Segway PT (Personal Transporter) also known as: **Ginger**

Background / Introduction

The product

The Segway PT is a two-wheeled transportation device that looks a bit like a lawn mower (see **Exhibit 1**). It has a platform, on which the rider stands and it has neither an accelerator nor breaks. Instead, sophisticated electronics make it responsive to the body position of the rider. If you lean forward, the Segway travels forward. To stop it you have to lean backwards, and if you lean further backwards, it moves backwards. The further you lean, the faster it goes. To turn around, the rider uses the handgrip intuitively, like stirring a bike or leans sideway. It can turn on a spot (0 radius) , its top speed is 12.5 MPH and its range is about 24 miles per single battery charge. It has a rechargeable battery that can be charged at home for about 5 hours. The device is described by its maker as extremely safe, thanks to its sophisticated electronics, software and redundant electrical and mechanical systems, which back each other in case one fails. For example, it has two rechargeable batteries, 5 gyroscopes (needs 3 to operate), two controller boards, two motors (with 2 sets of winding each) and a frame that could bear up to 7 tons of force. It's been tested under extreme temperature, in snow and in water, in high humidity, salt and dust contact, and UV exposure. Logging tens of thousands of hours of operation, it had a phenomenal safety record.

The company

Segway (and its previous incarnations), headquartered in Bedford, NH (USA), was founded by inventor Dean Kamen. The name Segway is borrowed from: 'segue', which means to transition smoothly from one state to another. The idea was to create a means to travel short trips quickly and efficiently (between walking and car travel). Kamen, who has more than 150 patents to his name (see **Exhibit 2**), believed this revolutionary device would change the world and make it a better place to live (and also make him money in the process). The nature and sophistication of the Segway PT (code named 'Ginger'), is hard to explain. It basically mimics a human walking, using wheels instead of legs. **Exhibit 3** contains more detailed explanation.

As far as competing products, to the best of my knowledge it is a uniquely patented device. It's nearest rivals could be motorized scooters (which are not allowed on sidewalks, whereas the Segway PT is mostly allowed). One of the major aspects of the Segway's acceptance had to do with its definition and the regulations it had to clear, in order to be considered a 'pedestrian' companion, and as such, be allowed wherever pedestrians are permitted to go. One of the most misleading specs is its top-speed. The fact that it can travel at 12.5 mile per hour does not mean it *has* to do so. If walking people surrounds the rider, he/she can adjust the speed to anything between 0 and 12.5 and it does not pose any risk to others (unless its rider intentionally tries to 'bump' people – the same effect of someone running among a crowd of people). When Diane Sawyer was testing Ginger in Bryant Park, she let Sam Donaldson roll over her feet several time and she hardly felt anything. That's thanks to the wide tires that spread its (light) weight evenly to make a 'soft touch' if it runs over you by mistake.

The original vision of Mr. Kamen was to develop a device that would become a ubiquitous form of transportation, reduce pollution, eliminate heavy traffic in large cities, and make society more friendly and efficient. Cars are driven by 6% of the world population, yet cause 60% of the world pollution. What will happen when hundreds of millions in China and India start driving? Will we still have a planet to live on? Ginger is a new product. There has never been anything like it. It extends the speed in which a human can move about four fold and yet it is not a vehicle and does not require physical strength. It is sort of a robot , if you will, that takes instructions straight from your brain and carries you anywhere you want, quickly, quietly and efficiently with no impact on the environment.. The Segway PT had been in development for about 4 years, with powerful investors behind it, as documented in the book by Steve Kemper: "Code name Ginger", published by Harvard Business School press (**Exhibit 4** is my summary of the book as line items). The Segway PT was launched in early 2002. It has not been the mega-success its makers and/or investors have been hoping for and anticipating. I will draw some of my information from the book mentioned, and other from sporadic data available on the web (primarily Segway.com and wikipedia), in order to find out what the problems were with the marketing strategy and its implementation, and later I will suggest my ideas on how it could have been better and still may be in the future.

Initial and Current marketing strategy

Since this is a new product, I will primarily describe the strategy planned in the course of the product development and add more information in regards to the actual current plan. As **Exhibit 4** / 37 indicates, the Segway team had not outlined any meaningful value proposition during its development. In one of the investors meetings, venture capitalist John Doerr (**Exhibit 4** / 20, 22) and his assistant raised the question of why should people be compelled to buy the Segway. That question stunned the management team. They were creating a solution, however the problem could not be clearly concocted. It took more than 4 years after the launch (2006) to come up with the following: "The Segway PT is a zero-emissions, electric transportation device that gives people a real alternative to a car for short-distance trips that are too far to walk and too short to drive. The Segway PT emits no pollution and has energy efficiency equivalent to 450 miles per gallon (!) The Segway PT goes 24 miles on a single battery charge and costs only pennies per mile to operate." During the development process, there was much confusion and haggling with potential suppliers (see **Exhibit** 4 /19, 35, 38), which did not contribute to a smooth launch. Later on, Segway enlisted numerous suppliers to be their partners in developing future models and manufacturing their parts (see **Exhibit 5** for the list of partners)

Pricing

Without getting much into the cost aspect, and as mentioned in **Exhibit 4** /12 – The company anticipated Ginger to cost several thousands of Dollars. This was determined early into the development stage, when market target has not been defined yet. Not having a target market made it nearly impossible for the marketing manager to gauge the price sensitivity of the potential customers. Also, from the small group of 36 'regular' people testing the device, as indicated in **Exhibit 4** /30, the none technical people did not perceive the Segway PT as an expensive device. If it was not a vehicle and was viewed as inexpensive, it's fair to say that part of the test group anticipated a price of a VCR/DVD player ($200-$400). The ultimate goal of Kamen to make the Segway a device for all, and have it priced so high were somewhat hard to reconcile. The high price of the Segway is considered one of the major obstacles to the acceptance of the device in the general market. The company decided to ignore the feedback from their small research

group and continued to build the device to specifications that required a hefty price. The fact that the original price was near $5,000 and not too long later (without any competition yet), you could buy it for under $3,000 – indicates that perhaps the initial ambitious price was out of line with the target market. The current pricing and profitability figures are listed on **Exhibit 9**. Since Segway is a privately held company the numbers in regards to profits and sales may not be fully accurate.

