# Executive Summary

## Introduction

3

## Definitions

3

## Functionality (front seats only)

3

## Technology (front seats only)

3

## Global Market Overview

3

- Global
- Europe

Key trends and developments in light vehicle seating

7

## Seats show an increase in value-added features

7

- Sourcing patterns for the key seat components have also changed in recent years
- Comfort and safety remain the most important features for the consumer
- Light weight materials are the focus of much of the innovation in today’s seat systems
- Material innovations focus on environmentally friendly and recyclable materials

## Interview

10

Andreas Maashoff, Director Industrial Design and Craftsmanship and Consumer and Market Research, Johnson Controls

## Trends & Developments

13

### Seat Design

13

- Johnson Controls Synergy Seat Gen 3
- Head restraint with integrated actuators
- Armrest modules allow greater customization
- Magna’s FutureForm thin seat
- Faurecia’s “one-touch” technology
- Faurecia Oasis Seat
- Sculptured seat covers: ‘The cover shapes the seat’
- Sculpted light seatback panels
- Seating trim and fabrics use innovative coatings, materials and trim
- Anthropometric adjustment
- Lumbar support technology
- GPS-directed comfort
- Smart seat control allows automatic seat pre-adjustment based on occupant size
- Magna develops the Sedan Slouch concept
- Johnson Controls’ Second Row Lounge seat
- Heated armrests
- Ford’s “Smart” seat technology for heart monitoring
- Thermal-loss reducing seats
- Seat frames for global platforms

Recycled materials

21

---

© 2014 IHS. No portion of this report may be reproduced, reused, or otherwise distributed in any form without prior written consent, with the exception of any internal client distribution as may be permitted in the license agreement between client and IHS. Content reproduced or redistributed with IHS permission must display IHS legal notices and attributions of authorship. The information contained herein is from sources considered reliable but its accuracy and completeness are not warranted, nor are the opinions and analyses which are based upon it, and to the extent permitted by law, IHS shall not be liable for any errors or omissions or any loss, damage or expense incurred by reliance on information or any statement contained herein. For more information, please contact IHS at customercare@ihs.com, +1 800 IHS CARE (from North American locations), or +44 (0) 1344 328 300 (from outside North America). All products, company names or other marks appearing in this publication are the trademarks and property of IHS or their respective owners.
Usage of recycled materials gather momentum ................................................................. 21
Ford Case Study ................................................................................................................... 21
  Ford’s usage of recycled materials in visible interior applications is increasing ........... 21

New Materials .................................................................................................................... 25
Demand for lower volatile organic compound (VOC) materials rapidly increasing .......... 25
  TDI High Resiliency seat foam ......................................................................................... 25
  Next generation trim covers from Johnson Controls offer comfort and customization options .................................................................................................................. 26
  Lear has also been working on next generation seat fabrics ......................................... 26
  Lightweight seat frames and structures ......................................................................... 27
  Faurecia supplied lightweight seats to the Volkswagen up! ........................................ 27
  Johnson Controls forms partnership for future technology for lightweight construction project ............................................................................................................. 28
Green materials ................................................................................................................ 28
  Ford’s green armrests ....................................................................................................... 28
  Faurecia develops hemp-based materials ....................................................................... 28
  Toyota Boshoku, Toyota’s seat supplier has developed plant-derived seat cushions ...... 29

Vehicle company seat developments ................................................................................ 30
Introduction ......................................................................................................................... 30
  Audi .................................................................................................................................. 30
  BMW ................................................................................................................................. 30
  Mercedes ......................................................................................................................... 30
  Others .............................................................................................................................. 32
  Volvo XC90 seats ............................................................................................................. 34
It is apparent that the car companies have changed their thinking with regard to the sourcing of seating systems. Whereas in the past they would source the whole seat system from one supplier, they are now looking to source the main components such as frames, foam, seat motors and others, for all the models across their range, from one supplier. There are significant economies of scale to be had in sourcing this way and accordingly big savings are being made for the seat system as a whole. According to industry sources the majority of vehicle manufacturers now operate in this way with typically two to five or six seat frames at most across their entire light vehicle range.

