



Generation Y Consumer preferences and mobility choices – an empirical approach

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ABSTRACT

Automotive industry has been undergoing significant alteration. Innovative technologies change vehicles toward fully autonomous ones, but also change mobility choices of consumers, offering on-demand rides and shared mobility services. Consumers have the power to determine automotive companies' business models and strategies. The main interest of car manufacturers and mobility service providers is nowadays put on young consumers from generation Y, proficient with latest technology, digital media and electronic gadgets. Their preferences and mobility choices have been described in the paper on the basis of consumer survey conducted on 22 000 Millennials from 17 countries by Deloitte in 2016 and 2017.

KEYWORDS: Generation Y, global trends, mobility choices

1. Introduction

Characteristic features of the contemporary transportation market include essential changes not only in the production activity, consisting in implementing product innovations (i.e. electric or hybrid cars, self-driven vehicles etc.) or system innovations (smart mobility as a part of smart city concept), but mainly in customers' consumption patterns [1].

Consumption has become more complex nowadays, and is determined by various factors, including economic, cultural and social factors among others. A differentiation of customers' attitudes and behaviours among generations may also be observed. At present, the Y Generation, born in the 80s and 90s is the predominant generation.

Attitudes of young consumers toward transportation products, processes and solutions will give specific directions to enterprises operating in the automotive market in future decades, which make them a subject matter of interest in the paper. The generation Y consumer preferences and mobility choices are identified and described based on literature studies, as well as empirical research

conducted by Deloitte in 2016 and 2017. The objectives of the study focussed on understanding the factors influencing consumers' mobility decisions such as new transportation models that provide access to transportation (e.g. car-sharing, etc.). The study also sought to assess the customer experience and factors influencing the final vehicle purchase decisions. Results allowed for drawing conclusions for automotive manufacturers and service providers.

2. New era of mobility

In recent years, the world has reached a critical midpoint: over half of the world's population live in cities. The trend is expected to accelerate, with approximately 70% of the world's population predicted to live in cities by 2050 [2]. Overcrowding, the realities of traffic, and new capabilities enabled by technology are all leading to more collaborative approaches to transport: for example, the "sharing economy," driverless cars, etc.

Individuals today have several transportation options, and increasingly their transportation decisions are differing across

generation Y. Some prefer traditional vehicle ownership models, while others are highly interested in models that provide access to mobility, allow them to remain connected (and productive), and reduce costs. These differentiated views and expectations of mobility, along with disruptions of traditional ownership models, are likely to change the automotive industry in incoming years [3].

Innovations in V2X connectivity, mobile phones, apps, and smart card technology are changing the automotive industry. Moreover, automotive consumers will expect car manufacturers or service providers to adjust and integrate technology with their connected lifestyles—both inside and outside the vehicle [4].

Meanwhile automotive companies have been working on the implementation of innovative technologies and vehicle concepts that have the potential to transform the automobile (and more broadly transportation) sector. What we may observe now is the so-called “connected car”— a fully digitized vehicle with Wi-Fi, advanced infotainment systems and apps, vehicle-to-vehicle communications that let cars on the road “talk” to each other, exchanging basic safety data such as speed and position, real-time location services and routing based on traffic conditions, and networked Web links that facilitate vehicle diagnostics and repairs [3].

The “intelligent car” has become a reality. There are four levels (types) of autonomous (driverless) vehicles, i.e.:

- Basic: allows the vehicle to assist the driver by performing specific tasks like anti-lock braking (prevent from skidding) and/or traction control (to prevent loss of grip with the road);
- Advanced: combines at least two functions such as adaptive cruise control and lane centring technology in unison to relieve the driver of control of those functions;
- Limited self-driving: allows the vehicle to take over all driving functions under certain traffic and environmental conditions. If conditions changed, the vehicle would recognize this and the driver would then be expected to be available to take back control of the vehicle;
- Full self-driving: allows the vehicle to take over all driving functions for an entire trip. The driver would simply need to provide an address and the vehicle would take over and require no other involvement from the driver [5].

The idea of fully autonomous vehicles seems to be still futuristic, but car manufacturers, may have to turn from current models to driverless cars in future. The implementation of new technologies is an emerging trend that may be observed globally, especially in Asian market. China and India seem to be pioneers for advanced technology application. The key factors for automotive companies’ strategies are consumers’ preferences, especially of the generation Y.

