The **Quantum Leap** from the **Gutenberg** Press to Non-Fungible Tokens (**NFTs**)

Spectrum
STC ROCHESTER CONFERENCE

Rob Hanna
CEO
Precision Content
@singlesourceror

precision content

precision content

Rob Hanna
Chief Information Architect – Precision Content

- Co-founded Precision Content in 2013
- Appointed 2014 STC Fellow
- Voted into the Top 25 Global Content Experience Influencers for 2017
- Helping our clients empower their people through better content, processes, and technology

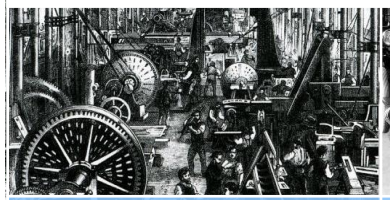
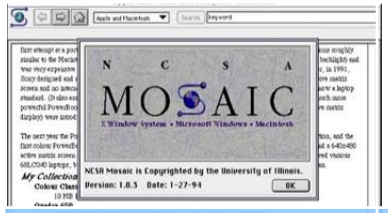
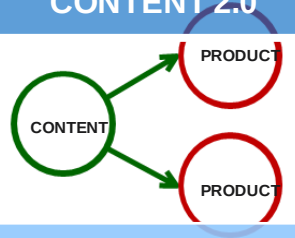
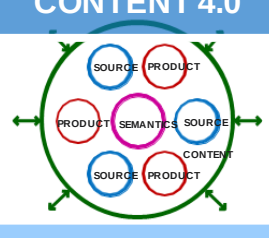
Quantum Leap

an abrupt change, sudden increase, or dramatic advance

– Miriam Webster

Progression of Technological Advancement

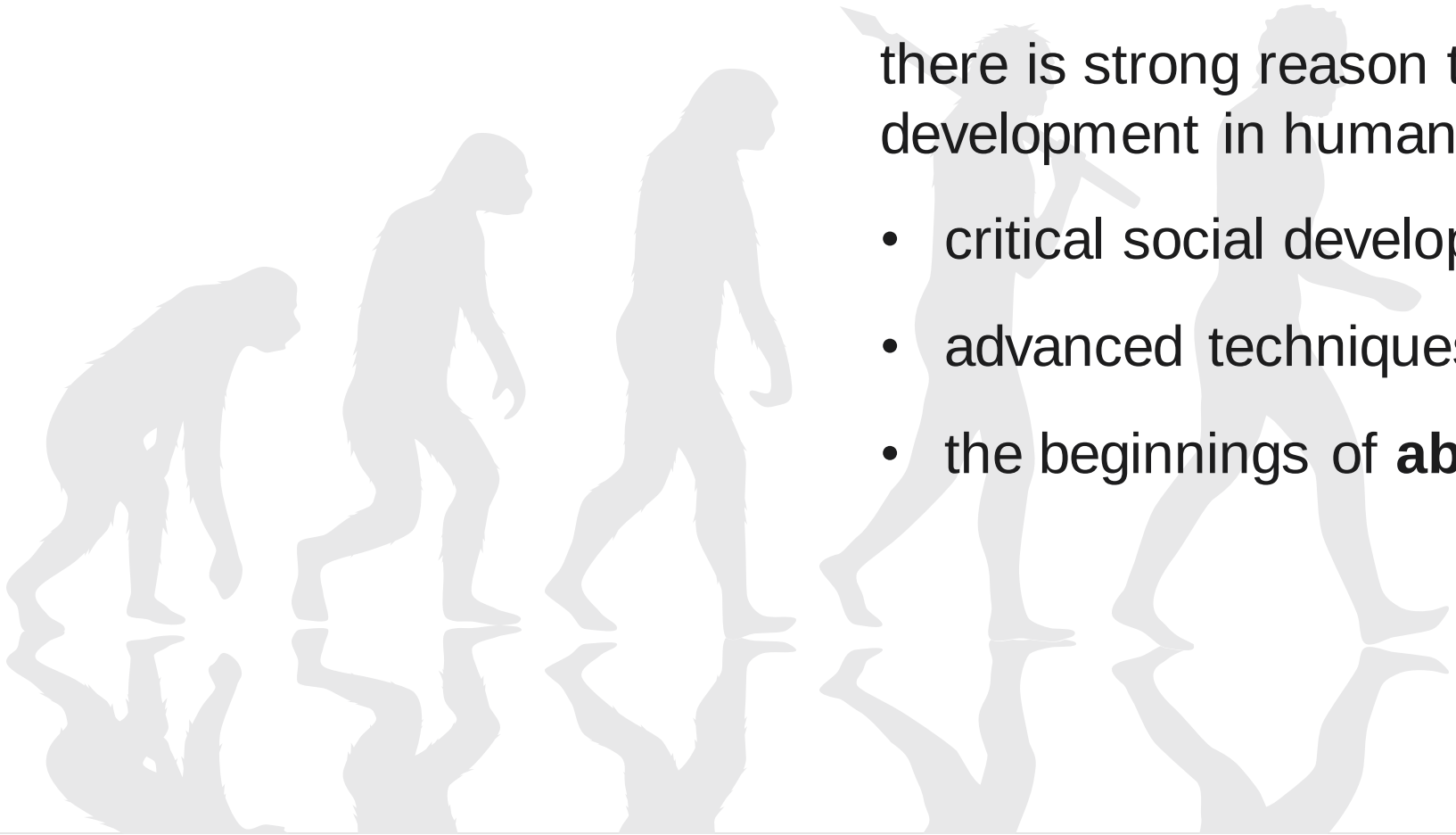
Used with permission from:
A Content Manifesto
CIDM IDEAS 2020
Joe Gollner

INDUSTRY 1.0	INDUSTRY 2.0	INDUSTRY 3.0	INDUSTRY 4.0
			
DIVISION OF LABOR	ASSEMBLY LINE	AUTOMATED SUPPORT	SMART PRODUCTION
TECHNOLOGY 1.0	**TECHNOLOGY 2.0**	**TECHNOLOGY 3.0**	**TECHNOLOGY 4.0**
			
MAINFRAME	CLIENT-SERVER	CLOUD	EMERGENT
WEB 1.0	**WEB 2.0**	**WEB 3.0**	**WEB 4.0**
			
HYPERTEXT	SOCIAL	SEMANTIC	INTEGRATED
CONTENT 1.0	**CONTENT 2.0**	**CONTENT 3.0**	**CONTENT 4.0**
			
EMBEDDED	SINGLE-SOURCED	INTEGRATED LIFECYCLE	CONTENT AS A SERVICE

Brief review of the history of content

- **Before Content - Aural**
  Reach: 1 to 1

Before content



While there is scientific uncertainty about when humans began to speak and why,

there is strong reason to believe that this development in human evolution led to

- critical social development skills
- advanced techniques in tool building, and
- the beginnings of **abstract thought**.

Brief review of the history of content

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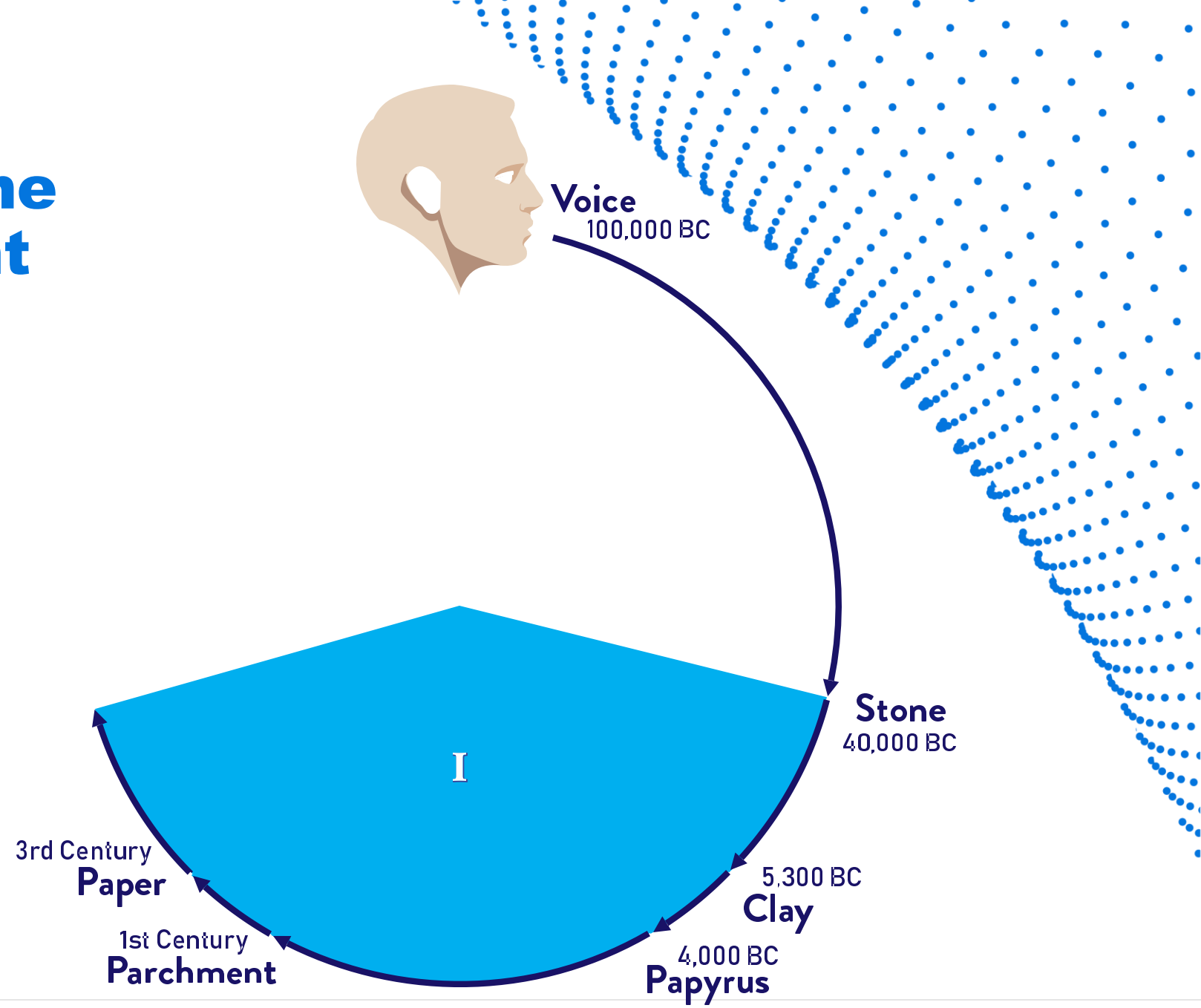
  Reach: 1 to many



Content 1.0 – Era of the Manuscript

Reach = 1 to Many

Content technologies evolve

- Stone
- Clay
- Papyrus
- Parchment
- Paper

By the 15th century

- 30,000 books throughout Europe
- Old English had evolved over 7 centuries
- Estimated 60,000 words in the English language

