



Turbulence ahead

What aerospace can learn
from the automotive sector



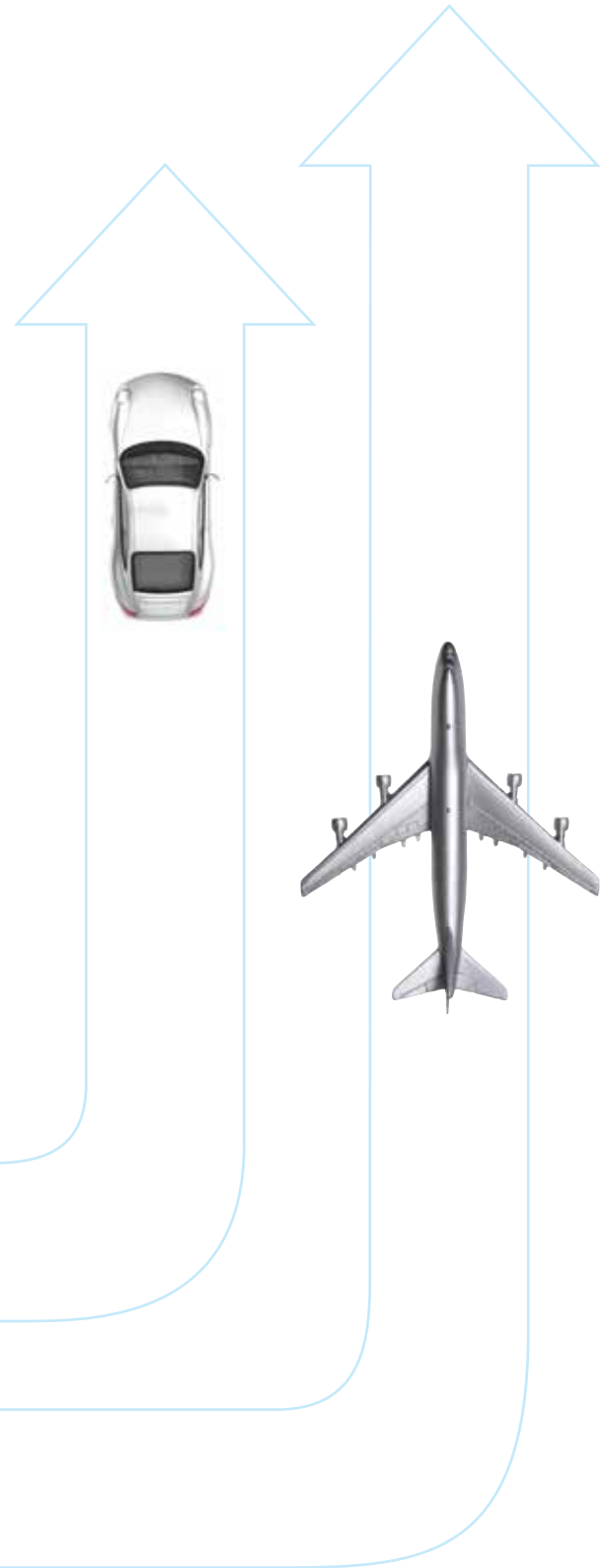
Aerospace companies in Canada and around the world find themselves facing strong headwinds and heavy weather. Lucrative defence contracts are disappearing as governments cut military spending and fuel and commodity prices remain high. The major manufacturers are demanding more from their suppliers, including cost reductions. Traditional markets are stagnating as growth opportunities shift to Asia-Pacific and Latin America. The business environment is changing quickly, and companies that fail to adapt – by diversifying or entrenching their position – may be permanently grounded.

Fortunately, aerospace companies don't have to fly blind in these unfamiliar, turbulent conditions – the global automotive sector has encountered similar challenges in recent years. By understanding how the automotive industry has changed in response to its challenges, aerospace firms can gain insight into how their sector will likely evolve. And by exploring how automotive firms have adapted to a harsher, more demanding business environment, aerospace companies can better develop their own responses.

