T.RowePrice®
INVEST WITH CONFIDENCE

HOW WE USE OUR GLOBAL RESEARCH PLATFORM TO GENERATE ALPHA POTENTIAL FOR CLIENTS

DECEMBER 2018

Scott Berg
Portfolio Manager, Global Growth Equity Strategy

When it comes to our investment process, our global research platform is the engine which powers our portfolios. It is also crucial in helping us to seek alpha for our clients. Of course, many investment managers may lay claim to a superior research process, but for me, I can say with confidence that the research platform, indeed the entire business, is singularly focused on identifying attractive investment ideas for our clients.

SO WHAT MAKES US DIFFERENT?

As a starting point, every single one of our analysts is an investor. The analyst's sole focus is to identify the most compelling and interesting stocks offering the greatest potential to make money. We look for good businesses, impressive management teams, the clearest competitive advantages, and then try to exploit any arbitrage potential that exists. Sometimes, this simply may not be available and so we must be patient. There is no pressure applied on an analyst to rate a company a buy that they feel is expensive, regardless of its quality.

Another fundamental difference from many competitors is the complete investment economy given to every analyst and portfolio manager at T. Rowe Price. We don't adhere to a central valuation methodology or follow a single house macro or interest rate view. We do have experts in different areas, be it region, sector, industry, market cap, and all this in-house expertise and research is available, but ultimately the decision making is the analyst's, and then mine to discern if that idea makes it into my portfolio.

Of course, coming up with the great ideas in the first place, finding the companies that will make money for clients, is the hardest part, but I believe the structure at T. Rowe Price helps facilitates this process, incentivising the investment teams to share knowledge and information.

HOW WE SHARE IDEAS TO GAIN AN ADVANTAGE

Trends do not happen in isolation, and our analyst teams frequently collaborate to identify which companies in a particular sector are positioned to win or lose as technologies reshape sectors. For example, innovations in artificial intelligence (AI) are changing the way companies develop more generally. However, it is also important to recognise that burgeoning technologies not only impact technology companies, but can also reshape more traditional industries, ones viewed as less susceptible to business model disruption.

EXAMPLE 1: HOW ARTIFICIAL INTELLIGENCE WILL CHANGE THE AUTOMOTIVE INDUSTRY

Today, the automotive industry faces disruption on two fronts. First, a confluence of machine learning and cheaper and stronger computing power is creating the potential for a fully autonomous vehicle. This presents several challenges for traditional automakers and original equipment manufacturers (OEMs). Machine learning and robust computing power are not these firms' core competencies, which means they are exposed to new entrants.

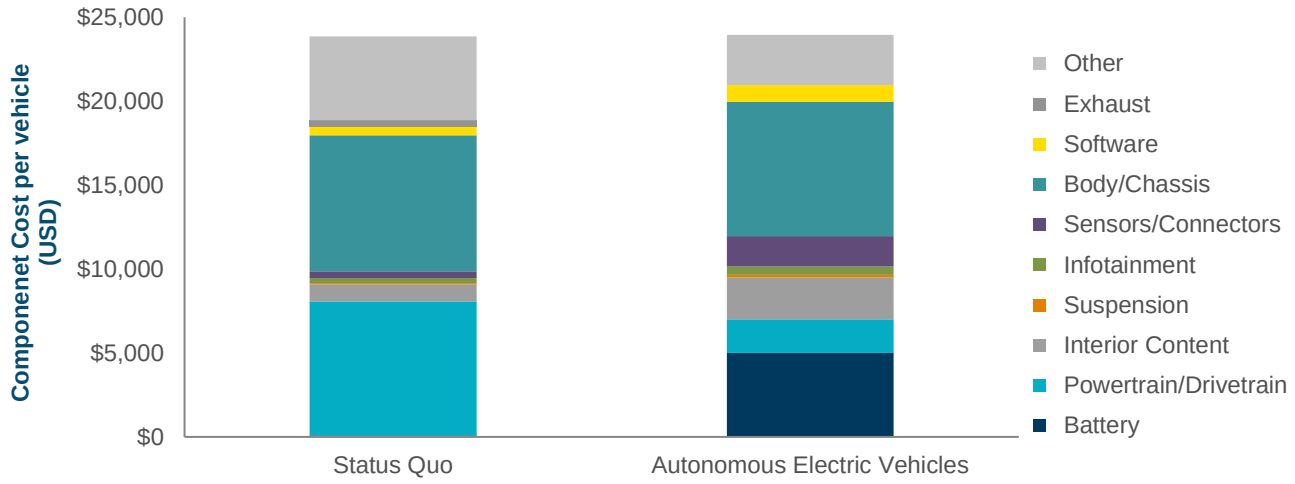
Additionally, the business model of selling cars to individual customers—a model around which the automotive industry is structured—can be disrupted in a world where that car can drive itself.

