## 1. Definition:

1. The technology window is a concept proposed by steve jobs to describe a short but critical period when a technology can be launched to the market.
2. When the technology window opens, it usually opens new business opportunities for companies.

## 2. Applicable when:

1. A promising technology is used by a small group of the population but not by the main population yet.
2. Then the disadvantage of such technology becomes smaller with time. The acceptance of such innovation becomes more significant with time.

## 3. Concept Details:

1. Usually, when innovation is created, it still has some significant disadvantages that prevent it from being used by the mass population.
2. These disadvantages could be cost, safety, usability, legal acceptance, etc.
3. With time, these disadvantages become less significant as enthusiasts, vendors, and innovation leaders think about new ways to make the product cheaper, safer, and better.
4. When all the conditions are met, then the technology enters a fast expansion tunnel. The technology window is the precondition for such a rapid market expansion.
5. The adoption rate is very different for each technology when entering the expansion phase. For example, 50% of the US population had an iPad at home [only five years](https://web.archive.org/web/20220929092507/https:/ourworldindata.org/technology-adoption) after the first iPad came out. The personal computer took more than 15 years to achieve this result.
6. The adoption speed depends on the item price, the required infrastructure and other factors.

## 4. Example: Mobility Innovation

1. When the first automobile was invented in 1886 by Carl Benz, the mass population still used horse carriages as the primary personal transportation method.
2. Even if the knowledge of building a car exists, only a few people can afford it.
3. In addition, the automobile needs to be refilled with gas. This is quite inconvenient since there was no gas station network back then.
4. The car became popular one century later when the car was cheaper, there were more gas stations, the car was safer, and the roads were made for cars.
5. The Electrification of the vehicles is now going through this exact same procedure.
6. Many people dislike Electric cars mainly because it is inconvenient to charge despite all their advantages over an ICE car.
7. Once the charging network station coverage is there, this disadvantage will disappear, and more people will switch to electric cars due to their sustainability.
8. When charging stations are built, more people will recognize the technology window of electric vehicles. They enter the market to participate in the business of this technology.
9. This will make the technology even cheaper, as higher demand for the car will lower the production price of the EV car.

## 5. Example: AR, VR Technology

1. As of writing this article, AR VR technology is an innovation not yet adopted by the mass population.
2. The cost of an AR glass is still around 300-1000 Euro, but its usability is limited. The number of suitable applications existing on AR platforms is also limited.
3. Compared to this price, people can buy a phone with more applications than AR glasses.
4. Gamers would rather spend money on a brand-new game than an AR game. The benefit of AR is not significant yet. It is rather nice to have and not a must-have.
5. Only early adopters such as scientific institutions, hardcore gamers, and digital artists would be willing to pay a high price for an arguably medium-mature product.
6. The chicken-egg problem here is that better apps need to be developed to attract more people to use AR. Better apps are only created if enough people are using them.
7. Companies such as Facebook putting big bets on AR technology could facilitate the industry to make more apps and open the technology window for AR earlier.

## 6. Real Applications:

1. **For employees:** One can benefit from understanding the company's competitiveness and deciding to stay or leave the current company.
2. **For investors:** Betting on the next big thing is a vital part of investing. Investors must scout for the latest trends and keep an eye on the potential players in a market. They might be small today, but once the technology window is open, potential new winners can be produced.
3. **For entrepreneurs:** Leaders and entrepreneurs should keep an eye on all potential technologies. They need to understand user pain points and find out which technology is barely mature enough to solve user problems. Once predicted correctly, the company will benefit from the new demands of innovation. When predicted wrong, the cost of entering the market too early or too late will threaten the company to go bankrupt. They need the vision and courage to invest in new technology before their competitors do it.

## 7. Concept Takeaway:

1. New technology needs to be significantly better than its substitute before being widely accepted by the population. If new technology is only marginally better, people will choose the conventional product they already know.
2. It is an art to determine when a technology is mature enough to have small competitors but big markets in the future. There is no accurate method.