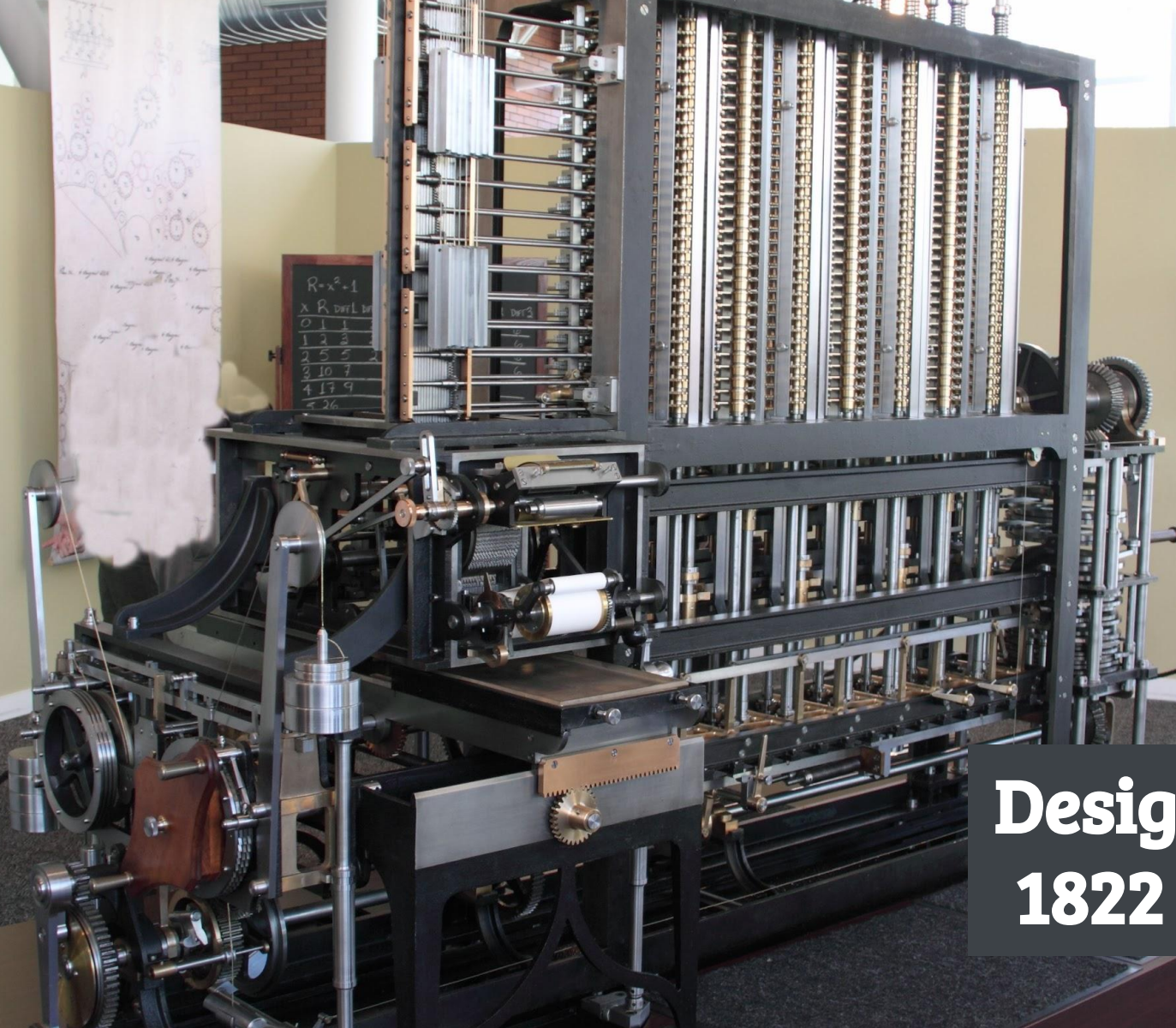


# Aiming for the **FUTURE**



"Another age must

**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](https://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 1975. Today, Steve Jobs is vice chairman of Apple Computer Inc., based in Cupertino, California. Apple has grown 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 Scientific American... about 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 exerted. The condor won. Man made a rather unimpressive showing about 1/3 of the way down the list.

But someone there had the insight to see man riding 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 created a tool that amplified an inherent ability. That's why I like to compare the personal computer to the bicycle. The Apple personal computer is a 21st century 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

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 explain what a personal computer is, how it can help all of us make better decisions and how it will eventually impact all phases of society... from training dolphins to glamorous research in growing a more nutritious crop of soybeans.

What's the difference between a personal computer and other computers?

The key difference is that one-on-one relationship between man and machine I was talking about, because the emphasis is on a personal interaction.

The whole concept is this: for the same capital equipment cost as a passenger train, you can now buy 1,000 Volkswagens. Think of the large computers (the mainframes and the minis) as the passenger train and the Apple personal computer as the Volkswagen. The Volkswagen just is as fast as or as comfortable as the passenger train. But the VW owners can go where they want, when they want and with whom they want. The VW owners have

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

**"When we designed the Apple, we wanted to offer the benefit of a \$15,000 computer or a \$100,000 time-sharing system with a computer that costs as little as \$1,500."**

invent the personal computer, to invent the "intelligent bicycle".

Basically, Steve Wozniak and I invented the Apple because we wanted a personal computer. Not only couldn't we afford the computers that were on the market, those computers were impractical for us to use. We needed a Volkswagen.

People like us were the initial market for the personal computer. After we launched the Apple in 1976, all our friends wanted one. By the time Apple II was on the market in mid-1977, the demand for the personal computer had already begun to skyrocket.

Today, we've sold over 150,000 Apple personal computer systems. That's because Apple recognized this passenger train/Volkswagen 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 or a \$100,000 time-sharing system with a computer that costs as little as \$1,500.

Obviously, one of the differences between a personal computer and other computers is price. Another difference is size.

I'd like to use another analogy here: the huge motor and the fractional horsepower motor. When the first motor was invented in the late 1800s, it was

only possible to build a large and expensive motor, just like it was with the early computers. Those motors were used 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 fractional-horsepower 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 the lab, the school or the home.

In other words, Apple broke down the huge monolithic computer into small, easy to use parts. We made the computer friendly. So, like the fractional horsepower motor distributed horsepower to 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 machine and the newer, advanced phone systems. Maybe that portable cassette player you're using could be number five. Like all those inventions, 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 the industrial 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 this year alone. When we start thinking of a personal computer as a bicycle, a Volkswagen or 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."**

the 60s and 70s. Today, Apple's putting the power of computing into the hands of people who might never have had the chance to use it before.

We at Apple call our personal computer a third wave tool.

10 million of these typewriter-size 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 effect 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) 538-9006. In California, call (800) 663-9238. Or write: Apple Computer, 10260 Bandley Drive, Cupertino, CA 95014.

Apple Computer, 10260 Bandley Drive, Cupertino, CA 95014.

**"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 the personal computer exists. The challenge 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

personal control of the machine.

In the 60s and early 70s, it wasn't economically feasible to have the interaction of one person with one 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

apple computer inc.



**Invented**

**1977**

**Peak**

**1980s**

**Demise**

**?**

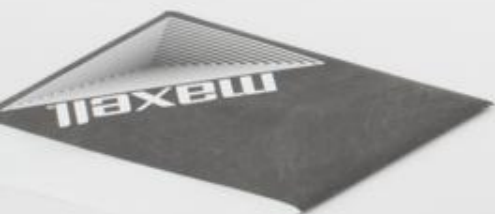


Invented Peak Demise

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  $\frac{5}{4}$  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?**



Microsoft

Know where your  
money is going

Suivez votre  
argent

Do not lend or  
make illegal copies  
of this software.

Il est illégal de  
prêter ou copier  
ce logiciel.

