

Let's Build a Smarter Planet: Automotive



The world is smaller and flatter.

The reality of living in a globally integrated world is upon us.

- Economic downturn and increased industry upheaval.
- Empowered consumers with rising product/service expectations.
- Complex and globally dispersed operations.
- Vehicles becoming digitally connected.
- Increasing awareness and regulation regarding sustainability.
- Growing role of emerging economies and markets.

The world is connected:
economically, socially and technically.

The need for progress is clear.

37
million

Metric tons of CO₂ emissions from vehicles in the U.S. each year.

\$120
billion

Annual cost of congested roadways in the form of lost hours and wasted gas in Japan alone.

\$13
billion

Cost of U.S.-based automotive warranty claims in 2008.

The opportunity for progress is clear.

50% improvement in fuel efficiency

Sustainable vehicles:
Global supplier

A global supplier recently developed a new hybrid hydraulic system—which promises dramatic fuel savings and environmental benefits—to replace the conventional drivetrain and transmission.

20% less traffic

Traffic system:
Stockholm, Sweden

The city cut traffic by 20%, lowered emissions by 12% and reported 40,000 additional daily users of public transportation.

90% reduction in vehicle misdiagnosis

Efficient enterprise:
European OEM

IBM and a European OEM implemented a new diagnostic system combining symptom probability with code analysis. Warranty costs were reduced significantly, while customer satisfaction increased—because 90% of vehicle failures are diagnosed in a first-pass analysis in less than 15 minutes.

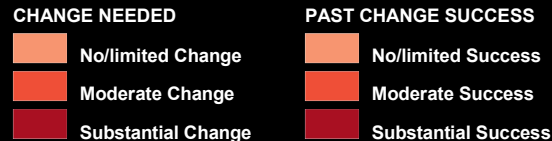
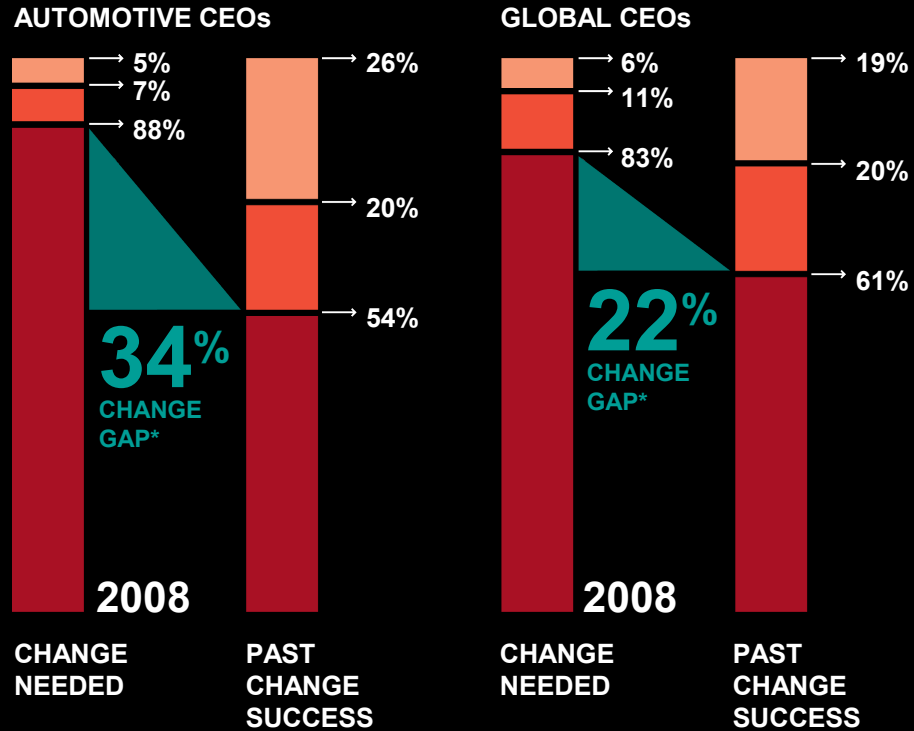
Substantial change is a forgone conclusion and demands new ways of operating.

9 in 10

Automotive CEOs anticipate turbulent change and bold moves.

50%

Greater change gap in the automotive industry than in industries overall.



For automotive companies, this means adapting to key market challenges...