Aerospace and automotive: On parallel paths

The aerospace and automotive sectors have a great deal in common. Aerospace and automotive products are highly complex, requiring significant capability in engineering, manufacturing and supply chain management. In each sector, these products can be broken down into a series of modules, systems and subassemblies. In both aerospace and automotive, a small number of original equipment manufacturers (OEMs) rely on a larger pool of suppliers at various tiers to produce those modules, systems and subassemblies: parts manufacturers, system integrators, subassembly providers and other companies.

With such parallels in the structure of the aerospace and automotive industries, it's not surprising to find that major industry and market shifts and economic changes affect them in similar ways. Markets wax and wane, innovations transform common practices, regulations take hold and more. The automotive sector tends to feel the impact first – yet inevitably, aerospace companies confront the same challenges down the road.



Looking back to see ahead

To understand where aerospace is headed it is worth looking at where the automotive sector has already been. The 2008 financial crisis magnified existing cracks in the automotive industry and forced key stakeholders to respond to the market shock. There are lessons to be learned from their experience.

Attention and operations shift to emerging markets

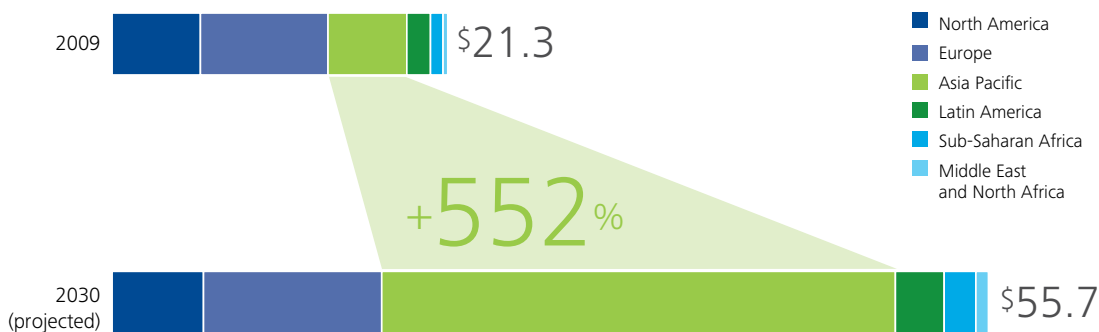
With the Western automotive market stagnating, automotive manufacturers and top-tier suppliers turned their attention to fast-growing markets in Asia-Pacific and other emerging markets. An expanding middle class has propelled growth in these markets, a trend unlikely to change soon. The OECD has estimated that middle-class consumer spending in the Asia-Pacific region will increase almost six-fold between 2009 and 2030. In response, automotive OEMs and suppliers are focusing resources and operations on these markets in order to better respond to new opportunities.

Aerospace firms now find themselves making similar shifts in operations in response to rapidly growing commercial demand in Asia-Pacific, Latin America and other emerging markets: Asia-Pacific regional traffic alone is growing three times as quickly as North American traffic.

It is not only commercial demand that is rising in emerging markets: military spending is up as well. Defence spending has long been a cornerstone of the aerospace industry, yet Western military budgets are shrinking as governments focus on keeping post-crisis, post-war deficits and budgets under control. Rising defence spending in emerging markets is unlikely to replace the revenue lost to Western cuts, which could leave many aerospace firms in a difficult position.

With Western markets stagnating, firms will turn to developing markets for growth

