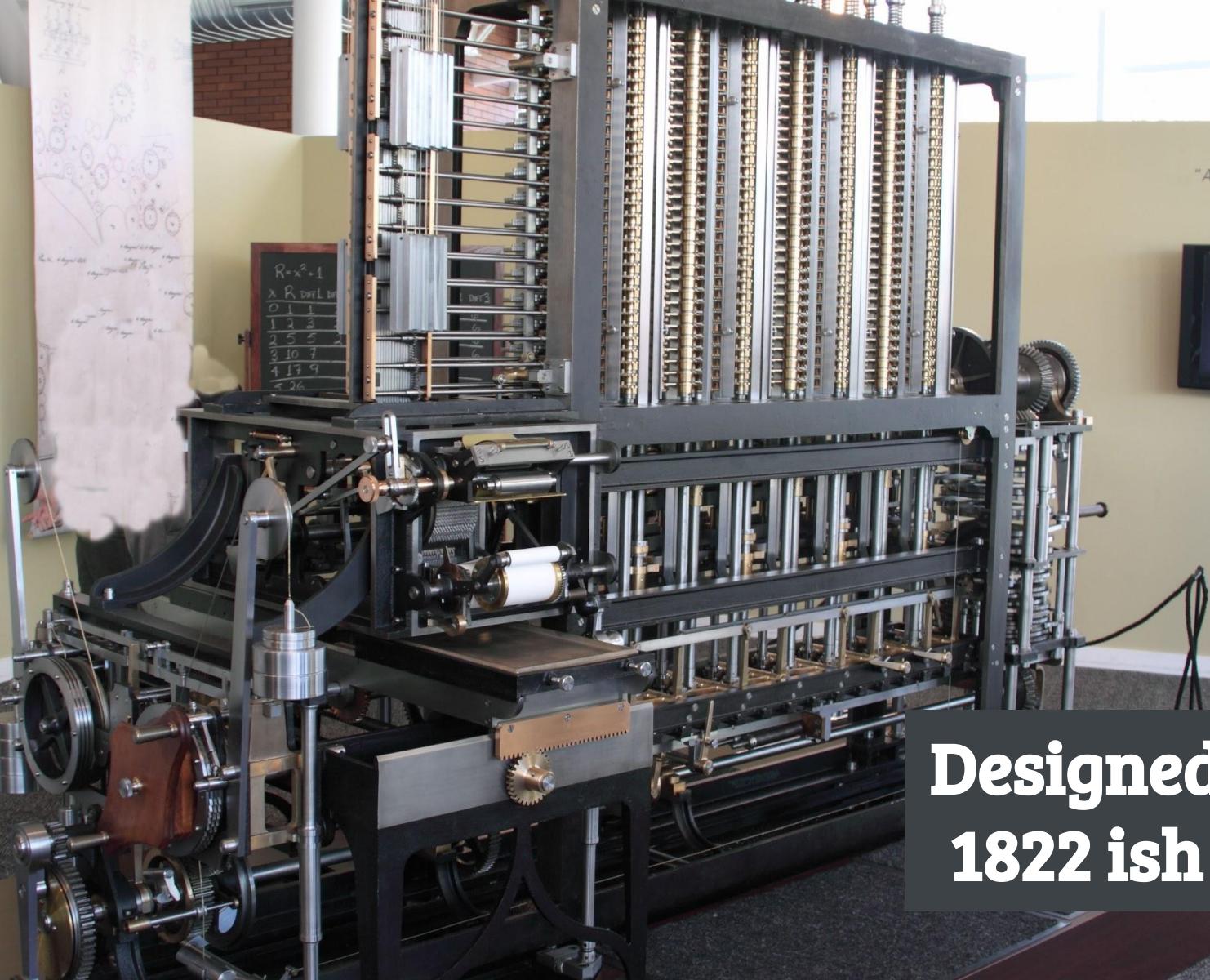
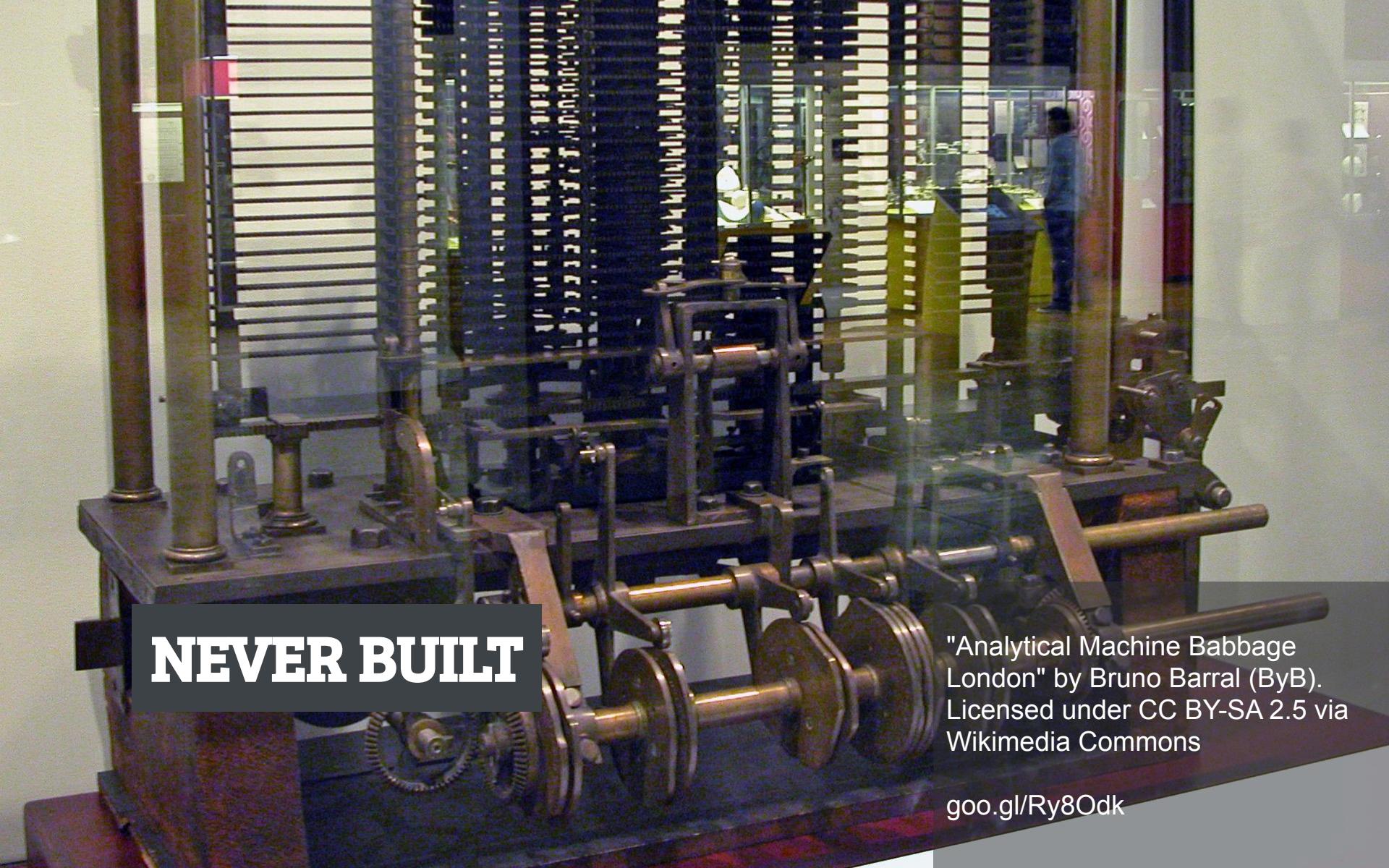


Aiming for the  
**future**



Designed  
1822 ish



# NEVER BUILT

"Analytical Machine Babbage London" by Bruno Barral (ByB).  
Licensed under CC BY-SA 2.5 via  
Wikimedia Commons

[goo.gl/Ry8Odk](http://goo.gl/Ry8Odk)



**60's - Mid 80's**

# "When we invented the personal computer, we created a new kind of bicycle!"

#1 of a three-part series.