Brief review of the history of content

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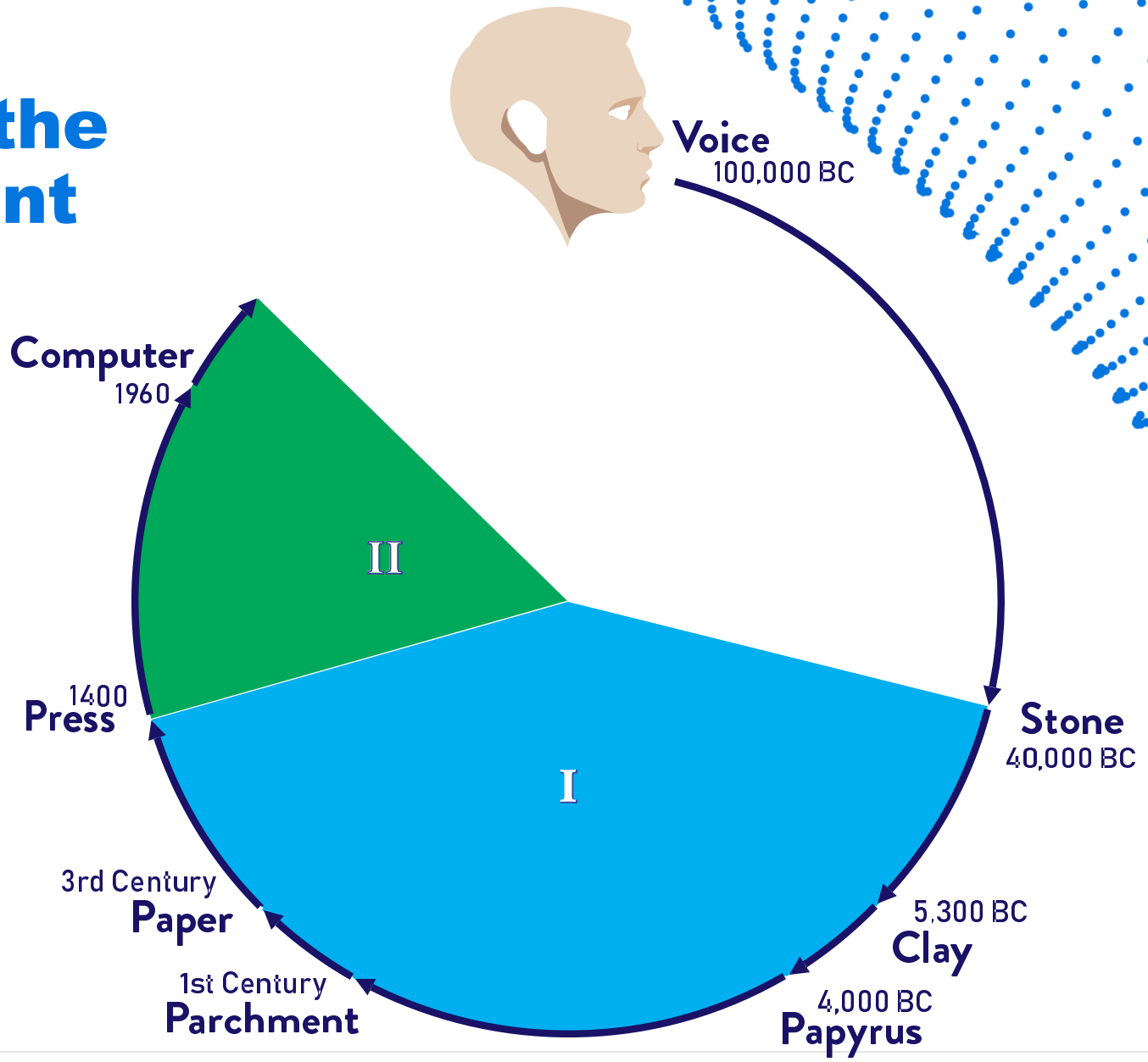
- **Content 2.0 - Print**
  Reach: 1 to many more

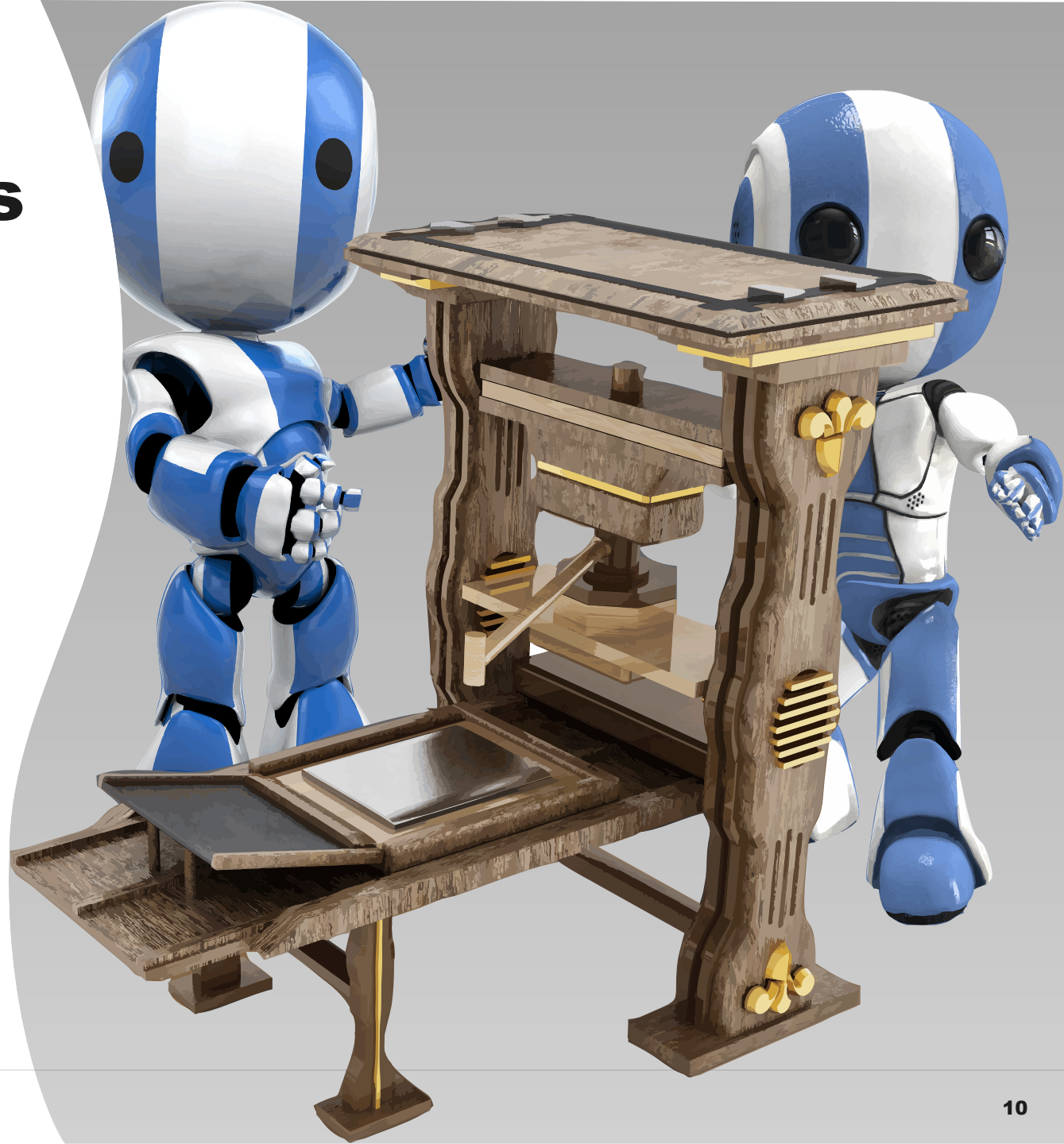


The Gutenberg Press

Gutenberg's press wasn't a single technological advance but instead a convergence of technologies that made it possible. Advances in

- metallurgy and casting for creating the first metal moveable types
- inks that could adhere to metal type, and
- paper that could be flattened for the press.

While Gutenberg's press was a commercial success, it wasn't the first printing press.



Content 2.0 – Era of Print

Reach = 1 to Many More

Content technologies evolve

- moveable type
- computer-aided typesetting

In less than ½ century, there were an estimated 9M books in Europe by the turn of the 16th century

Paper consumption per capita in the United States tripled from 1940 to 1980 (from 200 to 600 pounds)

Volume of knowledge grows

1700 1900 1945 2014 2020

17th Century Citizen

A weekday edition of the New York Times contains more information than the average person was likely to come across in a lifetime in 17th century England.

R. Wurman, Information anxiety. Indianapolis, Ind.: Que, 2000.

Volume of knowledge grows

Buckminster Fuller American futurist created the ‘knowledge doubling curve’. He noticed that until 1900 human knowledge doubled approximately every century and by the end of World War II knowledge was doubling every 25 years.

1700 1900 1945 2014 2020

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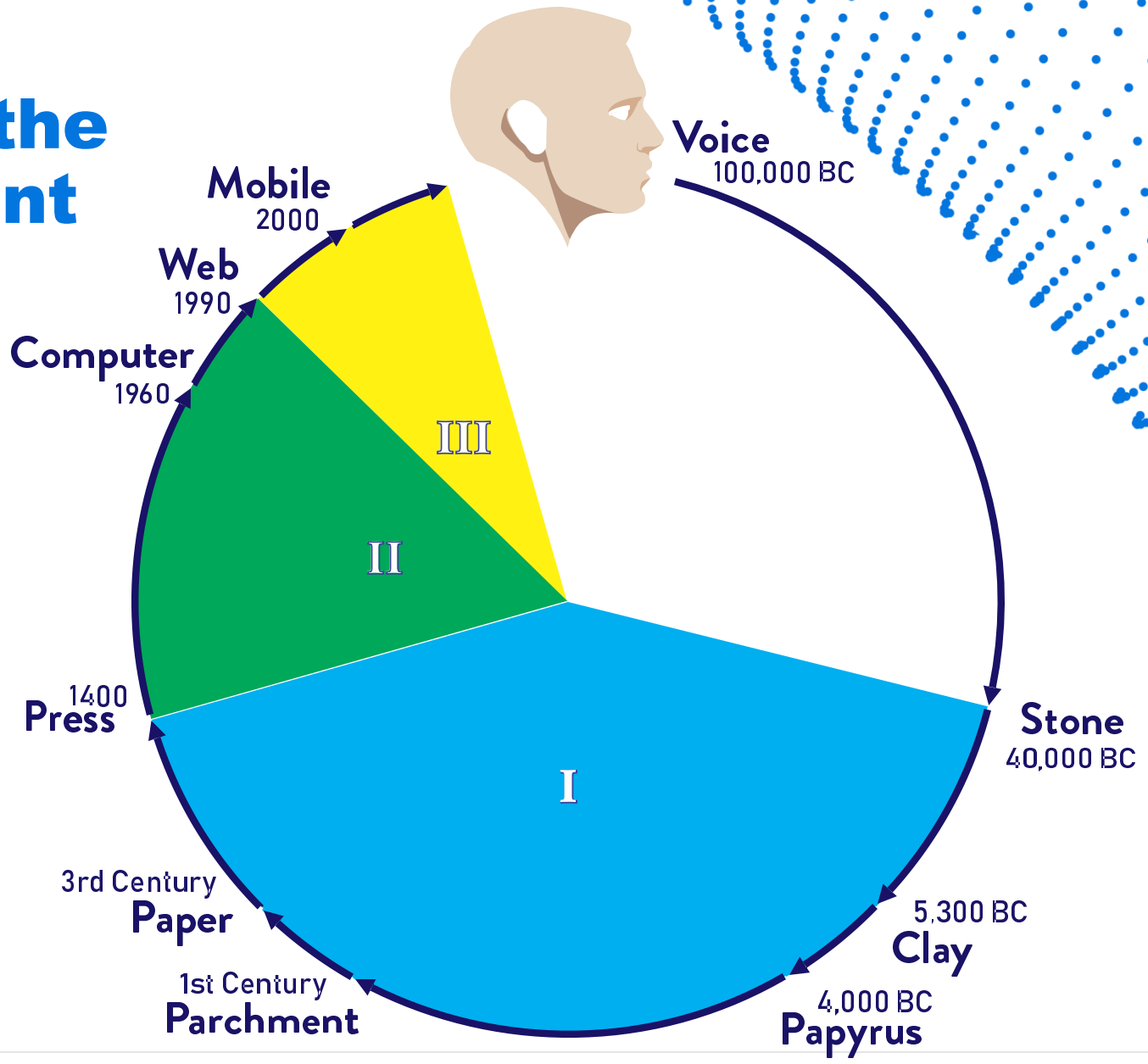
  Reach: 1 to many more
- **Content 3.0 - Digital**
  Reach: many to many