Market segmentation

Since Kamen's original idea was to 'change the world', his goal was to sell the Segway PT to 'everyone'. This posed a challenge for the marketing team during the development process. How could they position the product in the market place, in a way that it would appeal to the customers and maximize sales. Over time, the Segway company realized that their product had more value for some service sectors (law enforcement, park workers) and some private businesses with large warehouses, airport staff and city tours. Those became the de-facto target markets (see **Exhibit 6** for purchasers of the Segway).

Regulations and other stumbling blocks

Segway spent more than a million dollars in lobbying to legalize the use of the device on sidewalks across the USA. 41 states agreed and remarkably most did not say anything about minimum age of the rider, tests, safety helmets or other precautions. The trouble was, even after the state's approval, county and city officials were concerned about collisions with pedestrians, and as a result, the Segway PT was 'banned' in many places, including New York city and San Francisco - a place known to be highly receptive to new technology. The state with regulators has been another major roadblock for Ginger.

Another 'side' attack opened by health advocates who claimed that many Americans suffer from obesity already and if we take away walking from them, it will only get worse. **Exhibit 8** shows the worldwide restrictions on the Segway PT.

Proliferation of Seways

The company started coming out with more and more models, for different applications. This has created some confusion in the market place (see **Exhibit 7**), on the other hand some potential buyers (like law-enforcement) requested modifications of the design.

Originally car companies were viewed as a threat, as one of the board members, Jeff Bezos, CEO of Amazon.com voiced his opinion to that effect (see **Exhibit 4** /36). Segway, however, decided recently to license its patent in order to create an urban vehicle for 2. They picked GM (perhaps not the wisest pick), to put their advertising muscle behind it and named it: **P**ersonal **U**rban **M**obility and **A**ccessibility vehicle -- dubbed Project P.U.M.A. (see **Exhibit 13** NY Auto-show April, 2009),

Strategy evaluation

Over the course of the product development and even at present, The Segway company has not established a clear position for itself in the marketplace.

Unless you are selling bottled water, a marketplace of 'everybody' is no marketplace at all. After all, at $5000 a pop, buying a Segway PT is not like getting a case of beer.

Kamen and Segway have been very hesitant in the way they promoted the product. When you clearly position yourself to include certain segments, it almost always excludes some other segments. This was a pathological fear the company had. In order to live up to all the media hype about architecting new cities around the Segway PT and stating that the device is as revolutionary as the PC or the Internet (quotes from Steve Jobs, John Doerr, who were investors, but nevertheless famous people with some credibility), it was hard to manage it as a device that can benefit certain populations and effectively advertise and sell it to its real potential customers.

The 'Arm wrestling' with regulations was quite successful in the US, however not so much in the rest of the world. It does sell in 62 countries, but they missed important markets like Japan and the UK.

The rush to market by a relatively small company and the paranoia about competition which led to extreme secrecy and little market research, drove the company to a release date, by which firstly the device had not been available for shipment for at least six months, and secondly, a bug in the software which was discovered about a year after its

release (causing people to fall off), forced a recall of all 6000 Segway PTs sold to that time, and was a big blow to the image of safety the company was trying to project. The recall caused the lobbying of regulators to be scaled down. The media was not forgiving toward the Segway PT. On November 2005, when president George W. Bush gave the Japanese Prime Minister Junichiro Koizumy, a Segway PT as a gift, most newspapers that reported it, also mentioned that Bush had fallen off the device in 2003.

Communicating and explaining the nature of the Segway, why it was so revolutionary and how it differs from other 'scooters', has been a tough mission. Also proving it was safe for other pedestrians, has remained a challenge for the company. As far as distribution channels, the company started with Amazon.com as an exclusive contract (due to the connection to Bezos). On March 2003 Segway started a dealership expansion program, recruiting dealers in major metropolitan areas of the US to distribute, market and sell the Segway PT. On October 2003, continuing its efforts of distribution, the company entered an agreement with Brookstone, a specialty store chain (see **Exhibit 10**). Customers could also order the Segway PT through Brookstone's catalog.

The pricing issue was also a major blunder. Prior to the launch, and after the public had heard about Ginger, the number floating in the media was $2000. When it finally was up for sale, the price tag was $4,995. This sticker shock put the Segway PT out of reach for most Americans.

Recommendations

In theory, if someone could use the Segway to commute, the savings would be significant. At 450 miles per gallon, no insurance cost, no registration, no inspection and the list goes on. Most of the focus, in my view needs to be shifted to the commercial market, proving that the Segway PT can save money for various businesses. For example, if a delivery person travels 15 or 20 miles during the 8 hour work-day, the Segway can trim the day to 2-3 hours, alternatively if a car is used for the delivery, it's much more expensive to maintain the car and operate it.

Here are some of the target segments that either have not been addressed at all, or if they were, not much was done to put the Segway PT into their hands.

Golfers

The Golf cart business is a $4 Billion a year industry in America **(Exhibit 4** / 6). Golfers are usually people with significant sums of disposable income. In fact it's hard to find a CEO who doesn't play the game. The Seway company did not want to 'corner' itself into a niche market. $4 Billion is a corner I would like my product to linger in. In addition, this is a fancy sport, with national Television exposure and some of its top performers earn more that $50 Million a year. Many businesses would 'kill' to have a mere bite of this pie. Just imagine how many golfers will go and buy the Seway PT a day after Tiger Woods riding it, wins the Masters. This segment must be pursued vigorously. There is already some penetration into this market, but not enough.

