Intelligent Content und Content 4.0

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Zur Definition

> Intelligent content is content that is structured to optimize performance with technology. It is structurally rich, semantically categorized, automatically discoverable, reusable, reconfigurable, and adaptable. (Rockley & Gollner, 2011)

> It means creating building blocks of content (content objects) that have been given meaning, by being tagged and structured so that computers can understand how to process those content objects. This allows content to be re-ordered, re-used, and otherwise manipulated so that you need less content to fulfill more needs, in an extremely agile way. (Bailie, 2015)

Wozu intelligent content?

Digitaler vs. analoger Inhalt

- Leichte Wiederverwendung
- viele Präsentationsformen
- Viele Versionen
- Viele Funktionen
- Durchsuchbarkeit
- Verarbeitbarkeit

Bild: (Bailie, 2015)

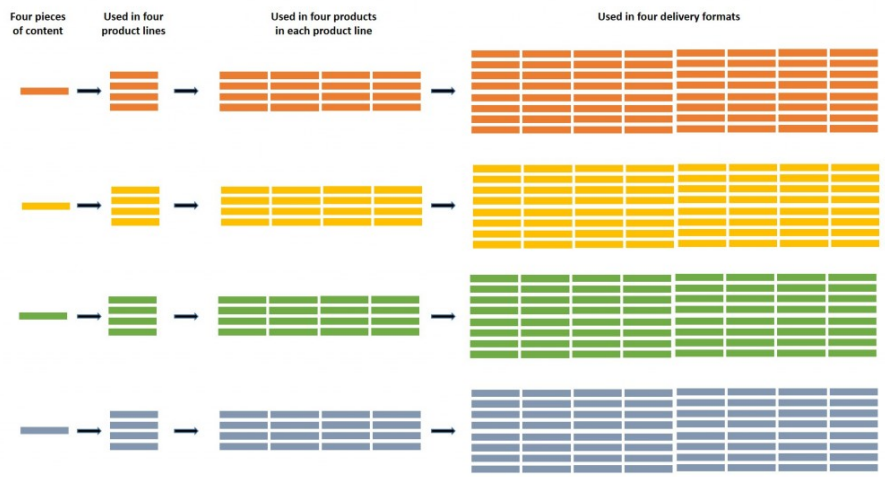

Figure 1: Kontexte und Vielfalt von Inhalten

Probleme:

- Uneinheitlichkeit
- Redundanz
- Fehlende Aktualität
- Kosten

Digitale vs. analoge Einheiten

Analoger Inhalt	Digitaler Inhalt
Seiten	Textketten und Markup
Bücher	Datenaggregate
Externe Klassifikation	Metadaten

Anforderungen an Inhalte

- Kontextunabhängigkeit sichert Verarbeitung: Alle relevanten Informationen müssen mit dem Inhalte verbunden sein
- Standards sichern Kombinierbarkeit: Definierte Formate erlauben

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> It is only with intelligent content [] that it becomes possible to talk about a sustainable enterprise content strategy.(Rockley & Gollner, 2011)

Intelligenter Content und Content-Strategie gehören zusammen

- Analyse der Inhalte

Automatisierung

> automation doesn't just happen. Content must be consciously designed to support it.(Rockley & Gollner, 2011)

> If we design and prepare content in a way that is completely portable and open, then a wide range of applications can be used to automate common content tasks such as formatting.(Rockley & Gollner, 2011)

Wie sieht intelligent content aus?

> Intelligent content is content that is structurally rich and semantically categorized, and is therefore automatically discoverable, reusable, reconfigurable and adaptable.(Rockley & Gollner, 2011)

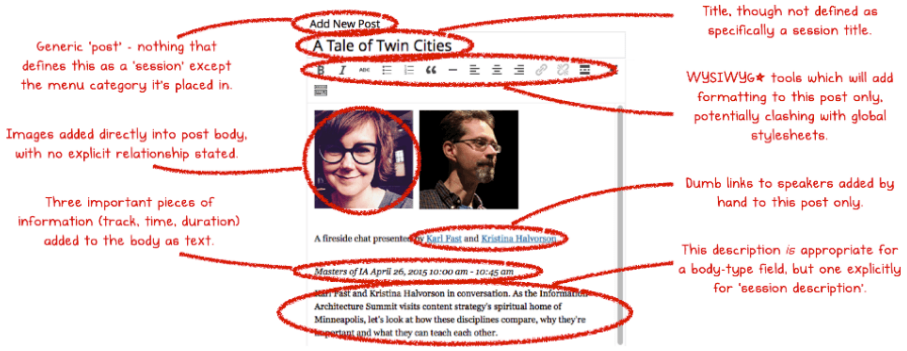

Figure 2: Figure 1. In many websites, the relationship between parts of content is implied in the presentation. But without that context, lacks an underlying structure.

