Transmission Trends in Passenger Cars & Light Commercial Vehicles in Europe:

A multi-client study by Knibb Gormezano & Partners

Published: May 2001

For assistance contact your Personal Account Manager
Darren Brindley
darren@just-sites.com
+44 (0)1386 383085
CONTENTS

I  THE STUDY IN BRIEF  2

II  BACKGROUND & KEY ISSUES  4

   Europe's Slow Adoption of Automatic Transmissions  4

   Powertrain Management  5

   Light Commercial Vehicles  6

III  OBJECTIVES  7

   Client Specific Issues  8

   Scope  8

IV  METHODOLOGY  9

   Historical Analysis  9

   Desk Research  9

   Industry Field Research  9

   Analysis and Forecasts  10

   Forecasting Methodology  10

V  TIMING, FEES & DELIVERABLES  11

VI  QUALIFICATIONS  12

   The Knibb, Gormezano Partnership  12

   Services And Industries  13

   J.D. Power-LMC Automotive Forecasting Services  15
I THE STUDY IN BRIEF

INTRODUCTION

In 1990 and 1992/3 and, again, in 1996, Knibb, Gormezano & Partners, a leading automotive consultancy, undertook comprehensive reviews of the automatic transmission business in Europe. On all three occasions, the project was fulfilled on a multi-client basis with many leading industry companies participating.

Since the last report, the subject area has broadened very significantly with the ever-increasing intensification in the development of new transmission concepts. While in the past, the distinction between a manual transmission and an automatic transmission was straightforward, today this distinction is becoming far more blurred, with the introduction of CVTs, IVTs and automated manual transmissions. These changes have been caused, not only because of changes in purchasers’ preferences, but also as a result of a greater concern for the harmful effects of the motor vehicle on the environment and, in particular the need to reduce fuel consumption and exhaust emissions.

With oil prices at record highs, and for the reasons mentioned above, the time is ripe to up-date the earlier studies and to examine in detail how this very exciting sector of the industry will evolve over the coming years. We are therefore proposing to launch this new study, *Transmission Trends in Passenger Cars & Light Commercial Vehicles in Europe* which will be carried out in conjunction with J.D. Power-LMC Automotive Forecasting Services, whose forecasts of production by model and by engine will provide a basis for the quantitative assessments in the study.
AIMS OF THE STUDY

The proposed new study will take into account all of the factors influencing the adoption of manual, automatic and automated transmissions and will describe the alternative technical approaches now available and evaluate their respective strengths and weaknesses. Its ultimate aims, however, are to provide a comprehensive and detailed analysis of how these factors will impact upon the future adoption of different transmission technologies within Europe in the period to 2005 with indicative forecasts over the period to 2010. While the prime area of investigation is Europe, reference will be made to developments in North America and Japan where relevant to the study. Amongst the questions this study will answer are the following:

- What factors have had a major influence on the adoption of different transmission technologies and what has that meant for the split between manual and automatic transmissions? How have these influences changed and how might they change in coming years?

- Given the array of different transmission technologies, what are the strengths and weaknesses of each and which ones are likely to have the greatest impact in the future and why?

- What will this mean in quantitative terms for manual, automatic and automated transmission usage rates in Europe?

THE STUDY

This study should be of utmost interest to passenger and light commercial vehicle manufacturers, transmission suppliers and component manufacturers whose business is dependent upon development of the sector. Those subscribing early will have the opportunity to influence the research programme, while for those whose needs are particularly specific, we will be pleased to discuss undertaking additional work either during or after the study is completed, as a separately priced contract.

---

1 Throughout this proposal and in the final report, the distinction will be made between conventional manual transmissions, conventional automatics, new forms of automatics and automated manuals.
II BACKGROUND & KEY ISSUES

EUROPE’S SLOW ADOPTION OF AUTOMATIC TRANSMISSIONS

The earlier reports indicated that, if left, solely, to the preferences of purchasers, the adoption of automatic transmissions would continue to be slow in nearly all European countries. This has proven to be the case.

The perception of the automatic transmission by the general European public is at last beginning to change as familiarity increases and a wider choice of technology becomes available. Among the more than 80% of motorists who still choose manual transmissions, there is still a strong resistance to the significant price premiums charged for automatics, and there remains a widely held association of automatics with poor fuel consumption and inferior acceleration. Many drivers with limited experience of automatics also claim to feel uncomfortable and less in control.