**Invented**

**Peak**

**Demise**

1980

2000

2009

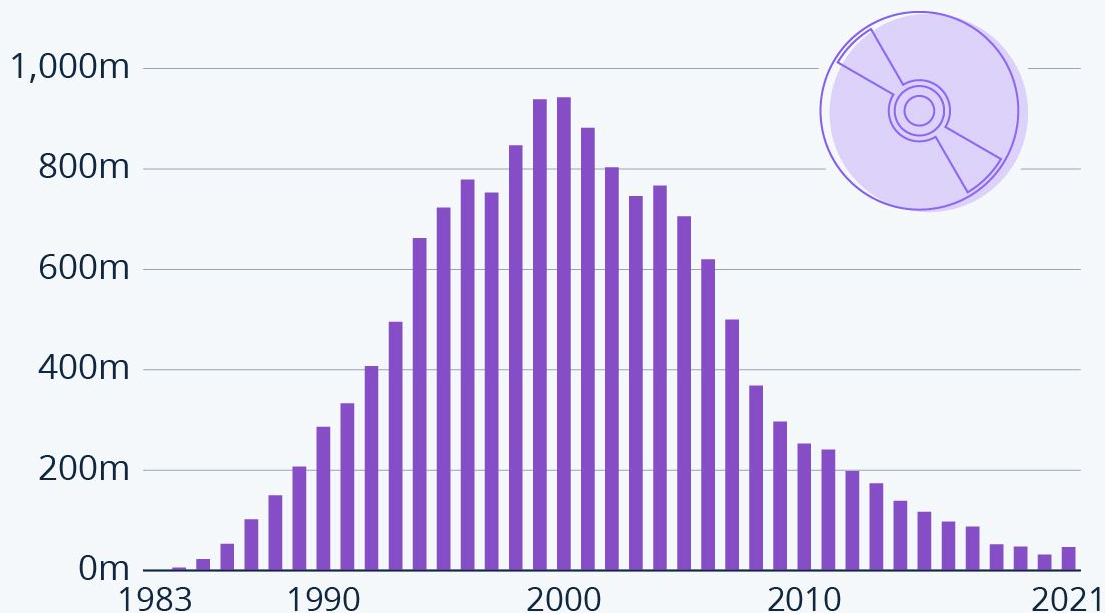
Microsoft

Money



# The Rise and Fall of the Compact Disc

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



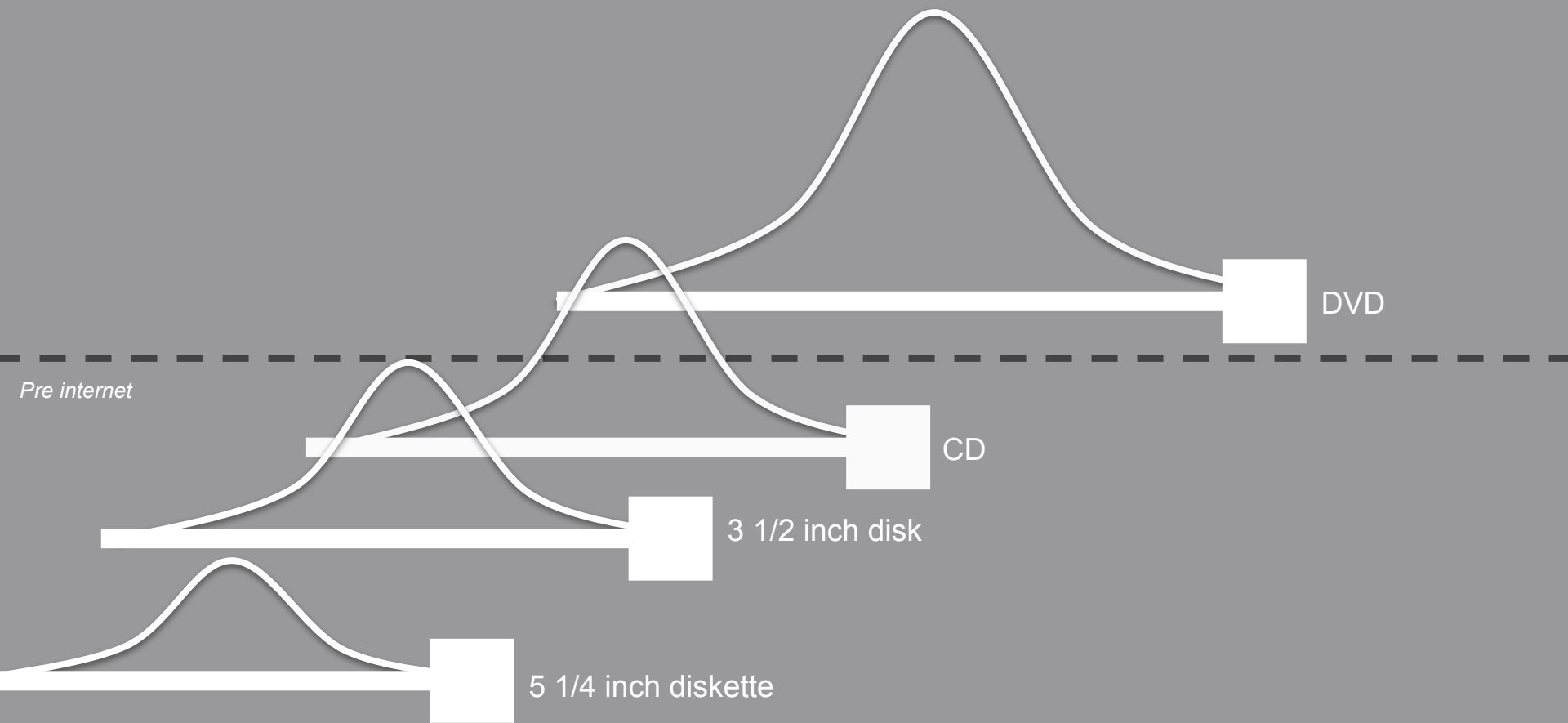
Source: RIAA



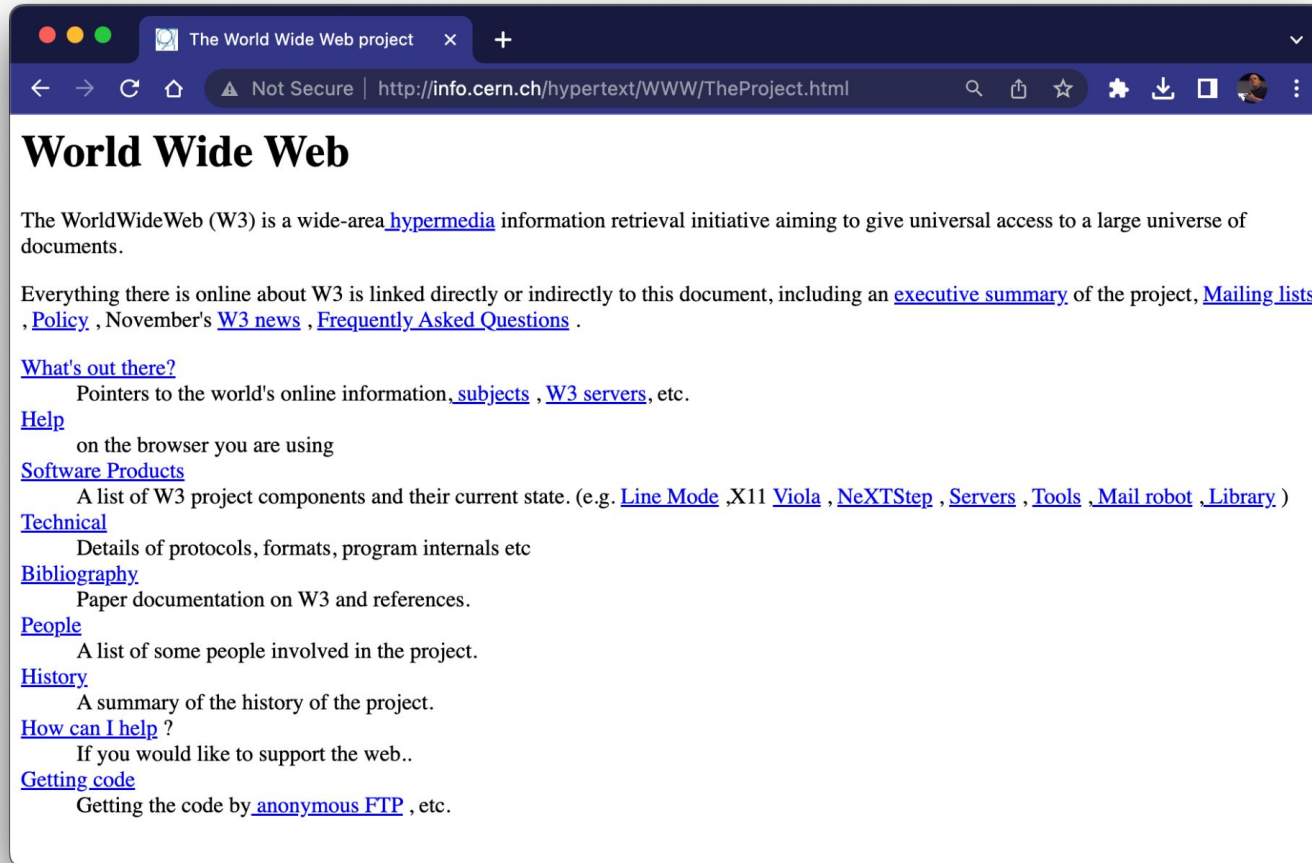


# **Content Warning!**

Dramatic licence is  
being applied with  
the following charts.