Bild: Hane (2017)

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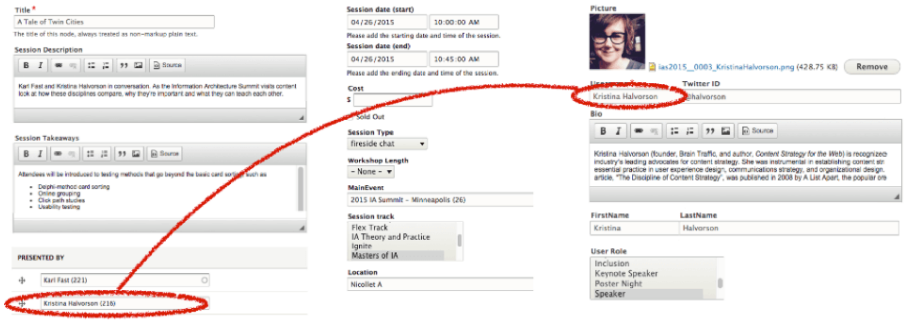

Figure 3: Figure 2:The information is now structured into fields which store the content as data. This allows you to use it in any context.

Structurally rich

> Structure makes it possible to manipulate it.(Rockley & Gollner, 2011)

Semantically categorized

> Semantically categorized content [] is content that has been tagged with metadata to identify the kind of content within it.(Rockley & Gollner, 2011)

Easily discoverable

> Without semantic metadata it is very difficult to automatically, let alone manually, find the content we need.(Rockley & Gollner, 2011)

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> And when it is structurally rich, and assuming our content is in XML, we can use XQuery [], a standard that supports queries of XML data - not just XML files, but anything that can appear as XML, including databases.(Rockley & Gollner, 2011)

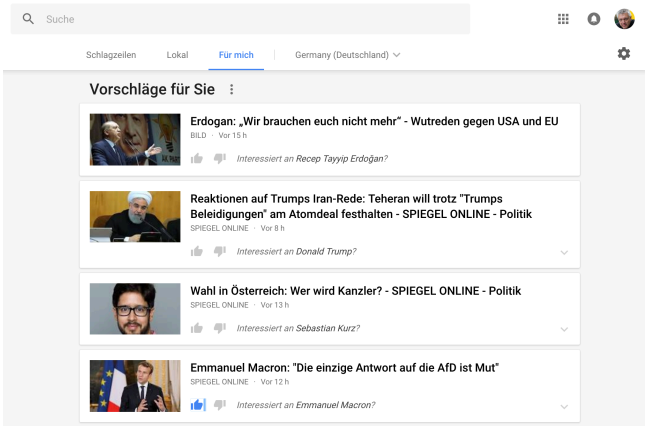

Figure 4: Personalisierte Empfehlungen in den Google News

Content Mining

Efficiently Resusable

> Reusable content [], content that is created once and used many times, reduces the time to create, manage and publish and reduces translation costs. We can create modular structured content that can either be easily retrieved for manual reuse or automatically retrieved for automated reuse.(Rockley & Gollner, 2011)

Dynamically Reconfigurable

> Knowing the structure of the content, we can output it to multiple channels reconfiguring it to best meet the needs of the channel, or we can automatically mix and match content to provide us with the information customers need []. We can even transform content (reconfigure it) from one structure to another,(Rockley & Gollner, 2011)

Completely Adaptable

> but content can be adapted (used in a different way), often without our knowledge, to meet a new need.(Rockley & Gollner, 2011)

Metadaten

> Unfortunately, applying metadata to a completed document means that it can only adequately describe the content at a very superficial level; it cannot identify the many types of content within the document.(Rockley & Gollner, 2011)

Standardisierung

- Standards sichern Portabilität / Unabhängigkeit von Systemen und Anbietern
- Wichtigste Standards für Intelligent Content: Inhaltsformate (XML), Metadaten

Voraussetzungen in der Organisation?