Baby-boomers retire

Everyone likes to act and feel young. Some people drive fast cars, others jog etc. Unfortunately, as we age, we tire faster and our mobility could limit us even with excellent health. My mother is 71. She still does shopping, but only twice a week. The older she gets the more crazy the other drivers become. She covers about 1-2 miles walking between stores. If she gets the Segway, the only risk, is running out of her pension due to excessive shopping. The states of Florida, Southern California and other prime places for many affluent retirees, have large building complexes and vast outdoor areas that could easily be 'infested' with Segways. Normally in a course of a day to cover 5-10 miles with a car is a waste of time, parking problems, pollution etc. Many people in those communities could benefit from the Segway PT. An idea for a commercial: Two young businessmen harrying down the street, checking their watches and complaining about being late for their important conference, then an 80 year old granma zooming by them on a Segway PT with a smile on her face and a look of disbelief on theirs…(logo appearing: Segway is the only way - Never be late again)

Explore the Japanese market

The Segway is currently not allowed in Japan. This will require some political muscle and heavy duty lobbying, but perhaps with some help from the car industry (as will be

mentioned bellow), penetration into the Japanese market could be very lucrative. It's not only the fact that Japan has the second largest economy in the world, it's cities are over-crowded and many people are 'gadget' lovers. Occasionally some American firms like IBM release certain gadgets only in Japan. Those would not sell in America (too expensive). It is not unusual to see a Japanese tourist in New York leaving a store with 5 camcorders; at $1000 apiece it's considered a bargain for them.

Experimental Town

There are many small towns in America and around the world, with several hundred residents. This could be used as a show-case. The Segway company can suggest donating 300 Segway PTs in collaboration with town officials and equip most of the population with the device. The lowest-end Segway is $2400 retail, so the cost (given a gross margin of motor-cycles of 30%), is $1600 and if half comes from the town itself, about $800 a piece, times 300 – A $240,000 investment. In return the Segway company will get the right to video tape a day in the life of that town and use it in their commercials and also retain the right to use the residents as a focus group for future improvements to the PT. This town, in addition to the inspiration it may give other places, could also prove the safety of the device to regulators and resolve this major roadblock mentioned before. Hypothetically, if Manhattan could be car-free, most residents don't own cars anyway, the Segway PT could totally change the landscape of the city.

Make it a car 'option'

By collaborating with carmakers, the Segway PT can be offered as an option in the trunk. If you have it in the trunk and you park a mile away, you can still make it within 5 minutes to your destination. Some car value options costs thousands of dollars anyway, so as far as price goes it will not be out of line in this instance. By doing that, Segway can take the fear out of carmakers, and instead of beating them, joining them (as the Brits say). Another way to align potential buyers with Ginger's price would be, if it could be used as a car replacement for them. A campaign of this sort could be launched via the

Internet, to attract those individuals that could substitute their car with the Segway PT and save a fortune over time.

Segways in schools

Offering schools to carry Segways for their maintenance personnel, donate them and in return, have the science teachers present and explain their nature to the students. It so happens that with new technology, the younger generation gets it first, and on many occasions, is able to explain it to their elders (i.e. the Internet)

Features

One notable missing feature from the Segway is theft protection. As a device that has its 'brain' built on the software that allows its maneuverability, it is quite easy to 'password' protect it and in case it gets stolen, all the thief gets, are useless pieces of metal and plastic and a few gyroscopes, which at best could retrieve $50 in the 'chop' shop market.
The company has a database of the purchasers and a 'Segway Social' community of users (see **Exhibit 11**). It can use the group to create 'democratizing' of innovation process, in which the users decide what features are worth adding or leaving out.

Other Avenues

An earlier contract Dean Kamen signed with Johnson & Johnson in relation to the iBot (the wheelchair that can climb stairs), restricts him from getting an approval for the Segway PT as a medical device. This subject needs further exploration, but if it's possible to re-negotiate that aspect, it could be a 'silver bullet' for the company. By declaring the PT as a medical device, many regulatory restrictions would be lifted, and the way for wide acceptance could be opened. If that happens, dropping the price under $1000 is not far fetched. At this price-point, and the ability to use the device in everyday life, there could be the greatest potential for the future of this strange looking 'scooter'.
One distinct point made over and over in Kemper's book is that whoever tried Ginger, loved it and could not get off of it. The company did experiment with a program in which people could try it for a month for free and chose whether to buy or not at the end of the

trial. The program has been very successful and resulted with doubling the quarterly sales number. This option is an effective way to introduce the device that can hardly be fully understood by none engineers. This brings me to the topic of product returns. The Segway.com website indicates that the company charges 10% re-stocking fee and the product must be unused and in the original packaging (see **Exhibit 12**). This policy is not in line with the findings. If most people that buy the Segway PT love it, why should there be such a restriction? I'd give potential customers the feeling that they are buying a product with high value and the Segway company is confident that the customer would appreciate , enjoy and keep it.

With the climate in the world being ripe for energy conservation, and 'green' devices sprawling everywhere, perhaps now is the time for the Segway company to strike with renewed force, adjust their strategy and let more Segway PTs roll the streets.

Dean Kamen

Kamen on one of his inventions, the Segway PT

Born April 5, 1951
Rockville Centre, New York

President Bill Clinton and Kamen in the White House, Kamen riding the iBOT Mobility System

Exhibit 1

Exhibit 2

Dean Kamen: The man and his inventions

Dean Kamen, born in 1951 on Long Island, NY. He is portrayed as a 'mad scientist', a bit peculiar and detached from ordinary life, who almost always wears denim. He admires people like Albert Einstein and Issac Newton (and doesn't know who Madonna is). Before inventing the Segway, Kamen was already a multi-millionaire who owns large estates, two helicopters and a private jet (all of which he flies himself). He invented several important medical devices that have improved people's lives. Kamen has filed more than 150 patents. One of his first major inventions was an AutoSyringe – a device delivering medicine automatically. His inspiration came from his brother, a student in Harvard Medical school, who had voiced dismay over the inconvenience associated with delivering medicine to patients. This invention lead to another one for Kamen: The insulin pump used by millions of diabetic patients throughout the world. Another notable device by Kamen: The iBot. A motorized wheelchair that can climb stairs and positions its user at eye level of normal walking people. This invention's sponsor was Johnson & Johnson.

Exhibit 3

How the Segway PT works

The Personal Transporter is inspired by our trivial knowledge and mechanics of walking. We hardly ever pay attention to what are the body parts that allow us to walk, yet analyzing this process proves that it isn't so simple. When we move ourselves forward, our brain gives an order to our leg to make a step. The fluid in our ears gets tilted and alerts the brain to give a command to our second leg to move forward and prevent a fall. Instead of falling we walk one step at a time and our ears balance our movement. The Segway mimics the process except it uses wheels instead of legs, a motor instead of muscles, microprocessors & software instead of brain and a set of sophisticated sensors instead of the inner-ear balancing mechanism. The Segway is aware of the riders leaning and rotates the wheels at the appropriate speed to retain balance, which results in moving forward or backwards. Kamen calls it **Dynamic stabilization** and has patented this process that allows the Segway to balance on two wheels only.