Content 3.0 – Era of Digital

Reach = Many to Many

Content technologies evolve

- Bulletin Boards
- Web Pages
- Mobile
- Social Media

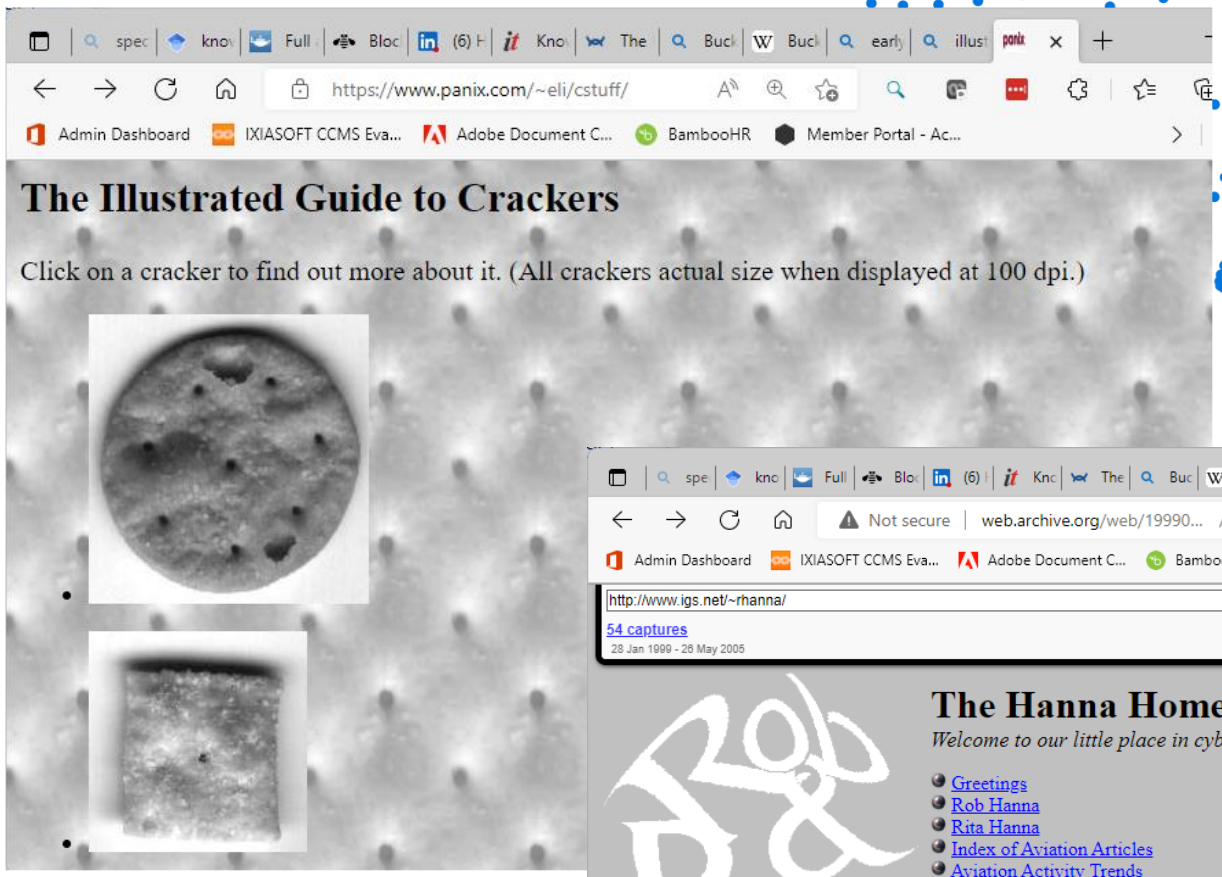
By the year 2000, there was more information produced in preceding 30 years than during the previous 5,000.

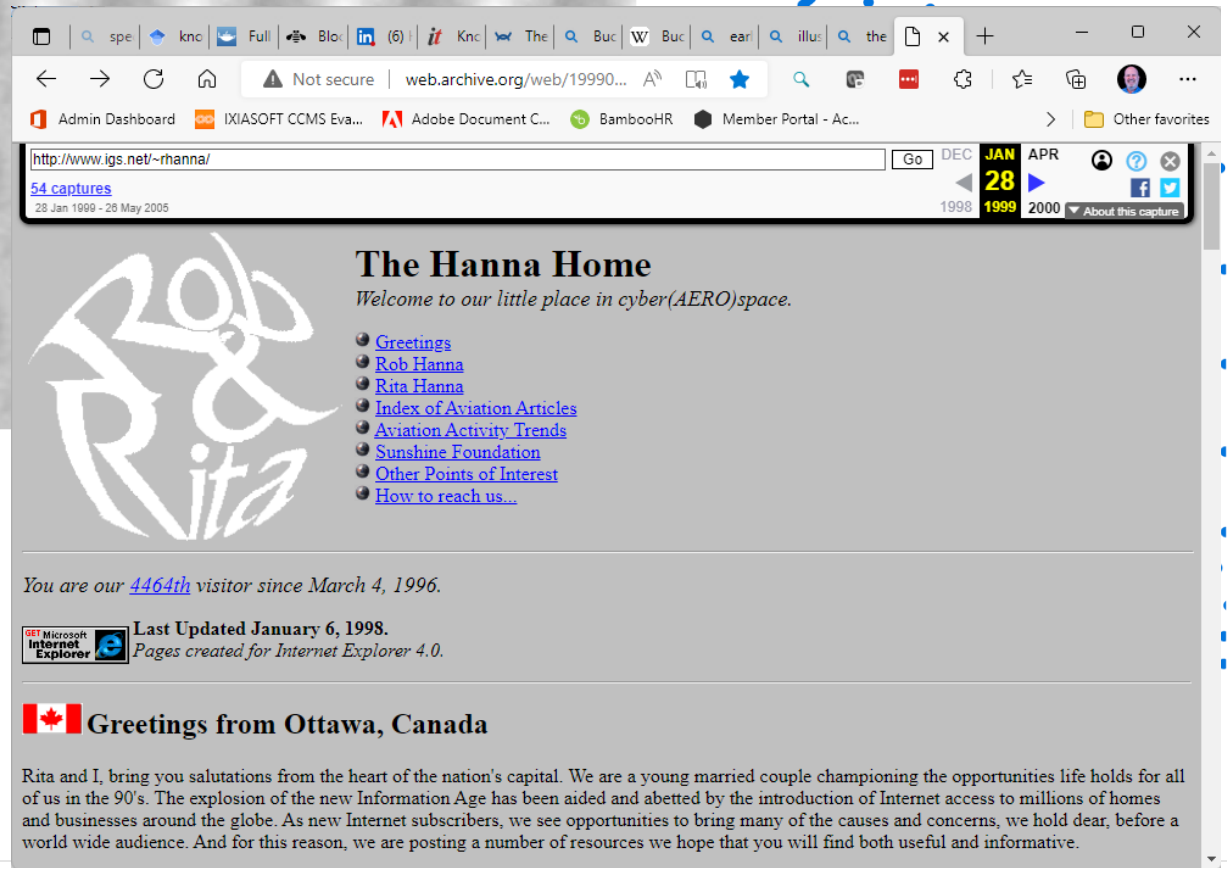
Current modern-day estimates of the size of the English language is 1,022,000 words

Estimated that 14.7 new English words are created every single day

Paper consumption per capita in the United States tripled again from 1980 to 1990 (to 1,800 pounds).

Early days of the Web weren't pretty



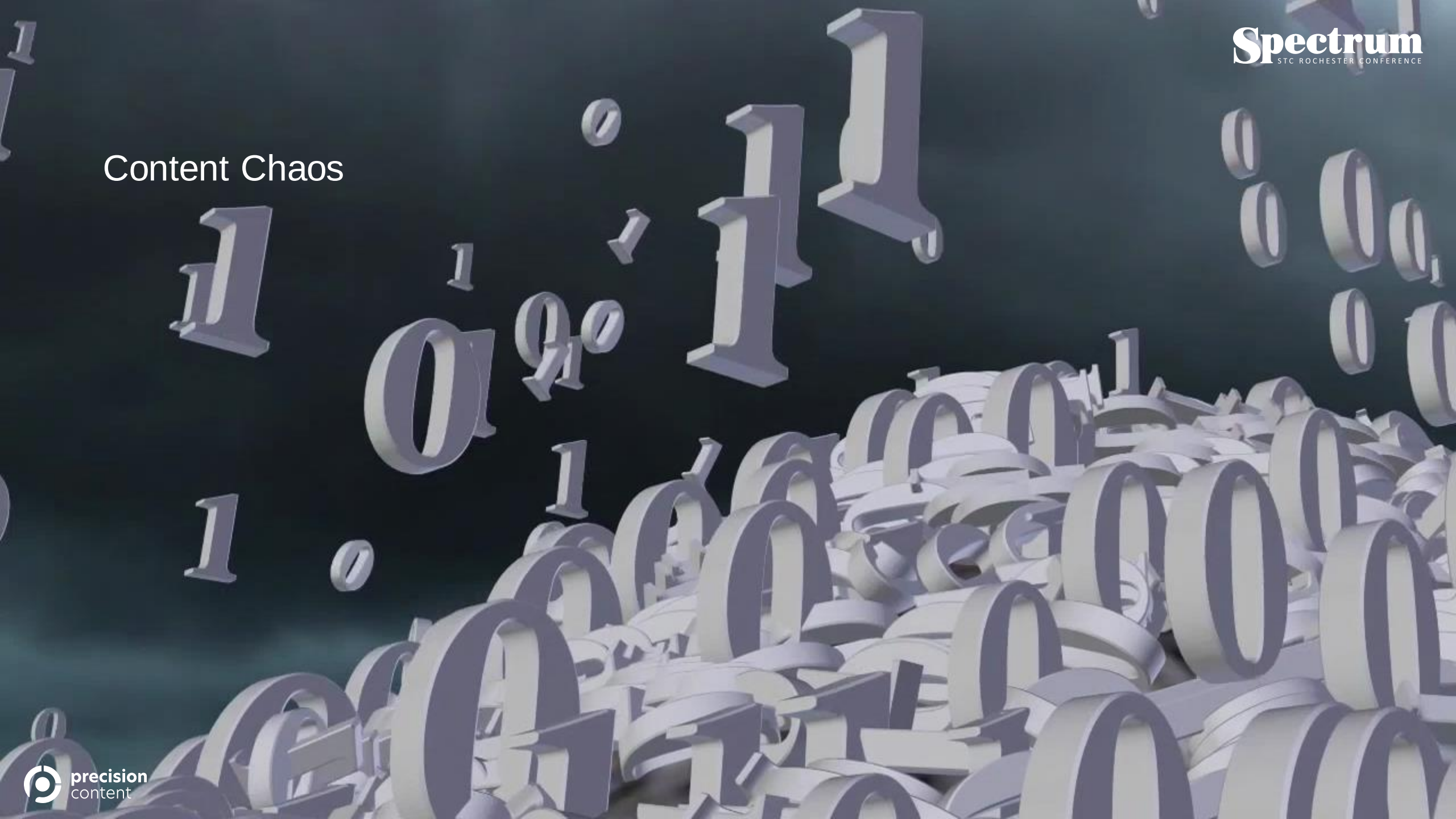


Social media explodes

Volume of knowledge grows

IBM continued the work of the Knowledge Doubling Curve to set its estimates that human knowledge would continue to double every 13 month by 2014.
By 2020, IBM predicted human knowledge would double every 12 hours.
A full 80% of that knowledge is known as Dark Data.

