



# **Paradigms of Human Computer Interaction**

An epistemological look at the three paradigms

# Interaction Paradigm

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Before understanding the Paradigms of Human Computer Interaction, one must first understand what a paradigm is. One way to view paradigms is to think of them as “successive overlapping waves in which ideas are fundamentally reframed.”

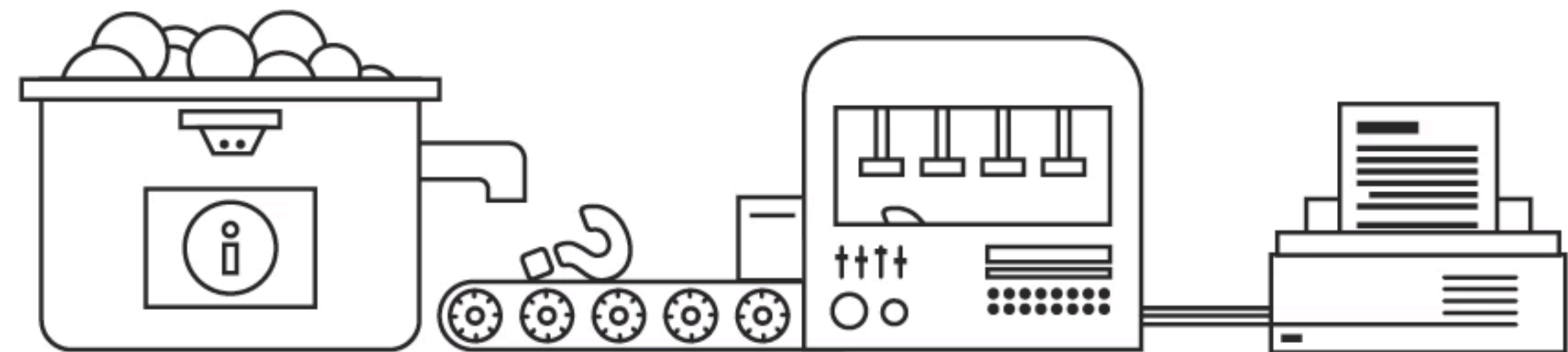
This mental model derives its origins from Thomas Khun’s theory of the structure of scientific revolutions and it can be used to extrapolate a set of four elements that are inherent to every paradigm.

It is through changes in paradigm related metaphors that paradigm shifts can then be identified and followed.

CONCENTRIC PERSPECTIVE >

## Interaction paradigms should...

- 1** Present the prominent properties of interaction understandably.
- 2** Ask both interesting and answerable questions.
- 3** Have a set of procedures for answering the questions it is asking.
- 4** Have a way of interpreting the results from the questions it is answering.

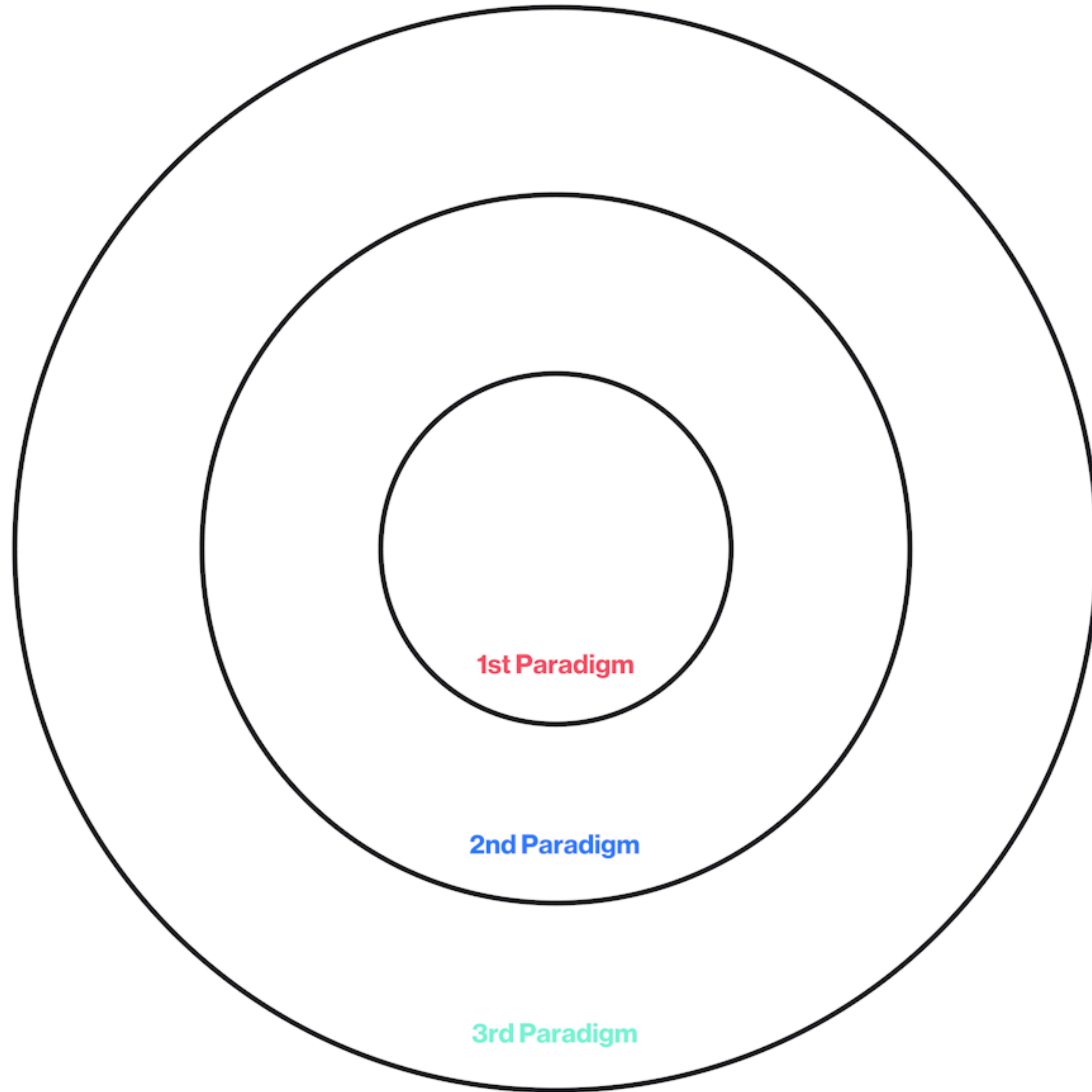


# Concentric Perspective

“New paradigms do not disprove the old paradigms, but instead provide alternative ways of thinking.”