Middle-class consumer spending in US\$ trillions



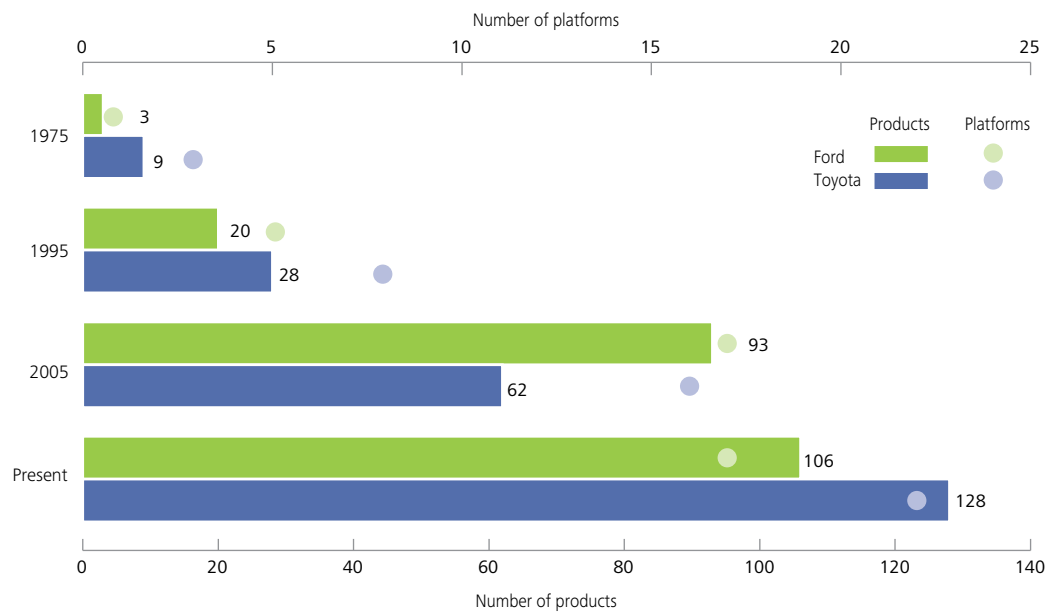
Source: OECD (figures at purchasing power parity)

Standardization drives flexibility and success

The automotive industry has embraced a form of standardized product platform manufacturing since before the 1970s: flexible chassis systems that can be used as the basis for a variety of product models. This widely adopted innovation has helped reduce engineering costs, simplify manufacturing processes and improve product quality. For example, in 2005, both Ford and Toyota used over 15 different standardized product platforms to form the basis of multiple product offerings – today that figure is much higher. The use of standardized platforms has played an instrumental role in automotive manufacturers’ success in recent years, by enabling them to achieve significant economies of scale.

The trend towards more flexible, modular systems and designs is growing more pronounced in the aerospace sector, driven by the need to cut costs, preserve margins, improve fuel efficiency and respond more nimbly to market needs. Today, aerospace OEMs are using the same engines in multiple models and standardizing avionics and flight systems. They are repurposing legacy models and older fuselages to create more fuel-efficient aircraft, and offering flexible seating configurations to suit the needs of different markets.

Flexible platforms: A key driver of success in the automotive industry over the past 40 years



Regulatory changes create opportunities – and increase need for R&D investment

Two decades of regulatory changes worldwide – primarily aimed at lowering emissions and improving fuel economy – have pushed the global automotive sector towards green technologies. This has created new opportunities for automotive manufacturers and their suppliers, but realizing those opportunities has required significant investments in research and development.

Similar regulations are now coming into force for the aerospace industry. These new rules will compel aerospace firms to ramp up their R&D efforts to improve fuel efficiency and emissions in order to stay competitive and relevant in the years to come. Suppliers that can develop innovative products that can reduce weight, improve fuel efficiency and cut emissions are well positioned to succeed.

Regulatory change driving automotive and aerospace companies to pursue green technology, invest more in R&D

Regulations in the automotive market

1992 EU introduces emission standards for cars and light commercial vehicles.	1994 California introduces Tier 1 automotive emissions standards.	1997 First hybrid vehicles from Toyota available for sale. Ford and GM release models in 2004 and 2006.	2000 China introduces EU equivalent emissions standards. Upgrades introduced in 2004 and 2007.	2010 Quebec adopts California's car emission standards.
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Regulations in the aerospace market