The Segway PT is made up of sensors, a control system and a motor system. The primary sensors system is a collection of gyroscopes, which calculates the change in tilt. This information is conveyed to the on-board powerful computer (with multi-processors, 3 times more powerful than a typical PC) which enables precision calculations, which in turn, makes the device safer. For every component that malfunctions, its backup component immediately takes over all its functions to ensure continuous operation and also informs the rider about the need for repair before anything breaks down. The software that runs on the device's microprocessors gets all the information it needs for the gyroscopic sensor system and regulates the speed of several electric motors based on this information. The electric motors powered by a pair of NiMH or Lithium Ion batteries can turn each of the wheels independently at variable speeds. Here is what it says on the company's website: *"Advanced sensing - If there's a feeling you get when trying a Segway product, it's like it can almost read your mind. Well, it's not magic. It's the combination of propulsion, energy, inertial sensing and an incredibly intuitive user interface that enables a ride that will force you to hold back a smile. Hopefully someday you'll have a chance to try it out and feel good your commute instead of fearing it."* The net effect of the Segway's mechanics is when a rider bends forward, the motors spin both wheels forward, so the device moves forward, instead of 'falling' forward, and the reverse happens when the rider leans backwards. On turns the motors spin one wheel faster than the other, or spins both wheels in opposite direction so the device turns as desired.

Notable points from the book: Code Name Ginger / Steve Kemper

1. Dean Kamen (the idea man) always dressed casually, an engineer but looks more like a machinist. Some of his ideas were to sway the American youth from following sports and show business, and direct them into science and technology. That's why he created FIRST - (For Inspiration and Recognition of Science and Technology)

2. Kamen is portrayed as a control-freak, but also as a very persuasive person who is a naturally superb salesman. The whole Segway project is wrapped with extreme secrecy (to protect from competitors)
3. The ambition was to change the world similarly to what the PC did (what PC did to the Mainframe, Kamen was hoping this device would do to the car).
4. Prior project (iBot chair) was out of budget and not on time. Johnson & Johnson paid for it. (the wheelchair that climb stairs).
5. Kamen's company called DEKA (DEan KAmen) with about 200 employees. The sub-company that developed the Segway called: Acros with about 2 dozen employees
6. The device: Ginger/Segway: target markets initially identified: 1.1M mail carriers in the US, 2 million package delivery guys, 13.6M students on college campuses, Golf cart business worth 4B annually. However, they did not aim at a niche market and wanted ubiquity.
7. Market segmentation analysis by Acros: (1) Pure re-creation, (2) Fun way to get from A to B (golfers, fun commuters, tourists, shoppers) and (3) Efficiency: cops, delivery guys, military, USPS, warehouse workers, airports etc.)
8. The company decide to persue segment (1) first. Taiwan was found to have had 8.5M scooters (but Dean refused to call it a scooter).
9. In terms of demographics of the sought for market: Urban male 18-34 , self confident, independent, trend setters.
10. They wanted to build a 'demand pull' model of manufacturing
11. Sales expectations were 22 Million units in 10 years. 2 models planned, Metro and all-terrain. Anticipated market cap of 26B in 5 years and 73B in 10 years.
12. Manufacturing plan: about 2000 units per day, price: few thousands of Dollars.
13. Marketing team wanted different color units, manufacturing wanted one color to reduce expenses
14. They hired a marketing manager from P&G (not much understanding in tech products). A device so revolutionary most don't understand it. They faced communicability challenge.
15. Marketing research shows 31M Gingers sold in 10-15 years. It's been out for about 6-7 years now.
16. Approving it on the sidewalk by regulators was going to be a challenge, Dean's celebrity status and contacts with government officials notwithstanding.
17. No real marketing research done because of secrecy (Dean from the school of thought of Sony). No focus groups etc. They figured the product will sell itself (viral), because everyone that experienced it, liked it

18. Dean did not believe in marketing. To place ginger in a Spielberg movie (Minority report with Tom Cruise) he wanted to get paid (in contrast BMW paid the James Bond Golden Eye producers 25M to feature their Z3 model).
19. Dean refused to bear any cost of suppliers tooling to make Ginger's parts, no volume purchase guaranteed. In fact he feared suppliers had the intention to become partners or even buyers of the product.
20. There were 2 types of investors, a venture capitalist , John Doerr an alumnus of Harvard University who funded and lead IPOs like Google, Sun Microsystems, Symantec and Amazon.com - and his Kleiner Perkins firm, and Credit Swiss First Boston, providing $80M together.
21. Other investors like Steve Jobs of Apple and Jeff Bezos of Amazon wanted in, however Dean was reluctant to give more control to others, so he rejected their offerings (50 Million – Jobs and 10 Million – Bezos) and retained about 75% interest to himself.
22. On the board of directors the Credit Swiss guys represented the 'old' economy and John Doerr, Jobs and Bezos were the 'new' economy guys – a fact that resulted some frictions.
23. Dean had suggested giving free Gingers to prominent people, but the marketing team feared it would be viewed as a toy for the rich (niche market).
24. Dean had contacts with Disney and Epcot through Steve Jobs (Pixar movies) and through his FIRST organization (which held its conferences at Epcot). In Disney they rent 3000 wheel chairs a day (80% of the renters are people that can walk), he was hoping to replace those chairs with Gingers.
25. Acros was about 20-30 employees. They had an ambitious deadline of about 18 months from prototype to launch. It had slipped 9 months.
26. As a substitute for market research on regulators, several employees embarked on scooters in NYC's sidewalks – they were hardly noticed.
27. Regulating authorities identified for approach were: Consumer Product Safety, Department of Transportation (DOT) and Federal Communication Underwriters Lab. Only on August 2000 (17 months before launch), the company realized it must be a sidewalk friendly device to become a success.
28. Dean believed that no laws were insurmountable, except for the laws of nature (or physics as he liked to call them).
29. On October 2000, it was the first time that Ginger was tested by none employees of DEKA. 36 people referred by employees (wives, friends etc). About half said their commute to work is too long for Ginger. Few said they preferred walking.
30. The none technical people from this group of 36, did not perceive the Segway to be an expensive device.
31. The person hired to conduct commercial sales wanted to use Dean's contacts to get 'trophy' accounts like UPS, GE, Amazon - Early adopters.
32. One of the roadblocks during the development was Dean's reluctance to hire more software engineers (not paying enough to attract those), it caused significant delays
33. On February 2001, the board forced Dean to 'leak' some news about the new product to the media
34. Profit margins were projected to be low.

