

ENTREPRENEURSHIP

BUS 452

HOMEWORK – 1

COMPUTER SCIENCE ENGINEERING

Abdurrahman BULUT

1901042258

Part1 : : The five key discovery skills

Associating

SpaceX engine to the Tesla

"SpaceX option package for new Tesla Roadster will include ~10 small rocket thrusters arranged seamlessly around car. These rocket engines dramatically improve acceleration, top speed, braking & cornering. Maybe they will even allow a Tesla to fly ..." Musk tweeted in 2018.

Along with rockets, Musk promised a 0-60-mph launch time of 1.9 seconds for the roadster, quarter-mile times of eight seconds and a range of 600 miles. He also promised this Roadster by the year 2020.

Early on, industry observers suspected that what Musk had in mind for "rockets" would actually be a composite overwrapped pressure vessel, or COPV, powered by the battery that would send pressurized air to about 10 cold gas thrusters positioned around the car. If such a system sounds bulky and heavy, especially when filled to the max with pressurized air, that's because it would be.

The whiteboard contains the following content:

- Roadster**
 - 0-60 1.9 sec.
 - 10,000 Nm wt
 - 620 miles range
 - AWD
- Space X Thruster Package**
 - 10,000 PSI COPV
 - Pump (compressed Air)
 - ~10 cold gas thrusters
- Roadster Stats**
 - Diagram of a car with thrusters and a box labeled "something like this" with forces F_r and $m \cdot g$.
 - $F = (2000 \text{ Lg}) 9.81 \text{ m/s}^2 = 20,000 \text{ N}$
 - $\sim 21 \text{ kN } 1.05 \text{ g}$
 - 0-60 mph
 - $v = a(t) \Rightarrow 26.8 \text{ m/s} = (2.5 \text{ g}) 9.81 \text{ (ft)}$
 - $t = 1.1 \text{ s}$
 - Assumes:
 - Can hover
 - Full rear thrust
 - Thrust duration
 - 60-0 mph
 - GT2 RS - 87 ft / 27 m Roadster? _____ ft
 - Weight
 - $m = F_r / (g_0 \cdot I_{sp}) \Rightarrow \text{_____ kN} / (9.8 \cdot 70) = \text{_____ kg}$
- Rocket Math**
 - Diagram of a rocket engine with COPV and Battery.
 - Thrust?
 - $F_T = g_0 \cdot I_{sp} \cdot \dot{m}$
 - $= \text{m/s} \cdot \text{s} \cdot \text{kg/s} \Rightarrow \text{kg} \cdot \text{m/s}^2 = \text{N}$
 - $F = m \cdot a \Rightarrow \text{kg} \cdot \text{m/s}^2 = \text{N}$
 - ② Specific Impulse (I_{sp})
 - ↳ How effectively a rocket uses propellant (s)
 - ↳ Change in momentum per unit fuel used.
 - Depends on:
 - Space (chemical energy)
 - Col (N₂ @ 73s)
- Model S**
 - 100 kWh

Observing

The discovery of shatter proof glass

The discovery of safe glass was accomplished exactly when it was needed most: in the motor vehicle age ... In 1903, French chemist Edouard Benedictus dropped the test tube on the floor of his laboratory. The tube broke but remained in one piece without falling apart. Benedictus realized that the thin plastic layer left in the tube after evaporation of the liquid containing collodium prevented shattering. However, the girl inside a vehicle that crashed was seriously injured by the broken windows, which brought this issue back to the agenda. Inspired by his previous experience, he created three-ply glass by placing cellulose nitrate between two layers of glass.



Experimenting

Experimenters unceasingly explore the world intellectually and experientially, holding convictions at bay and testing hypotheses along the way. They visit new places, try new things, seek new information, and experiment to learn new things. Steve Jobs, for example, has tried new experiences all his life—from meditation and living in an ashram in India to dropping in on a calligraphy class at Reed College. All these varied experiences would later trigger ideas for innovations at Apple Computer

Questioning

What if your employees were contractors or freelancers?

With the rapid life choices and technology innovation freelance work is a serious option and hiring free lancers is easier with services like UpWork and Fiverr. Some company workers are freelancers and it use professional contractors in partnerships to complete client work. It is thought now that freelancing is outpacing conventional job market due to desire for flexibility, freedom and control in our work and personal lives. 32 percent of the working population in America is freelance. 1.2 percent in Turkey. By 2020 one in three jobs might be people working independently online.



Networking



When Dr. Spencer Silver, one of the "3M" scientists, discovered the perishable adhesive in the early 1970s, he considered it a useless invention ...

Years later, his colleague Art Fry became very angry at a church when the braces in his hymnbook didn't stop where he wanted. Whether it was frivolous sermons or a sacred inspiration, he began to tire his mind on this subject, and suddenly he thought of his colleague's useless invention ...

This would allow the separator to stick to the book, but when it was removed, the book would not be damaged. Post-it paper, of course, is not the product of an overnight success... this example took its place among the indispensable office supplies.

Part 2 : : Discussion questions

2-37. In the United States, what environmental trends are supporting the development of Rover.com 's business?

Increase in the spread of technology and mobile devices.

-With the use of technology, pet owners maintain good communication with their animals. For example, they receive information about their pet via e-mail. They receive photos of their pets instantly.

Provide new services

- ex. RoverReel.com app. People be able to watch their 's pets videos.
- Dog grooming and dog walking

Adding other animals, such as cats, horses and reptiles.

This kind of stuffs build trust and keep the Rover.com growing.

2-38. How might Rover.com use focus groups to gain a better understanding of its current and potential customer and their needs?

In my opinion, the customer's request should be asked to the customers. As example, they should give live support at all the time. Various surveys should be organized. But while doing this, the customer should not be disturbed. Interactive series should be made and various choices about pet feed or animal care should be included in the series. The data obtained from these preferences should be evaluated and improvement should be achieved.

2-39. In this chapter, we noted that a true business opportunity is attractive, durable, timely, and anchored in a product or service that creates value for buyer. To what extent does Rover.com's service satisfy each of these criteria?

The application handles each one to a great extent. Rover.com is attractive because it has more than one software about pets. Especially, RoverReel.com make more attractive. Beautiful ingredients are produced with animals and these are very attractive to animal owners. Rover.com is durable because people don't always have time to take care of pets and it will go on like this because people are a moving creature. So, this makes the application durable and long-lasting. Adding other animals makes Rover.com more anchored. Rover.com appeared when it was needed. Because people left the pets in their shelters and went to on vacation, and this was a big problem for them. From this perspective, we can say that the application emerged on time.