An American futurist, Michio Kaku, has concluded that: “[...] In any activity there are winners and losers. The winners will likely be those [...] which fully grasp the vital importance of a scientific revolution. Those who would scoff at the power of the revolution may find themselves marginalized in the global marketplace of the twenty-first century” [6]

3. Generation Y as a predominant group of consumers in the contemporary automotive market

Generation Y members are now highly active in the marketplace. They not only represent the most numerous generation among others, but also dispose of 600 billion USD annually as their purchasing power, in addition to the influence the younger members of this group still exert over parental expenditures [7]. This generation became the subject matter of interest of many companies offering goods and services in the market, including transportation. Their decisions and mobility choices strongly influence business activity of enterprises conducting the so-called “diffusion of innovations” of their marketing, process, or technological nature [8].

Taking into consideration the above comments, it seems important to describe generation Y in more detailed manner.

Generation Y covers people born between the 1980’s and the year 1995. This generation has been shaped by the technological revolution that occurred throughout their youth. Generation Y grew up with technology, so they are proficient with the latest technology and gadgets such as iPhones, laptops and tablets. They are often referred to as “tech savvy consumers”, “Millennials” or “Millennium generation”, “next generation”, “digital generation” and the “generation of flip-flops and iPods” [9]. They have “tamed” technological innovations and actively apply digital media and digital technologies; they are considered to be audacious generation that is open to new challenges.

This has an immense impact on the way individuals of this generation communicate, study, work, make choices and decisions. Being used to constant access to information, Millennials use various technical devices, including M2M (machine to machine) technology. It enables an active communication between the devices (“machines”) and takes place via wireless or wired connection [10].

Howe and Strauss [11] describe generation Y as optimistic, cooperative team players and rule followers. They present rational minds, a positive attitude and selfless team virtue.

Studies conducted on young consumers of generation Y brought many interesting observations. What differentiates this group from other generations is:

- Millennials are less interested in buying, and more interested in availability. This explains the popularity of services such as “landing”, “joining”, “sharing”, and creates the necessity of developing new services like car-sharing or ridesharing commuting [11], [12]. There is a trend identified by researchers called “deconsumption” and can be described as a conscious limitation of consumption to the reasonable size, i.e. a number of consumed products that results from natural, individual, physical and psychological characteristics of a consumer [13]. Millennials turn to deconsumption more often than other generations;

- They are open-minded, think outside the box and willingly take new challenges. This makes generation Y perfect addressees for innovations in transportation and other fields [14];
- Generation Y have faith and trust in other customers, which explains the development of new trends in consumption, e.g. collaborative consumption – an emerging social and economic phenomenon that is fuelled by development in information and communication technology. Consumers replace exclusive ownership of goods with lower-cost options from within a collaborative consumption. The service may be a source of enjoyment and may also enable gaining reputation among likeminded people [12]
- Young customers are used to constant access to information via mobile devices, they look for and share opinions, thus recommendations or admonishments of other customers strongly influence their decision-making process and purchasing choices [15].
- Millennials are often involved in customer citizenship behaviour (CCB), discretionary and prosocial actions displayed by customers which benefit both the companies and, usually, other customers as well. This behaviour is based on the theory of social exchange where customer reciprocates positive behaviour from a sense of personal obligation or gratitude. Among various dimensions of CCB identified and defined by researchers [16], [17], [18], one seems to play an important role in the context of customer behaviour in passenger transport, i.e. helping other customers while using a mobile app for road navigation (GPS app). Due to data optimization in real time, users are informed, and inform other road users about possible traffic difficulties and burdens, congestions, traffic jams and road works, as well as speed controls, speed detectors and police patrols. All the information about current situation observed on the roads is provided by the application users who build a social network of traffic participants [12].

Young customers representing generation Y are different from others in terms of values, attitudes, and market behaviours. It is very important for companies operating in automotive industry to recognize the key drivers of their most numerous and thus most important consumers.