SOPHISTICATED CONSUMERS

...are informed and environmentally conscious, and are looking for new mobility and ownership models.

THE SUSTAINABLE, INTELLIGENT VEHICLE

...will be safer, environmentally responsible and more connected, and will enhance the driver's experience.

DYNAMIC OPERATIONS

...will require new strategies for growth, flexibility, workforces and defining "core" businesses.

THE INTEGRATED ENTERPRISE

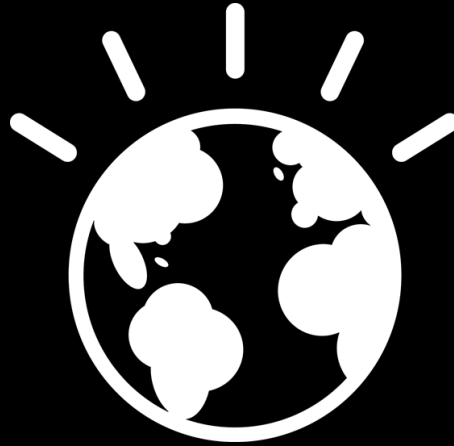
...will focus on redeveloping company culture and operations, improving brand image and attracting talent.

AN INTERDEPENDENT ECOSYSTEM

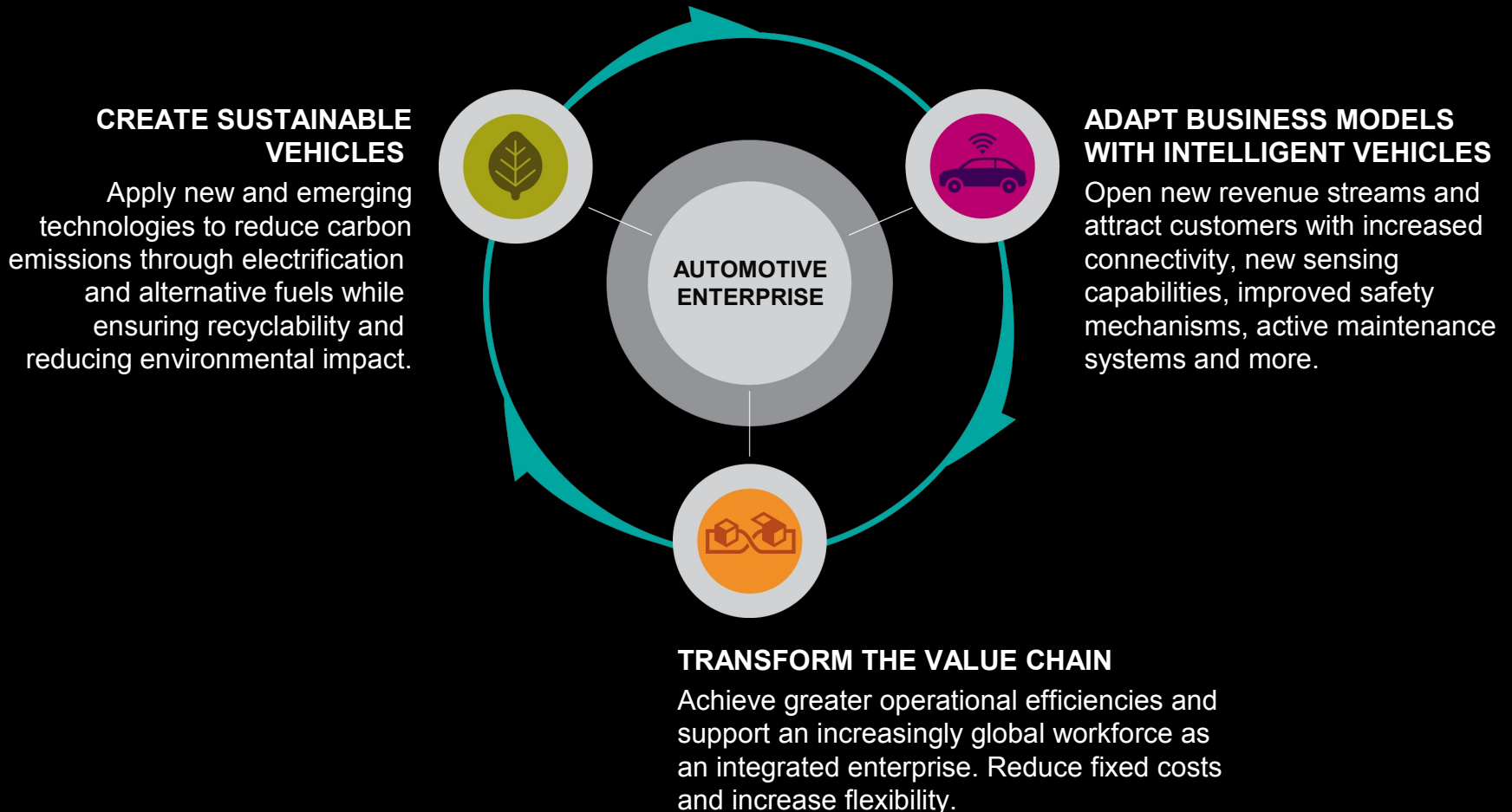
...will be formed through greater collaboration between the automotive industry and external entities.

