

Quiz-2

⦿ Unclear, Unpredictable and Unfolding Possibilities and Spillover effect!

⇒ Potential return on technology possibility is not limited to its use to one product. Possibility could be exploited through multiple channels. Besides, multidimensional implications on spillover effect on the overall economic and social aspect are also very difficult to anticipate at the beginning.

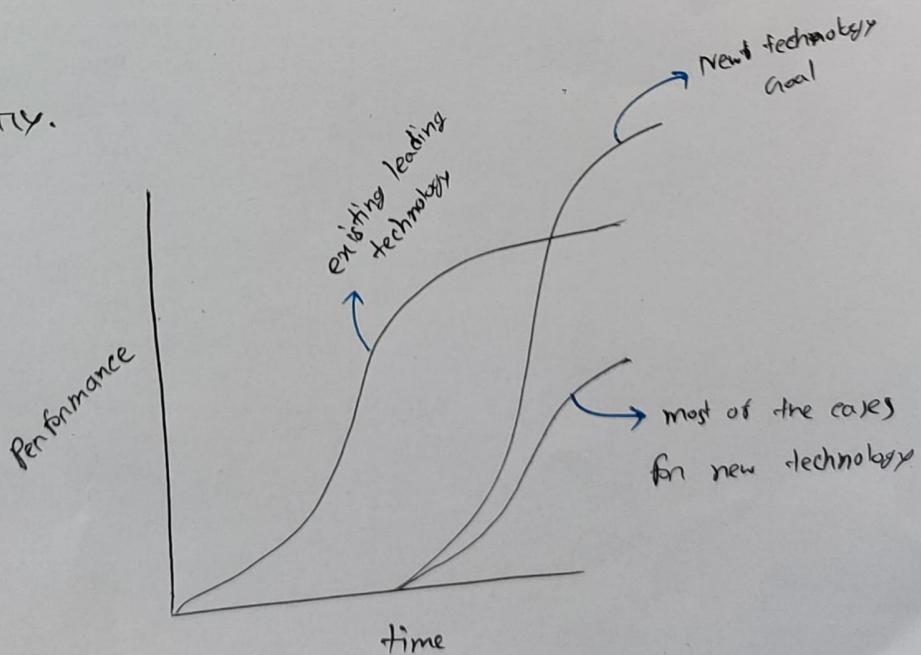
- Spillover effect could be both negative and positive.

⇒ The difficulty of assessment of spillover effect makes it quite hard to justify investment, and also mobilize public support.

⦿ Increasingly Costly Experimentation to Figure out Growth Trajectory!

⇒ One of the popular approaches of pursuing unfolding technology possibilities is

- let's give a try.



Uncertainty in Loss and Expected Profitability:

⇒ - Every journey of exploiting technology possibility begins the journey at loss. Due to the continuous R&D, loss turns into profit.

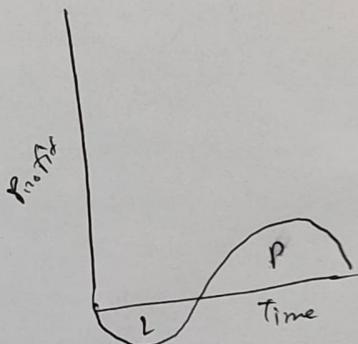
- There are two major zones in the financial performance:

(i) losing making . L

(ii) Profit making . P

⇒ It's quite difficult to predict the size of L.

⇒ profit making area P depends on multiple factors. Some of them are



(i) success in creating willingness to pay

(ii) cost of delivery

(iii) Price setting capability

(iv) sustaining innovation waves

(v) number of value extraction windows

(vi) profitability duration

(vii) emergence of next wave

Uncertain Product Life cycle:

⇒ There have been multiple attributes of product life cycle. And they are unpredictable.

- how should it grow in serving different customer segment?

- what should be the sequence of serving them?

- every product is amenable to growth through the cumulative effect of incremental ideas, leading to facing the ultimate fate of dis-integration.

