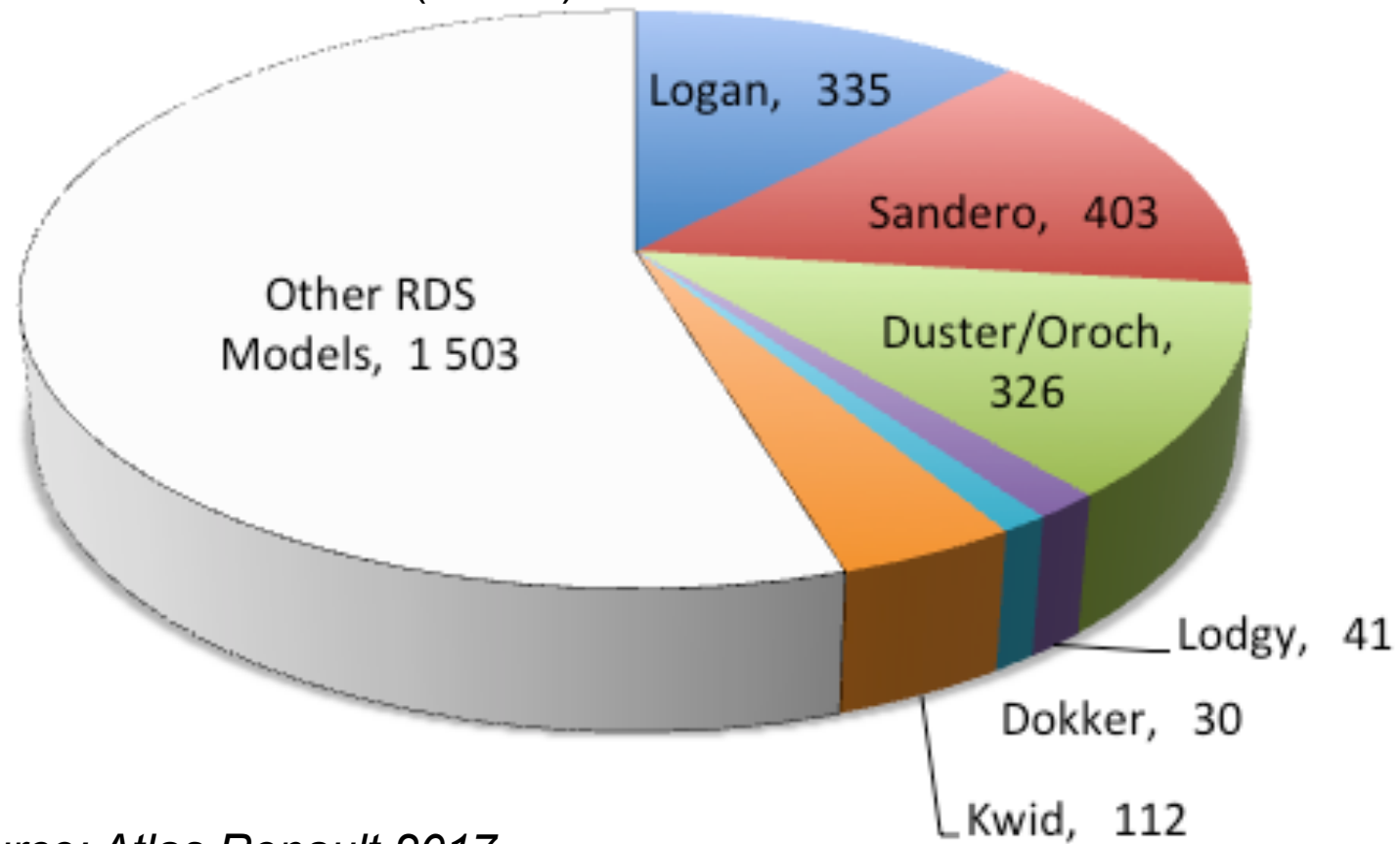
Since 2012, the production of vehicles based on Logan/M0 platform is above 1 M per year



Renault-Dacia-Samsung sales in 2016 (passenger cars)

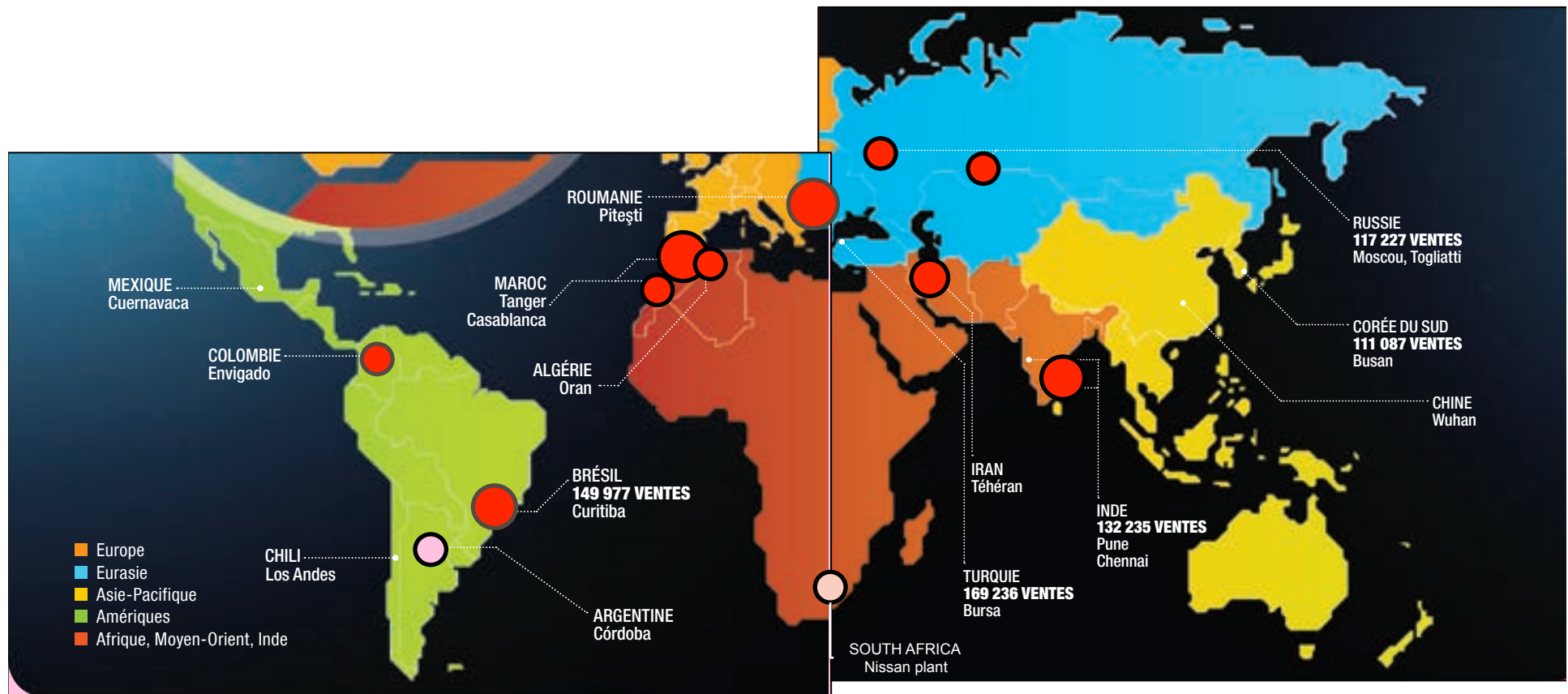
Total sales: 2.75 millions
Entry&SubE: 1.25 millions (45.3%)