...while navigating an increasingly complex regulatory environment and unprecedented global downturn in vehicle sales.

This mandate for change is a mandate for smart.



To meet the demands of today's consumers, smart automotive enterprises are driving an interdependent ecosystem that will...



They are doing so by becoming
instrumented, interconnected and intelligent.

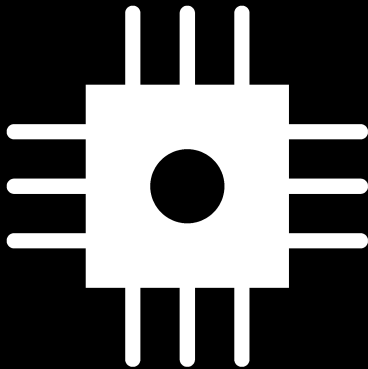
INSTRUMENTED

We now have the ability to measure, sense and see the exact condition of everything.

Today there are over 1 billion transistors for each person on the planet.

By 2010, 30 billion RFID tags will be embedded into our daily life, communicating across entire ecosystems.

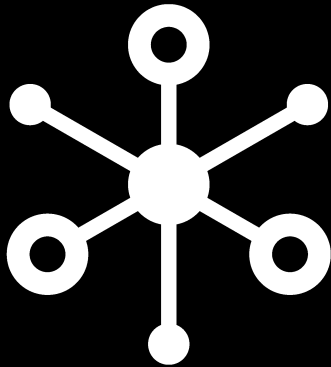
By 2010, 12% of new cars will ship with embedded telematics.



A smart automotive enterprise will be able to monitor and maintain the integrity of its supply chain while creating vehicles that can measure their own health and sense their surroundings.

INTERCONNECTED

People, systems and objects can communicate and interact with each other in entirely new ways.



The Internet is now over 1 billion people strong. By 2011, one third of the world's population will be on the Web.

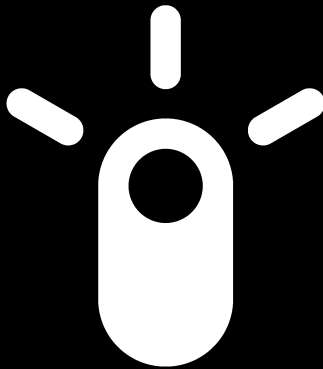
There are an estimated 4 billion mobile phone subscribers worldwide.

Over 3 million car navigation devices were sold in China in 2008, more than double the amount in 2007.

A smart automotive enterprise applies a host of sophisticated devices to connect consumers and vehicles to a broader transportation system that encompasses roadways, energy sources, governments and more.

INTELLIGENT

We can respond to changes quickly and accurately, and get better results by predicting and optimizing for future events.

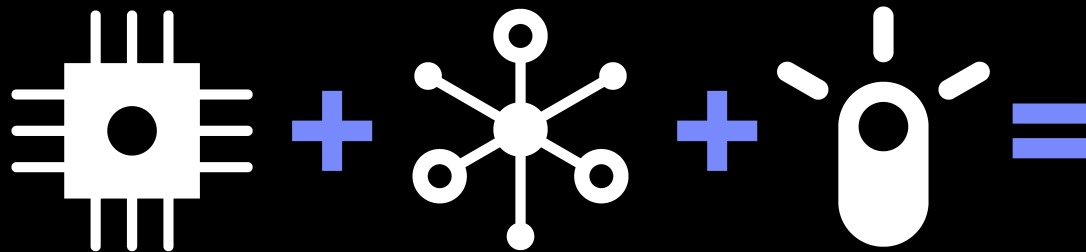


An average company of 1,000 employees spends \$5.3 million a year to find information stored on its servers.

