

August 2020

Innovation: Where Change Is Not Constant, It Is Accelerating

Raj Miglani, CFA
Portfolio Manager



Innovation: Where Change Is Not Constant, It Is Accelerating

Rajansh Miglani, CFA, Portfolio Manager

Change Is Not Constant; It Is Accelerating

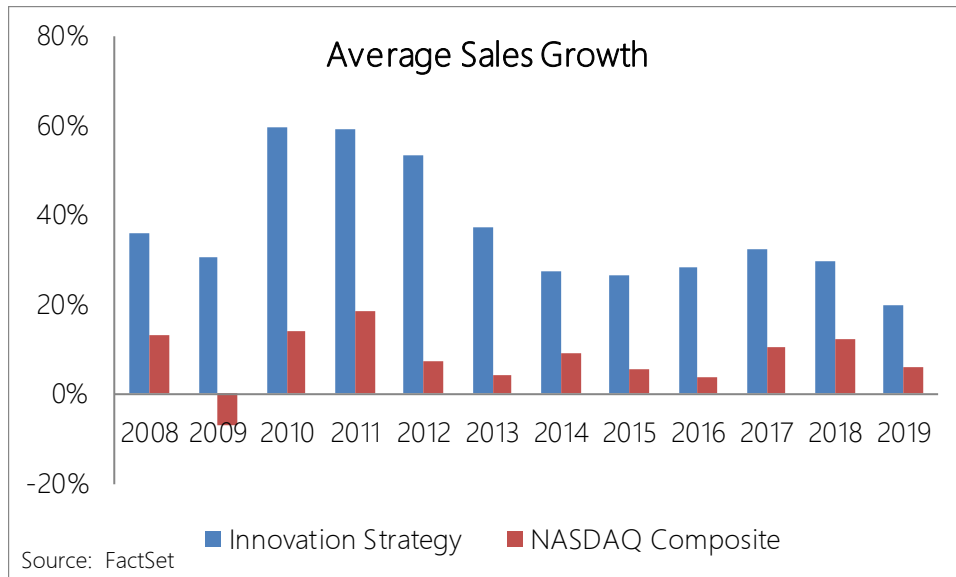
Greek philosopher Heraclitus' famous quote "the only thing that is constant is change" may be true in a proverbial sense, but it understates the pace of change that has brought various innovations to market. This change is not constant. It is accelerating. This accelerating pace of change is driven by faster rates of adoption of new technologies. It took about 46 years before electricity received mass adoption. However, the time for mass adoption of the telephone and radio was only 35 years and 31 years, respectively. The personal computer took about 16 years, and the iPhone took less than 3 years.

Year Developed	Technology	Years until Mass Adoption
1872	Electricity	46
1876	Telephone	35
1897	Radio	31
1926	Television	26
1975	PC	16
1983	Mobile Phone	13
1991	The Web	7
2001	iPod	4
2006	Facebook	3
2007	iPhone	2.5

Source: RBC Capital Markets

All of these changes were marked by disruptive innovations followed by a period of secular growth. The **EGA Innovation Strategy** was developed to participate in the future economy by selectively investing in a portfolio of companies with such disruptive innovations and secular growth stories.

We believe our strategy's narrow focus of investing in the 'leaders of tomorrow' manifests itself in above average fundamentals such as sales growth and market share gains. As shown on the following chart, historical sales growth of current portfolio companies has significantly outperformed those in the NASDAQ Composite Index.