Unit: 000s vehicles



Source: Atlas Renault 2017

In 2017, Entry models are assembled in 10 different countries, 12 assembly plants on 4 continents



Source: Atlas Renault 2017



A peripheral centre for the Entry range

- A integrated industrial complex in Romania:
 - › Pitesti plant (capacity: 340.000 veh./year, 11,000 workers)
 - › Growing technological competencies: Renault Technology Romania (2,300 engineers and technicians) with complete test facilities, connected to the Renault Technocentre (France) and taking the lead in the development of the Entry range products
 - › The largest logistic centre (ILN): half of the Renault group total logistical activities
- A peripheral centre for Entry products produced in 10 countries (12 assembly plants)





Renault in Morocco

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Renault in Morocco



B52
Sandero



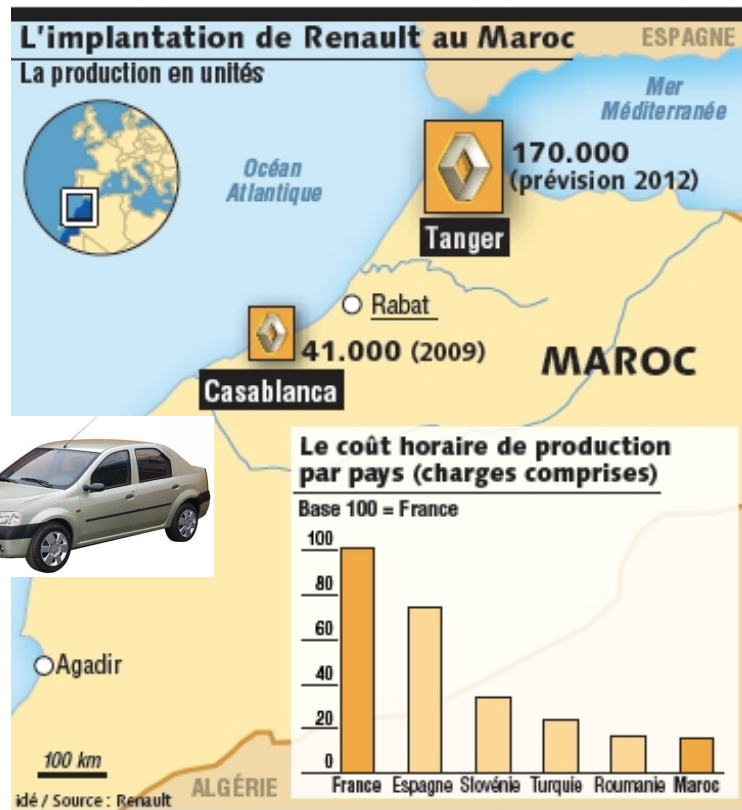
B-Cross
Sandero Stepway



J92
Lodgy

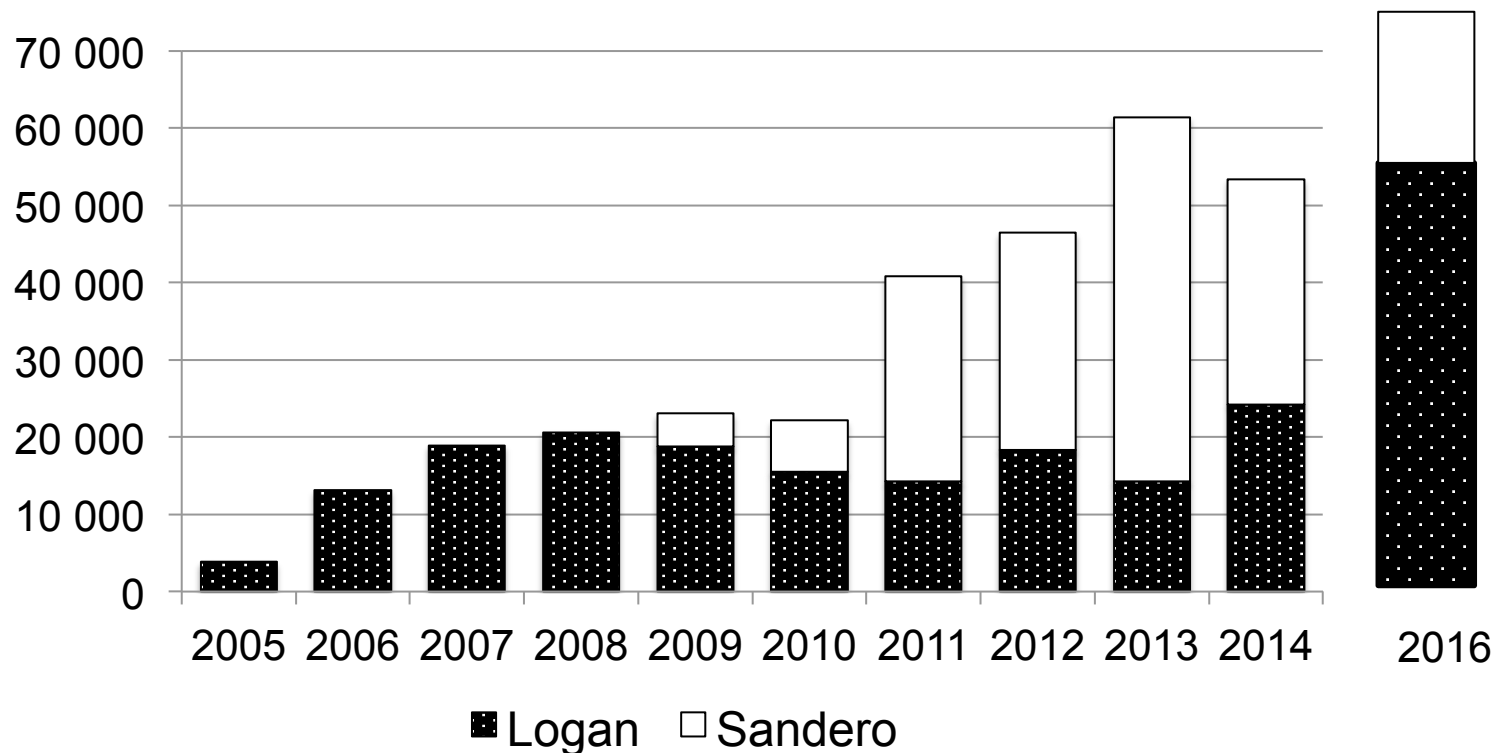


FK67
Dokker

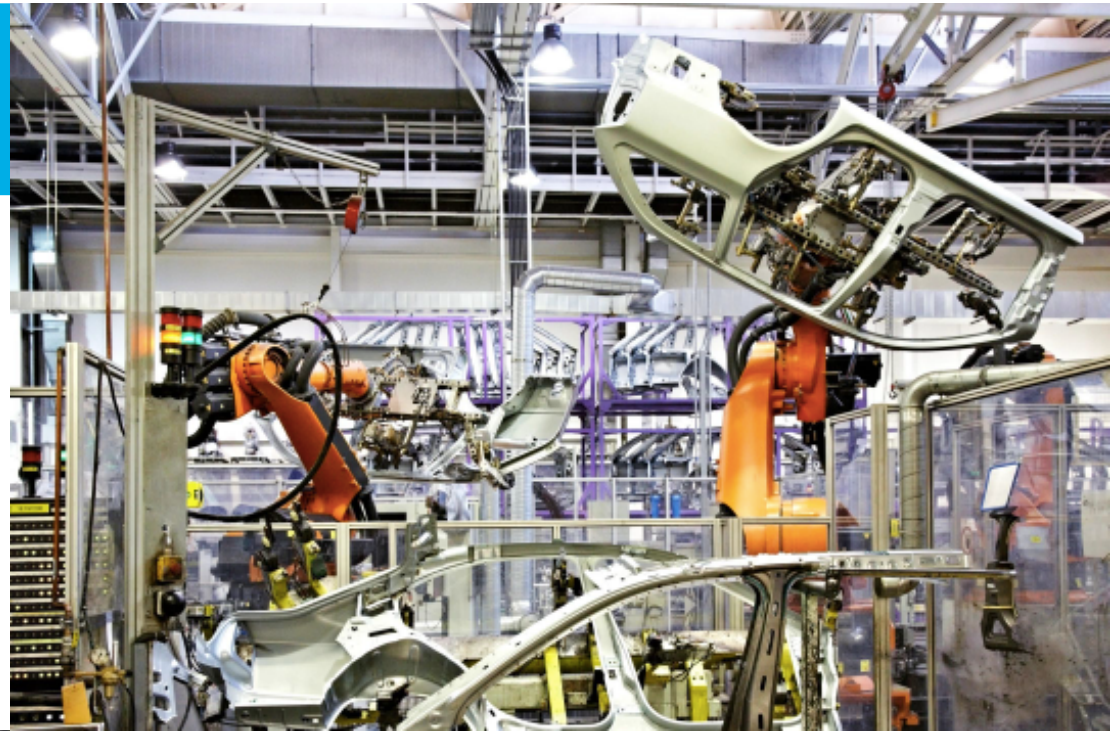


Morocco, an export basis of the Entry range to Europe

- Pitesti could not satisfy the growing demand of Entry products for the European market: a new sourcing plant in a low cost country close to Europe was needed
- The SOMACA old plant (Casablanca) designed for low volume assembly of CKD unable to cope with the demand



Body Assembly in A Modern Car Plant



Renault production in Tangier