Every day, 15 petabytes of new information are generated—more than 8 times the information in all U.S. libraries.

The market for Advanced Driver Assistance Systems is estimated to reach 143 million Euros by 2015.

A smart automotive enterprise will enable the transformation of raw data into critical insight—producing vehicles that self-heal and respond to their immediate environments in real time.



An opportunity for automotive enterprises to think and act in new ways.

Create sustainable vehicles.

Adapt business models with intelligent vehicles.

Transform the value chain.

Smart automotive: Creating sustainable vehicles.

SMART IS

Creating advanced software for intelligent control and power management in electric vehicles and hybrid powertrains.

SMART IS

Collaborating across industries to develop an ecosystem that will enable widespread electric vehicle usage.

Smart automotive: Creating sustainable vehicles.



Global supplier: Developed new fuel-saving transmission component using software modeling and code generation tools to speed development and improve quality and safety.



European collaboration project: Developing an intelligent infrastructure that will make possible the large scale adoption of electric vehicles powered by sustainable energy.

Smart automotive:

Adapting business models with intelligent vehicles.

SMART IS

Leveraging massive amounts of data to offer high-quality services to drivers.

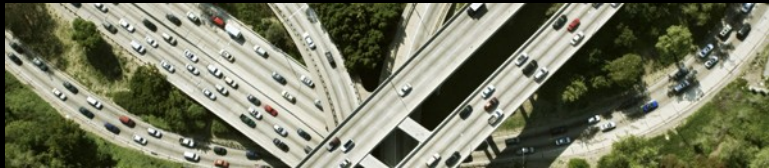
SMART IS

Bringing the power of connectivity into the vehicle to help find parking, avoid traffic jams and locate convenient services tailored to user preferences.

SMART IS

Integrating with intelligent traffic systems to support congestion management and carbon reduction initiatives.

Smart automotive: Adapting business models with intelligent vehicles.



Intelligent Driving Services Provider: Collects information from a multitude of sources all the time, including thousands of static sites, number plate recognition cameras, and 80,000 of their customers' black boxes, providing real time information on what's happening on the roads.



Fleetboard: Equipped fleet with telematics units reducing operating costs ~5% through reduced fuel consumption, increased availability, lower labor charges and more.



Stockholm, Sweden: An intelligent toll system in the city center resulted in 20% less traffic, 40% lower emissions and 40,000 additional users of the public transportation system.

Smart automotive: Transforming the value chain.

SMART IS

Using advanced analytics and real-time tracking to integrate logistics across the value chain.

SMART IS

Managing material flow through the factory in real time to support just-in-time manufacturing.

SMART IS

Creating better service tools to diagnose problems correctly the first time or to predict failures before they occur.

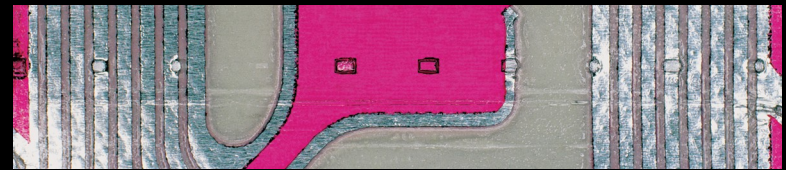
SMART IS

Precisely identifying vehicles or subassemblies containing defective parts to enable more “surgical” recalls.

Smart automotive: Transforming the value chain.



Automotive OEM: Implemented RFID reusable container management system to increase supply chain visibility and efficiency.



Honda Italia: Implemented RFID Work in Progress tracking solution to improve production efficiency and quality.