Additionally, portfolio companies have demonstrated market share gains within their respective industries. For instance, from 2018 to 2020:

- Global Digital Advertising spend as % of total media advertising spend is estimated to increase from 46% to 54% (Source: eMarketer)
- Global Digital Payments as % of total consumer spend is estimated to increase from 58% to 63% (Source: Barclays)
- Global Ecommerce as % of total retail spend is estimated to increase from 12% to 17% (Source: Goldman Sachs)

Innovation Strategy Differentiators: Focus On Moat And Growth Over the Long Term

Simply put, a value of a company is based on the present value of its future earnings. The **EGA Innovation Strategy** focuses exclusively on companies that can sustain above average earnings growth. Analysts estimate future cash flows (CF) and discount them using an appropriate discount rate (DR). It is relatively easy to determine the discount rate; however, projecting the trajectory of future earnings (especially beyond year one) gets progressively more challenging, especially for secular and disruptive growth companies. When electricity was invented, most forecasters underestimated its addressable market. Ditto for telephone, radio, television, personal computers, mobile phones, internet and social media. So, when analysts put too much focus into measuring a company's success from cash flows in the current and the following year, they are likely to underestimate the medium-to-long term-opportunity. This is often multiple times larger in size than the most heavily scrutinized short-term opportunity. Management teams of disruptive companies are often surprised by the pace of growth of their business over a period of two years.

As a result, analyst projections who are not privy to internal business forecasts are more prone to forecasting errors.

Focus On Value Creation

The **EGA Innovation Strategy** takes a different approach to estimate the value of the company. First, we look at the addressable opportunity the company may capture in several years. Secondly, we study the company's ability to successfully capture the opportunity. This requires a deep understanding of a company's products, business model, competitive strengths and financial model. While earnings are important to us, we believe they are merely a product of the business opportunity and competitive moat. We would rather hold a moat-worthy investment with a large opportunity and sub-par cash flows than a strong free cash flow generating company with a subpar opportunity and no moat. This philosophy underpins our process.

$$\text{Value} = \frac{\text{CF}^1}{(1+dr)^1} + \frac{\text{CF}^2}{(1+dr)^2} + \dots + \frac{\text{CF}^n}{(1+dr)^n}$$

Too much focus.

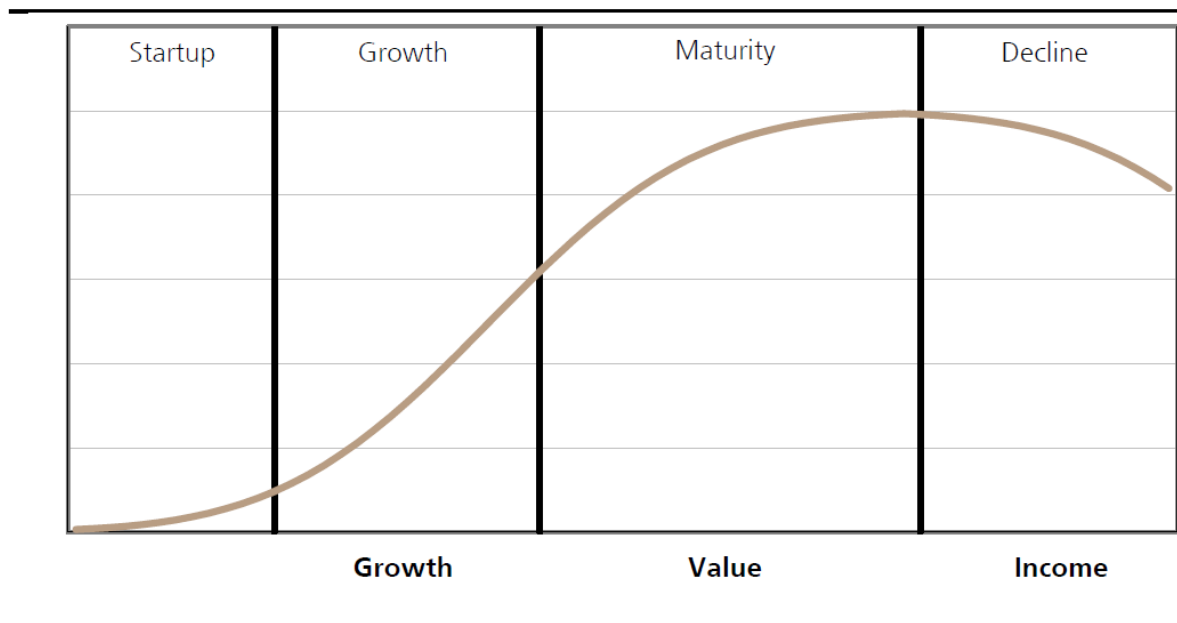
Not enough focus.