- A new greenfield plant was decided (despite the delay of Nissan models production): an investment over 1 million € (line 1 in 2012; line 2 in 2013); estimated production capacity: 330 to 360,000 vehicles per year

Model	Year	2012	2014	2016
Lodgy		41 442	25 679	37 105
Dokker		6 493	56 030	80 783
Sandero II			96 801	155 363
Total		47 935	178 510	273 251

98% of the total production exported



1. The difficulties to develop an automotive suppliers network in Morocco

- Failure of the local supplier network
- Partial re-internalization
- Location of MNE suppliers plants

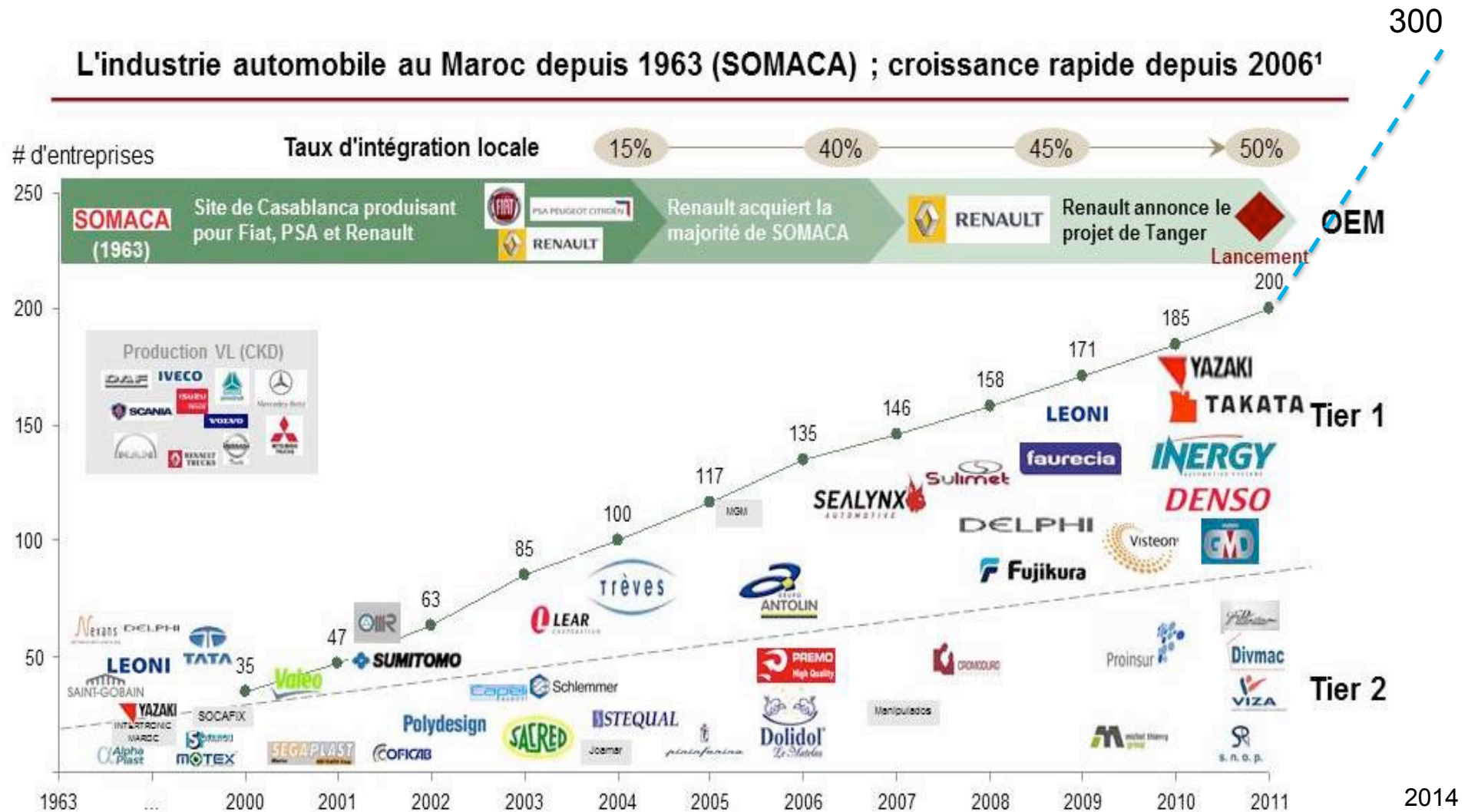
The failure of a network of Moroccan suppliers

- Objective: a local integration rate about 40-45% to be upgraded until 60%
- Due to the lack of culture of automotive industry, the local network of suppliers was limited to low competencies activities
 - › Suppliers oriented towards the maintenance and repairs market (such as batteries)
 - › A few local suppliers to the SOMACA plant in Casablanca with a long culture of protectionism
 - › An export-oriented suppliers network in the North of Morocco specialised in labour-intensive components of low technology (wire harnesses and textile)
- The strong cost pressures on suppliers for the Entry range (80% of the vehicle cost) could not be satisfied



The growth of the automotive supplier industry in Morocco

L'industrie automobile au Maroc depuis 1963 (SOMACA) ; croissance rapide depuis 2006¹



Source : Rapport AMDI 2013, cité par MICI (2014).

