

PREPARING CONTENT FOR INTELLIGENT MACHINES



TECHNICAL COMMUNICATION

2018 | SUMMIT

65th ANNIVERSARY

CONFERENCE & EXPO

Orlando, FL

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STC Fellow
May 21, 2018



PRECISION
CONTENT.com
Trust in your Content

ROB HANNA



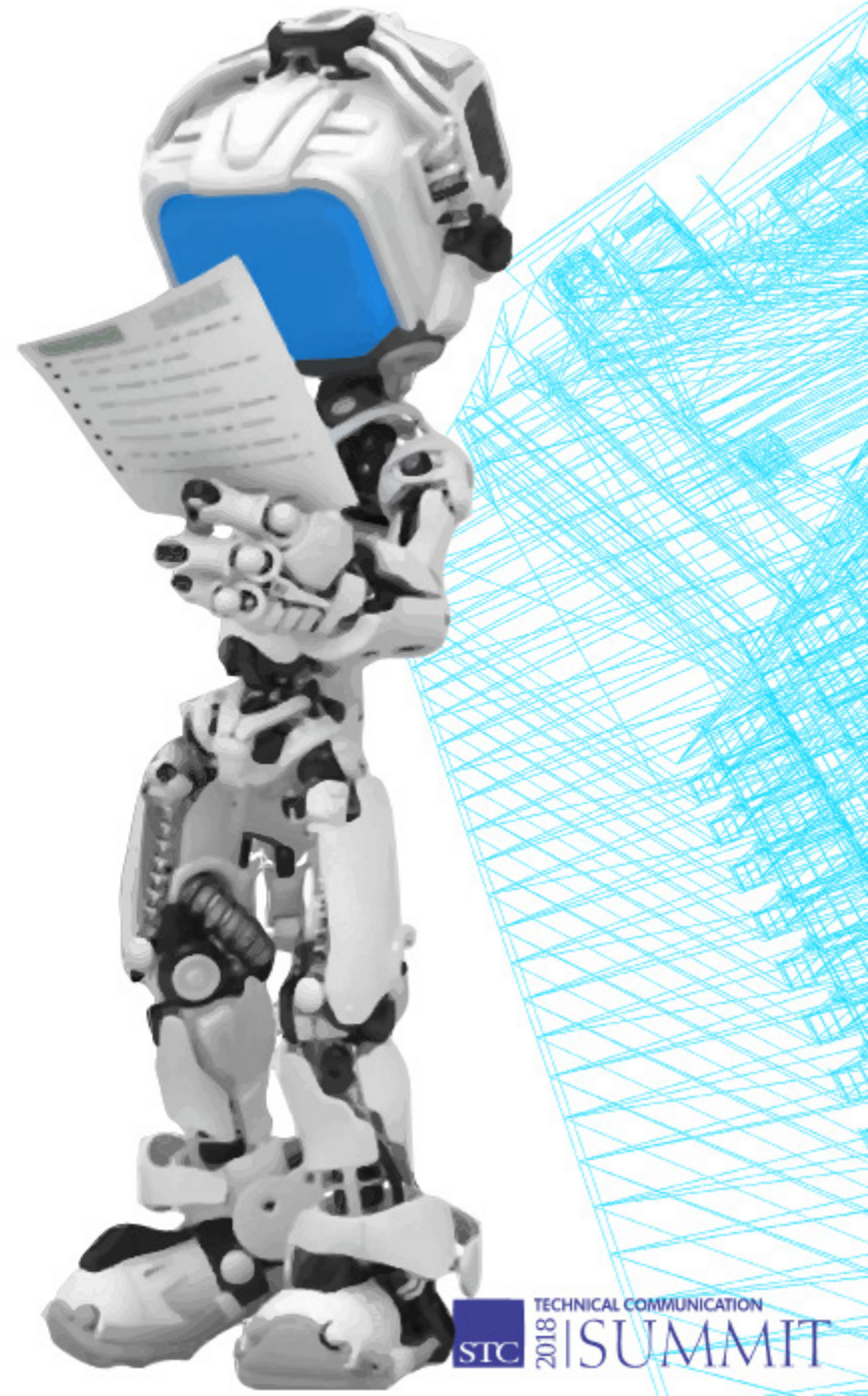
@PCASinc
#microcontent

- Co-Founder and Chief Information Architect at Precision Content
- STC Fellow and community leader
- Voted in the Top 25 Content Experience Influencers for 2017
- Helping organizations make their information easier to use for more than 20 years



EMERGING TRENDS AND TECHNOLOGIES

Where are we headed as a profession?





FUTURE OF INFORMATION 4.0

- Despite our focus on simplifying the technology around content – content itself is not getting simpler
- Creating progressively smaller and smarter content components
- Focus on answers that people are seeking

Information 4.0 for Industry 4.0 – Enabling Information Interoperability,
<https://www.slideshare.net/jgollner/information-40-for-industry-40-tcworld-2016>



INESCAPABLE TRENDS IN TECHNICAL COMMUNICATION

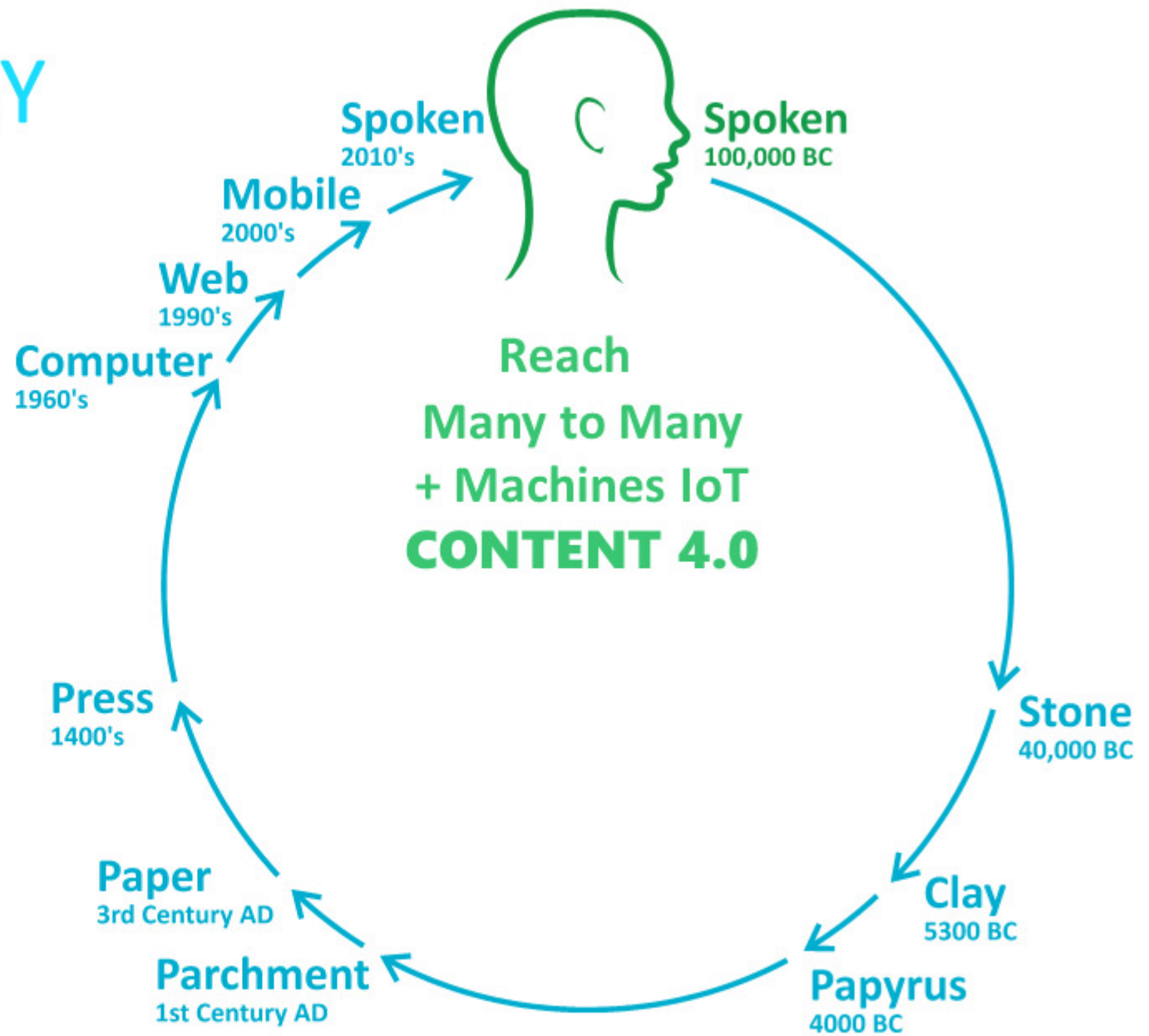
- Content becomes much more **precise & technical**
- Content creation becomes much **more collaborative**
- Content creation becomes **one part in a total system**
- Content activities become much **more complex**