❖ Unpredictable Stock price and Firm's Market value:-

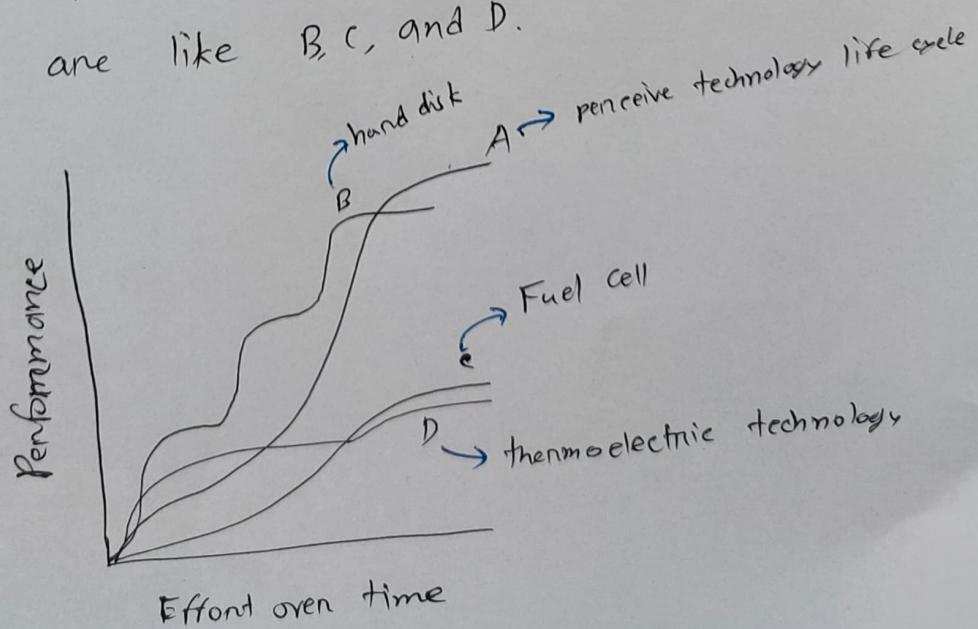
❖ linked with technology possibilities

⇒ What are the underlying factors in such big swings in the share price on market value of various companies?

⇒ Despite the inherent volatility nature in the stock market, there appears to be the effect of decisions in pursuing technology possibilities.

❖ Uncertain Growth Path:

- we perceive technology life cycle as a S-curve, the reality experiences many variations. Some of the variations are like B, C, and D.





Demanding Scientific Discoveries:

⇒ Pursuing technology possibility, whether as product or process innovation, demands entrepreneurship, start-up, and engineering practice for optimisation, they are not sufficient enough.

- These has been growing demand for scientific investigation for unlocking latent potential.

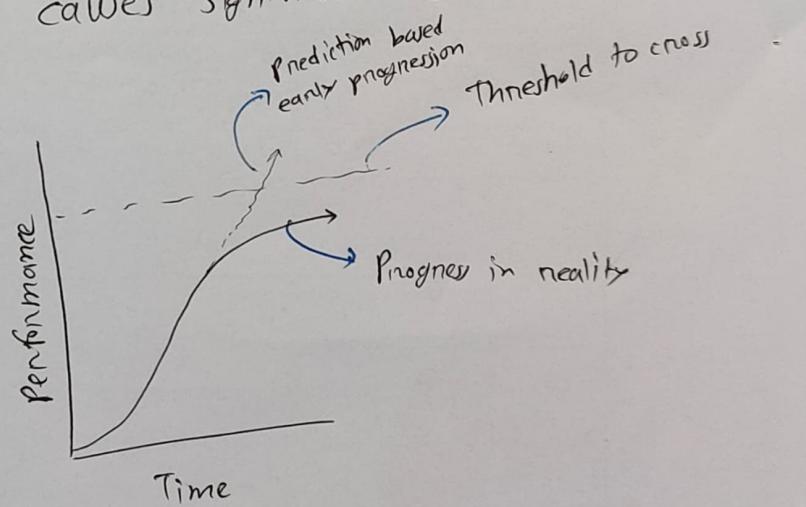
Competing Multiple Technology:

⇒ Competing multiple technologies to take over a mature incumbent one creates also uncertainty. Despite having potential, they do not keep growing at the same space. They keep varying in multiple factors, starting from quality, manufacturing, manufacturability, durability, and recyclability. This variation increases decision making complexity. The persuasion of them simultaneously increases cost. But pursuing just one of them increases risk.

⇒ management of technology possibilities demands dealing with uncertainties posed by competing technology.

Misleading Early Progress! Extrapolation fails to predict.

- Some technologies show rapid early progress.
- Particularly, in AI, performance improvement rate at the early stage is extremely high.
- In many situations, this rate does not sustain for sufficient period. Amazingly, performance improvement trend ~~st~~ saturates before crossing the threshold. Such reality runs the risk of failure to roll out innovation and recover the investment made in R&D and also infrastructure development. It also causes significant stress in the job market.



Technology Supply chain and Ecosystem!

⇒ Often, the journey of pursuing technology possibilities demands gathering, fine tuning, and assembling component technologies in a powerful purposeful way within a framework on architecture. Starting from Henry Ford to Steve Jobs, every magical performance had to do it.

⇒ in certain cases, as opposed to gathering the technology set within a same company, the reality demands partnering with diverse technology providers from all over the world. Such reality demands forming an integrated global technology supply chain to pursue a particularly possibility.

④ Consumer Preferences:

- Misleading consumer's Early feedback

⇒ Uncertainty in consumer preference is a major source of uncertainty in pursuing technology possibilities. Repeatedly consumer preference uncertainty has been found to be the top most reasons of startup failure.