Steve Jobs and his partner, Steve Wozniak, developed the first personal computer in 1976. Steve Jobs is vice chairman of Apple Computer Inc., based in Cupertino, California. Apple is known to be a leader in personal computing.

## What is a personal computer?

Let me answer with the analogy of the bicycle and the condor. A few years ago I read a study... I believe it was in Science magazine... that measured the efficiency of locomotion for various species on the earth, including man. The study determined which species was the most efficient, in terms of getting from point A to point B with the least amount of energy.

The condor won. Made a rather unimpressive showing about 1½ times the way down the list. But there was one thing the insight to me was having a bicycle. Man was twice as efficient as the condor! This illustrated man's ability as a tool maker. When man created the bicycle, he made a tool that amplified his inherent intelligence. That's why I like to compare the personal computer to the bicycle. It's a personal computer because it's a personal tool. It's a bicycle if you will, because it's a tool that can amplify a certain part of our inherent intelligence. There's a special relationship that develops between one person and one computer that

*There's a special relationship that develops between one person and one computer that improves productivity on a personal level.*

ultimately improves productivity on a personal level. Today, most people aren't even aware that they have a personal computer.

The challenge of

of our industry is not only to help people learn about the personal computer, but to make the personal computer so easy to use that, by the end of this decade, it

will be as common in our society as the bicycle.

That's one of the reasons I wanted to do this interview. I wanted to explore what it's possible to do with a personal computer to help all of us make better decisions and how it will eventually impact all phases of society... from training dolphins to... glaucoma research to growing a more nutritious crop of soybeans.

What is the personal computer and other computers?

The key difference is that computers are intelligent machines and man is not. I was thinking about, because the emphasis is on a personal interaction.

The whole concept is that

for the same capital equipment

as a train, you

can buy 1,000 passengers.

Think of the large computers

(the mainframes and the minis)

as the passenger train and the

Apple personal computer as the

bicycle if you will, because it's a

tool that can amplify a certain

part of our inherent intelligence.

There's a special relationship

that develops between one

person and one computer that

improves productivity on a personal level.

Today, most people aren't

even aware that they have a personal computer.

Computers were very costly and complicated; 50 people had to share one computer. Back then, you could have the passenger train but not the Volkswagen.

But with the advent of micro-

electronics technology, parts got

smaller and denser. Machines got faster. Power requirements went down. Finally, electronic intelligence was affordable. We finally had the chance to

invent the personal computer, to invent the "intelligent bicycle." Basically, Steve Wozniak and I wanted to make a personal computer because we wanted a personal computer. Not only couldn't I afford the computers that were on the market, those computers were impractical for us to use.

We needed a Volkswagen.

We wanted to invent the

first personal computer.

After we launched the

Apple II in 1976, all our friends wanted one. By the time Apple II came out in 1977, the demand for the personal computer had already begun to skyrocket.

Today, we've sold over 150,000 Apple Personal Computers.

That's because today's

passenger train follows

relationship about 2 or 3 years

before anyone else. When we designed Apple II, we wanted to offer the benefit of a \$15,000 computer sharing system with a computer that costs as little as \$1,500.

Obviously, one of the differences

between a personal computer and a personal computer is price.

Another difference is size.

I'd like to see another

analogy here: the huge motor

and the fractional horsepower

motor. When the first motor was

invented in the late 1800s, it was

inventive to build a large and

expensive motor, just like it was

with the early computers.

Those motors were to power

entire shops, with pulleys and

belts running throughout the shops to drive the individual machines scattered within. Only with the advent of the fractional horsepower motor could horsepower be brought directly to where it was needed.

With the portable Apple, you could say we invented the first personal computer. The Apple is small enough to go where you need it. You can get the information you need on your desk, in your office, in your car, in your house, or in the lab, the school, or the library. In fact, Apple has been able to make the huge mainframe computer tiny, small, easy to use parts. We made the computer friendly. So like the fractional horsepower motor, the personal computer is where it was needed; the personal computer can distribute intelligence to where it's needed.

Ultimately, it will be this distribution of intelligence that will change the way we all make our decisions.

You've stated that the personal computer can increase productivity on an individual level. How so?

Personal computers will increase productivity because personal computers are tools, not toys.

For example, in the last 15 years, there have been only four tools that actually have increased the efficiency of the office worker: the IBM Selectric typewriter, the calculator, the Xerox copier, and the personal advanced phone system. That portable cassette player you're using could be number five. Like all those innovations, the personal computer offers its power to the individual.

In the 80s, the personal computer will do as much for the individual as the big computers did for the corporation in

Toffler, in his latest book, writes that the first wave was the invention of agriculture... made possible by the tools of agriculture. The second wave embraced the tools of mass production and revolution. The personal computer is a third wave tool to help every individual deal with the complexities of modern society.

You know, about 10 million bicycles will be sold in America every year alone. When we start thinking of a personal computer

as a bicycle, a Volkswagen or a

a fractional horsepower motor, we

start to realize what kind of effect

*In the 80s, the personal computer will do as much for the individual as the big computers did for the corporation in the 60s and 70s.*

machines is going to have in our own lifetime.

This is part one of a series where Steve Jobs talks about the personal computer, and the effects it will have on society. To find out more about the Apple family of computer products, see your authorized Apple dealer. For your nearest computer store, call (800) 345-0565. In California, call (800) 662-9238. Or write: Apple Computer, 10260 Bandley Drive, Cupertino, CA 95014.



apple computer inc.



Invented

1977

Peak

1980s

Demise

?

Invented

Peak

Demise

1976

1980s

?



# The Floppy Disk Comes of Age

By WILLIAM BATES

LOS ANGELES — The floppy disk and its associated drive, once ugly ducklings among computer technologies, have suddenly come into their own this year — and there are indications that a new version due out in 1979 may make the past mere prologue. Some analysts see the floppy as a candidate to be the cornerstone of the office of the future. Two signs of its rejuvenation: a new popularity in the consumer market and the entry of Xerox into the fold.

The floppy stores information, serving as a magnetic "memory" for typewriters and word-processing devices. Its drive is to the disk what a record-player is to a record. This year sales of disks — which typically cost \$5 to \$8 apiece — are expected to reach \$135 million, up from \$96 million in 1977; sales of the disk drives, which hit \$289.6 million last year, are expected to increase by about 75 percent.

Most of the million floppy disks sold each month still move through traditional industry distribution channels for data-processing supplies, but this year they have begun invading such odd outlets for computer supplies as camera shops, department stores and stereo dealers.

And last month, the largest manufacturer of floppy disks, the Information Terminals Corporation of Sunnyvale, Calif., launched an advertising campaign, using Victor Borge to introduce its Verbatim disk.

"The ads are just like ads for soap suds or automobiles," says Rodney E.

William Bates, a San Francisco writer, has taught computer technology at the University of California at Berkeley.

Crisp, product manager for I.T.C. "We're advertising right to the consumer to create a demand on retailers for our product." The particular consumers I.T.C. has in mind are such record-keepers as doctors, lawyers and small businessmen.

