

Commercializing New Technology

Lessons from the
Trenches

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June 06, 2022

Agenda

Brief Intro;

Factors for Success/Failure;

S-Curve;

The Process.

Brief Intro

- Commercialized more than 25+ products;
 - Launched 7 startups;
 - Several Patents Filed and Received;
 - Several Conference and Journal Papers.
- BTech EE – IIT Kharagpur;
 - MSEE – University of Minnesota;
 - MBA – Old Dominion University.

Factors for Success

- The most important factor for success or failure is Timing.



Examples of
Perfect Timing –
George
Westinghouse
(1846-1914)



Westinghouse's Impact

Power generation

Steam Turbine Generator

Electrical Technology;

Aviation;

Gas Turbines;

Nuclear Powers;

Industrial Motors;

Rail Transit;

Consumer Electronics.

Westinghouse's Bet

Westinghouse made a bet on Alternating Current (AC) as opposed to Direct Current (DC) and it paid off handsomely.

Netscape

- **Was it right on time or too early?**
 - **Founded 1994**
 - **Defunct 2003**
- **First company to attempt to capitalize on the Internet.**

Netscape

- **Why did the first mover's advantage not apply here?**
- **It was a one-trick pony.**



Examples of Perfect Timing

Google IPO Launch – Aug 19, 2004

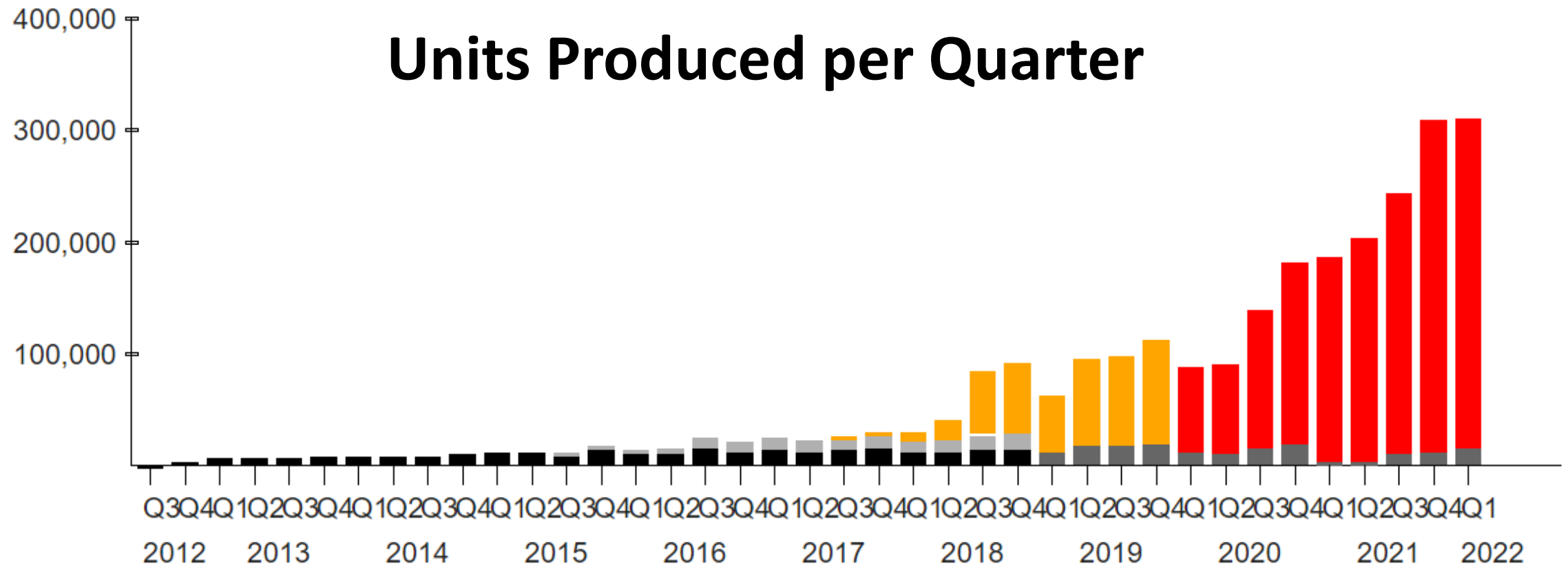
Examples of Perfect Timing

- **Pixar**
 - Toy Story Launch
 - Nov 19, 1995
 - IPO a Week Later
 - Disney Acquisition
 - Jan 2006



- What would have happened to the value of Pixar if it did not go public a week after Toy Story Launch?