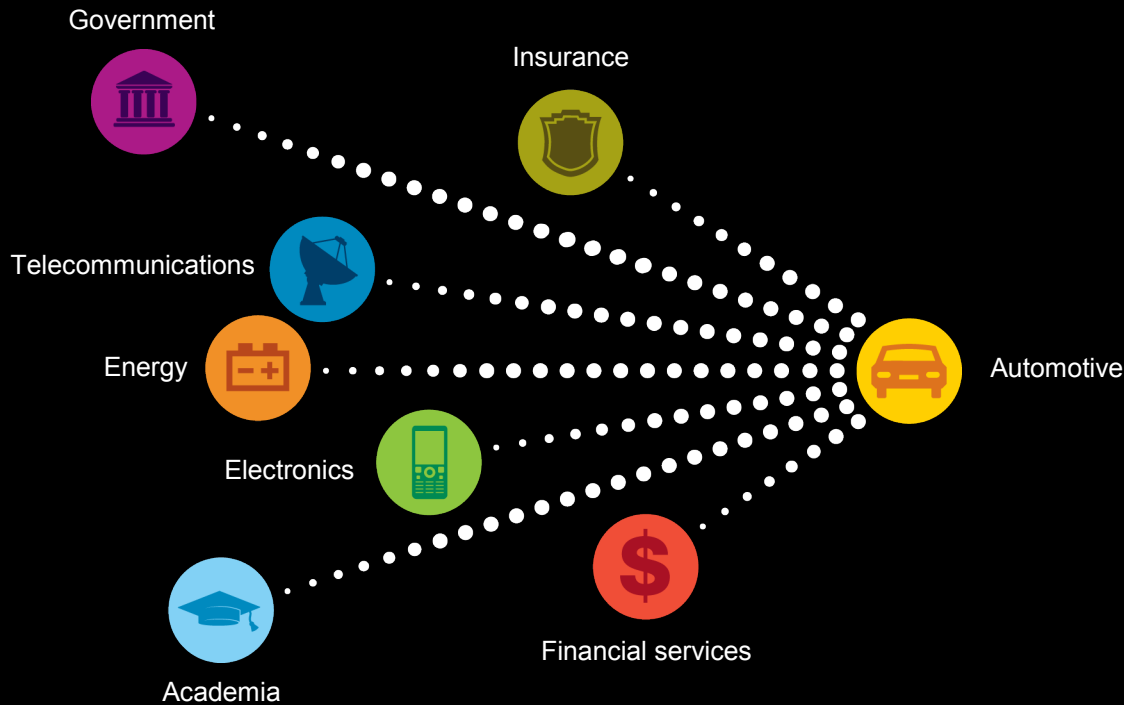


Automotive OEM: Implemented advance diagnostic system that reduced dealer misdiagnosis by more than 90% and dealer diagnostics time from 1 hour to 15 minutes.

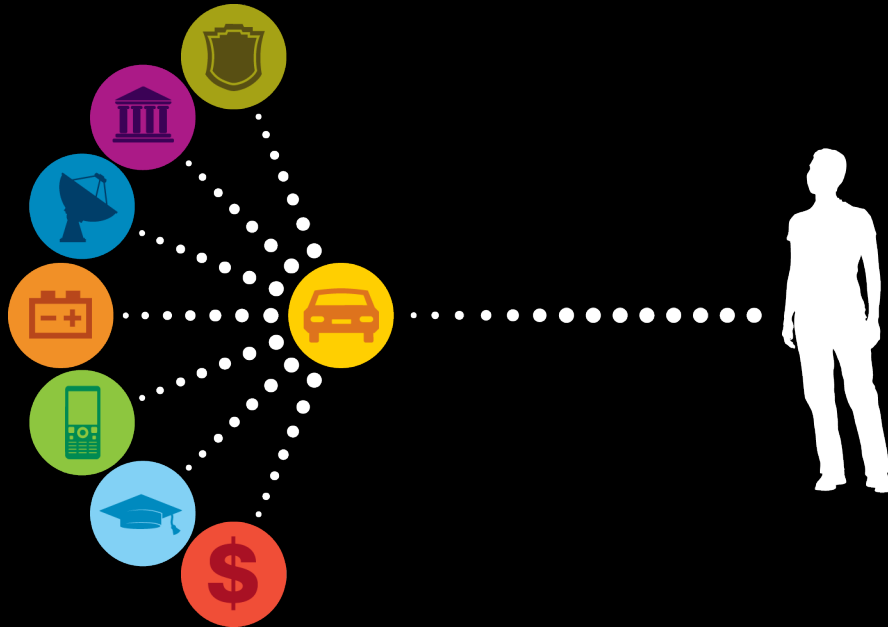


Landmarks: Implemented an open, secure parts tracking solution that enables parts traceability at all levels of the supply chain allowing more precisely targeted recalls.