Renault main choices in its sourcing strategy

- A failure in prospecting the Moroccan industry and in attempts of joint-venture with local partners
- The choice of re-internalizing within the Renault plant of activities usually outsourced: seat assembly
- The predominance of a follow-sourcing strategy
 - › Most suppliers are in free-trade zones, which limit their possibilities to buy and sell in Morocco
 - › Some Tier 2 or 3 suppliers for Renault in France took the opportunity to become Tier 1 in Tangier



The predominance of a follow-sourcing strategy

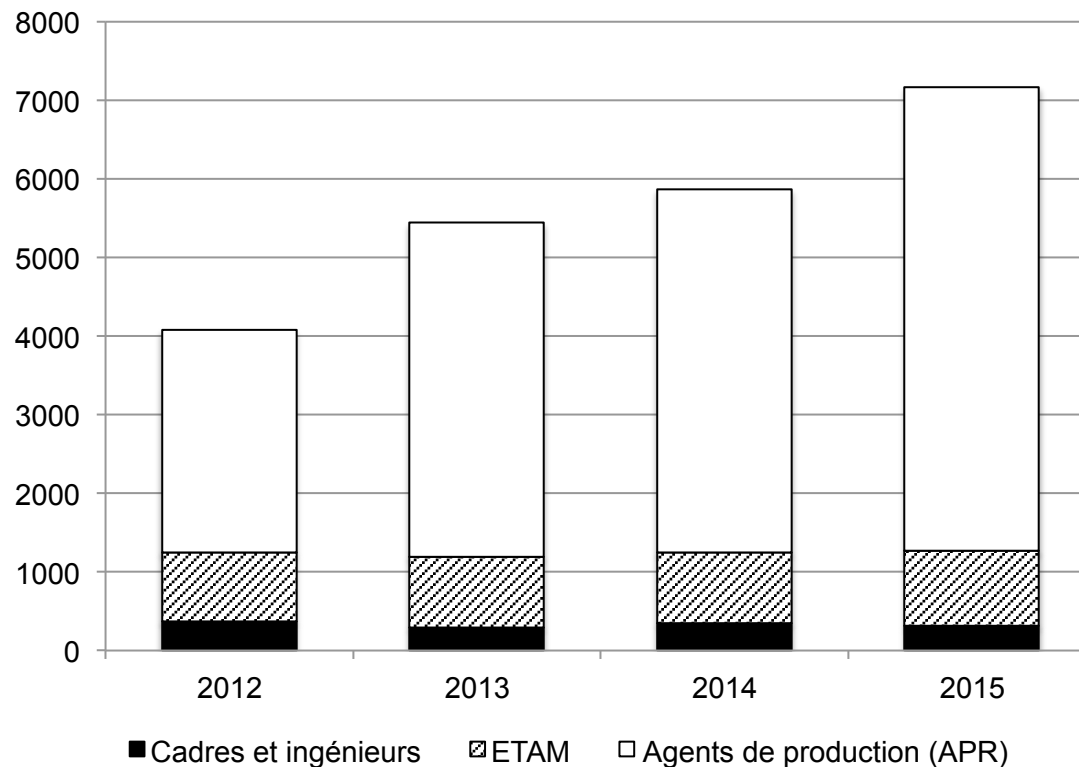
30 multinational suppliers of the Renault plant in 2014 located in Northern Morocco, mainly in free-trade zones, with three types of relationships:

1. An exclusive relationship (sourcing only the Renault plant in Tangier) of greenfield supplier plants, which leads to difficulties due to the low sales of the Lodgy (and Dokker)
2. A European, even a global sourcing for Renault plants and other carmakers (exports)
3. Local multinational plants of lower-tier suppliers promoted as Tier 1 in Tangier



2. Labour issues

- A structural weakness of industrial workforce... which could cause overcosts
- Renault employment policy



Staff number at
Renault Tangier

Source: Renault



A structural weakness of industrial workforce...

- A low potential of industrial and technological competencies in Morocco and in Tangier,
 - › A rural country and region without manufacturing history and culture
 - › Disincentive of technological education and limited training of young Moroccans towards industrial activities
- High needs of manpower for the Renault project
 - › More than 5,000 jobs at Renault, about 20-30,000 for its suppliers
 - › Strong demand for technicians and engineers not available in the Tangier region where tensions were high in automotive activities even before Renault location

... which could cause overcosts

- A strong risk of competition between automotive plants in the Tangier region to attract qualified workers, which could lead to significant rises in labour and supplying costs.
- This could lead to overcosts which cannot fit with the low cost strategy:
 - › Relatively high wages to attract and retain qualified Moroccan workers at Renault and in suppliers plants
 - › A too numerous number of foreign managers (expat') with very high wages and several advantages

Renault employment policy: Objectives

- To recruit and hire workers with good competencies (baccalaureate / high school + 2 years)
- To replace ASAP foreign (French) employees by local employees in the middle and top management
- To train workers to quality at the level of international standards
- To avoid the rise of wage costs through non financial incentives to attract employees and increase their retention
- To share such objectives by automotive suppliers in Tangier



Renault employment policy: The support of the Moroccan government

- A strong financial support: 20% of the training costs
- A national recruitment of Renault workers has been organised by the Moroccan agency for employment (ANAPEC)
- The government built and support an automotive training centre near the door of the Renault plant in Tangier (Institut de Formation aux Métiers de l'Automobile). Two centres are located in Tangier area (the other one in the Free-Trade Zone) and propose training programmes
- Support of Moroccan universities for the training of engineers and technicians



Renault employment policy: The carmaker involvement

→ In the recruitment:

- › A national campaign : 3 Renault caravans during several months across Morocco
- › The transfer of SOMACA staff from Casablanca (350 employees relocated)

→ In training:

- › Within the Tangier plant and in other Renault plants (Romania)
- › With the Technocentre (Guyancourt) for engineers and managers

→ Ensure the employees loyalty: social protection advantages and upgrading in competencies as key levers



Renault employment policy: Suppliers commitment

- Support the Renault employment policy (wage policy, recruitment of Moroccan managers, etc.)

- Strong efforts in training
 - › Participation of suppliers employees on training programmes and tools proposed by the Renault/OFPPT training centre close to the assembly plant
 - › Systematic on-job training in their plants or in foreign brownfield plants
 - › Internal system of incentives



Renault employment policy: Encouraging results

→ Some critical points:

- › A relatively high level of employment turnover, examples of dismissal, including by Renault, mainly at the beginning (gentlemen agreement)
- › Difficulties to find some technological competencies (maintenance)
- › Lack of experience of industrial work

→ Nevertheless, a global success:


- › Recruitment of workers with an adequate level of qualification (level: high school or equivalent)
- › Gradual upgrading of workers competencies
- › Rapid decline of foreign managers (expat') replaced by Moroccans



Emerging backward effects

- Regional economic growth and rapid development of the Tangier area
- Emergence of an automobile cluster in the Tangier region, but in the sense of agglomeration of activities more than in that of the development of interindustrial interdependencies.
- Backward effects in other regions
 - › For the SOMACA and automotive activities in the Casablanca area
 - › Rapid growth of the automotive industry: to avoid wage rise, suppliers invest in new plants outside the Tangier area to relocate their activities (exple: Yazaki in Kenitra and Meknes to source Renault plant)
- Limited technological spillovers





→ But location of PSA in Kenitra (2019) - and maybe a third carmaker - could accelerate the location of MNE suppliers and transform Morocco as a new automobile country



