



The New AEC Industry: How to Survive in the New Information Age

Jimmy Rotella

Design Application Specialist
CannonDesign



Class summary

Our industry has changed. New tools are challenging the traditional design process and impacting our cost structures. At the same time, a wave of Millennials and Generation Zers are entering the workforce and changing corporate cultures everywhere. They bring with them a mindset revolving around access to their work from anywhere, a warehouse of new customized tools, and an open-source mindset of collaboration and co-opitition. All the while, the entire environment around us is becoming more connected through the Internet of Things, and bombarding us with more and more data. How will the architecture, engineering, and construction industry adapt to such drastic change? Do you have the skill sets needed to survive in this new age?



Key learning objectives

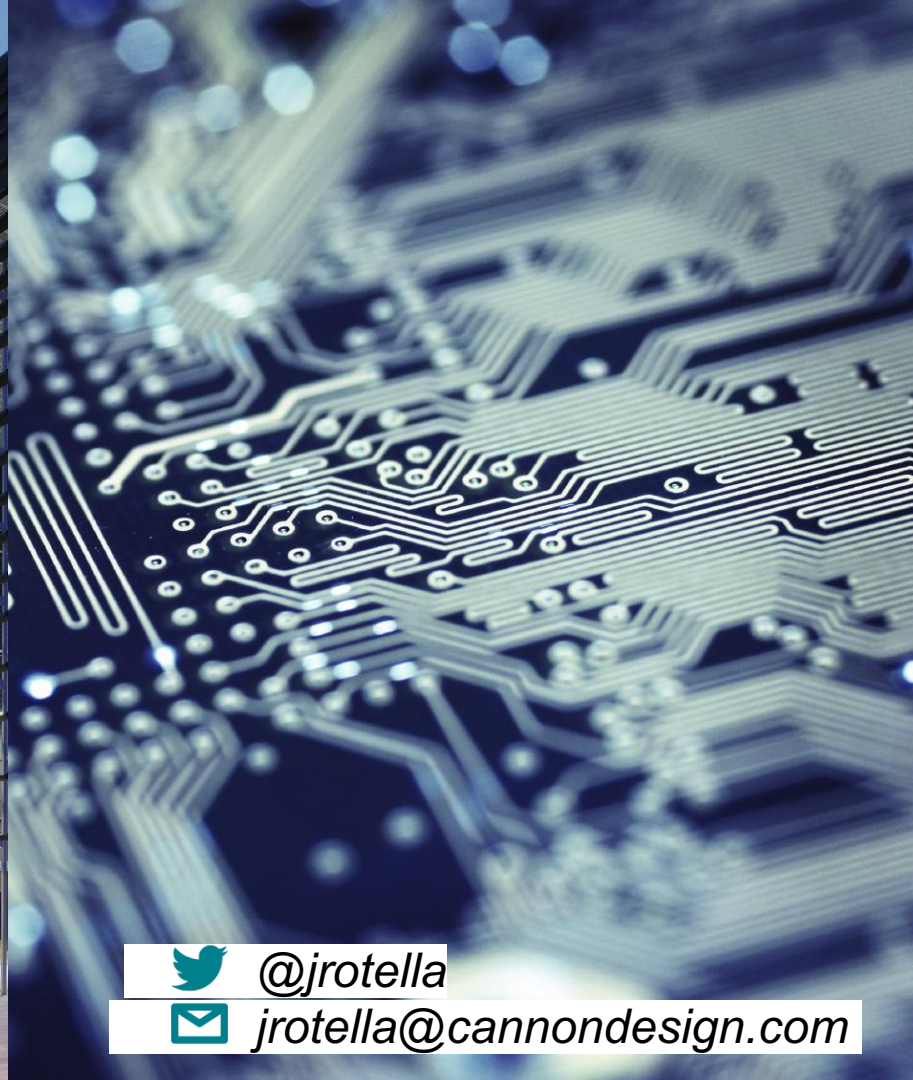
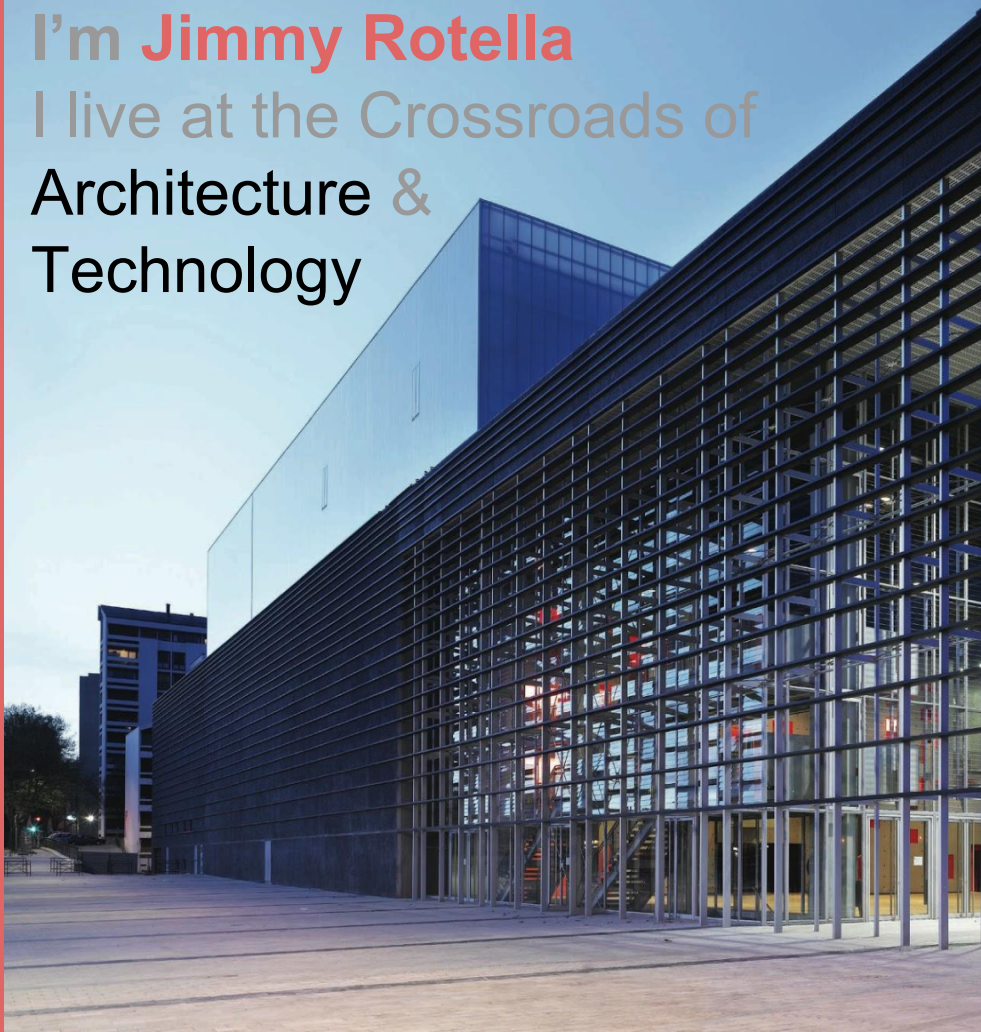
At the end of this class, you will be able to:

- Learn how to adapt your workflows to the new tools that are changing our traditional design process
- Learn how to partner with Millennials and Generations Zers to advance your corporate culture
- Understand the technology that's available today that enables design collaboration and access from anywhere with an internet connection
- Find out why you should be experimenting with IoT and big data today