## Competing With Paper

"Floppy" as a description of the disks is not, actually, quite accurate; they really only droop. They are thin, Mylar platters, 8 inches in diameter in the standard size; the minifloppy is 5 1/4 inches in diameter. The surface of each

Market soars for data storage device and a new version is due next year.

disk — where the grooves would be on a phonograph record of the same size — is smooth and coated with a magnetic oxide similar to that used in recording tape. This surface is protected from fingerprints and scratches with a square paper envelope.

The product is surprisingly cheap and tough. In manufacturing cost the price of the disks approaches that of audio cassettes. I.T.C., which has approximately 35 percent of the estimated \$135 million floppy disk market — which it expects to see rise to \$235 million by 1981 — sells the minifloppy disks in large quantities for \$1.50.

*Continued on Page 13*



Invented

1982

Peak

90's

Demise

2005?



Invented

1980

Peak

2000

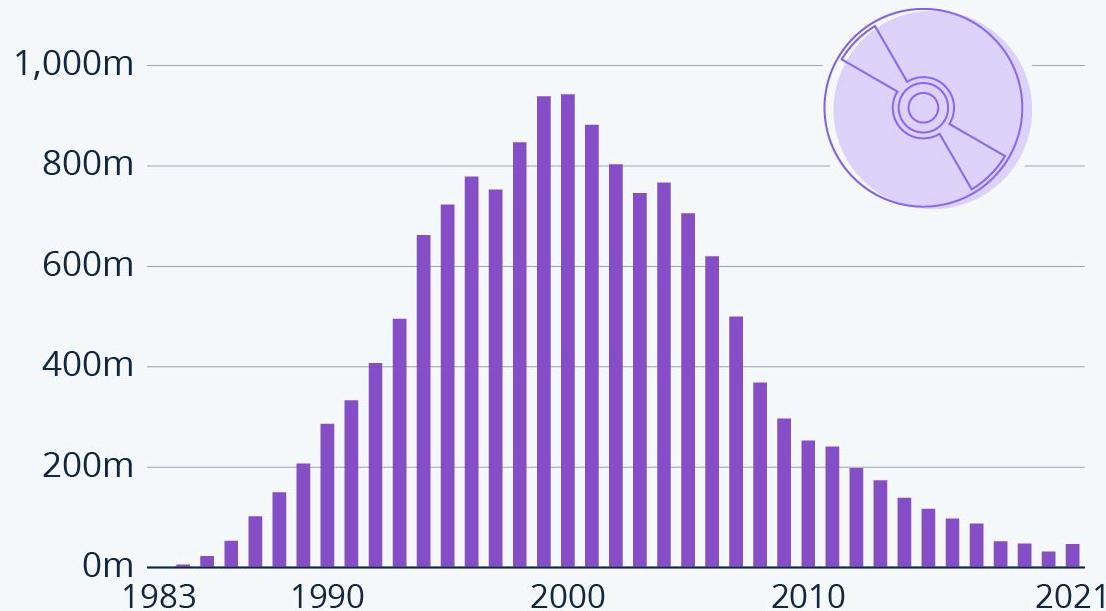
Demise

2009

Microsoft  
Money

# The Rise and Fall of the Compact Disc

CD album sales in the United States since 1983  
(in million units)

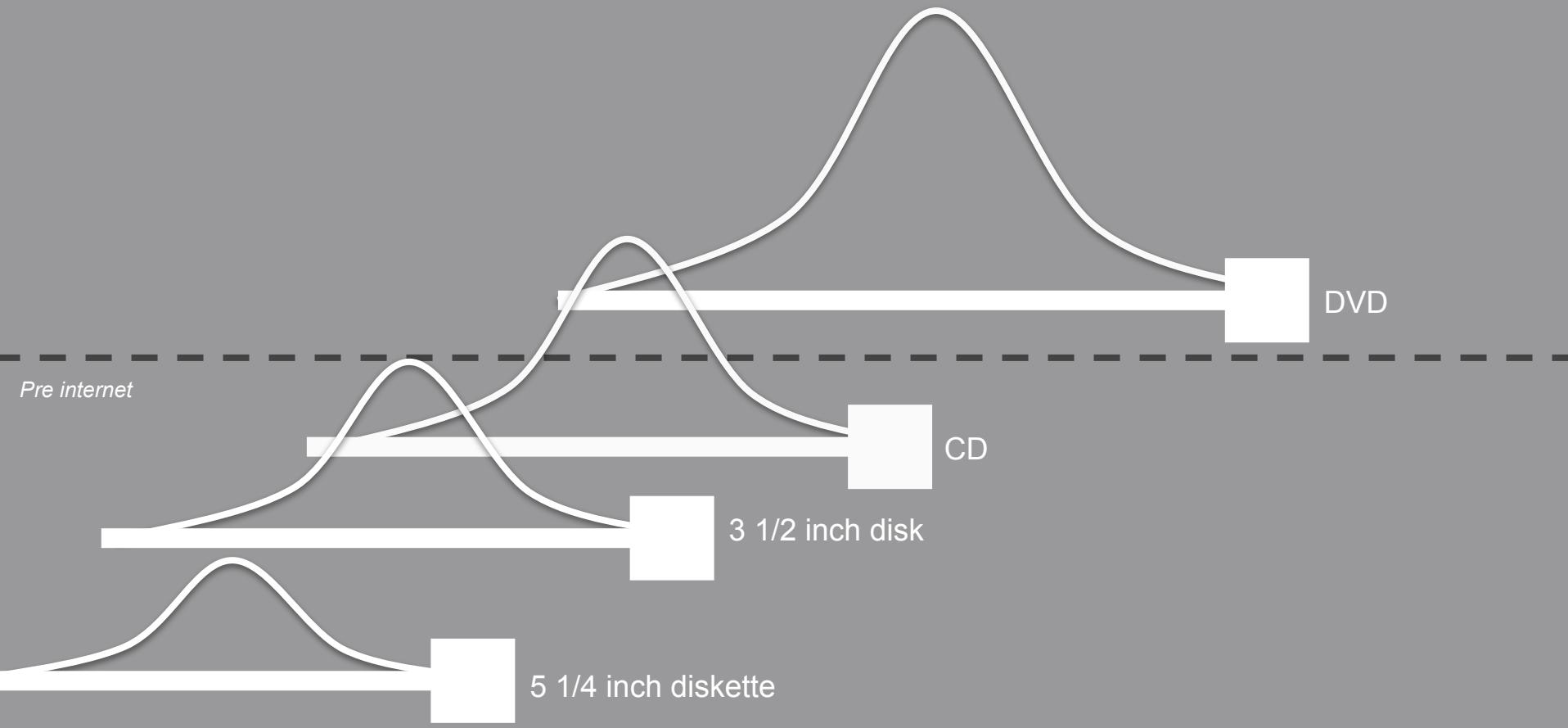


Source: RIAA



# **Content Warning!**

Dramatic licence is  
being applied with  
the following charts.



The screenshot shows a web browser window with the title "The World Wide Web project". The address bar indicates the URL is <http://info.cern.ch/hypertext/WWW/TheProject.html>. The page content is titled "World Wide Web" and describes the W3 project as a wide-area [hypermedia](#) information retrieval initiative. It links to an [executive summary](#), [Mailing lists](#), [Policy](#), [November's W3 news](#), and [Frequently Asked Questions](#). Below this, various links are listed under headings like "What's out there?", "Help", "Software Products", "Technical", "Bibliography", "People", "History", "How can I help?", and "Getting code".

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#), [Policy](#), November's [W3 news](#), [Frequently Asked Questions](#).

[What's out there?](#) Pointers to the world's online information, [subjects](#), [W3 servers](#), etc.