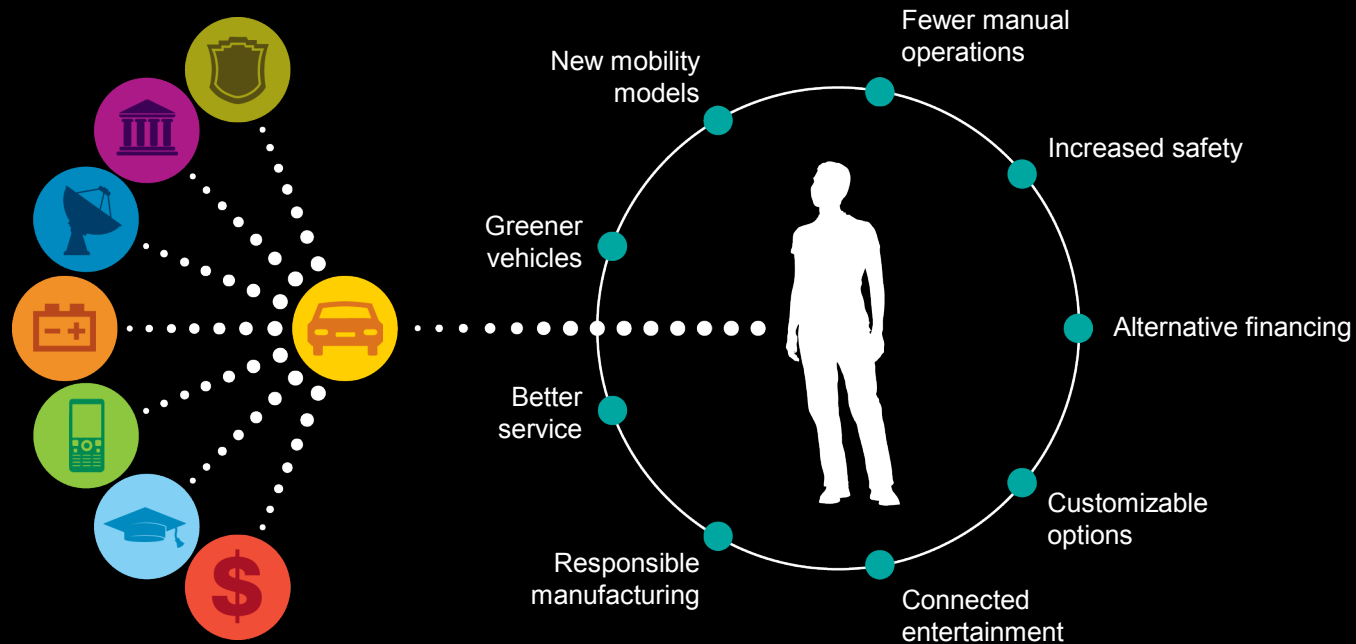
Traditionally, automotive enterprises have partnered with related industries and entities to varying degrees.



Today's smart automotive enterprise deepens these partnerships to drive new insights and capabilities—and connects this collaborative ecosystem directly to the consumer.



The result? A unique ability to deliver new value and improved lifestyle experiences that meet consumers' evolving needs.



Why must we take action now?

DEMAND FOR INNOVATION

The automotive industry must respond to increasing demands for environmental accountability and use the technology at its disposal to transform the way it develops products and goes to market.

THE THREAT OF COMMODITIZATION

With consumers' wants and needs evolving at an exponential rate, basic transportation will no longer suffice as consumers look for a comprehensive, value-focused mobility experience.

COMPETITION TO CAPTURE MARKET SHARE

Current market turmoil is creating opportunities for automakers to gain share and build key capabilities through strategic acquisitions, partnerships, new transportation services, integrated business models and globalization.

NEED FOR OPERATIONAL EFFICIENCIES

Greater flexibility in operations and processes will be increasingly critical to successfully compete on a global scale.

IBM's solution strategy is aligned with the needs of the automotive industry.

AUTO ENTERPRISES ARE FOCUSED ON...

Product development

Supply chain and production

Channel management

Captive finance operations

Warranty and service

Telematics

IBM IS INVESTING IN...