2008 Cost of oil hits all-time high >USD125/bbl.	2012 Aviation emissions are included within the EU Emissions Trading Scheme.	2012 US FAA puts together a plan to replace leaded avgas with an unleaded alternative within 11 years.	2012/2013 EIS (Entry into service) of fuel efficient aircraft, featuring composite materials, noise abatement and reduced fuel consumption.	2020-2050 IATA goal is to cap emissions at 2020 levels and reduce 2050 emissions levels by 50% on 2005 levels.
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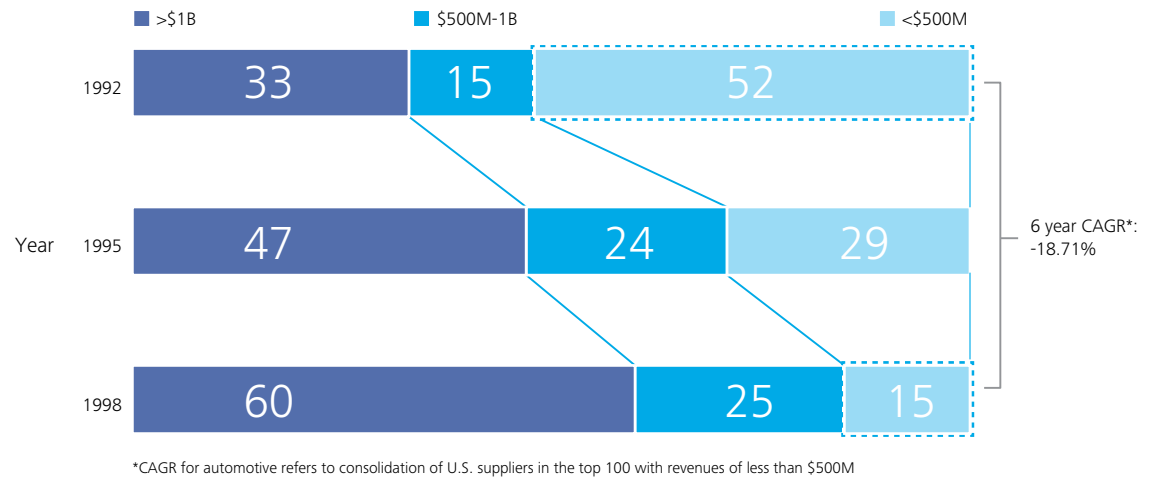
The “great consolidation”

The automotive supplier base has undergone an extraordinary transformation over the past 30 years. In 1986, there were more than 30,000 automotive suppliers in business. By 2003, there were around 5,000. The 1990s were the most aggressive period of the “great consolidation”: between 1992 and 1998, automotive supplier numbers shrank nearly 19 percent per year.

Automotive OEMs’ embrace of standardized platforms, systems and modules was a key driver of the sector’s consolidation. This shift in thinking enabled automotive manufacturers to reduce the number of suppliers they had to deal with. At the same time, OEMs began to transfer responsibility – and risk – for design, engineering, R&D and purchasing from themselves to their suppliers.

Consolidation among automotive suppliers grew steadily since 2000 and peaked during 2008 financial crisis. Raw material prices were rising. Suppliers’ R&D costs were increasing as more and more design responsibility was pushed down to them. Automotive manufacturers demanded steady improvement efforts from suppliers – often taking the form of annual price reduction. And then gas prices spiked, sending automotive sales tumbling. Consolidation offered a way for many automotive suppliers to survive, in some form.