[Help](#) on the browser you are using

[Software Products](#) A list of W3 project components and their current state. (e.g. [Line Mode](#), X11 [Viola](#), [NeXTStep](#), [Servers](#), [Tools](#), [Mail robot](#), [Library](#))

[Technical](#) Details of protocols, formats, program internals etc

[Bibliography](#) Paper documentation on W3 and references.

[People](#) A list of some people involved in the project.

[History](#) A summary of the history of the project.

[How can I help?](#) If you would like to support the web..

[Getting code](#) Getting the code by [anonymous FTP](#), etc.

1989

<https://www.w3.org/History/1989/proposal.html>

# Google - Microsoft Internet Explorer

File Edit View Favorites Tools Help



Back



Forward



Stop



Home



Search



Favorites



Media



History



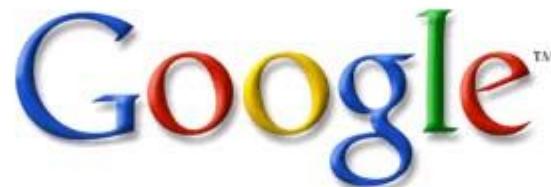
Email



Print

>>

Address  Go Links



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[Make Google Your Homepage!](#)

©2004 Google - Searching 4,285,199,774 web pages

1998

Done

Internet

The Web

DVD

CD

3 1/2 inch disk

5 1/4 inch diskette

Pre internet

# Investing In Your Future

## The Appliance of Science

Autumn saw the completion of stage I of the refurbishment of the Birkenhead Sixth Form College Science Department with the opening of a new 'State Of The Art' laboratory. Work starts next summer holiday on stage II. The work has been completed with the assistance of European funding. As well as providing spacious, newly equipped laboratories, the refit improves the computing facilities available to all science students, linking them to the superb college network and Internet. The new development will open up opportunities for our growing number of adult classes who will be making full use of the College's excellent facilities.

## Students Net A Big Idea



Left: Paul Kinlan. Right: Christopher Evans

With a College extensively equipped with networked computers and a direct cable link to the Internet, students at Birkenhead Sixth Form College are definitely in the fast lane of the Information Highway. Two A Level Computing students are now planning to make computers even more integral to study. Christopher Evans and Paul Kinlan are constructing a College based Intranet. There'll be subject based websites focusing on news and the latest developments filtered from the massive volume of information on the world-wide-web. Tutor notes, past examination papers and 'Hot Tips for Homework' will also be available for students to

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We are planning to launch our lo-cost web development solutions in the next few weeks. Package options including a domain name and web hosting will also be available.

Until our own development service is launched, we recommend LiverWebs, one of Liverpool's leading development companies.

**Click [here](#) for the LiverWebs Homepage.**

Search Lycos in the UK For:



**Coming Soon: Email on any mobile via our Mobile Email Service!**

AMERICAN EXPRESS  
BUSINESS  
EXPRESS

INPUTTED DATA ONLY ABOVE THIS LINE

DO NOT CIRCLE EXPIRATION DATE

EXPIRATION  
 DATE  
CHECKED

DATE	AUTHORIZATION NO.	IDENTIFICATION	CHECK	REQ.DRAFT	TIME AMOUNT
GTY.	CLASS	DESCRIPTION	UNIT PRICE	AMOUNT	

3

RECEIPT IS ACKNOWLEDGED OR THE GOODS  
OR SERVICES PURCHASED.