- Ed Catmull: A Steve Jobs IPO Story
- <https://youtu.be/4BNFL-Uakzg>

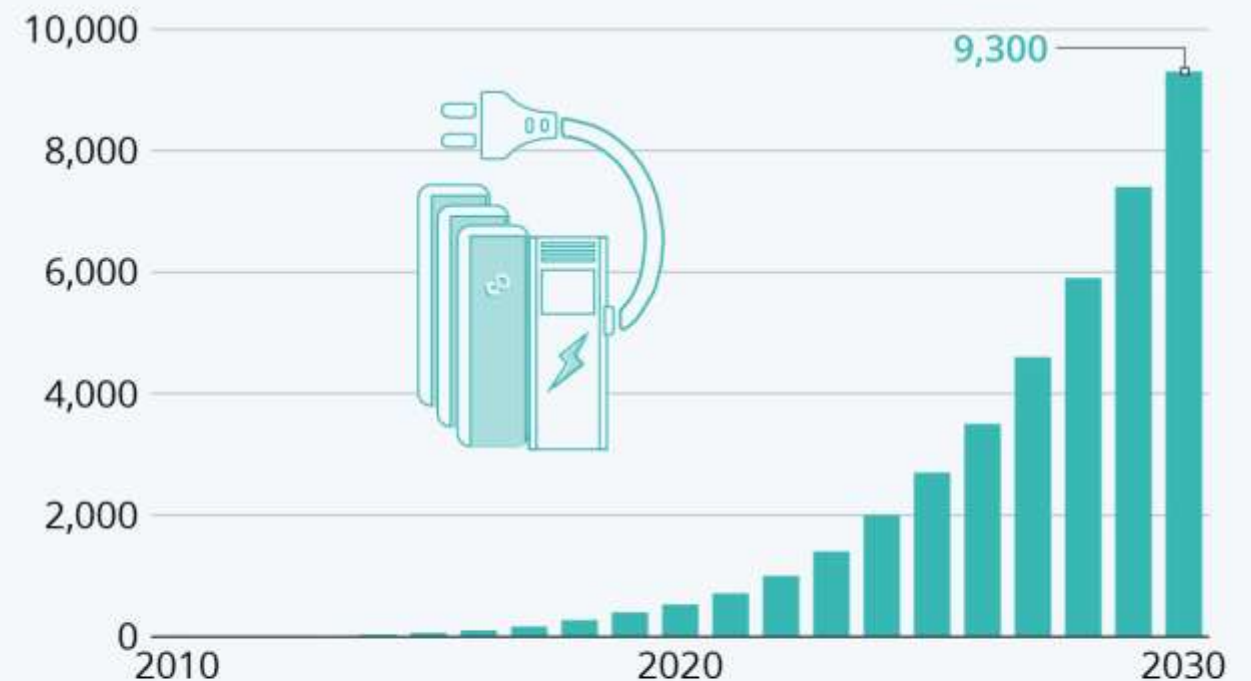


Tesla's Success

Tesla's success can be attributed to the availability of mature Lithium-Ion Technology.

High Demand for Lithium-Ion Batteries

Cumulative lithium-ion battery demand for electric vehicle/energy storage applications (in GW hours)



Source: Bloomberg



Examples of Perfect Timing – iPhone Launch

- **What enabled it - technologies**
 - Lithium-Ion Batteries;
 - Multi-touch screens;
 - Powerful CPUs;
 - Cell phone networks;
 - Web browsers;
 - Scratch proof touch screen glass.