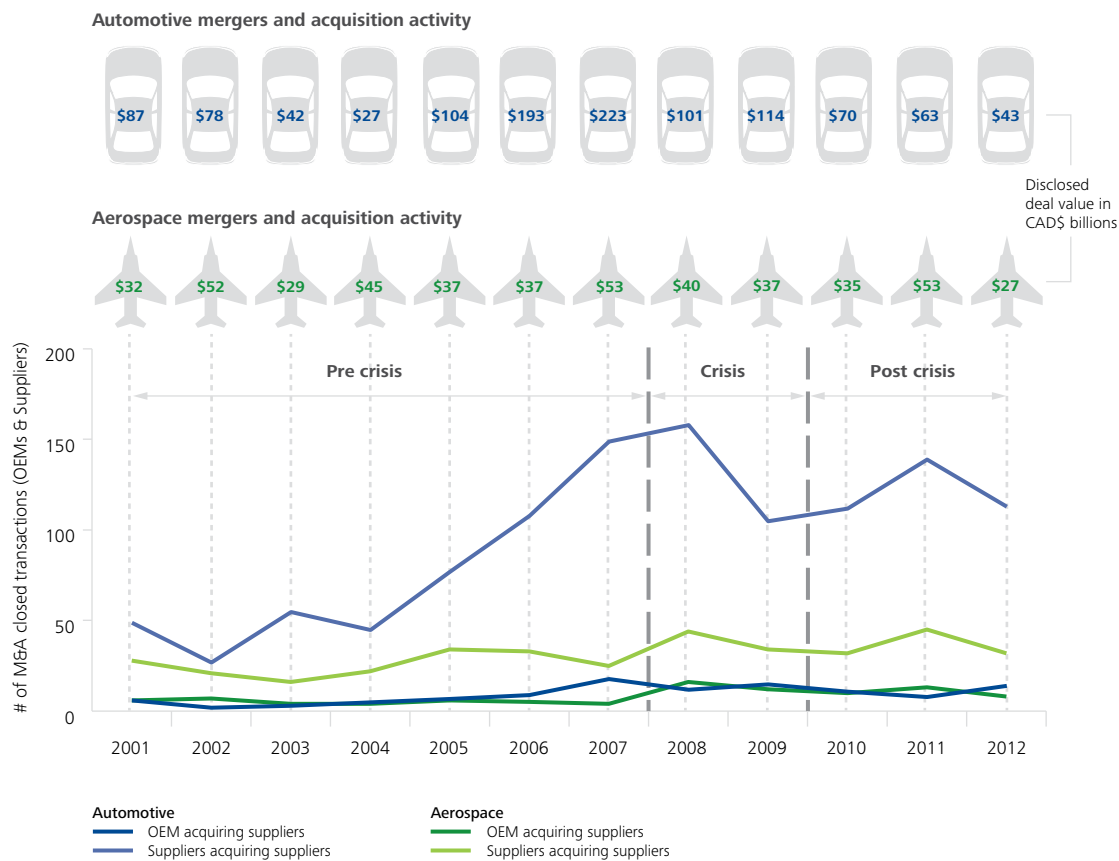
Between 1992 and 1998, the number of U.S. automotive suppliers shrank nearly 19 percent per year



The aerospace sector has not undergone such a massive consolidation. Yet aerospace firms now face the same pressures and changes that have transformed the automotive industry over the past three decades – as well as the loss of the defence spending that buoyed the sector for many years. The status quo is no longer sufficient, because it no longer exists.

Change is coming – and it’s coming fast. How can aerospace companies respond?

Comparing automotive and aerospace M&A activity may suggest that the aerospace industry is poised for significant evolution and consolidation



Responding to the challenge

If the experience of the automotive sector is any indication, the aerospace industry is poised for a period of significant evolution and consolidation. To survive and grow, we believe that Canadian aerospace firms must take steps to strengthen their position – or risk disappearing in a wave of acquisitions and consolidations.

But how?