Automotive systems and software delivery platform
 Global delivery for joint software development centers
 Product development integration framework
 PLM implementation and value realization
 Complex controller simulation

Global distribution network optimization / inventory optimization
 Supply chain performance
 RFID solutions
 Manufacturing integration framework
 Enterprise Asset Management

Plant launch services
 Dealer operations management
 Sales order and planning

Advanced automotive banking
 Customer retention and OEM integration
 Regulatory reporting and risk management

Vehicle prognostics and diagnostics
 Warranty analytics
 Global warranty claims processing
 Spare parts management

Planning
 Secure Infrastructure
 Service Management



We've only just begun to uncover what is possible on a smarter planet.

The world will continue to become smaller, flatter and smarter. We are moving into the age of the globally integrated and intelligent economy, society and planet.

To thrive on a smarter planet, we need a smarter automotive industry that supports a profitable and growing value chain. There's no better time to start building. And there's no better time to invest in creating the kind of industry we all need.

Let's work together to drive real progress in our world.

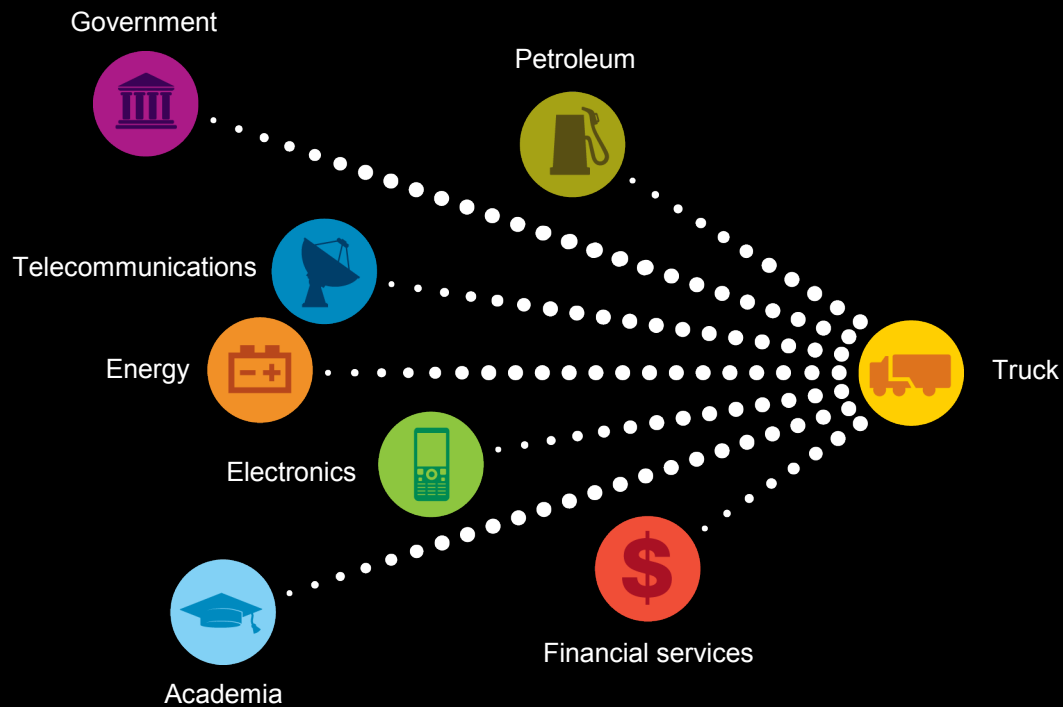
APPENDIX

*This set of slides may
be substitute to tailor
graphics for the heavy
truck segment*