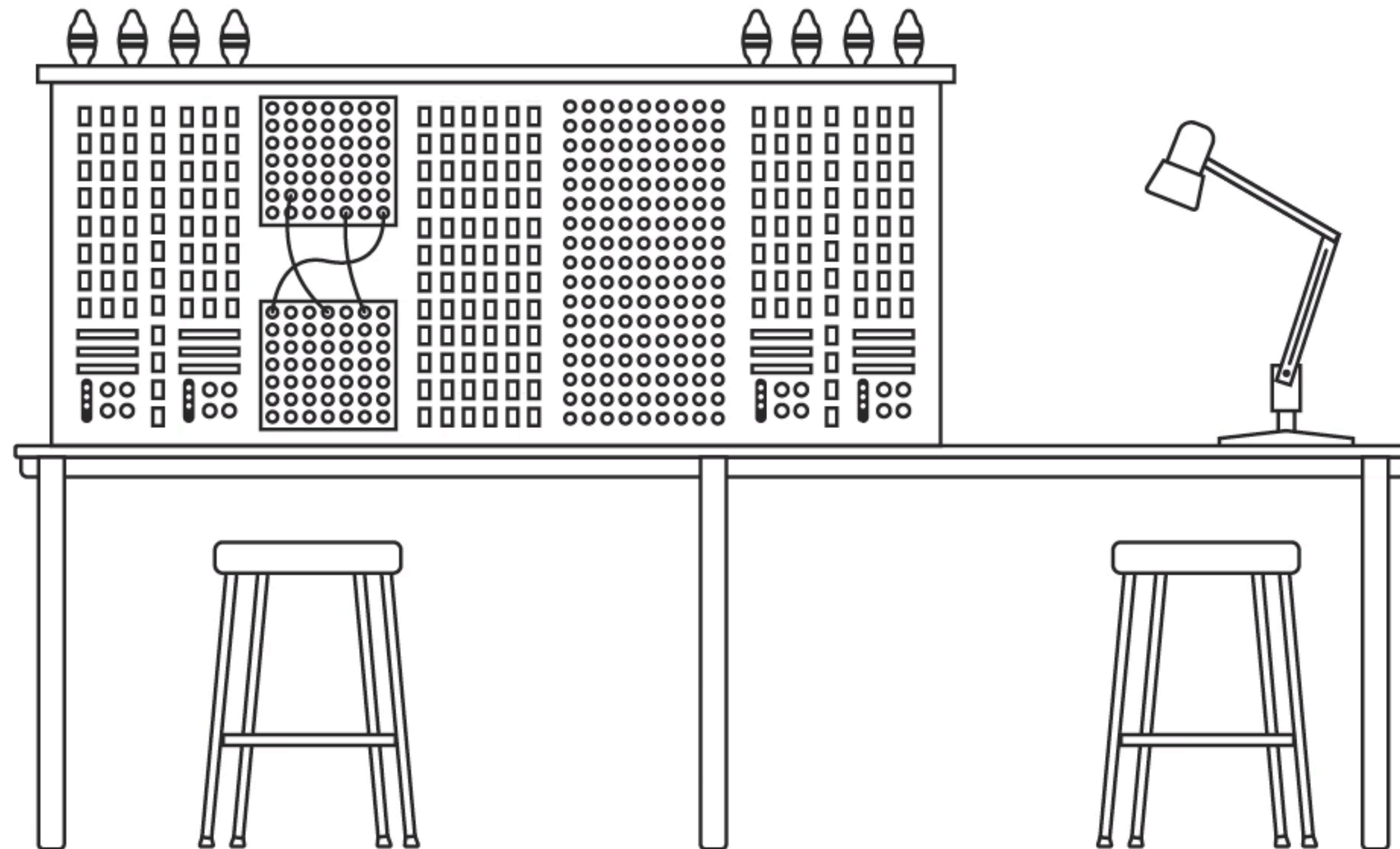
Each successive paradigm is merely a new lens with which to look at the world. To dismiss one would be to dismiss decades of thought and research.

**DEFINING A PARADIGM >**



# Paradigm One

— Man-machine coupling



## TIME FRAME

First Paradigm thinking finds its roots in the Industrial Revolution, coming to its apex at the conclusion of World War II.



## DESCRIPTION

The goal of this paradigm is to identify and reduce human error by “optimizing the fit” between man and machine. The 1<sup>st</sup> Paradigm is objective in nature, clean, and driven by quantitative information.