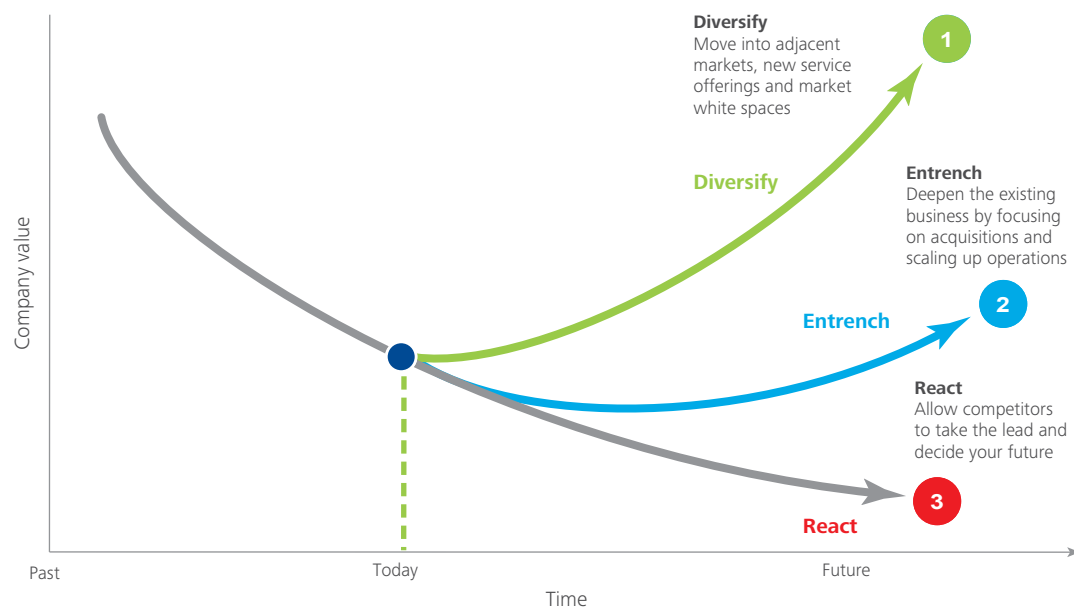
Our examination of how Canadian manufacturers responded to the challenges in their industry suggests two strategies that can potentially create value:

- **Diversify:** Move into adjacent markets, new service offerings and market white spaces.
- **Entrench:** Deepen the existing business by focusing on acquisitions and scaling up operations.

In the pages that follow, we share five examples of how automotive or aerospace firms have responded to the business challenges they face through diversification or entrenchment.

There is, of course, a third option: to simply react to seismic industry changes. The risk in taking this path is that it effectively allows a company's competitors to decide its future.

Three responses to industry challenges



Diversification

Diversification: Achieving success in adjacent markets

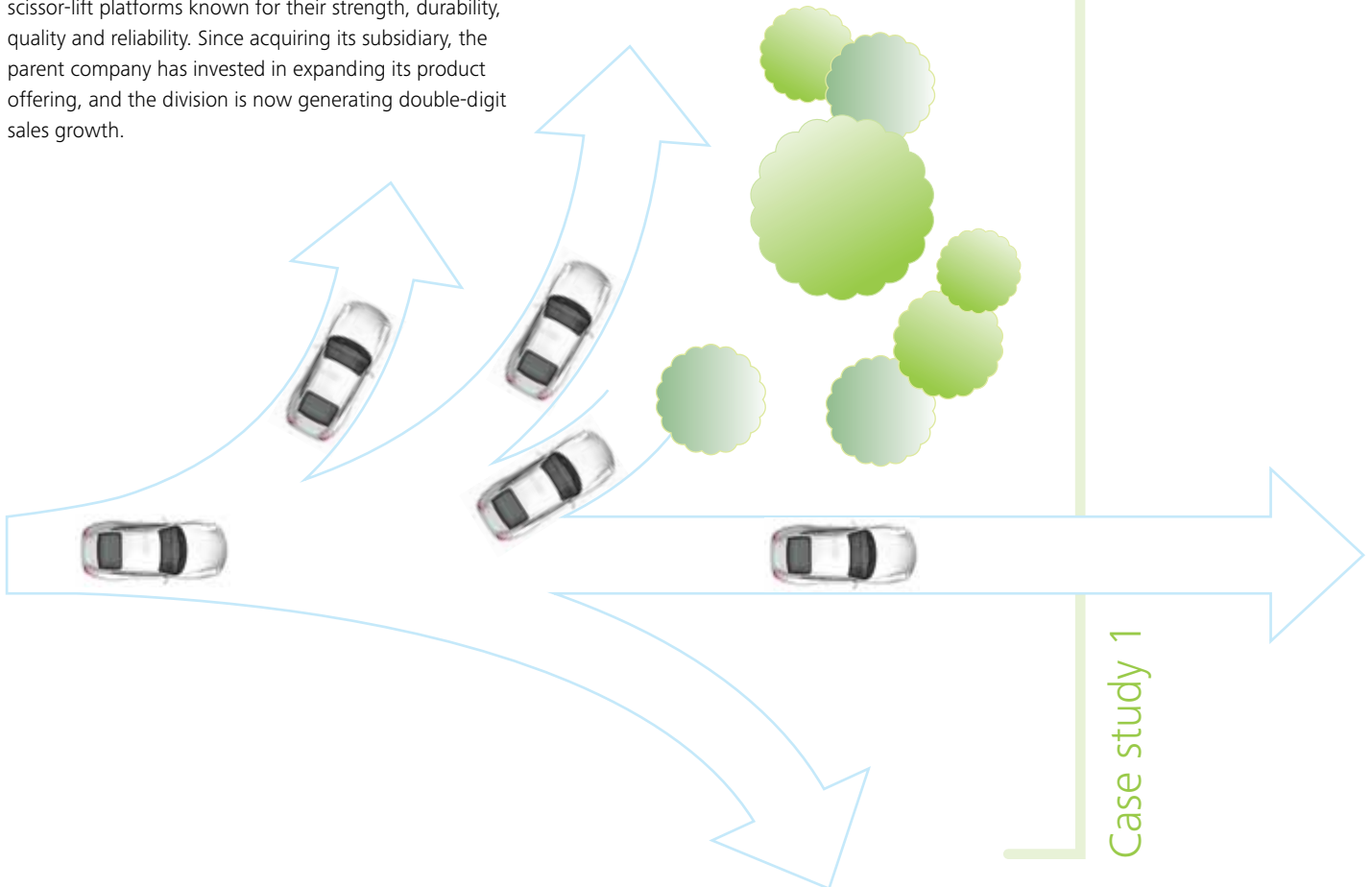
Historically, powertrains and drivelines were the main success driver for a world-class designer and diversified manufacturer of precision metallic components and systems for the automotive, energy and mobile-industrial markets.