SUB  
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X

CUSTOMER SIGNATURE

TAX

SALES SLIP

TOTAL



SPLIT CARBONS  
HELP PREVENT  
FRAUD

PRESS FIRMLY

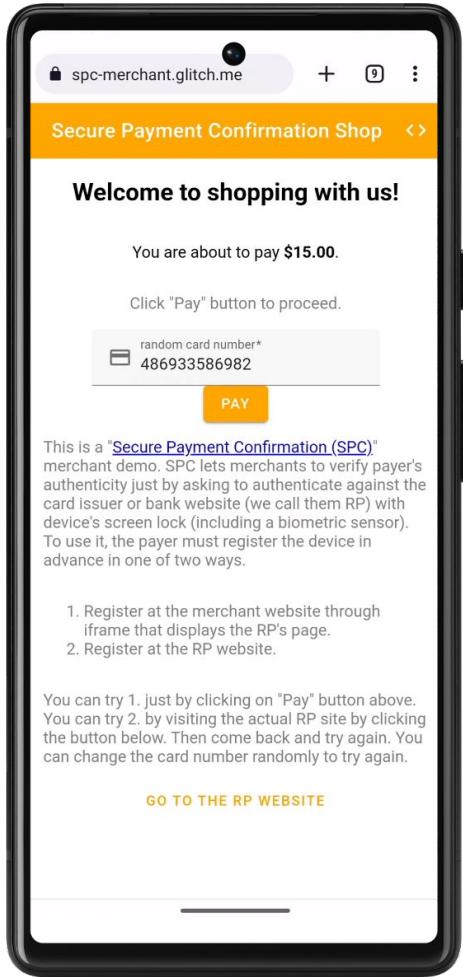


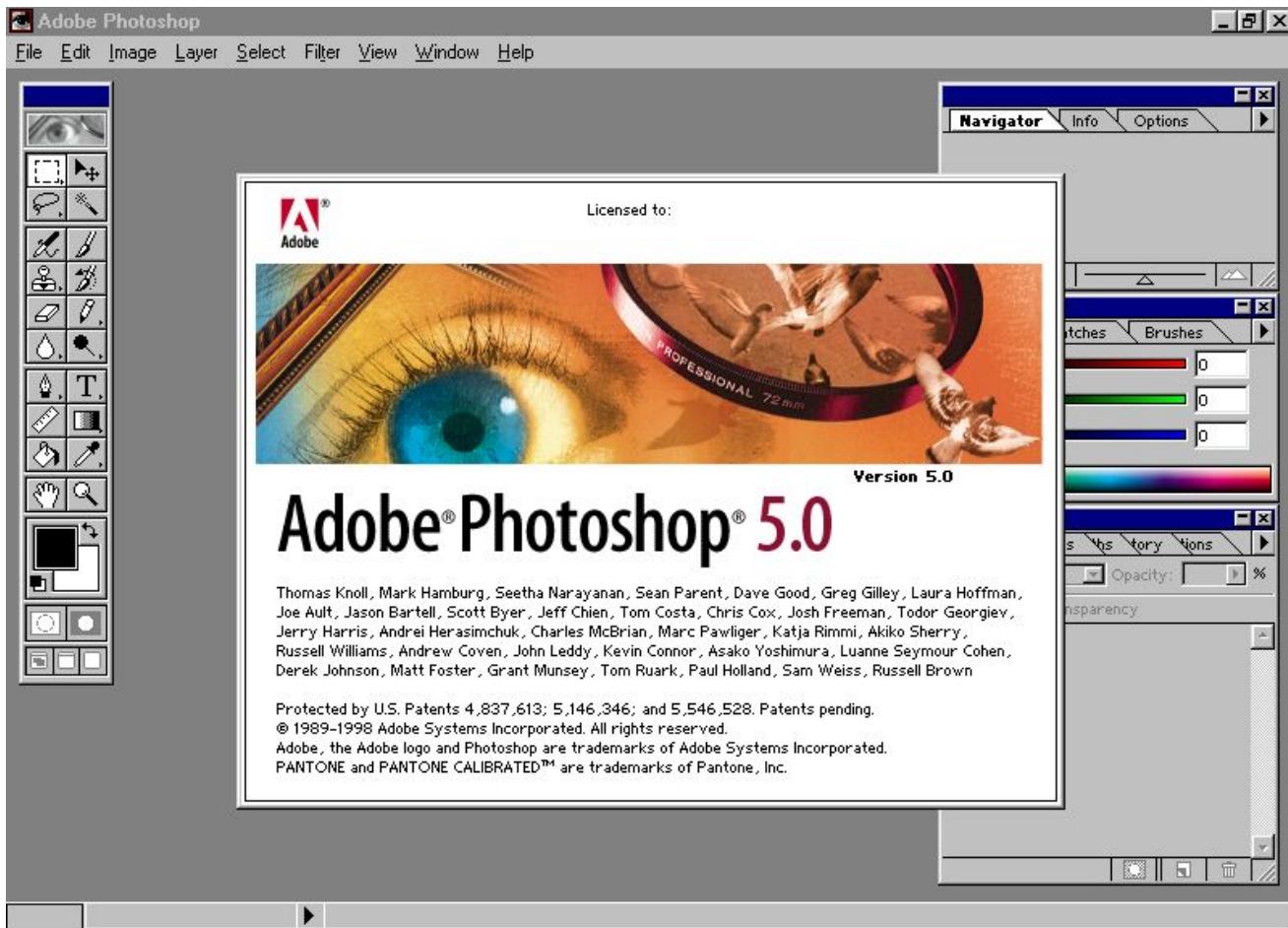
MasterCard

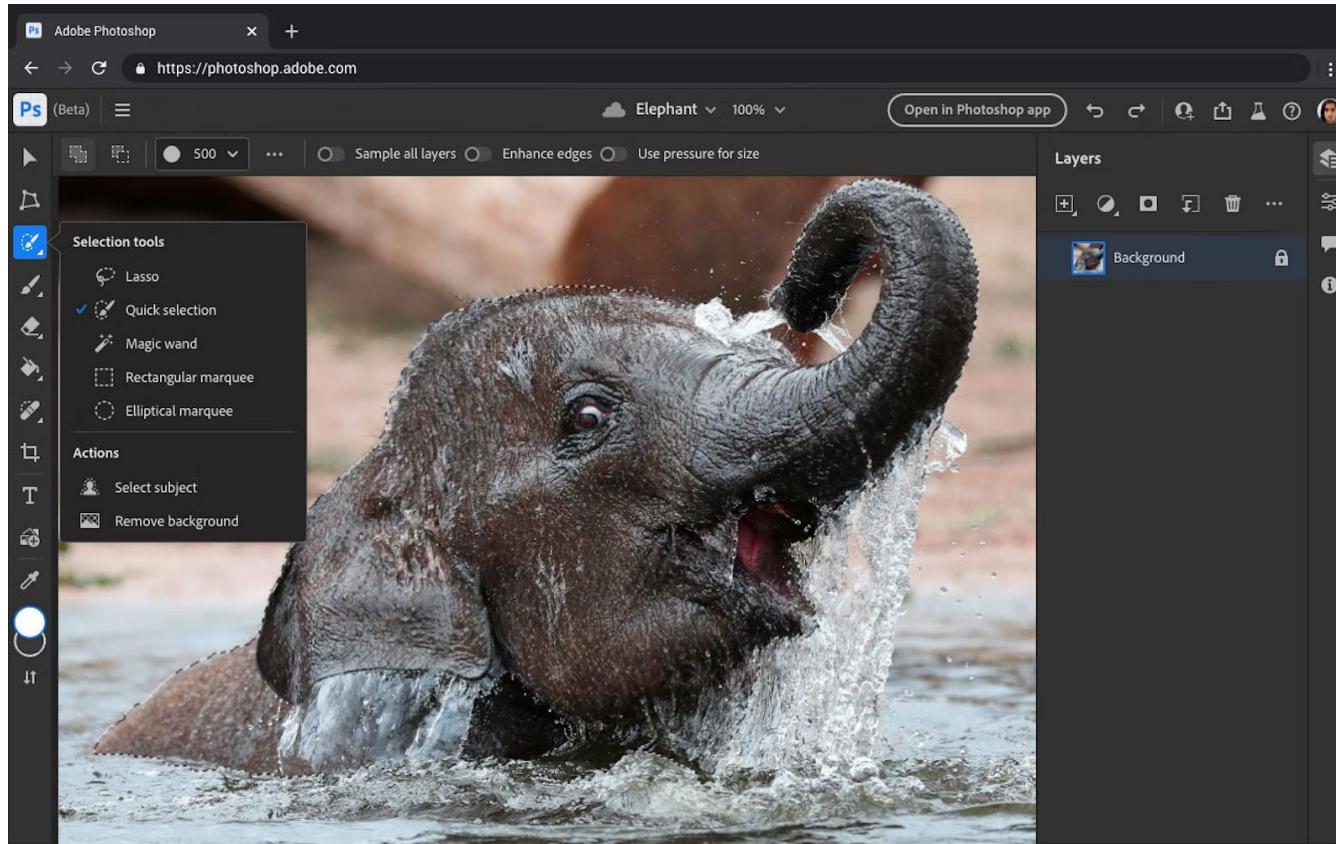


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[web.dev/ps-on-the-web/](https://web.dev/ps-on-the-web/)

The Web

DVD

CD

3 1/2 inch disk

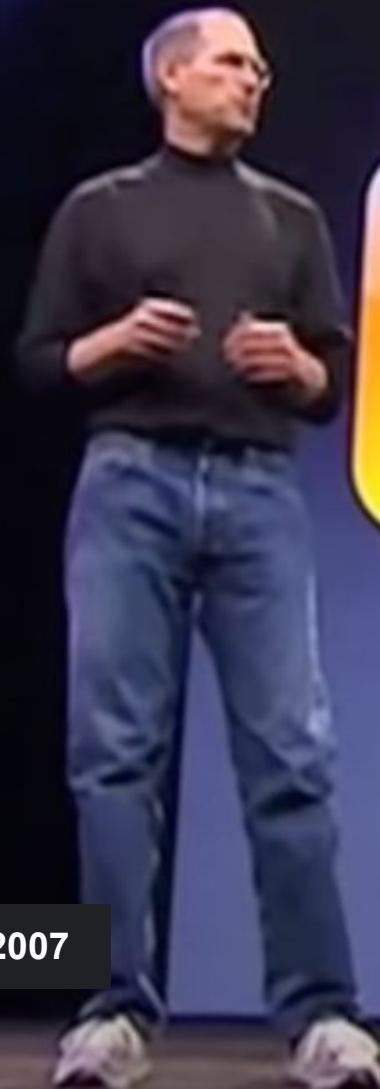
5 1/4 inch diskette

Pre internet

# THE SMARTPHONE



1992



iPod



Phone



Internet

2007



# Desktop vs Mobile



# Web vs Apps





## A-Series Multi-core geekbench





# Capable



# Integrated



Scaled



Cheaper



2015: India



6m new mobile  
users per month

Jio Phone Next 32 GB ROM, 2

https://www.amazon.in/dp/B09TL7R9QK/?tag=webtrendingams-21&ascsubtag=||1678650963|3...