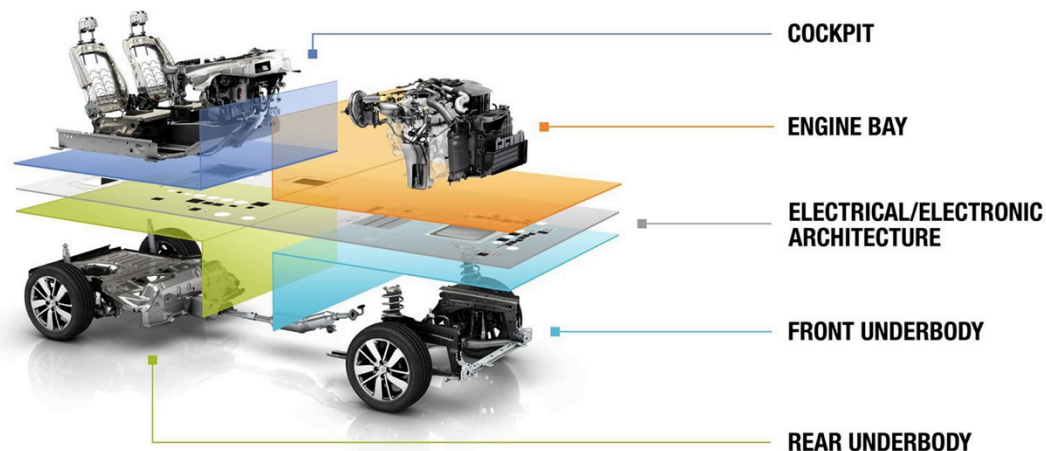
And now the Kwid:
Rethinking Innovation

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Kwid, the Sub Entry segment

- Carlos Ghosn (CEO) aims in 2010: increase the Alliance Renault-Nissan up to 10% of the world car sales, being more aggressive on emerging markets
- To propose a modern car to the buyers of new cars
- A global platform (a set of modules: CMF-A Common Module Family) to derive new models Renault Datsun (Nissan)

COMMON MODULE FAMILY (CMF) : 4+1 BIG MODULES



Renault Kwid and its sister Datsun Redi-GO



Starting Price in India:
3670€

Starting Price in India:
3340€



Re-thinking Innovation

→ Innovation in reverse

- › Innovate "from the bottom" (low end) instead of from the top (sustaining)
- › Innovate for / in emerging countries instead of deriving aging products designed to be sold and manufactured in the countries of origin of large groups, adapting them (tropicalization)

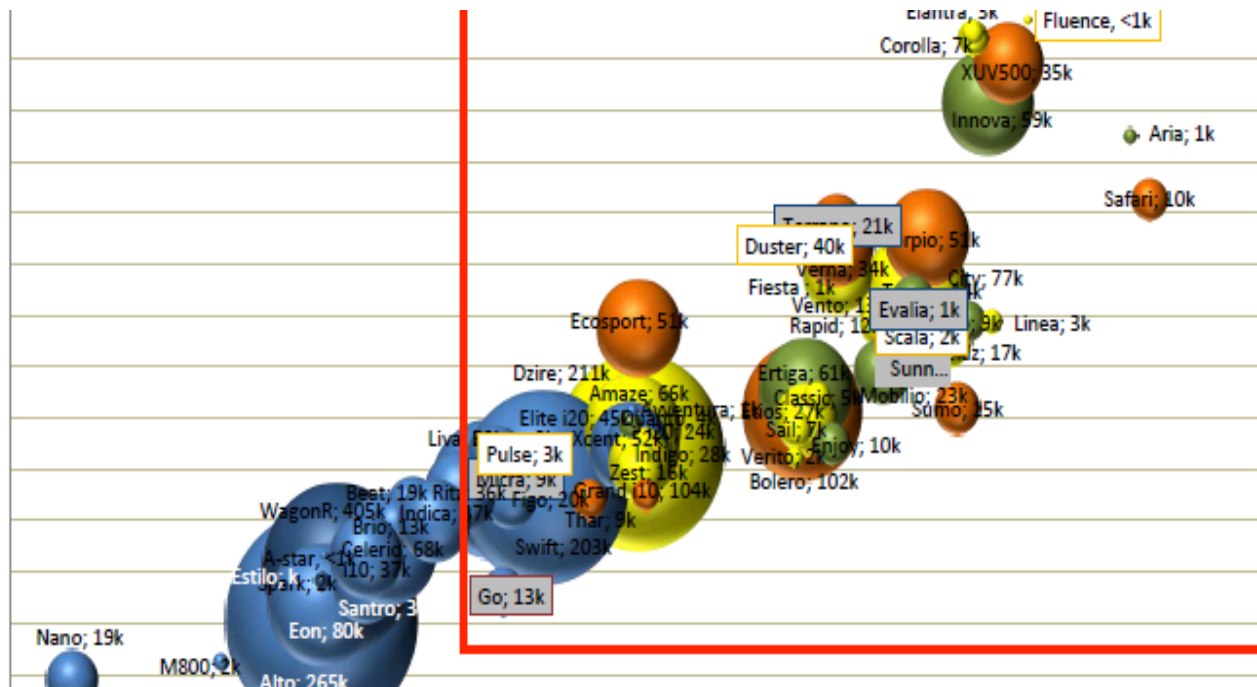


I. Kwid History: An Overview in 7 Steps

1. Upstream exploration
2. Autonomy given to the project
3. Original design organization
4. Sourcing
5. Difficult start of production
6. Commercial launch
7. Internationalization



A shift from Renault previous market positioning



Source L. Feuvray et J.F. Vial Renault



Koleos



Pulse



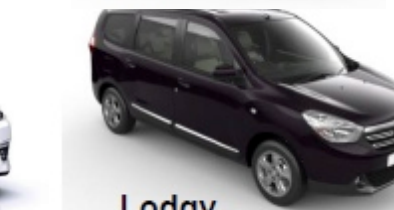
Duster



Scala



Fluence



Lodgy



Convergence in a strategic Alliance scenario

- 2 products Nissan I2 and Renault XBA sharing the same new platform (CMF-A)
- ... an new engine (0.8l and 1 l) and 2 transmissions (1 manual gearbox and its robotized version ATM)
- The leading role of the Renault XBA project



Figure 1.6 Renault Kwid (left) and Datsun redi-Go (right) contrasted final designs to differentiate the product identities. (© Renault, reprinted with permission.)