Industrial Engineers | Ergonomics

1820-1950

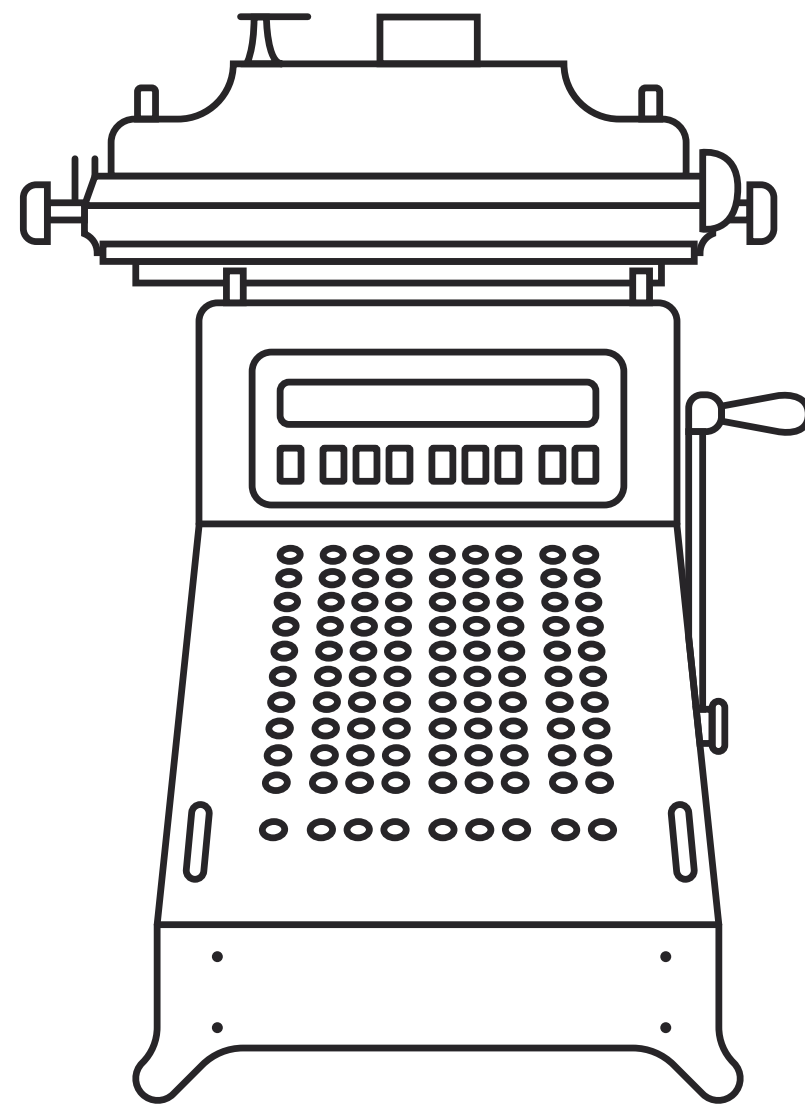
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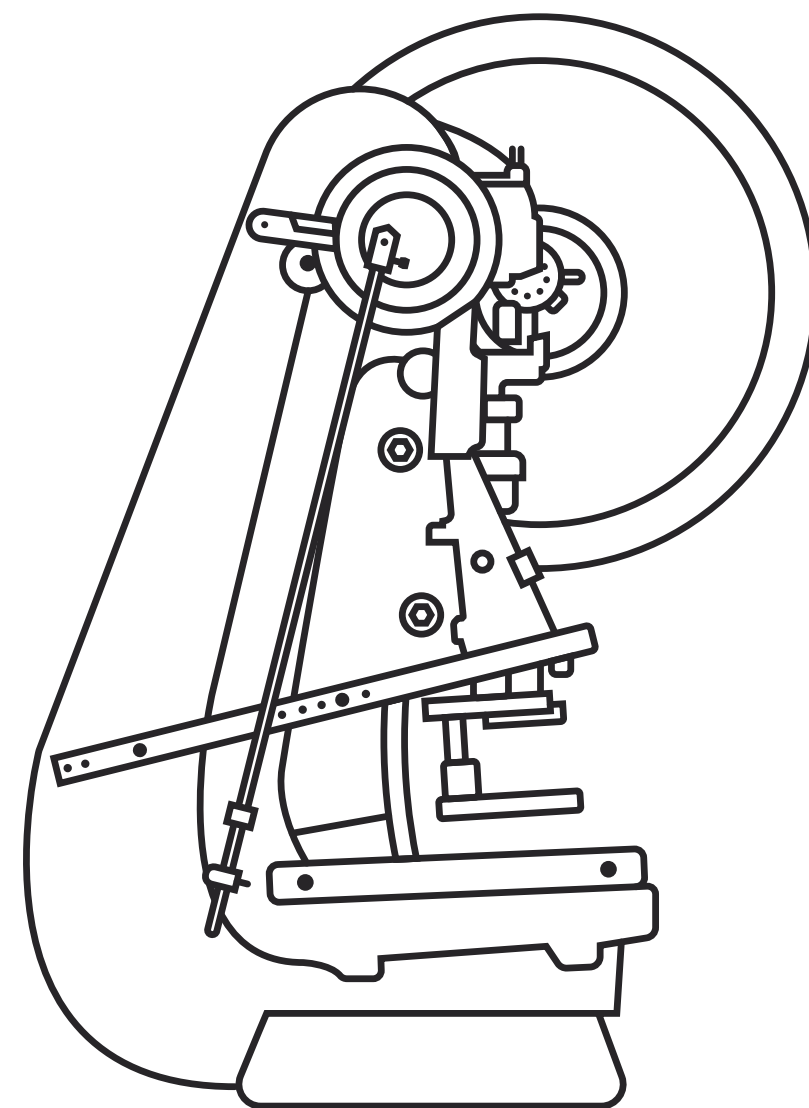
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# Paradigm One