Source: RBC Capital Markets

Core-Satellite Model

We recognize achieving the first 5% in market share is the most challenging and uncertain period in the lifecycle of disruptive innovators. We call these companies 'satellites'. Due to the inherent uncertainty, we limit our exposure and diversify this allocation across many satellites. Once satellites grow past the early stage and their moat solidifies, they graduate to 'Core' status, which earns them a larger weight in the portfolio. The growth during 'Core' stage can last for decades before it enters a period of maturity when we seek to harvest these investments and reallocate the proceeds into companies in the earlier stages of their lifecycle.

Satellite companies are characterized by transformative innovation, which involves development of a new technology and/or business models, giving rise to revolutionary products, services, and new markets. Core companies are characterized by a) Adjacent innovation, which involves extending an existing portfolio based on new technologies or tapping into adjacent markets with established technologies and b) Continuous innovation, which involves incremental improvements to current products by means of established technologies within existing markets



Source: UBS

Innovations Our Team Is Tracking

Artificial Intelligence (AI)

The most disruptive innovation of this decade is Artificial Intelligence (AI) whose impact will be as far reaching and widespread as the internet. Artificial intelligence (AI) touches our lives every day when Google enhances and sorts your vacation photos; when Alexa answers questions or plays your song requests; when Netflix recommends a movie for you to enjoy; or Amazon recommends a product you should purchase; or when Twitter recommends an account you should follow. These state-of-the-art AI technologies were made possible by giant computers running AI programs, which learn from examples. In the future, AI in combination with Internet of Things (IoT), 5G and Robotics will transform our factories, our streets and our farms.

Autonomous Vehicle (AV)

The most disruptive use case of AI is a self-driving car or an autonomous vehicle (AV). Fully automated cars and trucks that drive us, instead of us driving them, will become a reality. With AVs, we think the benefit to the society is multi-fold. First is safety. In the U.S., there are ~37k road fatalities per year and >2.7 million injuries. A NHTSA study (<https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety>) showed motor vehicle crashes cost \$242 billion in economic activity, including \$57.6 billion in lost workplace productivity, and \$594 billion due to loss of life and decreased quality of life due to injuries. Experts believe that nearly 95% of those accidents are caused by human error. So, if AVs can provide a safer autonomous driving experience versus