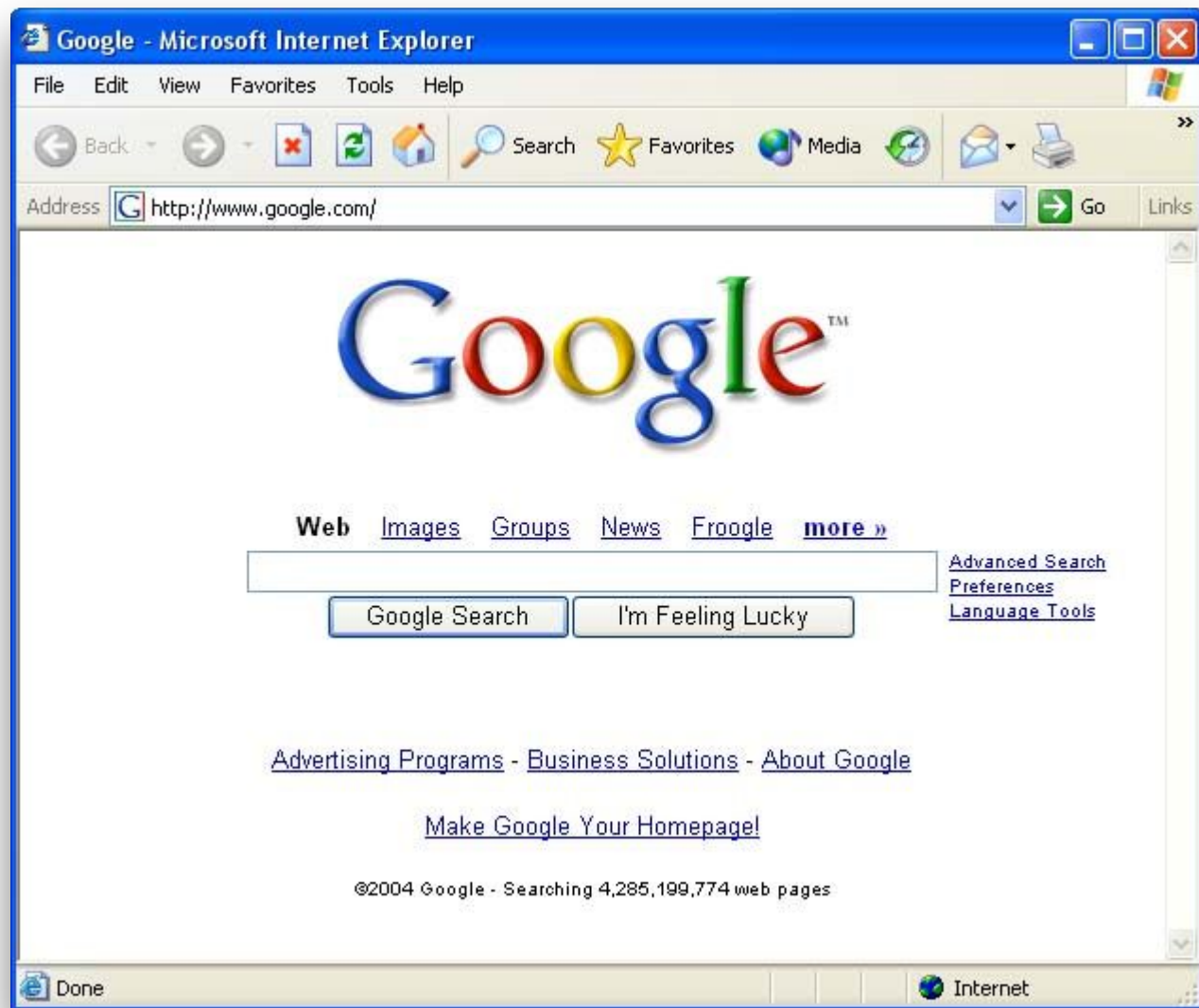




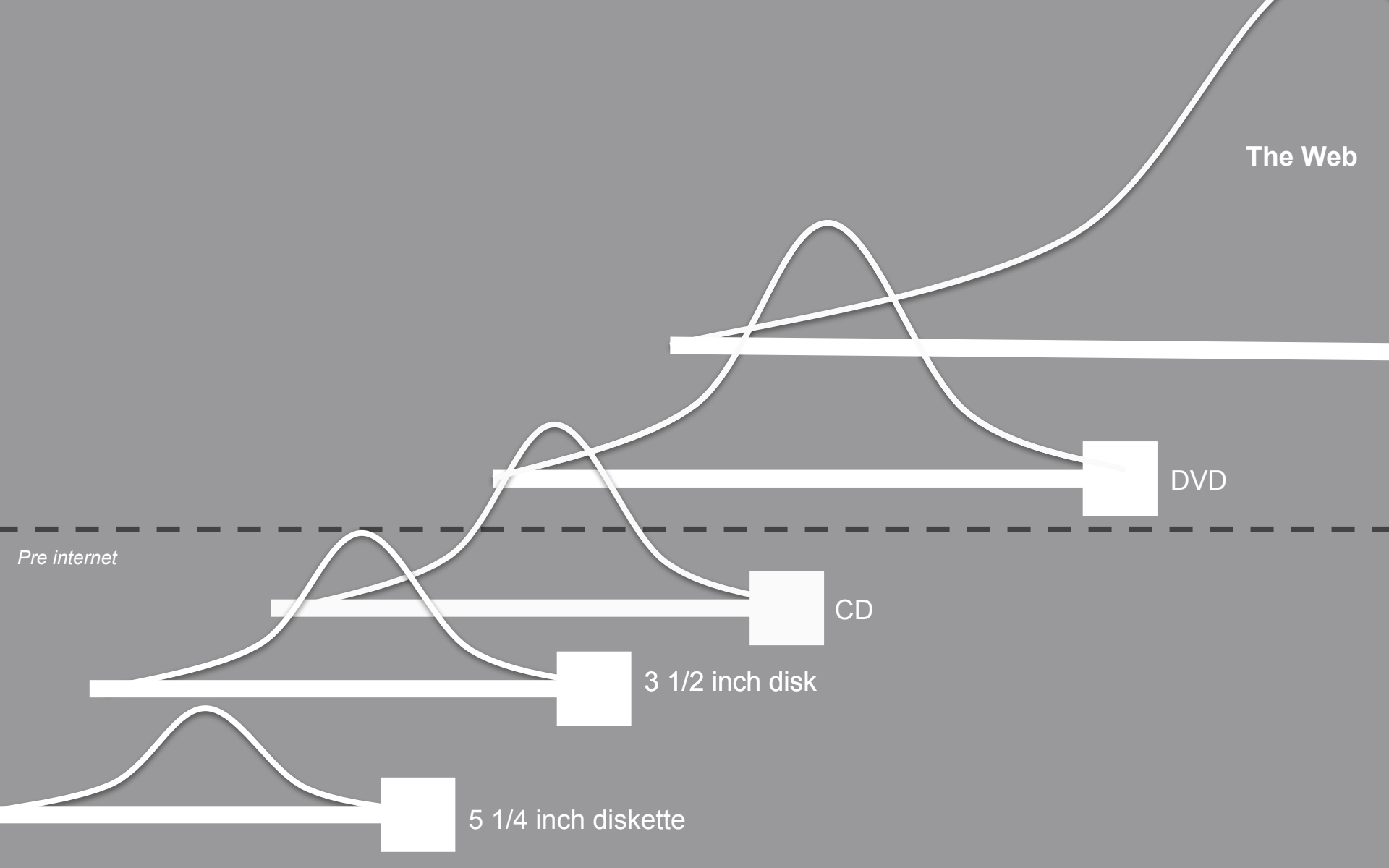


1989

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



1998





# 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 web-sites 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

## Welcome to PCBware Ltd!

New: Visit our site from a WAP capable phone!

### **Quality Hosting**

We understand that your web site is important to you, and critical to your business or personal strategy. We know that it needs to be available 24hrs a day, 365 days a year. When you host your website with PCBware Ltd you are assured peace of mind with our guarantee of 99.5% uptime. This is backed by resilient Internet connections, Uninterruptable Power Supplies, continuous server monitoring and 24 hour server maintenance in case of hardware failure.

Click [here](#) for full hosting specification!

### **Lo-cost Domain Registration**

We can register domain names for you for only £24.99 for .co.uk domains, and £39.99 for .com domains.

The registration is for 2 years and comes with FREE web and email forwarding.

Also we do not charge for releasing the domain to another ISP!

Click [here](#) for more information!

### **Website Design and Development**

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:



Search

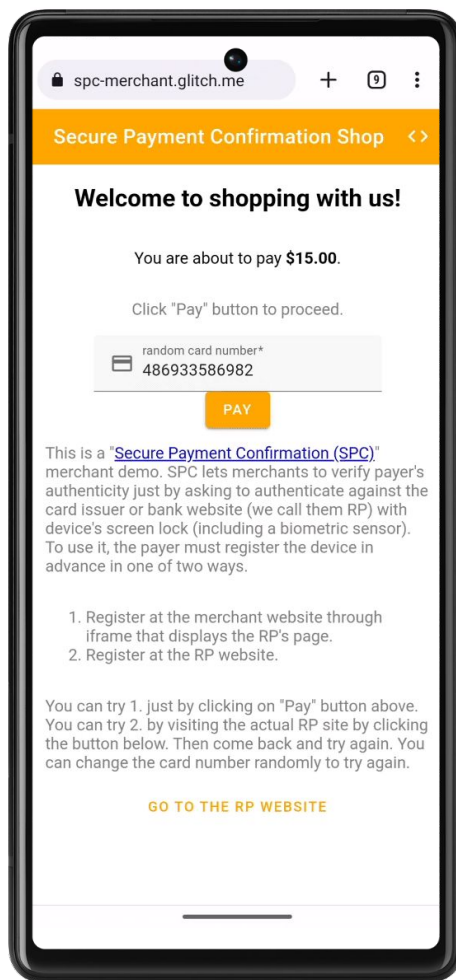


**Coming Soon: Email on any mobile  
via our Mobile Email Service!**









spc-merchant.glitch.me

## Secure Payment Confirmation Shop

### Welcome to shopping with us!

You are about to pay **\$15.00**.