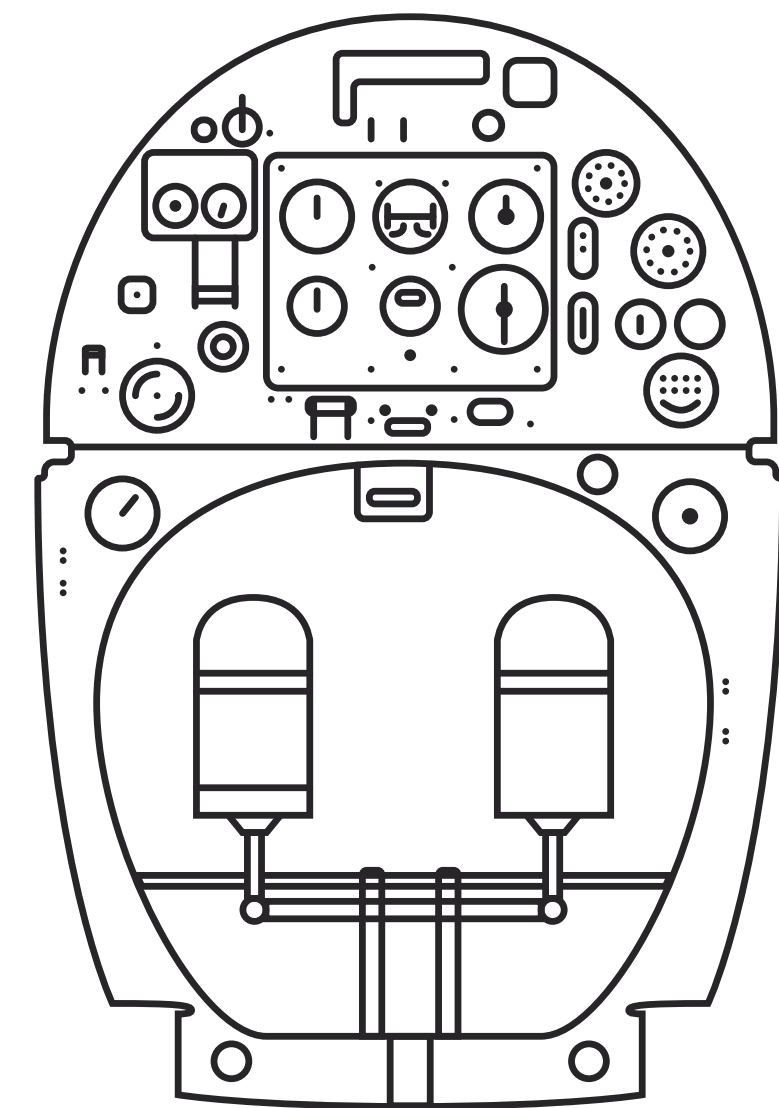
Examples



**ADDING  
MACHINES**



**MUNITIONS  
MANUFACTURING**



**SUPERMARINE  
SPITFIRE COCKPIT**

1820-1950



# Paradigm Two

Dual Processors

## TIME FRAME

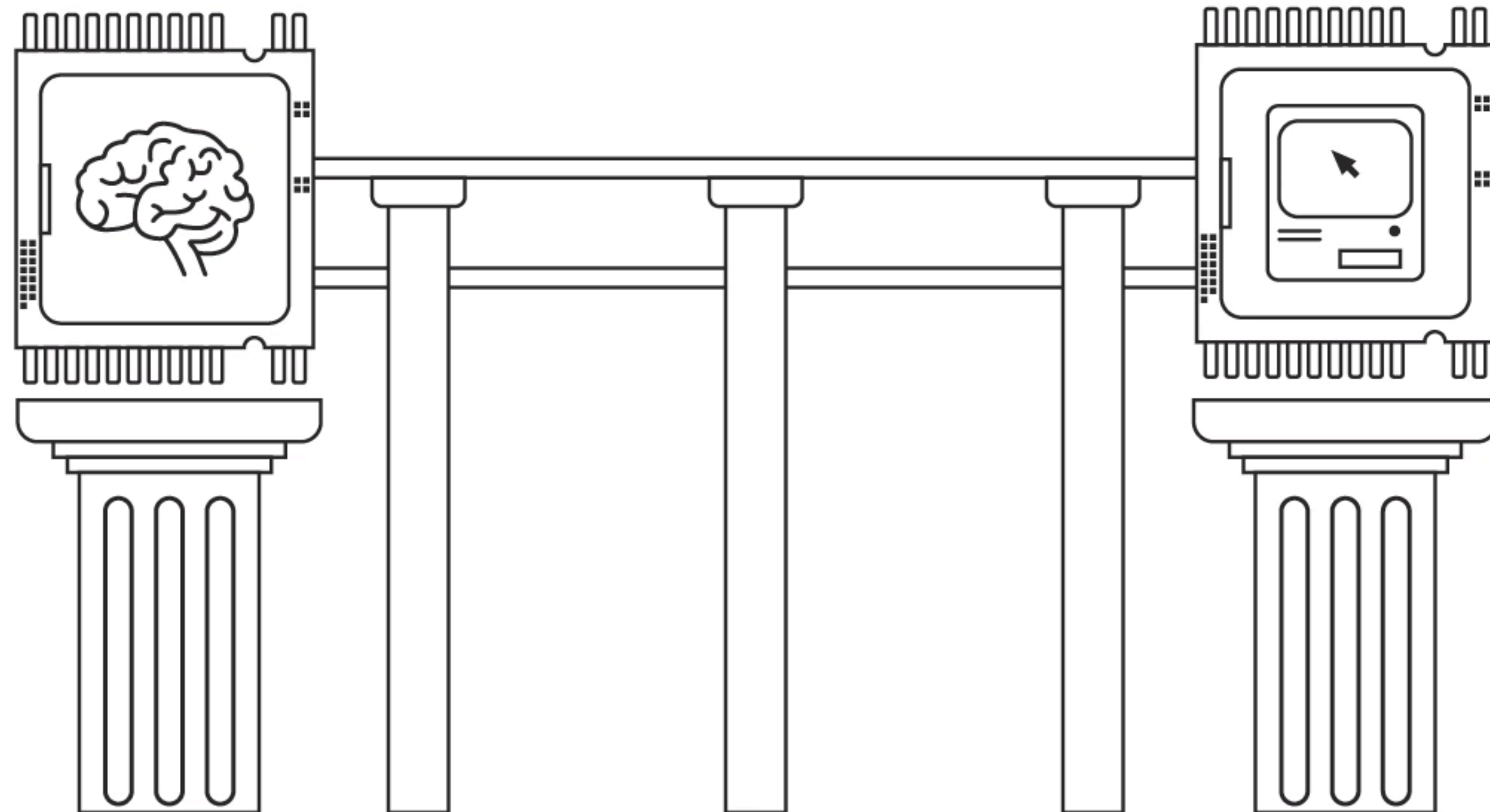
Second Paradigm thinking finds its roots in Cognitive Science. To this day, it still has a strong presence in the HCI community.