4. Global trends in young customers' mobility choices and transportation decisions

To explore consumers' mobility choices and transportation decisions, a survey was fielded in 2016 and 2017 by Deloitte [19], [20]. In total, about 22,000 individuals – automotive consumers responded to the survey. They represented mainly generation Y, as well as other generations (Baby Boomers and Generation X). The study was conducted in 17 countries, i.e. in: Canada, US, Mexico, Brazil, UK, France, Belgium, Germany, Italy, India, China, South Korea, Japan, Thailand, Indonesia, Malaysia, and South Africa. This allowed for in-depth analysis through multiple lenses, including generational, socio-economic, gender, and many others.

The objectives of the research focussed on understanding the factors influencing consumers' mobility decisions as new transportation models that provide access to transportation emerge (e.g., car-sharing, etc.). The study also sought to assess the customer opinions on advanced vehicle technology.

Young consumers were asked if they plan to purchase or lease a vehicle – almost three-quarters of Gen Y consumers plan to purchase/ lease a car within the next five years. The main reasons for not owning a vehicle is affordability and high operational and maintenance costs. Millennials also declare, their lifestyle needs may be met by public transportation or in other ways. Gen Y opinions are presented in Fig. 1.

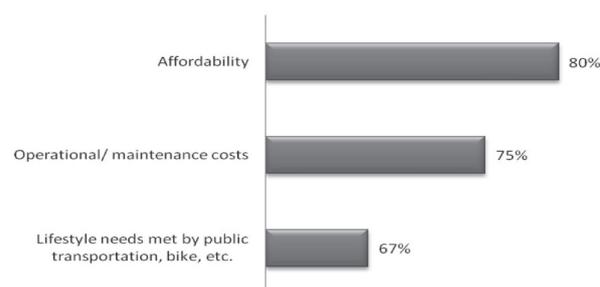


Fig. 1. Top reasons across generation Y for not owning a vehicle [19]

42% of young consumers representing Gen Y are willing to use car-sharing, car-pooling or similar services if they were readily available and convenient, and for comparison only 28% of other generations would use these types of commuting.

It is predicted that ride-on demand, shared mobility and other transportation services may disrupt car ownership in future. Some geographical and generational differentiations may be observed, especially in India and China (Fig. 2).

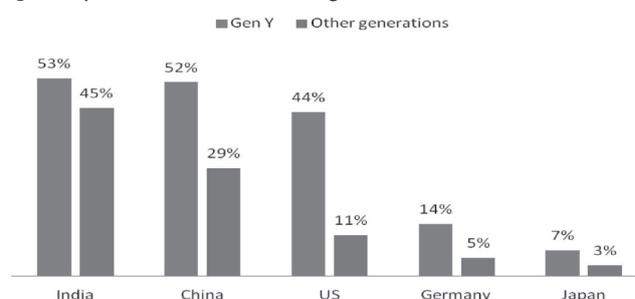


Fig. 2. Percentage of consumers who use ride-sharing services at least once a week by generations [20]

It should be stated, that ride-sharing services are not commonly used in many markets, particularly in Japan, where the regulatory environment discourages the use of mobility services. Use of these services in India and China far outpace other markets. In fact, almost half of consumers in emerging markets like China or India use ride-sharing services at least once a week.

Millennials are more interested in alternative modes of transportation, particularly if they are safe and enabled by technology. Respondents' opinions on the usage of alternative modes of transportation, especially driven by innovative technologies are presented in fig.3.

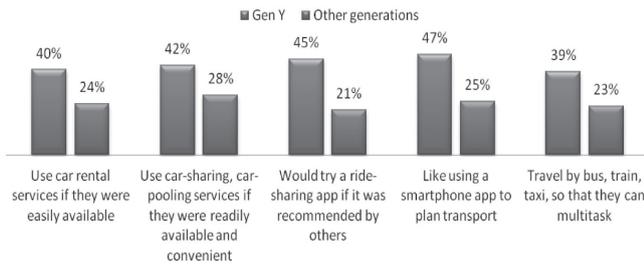


Fig. 3. Respondent opinions on the usage of alternative modes of transportation [19]

Simultaneously, Millennials declare purchasing a vehicle if cars are cheaper and more fuel efficient or if there are also more affordable payment options.