This better economic model is further supported by auxiliary benefits, such as increased safety and freeing up drivers to do other things. At the same time, declining battery and electric vehicle (EV) powertrain component costs are on a path toward making EVs a more affordable option than vehicles with internal combustion engines.

EVs currently cost approximately US$10,000 more to produce than a combustion engine car. In about 10 years, improved battery chemistry is projected to drive down EV costs to a point where a combustion engine car will cost approximately US$5,000 more to produce. The lower upfront cost for an EV, coupled with greatly diminished operating costs—no more oil changes or visits to the petrol station—is likely to become impossible for most consumers to ignore.

According to one of our industrials analysts, OEMs that do not contribute a part of the EV powertrain will see their value as a percentage of total cost of the car cut by approximately 60%, with more of the total car value contained in the battery. At the same time, an aggregation of third-party forecasts suggests that EVs will account for approximately 10%–15% of sales in 2025, but our analyst sharply differs from that. They believe the reality will be the other way around—only 10%–15% of consumers will want to buy a combustion engine car. So, the consensus is for EV adoption to be gradual, but through their analysis they have flagged that there will be much more of a tipping point in adoption, with EVs' lower relative cost and auxiliary benefits alone making them more attractive.

Figure 1: Autonomous Electric Vehicles Will Transform the Automative Supply Chain
As at 31 March 2018



EXAMPLE 2: ARTIFICIAL INTELLIGENCE – WINDS OF CHANGE ALSO MOVING THROUGH THE NATURAL RESOURCES SECTOR

The natural resources sector is not immune to these same technologies. Here, AI is manifesting itself in smart grid technologies that enable utility companies with greater automation and self-healing. Big data is increasingly beneficial to utilities, and these companies are getting more information to help manage demand more precisely, reduce peak needs, and provide the predictive analytics to determine when an outage is likely to occur. This helps improve reliability greatly and reduces costs.

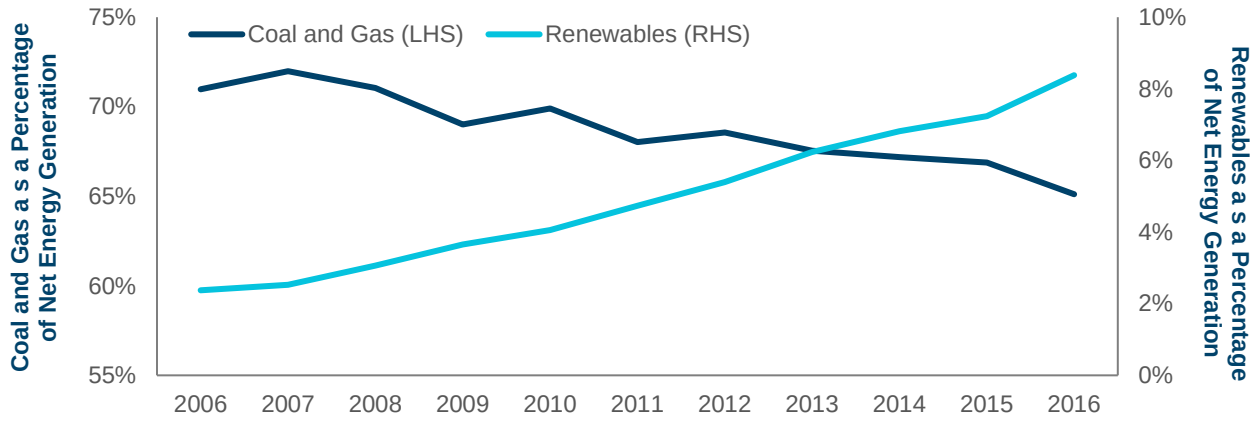
AI can also help utilities navigate increasing cybersecurity threats. An area of focus for many due to the sheer amount of critical infrastructure that runs on electricity.