35. 6 months to a year before launch the product had no official name, no logo, which made it hard to talk to suppliers and distributors. They were close to calling it: Flywheel, but that name had been taken already. A highly priced company was hired to work on a name, but they finally came out with Segway Human Transporter, which abbreviates unpleasantly to: SHT
36. Jeff Bezos suggested to launch Ginger in Singapore. His viewpoint was that in the US the product was DOA, because the car 'guys' would lobby against it and win
37. Ginger had no value proposition, on college campuses bikes were cheaper, helped students exercise, no need to charge batteries
38. The company had nagging problems with supplies. Each unit required 5 gyroscopes and various other components.
39. When Ginger was leaked to the media without much detail, the speculations were enormous from thinking of a levitating device to telekinesis transport. Many comedians used it as an opportunity to mock the device.
40. 32 states in the United States declared the Segway as none vehicle (allowed on side walks).
41. CNN placed Ginger as the top tech product of the year. MSNBC placed it second after the cell phone.

Exhibit 5

Seway's partners

Being a highly complex device with extreme safety features, the Segway needed cooperation from different industrial partners with design, part supply and fitting to changing specifications of the different models. Here is the list of suppliers:

Silicon Sensing Systems: Provider of silicon Micro-Machined sensors to the automotive, commercial and aerospace sectors. This company worked with Segway to develop the gyros and tilt sensor systems of the device.

Michelin: A tire manufacturer – provided the specialty tires, rolling resistance and unique tread design for superb balancing and handling

Delphi corporation: Manufacturer of integrated circuits, smart sensors and software algorithms for transportation and other industries. Delphi assisted in the development of Segway's integrated circuit boards to meet the standards used for automotive reliability levels in extreme environments

Pacific Scientific: Manufacturer of high performance electric motors and drive systems for semi-conductor, electronic assembly, medical/fitness, packaging and other precision automation applications. This company designed Segway's compact, brushless, electric servo-motor.

Saft: A provider of self-contained energy solutions, Saft specializes in rechargeable battery-power solutions that can resist environmental swings for portable household appliances and hand tools, defense, mobility and professional electronics applications. Saft helped Segway develop smart-charging, self contained NiCd and NiMH batteries that required no external charger.

Magnetek: A manufacturer of systems that supply and control power for both home and industrial applications. Magnetek helped Segway create the power supply that could receive normal wall current and charge the batteries.

Schafer Gear Works: A producer of high precision, custom engineered gears and machined parts for a wide variety of markets, Schafer helped optimize the performance of the quiet helical gear systems and was exclusive supplier of the Segway PT transmissions.

GE Plastics: A manufacturer of high-performance engineering thermoplastics, GE Plastics provided Segway with durable and environmentally friendly materials. Segway PT was the first commercial application for the SOLLXTM polymer – a weather resistant film that offered an alternative to paint.

Microprocessor Designs: A product design and development firm specializing in embedded microcomputer hardware, firmware design. This company worked closely with Segway on systems, hardware, firmware design, integration, test as well as transfer to key manufacturers.

C&J Industries: A precision injection molding company, manufactured many of the plastic components on the Segway. It provided engineering solutions for plastic part applications, and also helped Segway create a wheel assembly that could withstand the vigorous environmental and load requirement of the Segway PT.

Klüber Lubrications: A provider of tribological solutions. This company provides the Klübersynth GH 6 series of oils for lubrication of the Segway PT gearbox.

Valence Technology: A provider of energy storage systems, its Lithiom Ion technology powers the high-performance Segway models (The GT, XT abd i180).

DecisionOne: A provider of tailored information technology support services, it provided Segway customers in-home service and orientation.

Exhibit 6 **Segway Purchasers**

1. ACCS
2. Aetna (Hartford Police)
3. Allied Security
4. Arkansas State University
5. Aventura Police Department
6. Bradley International Airport
7. Broward County Sheriff's office
8. California State University Long Beach
9. Calumet City IL Police department
10. Central Parking System
11. City of Bloomington
12. City of Chicago
13. O'hare International airport
14. Midway airport
15. City of Coral Springs Police Dept.
16. City of Culver
17. City of Gary
18. City of Ocala
19. Phoenix Sky Harbor Intl. Airport
20. Conway AR Bomb squad
21. Cousins Office Park
22. Delray Beach Police dept.
23. DC Metropolitan Police dept.
24. Drexel University
25. Duke University
26. Electronic Creation
27. Greater Orlando Aviation authority
28. Harrah's casino
29. Harrisburg Airport
30. Hartsfield Intl. Airport
31. Hazard city bomb squad
32. Hyatt Regency Coconut point resort
33. Intrado
34. John Wayne Airport
35. Juneau Alaska police dept.
36. Kaiser Permanente
37. Lander University
38. Little Rock AR bomb squad
39. Longwood University
40. L.A. Transportation authority
41. Loyola University
42. Baltimore Washington Intl. Airport
43. Mass Mutual
44. National Law enforcement Tech center
45. National park service
46. Norfolk police department
47. Oak Park Mall security
48. Orange County convention center
49. Royal Canadian mounted police
50. San Joaquin Regional Rail Commission
51. San Jose state university police
52. Santa Clara County Sheriff's office
53. Securiguard Service Limited
54. Singapore Police
55. Sonoma County Sheriff's dept.
56. Southlake Dept. of public safety
57. Springfield, MO
58. St. Paul police
59. Greater St. Paul Building owners assoc.
60. Sumter Police Dept.
61. Sundance Square
62. Sunrise Police dept.
63. Susquehanna area Regional airport authority
64. The streets of Tanasbourne shopping mall
65. United center
66. University of California, Berkley
67. University of California, Irvine
68. University of California, Santa Barbara
69. University of Nevada, Reno
70. US Air Force
71. US Army
72. US Embassy of kingdom of Bahrain
73. US Marine corps
74. US Navy
75. Valley Intl. Airport
76. Ventura county bomb squad
77. Washington area metro transit authority
78. Will Rogers world airport Worchester Polytechnic institute.