Hello Select your address Electronics Search Amazon.in EN Hello, sign in Account & Lists Returns & Orders Cart

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₹45 delivery Friday, 17 March. Details  
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Have one to sell? Sell on Amazon



## Mobilithic era

June 29,  
2007



## Mobile era

Chat + Others

App Stores

Web

DVD

2 billion new users

Pre internet

Disk

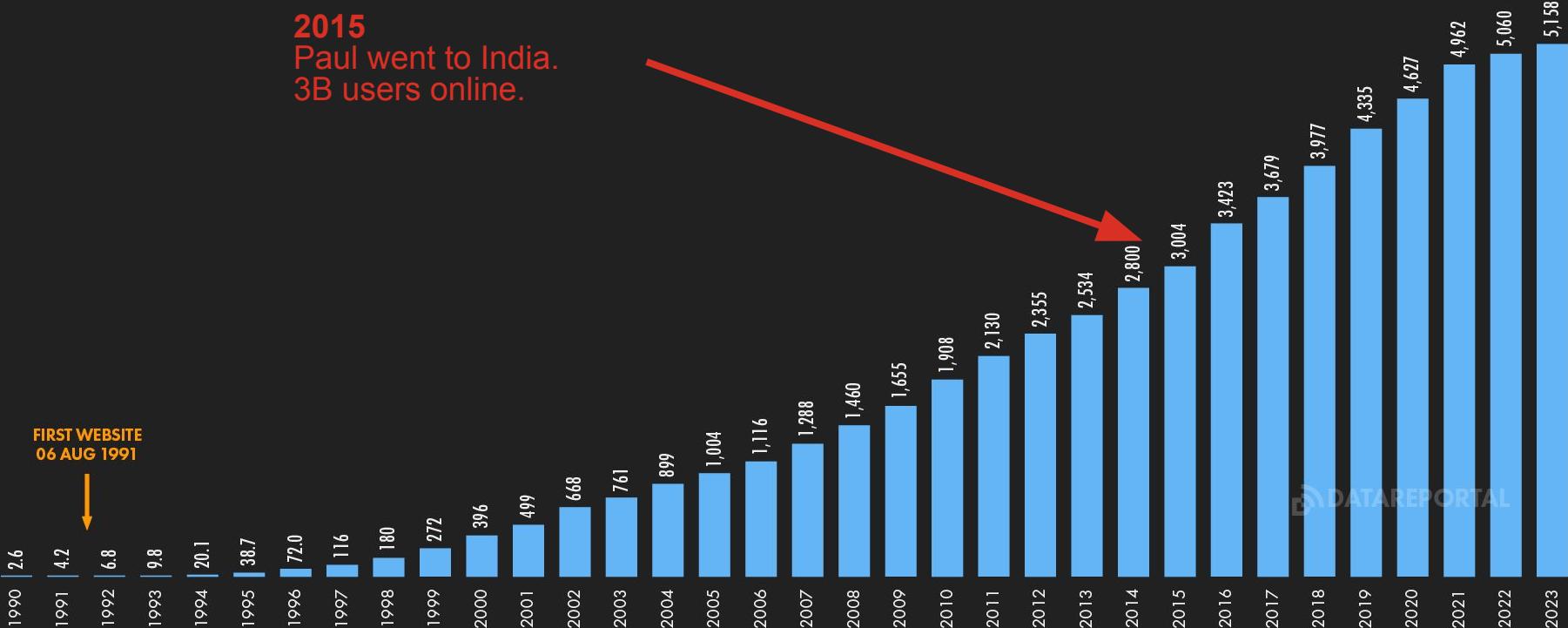
1.3 billion users

# INTERNET USERS: TIMELINE

NUMBER OF INTERNET USERS BY YEAR (IN MILLIONS)



**2015**  
Paul went to India.  
3B users online.



**SOURCES:** KEPIOS ANALYSIS; ITU; GSMA INTELLIGENCE; EUROSTAT; WORLD BANK; GOOGLE'S ADVERTISING RESOURCES; CIA WORLD FACTBOOK; CNNIC; APJI; KANTAR & IAMAI; LOCAL GOVERNMENT AUTHORITIES; UNITED NATIONS. **NOTES:** THE TIME REQUIRED TO COLLECT, PROCESS, AND REPORT INTERNET USER RESEARCH DATA MAY MEAN THAT USER FIGURES AND GROWTH TRENDS FOR RECENT PERIODS UNDER-REPRESENT ACTUAL VALUES. SEE [NOTES ON DATA](#) FOR FURTHER DETAILS. **COMPARABILITY:** SOURCE AND BASE CHANGES. FIGURES MAY NOT MATCH OR CORRELATE WITH FIGURES PUBLISHED IN PREVIOUS REPORTS. ALL FIGURES USE THE LATEST AVAILABLE DATA, BUT SOME SOURCE DATA MAY NOT HAVE BEEN UPDATED IN THE PAST YEAR. SEE [NOTES ON DATA](#) FOR DETAILS.