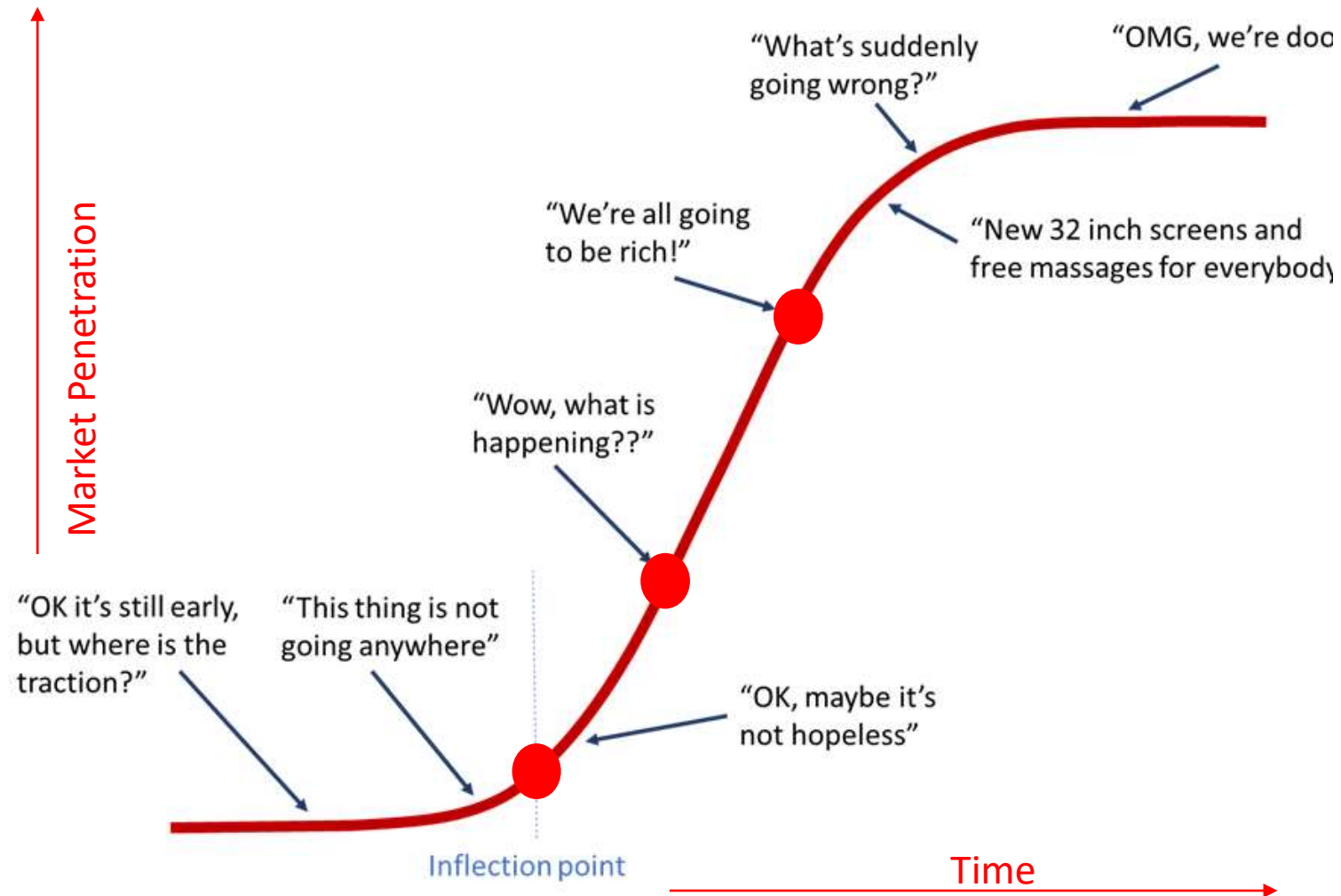
Examples of Perfect Timing – iPhone Launch

- **What enabled it - Business factors**

- Integration of functions;
 - Phone;
 - music;
 - Personal organizer;
 - Camera;
- Faltering of Other Phone Manufacturers
 - Motorola;
 - Blackberry
 - Etc.