## DESCRIPTION

The goal of this paradigm is to bridge the gap between the machine processor and the mental processor while also optimizing this transfer of information. The 2<sup>nd</sup> Paradigm recognizes both the computer and human brain as information processors.

Cognitive Science | Computer Science



1960-1980

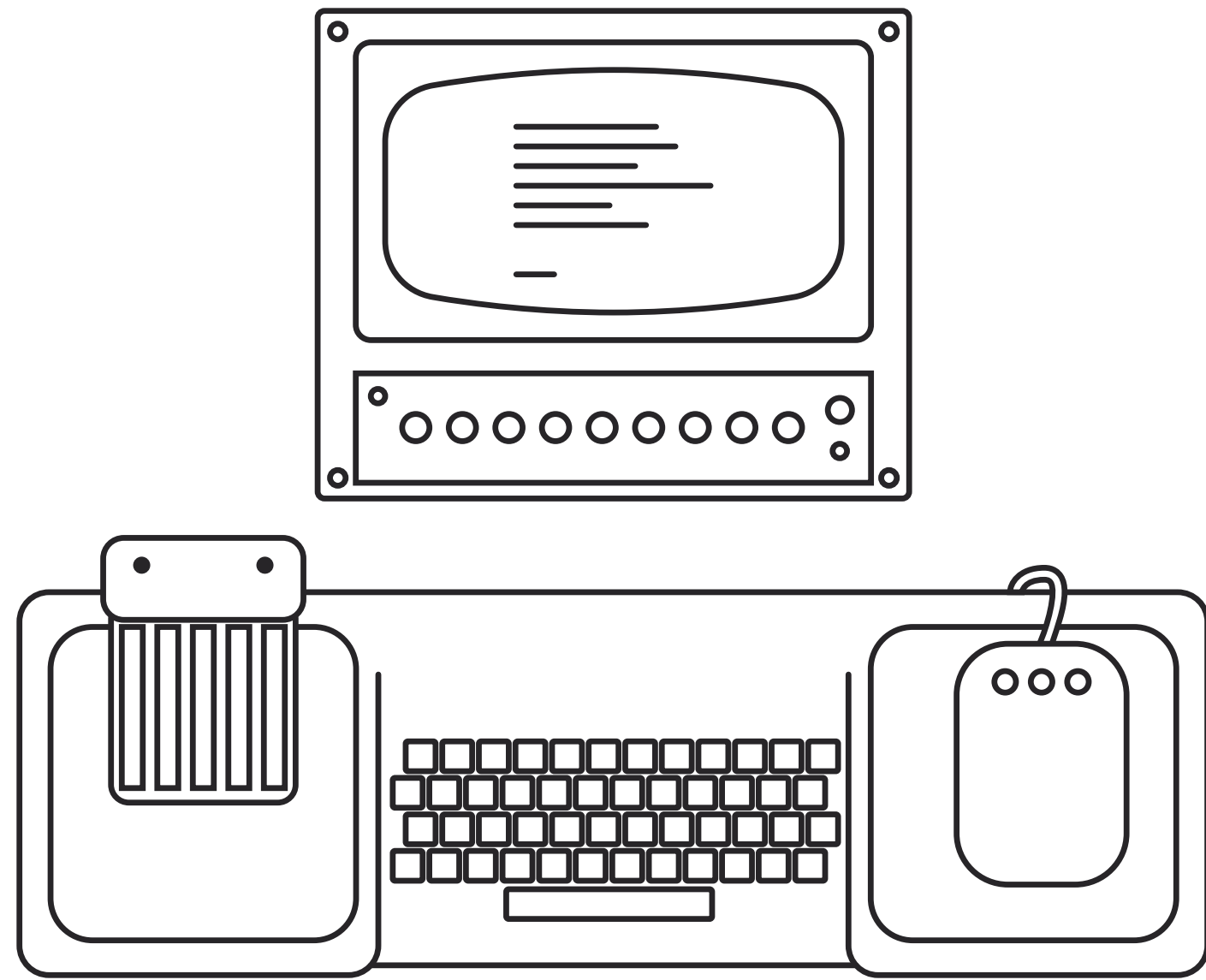
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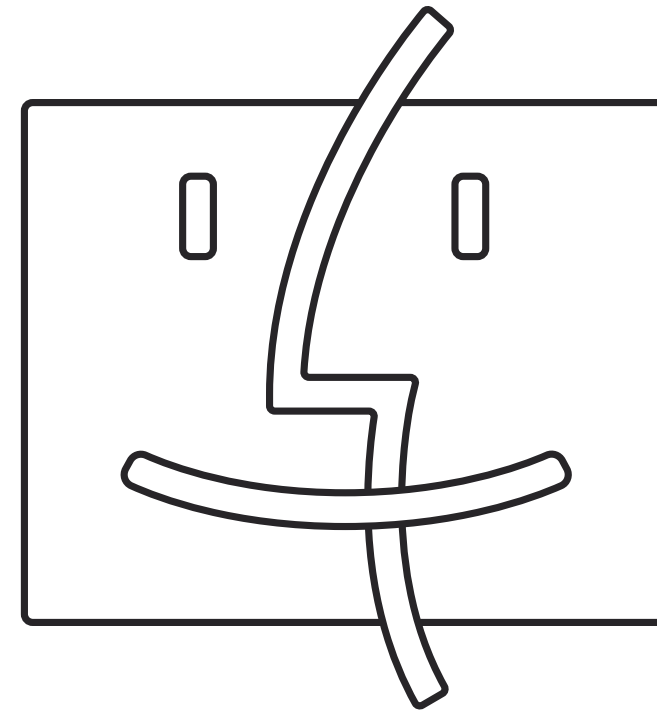
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# Paradigm Two