Respondents were also asked to describe themselves as commuters. An interesting conclusion may be drawn of cross-generation nature. Survey participants were supposed to prioritise several descriptors. Generation Y consumers pay attention to low costs of transportation (“My total costs when going somewhere needs to be low and I will choose a transportation option that is cheapest”). The second most important feature is convenience (“When going somewhere, I want to do so in the fastest and easiest way and am willing to use any transportation option to achieve this”). The generation Y respondents also described themselves as driving amateurs (“I look forward to driving because getting there is half the fun”). Elder generations pay most attention to utility (“Getting somewhere needs to fit the demands of my lifestyle”). Low costs and convenience appeared as their second and third choices. What is interesting, the least favourable feature for all generations is luxury (“I value luxury and want to be noticed when I go somewhere. I feel a sense of pride driving a luxury vehicle and am willing to pay more for the features and the brand name”).

More than half of generation Y (59%) would prefer to be driving an alternative powertrain in five years’ time (Fig. 4).

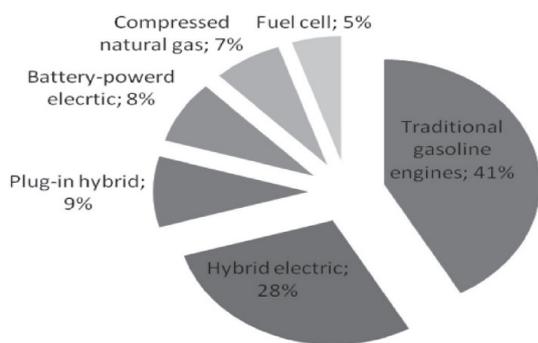


Fig. 4. Respondent preferences concerning driving alternative engines [19]

Consumer interest in alternative power train technologies could make an opportunity for car manufacturers, particularly in Asian markets like China and Japan where purchasers are significantly more interested in alternative powertrain for their next vehicle. Consumer preferences for various powertrain technology differentiated by country is presented in Fig. 5.

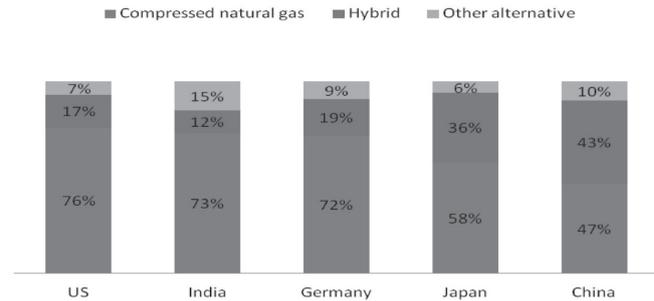


Fig. 5. Consumers preferences for powertrain technologies by countries [20]

Generation Y consumers believe there are significant benefits from new vehicle technologies, including safety, connectivity, cyber security, fuel efficiency and others. Respondents demand technology that recognizes the presence of other vehicles on the road, blocks them from engaging in dangerous driving situations, takes steps in medical emergency or accidents. Some geographical differentiations may be observed. The advanced technology features that generation Y consumers say are the most and least useful with the data shown by country are presented in figure 6.

Technology feature	Category	US	DE	JP	CN	IN
Recognizes objects on road and avoids collision	safety	1	1	1	1	1
Informs driver of dangerous driving situations	safety	2	3	4	3	4
Blocks driver from dangerous driving situations	safety	3	2	2	2	2
Takes steps in medical emergency or accident	safety	4	4	3	4	3
Diagnoses and sends maintenance notifications	connectivity	5	14	12	6	5
Enables remote shutdown of stolen vehicle	cyber security	6	13	8	8	8
Helps enhance fuel efficiency	fuel efficiency	7	6	5	12	7
Enables vehicle-to-vehicle and road communication	connectivity	8	10	5	5	11
Prevents hacking into vehicle systems	cyber security	9	15	19	22	13
Prevents theft by restricting authorised access	cyber security	10	7	16	18	10
Enables use of advanced lightweight materials	fuel efficiency	11	11	14	7	12
Enables interactive vehicle operational information	convenience	12	16	18	20	17
Enables usage of alternative fuels	environment	13	6	9	11	6
Automates tasks for comfort and convenience	convenience	14	12	10	9	14
Lowers the impact on the environment	environment	15	8	15	16	9