Click "Pay" button to proceed.

random card number\*  
486933586982

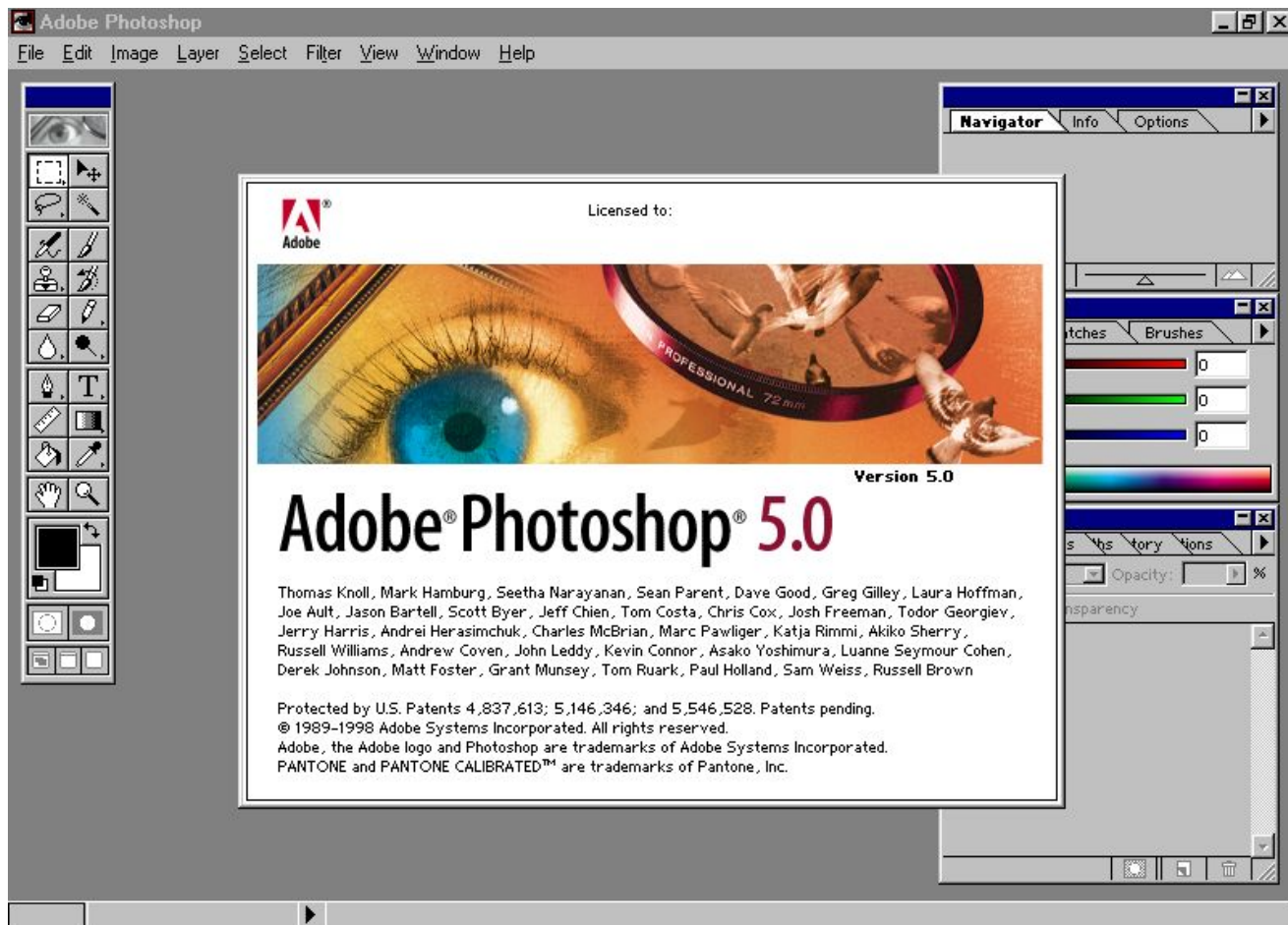
PAY

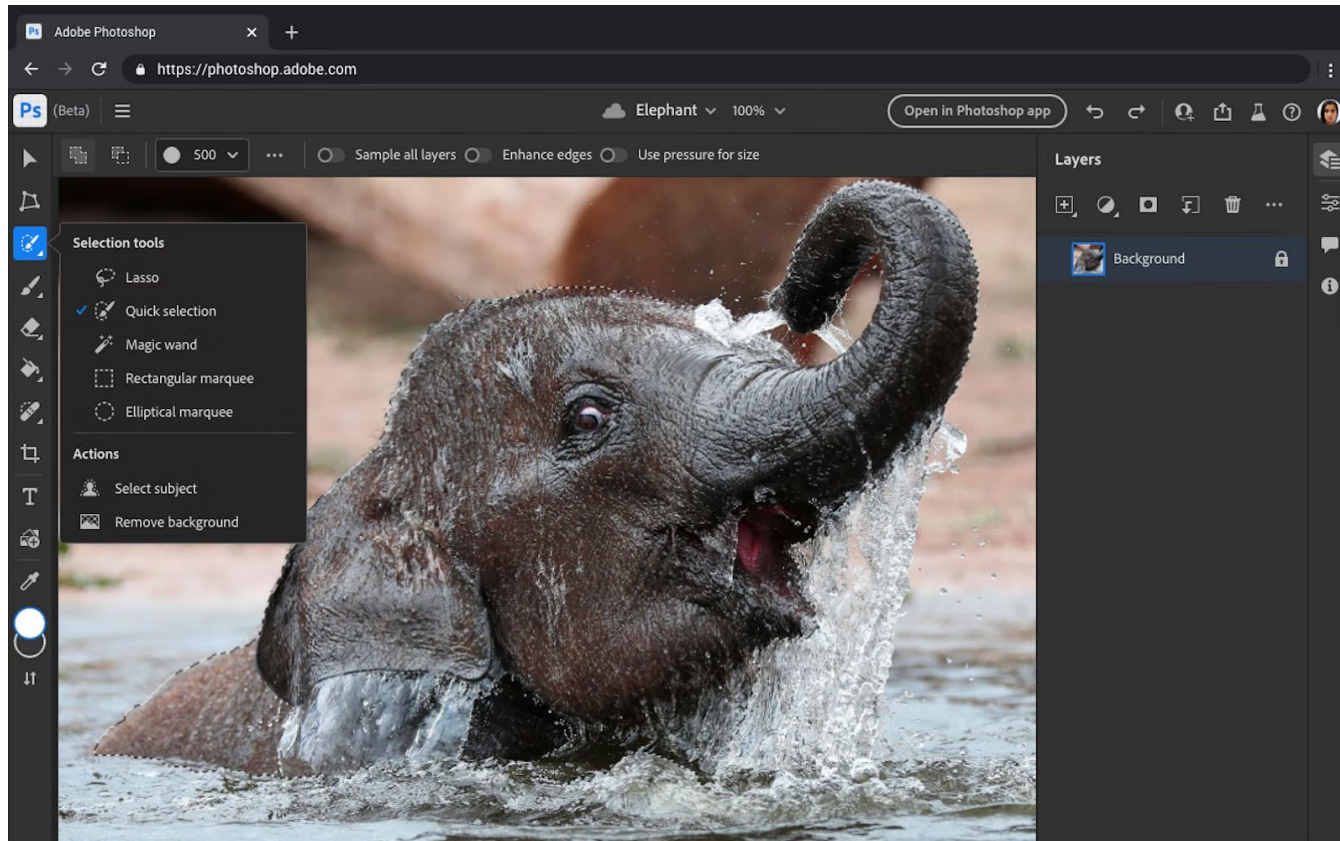
This is a "[Secure Payment Confirmation \(SPC\)](#)" merchant demo. SPC lets merchants to verify payer's authenticity just by asking to authenticate against the card issuer or bank website (we call them RP) with device's screen lock (including a biometric sensor). To use it, the payer must register the device in advance in one of two ways.

1. Register at the merchant website through iframe that displays the RP's page.
2. Register at the RP website.

You can try 1. just by clicking on "Pay" button above.  
You can try 2. by visiting the actual RP site by clicking the button below. Then come back and try again. You can change the card number randomly to try again.

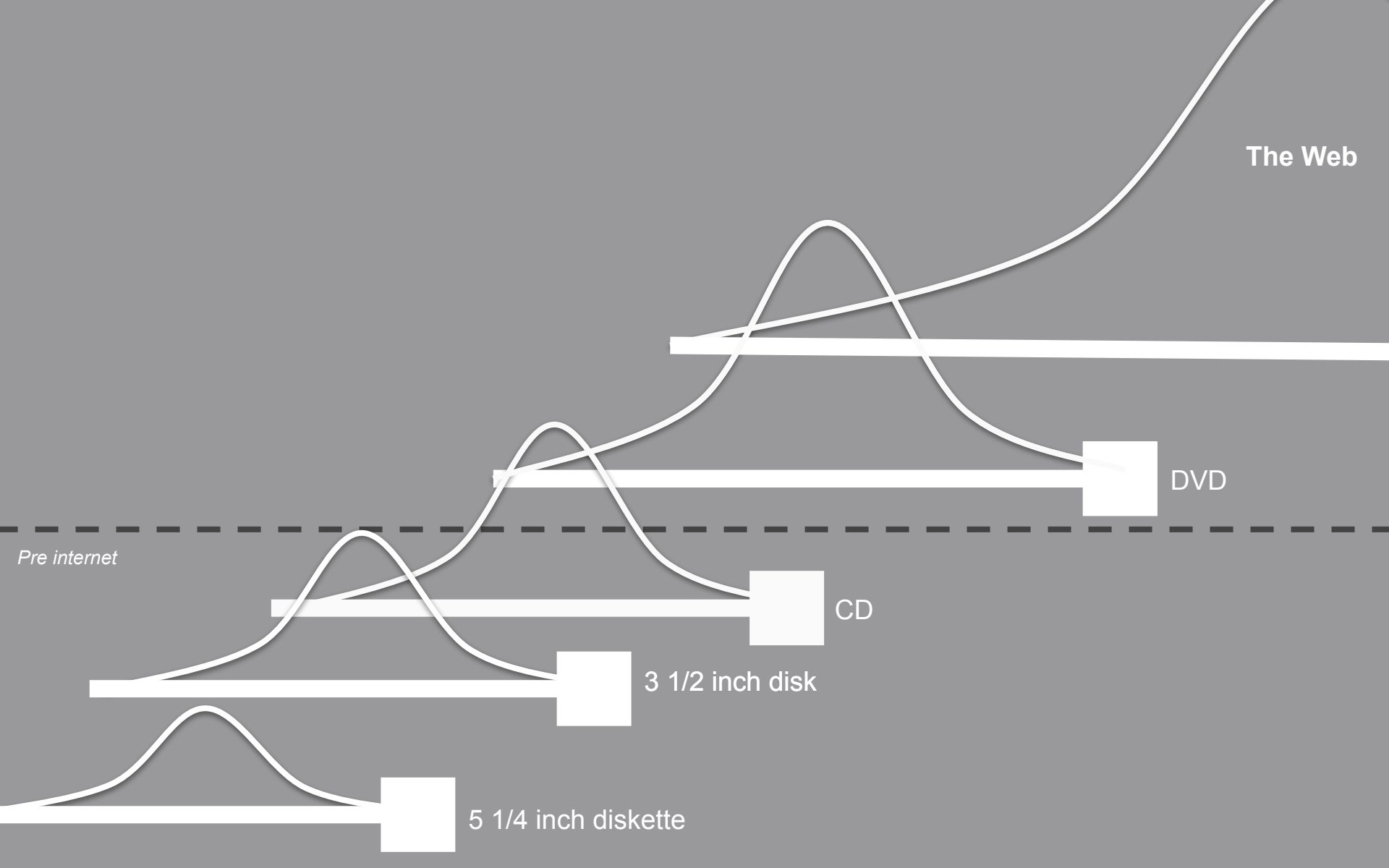
[GO TO THE RP WEBSITE](#)