However, as the automotive industry has changed over the years, the company changed too – expanding its footprint and growing its revenue by strengthening its industrial division through acquisition and the targeting of new markets outside the automotive sector.

Central to the company's success is a wholly owned subsidiary that manufactures a full line of self-propelled scissor-lift platforms known for their strength, durability, quality and reliability. Since acquiring its subsidiary, the parent company has invested in expanding its product offering, and the division is now generating double-digit sales growth.

As it looks to the future, this automotive supplier has set its sights on expanding beyond North American markets, introducing green technologies and continuing its innovations in transmission systems and engines.

The company's success over the years has come from its commitment to technical expertise, its ability to execute its business strategy, and a relentless focus on lean manufacturing processes. These core competencies are highly adaptable to new companies and new markets, enabling the company to succeed even as it grows beyond its original business.



**Diversification:
Identifying opportunities through a structured approach**

After several years of poor North American automotive results and rising commodity prices, a steel fabricator – specializing in manufacturing an extensive range of products for the automotive industry – faced deteriorating earnings and cash flow.

Change was needed, but there were challenges. The company was viewed as a pure automotive supplier by the market and even its employees. Its manufacturing capabilities were highly developed, but also highly focused on a very limited range of processes and materials. No matter where the company looked, it saw barriers.

An outside perspective was needed to help the company determine its options, and the company engaged Deloitte to help. Deloitte worked with the company to evaluate their financial and strategic position, and used a structured approach to help them identify opportunities for diversification into other sectors.

The first step was to prepare an “ecosystem map” of industries that offered diversification opportunities for the company. Where needed, industry experts were brought in to offer their views on the opportunities in each sector.

The next step was to establish a set of guiding principles that would be used as a “yardstick” for measuring opportunities in the non-automotive space. Opportunities were required to capitalize on the company’s strength in steel fabrication, add to its core business and not compromise its brand. They also needed to meet various financial guidelines.

The final step was to develop criteria against which each identified opportunity could be objectively evaluated or “scored.” In the end, using this highly structured strategic thinking process enabled the company to seize the opportunity to move into new sectors.

A structured approach can help identify opportunities for diversification into other sectors.