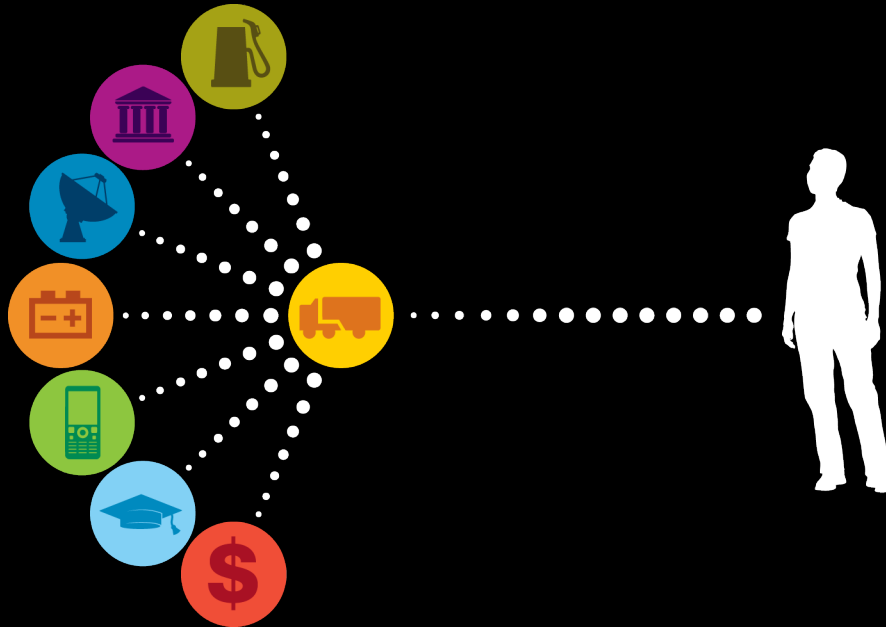
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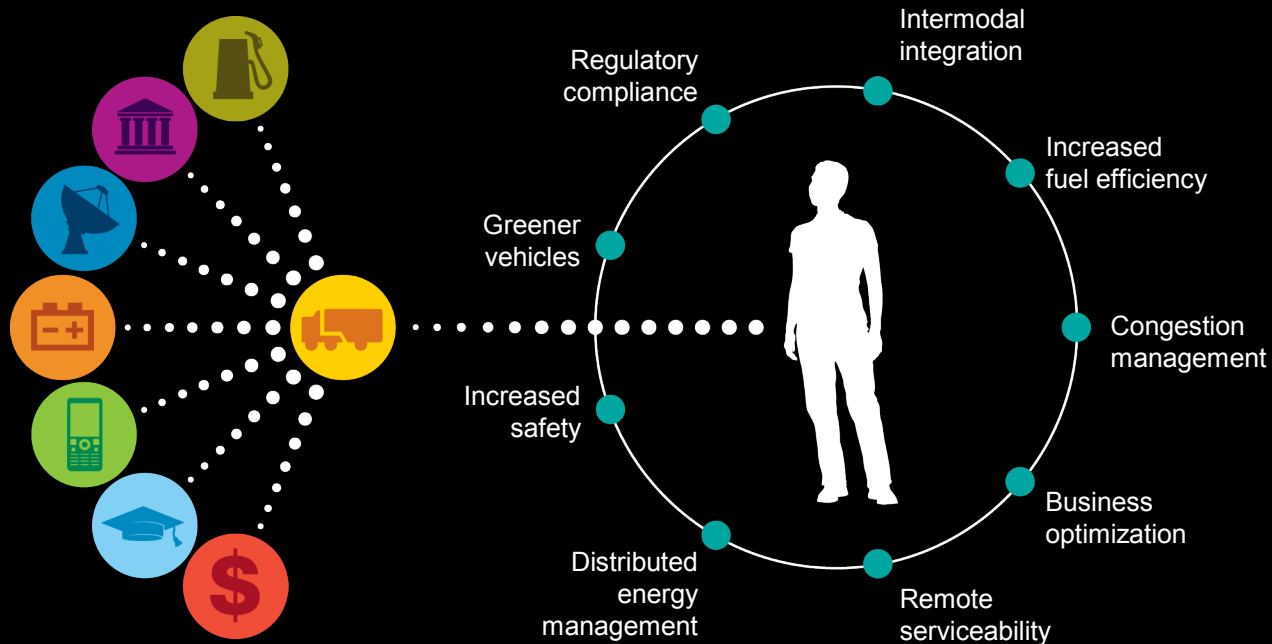
Traditionally, truck enterprises have partnered with related industries and entities to varying degrees.



Today's smart truck enterprise deepens these partnerships to drive new insights and capabilities—and connects this collaborative ecosystem directly to the customer.



The result? A unique ability to deliver new value and productivity experiences that meet customers' evolving needs.



**Let's look at business challenges in new ways.
Let's build a smarter planet together.**



IBM