⇒ Steve Jobs

- People don't know what they want until you show it to them. That's why I never rely on market research. Our task is to read things that are not yet on the page.

⇒ Henry Ford

- If I'd ask customers what they wanted, they would've told me a faster horse.

⇒ Therefore we should focus on one empathy, silent observation, and quick prototyping using paper, wood, clay, and soon.

⊕ Significant Investment Need to Verify Consumer Preferences:

- ⇒ Although 84% of executives agree that innovation is important to growth strategy, only 6% are satisfied with innovation performance.
- ⇒ In 2018, 65% of companies decide to wait to perfect and test the innovation before launch, in order to make sure that the customer is completely satisfied from the start.
- ⇒ One of the common approaches to reduce consumer preferences related uncertainties is to ~~slow~~ show the real product, let customers experience, and get the feedback. But that is very expensive option.

⇒ We should focus on are empathy, silent observation, and quick prototyping using paper, wood, clay, and so on. More importantly, we should look into underlying pattern of innovation dynamics, and its linkage with the getting jobs done.

⊕ Getting Jobs done and empathy for reading customers minds:

- ⇒ Jobs-to-be-done theory tells us that the more jobs a product can help a customer get done, the more valuable that product is as a product platform in that space. ~~The Swiss Army knife,~~

⇒ few pointers of getting job done theory to get to know consumer mind:

- ① People buy products and services to get a job done
- ② Jobs are functional, with emotional and social components
- ③ A Job-to-be-done is stable over time
- ④ A Job-to-be-done is solution agnostic - independent of any solution or technology.
- ⑤ Success comes from making the 'job', rather than the product on the customer, the unit of analysis.
- ⑥ A deep understanding of the customers job makes marketing more effective and innovation far more predictable
- ⑦ People want products and services that will help them get a job done better and more cheaply.
- ⑧ People seek out products and services that enable them to get the entire job done on a single platform, ~~and~~
- ⑨ Innovation becomes predictable when needs are defined as the metrics customers use to measure success when getting the job done.

⇒ Empathy is the capacity to understand or feel what another person experiencing from within their frame of reference that is the capacity to place oneself in another's position.

This is very useful to feel latent pains in getting jobs done, and to figure out innovation to address them.

⊗ Infrastructure & Compatibility:

- Major ideas demand infrastructure uplifting:

⇒ Economic, social, and environmental implications of some of the technology possibilities such electric vehicle, mobile phone, high speed trains, or airplanes are extremely high. But to diffuse them, we need purpose built infrastructure.

⊗ Public-Private Synchronized Response:

⇒ Invariably, the roll out of new infrastructure faces market failure. It faces an economic situation defined by an inefficient distribution of goods and services in the free market. Due to market failure, the individual incentives for rational behavior do not lead to rational outcomes in building infrastructure to benefit from unfolding innovation diffusion.

* ⇒ private sector alone cannot deal with in optimum roll out of infrastructure to support the diffusion of some high value innovation. Hence, it demands synchronized responses.

④ Standardization for compatibility

⇒ Due to positive network effect, consumption benefits increase with the growth of customer base. For creating positive network ~~ext~~ externality effect, we need to focus on standardization for compatibility.

⇒ However, in failing to be compatible with dominant standards, innovation also get deprived from the externality effect.

⑤ Unpredictable Response from competition!

⇒ Possibility of profitability encourage competition responses such as

i) Replication

ii) Imitation

iii) innovation

iv) substitution



On the other hand, technology possibilities also benefit from .

- (i) complementary goods and services
- (ii) network externality effect
- (iii) reduction of information and experience gap
- (iv) growth in infrastructure, compatibility and standardization.

⇒ To address them one of the common approaches is to fend off competition through intellectual property laws.

⇒ Another approach is the speed of innovation leading to release of successive better versions, making previous versions less appealing.

- willingness to pay ↑
- market expansion
- revenue growth ↑

⇒ innovators need to focus in gathering ~~intellectual~~ intelligence and developing idea (patent) portfolio - often, in partnership with technology suppliers.

⇒ There is also need for gathering early signals, and developing technology inventory and organization capability for drive into self-destruction for recreation at the right moment.

Policy and Risk Capital Uncertainty:

⇒ In many journeys of exploiting technology possibilities, it's not feasible for a single or a group of firms to pursue a long uncertain path. There have been need for consistent policy supports from the government. Some of the policy supports pertain to

- (i) R&D grants and tax credit
- (ii) Creating market for ~~initial~~ primitive emergence
- (iii) even offering performance centric subsidies
- (iv) addressing market failure

⇒ Uncertainty related to need and availability to risk capital is also a major issue.

⇒ Policymakers also face dilemma in adopting favorable policy options.

⇒ To address such uncertainties and policy dilemma, there should be ~~to~~ holistic monitoring, predicting, strategy formulating and implementing exercises.