Joe Gollner
The Content Philosopher
& Futurist

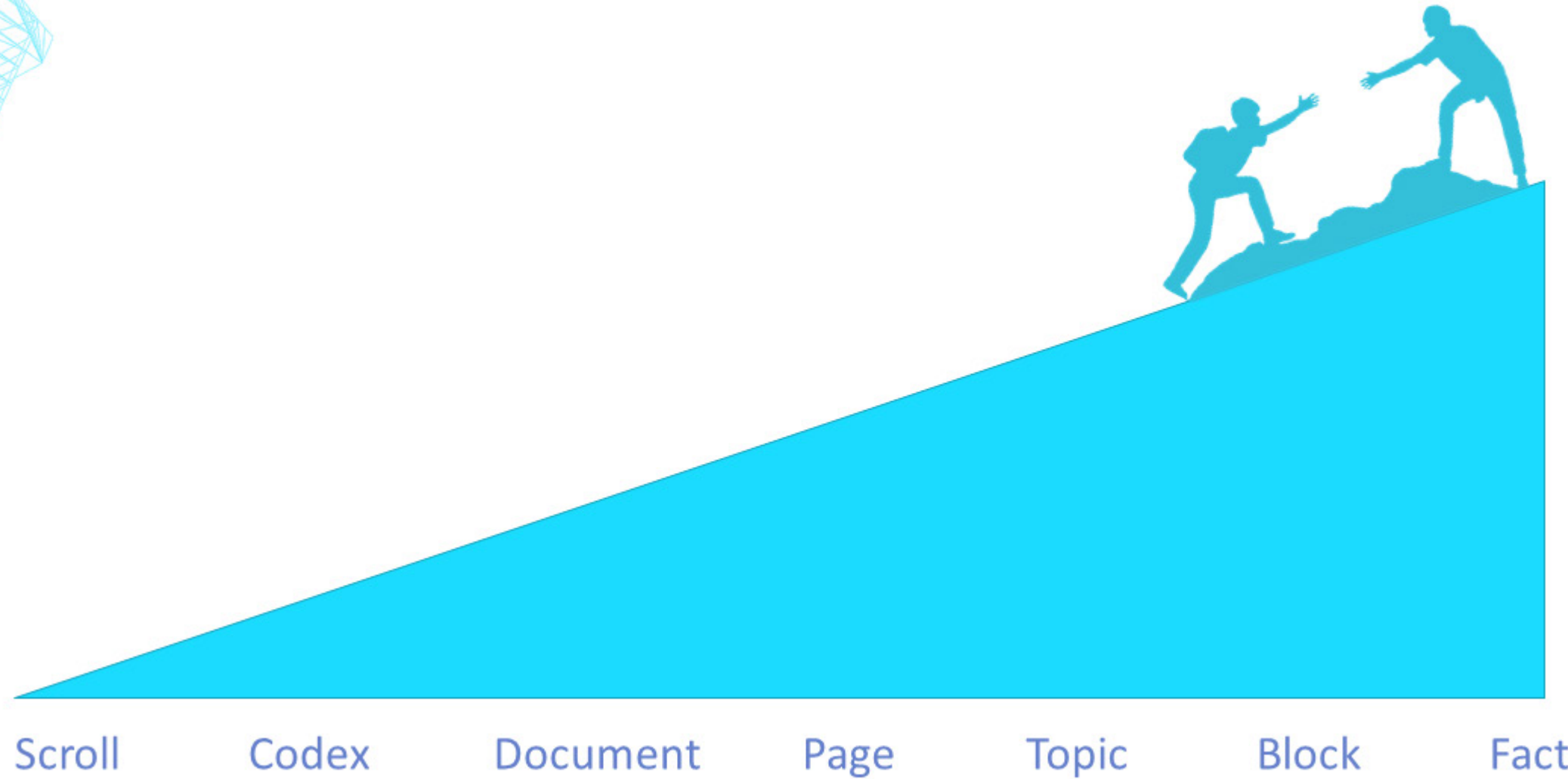
BRIEF HISTORY OF CONTENT

What goes around ...

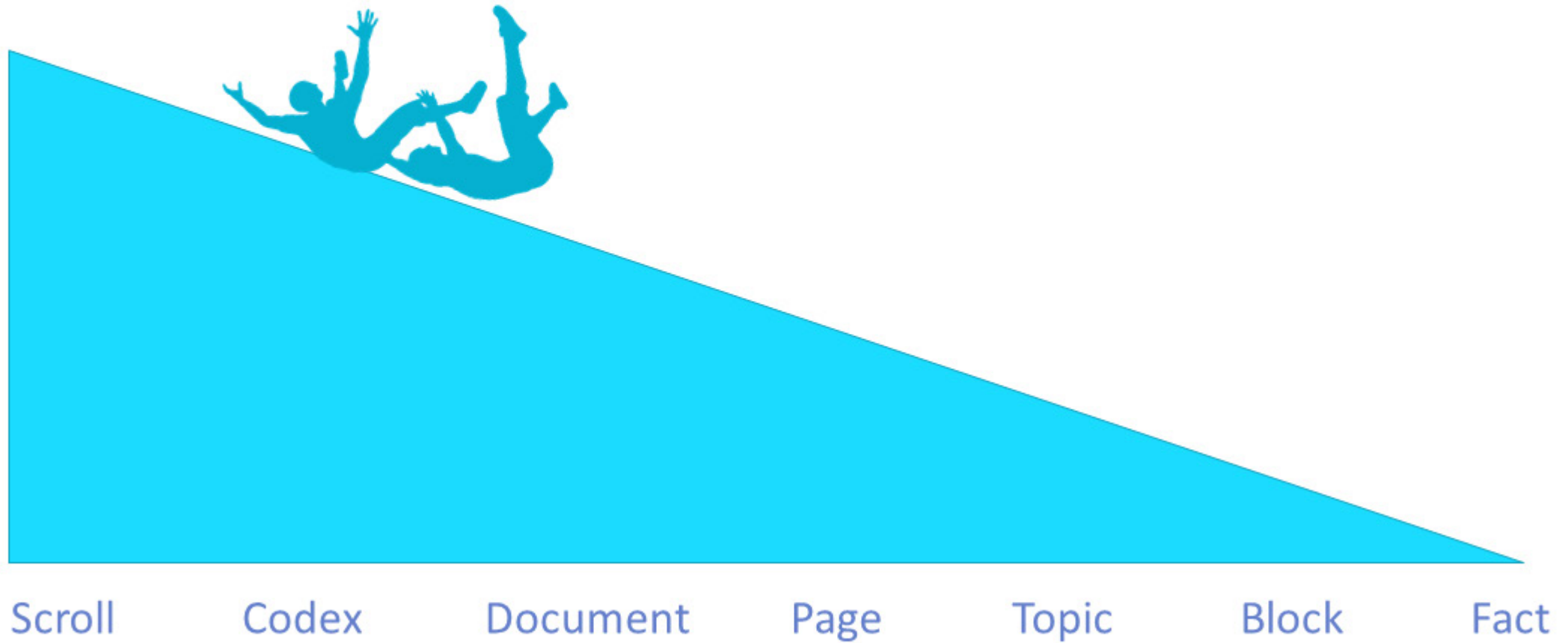
... *eventually comes around*



COMPLEXITY OF CONTENT GROWS BIGGER



UNITS OF CONTENT GET SMALLER



VOLUME OF CONTENT GROWS UNABATED

**80% of this is *Dark Data* ...
Inaccessible ROT**

- **R** – redundant
- **O** – obsolete, or
- **T** – trivial



1700

1900

1945

2014

2020

THE DIGITAL LANDFILL

WORLD IS GOING MICRO

Just in time and just as needed



GOOGLE MICRO-MOMENTS

<https://www.thinkwithgoogle.com/micromoments/intro.html>



Micro-Moments are multiplying—are you ready for the future of marketing?

Perspective – May 2017



Micro-Moments Now: Why you should be the advisor consumers are searching for

Perspective – Aug 2017

Micro-Moments

Mobile has forever changed what we expect of brands. New to micromoments? Learn more with an overview of this new consumer behavior.



Micro-Moments Now: Why 'near me' intent is a 'near you' opportunity

Perspective – Aug 2017



MICROLEARNING

Infographics as a form of microlearning ...
about microlearning
META!