Utilize structured methodologies and approaches in identifying diversification opportunities

Diversification: Leveraging existing competitive advantages

A global leader in modelling, simulation and training for the civil aviation and defence industries had traditionally differentiated itself through its high-quality, innovative flight simulator products and global footprint. In recent years, however, increasing competition and both price and product innovation has eroded this competitive advantage.

In response, the company has leveraged its significant assets – its human capital, technology and global footprint – to expand into the healthcare and mining markets, and diversified its product offering overall.

The company's healthcare division provides leading-edge learning tools to healthcare students and professionals, enabling them to develop practice experience through risk-free simulation training before treating real patients. Its mining group offers innovative technology and services to help customers plan, manage and optimize mining operations and improve mine safety. A team of over 1,000 experienced geologists and mining engineers delivers services related to exploration data management, ore-body modelling, mine planning and operations management.

While the company still derives the great majority of its revenues from defence and civil aviation, it has also taken steps to diversify its product offerings in this core area. The company has expanded into such areas as flight schools, crew sourcing, integrated enterprise solutions and in-service support solutions such as systems engineering and lifecycle management.

Diversification: Choosing the next move based on culture

Facing the same challenges as other automotive parts suppliers, an automotive supplier – specializing in computer numerical control (CNC) turned, machined and cast components, stampings, assemblies and mechanisms – sought opportunities to diversify into new markets. The company made an unconventional choice to establish a foothold in the fast food market.

The company's restaurants offer food prepared and warmed by robots, rather than people (each location has just a few staff). It's an innovative use of automation in a non-adjacent industry, and the company is keen to see how the restaurants perform. Five restaurants are now in operation near the company's headquarters.

The move into fast food may be an unexpected direction for an automotive supplier, but it's a logical one for the company. It enables the company to seize an untapped opportunity that leverages its relentless focus on quality and its expertise in automated manufacturing – while it's still nimble enough to do so. What made the move possible, however, was the company's culture: highly entrepreneurial, very committed, and absolutely driven to achieve excellence in every area of its business.

Entrenchment



Entrenchment: If you don't make it, acquire someone who does

Through a globe-spanning network of subsidiaries and division, a major global automotive supplier makes nearly everything needed to make an automobile. The company has long responded to decades of automotive sector challenges by consistently executing its strategy of growth through acquisition. Indeed, mergers and acquisitions are key to the company's drive to build scale and retain market leadership.

The company pursues opportunities in areas that complement its existing capabilities in automotive design, engineering and manufacturing. This allows the company to use its existing capital assets, technological and manufacturing capacity more efficiently.

Typically, the company seeks target companies that provide more specialized product capabilities – strengthening and solidifying its position within the industry by continually adding businesses that improve the breadth and quality of its overall product offering.

Long-term, the automotive supplier sees tremendous opportunity in high-growth, low-cost markets such as China, India, Eastern Europe and South America. The company expects more and more component and vehicle design, development, engineering and manufacturing to move to these markets in the years to come.

Additionally, the company sees cooperative alliances or other arrangements among competing automotive OEMs becoming more common. These partnerships may include shared purchasing of components; shared engines, powertrains and platforms; and joint development of electric and hybrid vehicles. These alliance-style arrangements may serve to accelerate supplier consolidation as OEMs look for suppliers that can deliver products at the scale and cost needed. For a company that has spent years building itself into an “everything, everywhere” automotive supplier, it's a trend that could create significant opportunity.

Choosing a path

As these examples illustrate, there is no one way to respond to challenges created by a shifting market, increasing cost pressures, and industry consolidation. But in each case, these companies have chosen how they will respond to an evolving market.

Today, Canadian aerospace companies must act quickly and choose how they will respond to the changes and challenges affecting their industry. Options need to be explored, strategies compared, and costs and benefits weighed. The only certainty? Doing nothing will see Canadian aerospace firms plummet into irrelevance.

Deloitte can help

Deloitte's team of professionals can help you assess your company's financial and strategic position, and work with you to identify and evaluate opportunities to strengthen your business in a highly competitive aerospace sector.

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