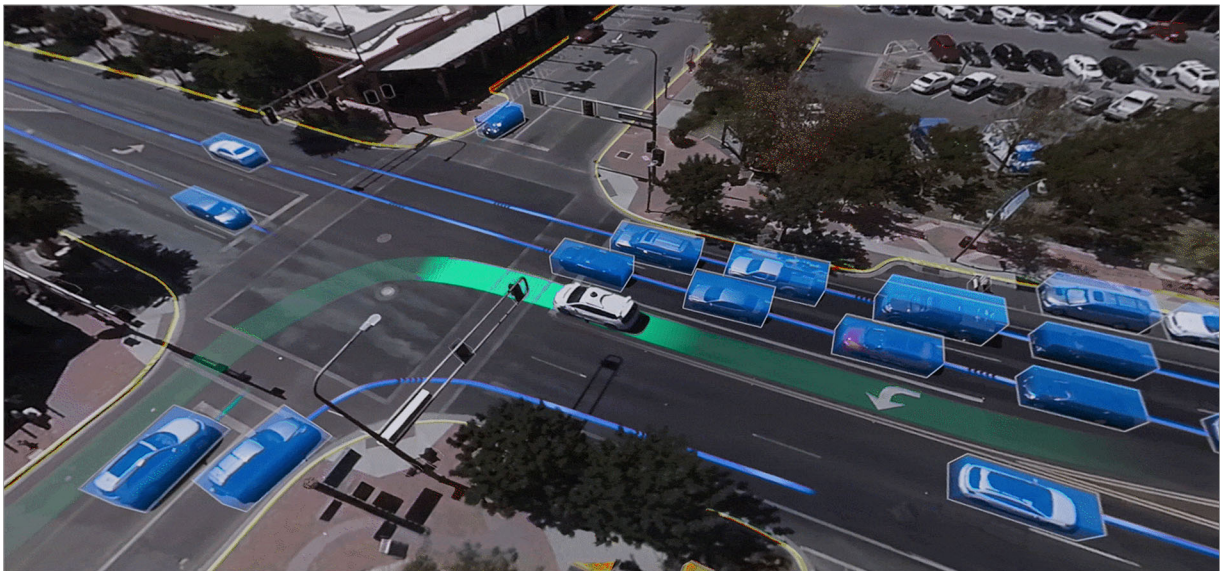


Image Source: blog.waymo.com

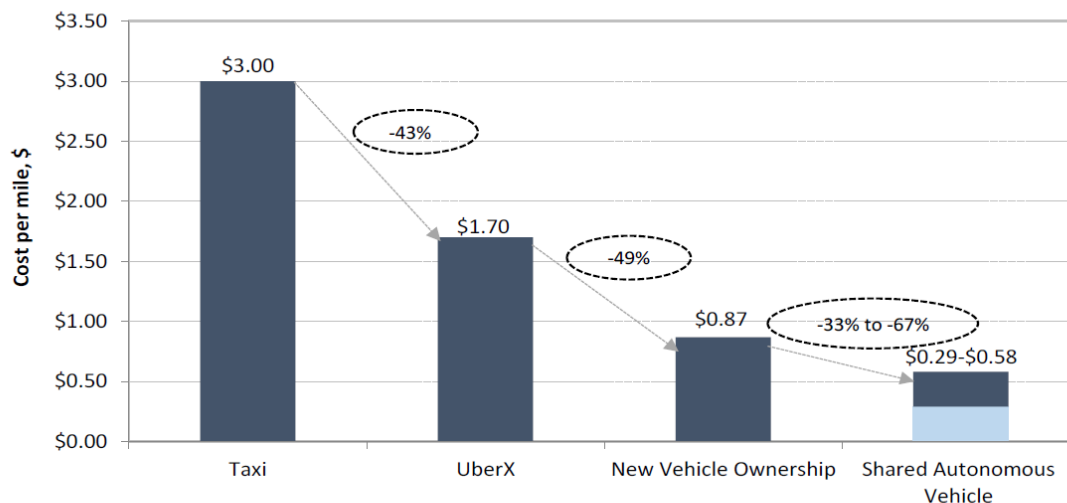
human driving, we could save lives and erase these costs. Second, time – arguably the most valuable asset – is freed for other activities. Productivity can increase as travel times and city congestion can be reduced. According to a report from the Texas A&M Transportation Institute (<https://static.tti.tamu.edu/tti.tamu.edu/documents/mobility-report-2019.pdf>), commuters in the 15 most-congested cities spent an average of 83 extra hours per year stuck in traffic. By "extra hours" they mean the extra time spent traveling at congested speeds rather than free-flow speeds. AVs on the road could connect to each other, cooperate, smooth traffic flow and reduce traffic congestion, fuel cost and vehicle emissions. The time and money spent commuting could be put to a better use.

The transformative potential of AVs will be unleashed when AVs converge with another mega, macro trend - a culture of shared economy. The combination of sharing and autonomous vehicles gives rise to Robo-Taxis and the emergence of a new modality of transportation. From a business

perspective, the model can shift from one of vehicle ownership to one of pay-per-mile giving way to the concept of Transportation as a Service ("TaaS").

We believe the economic profit opportunity for those who capitalize on TaaS can be significant. With Robo-Taxis, square footage set aside for street parking and parking garages can be reduced. The ramifications are far reaching, impacting municipalities, particularly those who can rethink urban planning and potentially lessen the need for public transportation, but also insurance and legal. The smartphone created a whole new eco-system of businesses, and so too can autonomous vehicles.