1700 1900 1945 2014 2020


Content Chaos

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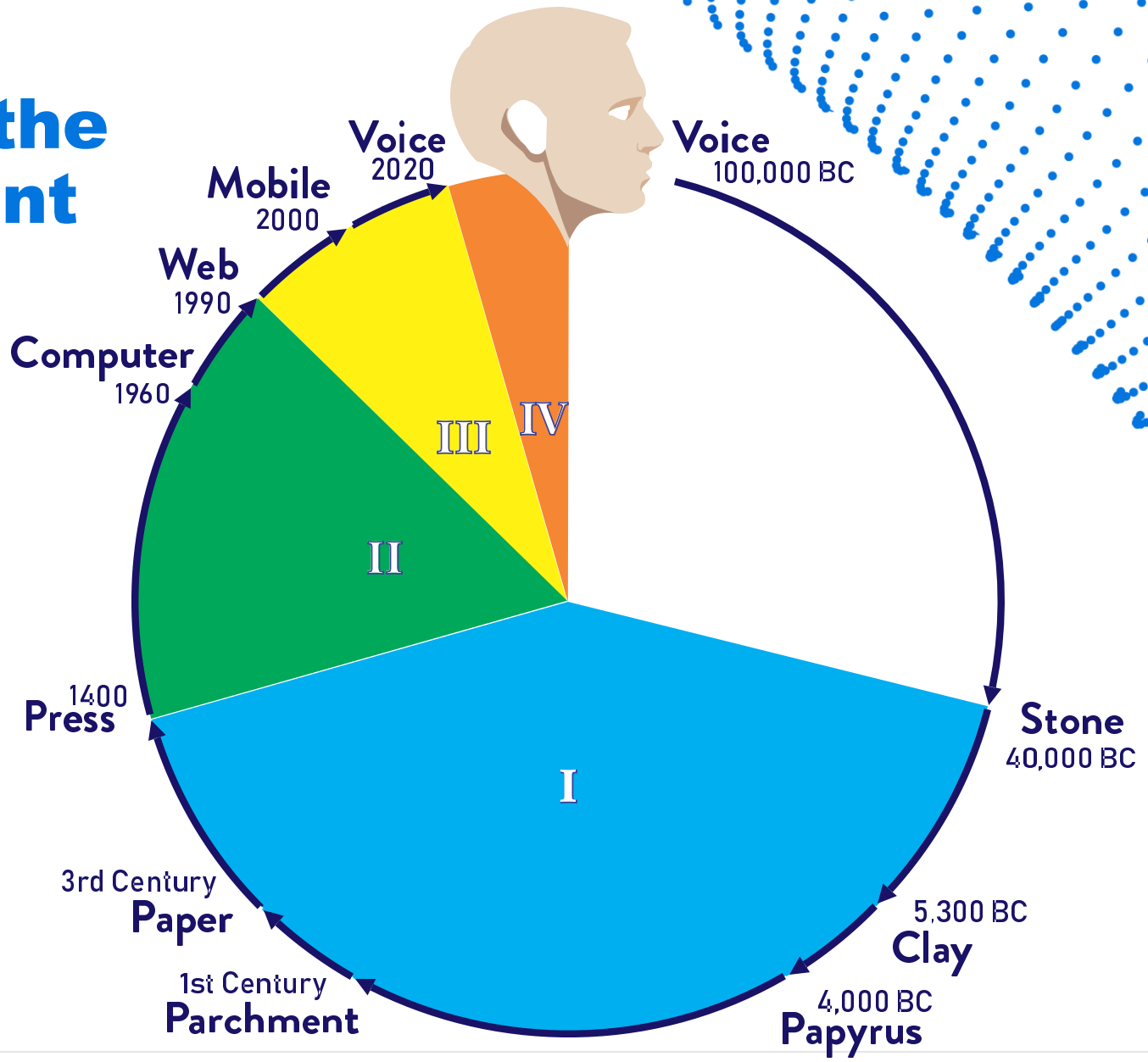


Content 4.0 – Era of Voice

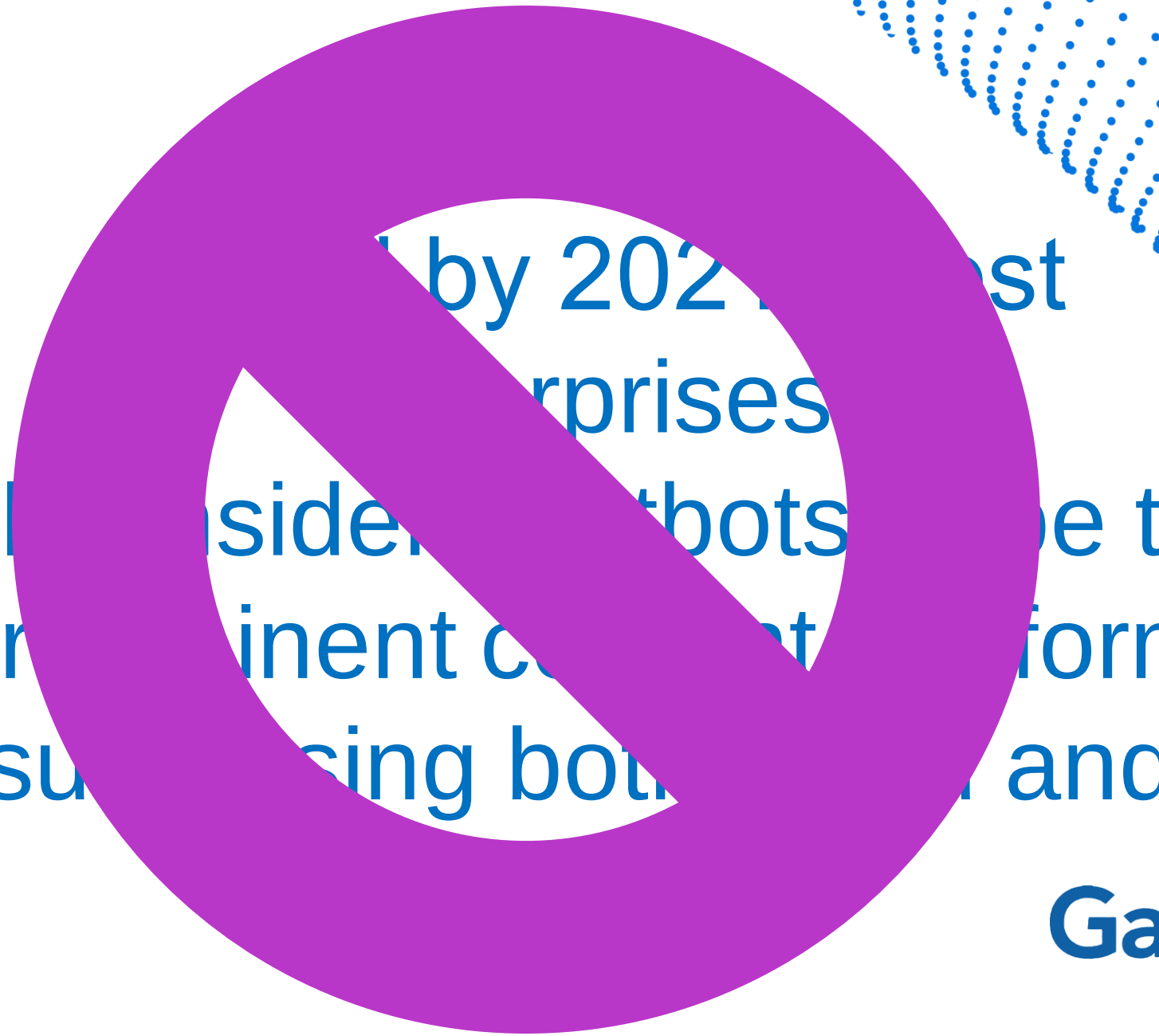
Living in an omnichannel world

- Seamlessly shifting modalities
- Voice to Online
- Online to Virtual/AR
- AR to Voice

precision content

According to Gartner, 80% of all new enterprise applications will use chatbots by 2020

Gartner®



by 202 st
rprises
will sider bots e the
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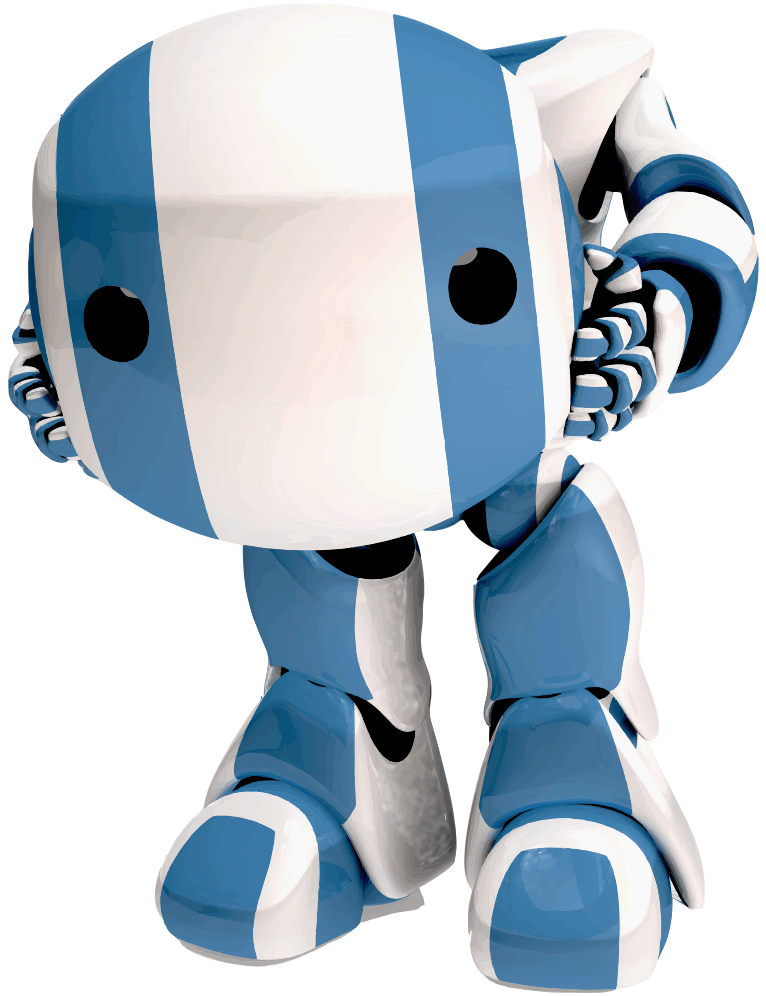
Gartner

Broken promises

In 2019, Gartner predicted explosive growth of chatbots by 2020 and voice interfaces by 2022. And yet amid a crippling pandemic we've failed to see these advancements when we needed them most.

What happened? The technology arrived; unfortunately, the content needed to power that technology did not!



Are we ready?

Can we let go of the past and chart a course that will inspire true change?

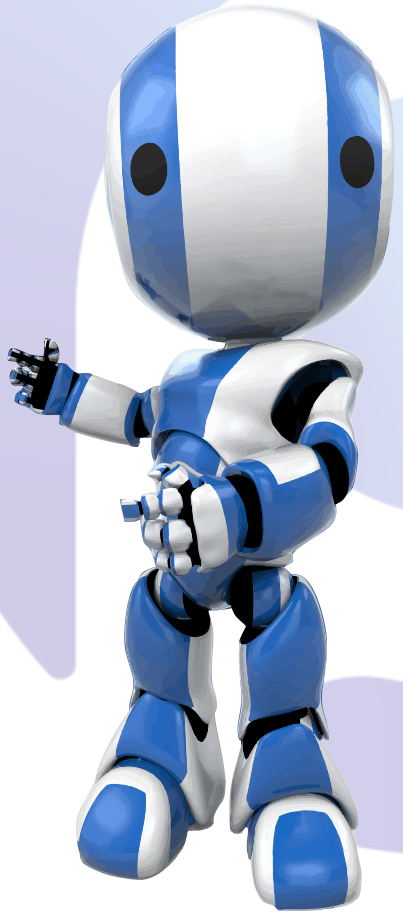
Content development tasks will become more complex – not less

More emphasis will be placed on the precision of the actual writing, and

Units of information will become smaller and more modular.