MICROFORMATS

- Are a loose technology layer that allows for the extraction of data from web pages for repurposing of data in different contexts.
- The technology consists of small, semantic structures that identify fragments of content that can be consumed as a microformat. Some examples include
 - hCalendar – for events
 - hCard – for contact information
 - hMedia - for audio/video content
 - hAudio – for audio content
 - hNews - for news content
 - hProduct – for products, and
 - hRecipe - for recipes and foodstuffs.



MICROCONTENT

Is content that is

- about one primary idea, fact, or concept
- easily scannable
- labelled for clear identification and meaning, and
- appropriately written and formatted for use anywhere and any time it is needed.

It's not microcontent just because it's small

Mobile homes less than or equal to 20 years of age		100% of estimated current replacement cost as determined by the local cost of a new unit of comparable quality and size	
Mobile homes more than 20 years old		Actual cash value of the mobile home	

In this section

- **Types of mobile homes**

Types of mobile homes are determined by their construction date and materials used. Buildings can be classified as mobile, manufactured, or deregistered.

- **Modular homes defined**

Modular homes are site-built or prefabricated homes. All modular homes built before 1995 must be referred to Underwriting.

Parent topic Products

Created: July 30, 2015 9:00 AM

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EXAMPLES OF MICROCONTENT

Google Featured Snippets

RSS Feeds

Product Tiles

Advanced Organizers

MICROCONTENT AS BUILDING BLOCKS OF INFORMATION



STRUCTURE SERVES BOTH MACHINES AND HUMANKIND

The Human Brain

- Find
- Understand
- Use, and
- Retain

Technology

- Integrate
- Search
- Process, and
- Reuse

WILL ARTIFICIAL INTELLIGENCE BE THE ANSWER?

How will AI make sense of it all when we can barely make sense of it ourselves?

TIME
SPECIAL EDITION

Artificial Intelligence

The Future of
Humankind



Cover: Special Edition of TIME Magazine
Editor: Nancy Gibbs, 2017
Available on newsstands

TWO APPROACHES TO BUILDING ARTIFICIAL INTELLIGENCE

Machine Learning

- Helping machines learn from experience
- Classification and predictive tasks
- Reliant on Big Data and processing power
- Low-hanging fruit

Semantic Reasoning

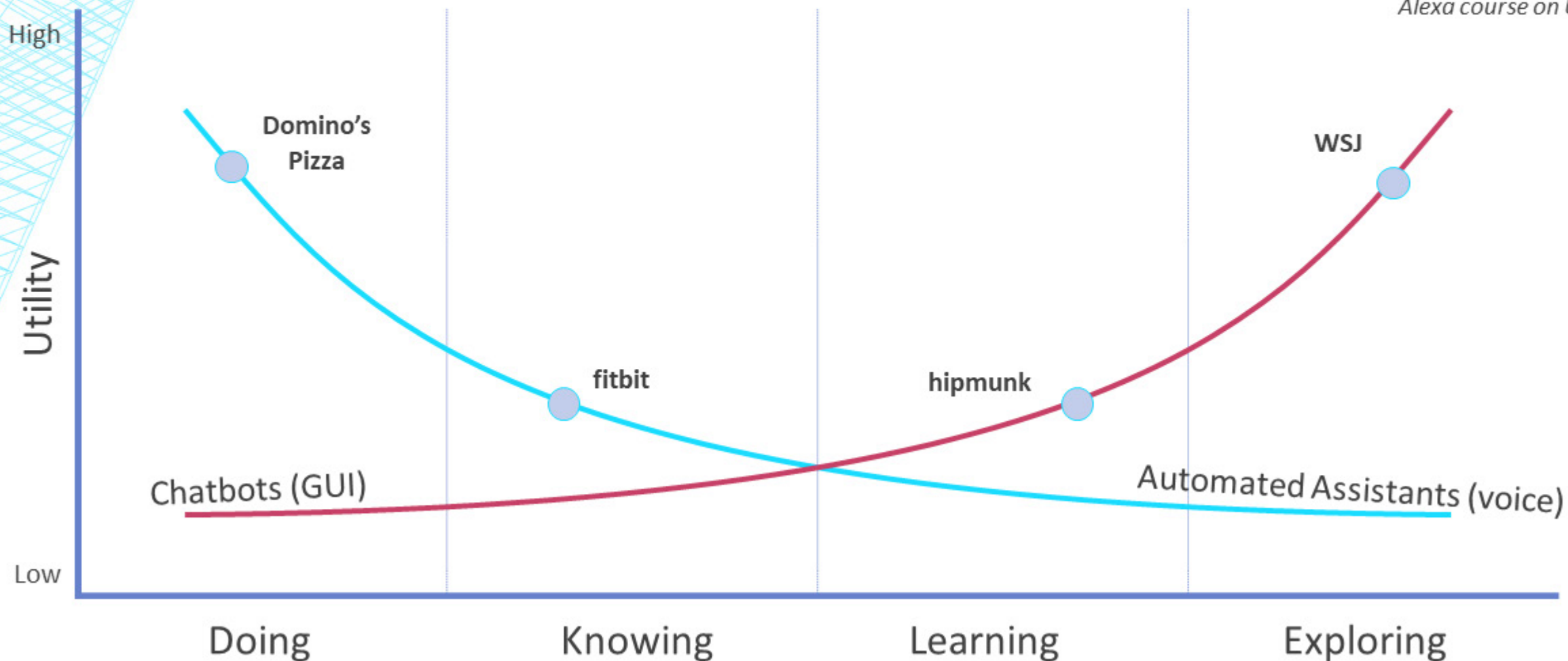
- Teaching machines what they need to know
- Current domain knowledge
- Reliant on knowledge models and content
- Difficult to source and maintain

See: Semantic Reasoning: The (Almost) Forgotten Half of AI, L.Lefkowitz, SEP2017
<http://www.access-ai.com/blogs/semantic-reasoning-almost-forgotten-half-ai>

According to Gartner,
chatbots will power 85% of
all customer service
interactions by the year 2020.

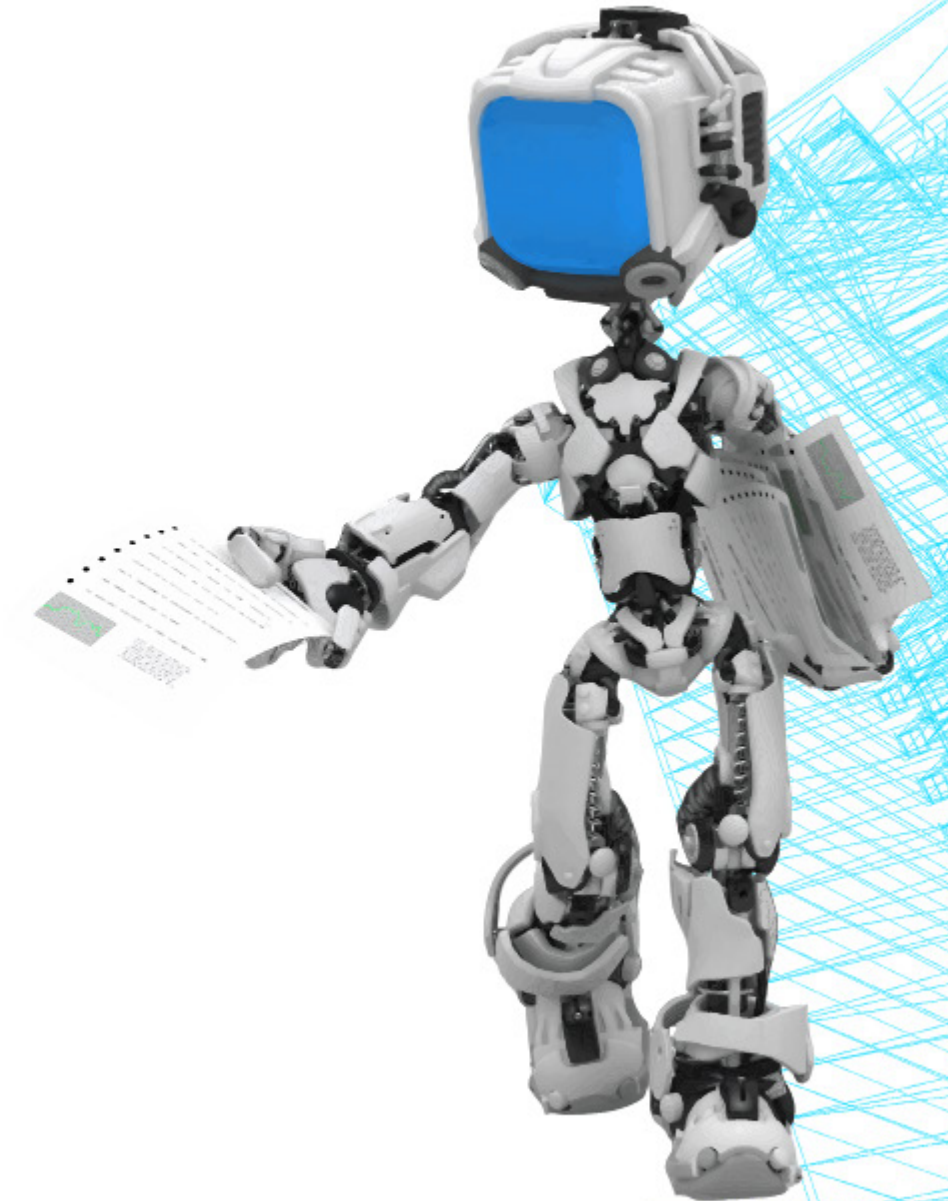
CONVERSATIONAL UI USE CASES

Graph adapted from Amazon Alexa course on Udemy



GETTING THERE

Changing how we think about information



WHAT'S HOLDING US BACK?