Examples

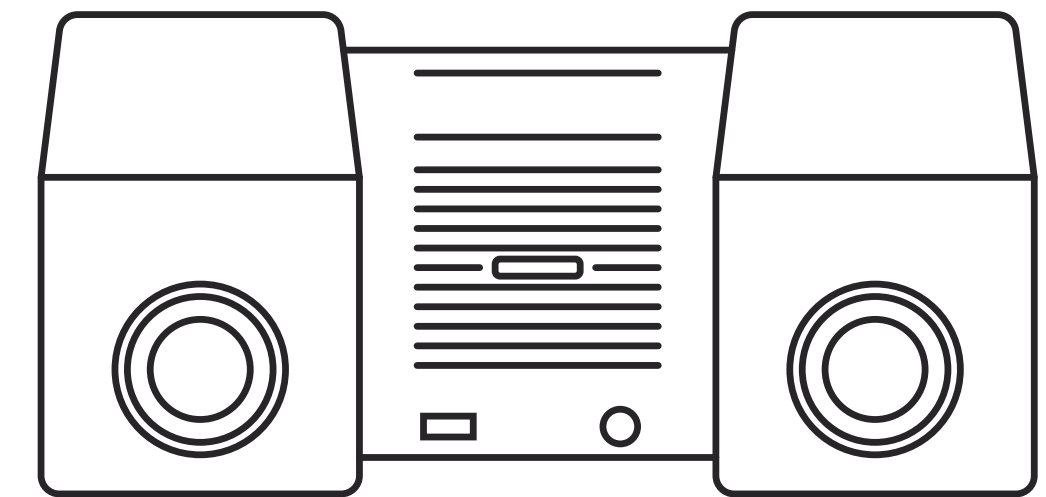
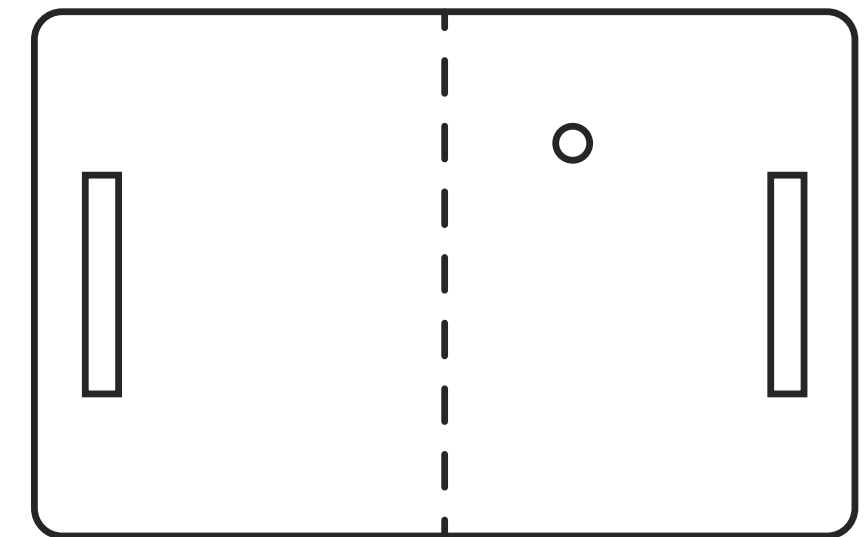