2. From the definition to the affirmation of an original autonomous approach (October 2011-July 2012)

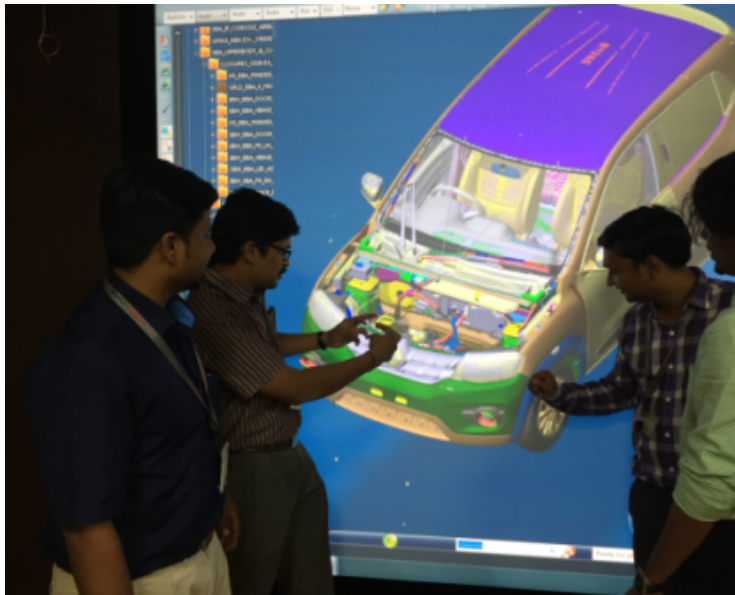
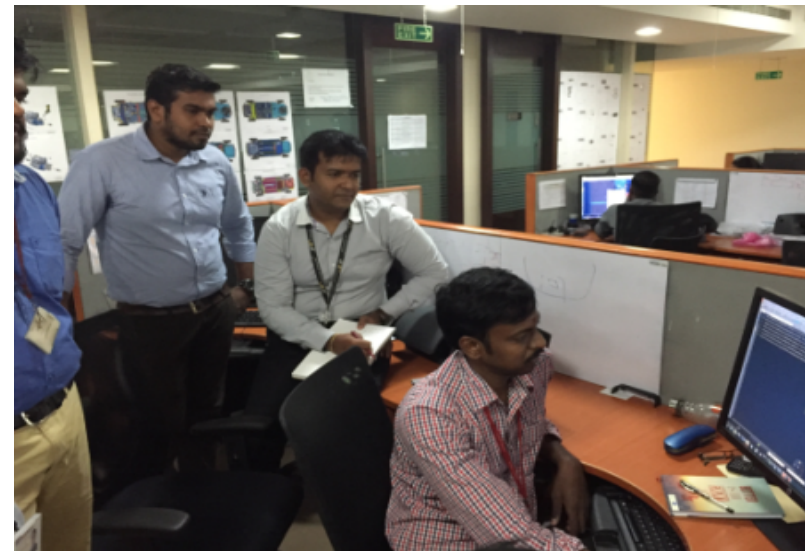
- Creation of a specific unit: 2ASDU (Alliance A-Segment Development Unit)
 - › Gérard Detourbet, Program Director (previous director of the Entry program)
 - › Joint Renault Nissan team: Nobuyuki Kawai #2
 - › A war-room (plateau) in the RNTBCI buildings, suburbs of Chennai, Tamil Nadu, South-India (Renault Nissan Technical Business Center)
 - › A direct governance by the Alliance (not Renault and Nissan)
 - › An organization struggling to grow in power



A car designed in India with highly qualified expats



Renault expats managing
local engineers and
technicians



3. Product-Process Development: Fractal Innovation and Intrusive Management (Spring 2012, Fall 2013)

→ A strong Target-Based Cost Control

- › Objective costs fixed "top down" to ensure the profitability of the project in the context of an aggressive selling price strategy on the markets.
- › A "design to cost" approach implemented with suppliers on all components, which can impact functional and technical specifications such as planning.

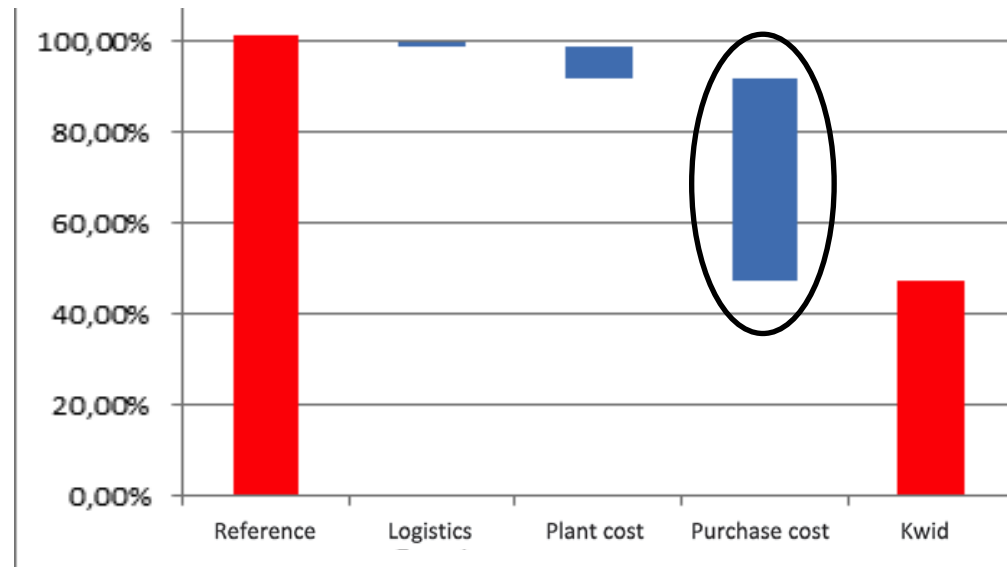


Figure 3.4 Breakdown of cost earnings in comparison to the reference vehicle.



The organizational conditions for deploying fractal innovation

- Mobilizing leading-edge skills
- Systematic analysis of existing solutions throughout the automotive world
- Ability to mobilize networks that could access skills not available inside the group
- Justifying solutions when they infringed on established norms.

4. Supplying from India

Outsourcing : 85% of the manufacturing costs

Indianization

- Local rate of integration $\approx 97\%$ with « true » Indian suppliers (i.e. non-subsidies of global players)
- Localization in the Chennai region (Tamil Nadu State) $\approx 60\%$ of the sourcing

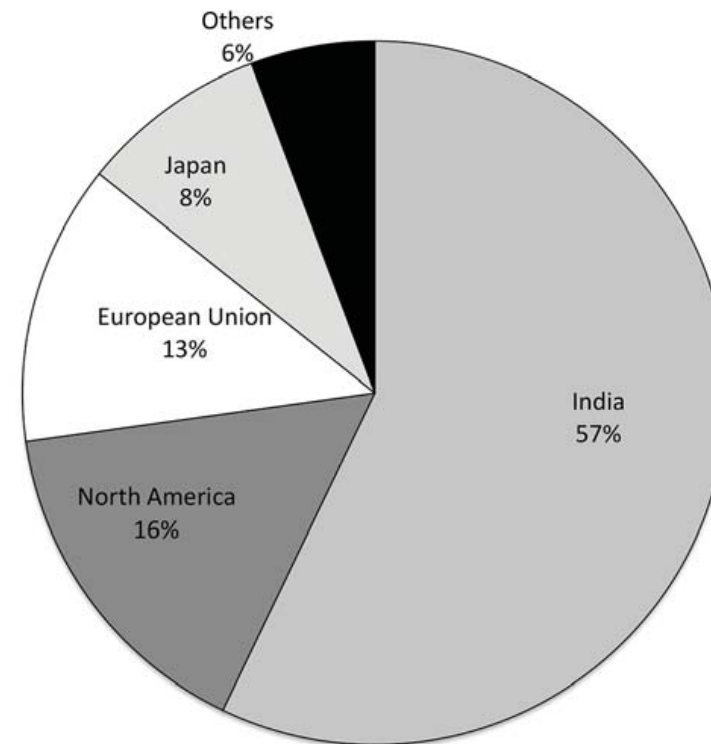


Figure 4.1 The origin of capital of the 70 main Kwid suppliers, which were all localized in India (Source: 2ASDU.)

5. Investment Decisions at Industrial Start-Up and Ramp-Up (July 2013–June 2016)

→ Responding to Risks

› Development of Crash Safety Performance

- *“What helped us was that this platform could be upgraded for other markets.”* .