S-Curves

Characterizing Timing



S-Curve

Source: <https://innospective.net/why-s-curves-are-probably-the-most-important-concept-in-entrepreneurship/>

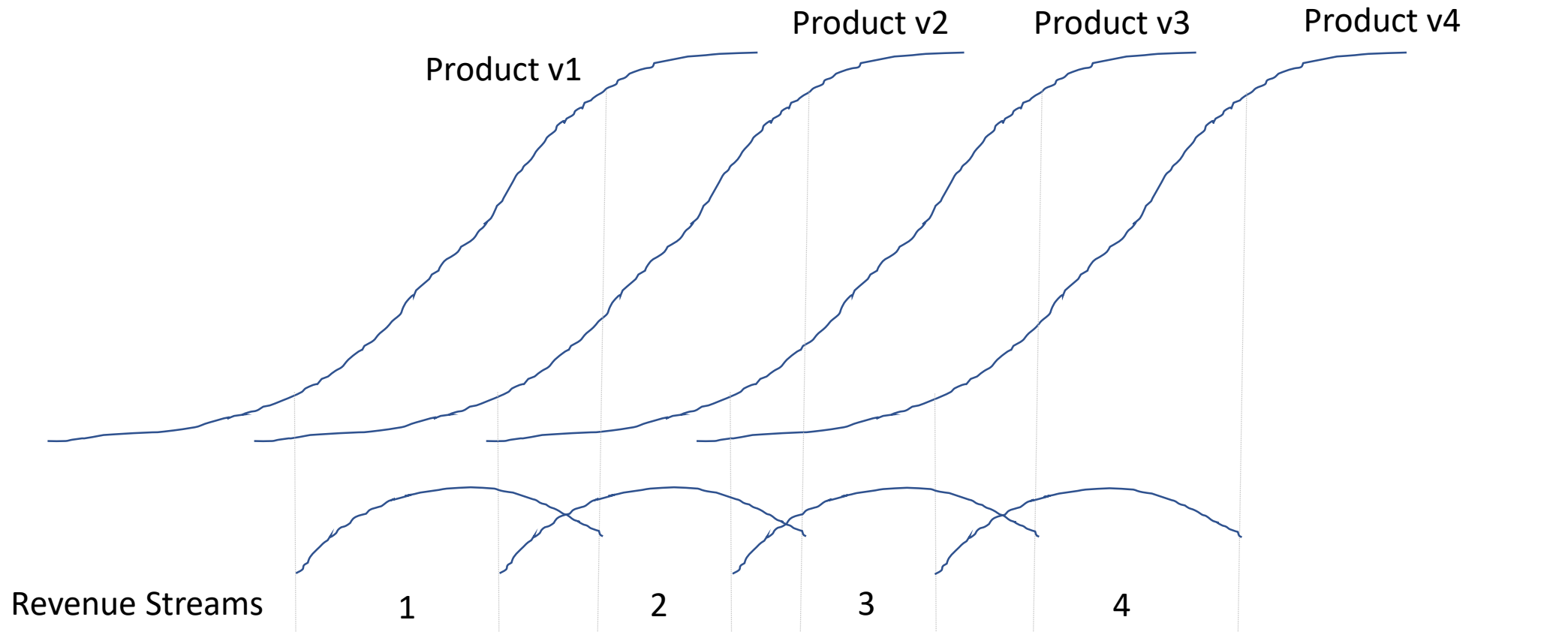
S-Curve and Timing

S-Curve is prevalent for many processes on this Earth;

Identifying your position on the S-Curve can give clues about timing;

What is the business model for each stage of the S-Curve?