Exhibit 7

Segway Models

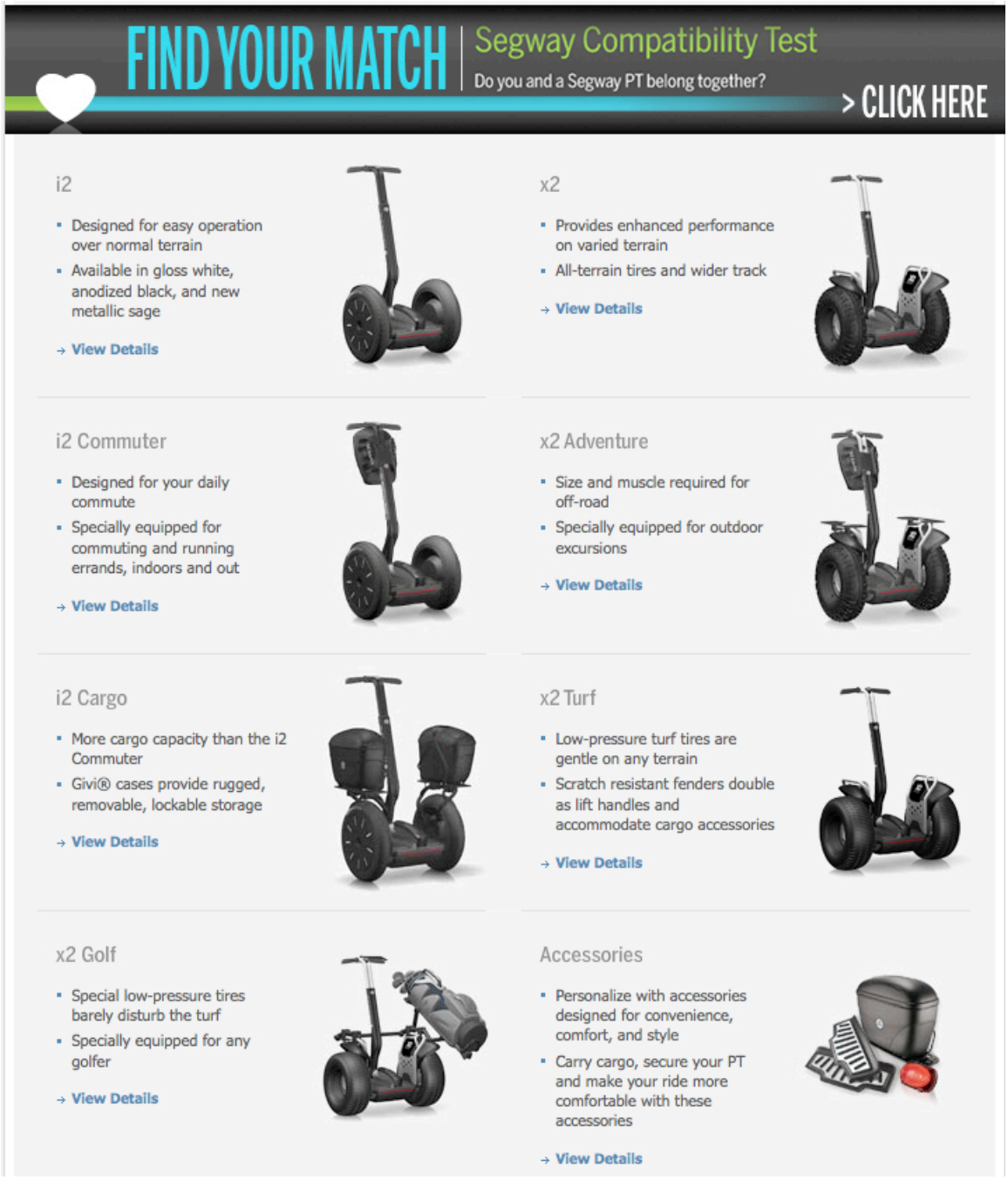

Exhibit 8 (2 pages)

Restrictions on use

Australia

In Australia laws are determined at the State level, each differing in their adoption of the Australian Road Rules. In New South Wales, the Segway has been confirmed by the Roads and Traffic Authority as being illegal on both roads and footpaths. "In simple terms, riders are way too exposed to mix with general traffic on a road and too fast, heavy and consequently dangerous to other users on footpaths or cycle paths."

Europe

German police officers posing on Segways for publicity.

In April 2008, the Dutch Government announced that it would ease the ban it had imposed in January 2007 that made it illegal to use a Segway on public roads in the Netherlands. Until recently, a tolerance policy was in place due to the inability of the authorities to classify the Segway as a vehicle. However, certain handicapped people, primarily heart and lung patients, are allowed to use the Segway, but only on the pavement. From July 1 2008 anyone over the age of 16 is permitted to use a Segway on Dutch roads but users need to buy custom insurance. Amsterdam police officers are testing the Segway.

It was unlawful to use a Segway on any public road or pavement in Sweden until December 18, 2008 when the Segway was re-classified as a cykel klass II (class 2 bicycle).

In the **United Kingdom**, the Segway is classified as a powered vehicle and subject to Road Traffic law, with the effect that it is unlawful to use a Segway anywhere other than on private property with the owner's permission. Britain's two largest opposition political parties, the Conservatives and Liberal Democrats, have lobbied the Government to change the law to allow Segways to use public cycle lanes.

In **Denmark** the Segway is classified as a scooter. As such vehicles are required to be fitted with lights, license plates and mechanical brakes, the Segway is effectively banned from public roads.