I'm **Jimmy Rotella**

I live at the Crossroads of
Architecture &
Technology



@jrotella



jrotella@cannondesign.com

**WHERE DO YOU DRAW THE
LINE**



**BETWEEN DESIGN AND
TECHNOLOGY**

memegenerator.net

ALVIN TOFFLER

Author of POWERSHIFT and FUTURE SHOCK

THE THIRD WAVE

THE CLASSIC STUDY OF TOMORROW

The Third Wave

Alvin Toffler

1980

The First Wave

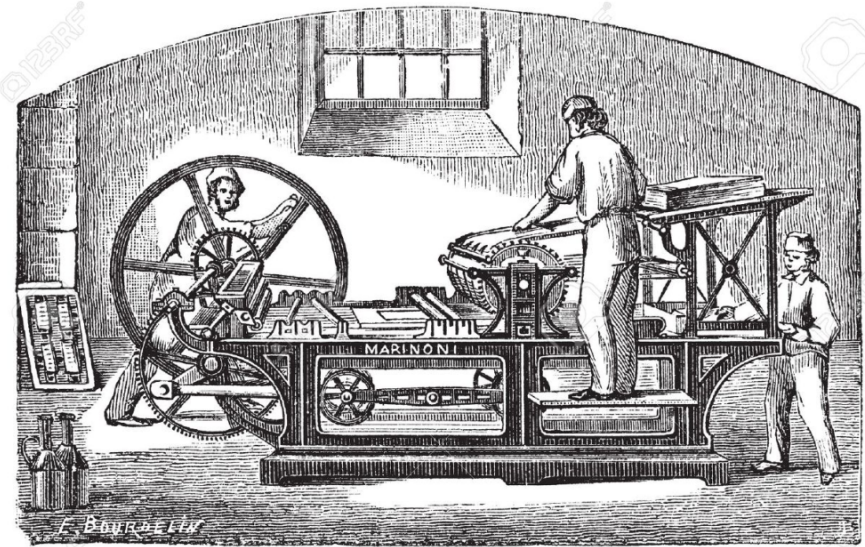
Agriculture

~ 10,000 years ago

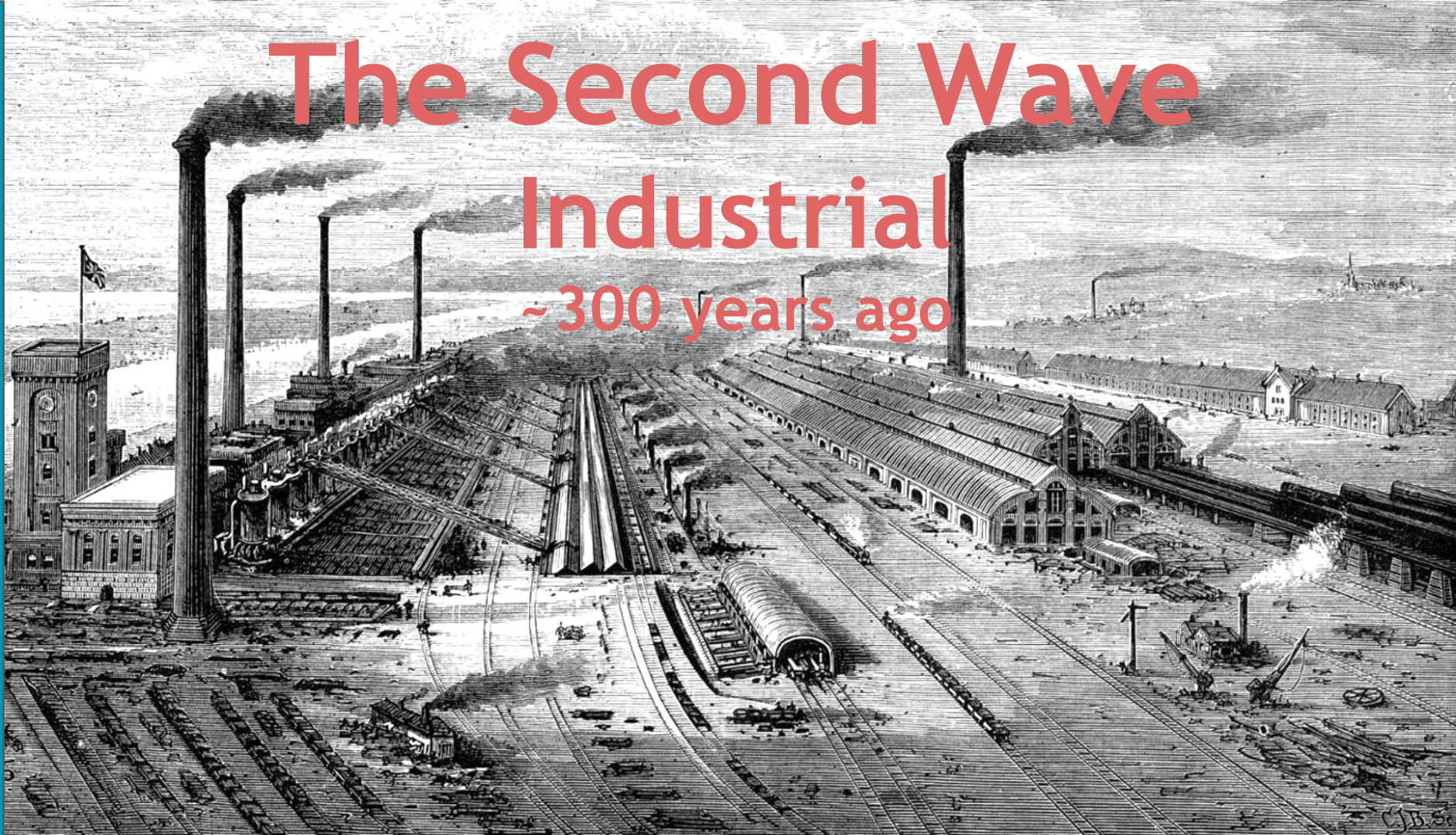


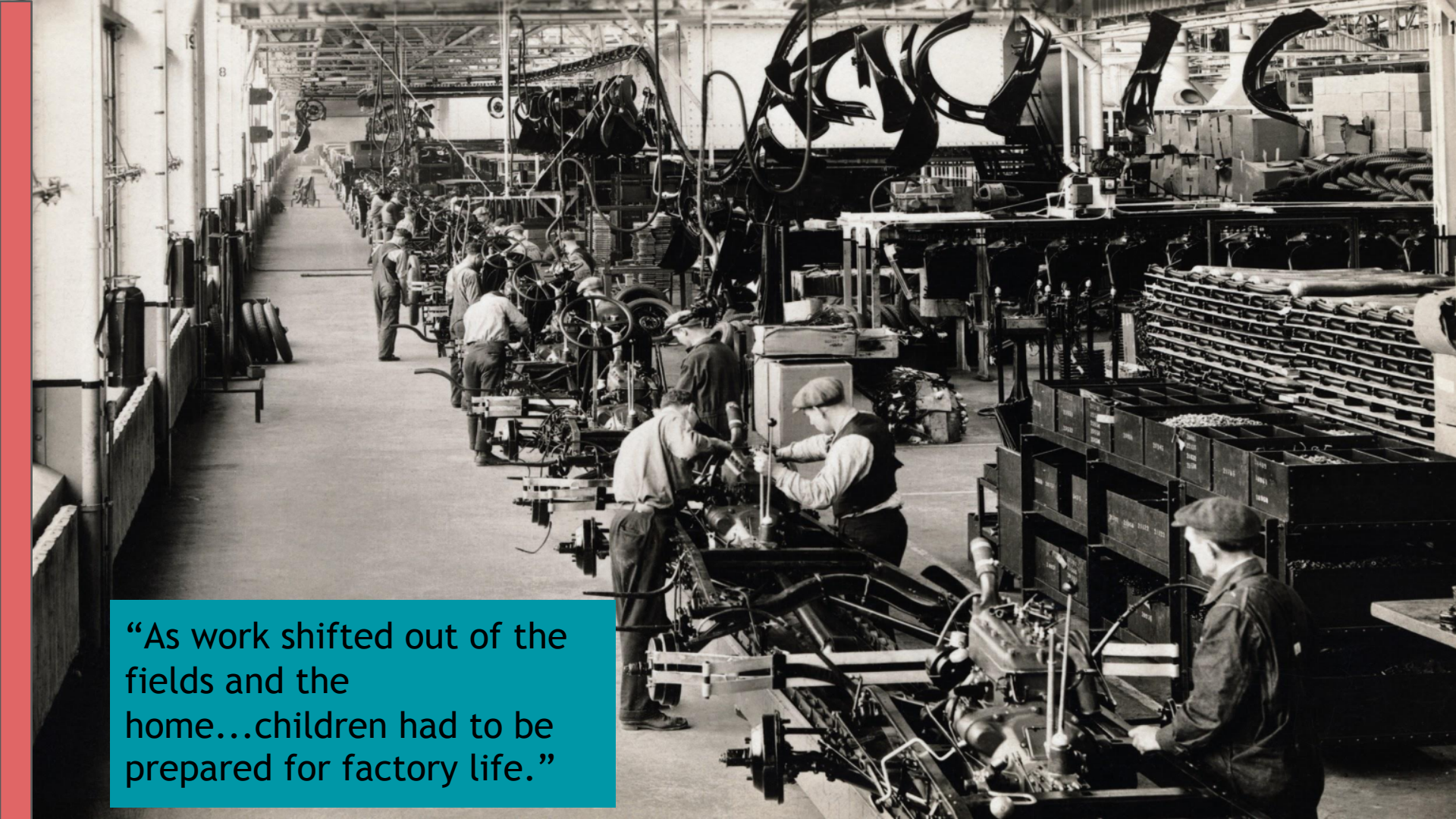


First Wave was
dominant until
around 1650-1750

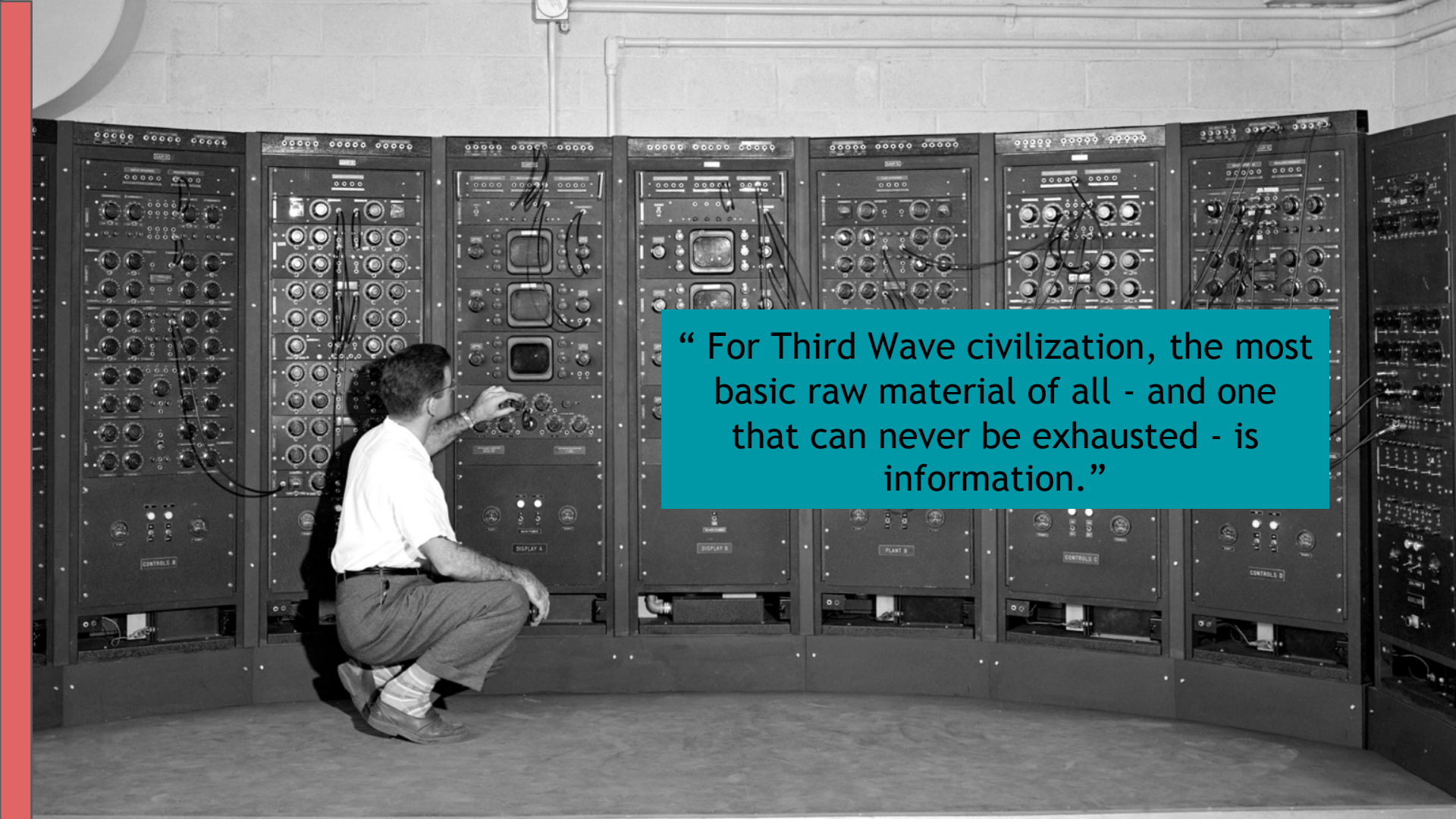


The Second Wave Industrial ~ 300 years ago

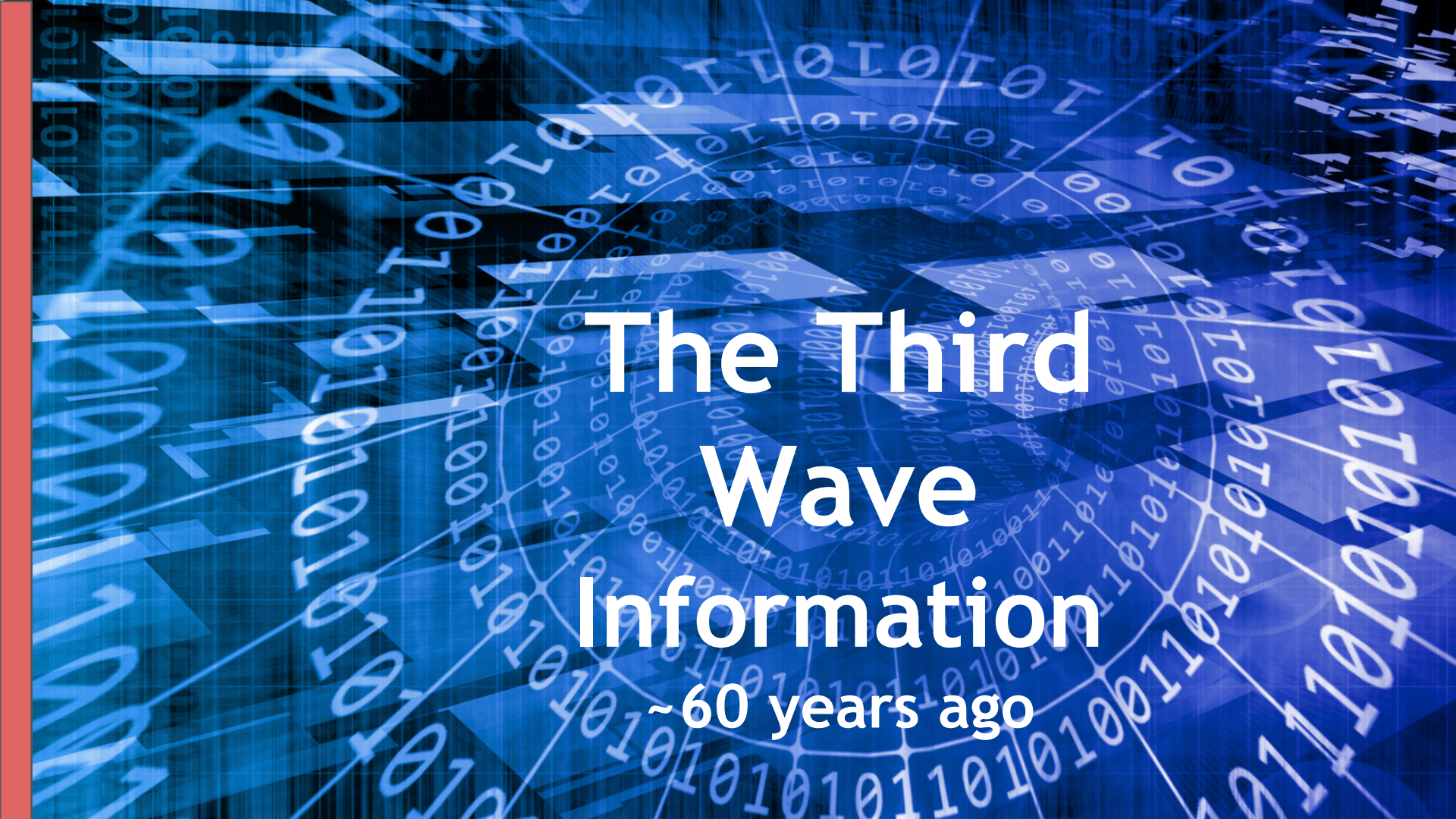


A black and white photograph of a large industrial factory interior. In the foreground, a worker in a cap and dark jacket is working on a mechanical assembly, possibly an engine. To his right, there are several tall racks filled with small, dark boxes or components. In the middle ground, another worker is bent over a workbench, focused on a task. Further back, a long line of workers is visible, each at their own station along a production line. The factory has a high ceiling with exposed steel beams and various mechanical parts hanging from overhead cranes. The floor is polished and reflects the light. The overall scene depicts a busy, organized industrial environment from the early 20th century.

“As work shifted out of the fields and the home...children had to be prepared for factory life.”


A black and white photograph of a man in a white short-sleeved shirt and glasses, crouching in front of a large, multi-bay electronic control console. The console is filled with numerous knobs, dials, and small rectangular displays. The man is adjusting one of the knobs on the third bay from the left. The background is a plain, light-colored wall with some wiring visible. A teal-colored text box is overlaid on the right side of the image.

“ For Third Wave civilization, the most basic raw material of all - and one that can never be exhausted - is information.”

The background is a complex, abstract composition. It features a grid of blue lines that intersect to form a series of diamond or rhombus shapes. Overlaid on this grid are various strings of binary code (0s and 1s) in different colors and orientations, some appearing to be part of the grid lines themselves. The overall color palette is dominated by shades of blue, with some white and light blue highlights. The text is centered in the middle of the image.