Enables hands-free interior controls	convenience	16	23	26	29	24
Monitors the physical health of the driver	safety	17	9	13	13	15
Enables high-speed, long-distance, highway "auto-pilot" mode	self-drive	18	17	11	15	19
Enables remote/automatic software updates of the vehicle	connectivity	19	25	24	31	22
Allows for the use of smartphone applications through the vehicle dashboard	connectivity	20	28	31	27	26
Enables full self-driving capabilities	self-drive	21	20	7	14	20
Coaches the driver to drive safely	cost efficiency	22	18	17	10	16
Makes available adjustable settings to enhance vehicle performance	performance	23	21	20	23	18
Assists in locating, reserving, and navigating to a parking space	service enabler	24	19	25	17	21
Enables the use of self-healing paint	miscellaneous	25	24	23	25	31
Provides passengers with customized entertainment while driving	convenience	26	31	30	30	28
Provides notifications when places of interest are nearby	service enabler	27	26	31	26	23
Automatically pays parking and toll fees	service enabler	28	27	22	21	30
Empowers customer to personalize vehicles	miscellaneous	29	30	28	28	27
Allows the driver to control automated home systems	service enabler	30	29	29	24	29
Enables low-speed urban "auto pilot" mode	self-drive	31	22	21	19	25

US – USA, DE – Germany, JN – Japan, CN – China, IN - India
 Viewed as most useful
 Viewed as partly useful
 Viewed as least useful

Fig. 6. Advanced technology features that consumer say are most and least useful [20]

Across the presented countries (i.e.: US, Germany, Japan, China, and India), four technologies delivering advanced, predictive safety capabilities were consistently ranked as the most preferred when compared to a variety of advanced technology features. These technologies are: object recognition on roads to avoid collision, information system on dangerous driving situations, immediate communication in case of emergency or accident and prevention for drivers in case of engaging in dangerous driving situations.

What is not perceived useful is also noteworthy. For example, features that provide customized entertainment, notification of places of interest and technologies that enable low-speed urban "autopilot" mode are universally viewed as least useful – an important finding for producers considering investing resources to offer these features in future vehicles.

As far as modern technologies are concerned it is interesting to recognize generation Y consumers' opinion on autonomous vehicles. Research shows there is a lack of consensus among consumers in terms of advanced vehicle technologies. First, interest in various levels of autonomous vehicle technology varies across global markets. Consumers in India and China appear most interested – probably due to high number of accidents and road fatalities caused by human error. Geographical differentiations of consumers' preferences toward various levels of vehicle automation is presented in Fig. 7

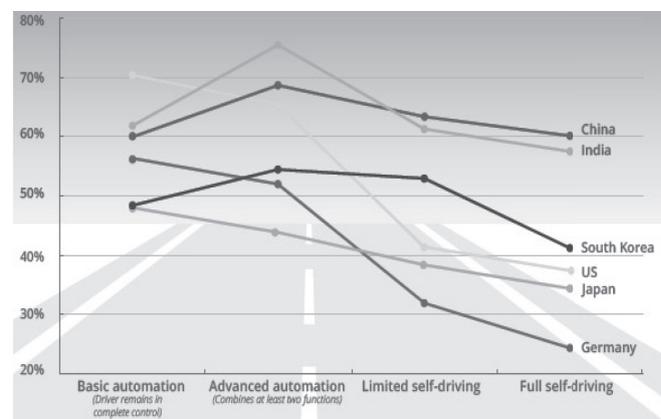


Fig. 7. Percentage of consumers who prefer various levels of vehicle automation (by countries) [20]

Generation Y consumers are generally more interested in fully autonomous vehicles (64% of Millennials from China, 62% Millennials from India and 57% from US), but despite this, they have concerns with safety. In several national markets, opinions diverge between auto and tech companies in terms of who people trust the most to manufacture the fully self-driving car. In some of the largest automotive markets, consumers appear to trust tech companies more, or as much as they trust automotive companies to bring fully autonomous technologies to the market (Fig. 8)

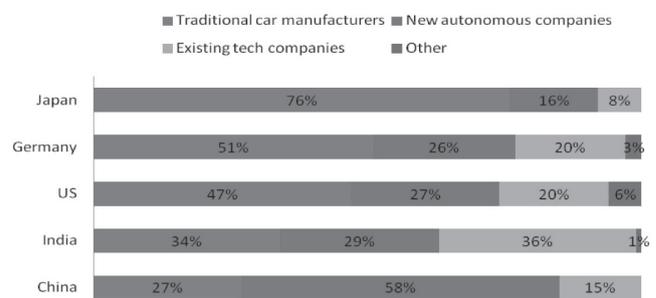


Fig. 8. Types of companies consumers trust most to bring fully autonomous vehicles to the market (by countries) [20]

It is noticeable that consumers from developed markets, like Japan or Germany trust traditional car manufacturers, while customers from emerging markets – mainly from China rely on new autonomous companies.