Our challenges: Inescapable trends in technical communication

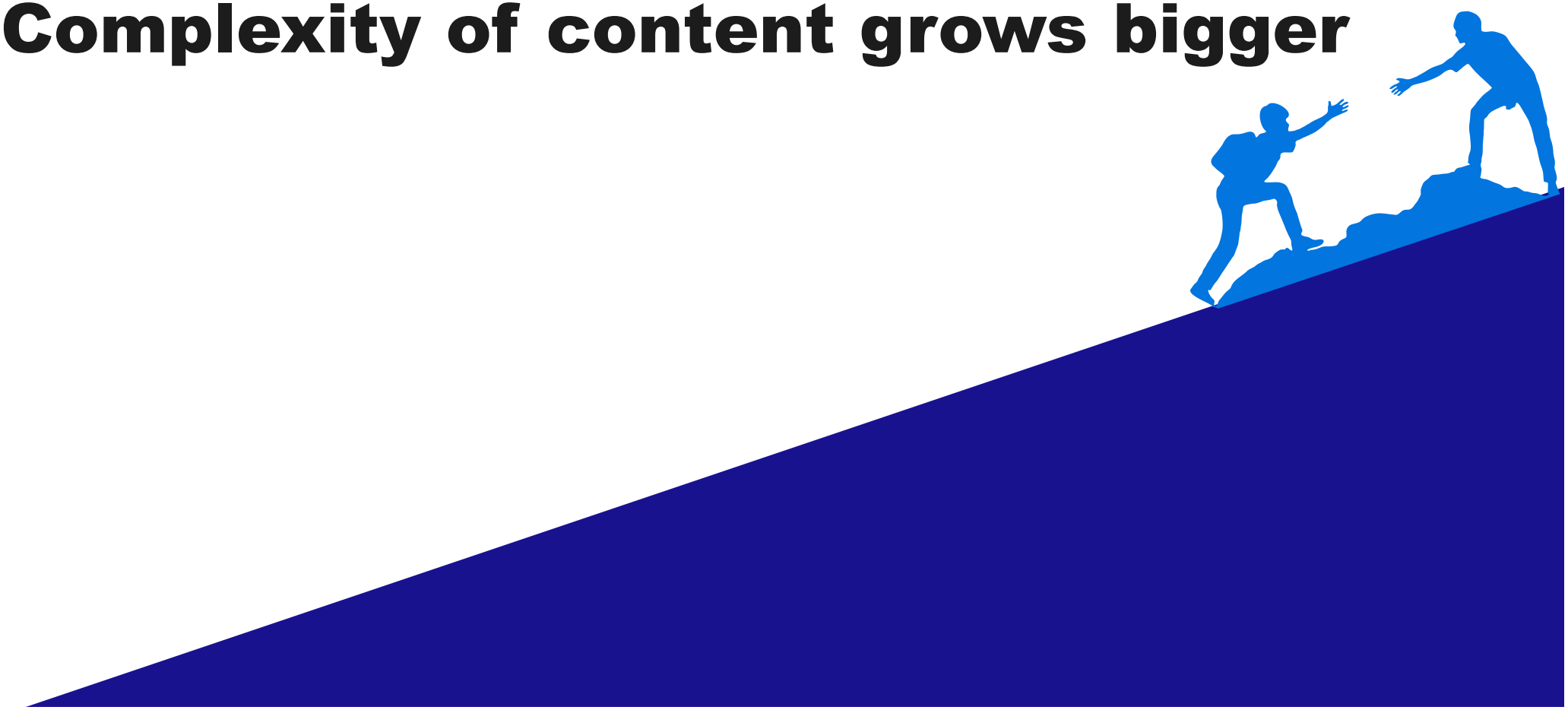
- Content becomes much more precise & technical
- Content creation becomes much more collaborative
- Content creation becomes one part in a total system
- Content activities become much more complex



Human-engineered content is...

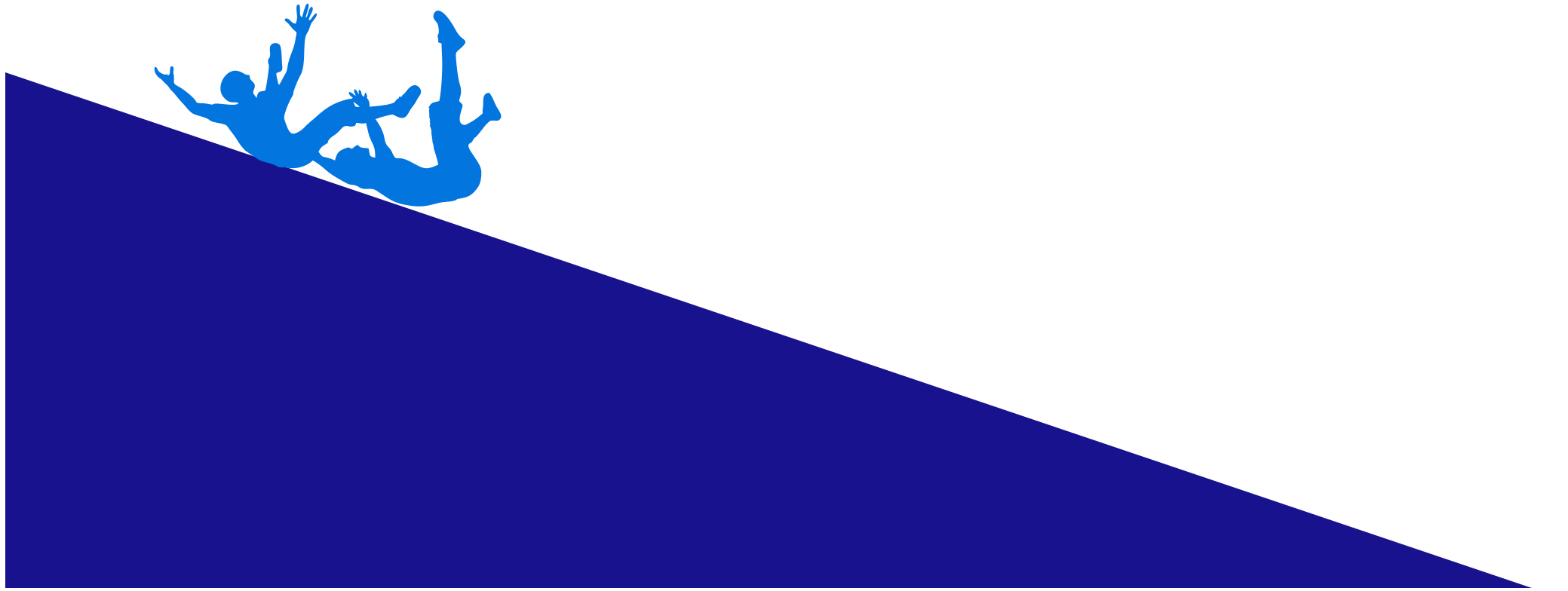
- Content that is intentionally designed to align with human cognition principles in mind to address specific reader intents or functions to carry out their jobs.
- The structures and cues in the content inform the human brain on how to interpret the information more precisely.
- The expressed intent allows machines to manipulate the content algorithmically to serve it to humans with increased confidence levels.

Complexity of content grows bigger



Scroll Codex Document Page Topic Block Fact

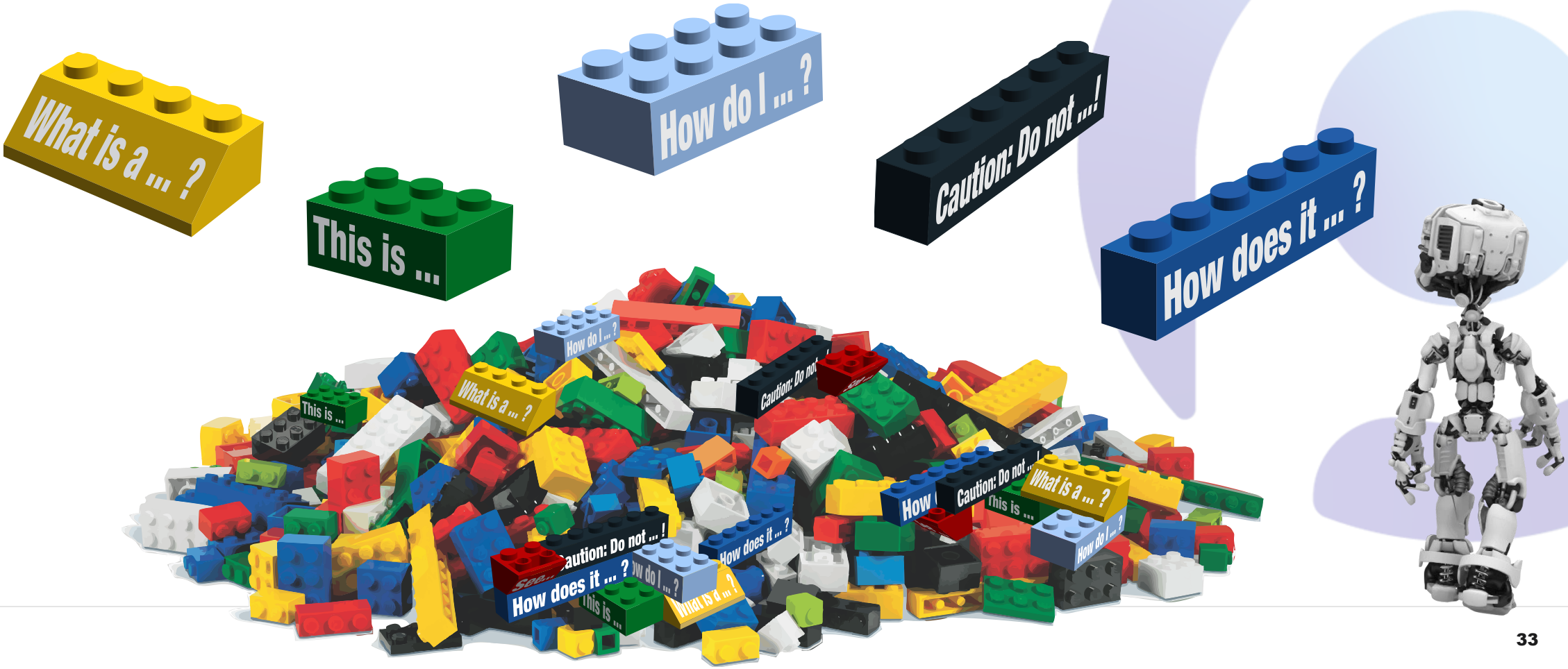
Units of content get smaller



Scroll Codex Document Page Topic Block Fact

Microcontent

Structured building blocks of information



Microcontent as a medium for exchange

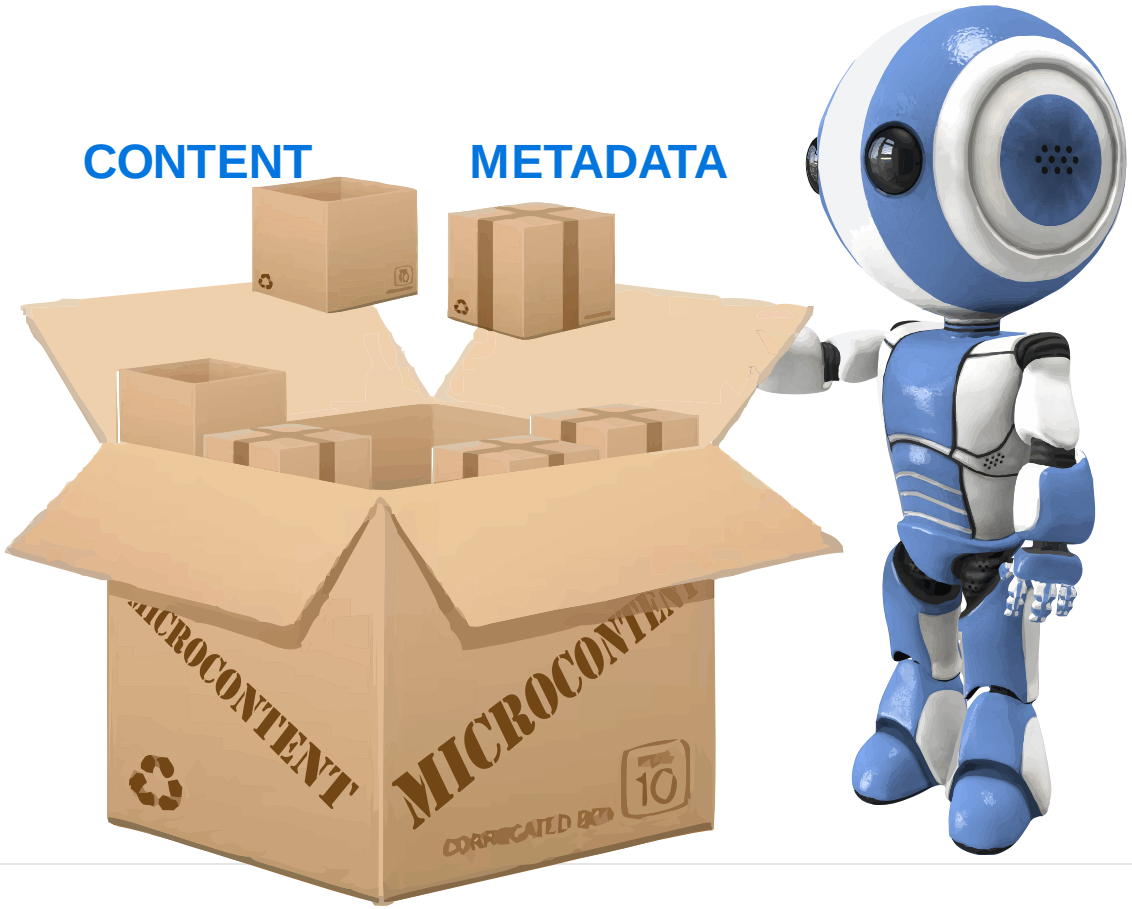
Microcontent is not strictly an input nor an output format. Instead, microcontent is a medium for exchanging information across different platforms and formats.