The Third Wave Information

~ 60 years ago

A woman with dark hair, wearing a white and brown patterned sleeveless top, is sitting at a desk. She is holding a black smartphone to her ear with her left hand and has her right hand on the keyboard of a white laptop. In the foreground, there is a white mug filled with a light-colored beverage. The background is slightly blurred, showing an office or home workspace with shelves and other items.

“We are the final generation of an old civilization and the first generation of a new one; much of our personal confusion, anguish, and disorientation can be traced directly to the conflict within us...between the dying second wave civilization and the emerging third wave.”

Key traits which will be valued in the Third Wave

Education will become interspersed and interwoven with work, and will be spread out over a lifetime.

On the job, the ability to accept responsibility, to adapt swiftly to change, and to be sensitive to fellow workers will be prized.

Successful people will be complex and individualistic.

Blind obedience on the job will be penalized. Independent thinking, questioning of authority, talking back will be rewarded.

Self-reliance, and the ability to do things with one's own hands will become prestigious.

The Third Wave
Steve Case
2016

THE NEW YORK TIMES BESTSELLER

THE

AN ENTREPRENEUR'S

THIRD

VISION OF THE FUTURE

WAVE

STEVE CASE

FOREWORD BY WALTER ISAACSON, AUTHOR OF *STEVE JOBS*



The First Wave Infrastructure

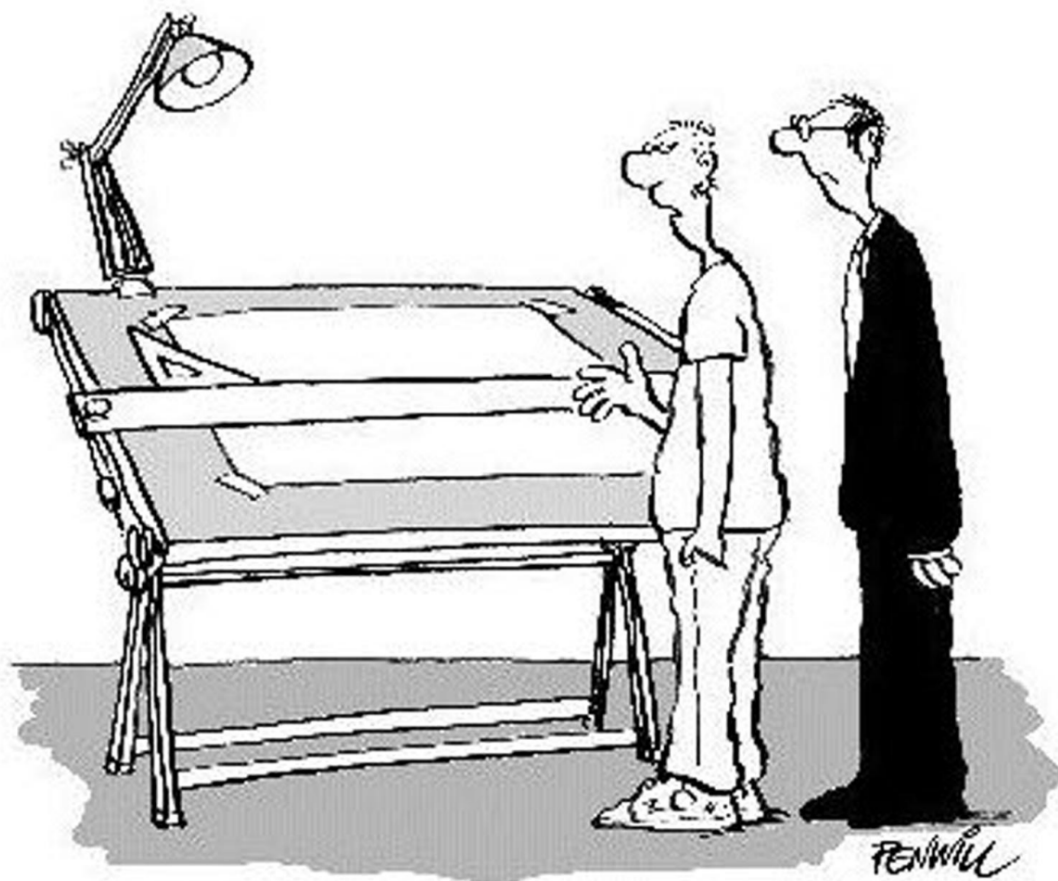
~ 30 years ago

~ 15 years ago



The Third Wave Internet of Everything

~today and beyond



"I HAVEN'T MUCH EXPERIENCE OF SUCH AN EARLY
VERSION OF AUTOCAD"

The First Wave Drafting

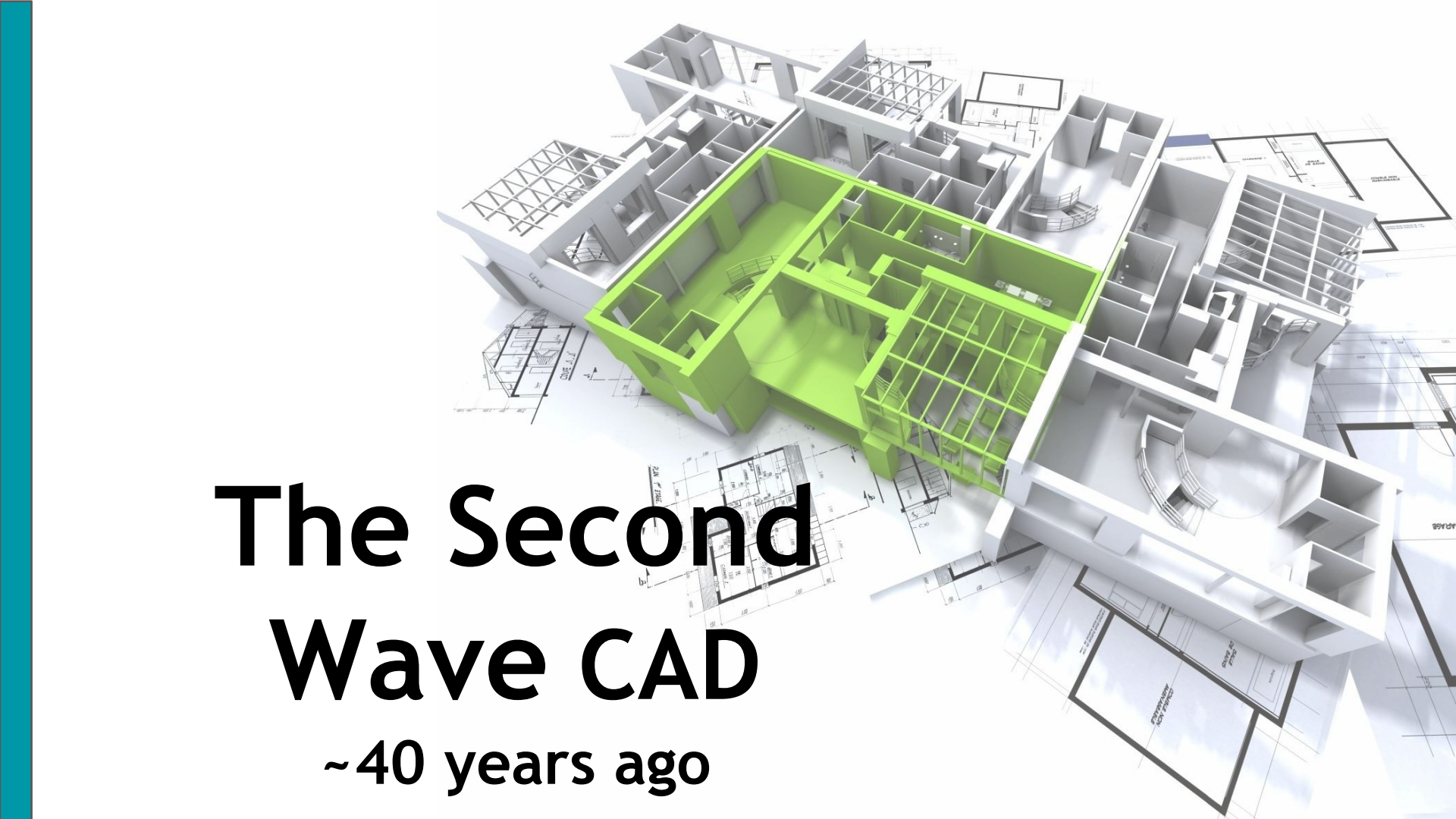
~3900 years ago





key innovations leading to
the second wave



A 3D architectural rendering of a complex building structure, possibly a multi-story office or institutional building. The building is composed of several interconnected volumes. A central section is highlighted in a bright green color, showing internal spaces and a grid-like structure. The rest of the building is rendered in white. The model is placed on a white background with faint architectural floor plans and technical drawings visible underneath, suggesting a design or construction context. The perspective is from an elevated angle, looking down at the building.