In **Germany** the use of a Segway is only allowed on private grounds except for some city tours that require a special permit. On 25 April 2007 the use of a Segway on public bicycle paths, sidewalks and roads within city limits was allowed in the state of Saarland after local police tested it.[citation needed]

In **Switzerland** the Segway is classified as a light motorcycle. Only the PT i2 has been approved for use in Switzerland. The PT i2 may be used on roads provided that it is equipped with a Swiss Road Kit and a license plate. The Swiss Road Kit has front and back lighting, a battery source, and a license plate holder. Use on sidewalks and pedestrian zones is prohibited. An exception is made for handicapped individuals who must obtain in advance a special authorization from the Swiss Federal Roads Office. The Segway PT i180 may also be registered for use on specific request. However, the PT i180 must be equipped with a left/right turn indicator system before it may be admitted for road use.[citation needed]

In Italy the use of the Segway is allowed within city limits wherever pedestrian and bicycles are allowed, i.e. sidewalks, bycicle paths, parks etc. "Normativa Segway" (in Italian). http://www.segwaygarda.it/it/normative-sulla-circolazione/normative-sulla-circolazione.html.

Japan

In Japan, the Segway is treated as a motorcycle with an engine displacement between 50 cc and 125 cc. As such, the vehicle must be equipped with brakes and signal lights, and must register for a license plate, making it virtually impossible to lawfully use a Segway on public roads.

United States

The company has challenged bans and sought exemption from pavement restrictions in over 30 states. The Segway PT has been banned from use on sidewalks and in public transportation in a few municipalities, often because it is not classified as a medical device. Advocacy groups for pedestrians and the blind in the US have been critical of Segway PT use: America Walks and the American Council of the Blind oppose allowing the PT to be driven on sidewalks, even for those with disabilities, and have actively lobbied against any such legislation.

In November 2002, before it was widely available, the city of San Francisco banned the Segway PT from sidewalks citing safety concerns. However, a number of Segway Tour operations use them in cycle lanes and designated trails.

In February 2004, Disney banned Segway PTs from its theme parks, stating they had not been approved by the FDA as medical devices. In the same month, Disney began offering Segway tours of its Epcot theme park. In early August 2007, Disney began offering a similar guided tour in its Disney's California Adventure park in California.

Today, Segways are allowed to be used on sidewalks in most states, although local municipalities may disallow their use. Many states also allow their use in bicycle lanes or on roads with speed-limits of at most 25mph.

Exhibit 9

Pricing & profitability

Price

In the US the price (MSRP, July 2008) of the various Segway models ranges from $2,400 to $7,500.

In the UK the prices are around £4,399 to £4,599 excluding delivery costs.

In France a Segway sells at between €6400 and €7200. Their legal status is still uncertain. Segways can be rented in some American and European cities for around €70 ($110 USD) per day.

Profitability

When it was launched in December 2001 the annual sales target was 40,000 units, and the company expected to sell 50,000 to 100,000 units in the first 13 months. Segway Inc's investors were optimistic. Inventor Dean Kamen predicted that the Segway "will be to the car what the car was to the horse and buggy" and John Doerr, a venture capitalist who invested in the company, predicted that Segway Inc would be the fastest company to reach $1 billion in sales. In fact only about 30,000 Segways were sold from 2001 to 2007.

Critics point to Segway Inc's silence over its financial performance as an indication that the company is still not profitable, as about $100 million was spent developing the Segway.

Exhibit 10

Brookstone

From Wikipedia, the free encyclopedia

Brookstone is a chain of retail stores in the United States. Its first store was opened in 1973 in Peterborough, New Hampshire. Its headquarters are currently located in Merrimack, New Hampshire. Brookstone sells many types of products ranging from radar detectors and alarm clocks, to massage chairs. The company has its own brand and makes many electronic gadgets, one of the store's main focuses.

The company is also known for having every item in the store on display for customers to have a real hands-on shopping experience, being able to try out every product before making a decision on the purchase.

Contents

History

Brookstone had its humble start as a small classified advertisement in *Popular Mechanics* magazine in 1965. It advertised itself as selling "hard-to-find tools".

Consumers were able to purchase merchandise from a small black and white catalog with detailed specifications of all of the items that they sold. In 1973, Brookstone opened its first retail store in Peterborough, New Hampshire.

Brookstone

Brookstone

Type	Private Osim International (http://www.jwchilds.com/) J.W. Childs Associates, L.P. -- Private Equity Investments Temasek Holdings (http://www.temasekholdings.com.sg/)
Founded	Merrimack, New Hampshire 1965[1]
Headquarters	Merrimack, New Hampshire
Key people	**Philip W. Roizin**, Interim President, Chief Executive Officer **George Sutherland**, Executive Vice President, Store Operations **Steven P. Brigham**, Vice President of Distribution and Logistics, Chief Information Officer **Carol A. Lambert**, Vice President, Human Resources **Thomas F. Moyinhan**, Vice President, Finance **Steven C. Strickland**, Vice President, Marketing **Gregory B. Sweeney**, Vice President, General Manager Direct Marketing **M. Rufus Woodard**, Jr., Vice President, Merchandising
Industry	Retail
Website	www.brookstone.com (http://www.brookstone.com/)