Units of microcontent need to contain

piece of standalone content, and

metadata records.

Content and metadata need to be automatically extracted at publishing time.



Content as a Service (CaaS)

- Content as a service is a service-oriented model where the service provider hosts collections of content in the cloud and delivers the content on demand to the service consumer via web services.
- Microcontent is ideal for CaaS delivery across platforms and systems.

Blockchain, NFTs, and the Semantic Web

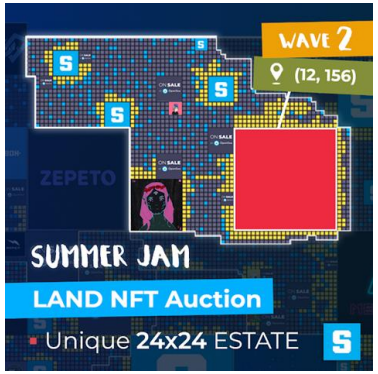
What is an NFT?

Acronym for “non-fungible token”

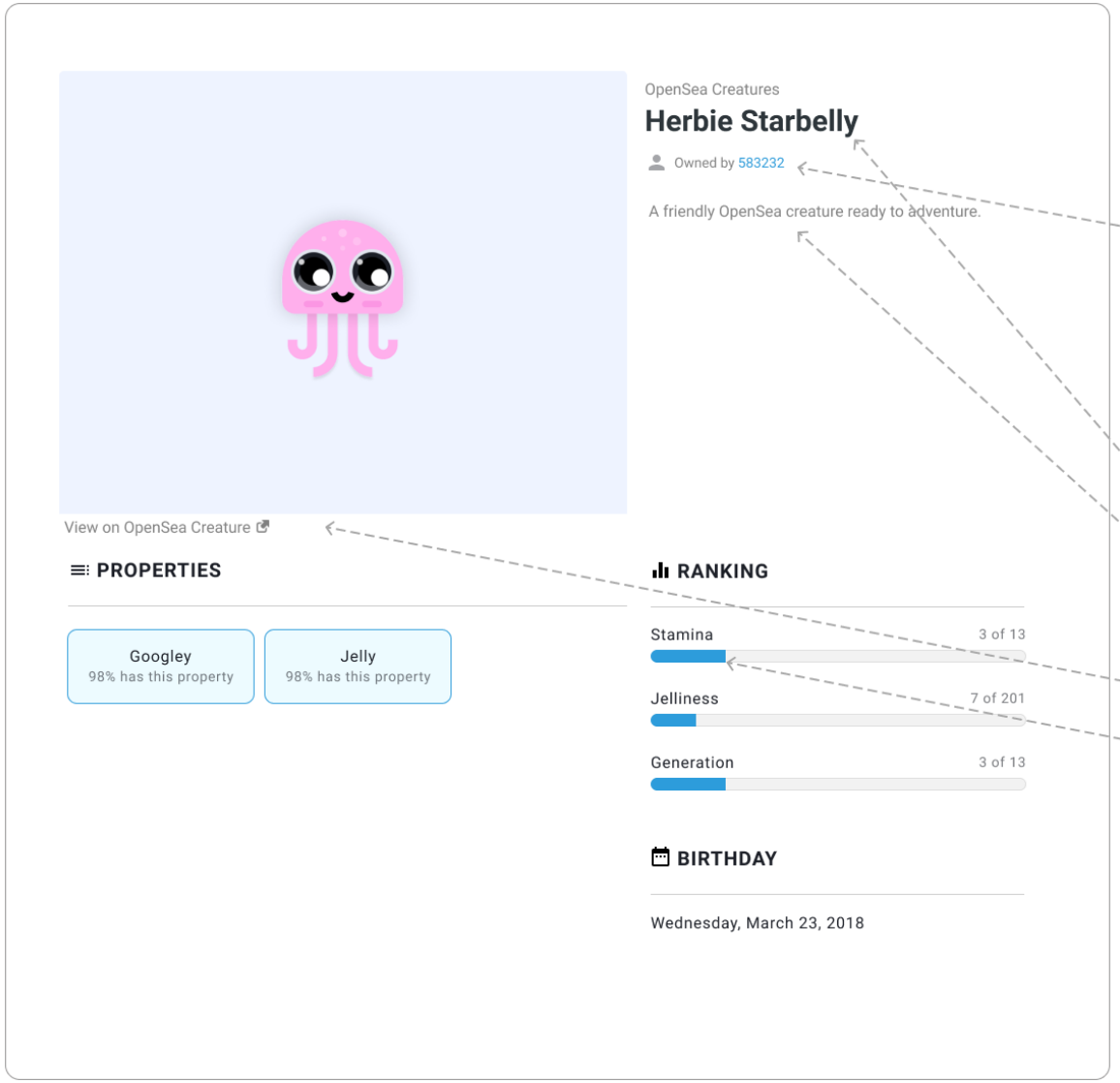
A unique and immutable token on a blockchain that references some data. This can be used to prove ownership of a digital asset.

Common NFT asset classes include

- Digital Art/Collectables
- Naming Services
- Gaming - Metaverse



What is an NFT... *really*?



ERC721 Contract

```
pragma solidity ^0.5.0;


contract Creature is ERC721 {
 function ownerOf(tokenId) returns address
 function tokenURI() returns string;
}
```

Metadata

```
{
 "name": "Herbie Starbelly",
 "description": "A friendly OpenSea creature ready to adventure.",
 "external_link": "https://openseacreatures.com/1234"
 "traits": [
   {
     "trait_type": "Stamina",
     "value": 3
   },
   {

   }
 ]

}
```


Source: https://tinyurl.com/yc7wuszf

NFT Embeds

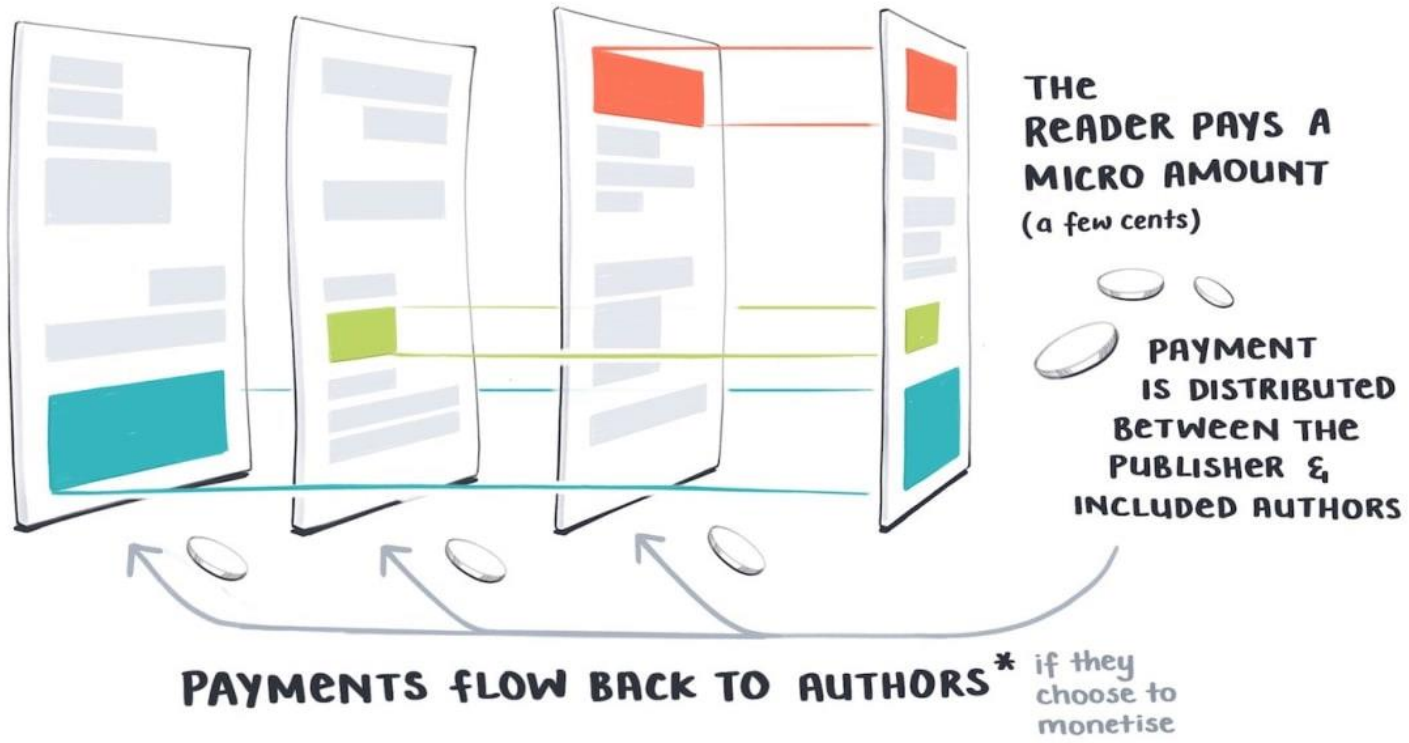
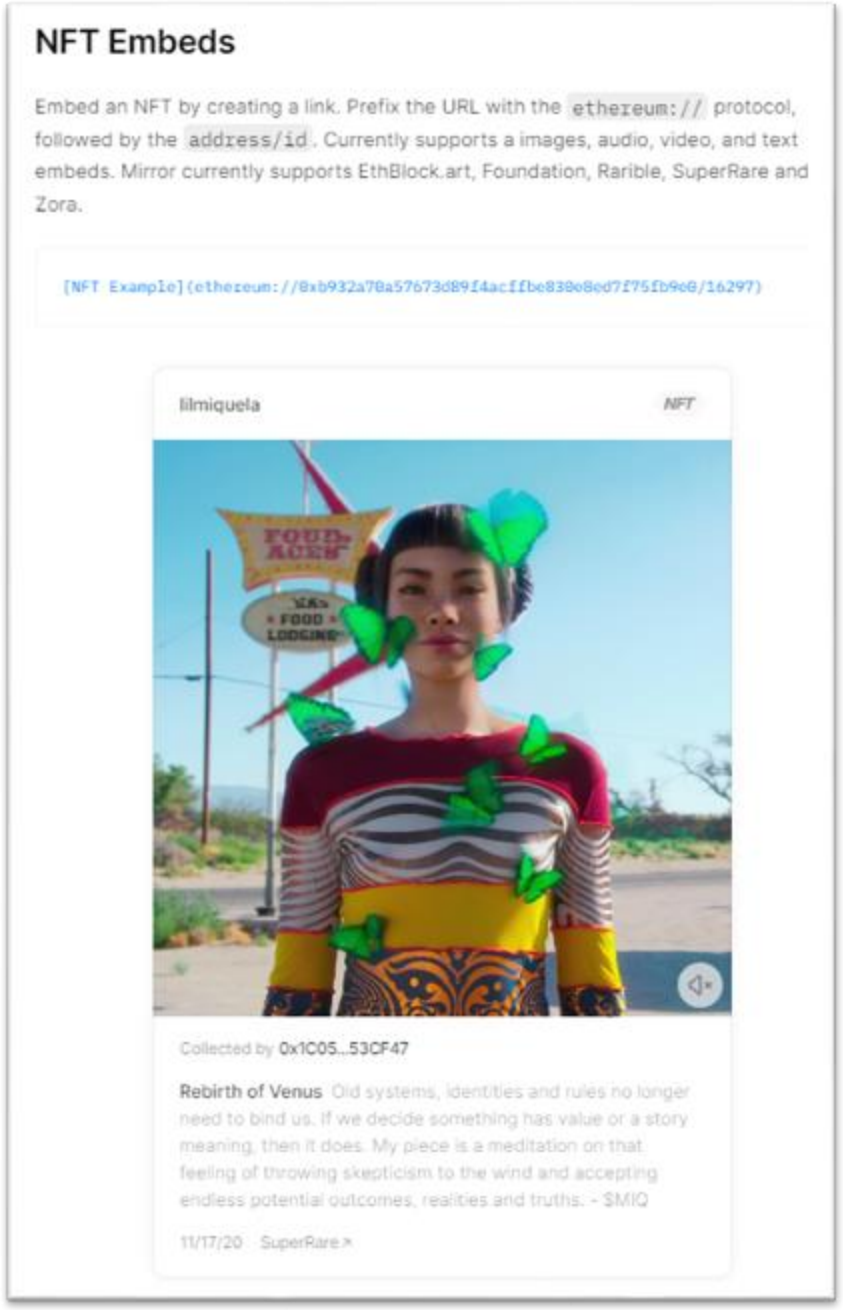


Illustration of transclusion/transcopyright by Maggie Appleton

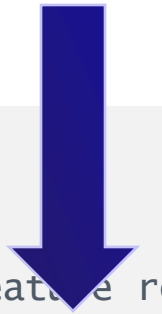


Sources: https://tinyurl.com/y9zybeds, https://tinyurl.com/u2cnd8xv

NFTs expose a problem with HTTP

```
{
  “name": “Herbie Starbelly",
  “description": “A friendly OpenSea creature ready to adventure",
  "image": "https://storage.googleapis.com/opensea-prod.appspot.com/puffs/3.png"
}
```

An HTTP URL, pointing to a location where the content is stored.