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





# THE SMARTPHONE



1992





iPod



Phone



Internet

2007



**Desktop *vs* Mobile**



# Web *vs* Apps



3%

12%

11%

51%

52%

13%

13%

12%

11%

14%

1%

3%

1%

15%

15%

The pie increased



## A-Series Multi-core geekbench

10000

7500

5000

2500

0

Faster





Capable



# Integrated



**Scaled**



**Cheaper**





2015: India

A photograph of a street scene in India, featuring a semi-transparent dark grey text box in the center. The background shows a paved road with a large, dark, irregular water puddle in the foreground. On the left, a white car is partially visible. In the middle ground, there are several vehicles, including a yellow and green school bus and a green and yellow auto-rickshaw. A person in a white shirt and dhoti is standing next to the auto-rickshaw. The background is filled with lush green trees and a street lamp. The text is in a large, white, serif font.

**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...

amazon.in

Hello  
Select your address

Electronics

Search Amazon.in

EN

Hello, sign in  
Account & Lists

Returns  
& Orders

Cart

All

Sell

Amazon miniTV

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Mobiles

Customer Service

Today's Deals

VAARASDARA

Join Prime now  
\*Redirects to primevideo.com

Electronics

Mobiles & Accessories

Laptops & Accessories

TV & Home Entertainment

Audio

Cameras

Computer Peripherals

Smart Technology

Musical

BaoFeng BF-888S UHF 400-470MHz 16CH CTCSS/DCS With Earpiece Handheld Amateur Radio Walkie Talkie 2 Way Radio Long Range Black 20 Pack

★★★★☆ 107

₹33,999<sup>00</sup> ✓prime

JioPhone Next

32 GB ROM, 2 GB RAM, Smartphone (Blue)

Brand: JioFi

★★★★☆ 42 ratings

4 answered questions

-38% ₹4,550

M.R.P.: ₹7,299

Inclusive of all taxes

Coupon: ☐ Apply 5% coupon Terms

EMI starts at ₹217. No Cost EMI available EMI options

Offers

No Cost EMI

Upto ₹192.50 EMI interest savings on Amazon Pay ICICI...

Sponsored

₹4,550<sup>00</sup>

₹45 delivery Friday, 17 March. Details

Select delivery location

In stock

Sold by VIJAY BOOT HOUSE. and Delivered by Amazon.

Quantity: 1

Add to Cart

Buy Now

Secure transaction

Add to Wish List

Have one to sell?

Sell on Amazon

Mobilithic era

June 29,  
2007



Mobile era

Chat + Others

App Stores

Web

DVD

Pre internet

1.3 billion users

2 billion new users



JAN  
2023

# INTERNET USERS: TIMELINE

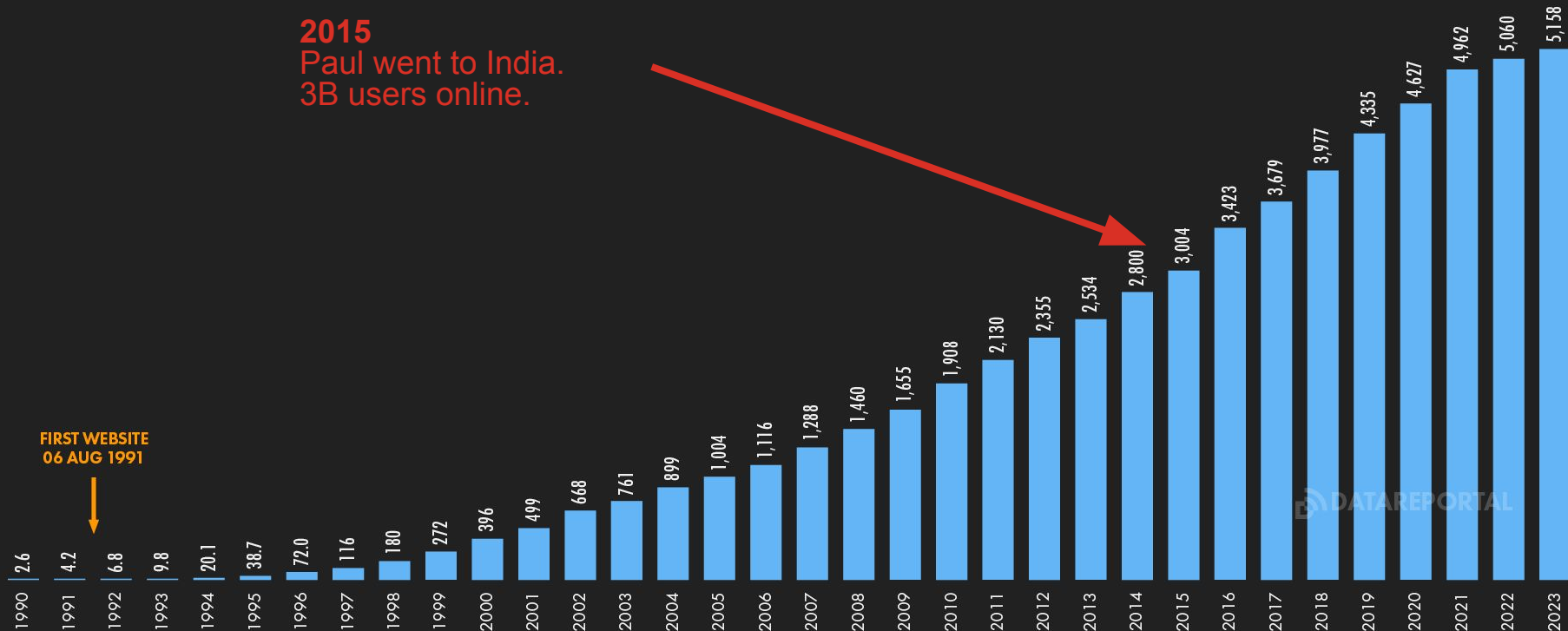
NUMBER OF INTERNET USERS BY YEAR (IN MILLIONS)