Historically, European vehicle manufacturers have produced their own manuals, but bought automatics from outside, and it has been conjectured that the manufacturers themselves have suppressed demand for automatics in order to retain maximum utilisation of their in-house manual transmission manufacturing capacity, and to avoid reliance upon outside sources for such a significant part of the vehicle. However, six of the eight major OEMs now produce all or most of their automatics in-house or in partnership with other suppliers.

In the USA and Japan (and indeed in many countries such as Korea and Taiwan where car-ownership has only, more recently, been fully embraced) the automatic transmission now reigns supreme. Few purchasers give any real consideration to the manual transmission (and, in more and more cases, are even unaware of its existence).

Why then, does Europe remain isolated in its overwhelming preference for the manual transmission? And will the rising traffic densities and the convenience of the automatic begin to influence purchasers?
Will the need to protect the environment and reduce fuel consumption/exhaust emissions create the need for the Vehicle Manufacturers to begin to adopt automatic transmissions and, if so, what type of technology might be considered and how will they sell them to an, up until now, unreceptive European public? How can the experience of countries outside Europe be used to provide guidance about the coming revolution in transmissions within Europe?

**POWERTRAIN MANAGEMENT**

Environmental issues are becoming of sufficient importance to warrant extensive development of complete powertrain management systems in which the driver has less and less influence over the performance of the vehicle, particularly with respect to its adverse effect upon the environment.

The development of CVT/IVT technology and its subsequent refinement, including fully electronically controlled versions, has continued. These efforts have been extended by the commencement of various ‘automated manual’ transmission projects. The last-mentioned concept can be introduced, at least initially, as a pseudo-sequentially shifting transmission which is expected to have an appeal to the more ‘spirited’ driver since it emulates current race-car practices. Once established in this ‘mode’ it would be possible to adapt it (even retrospectively) to fully automatic operation.

Simultaneously, those vehicle manufacturers and the independent suppliers who build their own conventional automatic transmissions have been developing new products. Automatic transmissions having five speeds, and some with a potential for six, are now available on larger cars and feature all the known fuel-saving devices such as ‘lock up torque converters’.

So, if fuel efficiency and the need to implement overall powertrain control will be key issues for the future, which technologies will be favoured and who will be the leading players?

With the protection of the environment being of paramount importance, is there good reason for all the Vehicle Manufacturers and Technology Developers to collaborate in a manner which will ensure the adoption of the right technology and its speedy introduction into volume production?
LIGHT COMMERCIAL VEHICLES

As the need for powertrain management increases in passenger cars and brings with it a higher demand for automatic transmissions, does the same need arise in the case of light commercial vehicles, and how is this likely to be addressed?

The study will consider light commercial vehicle applications and will provide an overview of the expected developments in this market sector.
III OBJECTIVES

The project will address the key issues already mentioned and additionally others identified by subscribing clients.

The main objectives are:

a) to provide a historical overview of the manual, automatic and automated transmission content in the major markets;

b) to examine and draw conclusions on the factors which influenced adoption;

c) to compare the new technical options for the future and their relative strengths and weaknesses in both economic and performance terms;

d) to identify the trends for the future and the key players involved.

Within these overall aims, specific detail will be provided as follows:

• A historical overview, with forecasts, of manual, automatic and automated transmission usage in passenger cars and light trucks:
  • by country
  • manufacturer
  • vehicle size class
  • model
  • transmission type;

• Production data and forecasts by manufacturer and model including estimates for automatic transmission content;

• Estimates of automatic transmission usage for VMs showing transmission manufacturer, model type and number of speeds;
• An examination of the causal factors associated with transmission choice including cost, performance and availability;

• Forecasts of manual, automatic and automated transmission usage rates by technology to the year 2005 by vehicle class, model and principal transmission technologies to be adopted. Indicative forecasts will be provided to 2010.

CLIENT SPECIFIC ISSUES

It is our normal practice to accommodate a certain amount of client specific research within the project. This comes at no extra charge. Occasionally, the client specific elements will exceed the normal allowance and in these cases an additional amount will be agreed before commencement.

SCOPE

For the purpose of this study, passenger cars include MPVs and sports utility 4x4s. Light Commercial Vehicles include vehicles up to 3.5 tonne GVW.

The registration analysis is to be provided by manufacturer and by model.

The focus of the study will be on the European market, though reference will be made to experience in other major markets.