THE MOTHER  
OF ALL DEMOS



XEROX

CREATION OF  
THE GUI

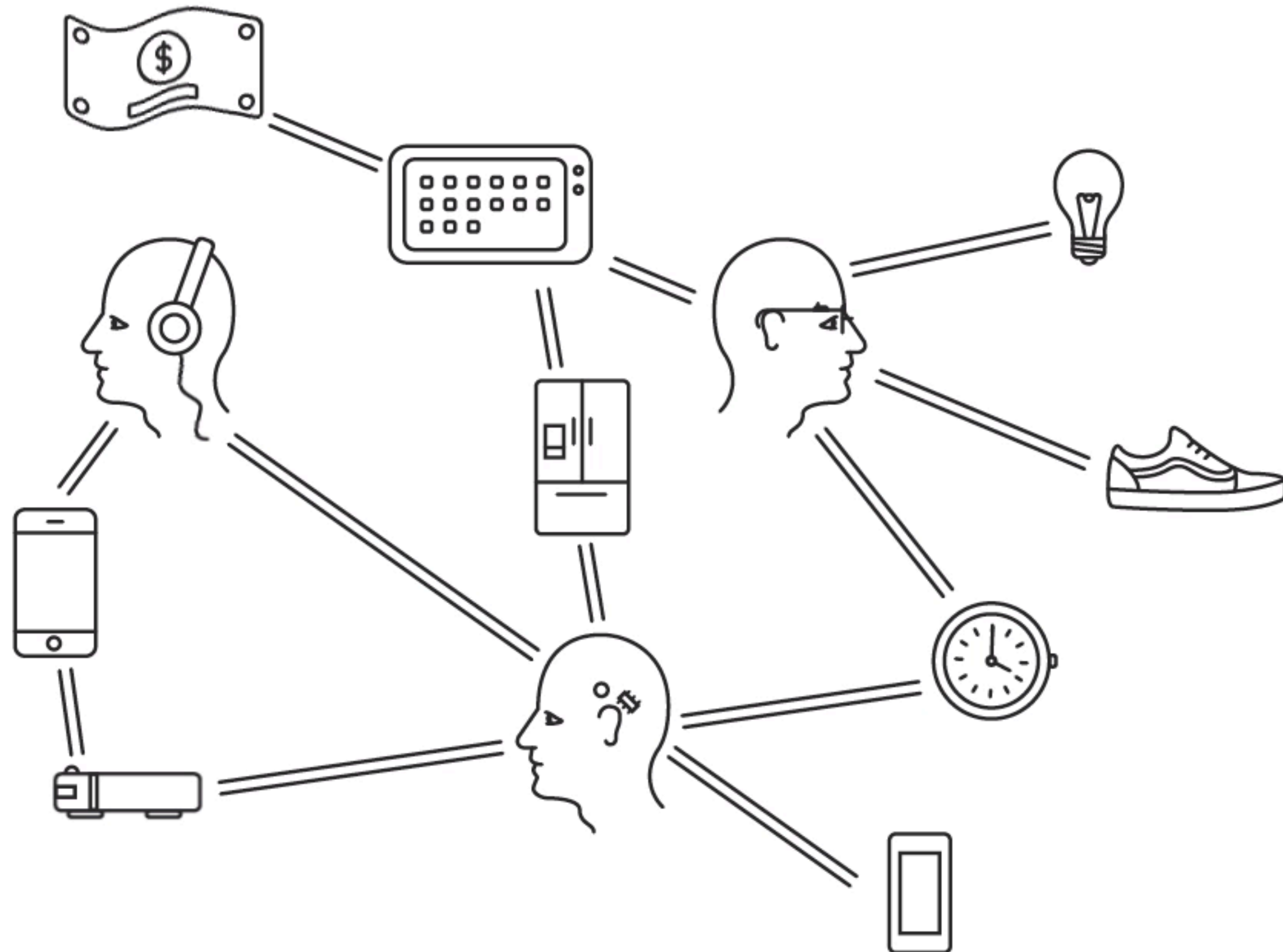


HOME VERSION  
OF PONG

1960-1980

# Paradigm Three

Phenomenological Matrix



## TIME FRAME

Third Paradigm thinking draws heavily from the social sciences as well as art and design. It recognizes that interaction is human.



## DESCRIPTION

The goal of this paradigm is to humanize interactions by embracing the plurality of users and perspectives. It embraces the messiness and subjectivity inherent in human computer interaction and puts forth the idea that humans are perpetually embodied.

User Experience Design | Anthropology

1990-2010

01

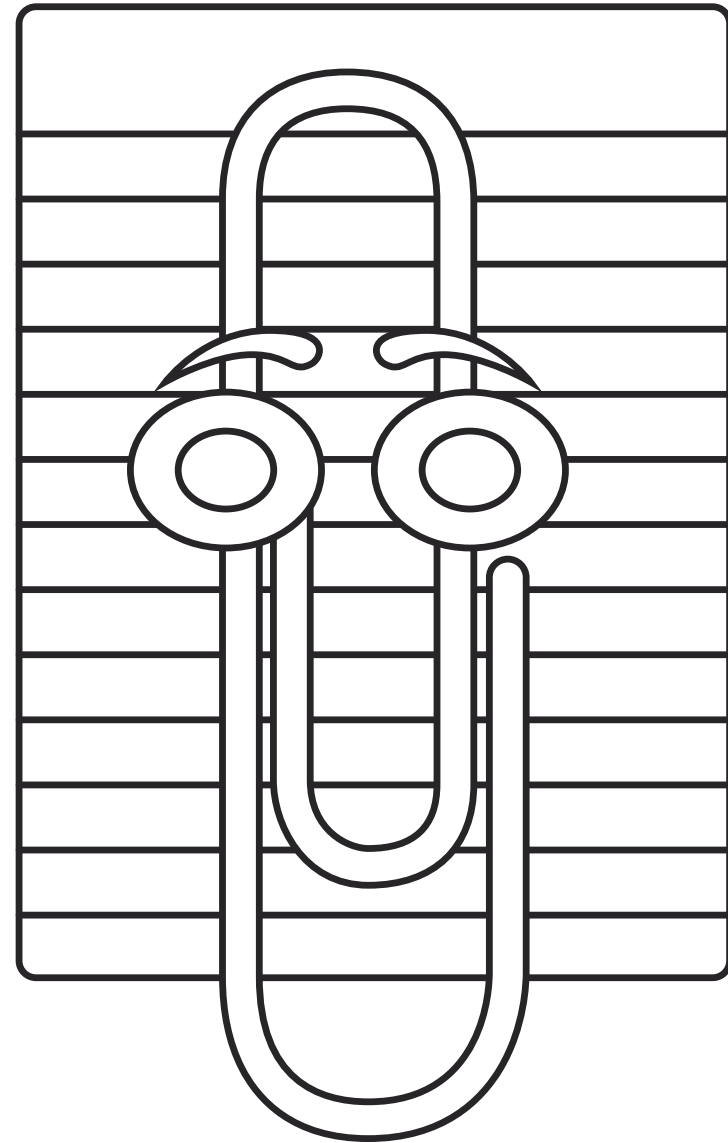
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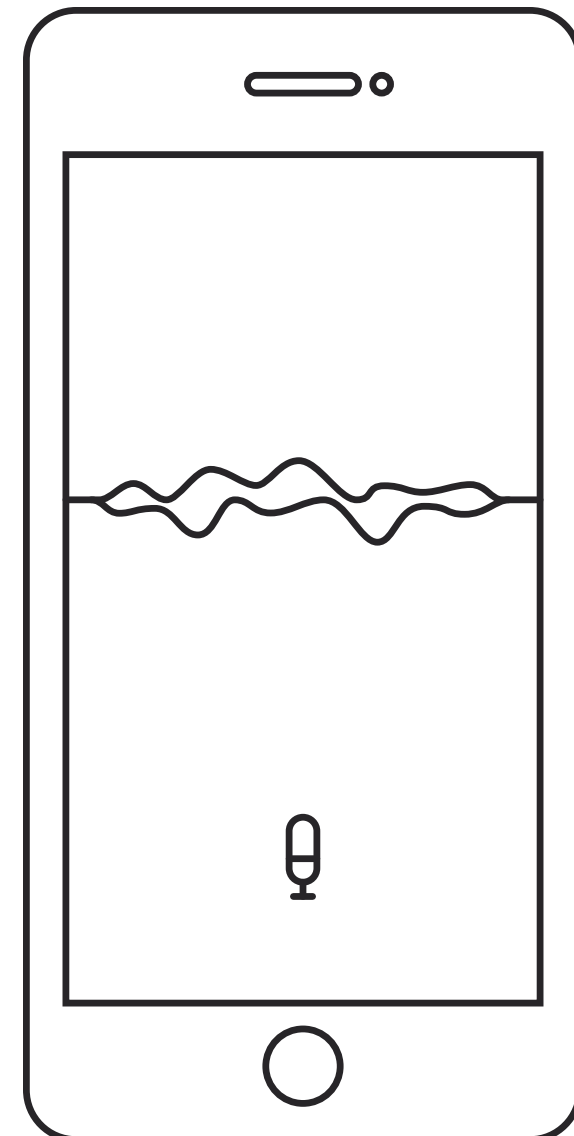