**Comfort and safety remain the most important features for the consumer.**

Overall comfort and safety considerations continue to dominate consumer thinking when considering car seating systems. Measuring and delivering seat comfort whilst meeting the ever-increasing demand for functionality and safety continues to pose a major challenge to both the car companies and their suppliers. This is particularly true at a time when the car companies are looking to take weight out of the vehicle to meet stringent emissions requirements and light-weighting is increasingly seen as the holy grail. Car seating systems typically account for 5% of the vehicles total cost and 6% of its weight. Innovations in terms of functionality and safety need to take this into account and in response we are seeing far greater use of light weight seat structures and components. New materials such as composites, aluminium and magnesium are playing a role here as is the use of lighter materials and fabrics. For example, in the new Mercedes S-Class the front seats are said to be 20kg lighter, mainly due to a new steel and plastic construction method.

**Light weight materials are the focus of much of the innovation in today’s seat systems**

As already noted, innovations to reduce weight in both materials and manufacturing processes for the major seat components are being driven by the vehicle manufacturer’s need to reduce overall vehicle weight in an effort to meet requirements for reduced carbon emissions.

All this comes at a time when the desire for integrating technology into the seat system and for developing new and “Smart” materials for seat design is ever more apparent. Seating suppliers are responding by re-designing the seat and its key components to make them both smaller and lighter. Interior weight savings are part of the key design principles and all the major suppliers are working on new innovations and materials. JCI has invested in new slim seats combining composite materials with traditional steels and aluminium, to reduce overall weight. It has also developed a range of seating mechanisms that are considerably lighter than those used previously and has re-designed the height, length and tilt of the seat to simplify the system and reduce weight at the same time. Faurecia claims that composites pave the way for weight saving innovations and using carbon-fibre composites can produce weight savings of 50% compared with steel.

Vertical integration by the seat suppliers to include mechanisms integration is seen as a major competitive advantage by companies such as JCI and Faurecia. Both these suppliers have been making infill acquisitions in recent years to consolidate their market position in this respect. They have also been developing technology in-house to satisfy the increasing integration of components like actuators, which are starting to be integrated into the seat system. JCI has done just this for its head restraints with integrated actuators. Developed in-house the actuators are extremely quiet which was a key consideration for the developers.

Lear is also working to take weight out of its seats and one area of particular note can be seen in its seat foam technology. In a recent innovation Lear claims that its Dynamic Environmental Comfort Systems offer weight reductions of 30% – 40%, as compared to current foam seat designs. Furthermore an additional benefit is offered through the use of environmentally friendly materials, which reduce carbon dioxide emissions. Other companies are also actively engaged in the quest for weight reduction.

**Material innovations focus on environmentally friendly and recyclable materials**

The industry has been using eco friendly seating materials for some years, particularly in the area of seat padding and foams. As we saw in the previous report, Ford has been investing significant sums into recyclable materials. It has increased the use of recycled yarns from near zero in 2007 to around 65% of its vehicle programmes in 2013. Today, Ford uses some 41 fabrics across 15 vehicle programmes with varying levels of recycled content. See the table in section – – – of this report.

The market has also witnessed a rapid growth in demand for lower volatile compound (VOC) materials. Seat suppliers
have been developing new types of foam, for example Faurecia with its new TDI (Toluene Diisocyanate) foam pad for seats eliminates 90% of volatile amines emissions. All the major seating and foam suppliers are working on similar developments.

Vertical integration is also apparent in the materials used in seat manufacture.

For example, Faurecia sees significant growth potential in the vertical integration of seat covers and accessories. The use of leather has been increasing in the past few years and a number of acquisitions of large and small, specialist leather suppliers has been a feature of the market.

In August, 2014, Lear signed an agreement to acquire Eagle Ottawa, the world’s leading supplier of automotive leather. Matt Simoncini, Lear’s President and CEO commenting on the acquisition said at the time “The acquisition of Eagle Ottawa is another important step in strengthening our core seating business, expanding our component capabilities and accelerating growth” With annual sales of around US$ 1 bn, Eagle Ottawa is a sizeable acquisition for Lear but it complements its existing seat fabric and cut and sew operations and offers savings in terms of combining design, product development and manufacturing capabilities in leather and fabric.