The availability of microcontent and our ability to create it is our biggest obstacle

Where is it going to come from?

Who is going to write it?

WHAT IF ...

... we could repurpose our technical content by automatically bursting sections into microcontent for the enterprise to use?

But our content isn't ready!

We would get a lot of noise if we just burst every section into microcontent.

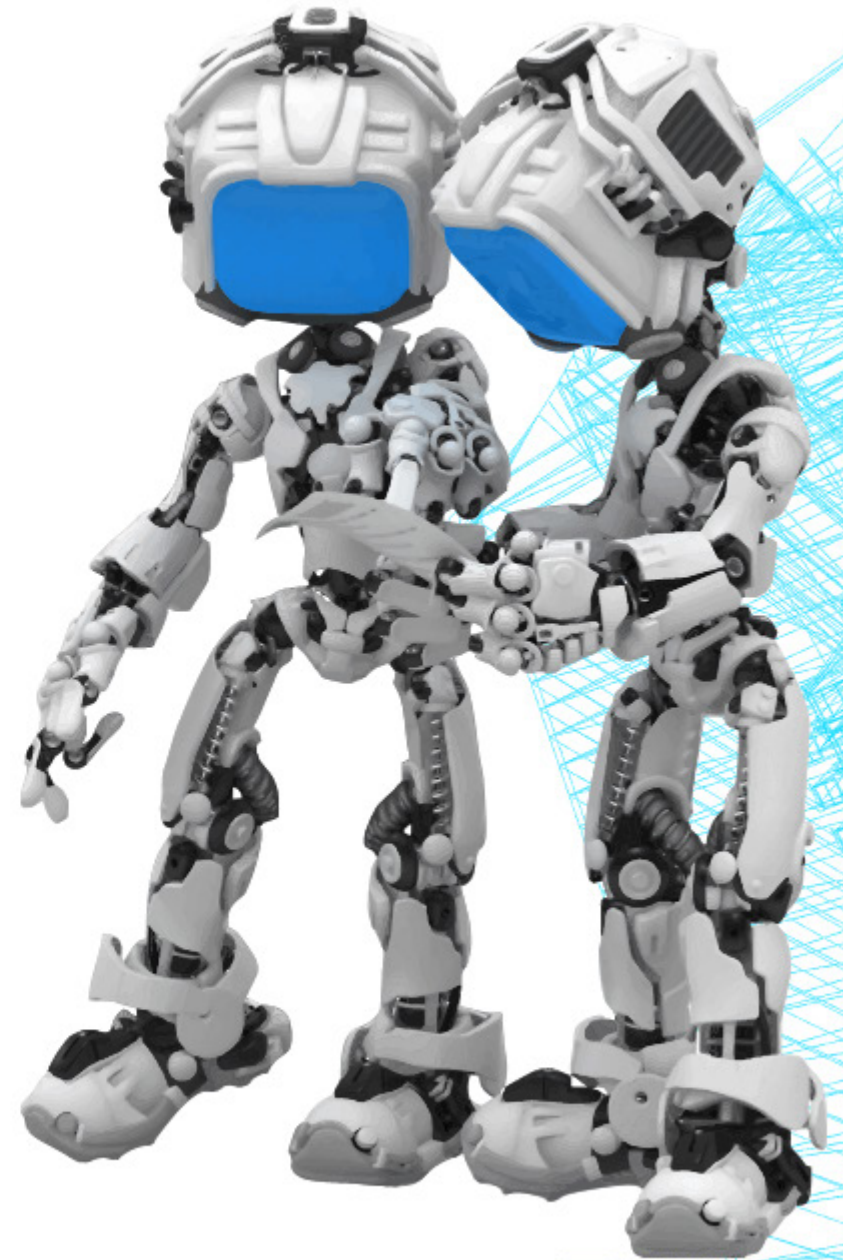
WHAT IF ...

... we started by authoring every topic we wrote with blocks of microcontent?

I see – So we start by
focusing on authoring smaller,
more concise content components.

ORGANIZING INFORMATION

Primary classification around information types





LANGUAGE ARTS ...

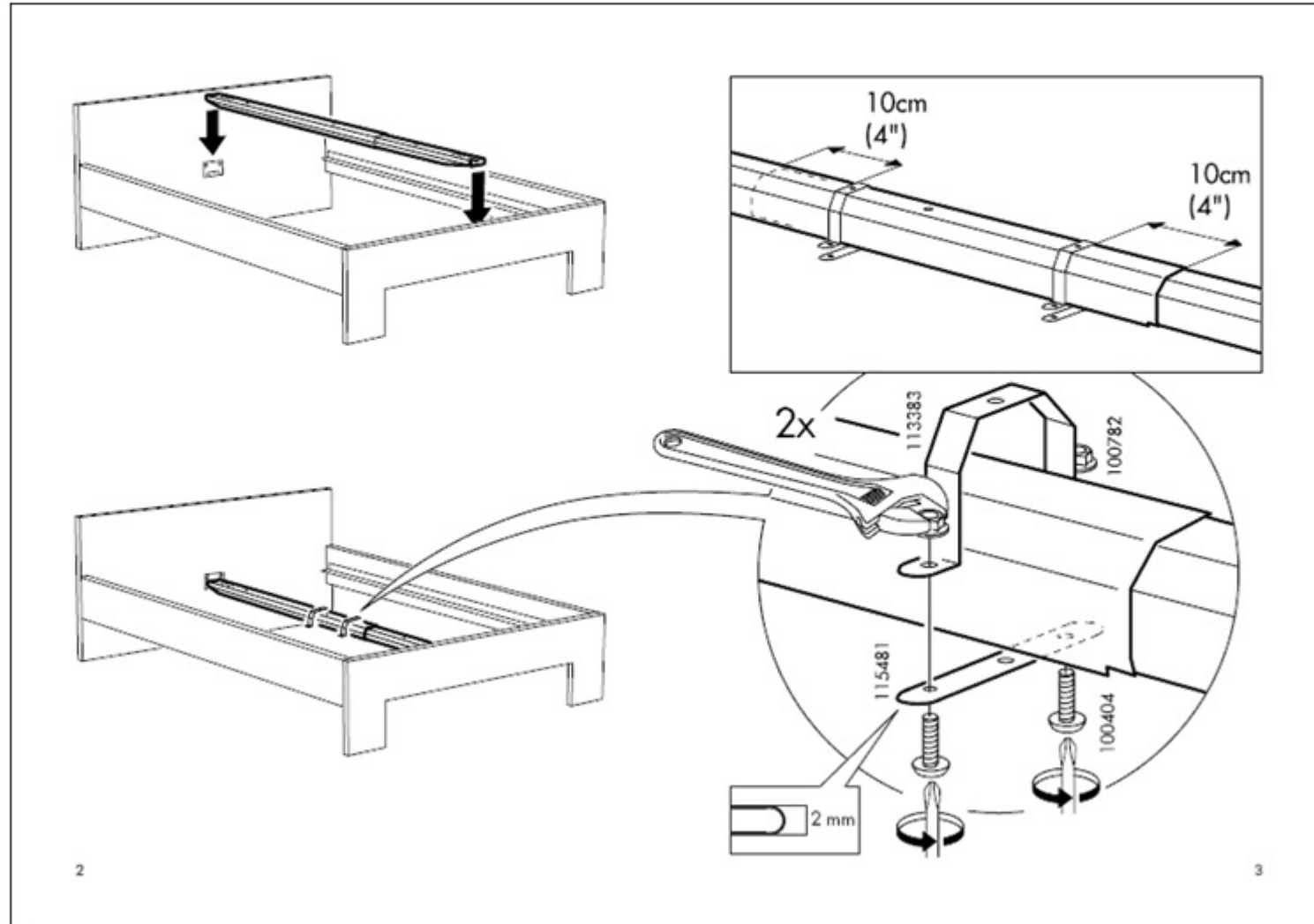
for Personal Response

- To emotionally engage the reader
- Techniques:
 - narrative style
 - varied vocabulary and structure
 - withholding information
- Writer-driven
- Meant to be READ

for Information

- To convey information that readers use
- Techniques:
 - consistent modular structure
 - concise, direct vocabulary
 - use of graphics
- Reader-driven
- Meant to be USED

IKEA INSTRUCTIONS: LAFI





IKEA INSTRUCTIONS: LAFPR

If novelist Michael Ondaatje wrote Ikea instructions

“The eel-shaped talisman squirms inside the raspy recycled box. A series of quarter turns – clock hands marking time – bonds back to base. An alphabet of connections in English and French. A into groove B. C slots into D. Chipboard credenza communicating Swedish hegemony.”