GLOBAL OVERVIEW

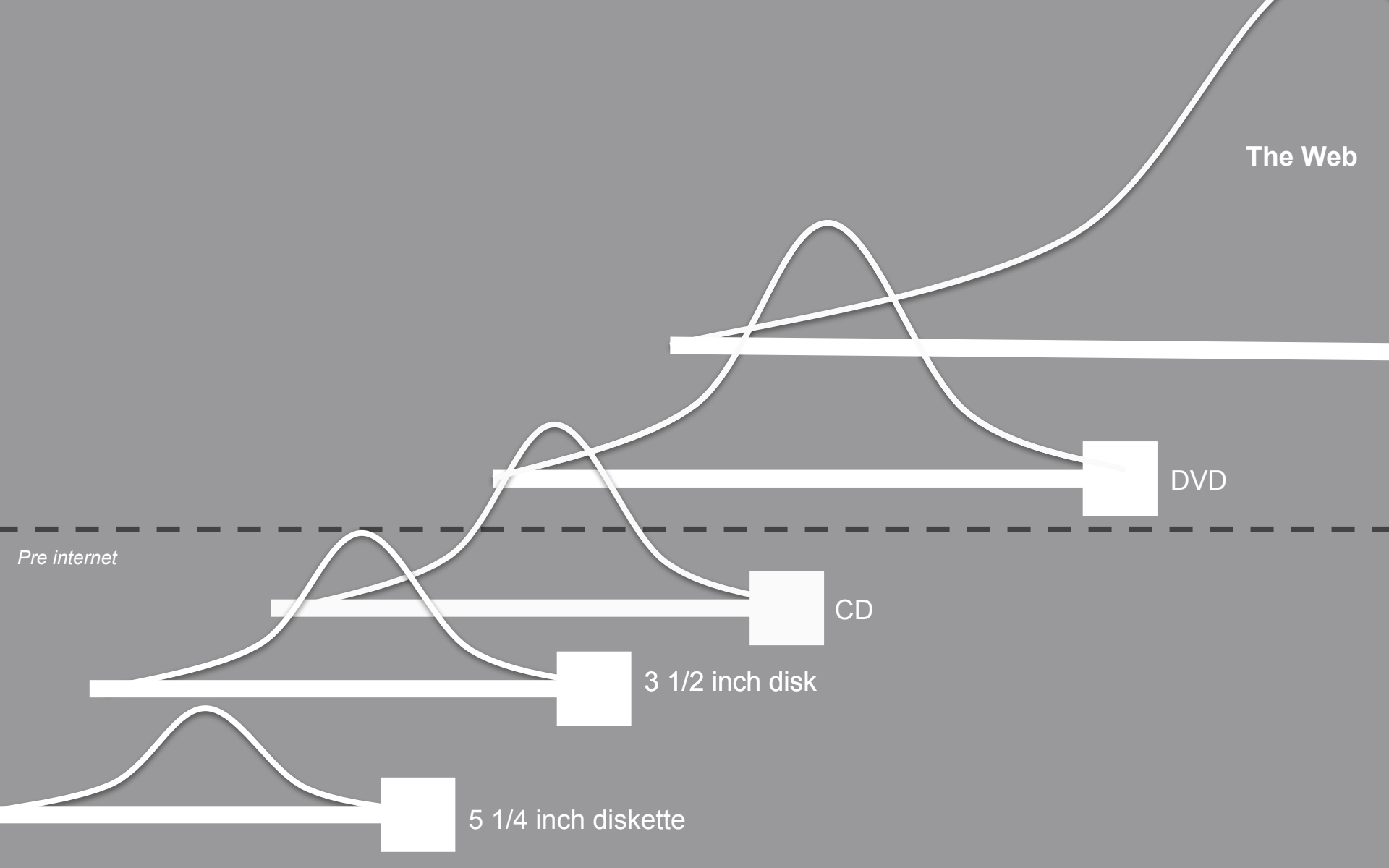
**2015**  
Paul went to India.  
3B users online.

FIRST WEBSITE  
06 AUG 1991



**SOURCES:** KEPIOS ANALYSIS; ITU; GSMA INTELLIGENCE; EUROSTAT; WORLD BANK; GOOGLE'S ADVERTISING RESOURCES; CIA WORLD FACTBOOK; CNNIC; APJI; KANTAR & IAMA; 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.



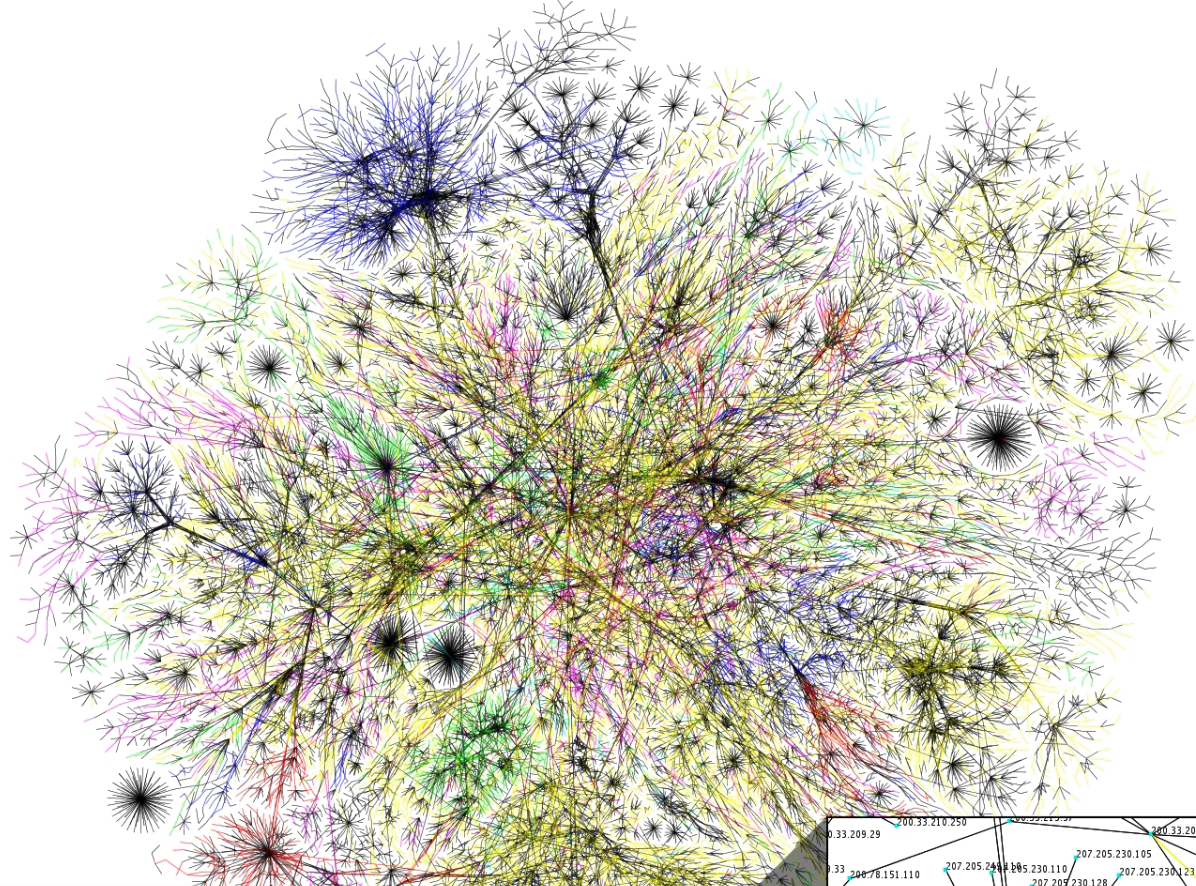




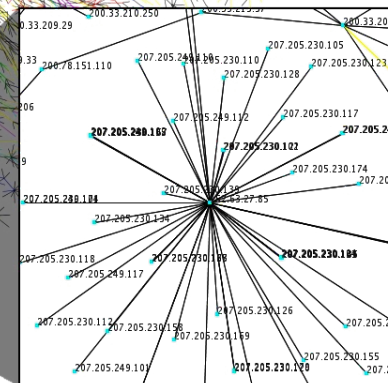
A large stack of 3.5-inch floppy disks is shown, fanned out at the bottom. The top disk has a white label with some text and a white square in the center. The disks are stacked on a light-colored surface.

