

Segway: A Case Study in Lack of Due Diligence



Segway –Hailed as New Form of Transportation

Segway came to public attention as a mystery

- It had a code name: Ginger
- There was intense hype and mystery in media discussion
 - Was it an Anti-gravity machine?
 - A Personal helicopter?
- On Dec. 3, 2001 the inventor Dean Kamen unveiled it on Good Morning America.
- John Doerr, one of the most famous venture capitalists in the US said it was : “As important as the internet”
- Steve Jobs claimed: “Cities will be built around it.”
- They set up a factory that could produce 40,000 per month
 - (actual was less than 300 /mo. or 6000 in 21 months)



1 Hour Segway Tour of the Boston Harbor Walk.

Segway – personal transport vehicle for urban areas.

- Two large wheels to be able to navigate tight spaces and small steps and bumps.
- Innovative computer control and balancing system to allow Segway to balance itself and its rider at all times.
- Control of speed and direction by leaning and shifting weight.
- Non polluting electric motor.
 - Ignoring power plant emissions!



Dean Kamen



- Attended WPI, but dropped out to invent
- invented the first drug infusion pump and started a company, AutoSyringe, to market and manufacture the pump.
- His company DEKAResearch (NH) patents
 - technology used in portable dialysis machines,
 - an insulin pump (based on drug infusion pump technology)
 - an all-terrain electric wheelchair known as the iBOT
 - 440 Total Patents in his name
- Founded FIRST in 1989
 - For Inspiration and Recognition of Science and Technology

Segway



- The Segway technology was adapted from his brilliant gyroscopic wheelchair.
- Segway was a technological tour de force
- The technology worked perfectly and exactly as designed and advertised.
- It passed extensive field testing and environmental stress testing
- What happened?

Feasibility Analysis –lets do our own.

- Some things are easy: there are no competitors
- Founder is brilliant and experienced.
- This is an entirely new market and there is no easy historical trend
- Consider Item 5 in First Screen part 1
 - Strength of Business Idea
 - 5. The degree to which the idea requires customers to change their behavior!
SUBSTANTIAL!



Regulatory Issues

- Is this a motor vehicle?
- May it travel on roadways?
- May it travel on sidewalks?
- Where do you park it?
- How do you get it from place to place over longer distances?
 - Car? Train? Bus?
- Are cities designed to accommodate this?
 - (Did Steve Jobs REALLY believe that cities would be redesigned for this?)
- Who represents the potential market and how large is it?
 - Who do you target first?
- What happens when you run out of charge?
 - Re-charging stations?



Answers were hard to find.

- And then there are the safety issues.
 - Driver safety?
 - Training?
 - Pedestrians in the area.
 - -Some cities outlawed it immediately! (i.e. San Francisco)
- Would you rather try to drive this in New York City traffic or on a crowded New York City sidewalk.
 - What about an LA Freeway?
 - On a snowy Massachusetts street?
 - In a rainy Portland road?
- Requires two hands and thus cannot be used by anyone that needs to have a free hand.



And What is the Market?

- Markets probably exist, but were not targeted.
 - They targeted everybody and nobody
 - Price was too high at \$4950
 - Did financing pressure force the broad target?
 - Why not do a competition to pick a first city?
 - Get the leaders on your side.
 - Build publicity and excitement
 - Create envy in other cities.
 - Ramp up slowly and create an artificial shortage?
 - Find a target group
 - Police
 - Tourists
 - Military, etc.

Sold

- In 2010 Segway was sold to a British Millionaire –Jimi Heselden
 - He died in a Segway accident on September 27,2010
 - Heselden, 62, apparently fell off a 30-foot cliff into a river while riding a Segway near his home in West Yorkshire, UK. Police found Heselden's body and a Segway personal transporter in the river.
 - Police and security organizations have become the major purchasers.



Unexpected Result

- The technology created to save the world, by saving energy and re-making cities is now mainly a police and military technology!



Or is it the next golf cart?