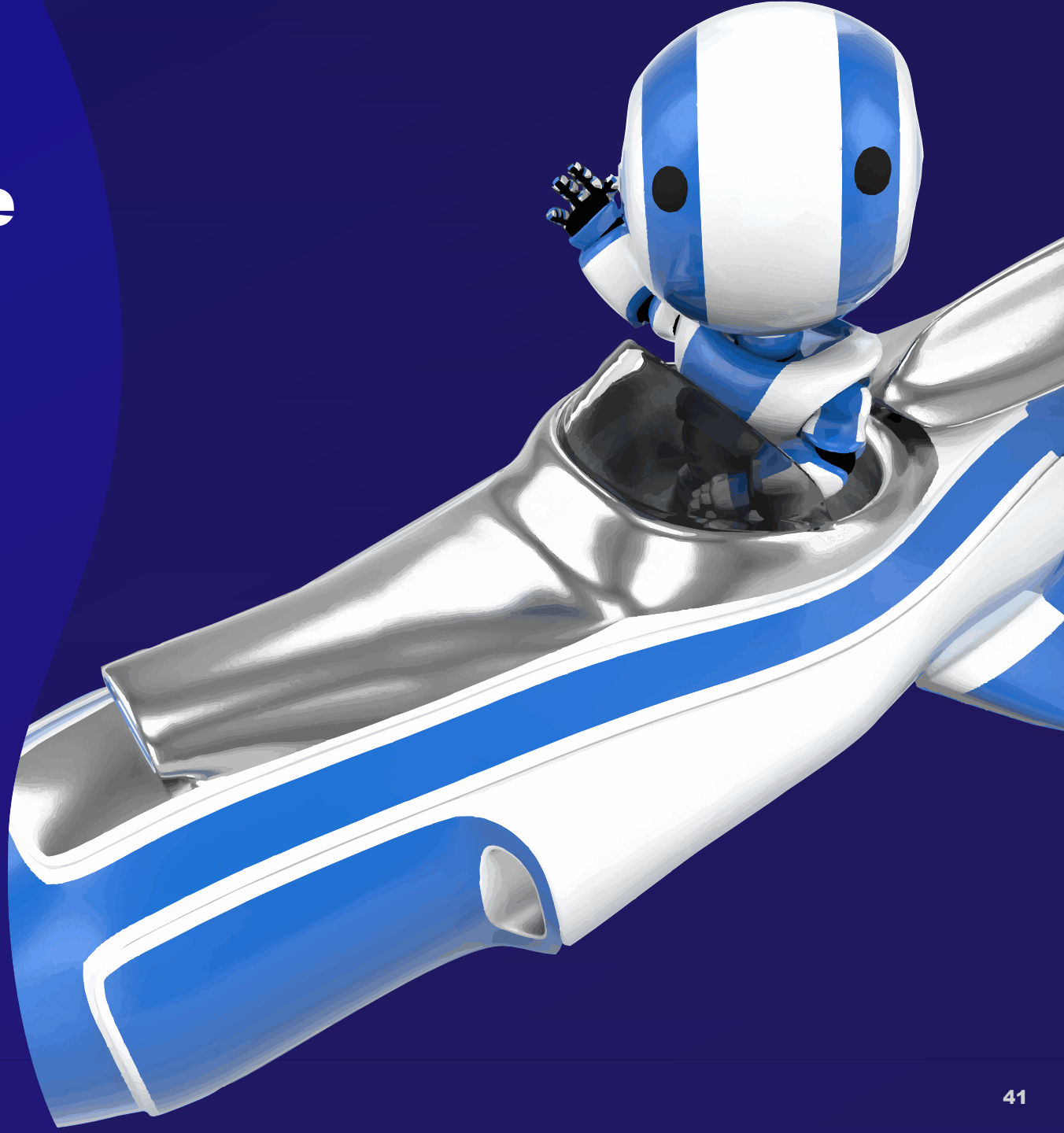


```
{
  “name": “Herbie Starbelly",
  “description": “A friendly OpenSea creature ready to adventure",
  "image": "ipfs://QmTy8w65yBXgyfG2ZBg5TrfB2hPjrDQH3RCQFJGkARStJb"
}
```

An IPFS URI, referencing a hash of the content.

Source: https://tinyurl.com/yc7wuszf

Inter Planetary File System (IPFS)



HTTP vs. IPFS

	HTTP	IPFS
Full name	Hypertext Transfer Protocol	Inter Planetary File System
Approach	Client-server	Peer-to-peer
Links are…	liable to break.	permanent.
Changing the content…	has no effect on the URL.	completely changes the hash.
Data fetched from…	the host server.	the nearest peer that has a copy.
Addressing	Location-based	Content-based
Sample address	`https://storage.googleapis.com/opensea-prod.appspot.com/puffs/3.png`	`ipfs://QmTy8w65yBXgyfG2ZBg5TrfB2hPjrDQH3RCQFJGkARStJb`

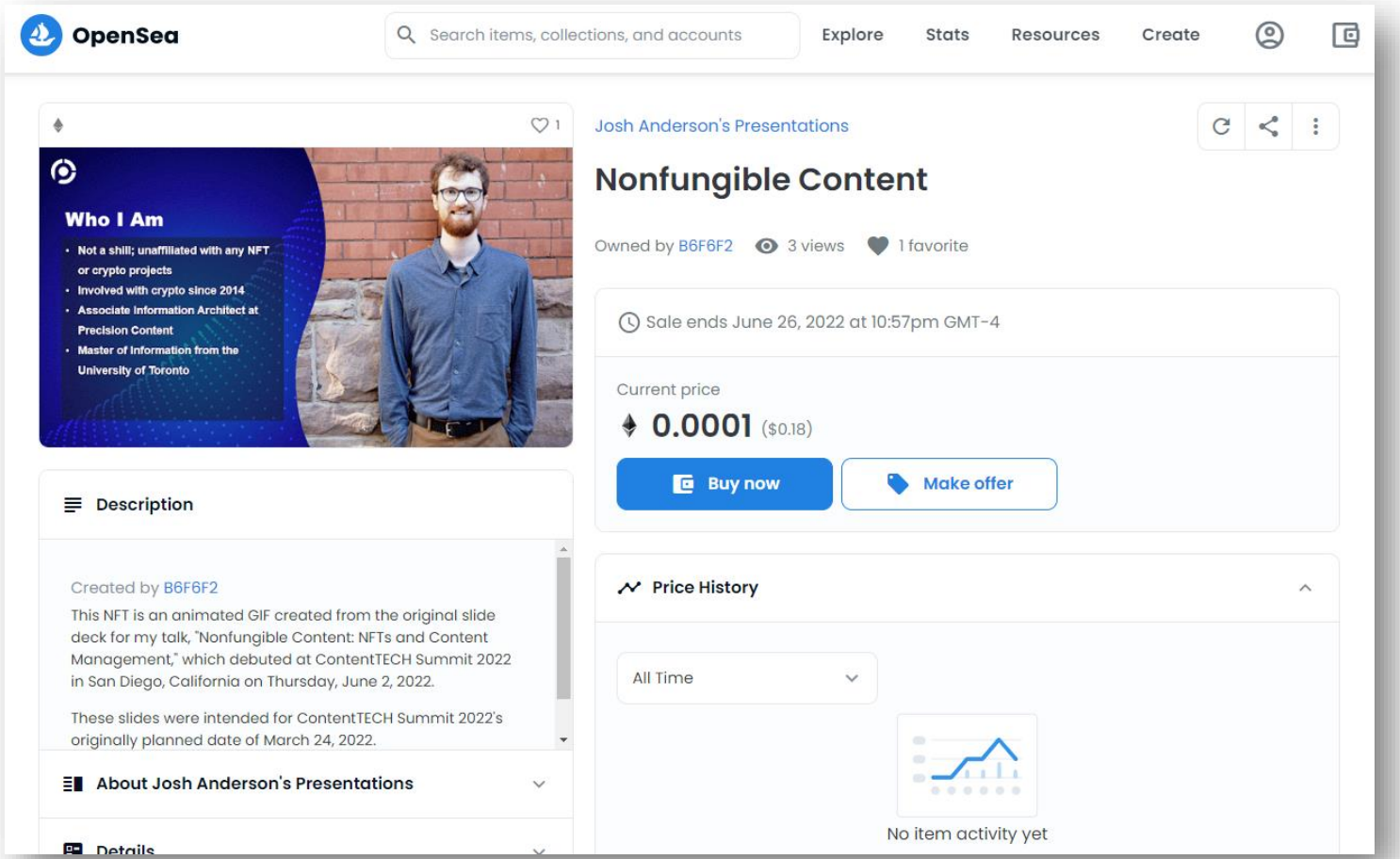
Old paradigms for hypertext content are new again

Idea	Pre-Web	Web 3.0
Ever-growing global pool of immutable, addressable content	Docuverse	**Interplanetary File System**
Rightsholders paid whenever their content is reused	Transcopyright	**NFT-encoded royalties and cryptocurrency micropayments**
Content is referenced, not linked	Transclusion	**NFT embeds of IPFS-hosted content**
“Atoms” of content remixed and rearranged into documents	Compound documents	**Microcontent**

NFT, IPFS, and Web 3.0 implications for content

- Content will be more transparent than ever
  - Previous versions of a piece of content will likely continue to exist in others' IPFS nodes.
  - Content-based addressing means changes won't go unnoticed.
  - Transclusion means the original context will always be readily accessible.
- The unbundling of media means your content will be remixed in ways you can't anticipate
  - But it's possible to collect micropayment royalties
  - New business models emerge
- More than anything, NFTs = legitimacy
  - Users may come to expect content to be cryptographically verified by its creator(s)
  - NFTs might be an antidote to deepfakes

Our first NFT



Now available!

Only 0.0001 ETH ($0.18)!

https://tinyurl.com/ykrfajbm

https://opensea.io/assets/ethereum/0x495f947276749ce646f68ac8c248420045cb7b5e/82757255498936747970608740099525853203281817683865661120842699153106173689857

More to NFTs than just...

NFTs and blockchain

- NFTs, working in conjunction with IPFS and microcontent, may finally enable long-forgotten visions for how content can operate and be monetized on the internet
- This vision revolves around unbundled pieces of content that can be easily reused, remixed, and reintegrated
- This technology is still in its infancy and liable to evolve dramatically
- For now, keep your content modular and think of ways to develop your user base into a community.