The Web

DVD

CD

3 1/2 inch disk

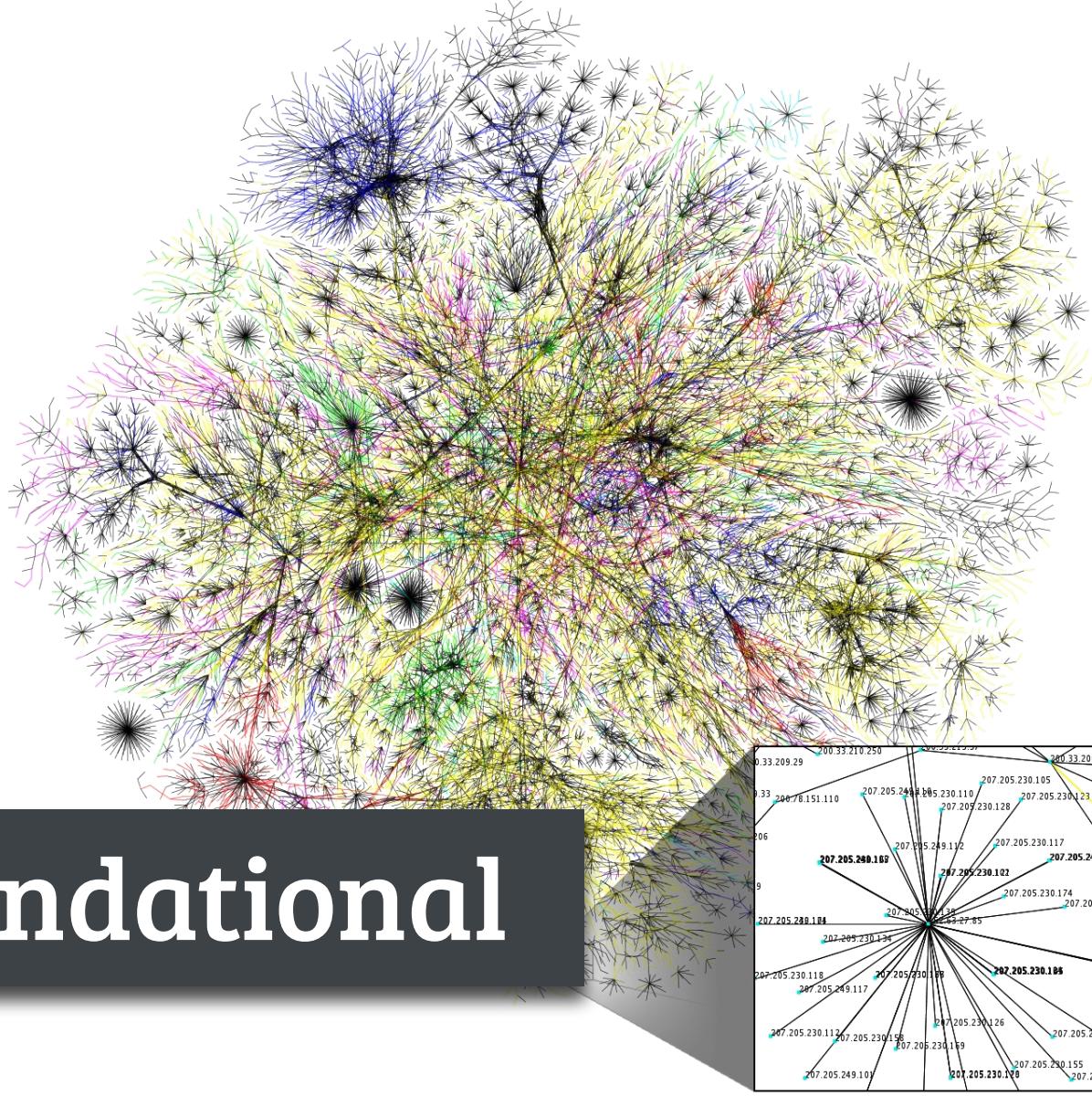
5 1/4 inch diskette

Pre internet

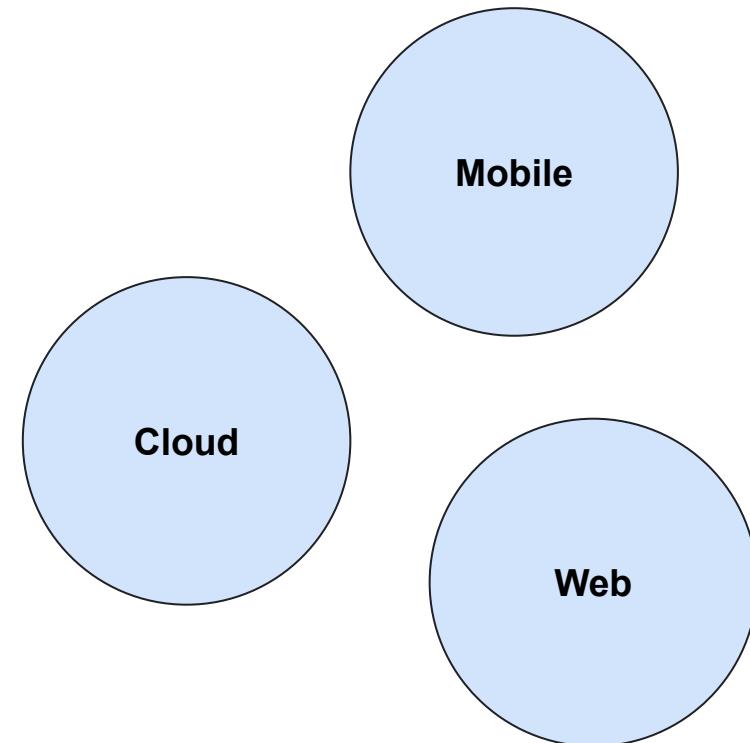
# Replaced



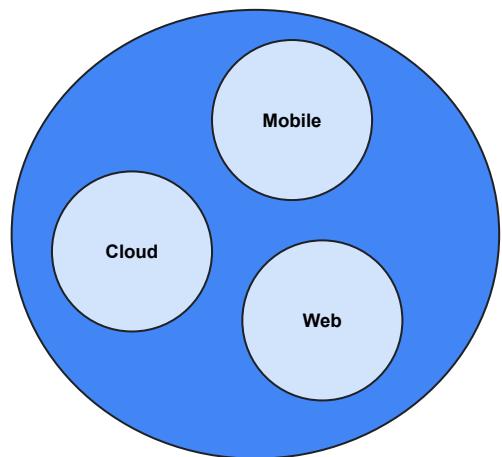
# Foundational



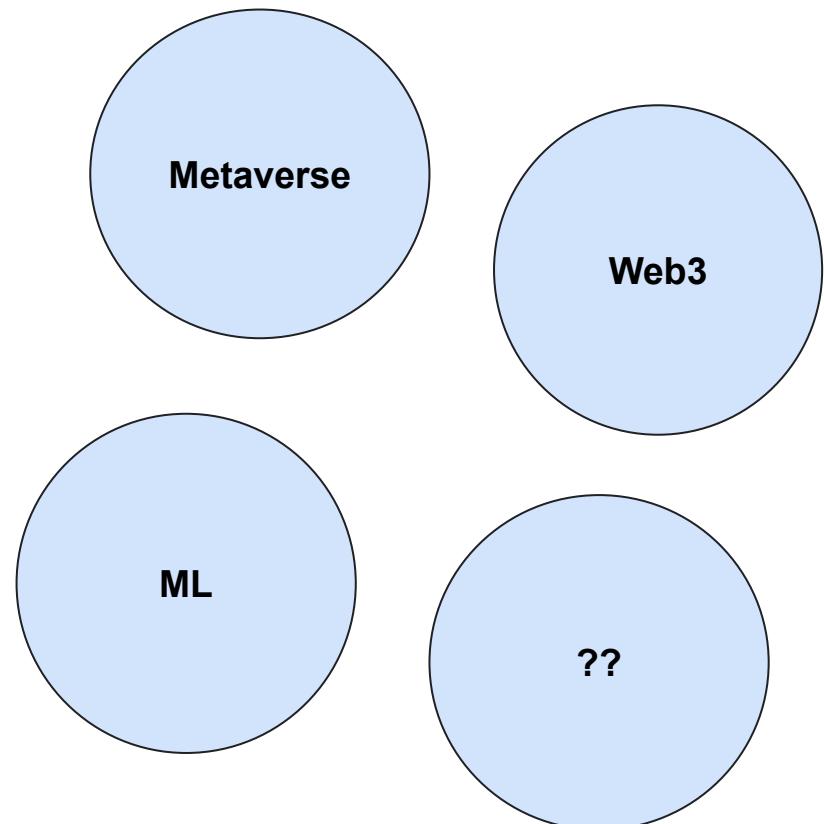
## **Current Epoch**



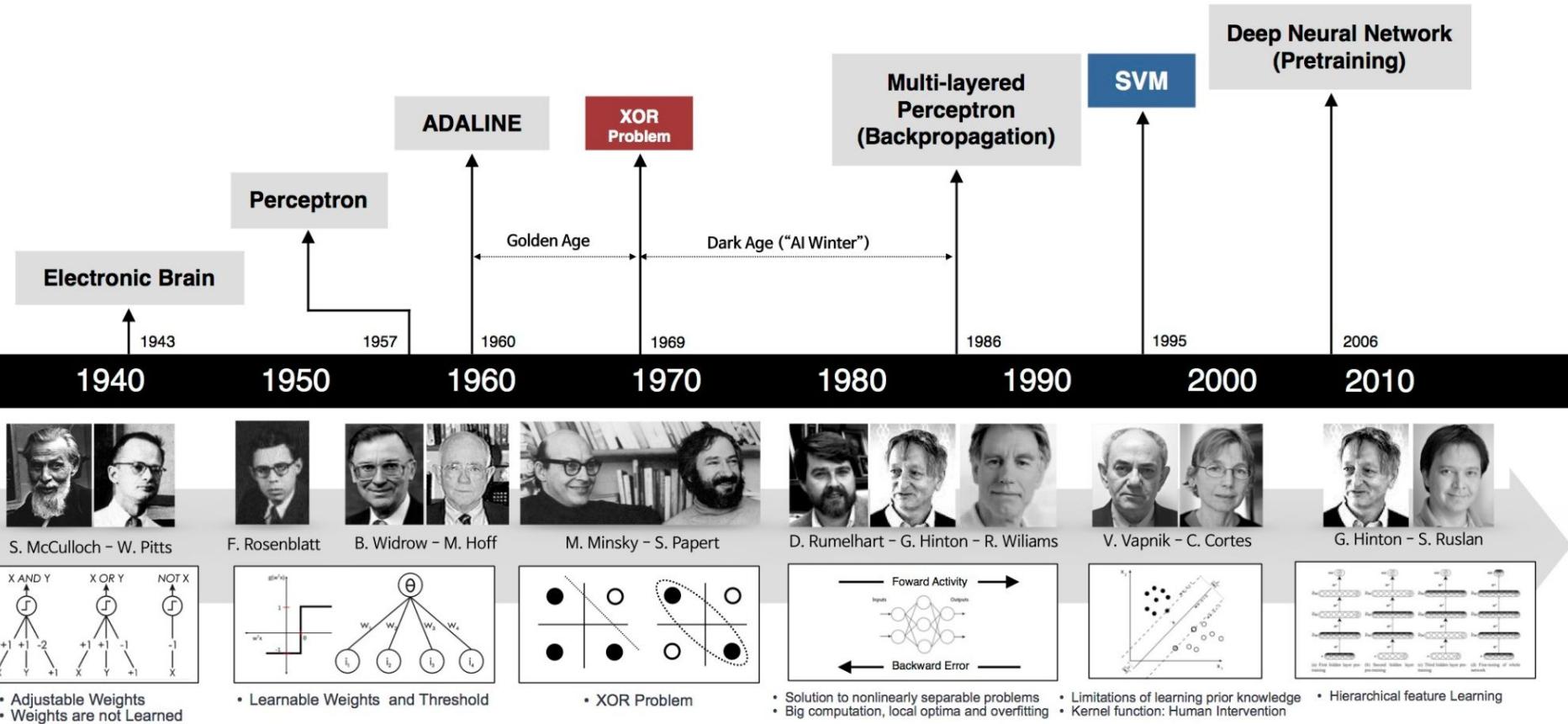
## Current Epoch



## Next Epoch

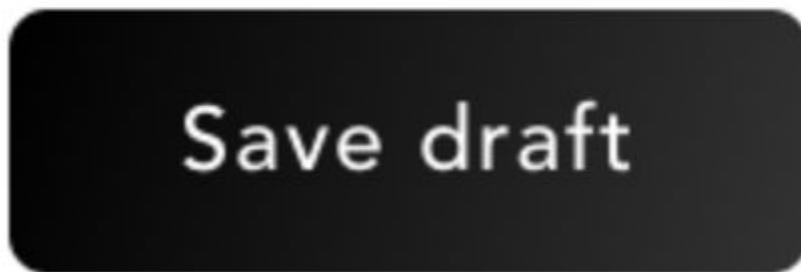






# Prediction

Image



Prediction Confidence

Button 100.00%



## add placekitten images to the masonry grid



To add placekitten images to a masonry grid, you will need to use the `<img>` HTML tag within the `<div>` elements representing each item in the masonry layout. For example:

Copy code

```
<div class="masonry-container">
  <div class="masonry-item">
    
  </div>
  <div class="masonry-item">
    
  </div>
  <div class="masonry-item">
    
  </div>
  ...
</div>
```

# SMELCRIY

намерен да създаде  
и да поддържа обширна  
и разно видова база данни  
за изучаването на редица  
известни и неизвестни  
и за определение на  
представителни статистични  
оценки и изводи.

Използването на базата данни е  
предвидено да създаде  
и поддържа обширна база данни  
за изучаването на редица  
известни и неизвестни  
и за определение на  
представителни статистични  
оценки и изводи.



```
        console.log(`Deleted Announce ${actorId} on ${doc}`, res);
    }

async function saveActor(message: AP.Actor) {
    const collection = db.collection('actors');

    const actorDocRef = collection.doc(message.id.toString().replace(/\//g, "_"));
    const actorDoc = await actorDocRef.get();

    if (actorDoc.exists) {
        console.log("Already have actor");
        return;
    }

    // Create the follow;
    await actorDocRef.set(message);
}
```



# *An Investigation into Real-time Fraud Detection in the Telecommunications Industry*

## Contents Page

1. ABSTRACT	6
2. ACKNOWLEDGEMENTS	7
4. GLOSSARY OF TERMS	10
5. INTRODUCTION	11
6. RISK	12
7. RESEARCH	13
7.1 Chapter Summary	13
7.2 Investigation into the Telecommunications Industry	14



If the personal computer was a bicycle for the mind, what is ML?



If the personal computer can be described as a "bicycle for the mind," machine learning (ML) could be likened to a "self-driving car for the mind." This analogy highlights the enhanced capabilities and automation that ML brings to computing, as it enables machines to learn from data, make predictions, and improve performance without explicit programming. Like a self-driving car, ML can empower people to complete tasks more efficiently, navigate complex situations, and make better decisions. However, it also requires careful monitoring and guidance to ensure that it remains safe, reliable, and aligned with human values.





**APACHE** is to the web...

... as ??? is to ML

# Investing In Your Future

## The Appliance of Science

Autumn saw the completion of stage 1 of the refurbishment of the Birkenhead Sixth Form College Science Department with the opening of a new 'State Of The Art' laboratory. Work starts next summer holiday on stage II. The work has been completed with the assistance of European funding. As well as providing spacious, newly equipped laboratories, the refit improves the computing facilities available to all science students, linking them to the superb college network and Internet. The new development will open up opportunities for our growing number of adult classes who will be making full use of the College's excellent facilities.