**Replaced**





# Foundational

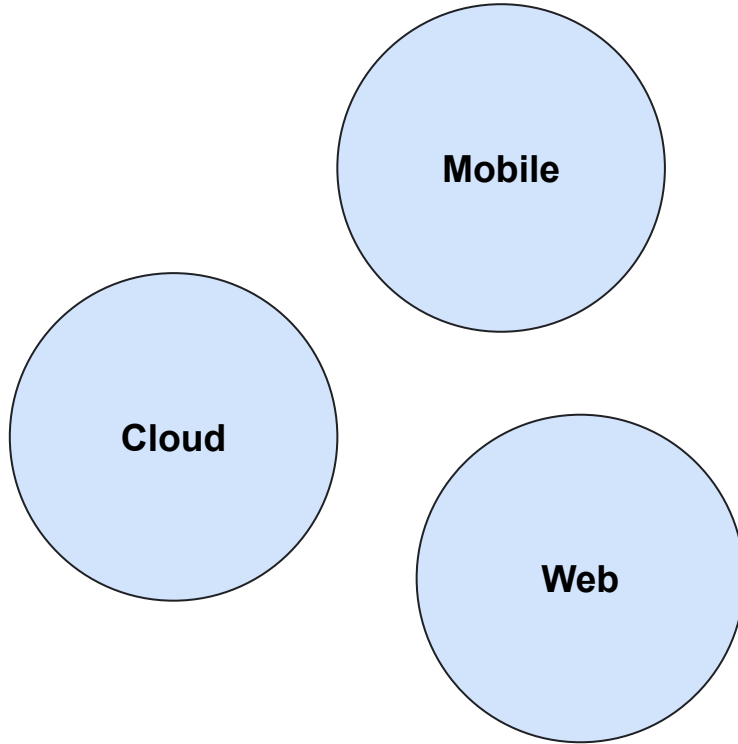


# Current Epoch

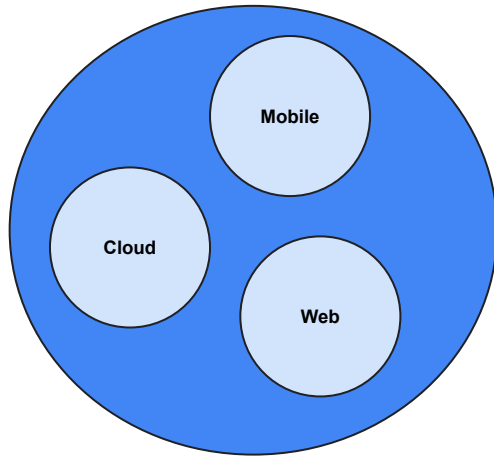
**Mobile**

**Cloud**

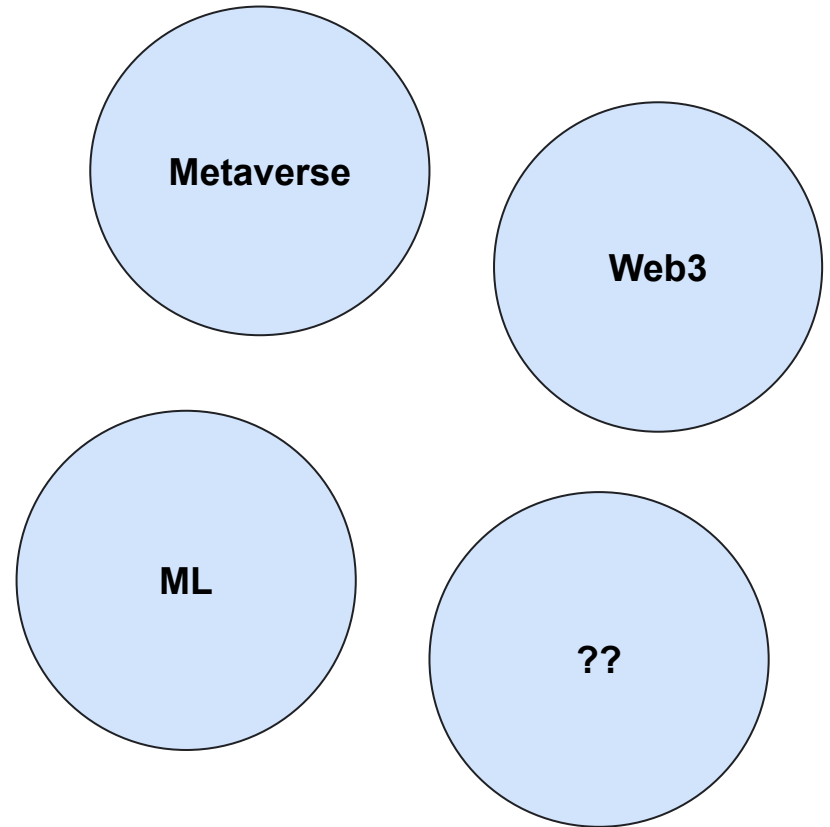
**Web**



## Current Epoch

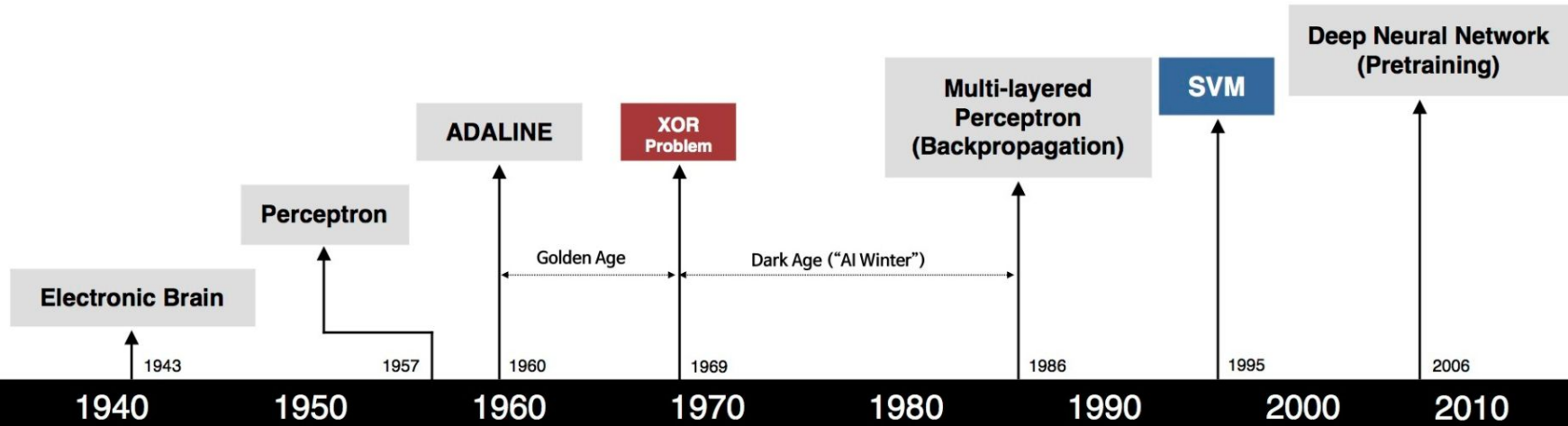


## Next Epoch

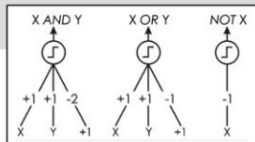








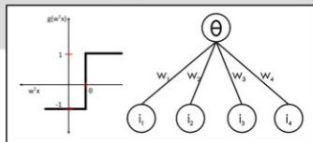
S. McCulloch – W. Pitts



- Adjustable Weights
- Weights are not Learned



F. Rosenblatt



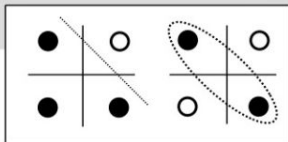
- Learnable Weights and Threshold



B. Widrow – M. Hoff



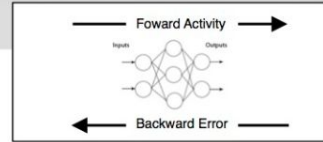
M. Minsky – S. Papert



- XOR Problem



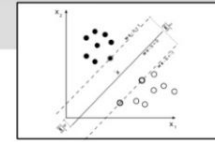
D. Rumelhart – G. Hinton – R. Williams



- Solution to nonlinearly separable problems
- Big computation, local optima and overfitting



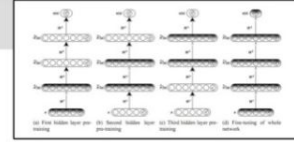
V. Vapnik – C. Cortes



- Limitations of learning prior knowledge
- Kernel function: Human Intervention



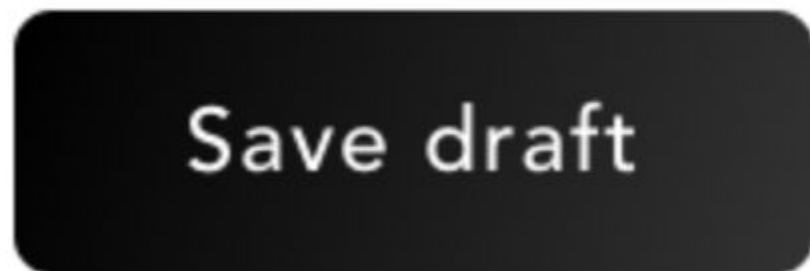
G. Hinton – S. Ruslan



- Hierarchical feature Learning

# 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 `` HTML tag within the `

` 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

Wichtige Schritte im Lernprozess  
sind das Verstehen, das Anwenden  
das Erklären, das Überprüfen und das  
Reflektieren. Diese Schritte sind  
nicht linear, sondern können  
auch gleichzeitig stattfinden.