Exhibit 11

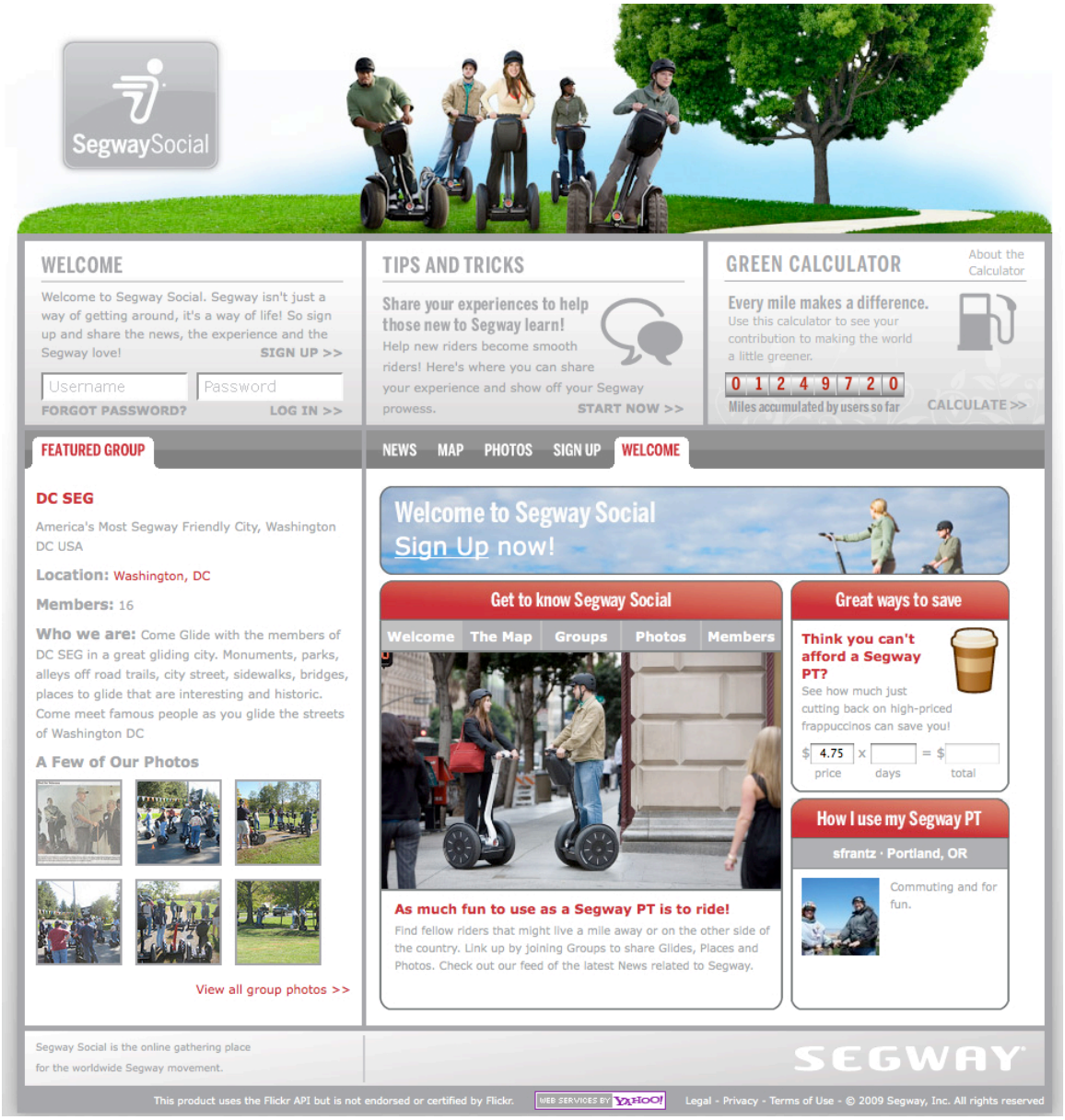
SegwaySocial
WELCOME
Welcome to Segway Social. Segway isn't just a way of getting around, it's a way of life! So sign up and share the news, the experience and the Segway love!
SIGN UP >>
Username
Password
FORGOT PASSWORD?
LOG IN >>
TIPS AND TRICKS
Share your experiences to help those new to Segway learn!
Help new riders become smooth riders! Here's where you can share your experience and show off your Segway prowess.
START NOW >>
GREEN CALCULATOR
About the Calculator
Every mile makes a difference.
Use this calculator to see your contribution to making the world a little greener.
0 1 2 4 9 7 2 0
Miles accumulated by users so far
CALCULATE >>
FEATURED GROUP
DC SEG
America's Most Segway Friendly City, Washington DC USA
Location: Washington, DC
Members: 16
Who we are: Come Glide with the members of DC SEG in a great gliding city. Monuments, parks, alleys off road trails, city street, sidewalks, bridges, places to glide that are interesting and historic. Come meet famous people as you glide the streets of Washington DC
A Few of Our Photos
View all group photos >>
NEWS
MAP
PHOTOS
SIGN UP
WELCOME
Welcome to Segway Social
Sign Up now!
Get to know Segway Social
Welcome
The Map
Groups
Photos
Members
As much fun to use as a Segway PT is to ride!
Find fellow riders that might live a mile away or on the other side of the country. Link up by joining Groups to share Glides, Places and Photos. Check out our feed of the latest News related to Segway.
Great ways to save
Think you can't afford a Segway PT?
See how much just cutting back on high-priced frappuccinos can save you!
$ 4.75 x = $
price
days
total
How I use my Segway PT
sfrantz · Portland, OR
Commuting and for fun.
Segway Social is the online gathering place for the worldwide Segway movement.
SEGWAY
This product uses the Flickr API but is not endorsed or certified by Flickr.
WEB SERVICES BY YAHOO!
Legal - Privacy - Terms of Use - © 2009 Segway, Inc. All rights reserved

Exhibit 12

SEGWAY SUPPORT

Returns & Shipping

Returns policy

Segway Inc. will only accept return of unused and undamaged products that are returned in the original packaging. Purchaser must follow this return procedure:

- Within ten days after receipt of the Product, Purchaser must contact Segway Customer Operations at 866-4SEGWAY and request a Return Material Authorization (RMA) number.
- After Purchaser receives an RMA number from Segway Inc. Purchaser must return the Product to Segway Inc. in an unused, undamaged condition and in the original packaging. The Product must be delivered back not later than ten days after the RMA is issued.
- Purchaser, as a condition of returning the Product, must pay Segway Inc. a re-stocking fee equal to 10% of the purchase price for the returned Product. Payment of this fee is due at the time Purchaser obtains the RMA, subject to actual return of the Product in accordance with the terms of this Policy.
- Upon receipt of the returned Product, Segway Inc. shall inspect the returned Product to confirm that it is unused and undamaged and in the original packaging. Upon such confirmation, and provided the Purchaser has followed the procedure set forth in this Policy, Segway Inc. shall credit Purchaser for the purchase price less the 10% restocking fee.
- If Purchaser returns Product that is used, damaged, not in the original packaging, or otherwise not in accord with this section, then Segway Inc. shall not issue any credit to Purchaser and Purchaser shall pay all costs for return shipment of the Product to Purchaser.

Shipping policy & changing your order

Segway usually ships products via ground delivery through a variety of carriers. Please call Segway Customer Care **(866-4SEGWAY)** for questions about your order and specific shipping and tracking information.

Exhibit 13 **NY Auto Show, 2009**