The production analysis will cover passenger cars and light trucks produced by the leading world manufacturers and will review/forecast the adoption of manual, automatic and automated transmissions for the years 1996-2005 by market, vehicle class and model.
IV METHODOLOGY

The method of approach to this study will follow well proven practice, refined and enhanced where necessary to add value for clients.

HISTORICAL ANALYSIS

Market history will be based on the extensive databases maintained by J.D. Power-LMC as well as by Knibb Gormezano. The sales and production data generated will be adapted to suit the needs of the project but maintained in Microsoft format in order that it can be supplied in electronic format to clients if requested.

Official registration statistics will be used for total market size by model and, where available from official sources, statistics on transmission content will be used. However, in those territories where official statistics are either non-existent or unreliable, the relevant figures will be determined by field research.

DESK RESEARCH

Efforts will be made under this element to capture the latest information on new technologies and performance.

INDUSTRY FIELD RESEARCH

The views of many of the significant vehicle manufacturers, transmission and component manufacturers and technical institutions will be obtained where it is possible to do so subject to co-operation and the need to safeguard intellectual property.

The field interviews will follow a set pattern and be conducted by professional consultants having an intimate and expert knowledge of the topics under discussion.
ANALYSIS AND FORECASTS

The combined results of desk and field research will form the basis of a detailed analysis and provide the foundation for our forecasts. Key factors to be established and weighted include:

- Market history;
- Future plans and manufacturer intentions;
- Technology and economic comparisons including initial cost, residual values, relative fuel consumption;
- Consumer perception and possible influencing factors.
- Environmental issues, legislation, restricted use of vehicles and the emergence of new technology.

FORECASTING METHODOLOGY

For the period up to 2005, forecasts of demand for transmission usage will be based on the results of the previous research coupled with forecasts developed by J.D. Power-LMC of vehicle production, themselves generated from forecasts of vehicle sales, taking account of relevant economic factors and the introduction of new vehicles into the marketplace. Thus, the cyclical behaviour of the market will be considered over this time horizon. For the subsequent time horizon to 2010, a scenario based forecasting methodology will be used combining trend analysis and predictions of potentially disruptive events. This approach is particularly useful for situations where a multiplicity of possible future events can be anticipated but for which occurrence is less than 100 percent certain. The methodology produces a ‘most likely scenario’ with a number of alternatives.
V TIMING, FEES & DELIVERABLES

TIMING

It is anticipated that the study will be completed by the end of the second quarter of 2001 or early next quarter.

FEES

Clients will be charged a fee of

DELIVERABLES

Subscribers to the study will receive:

- Two hard copies of the completed report and four copies of the Executive Summary.
- One set of diskettes or a CD-Rom with the data contained in the study’s tables, provided in the format of choice.

At any time in the six months following receipt of the study, subscribers will also be entitled to:

- A presentation of the study, its findings and recommendations. If the meeting is held elsewhere than at LMC’s or KGP’s offices, charges will be made for direct expenses incurred for travel and subsistence.
- Reasonable telephone access to LMC or KGP staff for clarification or general discussion of the study.
VI QUALIFICATIONS

THE KNIBB, GORMEZANO PARTNERSHIP

Knibb, Gormezano and Partners are an international consultancy partnership specialising in providing services to the world’s automotive industry. Partners and associates have established records in consultancy and have completed numerous assignments for a wide range of international clients. These include:

- Automotive Products: Nomura
- Aisin AW: Nissan
- BMW: Perkins
- Chrysler: Pirelli
- Fiat: PSA
- Ford: Rockwell
- General Motors: Scania
- GKN: Teksid
- Iveco: Toyota
- Lucas: TRW
- Marubeni: Valeo
- Mazda: Volvo
- Mercedes: United Technologies

The client base is supported from offices in Derby in the UK, with consultants and associates in other European countries, the USA and Japan.

The principal partners and associates have held senior positions in the automotive industry and gained extensive first hand experience of the European, North American and Far Eastern automotive sectors.
SERVICES AND INDUSTRIES

The type of assignments undertaken cover a wide range but can be divided into three main areas:

Product & Market

- Industrial Market Research & Forecasting;
- Market Structure and Share Analysis;
- Competitor Profiles;
- Strategy Development (Product, Market, Sourcing);
- Licensing & Technology Transfer;
- Joint Venture & Acquisition Searches and Assessments.

Logistics and Distribution

- Dealer Network and Depot Development;
- Distribution Strategy;
- Transportation and Fleet Management.