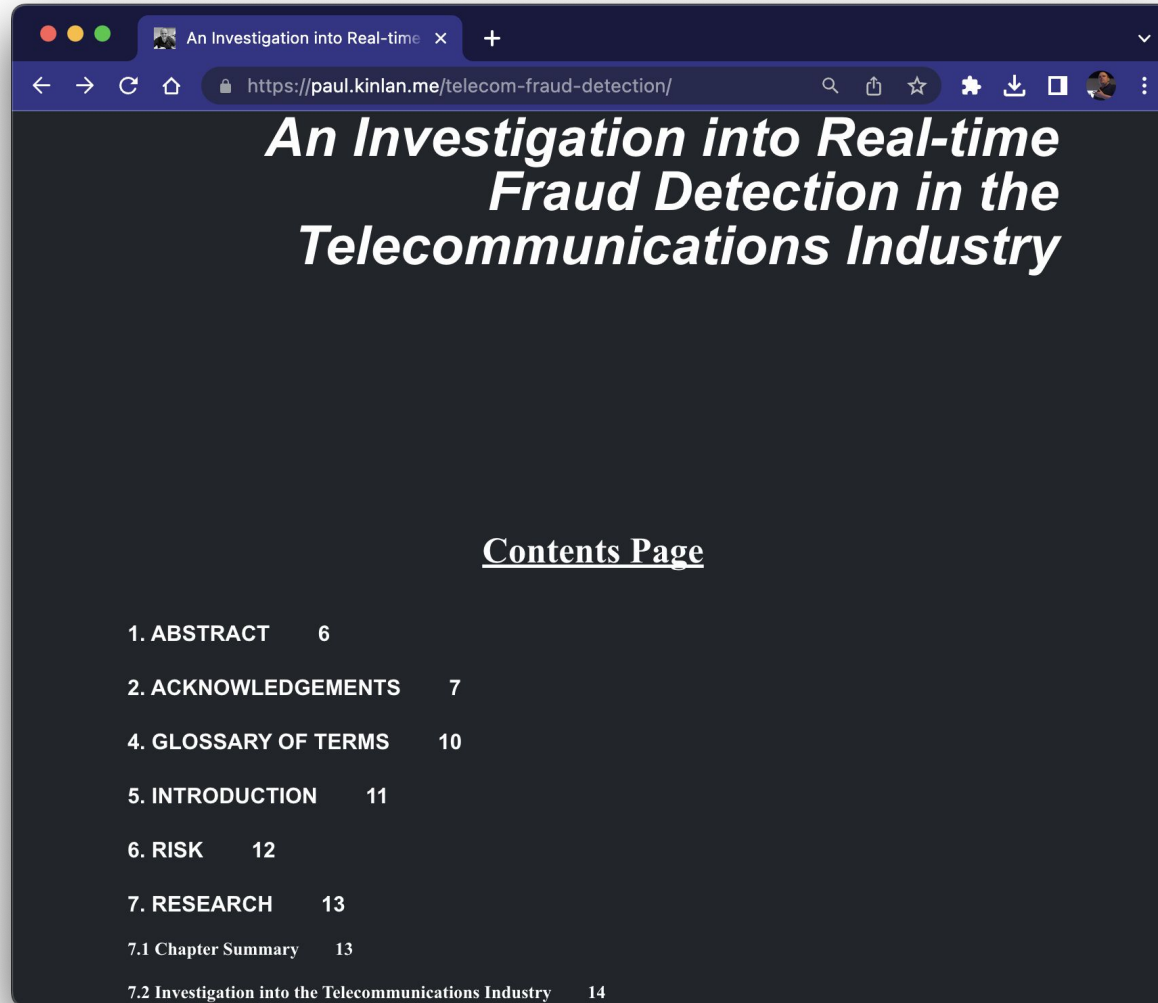
Die Schritte des Lernens sind:  
1. Verstehen  
2. Anwenden  
3. Erklären  
4. Überprüfen  
5. Reflektieren  
Diese Schritte sind nicht linear,  
sondern können auch gleichzeitig  
stattfinden.





```
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**

HTTP SERVER PROJECT

is to the web...

... as **???** is to ML

# Investing In Your Future

## The Appliange 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



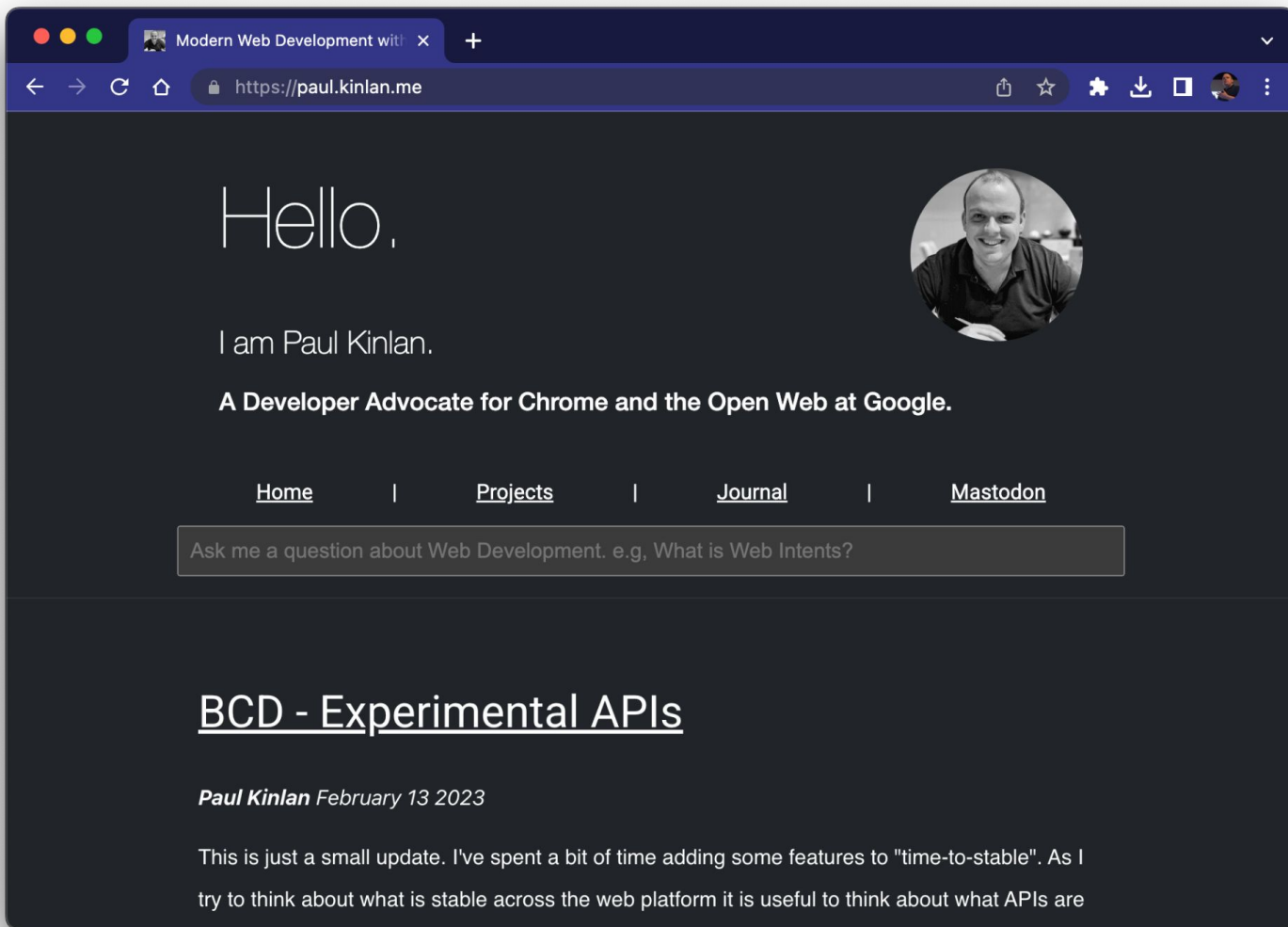
Left: Paul Kinlan. Right: Christopher Evans

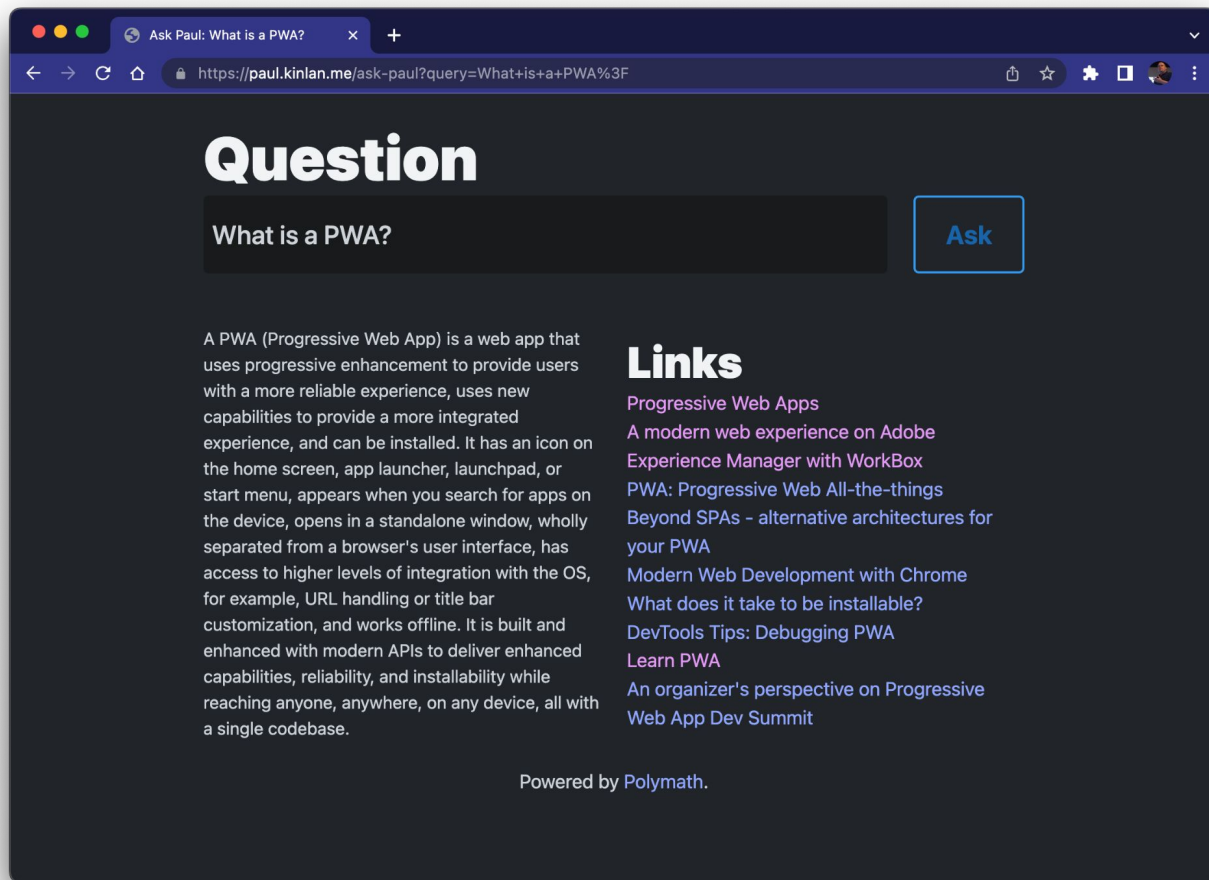
With a College extensively equipped with networked computers and a direct cable link to the Internet, students at Birkenhead Sixth Form College are definitely in the fast lane of the Information Highway. Two A Level Computing students are now planning to make computers even more integral to study. Christopher Evans and Paul Kinlan are constructing a College based Intranet. There'll be subject based web-sites 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.

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