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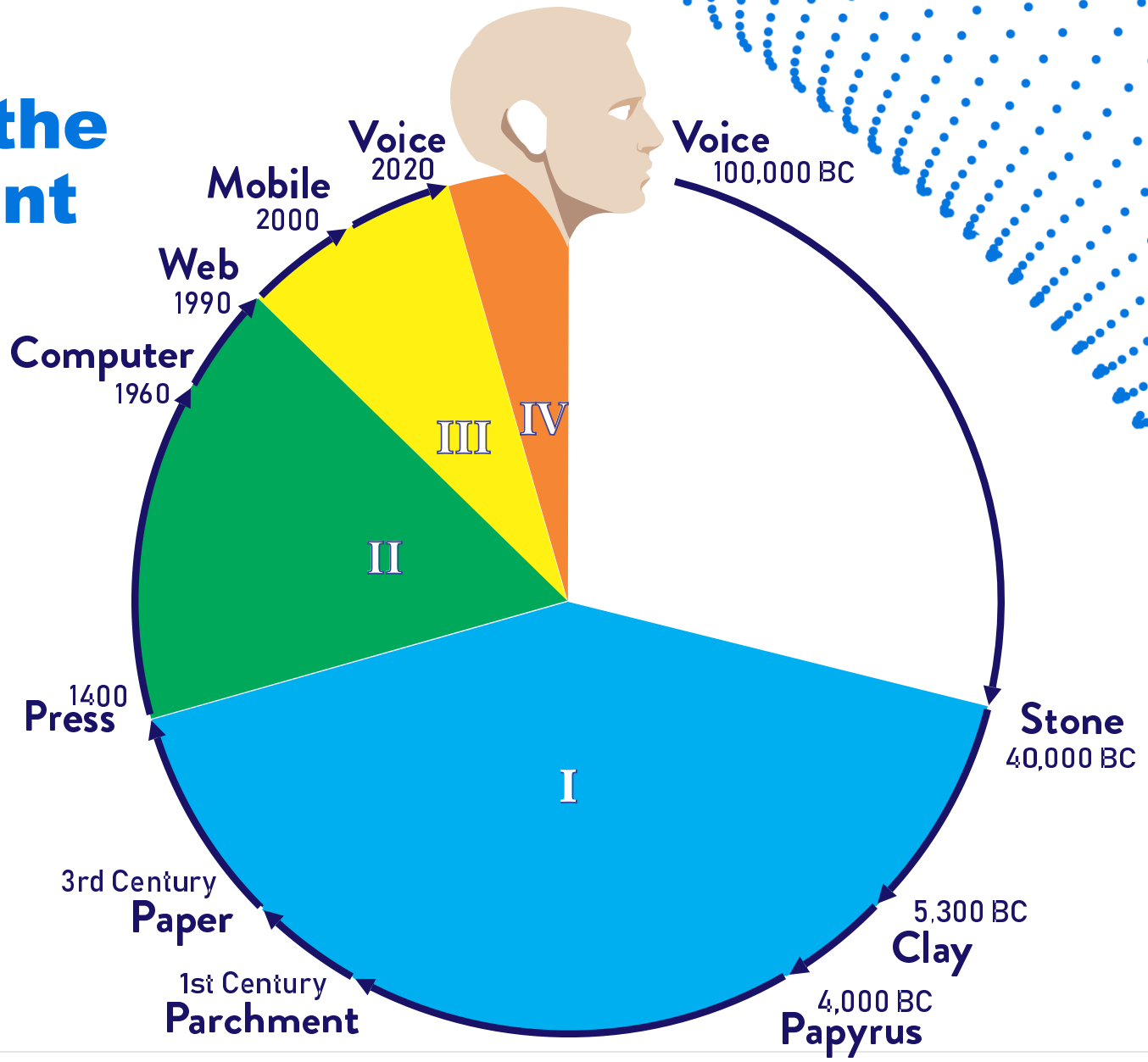
  Reach: all



From Siri to neural interfaces

Conversational user interfaces are just the tip of the technology iceberg

Amongst the biggest challenges will be finding appropriate information to feed the technology

deep breath...

About Precision Content

Experts in intelligent content delivery

We're a full-service, end-to-end technical communications consultancy, technology innovator, and systems integrator offering professional services, training, and tools.

Areas of Expertise

Precision Content is home to thought leaders and expertise in the areas of

- DITA/XML design and implementation
- structured authoring methods
- content lifecycle management
- information architecture
- microcontent solutions
- content strategy,
- and structured content delivery.

Select clients

FinTech

TSYS

mastercard

shopify

Moneris

Banking

Westoba Credit Union Ltd.

BARCLAYS

JPMorgan Chase & Co.

conexus Credit Union

coastcapital Savings

Insurance

ICBC Insurance Corporation of British Columbia

eviCore healthcare innovative solutions

NCCI

BCAA CAA

Life Science

Edwards

Mayo Clinic

AJCC American Joint Committee on Cancer Validating science. Improving patient care.

Syneos Health

Children's Healthcare of Atlanta

Pharma

Lilly

AstraZeneca

Apellis

MERCK

Government

SASB Sustainability Accounting Standards Board

Nuntium Comparat Et Custodit

NRC·CNRC

Consumer and B2B Products

HydraForce Power Forward

Ultimate Software People first.

Dow

Christie

Broadcom

Genetec

REDSEAL

Celestica

xerox

Qualcomm

Consulting

Deloitte.

KPMG

We focus on the content itself

Our differentiator is our Precision Content® writing methodology.

Content models and frameworks like DITA are great for organizing content, however they do not address fundamental questions about how to author content.

The Precision Content authoring methodology is the distillation of technical writing best-practices and DITA.

Companies could figure this out on their own, but why would they want to when it's available now?

Precision Content® Writer Training™

Fundamentals

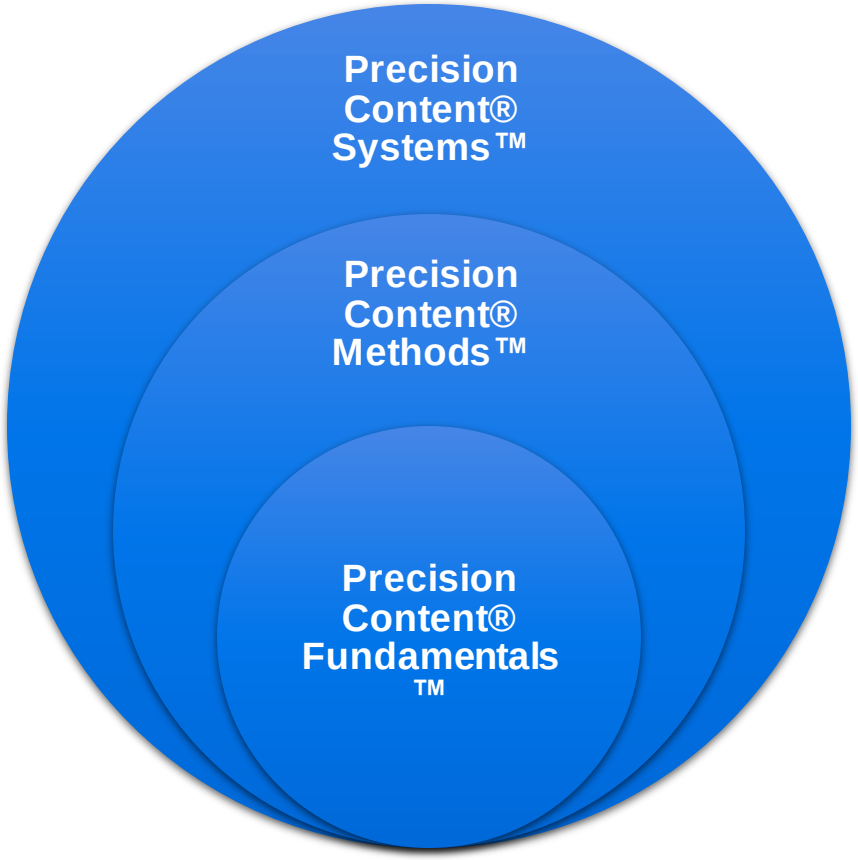
One-day workshop learning about the Five Fundamentals of Precision Content writing.

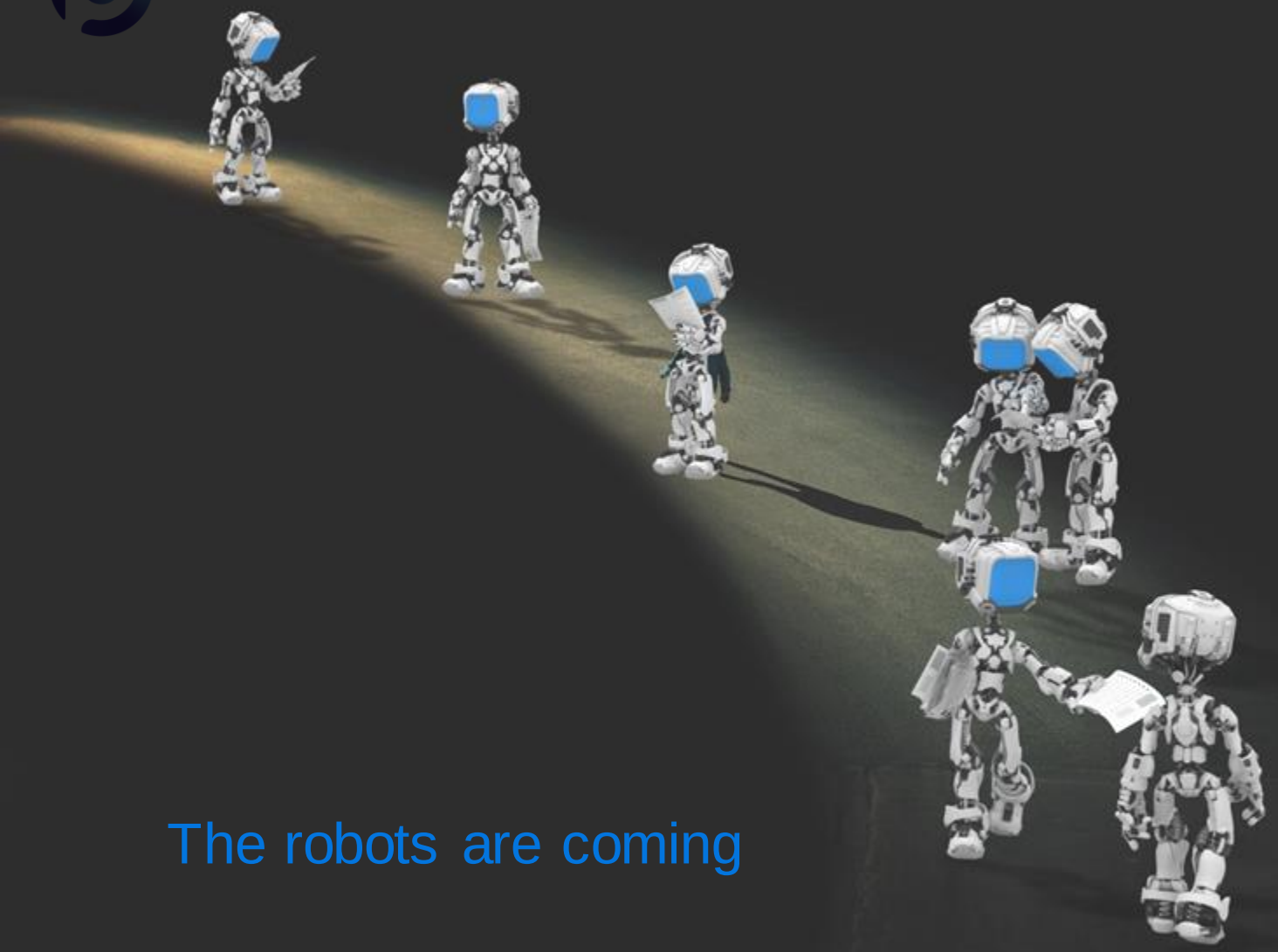
Methods

Three-day training learning how to write for intent using the Precision Content writing methods. Includes the Fundamentals workshop.

Systems

Five-day training learning how to apply structured writing techniques in a team environment. Includes Methods training.





The robots are coming

We can either learn how to write for both bots and humans or miss out on a transformational opportunity for our profession.

DO YOU SPEAK ROBOT?

precision content

Thank You!

Are you ready to upgrade, transform, and future-enable your content?
Contact us and we'll show you what's possible.

precisioncontent.com | more-info@precisioncontent.com | 1(647)265-8500