Exhibit 11: Cost per mile economics for various mobility solutions



Note: Taxi and UberX analysis assumes an average trip distance of 10 miles traveled. New vehicle ownership analysis assumes 12,000 miles traveled annually. Shared autonomous analysis assumes 70,000 miles traveled annually. Assumed gasoline @ \$3.00/gallon and average MPG of 25.
Source: Uber, Taxi Fare Finder, ALG, and RBC Capital Markets estimates

Augmented Reality (AR)

Augmented Reality (AR) is a technology which superimposes virtual objects on a user's view of the real world. Mobile game Pokémon Go brought AR to the masses when gamers moved their character by walking around in the physical world to find wild Pokémon and other goodies. AR technology spans from this trivial gaming experience to a high-tech industrial HoloLens AR device, which takes the form of a see-through visor mounted to a head strap. Once turned on and booted up, the HoloLens maps the room you're in. You then use your hands to maneuver menus floating

in front of you, choosing which apps or experiences to load. Some of these deskless workers are already wearing HoloLenses in warehouses and factories, building 3D models and receiving training. In 2018, the US Army announced purchase of HoloLens headsets to keep the soldiers one step ahead of the enemy on the battlefield.



Image Source: www.asml.com

Travel restrictions due to the coronavirus (COVID-19) pandemic meant that some of ASML's customer support engineers couldn't visit their chipmaker customers' sites to help them keep their lithography machines up and running. During a crisis that could have cost ASML millions or even billions, a cross-functional team used gaming-inspired AR to turn a potential problem into a new opportunity to help our customers remotely.

Furniture retailer Wayfair has released an AR app that uses a phone's camera to create a digital version of an interior of a room. The app can then place a 3D object in the room and keep it anchored even as you move around. You can walk around this virtual furniture, place it in your den, try it out in different spots in the room, and swap fabric patterns. It's as close to a virtual shopping experience as it can get. In some ways, the experience is superior to buying in store.

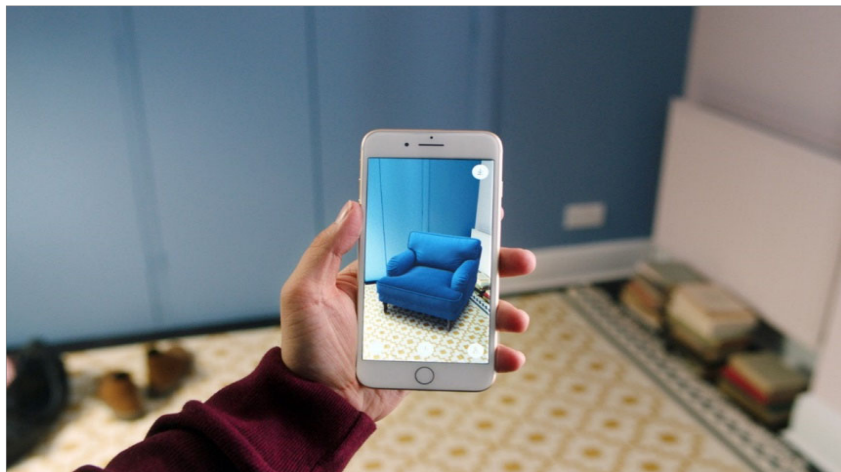


Image Source: www.medium.com

All Encompassing Opportunity: from A to Z

From AI to AV to AR, we are only scratching the surface of the potential of innovations whose names start with the English letter 'A'. As you enter 'B' and 'C', you run into Blockchain and Cloud Gaming. A giant step to 'Q' will transport you to the world of Quantum Computing, which brings the promise of exponential parallel computing in 7-10 years. The **EGA Innovation Strategy** travels this world of innovation for you to invest ahead of the curve and to capitalize on economy of the future.

For more information please contact:

Steven Russo, Senior Partner

srusso@eagleglobal.com

713.952.3550