Zentrale Content-Verantwortung

- Festlegung der Strategie
- Definition von Standards
- Durchsetzung der Strategie
- Erfolgskontrolle

Technischer Support

- Content Management
- Schulung und Weiterbildung
- Benutzerfreundliche Oberflächen

Keine Silos

- Inhalte sind gemeinsame Assets
- Veränderungen müssen sofort kommuniziert werden

Strategientwicklung

Der Weg zum intelligent content: Content Strategie

> An intelligent content strategy establishes a coherent plan under which content will be designed, developed and deployed so as to

achieve maximum benefit to the customer and the organization while minimizing the cost to the organization.(Rockley & Gollner, 2011)

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An effective strategy begins at the design stage, works through the authoring stage, ends at the delivery stage and is continually revisited to ensure it continues to meet the needs of authors, content and customers.(Rockley & Gollner, 2011)

Content Modellierung

The information modeling process [...] forces you to consider all information requirements [...] In an intelligent content strategy, the information model reflects the semantic structure of your information both at the information product level (for example, brochure) and at the element level (for example, value proposition).(Rockley & Gollner, 2011)

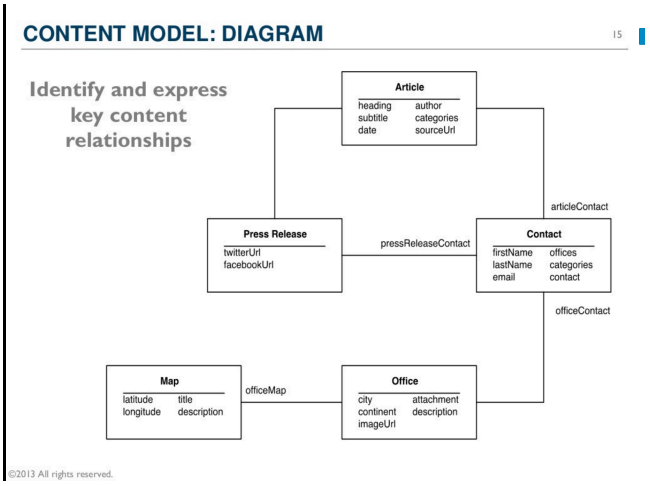

Figure 5: Content Model: Diagram

Bild: Lovinger & Gibbon (2013)

Wiederverwendungsstrategie

Reuse strategy. A reuse strategy identifies what types of content will be reused, the level of granularity, how the content will be reused and how to support authors in easily and effectively reusing it. Your strategy will depend upon your goals, your content, your authors and your selected technology.(Rockley & Gollner, 2011)

Taxonomy Strategy

The taxonomy strategy enables you to intelligently store and retrieve your content based on a common vocabulary and shared metadata. (Rockley & Gollner, 2011)

In addition to traditional metadata for information storage and retrieval, it is important to develop metadata to define the delivery channel (print, web, wireless), the method of filtering the content (product, customer segment/audience, region, product version) and the final information product (brochure, web, eBook).(Rockley & Gollner, 2011)

Workflows

An intelligent content strategy also involves people and intelligent (collaborative) processes. Collaboration ensures that the content elements are consistent and can be reused wherever they're required. Processes should be redesigned to match the intelligent content strategy and support the way the authors work. (Rockley & Gollner, 2011)

With DITA - an XML-based, end-to-end architecture for authoring, producing and delivering technical information - we could create structured, modular, reusable content [...] that could be automatically adapted to each of the desired outputs (print, web, mobile). It also provided a strong support for translation.(Rockley & Gollner, 2011)

Implementierung

XML

> While you don't have to use XML for your content, XML really helps make your content intelligent. Traditional office documents are simply files, and you have no access to the content because content is unstructured.(Rockley & Gollner, 2011)

XML und Content Delivery

> The power of XML for delivery. When it comes to delivering content, XML gives us a very wide range of options. In fact, part of the rationale for XML was to liberate content owners from being limited to providing only one or two delivery formats(Rockley & Gollner, 2011)

DITA: Maps

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE map
  PUBLIC "-//OASIS//DTD DITA Map//EN" "map.dtd">
<map>
  <title>The Project Gutenberg eBook of <ph
      outputclass="cite">The Mysterious Island</ph>, by Jules Verne</title>
  <topichead
    navtitle="License Statement">
    <topicref
      href="legalstuff/main-page.xml"/>
  </topichead>
  <topicref
    navtitle="The Mysterious Island"
    href="parts/title-page.xml"
    collection-type="sequence"/>
  <topicref
    href="parts/part-01.ditamap"
    format="ditamap"/>
  <topicref
    href="parts/part-02.ditamap"
    format="ditamap"/>
  <topicref
    href="parts/part-03.ditamap"
    format="ditamap"/>
```

```
  <topichead
    navtitle="end-of-book">
    <topicref
      href="legalstuff/end-of-book.xml"/>
  </topichead>
</map>
```

XQuery

```
declare variable $firstName as xs:string external;
<videos featuring="{$firstName}">
{
let $doc := .
for $v in $doc//video,
$a in $doc//actors/actor
where ends-with($a, $firstName)
and $v/actorRef = $a/@id
order by $v/year
return
<video year="{$v/year}">
{$v/title}
</video>
}
< /videos>
```

Quelle: Kay (n.d.)