What may also be observed is a considerable decline in stated consumers' willingness to pay for advanced automotive technologies. Even Japan and China, where consumers tend to pay extra money for the latest technologies posted an average 50% decrease of possible accepted payments. The change in expected prices which young customers are willing to pay for advanced technologies in 2014 and 2016 is presented in Fig. 9.

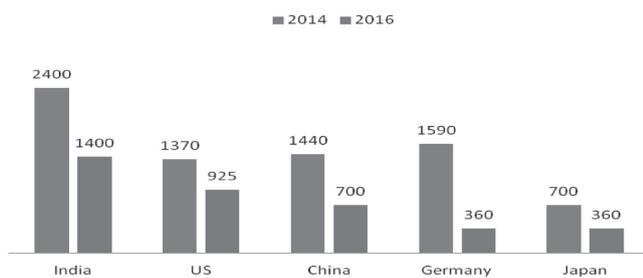


Fig. 9. Overall expected price which consumers were willing to pay for advanced technologies in 2014 and 2016 (in USD) [20]

Millennials from US declared in 2016 to pay 33% less for advanced technologies than in 2014. But the most significant decline is observed in Germany – customers were able to pay 77% less in 2016 comparing to 2014, which makes them the most sceptical young nation among all 17 researched.

The majority of consumers representing generation Y spends more than 10 hours researching, and considers 3 or more brands before they purchase or lease a vehicle. They are active in gaining information from the market and other consumers. The main sources of information impacting Millennials' buying decisions are: car reviews on independent websites, other consumers' opinions and social media, manufacturer websites, news articles and media reviews, as well as salesperson at the dealership. As the generation Y is described as a "connected" generation, they need constant inflow of information. Automotive companies, offering both vehicles and mobile services, need to keep in touch with young consumers to build and maintain close relation with them as main customers and purchasers.

5. Conclusion

Many automotive companies have been undergoing massive changes in response to innovative technologies and new models for mobility that are coming to market at an exponentially faster pace and fundamentally transforming the movement of people and goods unlike anything seen since the dawn of the 20th century.

One of the reasons is the noticeable acceleration of advanced technologies applied in automotive sector. They vary from basic level, through safety technologies, cockpit technologies, to fully autonomous vehicles. The main question concerning the popularization of new technologies is not "if", but "when",

and the answer depends on customers. They are at the heart of automotive value chain, which generates trillions of dollars for auto manufacturers, suppliers, dealers, financial institutions, oil companies and a host of other organizations [20]. Automotive companies focus mainly on Millennials, whose preferences and mobility choices have a noticeable impact on automotive sector. Studies conducted on generation Y consumers demonstrate that they are less focused on possessing a car, and mainly interested in affordable and convenient mobility in general. It makes them the most numerous group of customers of rides-on-demand, ride-sharing and other mobility services.

Millennials as commuters pay attention to low cost of transportation, convenience, and the pleasure of driving a vehicle. When they have made their decision to purchase a car, they present enthusiastic attitudes toward an alternative powertrain and advanced technologies. Generation Y consumers believe there are significant benefits from new vehicle technologies, like: connectivity, cyber security or fuel efficiency, but the most important technologies for them are safety technologies enabling recognizing objects on road and avoiding collision, informing of, and preventing from dangerous driving situations, as well as taking steps in medical emergency or accidents. What is interesting, these appreciated technologies help drivers; they do not take the full control over the vehicle. Although generation Y is far more comfortable with autonomous vehicles than other generations, only 47% of Millennials declare they would have a full self-driving car.

Another interesting finding is the geographical differentiation of young consumers. Millennials from Asian emerging markets (China and India) are far more devoted to new technologies than other young customers, especially from developed countries. Attitudes and behaviours of Chinese and Indian Millennials indicate future preferences of young customers from other countries. Automotive companies should recognize consumer preferences in this part of the world to notice distinct consumption patterns which will appear in the future in other parts of the global market.

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