Author/parodist: Geoff Thomas
Globe & Mail, August 27, 2009

COMPARE TWO PARTS OF A JOB APPLICATION

Resume

- Information intended to be scanned
- Not addressed to anyone
- Parsed into HR database
- Distinct appearance

**Language Arts
for Information**

Cover Letter

- Information intended to be read by the hiring manager
- Addressed to the hiring manager
- Placed in a file
- Looks like any other letter

**Language Arts for
Personal Response**



HOW INFORMATION TYPING WORKS

- Information needs to be typed according to the intended reader response to that content
- The same collection of information can be written in a number of different ways depending upon how we want the intended audience to use that information

MAKING A CUP OF TEA

What is the
*Intended Reader
Response?*



2nd Person, present tense
to instruct you on how to make tea.

3rd Person, present tense
to describe to you how tea is made.

1st Person, past tense
to engage you in a story about making tea.

INFORMATION TYPES LISTED BY FUNCTION



Reference

DESCRIBES things the reader needs to **KNOW**



Task

INSTRUCTS the reader on **HOW TO DO** things



Concept

EXPLAINS things the reader needs to **UNDERSTAND**



Process

DEMONSTRATES to the reader how things **WORK**, and



Principle

ADVISES the reader about what they need **TO DO** or **NOT DO** and **WHEN**.

INFORMATION TYPES - EXAMPLES

Flight safety briefing



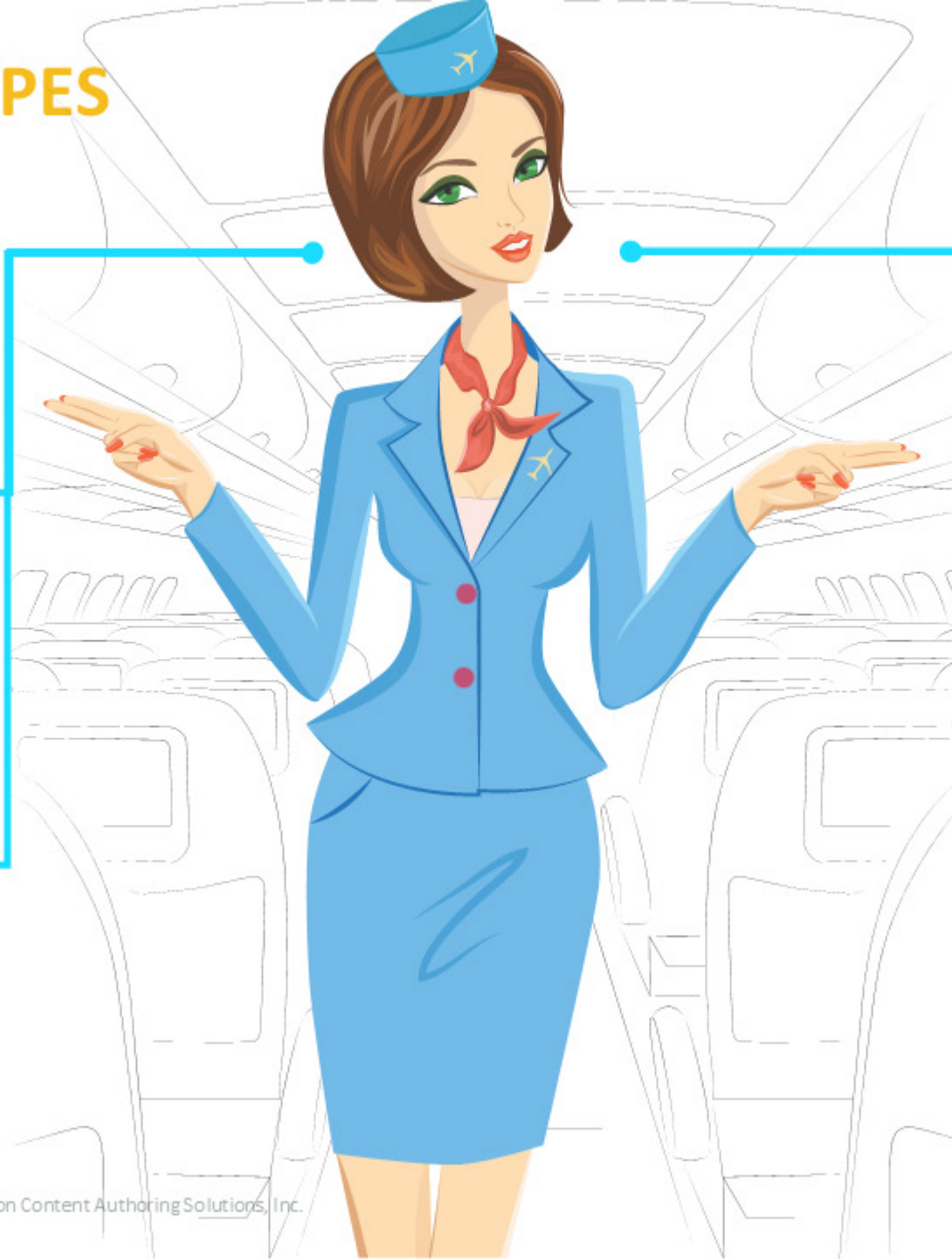
Reference

"We will be flying at an altitude of 35,000 feet."



Principle

"Always put on your oxygen mask before assisting other passengers."



Task



"To open the emergency exit, look out the window, pull the lever, and push out the exit door."

Process



"In the event of loss of cabin pressure, an oxygen mask will drop from the overhead compartment."

Concept



"On the left side of the plane you can see a typical example of a cumulonimbus cloud."

INFORMATION TYPE EXAMPLES



If the goal of the information is to ...	Then use the information type ...
list the nutritional facts for Cherry Cola	Reference
explain what a soft drink is	Concept
warn you not to drop a Mentos in your Cola bottle	Principle
illustrate how Cola is bottled	Process
instruct you on how to safely open your can of Cola	Task
advise you on the best practices for recycling cans	Principle
tell the customer this week's sale price for Cola	Reference
show you how you can turn your Cola can into a nifty craft project	Task