› Acoustics

- Ludovic Gouère, in charge of powertrain: *“To move forward, we needed help from the experts at Corporate, Acoustics is a very difficult domain. Even when noise and vibration can be reproduced during simulations, it’s far from straightforward to understand what exactly caused them, in order to eliminate them. It took a year between detecting problems and implementing solutions.”*

→ Project Commando Meets Plant Bureaucracy

→ Leveling the Competitiveness of the Plant



6. The Commercial Launch of Kwid in India (March 2015 – June 2016)

- Lessons learned from Entry (Duster, Lodgy)
- Expanding the network - Renault sales outlets: 14 in 2012, 200 by 2015, 270 in 2017
- Indianizing the Business / Animate the Range

Renault Kwid INTERACTIVE DISPLAY

Objective: To creatively overcome problem of inaccessibility to car interiors in PP cars amongst high customer interest for seeing car the first time.



1. Integrated 3D visualizer with social sharing -(Customers can publish on facebook they saw the car)
2. Ability to change colors and background city (Customers can see all angles and all colors of car)

Raised platform to look stylish and also to discourage people to wonder about the car interior (2 interaction desks on both sides to give experience and block entry to climb on platform)

Interactive Oculus to experience Interiors & features of the car with a virtual driving experience

Renault and its network challenging the two leaders of segment A: Maruti and Hyundai

- Among the Indian buyers
- Among Indian dealers

12-months sales on Indian market
– Segment A



June 2016-
May 2017

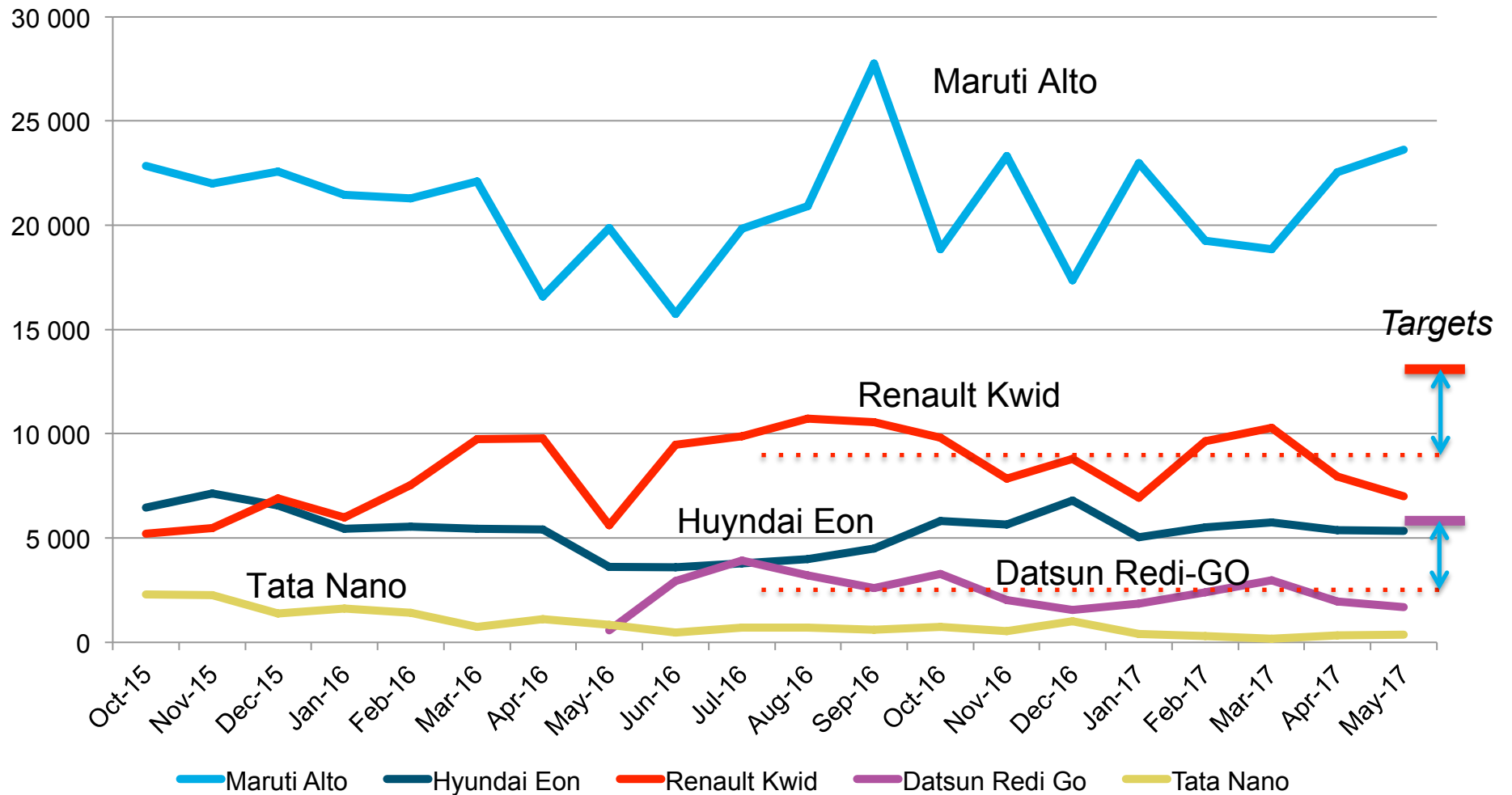
Maruti Alto	251,075
Hyundai Eon	61,147
Renault Kwid	108,892
Datsun Redi Go	30,437
Tata Nano	6,340
Total	457,891

Market share: 1/3

- Success Comes at a Price (165,000 orders for the first 11 months)



Monthly car sales on Indian market – Segment A



Source: <http://www.team-bhp.com/>



7. Prospects for International Deployment of a New Lineage (2016 →)

- The objective for the CMF-A platform volume: 800,000 - 1 million vehicles/year (India : 200,000)
- The car is or will be exported from India to neighbour countries (Bhutan, Sri Lanka, Bangladesh, Pakistan, Indonesia), but also until South Africa (where Kwid is #6 in May 2016 car sales)
- Presented at the International Auto Show of Buenos Aires in June 2017 (initially planned for Fall 2016, ie 8 months later), it is produced and is sold in Brazil since Summer 2017 at a price of R\$ 29.900-39.990 (8.100-10.800 € at the nominal exchange rate).



Kwid will challenge directly (« popular car » segment)



VW up!: from R\$ 31.990



Fiat Mobi: from R\$ 33.700



Chery QQ (Smile) R\$ 25.990



XBB: The South American Kwid



- A different car developed by a 2ASDU Brazilian team:
 - › ABS, ESP, 4 airbags, new engine (flexfuel 1l), reinforced chassis, 14" wheels (instead of 13"), ... 130 kg added compared with the India Kwid.
 - › Plus: electric outside mirrors, rear-view camera, etc. in the *Intense* version
- Upgrading rather than decontenting
- An expensive engineering outlay ("ticket d'entrée") due to important investments in Brazil (and Argentina)
- A limited local content: 45% → 60% (import from India)
- Re-internalization for some parts: seat assembly
- Difficulties to reach the targets (one year of delay)
- #2 in Brazilian Car Sales for September 2017

But also in ...

Iran (negotiation)



Russia in 2018



Tangier (Morocco) for EU?

An Electric Vehicle in China based on CMF-A

🏠 > ECONOMIE > FLASH ECO

Renault: une voiture électrique à 7000€ en Chine

Par Lefigaro.fr avec Reuters | Mis à jour le 03/11/2016 à 17:27 / Publié le 03/11/2016 à 11:40



II. What to learn from this story?

- Fractal innovation and creative design
- 'Trickle-up' approach within Renault
- Are Logan and Kwid reverse innovation?