Operations

- Operations Diagnostics;
- Quality Management;
- Operational Cost Analysis;
- Manufacturing Strategy and Site Location;
- Management Information Systems;
- Manufacturing and Industrial Engineering.
Industries

In the automotive and related industries Knibb, Gormezano & Partners can claim experience of:

- Cars;
- Commercial Vehicles and Buses;
- Off-highway and Industrial Vehicles;
- Tractors and other Agricultural Vehicles;
- Rail Vehicles and Related Equipment;
- Trailers and Bodies;
- Engines;
- Transmissions;
- Components;
- Advanced Vehicle Systems;
- OE Supply;
- Aftermarket;
- Electronics;
- Transportation Economics;
- Engineering and Technical Services;
- Industry Wide Research and Development;
- Government legislation processes concerning taxation, trade, safety and environmental matters.
J.D. Power-LMC Automotive Forecasting Services

J.D. Power-LMC Automotive Forecasting Services (J.D. Power-LMC) is an alliance, formed in 1996, between those divisions of J.D. Power & Associates and LMC International Ltd which provide automotive consultancy and forecasting services. The alliance specialises in the provision of detailed economic and market information on the world’s automotive industry.

J.D. Power-LMC draws on its experience and expertise in research, analysis and forecasting to offer information and consulting services essential to understanding the current state of the global industry and how it is likely to evolve. Today, the alliance is a major supplier of automotive data, analyses and forecasts. It boasts an extensive client list comprising the major vehicle manufacturers, component suppliers and other organisations connected with the automotive industry. These include:

American Axle  Borg Warner
Calsonic International Europe  Corus plc
Dayco PTI SpA  Denso
Federal Mogul  Ford of Europe Inc
GKN Automotive Ltd  GM Adam Opel AG
ITT Automotive  Johnson Controls
Lear Corporation  Magna
MascoTech  Meritor
Sekurit Saint-Gobain  SKF
Timken  Torrington Company

J.D. Power-LMC’s expertise in the automotive industry and the quality of its services has earned it an unrivalled reputation. In a rapidly changing and globalising marketplace, the information and consulting services that the Alliance provides offer an essential input for future success.
To order a report please complete the form below or for faster service and general enquiries phone Darren Brindley direct on +44 (0)1386 383085.

- Please complete your personal details

<table>
<thead>
<tr>
<th>Report</th>
<th>Qty</th>
<th>Unit price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission Trends in Passenger Cars &amp; Light Commercial Vehicles in Europe:</td>
<td>1</td>
<td>£15,500.00</td>
<td>£15,500.00</td>
</tr>
</tbody>
</table>

- How would you like to pay? Please complete the details below.

<table>
<thead>
<tr>
<th>Payment details</th>
<th>Credit card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheque</td>
<td></td>
</tr>
<tr>
<td>I enclose a cheque for £………………... payable to just-sites.com ltd</td>
<td></td>
</tr>
<tr>
<td>Customers can pay by cheque with either of the following methods</td>
<td></td>
</tr>
<tr>
<td>- Sterling cheques drawn on a UK bank</td>
<td></td>
</tr>
<tr>
<td>- Cheques in Euros or in any freely convertible currency drawn in the country of origin at current exchange rates</td>
<td></td>
</tr>
<tr>
<td>Proforma invoice</td>
<td>Credit card holders address (if different from the customer address above)</td>
</tr>
<tr>
<td>Please send me a proforma invoice:</td>
<td>Yes No</td>
</tr>
<tr>
<td>Report(s) will be sent on receipt of payment</td>
<td></td>
</tr>
</tbody>
</table>

- just-sites.com details

<table>
<thead>
<tr>
<th>Research Update</th>
<th>just-sites.com contact details</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can now keep up-to-date with the latest market reports and other information specific to your industry by subscribing to our free &quot;Research Update&quot;. Please send me further communications</td>
<td>just-sites.com ltd</td>
</tr>
<tr>
<td>For faster service call or buy online at</td>
<td>3 Vale Park Business Centre</td>
</tr>
<tr>
<td>+44 (0)1386 383085</td>
<td>Evesham</td>
</tr>
<tr>
<td><a href="http://www.just-sites.com/store">www.just-sites.com/store</a></td>
<td>Worcestershire</td>
</tr>
<tr>
<td>WR11 6GN</td>
<td>UK</td>
</tr>
<tr>
<td>t: +44 (0)1386 383085</td>
<td>f: +44 (0)1386 47073</td>
</tr>
</tbody>
</table>