## Students Net A Big Idea



Left: Paul Kinlan. Right: Christopher Evans

With a College extensively equipped with networked computers and a direct cable link to the Internet, students at Birkenhead Sixth Form College are definitely in the fast lane of the Information Highway. Two A Level Computing students are now planning to make computers even more integral to study. Christopher Evans and Paul Kinlan are constructing a College based Intranet. There'll be subject based websites focusing on news and the latest developments filtered from the massive volume of information on the world-wide-web. Tutor notes, past examination papers and 'Hot Tips for Homework' will also be available for students to use throughout the College.

1997

2023+

???

Modern Web Development with X

https://paul.kinlan.me

# Hello,

I am Paul Kinlan.



A Developer Advocate for Chrome and the Open Web at Google.

[Home](#) | [Projects](#) | [Journal](#) | [Mastodon](#)

Ask me a question about Web Development. e.g, What is Web Intents?

## BCD - Experimental APIs

*Paul Kinlan February 13 2023*

This is just a small update. I've spent a bit of time adding some features to "time-to-stable". As I try to think about what is stable across the web platform it is useful to think about what APIs are

A screenshot of a web browser window titled "Ask Paul: What is a PWA?". The URL in the address bar is <https://paul.kinlan.me/ask-paul?query=What+is+a+PWA%3F>. The main content area has a dark background with white text. At the top left is a large, bold "Question" heading. Below it is a section titled "What is a PWA?" containing a detailed definition of a Progressive Web App (PWA). To the right of this section is a button labeled "Ask". On the right side of the page, there is a sidebar with a heading "Links" followed by a list of ten related articles or resources.

# Question

## What is a PWA?

Ask

A PWA (Progressive Web App) is a web app that uses progressive enhancement to provide users with a more reliable experience, uses new capabilities to provide a more integrated experience, and can be installed. It has an icon on the home screen, app launcher, launchpad, or start menu, appears when you search for apps on the device, opens in a standalone window, wholly separated from a browser's user interface, has access to higher levels of integration with the OS, for example, URL handling or title bar customization, and works offline. It is built and enhanced with modern APIs to deliver enhanced capabilities, reliability, and installability while reaching anyone, anywhere, on any device, all with a single codebase.

## Links

- [Progressive Web Apps](#)
- [A modern web experience on Adobe Experience Manager with WorkBox](#)
- [PWA: Progressive Web All-the-things](#)
- [Beyond SPAs - alternative architectures for your PWA](#)
- [Modern Web Development with Chrome](#)
- [What does it take to be installable?](#)
- [DevTools Tips: Debugging PWA](#)
- [Learn PWA](#)
- [An organizer's perspective on Progressive Web App Dev Summit](#)

Powered by Polymath.

[paul.kinlan.me/ask-paul](https://paul.kinlan.me/ask-paul)