# Paradigm Three

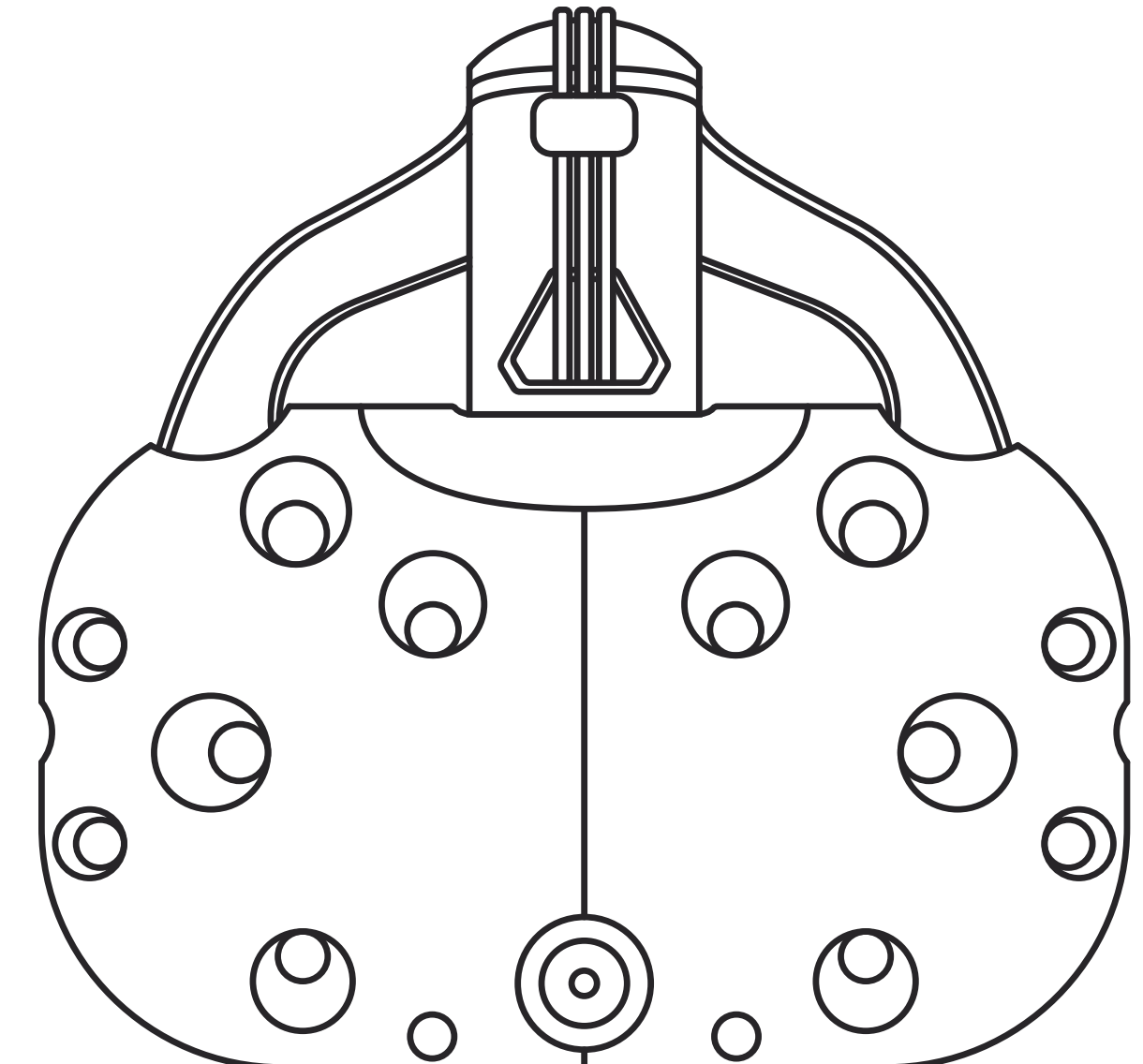
Examples



CLIPPY OFFICE ASSISTANT



SIRI PERSONAL ASSISTANT



OCCULUS RIFT

1990-2010

01

02

03

# Conclusion

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## MARGINALIZATION

The Three Paradigms of HCI are a framework from which to learn and explore. As a contiguous set of rules, they reflect the time of their inception through the marginalization of particular ideas and viewpoints.

To glimpse at the future of interaction one just has to look closely at the opinions and ideas that are occluded by the current paradigm of human computer interaction.

# Works Cited

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Harrison, S. and Tatar D. and Sengers P. (1999) The Three Paradigms of HCI. San Jose: ACM.

Dourish, P. (2007) Embodied Interaction: Exploring the Foundations of a New Approach to HCI.