INFORMATION TYPES INFORM WRITING STYLE

1

How topics
and blocks
are titled

2

Block and
topic
construction

3

Writing style
for voice
and tense

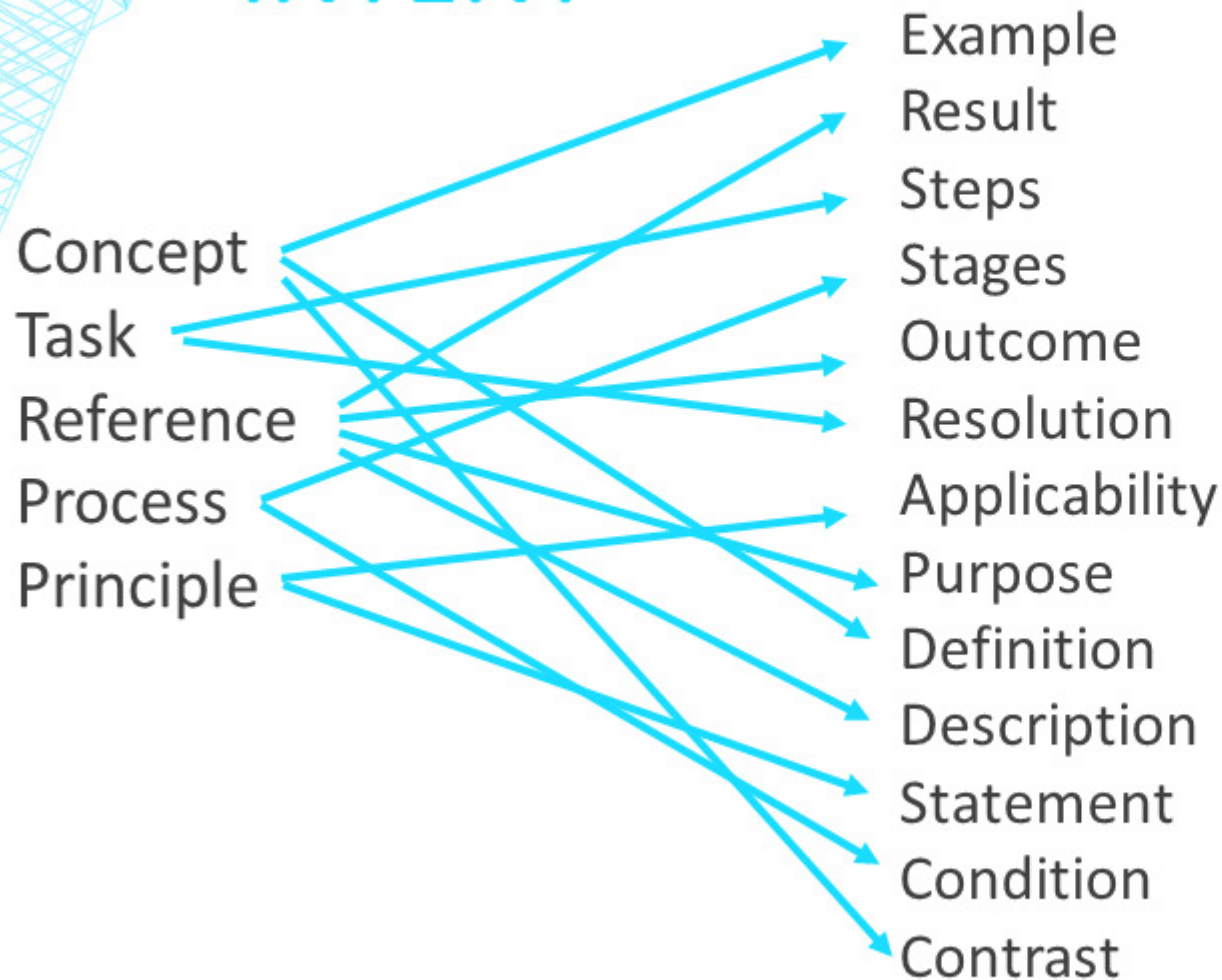
4

Specific
authoring
models

5

Rules for
short
descriptions

INFORMATION TYPING INFORMS READER INTENT



How do I ... ?

What is a ... ? What are the ... ?

Why do I ... ?

How does the ... ?

What happens when ... ?

Who does ... ?

When do I ... ?

What does it look like?

What's the difference between ... ?