Improved energy storage technologies will also accommodate much more renewable energy penetration because they can significantly reduce intermittency issues, which have long plagued renewables. In doing so, electrification will be delivering energy in a way that is more reliable, safe, secure, flexible, and clean.

Moreover, renewable energy prices are declining amid these technological developments. Since 2010, renewable costs in the United States have fallen by 70%, and our natural resources analyst expects further cost reduction. Our analyst has highlighted wind as being among the cheapest sources of new power in some regions, even without subsidies. Healthy subsidies over the next several years will help accelerate wind adoption, while more advanced turbines and enhanced blade designs will also lower overall costs and increase output.

Taking this altogether, this is going to help utilities have lower cost profiles, which should alleviate some of the bill pressures they currently encounter, but more importantly it can also potentially help to grow earnings.

Figure 2: **Renewables Are Gaining Share**
Data to end 2016



Source: Energy Information Administration

COLLABORATION THE KEY TO UNLOCKING MULTIPLE OPPORTUNITIES

As you can see, themes, trends and adoption do not happen in a vacuum, and our research platform can help identify which companies across multiple industries and sectors can benefit. So right now, our global natural resources team is incorporating their bullish EV adoption models into their supply/demand commodities forecasts. More broadly, our automobiles, industrials, and natural resources analysts recognise that AI is a common denominator behind significant changes ahead within these sectors, and they are actively seeking out new ideas and insights from our technology portfolio managers and analysts to push our thesis even further.

They believe that AI will become a horizontally enabling technology. As it is more and more deeply integrated into our daily lives, companies with a competitive advantage in this area will emerge as major beneficiaries.

We are already witnessing this within the public cloud computing industry. Leaders such as Amazon Web Services, Azure, and Google Cloud are providing access to computing power in a low-friction, highly scalable way that will be accessible to all companies. Many of these same firms are also developing tools that will enable companies to use AI without in-house experts.

All these ideas are brought to my table by the global research platform and help inform my decisions. This would only happen with close collaboration between research analysts and portfolio managers. Much like new innovations feed on each other, our global research platform is the enabling tool that means analysts and portfolio managers can look beyond the numbers to help seek alpha for our clients.

Important Information

The specific securities identified and described do not represent all of the securities purchased or sold by T. Rowe Price. This information is not intended to be a recommendation to take any particular investment action and is subject to change. No assumption should be made that the securities identified and discussed were or will be profitable.

This material is being furnished for general informational purposes only. The material does not constitute or undertake to give advice of any nature, including fiduciary investment advice, and prospective investors are recommended to seek independent legal, financial and tax advice before making any investment decision. T. Rowe Price group of companies including T. Rowe Price Associates, Inc. and/or its affiliates receive revenue from T. Rowe Price investment products and services. **Past performance is not a reliable indicator of future performance.** The value of an investment and any income from it can go down as well as up. Investors may get back less than the amount invested.

The material does not constitute a distribution, an offer, an invitation, a personal or general recommendation or solicitation to sell or buy any securities in any jurisdiction or to conduct any particular investment activity. The material has not been reviewed by any regulatory authority in any jurisdiction.

Information and opinions presented have been obtained or derived from sources believed to be reliable and current; however, we cannot guarantee the sources' accuracy or completeness. There is no guarantee that any forecasts made will come to pass. The views contained herein are as of the date written and are subject to change without notice; these views may differ from those of other T. Rowe Price group companies and/or associates. Under no circumstances should the material, in whole or in part, be copied or redistributed without consent from T. Rowe Price.

The material is not intended for use by persons in jurisdictions which prohibit or restrict the distribution of the material and in certain countries the material is provided upon specific request.

It is not intended for distribution to retail investors in any jurisdiction.

DIFC—Issued in the Dubai International Financial Centre by T. Rowe Price International Ltd. This material is communicated on behalf of T. Rowe Price International Ltd. by its representative office which is regulated by the Dubai Financial Services Authority. For Professional Clients only.

EEA—Issued in the European Economic Area by T. Rowe Price International Ltd, 60 Queen Victoria Street, London EC4N 4TZ which is authorised and regulated by the UK Financial Conduct Authority. For Professional Clients only.

Switzerland—Issued in Switzerland by T. Rowe Price (Switzerland) GmbH, Talstrasse 65, 6th Floor, 8001 Zurich, Switzerland. For Qualified Investors only.

201812-685704