The Second Wave CAD

~40 years ago



5/13/97 E-mail: SCOTTADAMS@AOL.COM



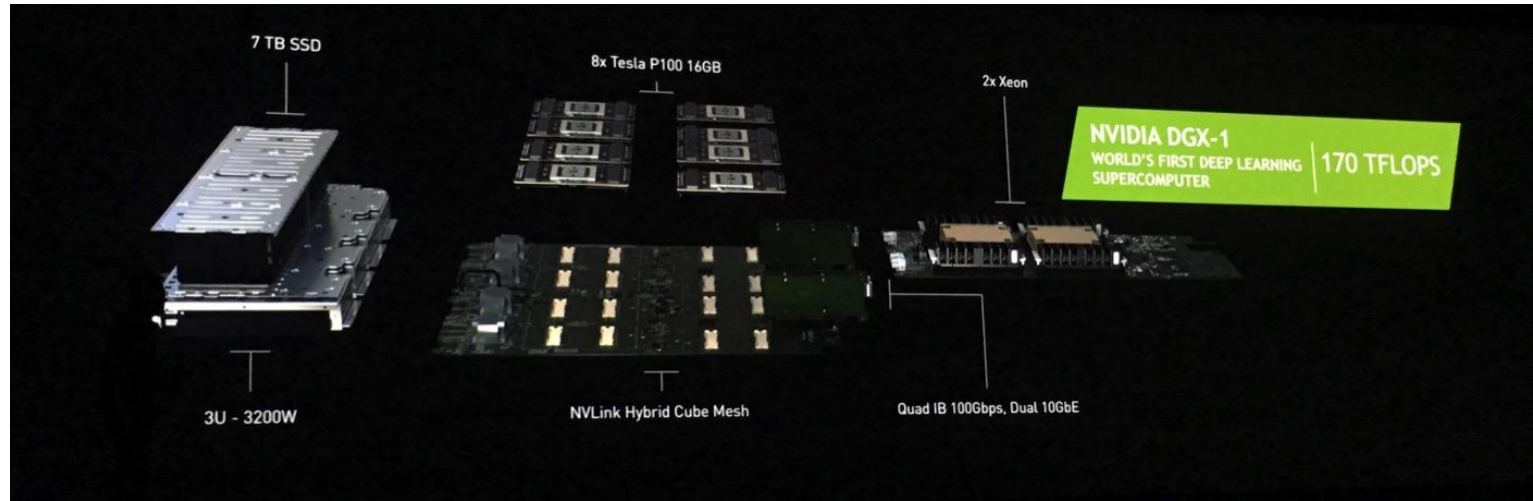
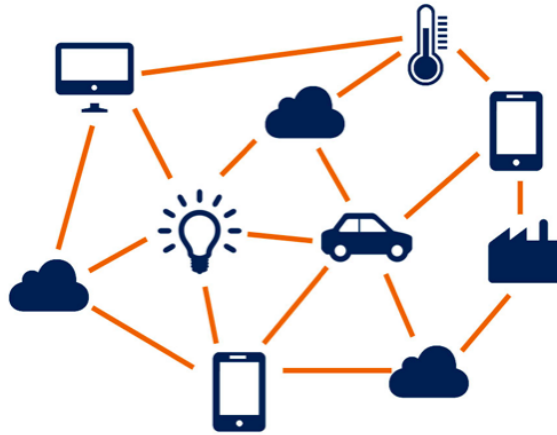
7/14/97



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key
innovations
leading to
the third
wave





The Third Wave

Integration & Collaboration

~today and beyond

Mobile computing





POWERED BY
NVIDIA GRID™



VIRTUAL MACHINE

Windows 7

Apps

**NVIDIA GRID Enabled
Virtual Desktop**

NVIDIA Driver

**NVIDIA GRID ENABLED
Hypervisor**

NVIDIA GRID GPU

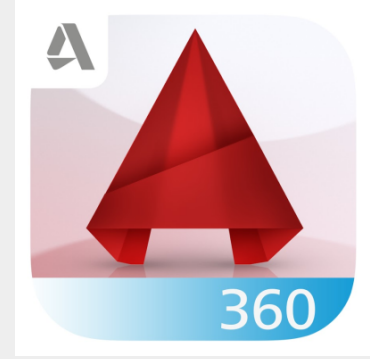


**VIRTUAL
DESKTOPS**



Work from
anywhere





Revit in the
cloud?



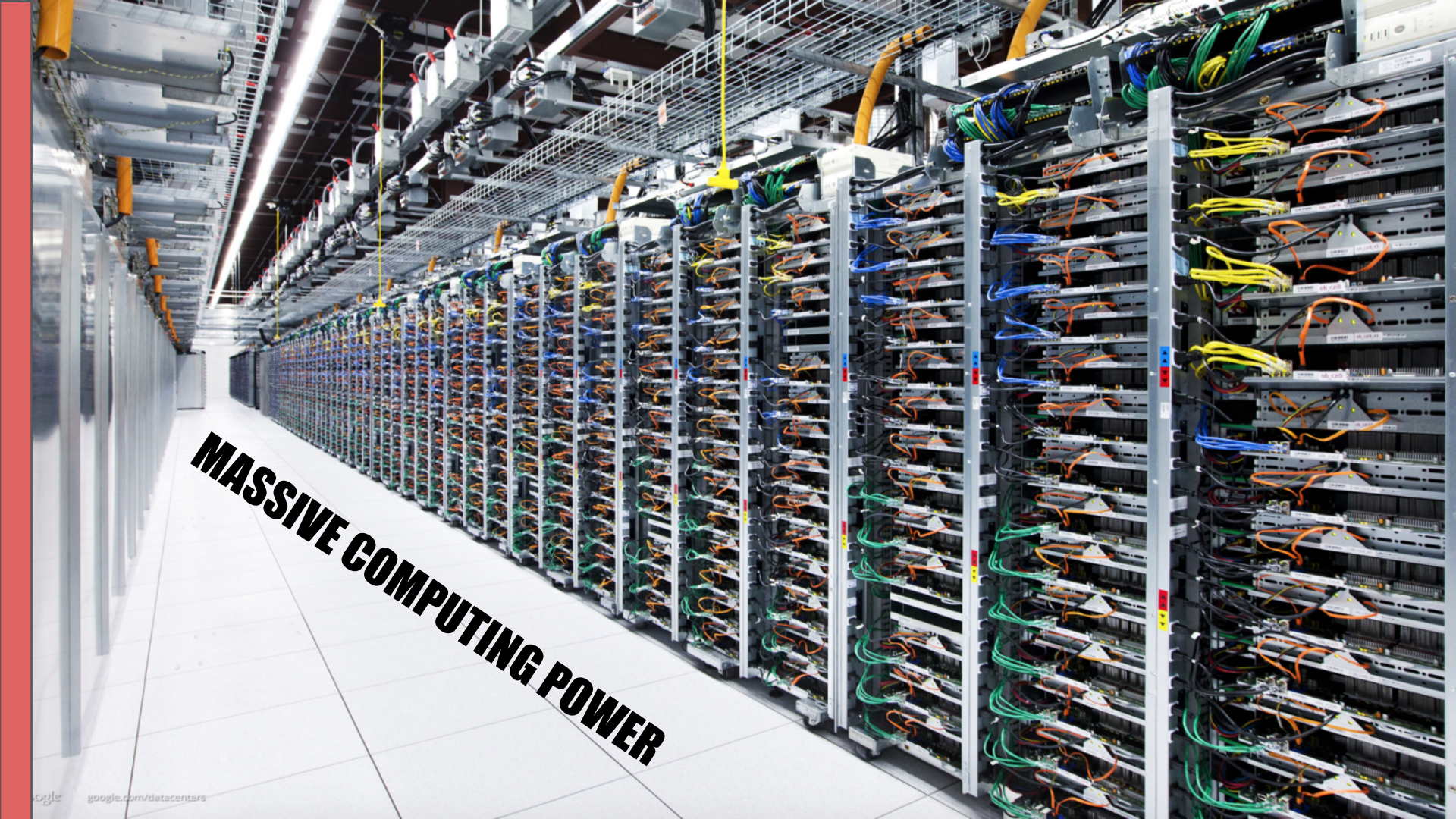
Build in the cloud

Run Autodesk Revit® in a browser.