```
<videos featuring="Lisa">
<video year="1999">
<title>Enemy of the State</title>
</video>
<video year="1999">
<title>Clerks</title>
</video>
</videos>
```

Quelle: Kay (n.d.)

DocBook

> DocBook does not support reuse as effectively as DITA, but it does provide a simpler conversion path from traditional business docu-

ments to XML.(Rockley & Gollner, 2011)

Beispiel: docbook.org/docs/howto/howto.xml

Component CMS

> Intelligent content needs an XML-aware system like a component content management system (CCMS) []. CCMS manage content at a granular (component) level of content, rather than at the page or document level.(Rockley & Gollner, 2011)

Content 4.0

Industrie 4.0

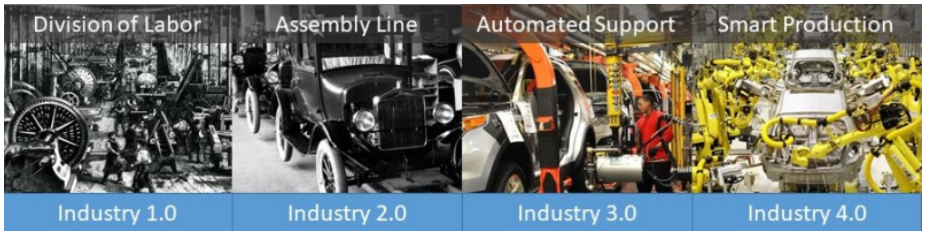

Figure 6: Von der Industrie 1.0 zur Industrie 4.0

Bild: Gollner (2016)

Molekularer Content

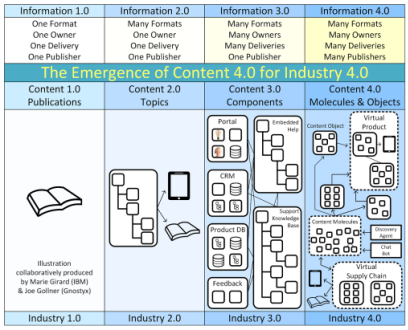

Figure 7: The Emergence of Content 4.0 for Industry 4.0

Bild: Gollner (2016)

Ressourcen

Events

Intelligent Content Conference

Adobe DITA World 2017

Präsentation und Literatur

Repository: heinzwittenbrink/slides-intelligentcontent: Slides for presentations on intelligent content

Literatur: https://heinzwittenbrink.github.io/slides-intelligentcontent/ic.html#refs

Quellen

Bailie, R. A. (2015, August). Intelligent content and UX | Intentional Design Inc. *Intentional Design, Content strategie for business impact*. Retrieved from http://intentionaldesign.ca/2015/08/10/intelligent-content-and-user-experience/

Bailie, R. A., & Urbina, N. (2013). *Content strategy: Connecting the dots between business, brand, and benefits* (First edition). Laguna Hills, California: XML Press.

Gollner, J. (2016, December). Content 4.0 - The Content Philosopher. *The Content Philosopher*. Retrieved from http://www.gollner.ca/2016/12/content_4-0.html

Hane, C. (2017, January). Why You Need Intelligent Content Right This Very Second. *Spin Sucks*. Retrieved from https://spinsucks.com/communication/new-trend-intelligent-content/

Kay, M. (n.d.). Learn XQuery in 10 Minutes, by Dr. Michael Kay - An XQuery Tutorial. Stylus Studio. Retrieved from http://www.stylusstudio.com/xquery-primer-new.html

Lovinger, R., & Gibbon, C. (2013, June). Content Modelling Workshop Preview. Retrieved from https://www.slideshare.net/rlovinger/content-modelling-

2013lite

Rockley, A., & Cooper, C. (2012). *Managing Enterprise Content: A Unified Content Strategy* (2nd revised edition.). Berkeley, CA: New Riders.

Rockley, A., & Gollner, J. (2011). An intelligent content strategy for the enterprise. *Bulletin of the American Society for Information Science and Technology*, *37*(2), 33–39. https://doi.org/10.1002/bult.2011.1720370211

Rockley, A., Cooper, C., & Abel, S. (2015). *Intelligent content: A primer* (1st edition). Laguna Hills, CA: XML Press.