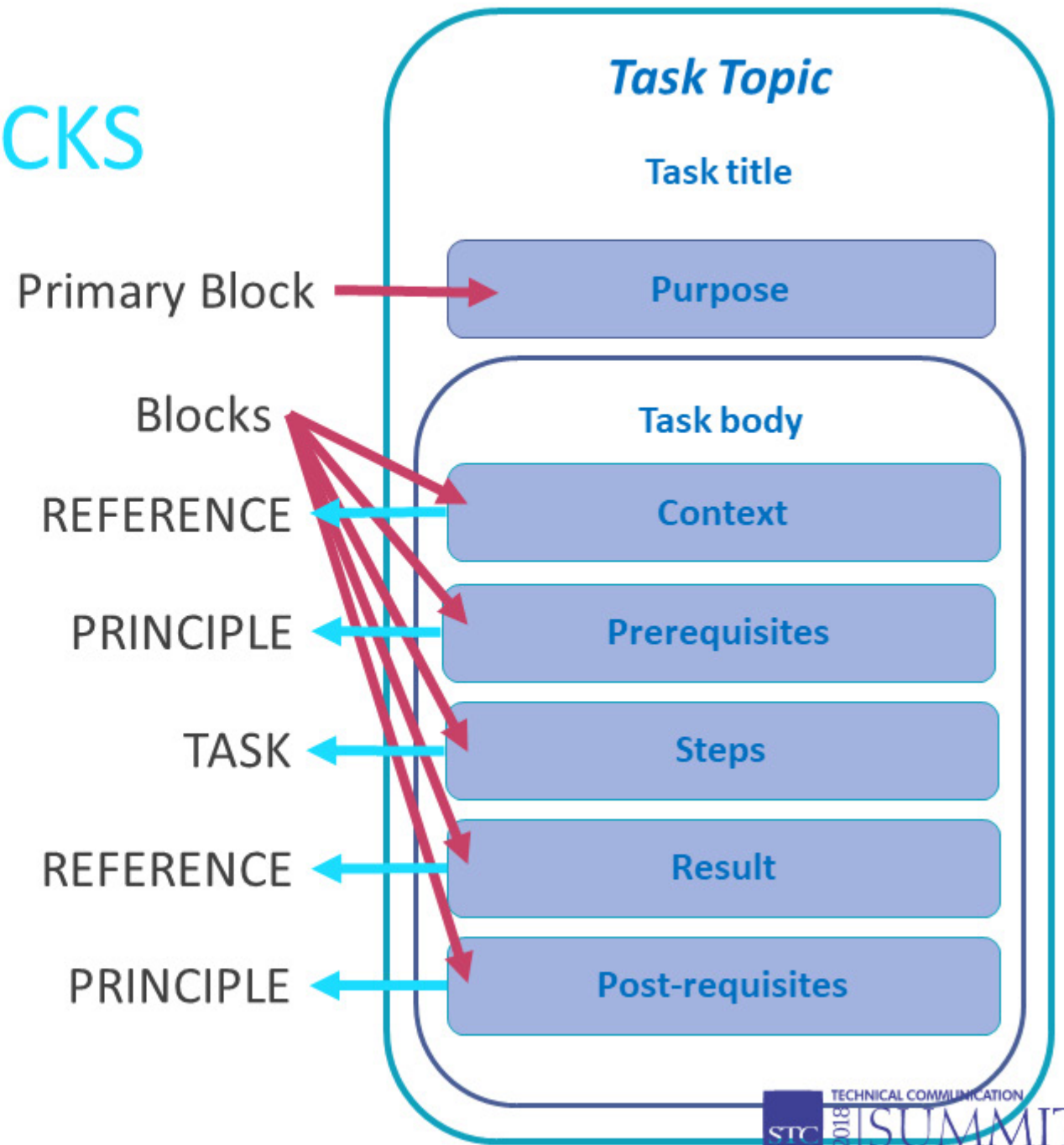
TOPICS AND BLOCKS

Architecture changes



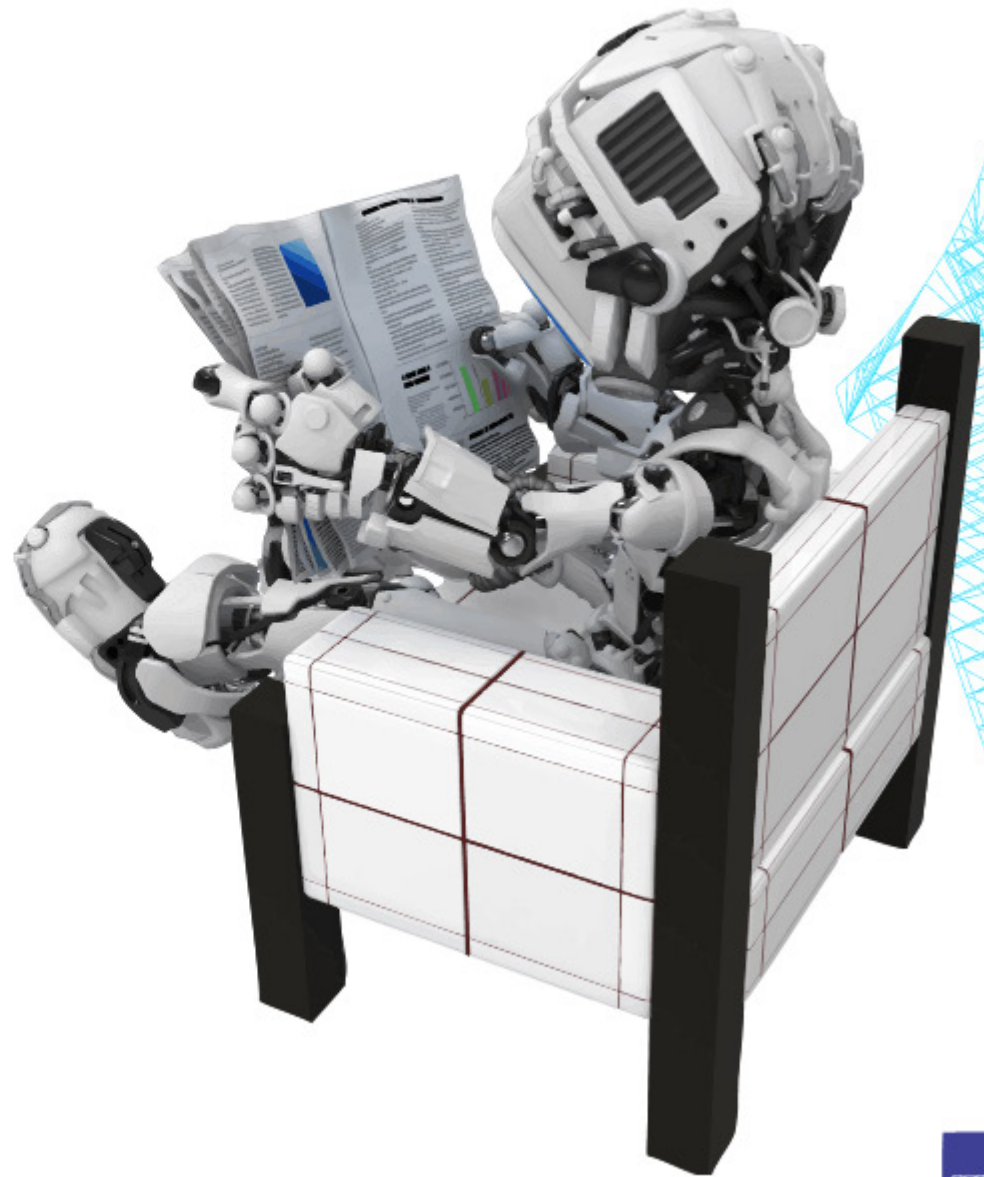
TOPICS AND BLOCKS

- Consider what happens if we focus writing at the block-level within topics
- The short description supports the title of the topic as a block
- Every block is an information type supporting the topic



ADVANCES IN MODELLING

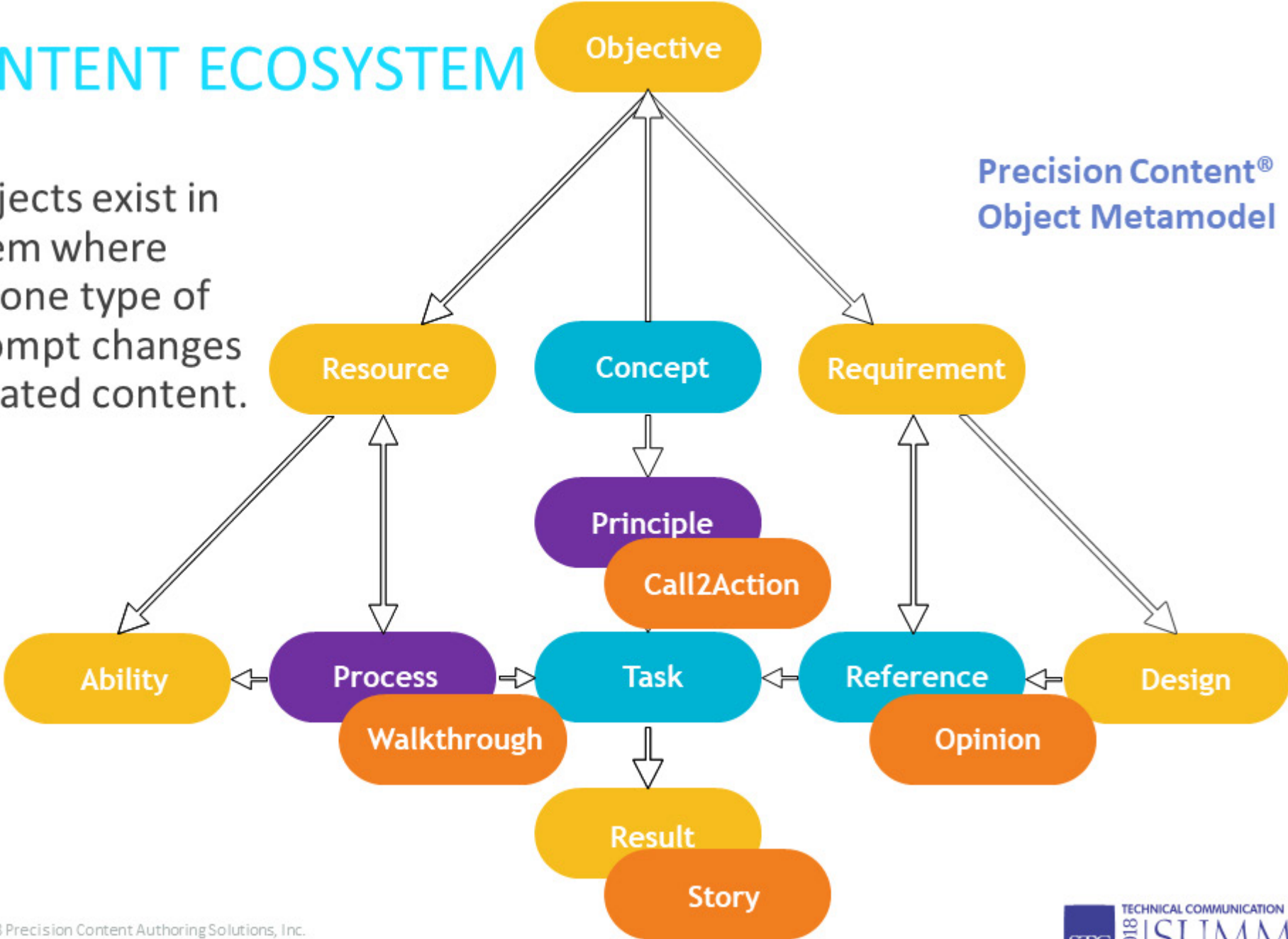
Extending to the Enterprise



OUR CONTENT ECOSYSTEM

Content objects exist in an ecosystem where changes to one type of content prompt changes to other related content.

Precision Content®
Object Metamodel



- DITA
- PCDITA
- Enterprise
- Marketing

Our journey towards
microcontent is simply
the next step in the evolution
of intelligent content needed to
support omnichannel delivery.

EXCERPT FROM A MEDICAL JOURNAL...

- pN3 description *only closely* mirrors descriptions for pN3a + pN3b + pN3c
- Use of footnotes confusing
- “Clinically detected” and “Not clinically detected” are not exact opposites, and
- Inconsistent enumeration of lymph nodes

- pN3 Metastases in ten or more axillary lymph nodes; or in infraclavicular (level III axillary) lymph nodes; or in clinically detected**** ipsilateral internal mammary lymph nodes in the presence of one or more positive level I, II axillary lymph nodes; or in more than three axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***; or in ipsilateral supraclavicular lymph nodes
- pN3a Metastases in ten or more axillary lymph nodes (at least one tumor deposit greater than 2.0 mm), or metastases to the infraclavicular (level III axillary lymph) nodes
- pN3b Metastases in clinically detected**** ipsilateral internal mammary lymph nodes in the presence of one or more positive axillary lymph nodes; or in more than three axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***
- pN3c Metastases in ipsilateral supraclavicular lymph nodes

Notes:

*** "Not clinically detected" is defined as not detected by imaging studies (excluding lymphoscintigraphy) or not detected by clinical examination.

**** "Clinically detected" is defined as detected by imaging studies (excluding lymphoscintigraphy) or by clinical examination and having characteristics highly suspicious for malignancy or a presumed pathologic macrometastasis based on fine needle aspiration biopsy with cytologic examination.

pN0	Metastases in 0 axillary lymph nodes; or in clinically detected**** internal mammary lymph nodes in the absence of axillary lymph node metastases	Clinical Metastases (CM) No clinical or radiographic evidence of distant metastases. CM0: No clinical or radiographic evidence of distant metastases, but deposits of metastasizing or micrometastatically detected tumor cells in circulating blood, bone marrow, or other nonregional nodes that are no larger than 0.2 mm in a patient without symptoms or signs of metastases. Distant detectable metastases as determined by chest, clinical and radiographic examination
pN1a	Metastases in 1-3 axillary lymph nodes (at least one tumor deposit greater than 2.0 mm)	
pN1b	Metastases in clinically detected**** internal mammary lymph nodes in the absence of axillary lymph node metastases	
pN2	Metastases in more than three axillary lymph nodes; or in infraclavicular (level III axillary) lymph nodes; or in clinically detected**** ipsilateral internal mammary lymph nodes in the presence of one or more positive level I, II axillary lymph nodes; or in more than three axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***; or in ipsilateral supraclavicular lymph nodes	
pN3a	Metastases in ten or more axillary lymph nodes (at least one tumor deposit greater than 2.0 mm), or metastases to the infraclavicular (level III axillary lymph) nodes	
pN3b	Metastases in clinically detected**** ipsilateral internal mammary lymph nodes in the presence of one or more positive axillary lymph nodes; or in more than three axillary lymph nodes and in internal mammary lymph nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected***	
pN3c	Metastases in ipsilateral supraclavicular lymph nodes	
Notes: *** "Not clinically detected" is defined as not detected by imaging studies (excluding lymphoscintigraphy) or not detected by clinical examination. **** "Clinically detected" is defined as detected by imaging studies (excluding lymphoscintigraphy) or by clinical examination and having characteristics highly suspicious for malignancy or a presumed pathologic macrometastasis based on fine needle aspiration biopsy with cytologic examination.		