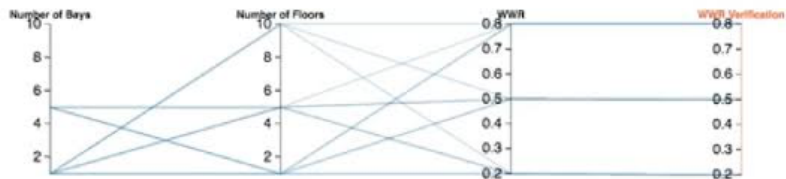
CLICK TO RUN

*or open a free account at www.fra.me
to run any software on the cloud*





MASSIVE COMPUTING POWER

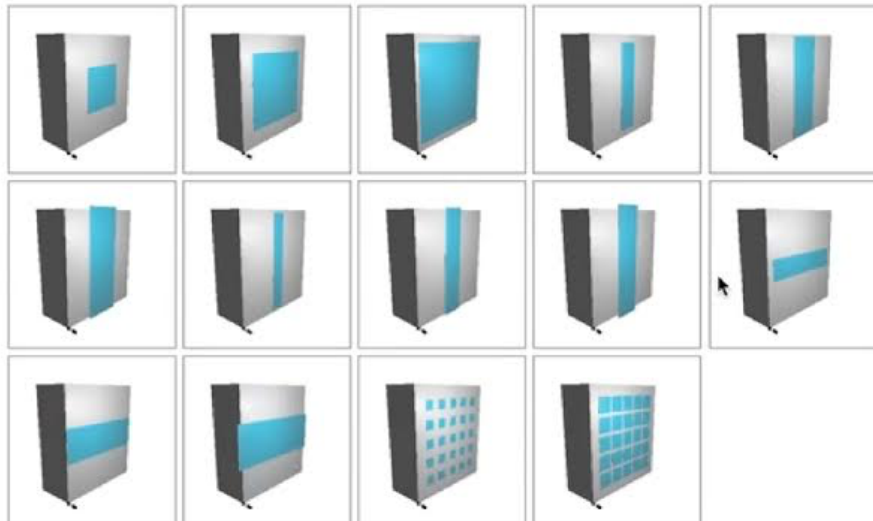


Design Options

Sort by creation time

Stop

Clear

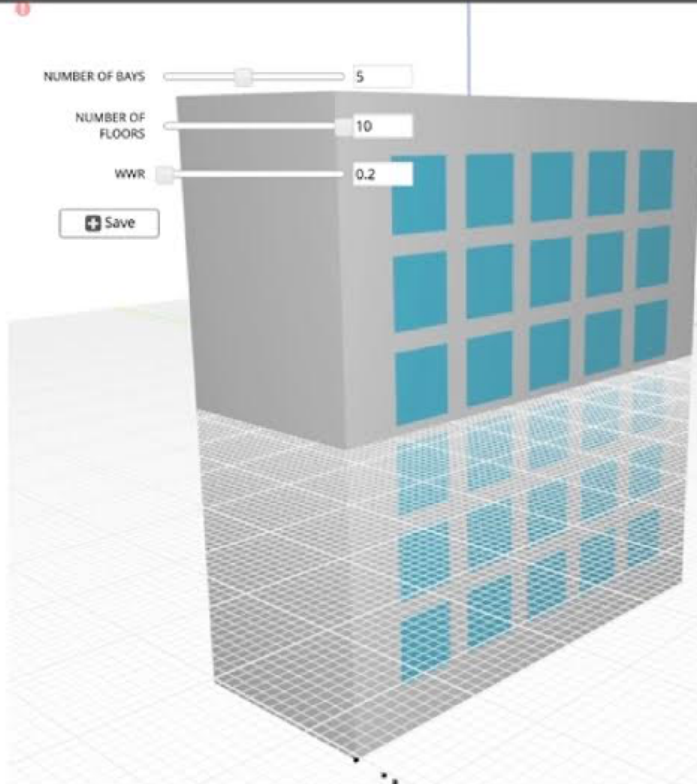


NUMBER OF BAYS 5

NUMBER OF FLOORS 10

WWR 0.2

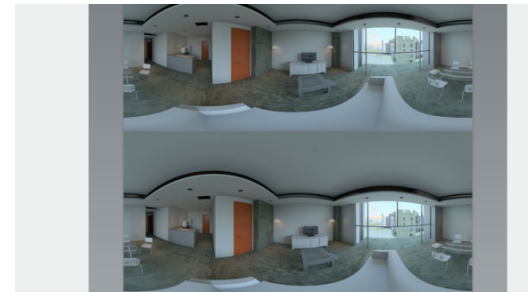
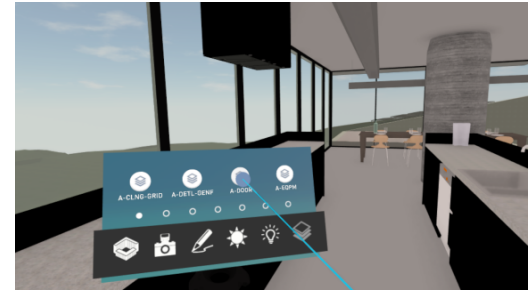
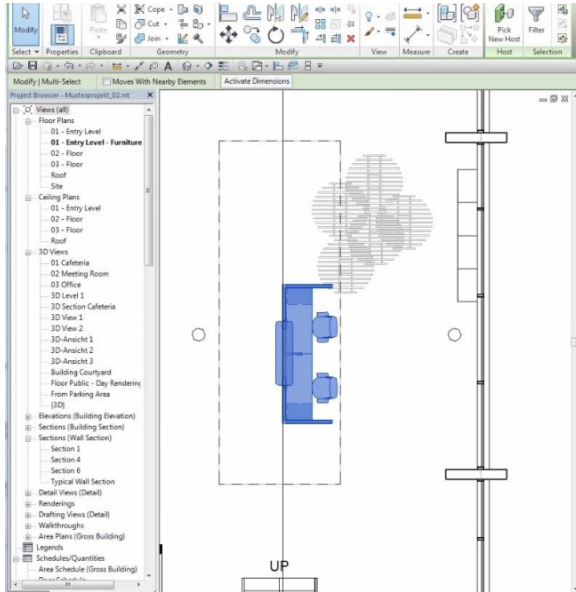
Save



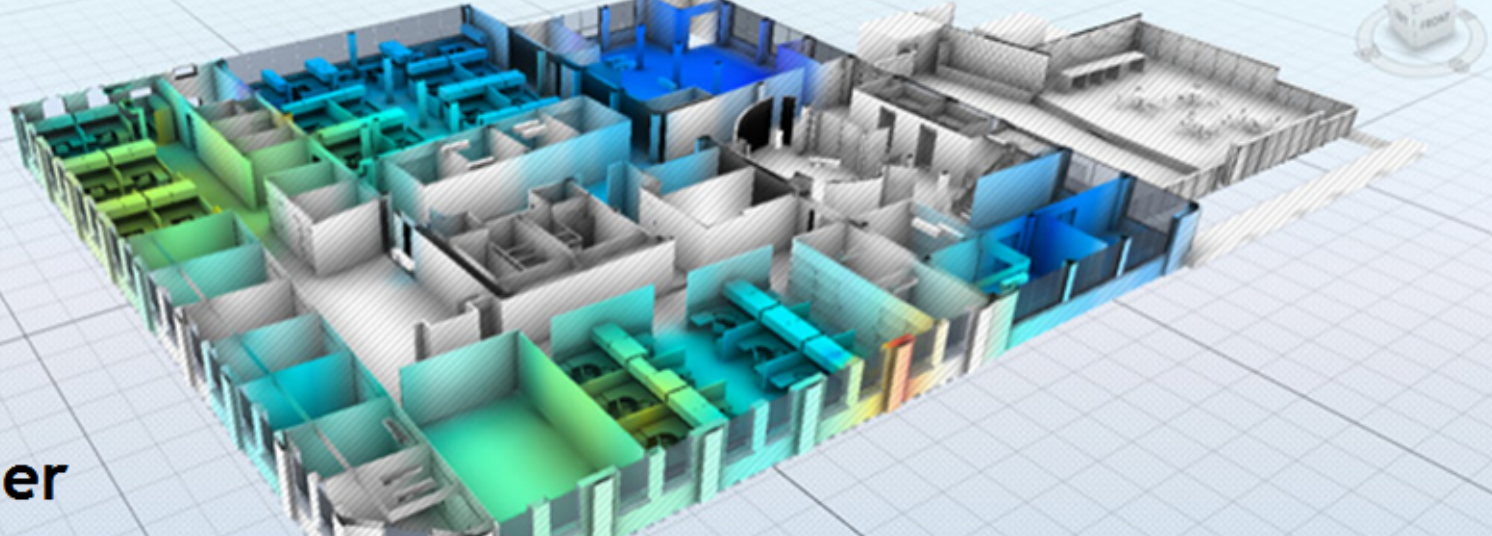


Virtual Reality

Enscape, Iris VR, Autodesk 360 cloud render



BIG data



Project Dasher

The Hitchhikers Guide to iBeacon Hardware.