Golf Seg 2 Wheel Mobility



MAX SPEED: 12MPH
DISTANCE: 25 MILES
DIMENSION: 27" x 32" x 50"
MAX LOAD: 250 LBS
BATTERY: LITHIUM
VOLTAGE: 33V
AMP HOUR: 12AH
CHARGING: 2/4HRS
MOTOR: 2 x 800W
TIRES: 17" x 3"
GROSS WT: 130 LBS
NET WT: 120 LBS
CARTON: 29" x 36" x 29"

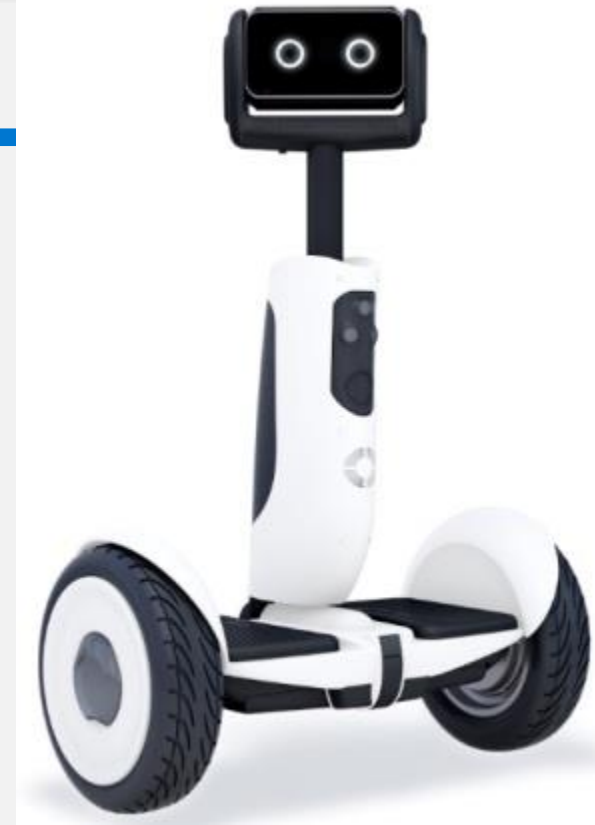
The REST of the story (so far that is)

- After Heseldens untimely end ,the company was bought by Summit Strategic Investments LCC in 2013.
- “Segway Purchased by Chinese Company” – USA Today
 - <http://www.usatoday.com/story/money/business/2015/04/15/segway-china/25810851/#>
 - Segway was purchased by Ninebot in April 2014.
 - “Beijing-based Ninebot, which makes a range of short-distance motorized transport devices, said Wednesday that it bought Segway Inc. for an undisclosed amount. It said it received \$80 million from a group of investors to finance the purchase. Ninebot's purchase of New Hampshire-based Segway is the latest example of a Chinese company acquiring foreign brands or technology. It's also the latest chapter for Segway, which has passed through several owners and generally failed to live up to the great hype surrounding its launch in 2002.”
- “Why This Chinese Startup Just Bought a Company Americans Love to Ridicule” -Time
 - <http://time.com/3822962/segway-ninebot-china/>
 - “followed a combined \$80 million investment from mega-rich Chinese smartphone company **Xiaomi**, investment firm Sequoia Capital and other backers.”



Segway purchased and a robot added

- Ninebot and Google launched a joint venture to create a robot to self-drive the Segway.
 - <http://techcrunch.com/2016/01/07/segway-has-created-a-robot-that-connects-to-your-two-wheeled-scooter/>



Questions

- Speculate as to why they failed to do a feasibility analysis.
- Tell how you would have done the feasibility analysis.
- How could Segway have done a better job to prepare the market for its introduction?
- Are there markets that you would have targeted first? How?
- If you were made CEO of Segway tomorrow, how would you try to reposition it? -Or is it simply a lost cause?
- How does such a brilliant guy make such a huge mistake?



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- Wikipedia: http://en.wikipedia.org/wiki/Segway_PT
 - Mr. Segways difficult path: Dean Kamen is best known as the inventor of the Segway scooter. His career illustrates the difficulty of turning innovative ideas into reality
 - <http://www.economist.com/node/16295592>
 - Millionaire Segway tycoon dies in cliff plunge on one of his own scooters
 - <http://www.dailymail.co.uk/news/article-1315518/Segway-tycoon-Jimi-Heselden-dies-cliff-plunge-scooters.html>
 - How Dean Kamen's Magical Water Machine Could Save the World: The inventor of the Segway and more now has an idea worth tens of millions of lives. But no one cares. Tracking Lord Dumpling's genius on his seceded island of geekery.
 - <http://www.esquire.com/features/dean-kamen-1208>