They're safe - That's the claim! But there are a few issues that have yet to be ironed out: snowy weather, insurance, what happens in an imminent collision? But Google among others is innovating and pushing this forward.

Google's Self Driving Car Project is building a prototype vehicle that's designed to take you where you want to go at the push of a button – no driving required. Where is the rest of the auto manufacturing industry on this topic?

According to The Self-Driving Car Report there are both benefits and barriers that will impact adoption, and timelines ranging between car manufacturers, from the overly optimistic to half a century. BI Intelligence analyzed the self-driving car market by analyzing the current state of the self-driving car and provides key points for how the self-driving car will progress over the next five years.

- 10 million cars with one of the defined self-driving car features will be on the market

- The biggest benefits of self-driving cars are that they will help to make roads safer and people's lives easier. In the UK, KPMG estimates that self-driving cars will lead to 2,500 fewer deaths between 2014 and 2030.

- But the barriers to self-driving cars remain significant. Costs need to come down and regulations need to be clarified around certain self-driving car features before the vehicles fully take off among mainstream consumers.

Moral Dilemma

When it comes to automotive technology, self-driving cars are all the rage. So it'll come as no surprise that many car manufacturers are beginning to think about cars that take the driving out of your hands altogether. These cars will be safer, cleaner, and more fuel-efficient than their manual counterparts. And yet they can never be perfectly safe.

And that raises some difficult issues. How should the car be programmed to act in the event of an unavoidable accident? Should it minimize the loss of life, even if it means sacrificing the occupants, or should it protect the occupants at all costs? Should it choose between these extremes at random?

And therein lies the paradox. People are in favor of cars that sacrifice the occupant to save other lives—as long they don't have to drive one themselves. As a car manufacturer, do you decide? As a Ministry of Transportation, do you define these regulations? Or is it the duty of the Supreme Court?

Liability and Insurance

As cars are become increasingly automated the onus might be on the manufacturer to prove it was not responsible for what happened in the event of a crash. The liability issue will evolve so that lawsuit concerns do not drive

manufacturers and their suppliers out of business RAND have suggested a kind of no-fault auto insurance system. Others foresee something akin to the National Childhood Vaccine Injury Act, a no-fault compensation program for vaccine recipients who suffer a serious adverse reaction when vaccinated. The legislation was passed in 1986 in response to the threat that life-saving vaccines might become scarce or even unavailable if manufacturers, overwhelmed by claims of injury, scaled back or terminated production.

Canadian Winters

Another glitch in the self-driving car's progress to market is the winter weather we are all too familiar with in the GTA. Google's driverless car is no match for the Canadian winter.

Google hasn't said exactly what's plaguing its car's ability to cope with flurries, but its self-driving car project director Chris Urmson recently admitted snow is a struggle. It turns out in Mountain View, it doesn't snow," he reportedly said of the car's California testing location at the annual Automotive News World Congress conference in Detroit.

"When it's snowing or really foggy, for example, a human driver has limited visibility — so too do our vehicles," he wrote. "Though we're working on improving this, the good news is that, in the meantime, our cars recognize when they have limited visibility and will make the safe decision not to drive."

When a self-navigating vehicle can't decipher the snow and ice and feels challenged, it will either stop or return control over to a human driver. The same thing happens when a self-driving car encounters another car backing out of a driveway, a construction zone, an animal scampering across the street or debris left on a roadway.

So how long will it take the brains behind automated cars to develop a way to deal with unexpected elements?

Some say decades.