A Comprehensive Report by Aislelabs



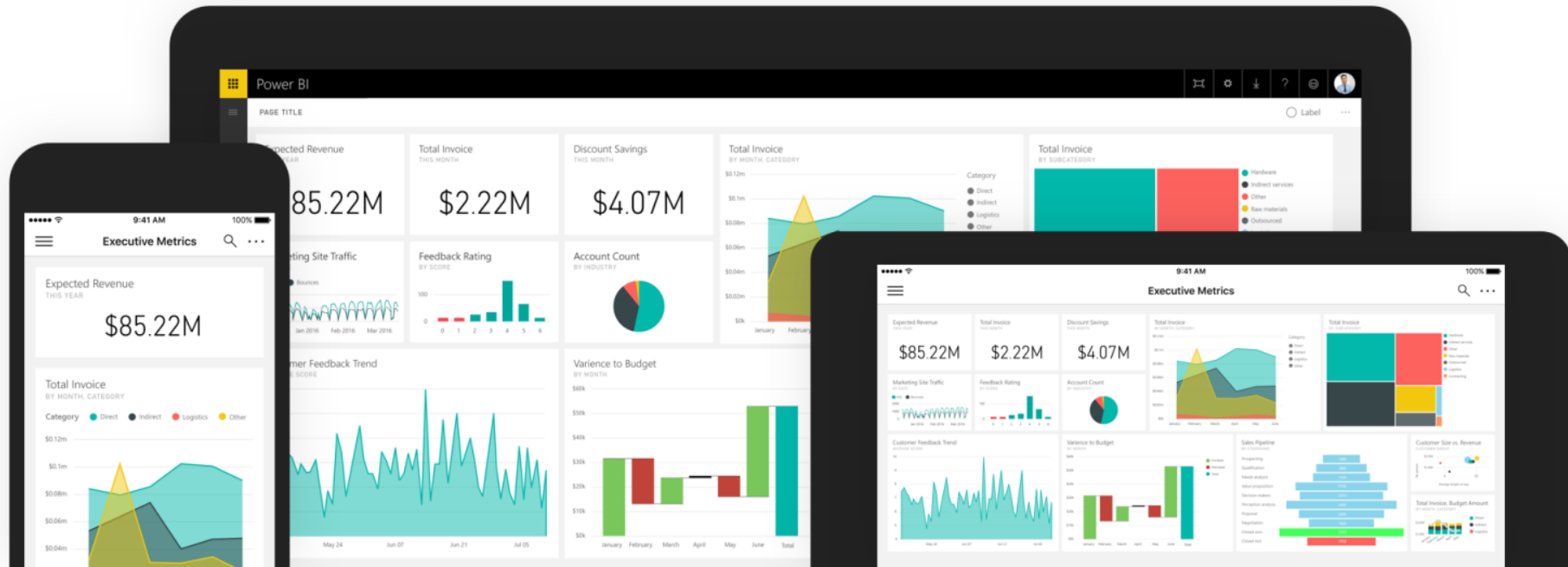
Accent Systems



April Brother



data analytics



7 TB SSD

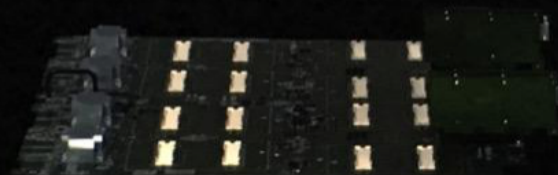


3U - 3200W

8x Tesla P100 16GB



NVLink Hybrid Cube Mesh



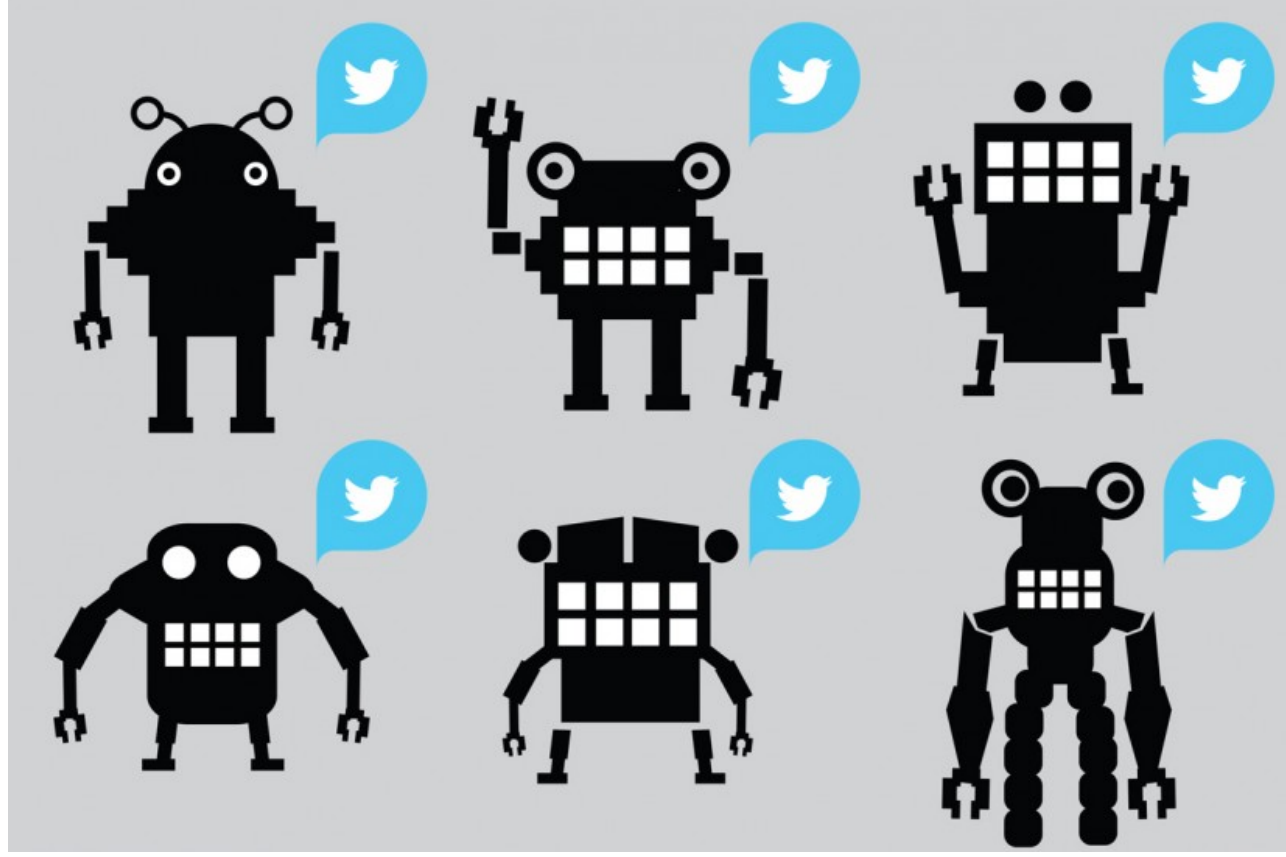
2x Xeon



Quad IB 100Gbps, Dual 10GbE

NVIDIA DGX-1
WORLD'S FIRST DEEP LEARNING
SUPERCOMPUTER | 170 TFLOPS

bots





Millennials & Generation Z

Generations Defined

Generation Z

Born: after 1997

Age of Adults in 2015: 18to 19

Millenials

Born: 1981 to 1997

Age of Adults in 2015: 18 to 34

Generation X

Born: 1965 to 1980

Age of Adults in 2015: 35 to 50

Baby Boomers

Born: 1946 to 1964

Age of Adults in 2015: 51 to 69

Silent Generation

Born: 1928 to 1945

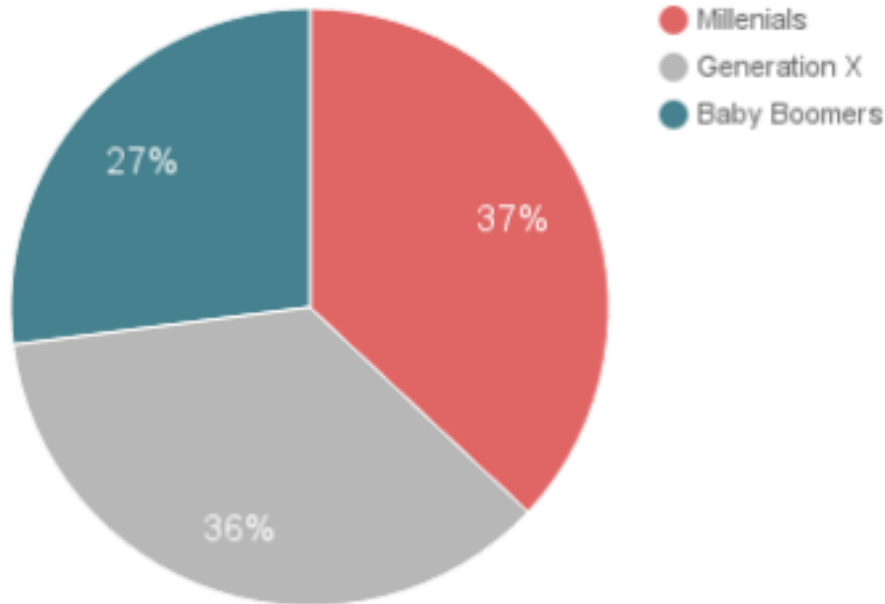
Age of Adults in 2015: 70 to 87

Greatest Generation

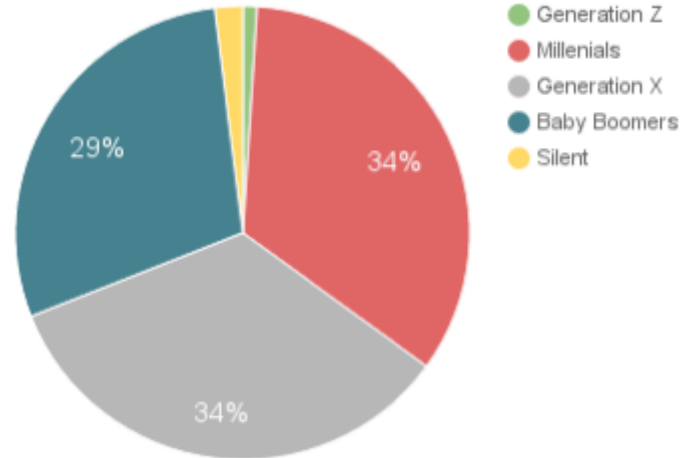
Born: before 1928

Age of Adults in 2015: 88 to 100

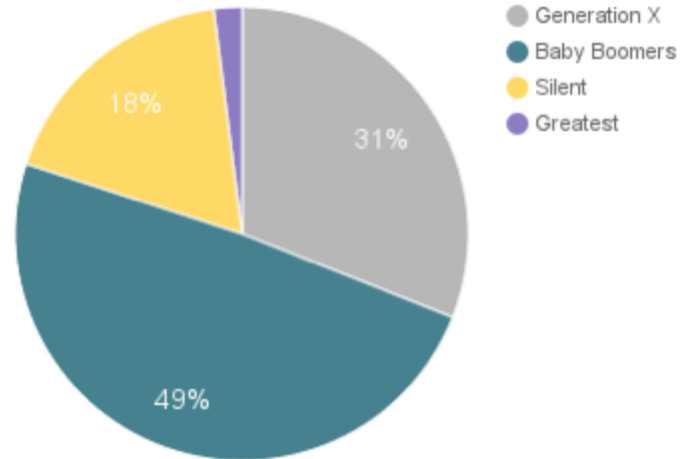
Labor Force Composition



CannonDesign 2015

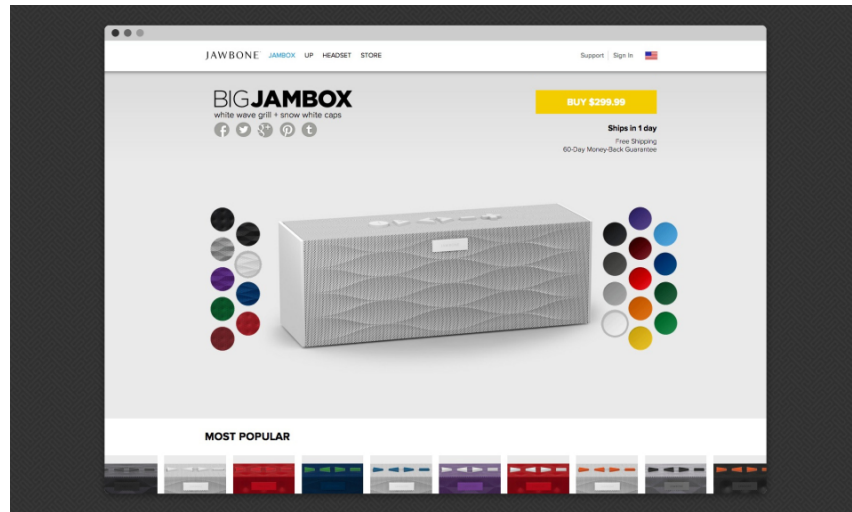


Average US 2015



Average US 1995

Customization





“The person who, as a producer, was taught to defer gratification, be disciplined, controlled, restrained, obedient, a team player...was simultaneously taught, as a consumer, to seek instant gratification, to be hedonistic, to abandon discipline, and to pursue individualistic pleasure.”

- Alvin Toffler

co•op•e•ti•tion

/kō ,äpə 'tiSH(ə)n/

collaboration between business competitors, in the hope of mutually beneficial results

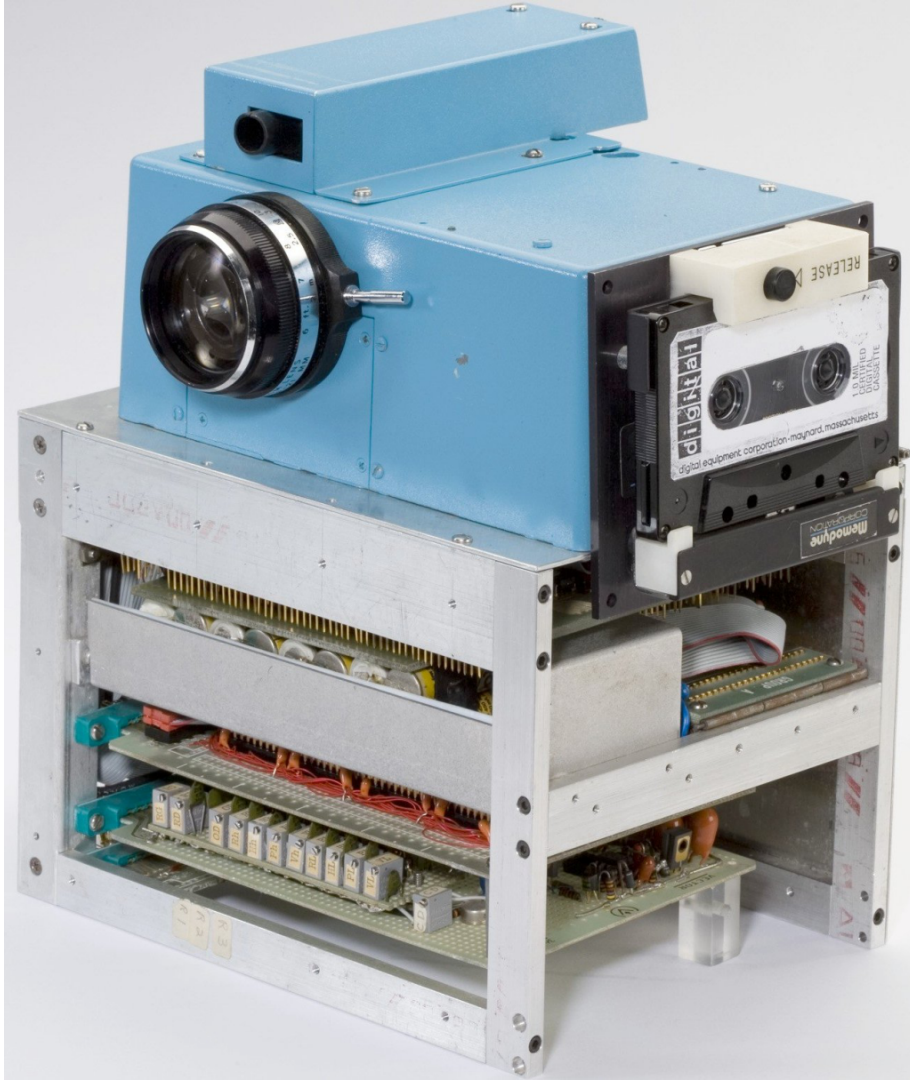