1. Fractal Innovation and Creative Product Development

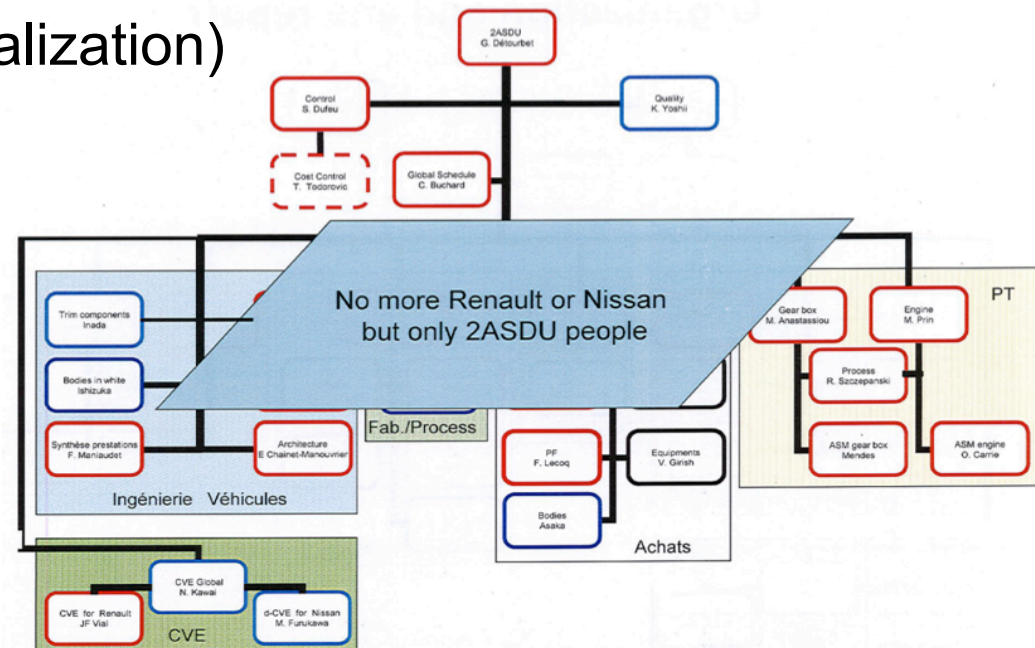
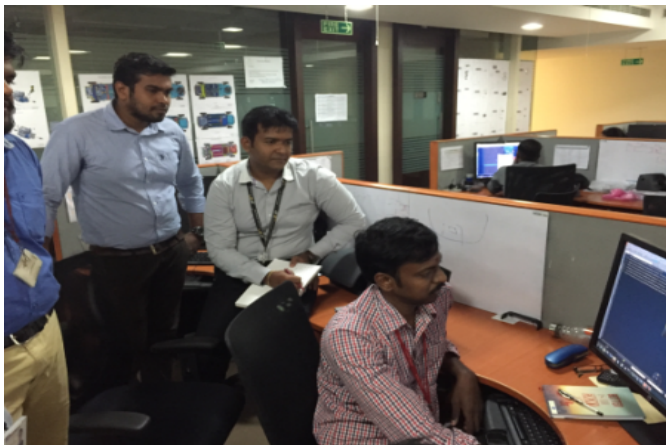
→ Fractal Innovation: an invisible breakthrough?

- › 2015 : -50% costs vs Logan (-50% reference cost Sandero 2004)
- › A conventional product
- › ≠ radical change, incremental, disruptive or architectural innovation, (Clark, ...)
- › A system challenging the design rules to fit with the context and program's priorities
 - On the whole perimeter and variables of the program (product specifications, technical choices, sourcing, network)
 - At all scales (from the choice of installation to the screwdriver or the wires diameter)



Organizational Conditions for Creative Product Development

- Concurrent engineering
- Heavyweight Project Management
 - › Leadership and legitimacy of the Program director
 - › Direct reporting to Carlos Ghosn (CEO)
 - › 2ASDU autonomy (localization)





→ Intrusive Management

- › Systematic questioning of standards and business rules
- › Priority to adaptation to the program context on standards
- › Ability to derogate by assessing and controlling risks

→ A concentration of profound and varied automotive skills

- › Knowing and understanding standards to know and be able to transgress them
- › Capacity for in-house conviction and external negotiation

2. The Maturation of a “Trickle-Up” Approach of the Automobile at Renault

- Between Logan (Entry range) and Kwid
- Kwid in Renault industrial model trajectory
- Which articulation with the classic Renault range?
- What conflicts?
 - › Persistence?
 - › Pacification?
- What about Kwid in the Alliance?

From Logan to the Kwid: From Marginality to Centrality?

→ Logan:

- › A project organized on the margins of the organization
- › Supported by the DG
- › Backed by "Renault core competencies"
- › Able to rally many young talents from all departments
- › Who becomes a "program" (2005) when the lineage and deployment spaces extend
- › And obtains that all the rules do not apply systematically to all programs: institutionalization of a "double standards" (« deux poids, deux mesures »)





→ Kwid

› Strong bases in 2011

- Starts after 7 years of success of the Entry
- 'Empowerment' by Gérard Detourbet patent
- Numerous rallies
- Multiple managers round trips between Entry and Mainstream
- Learning and methods stabilized
 - Ex: Earlier freezing to have time to deploy design to cost


Kwid: A Renault Project

→ Interpretation 1

- › *"Used to work solo, the man is his team: 350 people, including Dacia manager and many young people. For emulation. Objective, **to work like a start-up**, thousands of kilometers from the centers of decision, and above all outside the company's standards."* (Julie de la Brosse, L'Express / L'Expansion, 17/08/2015)

→ Interpretation 2

- › The fighter plane is organically linked to the liner
- › Resources are Renault ones
 - Expats very experienced,
 - Expats capabilities to mobilize the central,
 - Questioning of the business rules backed by very fine knowledge of the rules and their foundations (and limits): "contextual ambidextry"


- 
- The ability to actually make 2ASDU an Alliance structure is uncertain
 - › Low involvement of Nissan in the design of platform, engine and transmissions (a Renault powertrain)
 - › Product / process and cost control vs. rules enforcement as a guarantee of efficiency
 - › Difficulties with the assembly plant (Nissan management)
 - › Incomplete integration of doctrine by Datsun teams

3. Reverse Innovation: Innovative Global Firms rather than Start-ups


Usual trajectories of innovation

	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					

	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					




	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					



Reverse innovation

	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					



	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					

Logan - Kwid cases prompt de-simplification of this view

- A trend towards more design activities in emerging countries but
- The ability to absorb central knowledge by the local country has counted as much as the capacity to absorb local knowledge
- The quality and permanence of the link between the Indian autonomous entity and the central office was decisive
- => The ability to activate the central resources appears as a 'Necessary but Not Sufficient Condition' in the success of reverse innovation.

Logan - Kwid

LOGAN

	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					

KWID

	Generation of idea	Product development	First industrialization	Production	Sales
Industrialized countries					
Emerging countries					



To conclude

- Global firms can manage the reverse innovation by maintaining a close relationship between the innovative entity located in emerging countries
- In so doing, it prepares the globalization (glocalisation) of the product
- It limits the risk that disruption involves by making the accumulated skills mobilizable
- The focus on "start-ups" has something very naive and that it is necessary to restore a "Chandlerian" perspective