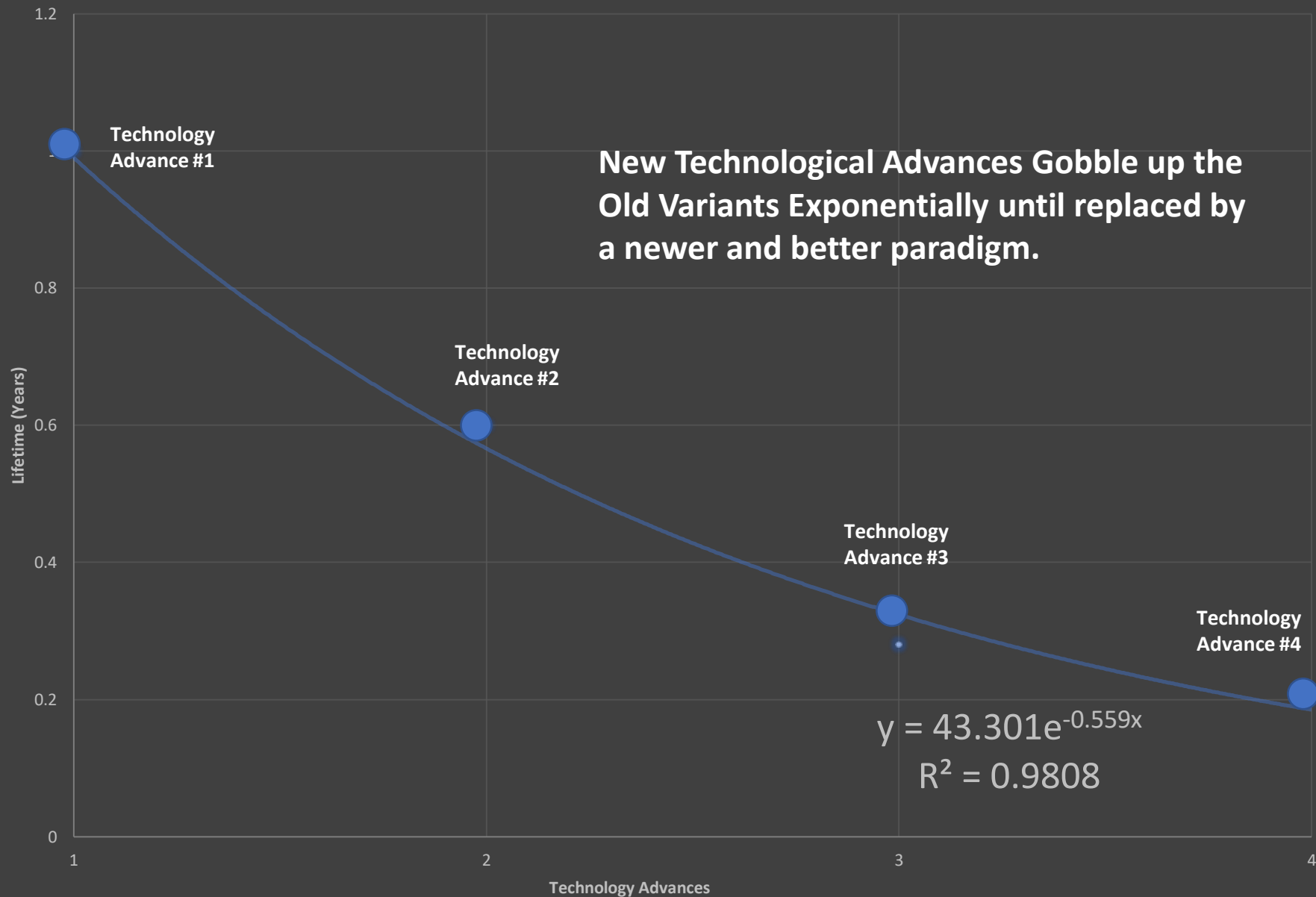
Overlapping S-Curves

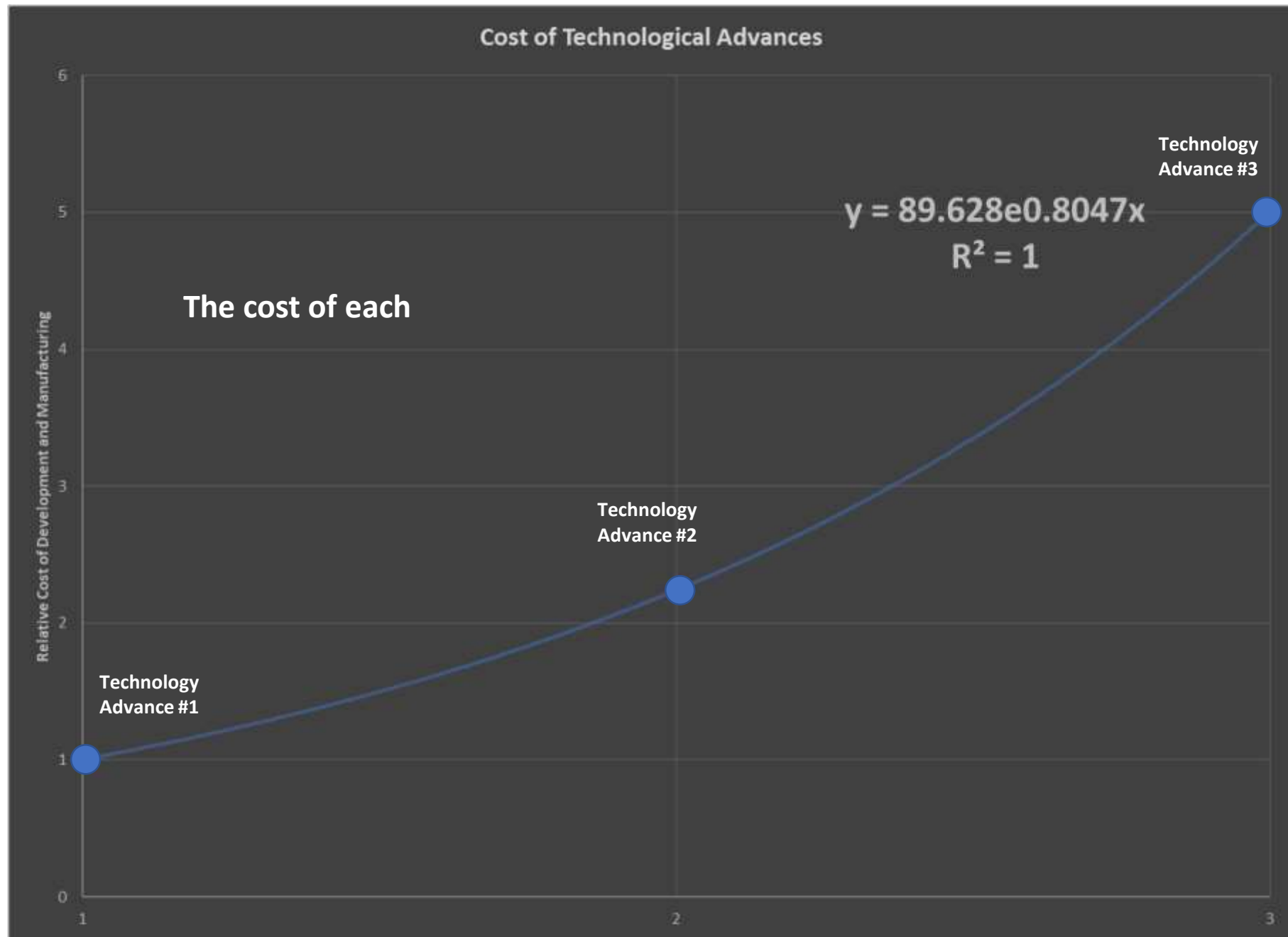


Lifecycle of a Technology

- Shrinking Lifecycle;

Shrinking Lifecycle Example






The Process

- Commercialization must be the top priority;
- Set Measurable Goals;
- Develop Necessarily Organization Skills;
- Encourage managers to take aggressive action;
- Relentless attention to improve process;

Commercialization is Competitiveness



Without repeated
commercialization,
longevity and profitability
are not possible.

The diagram features a large dark grey shape on the left containing the title. To its right, there are three hexagons: two small white ones at the top and one large black one below them. A line connects the black hexagon to a larger white hexagon on the right, which has a black border. The text is inside the black hexagon.

What is the superior commercialization skill?

How quickly can we respond or change market demand in our favor?

Benefits of Commercialization

Higher
Returns;

Entity
Longevity.

Challenge to Commercialization - Evolution of the Consumer

Consumers become
knowledgeable;

Their experiences become more
refined;

That causes new niches and
market segments to be launched.



Time to Market



THE FIRST ENTRANT DOES NOT
ALWAYS COMMAND A PREMIUM;



FIRST ENTRY AT THE RIGHT TIME
COMMANDS A PREMIUM;



MIS-TIMED PRODUCT
INTRODUCTIONS COST THE MOST
MONEY.

Range of Markets – Spreading Development Costs

Can you enter different industries and market segments thereby leveraging your development costs?

Measuring Commercialization Capability

Time to Market;

Range of Markets;

Number of Products;

Breadth of
Technologies;

Building Commercialization Capability

1

Make
Commercialization
a Priority;

2

Set Goals and
Benchmarks;

3

Build Cross-
Functional Skills;

4

Promote Hands-
On Management
to Speed Actions
and Decisions;