“Our future is going to rise and fall with the dreamers and the doers, the builders of new technologies and the breakers of old orthodoxies.” - Steve Case



“Build something that makes you proud - but not satisfied enough to stop dreaming about what comes next. Enter the arena. Topple an empire and build your own from the ground up.” - Steve Case



“Amazon recognized the ebook industry would rule the future. So they built it themselves - the hardware and software - and now they own the past and future.” - Steve Case



A low-angle, close-up shot of two men in business suits shaking hands. The man on the left is wearing a dark suit, and the man on the right is wearing a light-colored, striped suit. They are both smiling and looking down at their clasped hands. The background is a blurred office interior with a grid of lights on the ceiling.

partnership

policy

perseverance

“The third wave of the internet is coming, the moment where the internet transforms from something we interact with to something that interacts with everything around us.”

- Steve Case

“The third wave of ~~the internet~~ **AEC** is coming, the moment where the ~~internet~~ **technology** transforms from something we interact with to something that interacts with everything around us.”
- me

How did I do?

- Your class feedback is critical. Fill out a **class survey** now.
- Use the AU mobile app or fill out a class survey online.
- Give feedback after each session.
- AU speakers will get feedback in real-time.
- **Your feedback results in better classes and a better AU experience.**



Jimmy Rotella



@jrotella



jrotella@cannondesign.com



[linkedin.com/in/jimmyrotella](https://www.linkedin.com/in/jimmyrotella)