SAME CONTENT AFTER APPLYING PRECISION CONTENT® TECHNIQUES

- 44.2% reduction in word count
- 20% reduction in passive voice
- 18.4% increase in Flesch Reading Ease
- 30% increase in white space
- Elimination of footnotes, and
- Addition of labels and visual elements

Metastases

Pathological
node level 3
definitions

The following table is used by clinicians to classify metastases found in regional lymph nodes.

Node level...	Which includes...	Describes metastases found in...
pN3	pN3a	10 or more axillary lymph nodes where at least one deposit is greater than 2.0 mm.
		any number of infraclavicular (level III axillary) lymph nodes.
	pN3b	<ul style="list-style-type: none">• any number of ipsilateral internal mammary lymph nodes detected by<ul style="list-style-type: none">• clinical exam• fine needle aspiration biopsy, or• imaging study, and• any number of level I or II axillary lymph nodes.
pN3c	Any number of ipsilateral supraclavicular lymph nodes.	

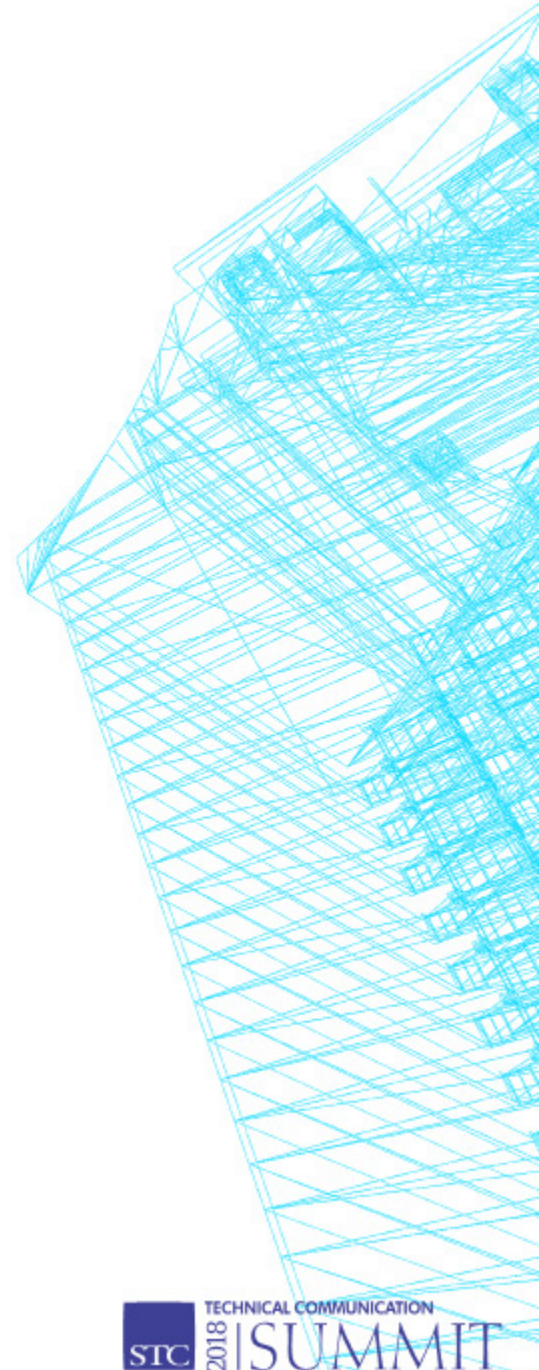
WHAT'S BEHIND THE CONTENT

- With specially-designed XML markup, machines can now easily parse this content into any number of types of healthcare applications.
- Content is human- and machine-ready!
- Specialized DITA XML identifies the specific values laid out in the previous table.

```
<cs-tmn-categories>
  <cs-tmn-category>pN3</cs-tmn-category>
    <cs-tmn-subcat>pN3a</cs-tmn-subcat>
      <cs-tmn-criteria>10 or more axillary lymph nodes
        where at least one deposit is greater than
        2.0mm</cs-tmn-criteria>
      <cs-tmn-criteria>any number of infraclavicular
        (level III axillary) lymph nodes.</cs-tmn-criteria>
    <cs-tmn-subcat>pN3b</cs-tmn-subcat>
      <cs-tmn-criteria>any number of ipsilateral internal
        mammary lymph nodes detected by ...</cs-tmn-criteria>
</cs-tmn-categories>
```


CONCLUSIONS

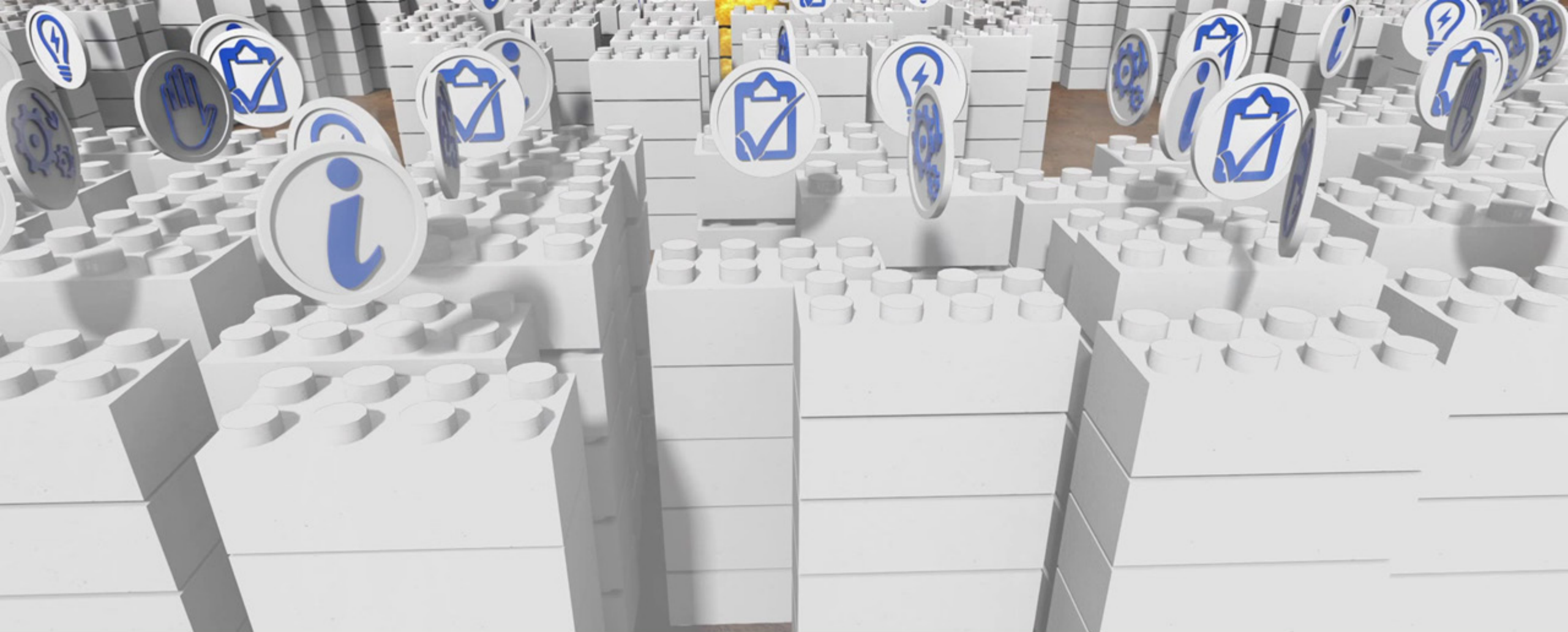
Next steps





MICROCONTENT WILL CHANGE HOW WE WORK WITH INFORMATION

- Creating and publishing microcontent to your enterprise
 - improves usability and precision of your content, and
 - future-proofs your content for what lies ahead.
- Do you want to see your high-value microcontent published by
 - Sales and marketing
 - Learning and development, or
 - *Technical publications?*
- **DON'T WAIT FOR THE TECHNOLOGY TO LAND ON YOUR DOORSTEP**



INFINITELY ADAPTABLE

Content Contentment

QUESTIONS?

Rob Hanna

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Precision Content

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@singlesourceror

ASK ME ABOUT ...



Information Architecture

Content Strategy



Content Transformation



Skills Training



Publishing Technologies

