

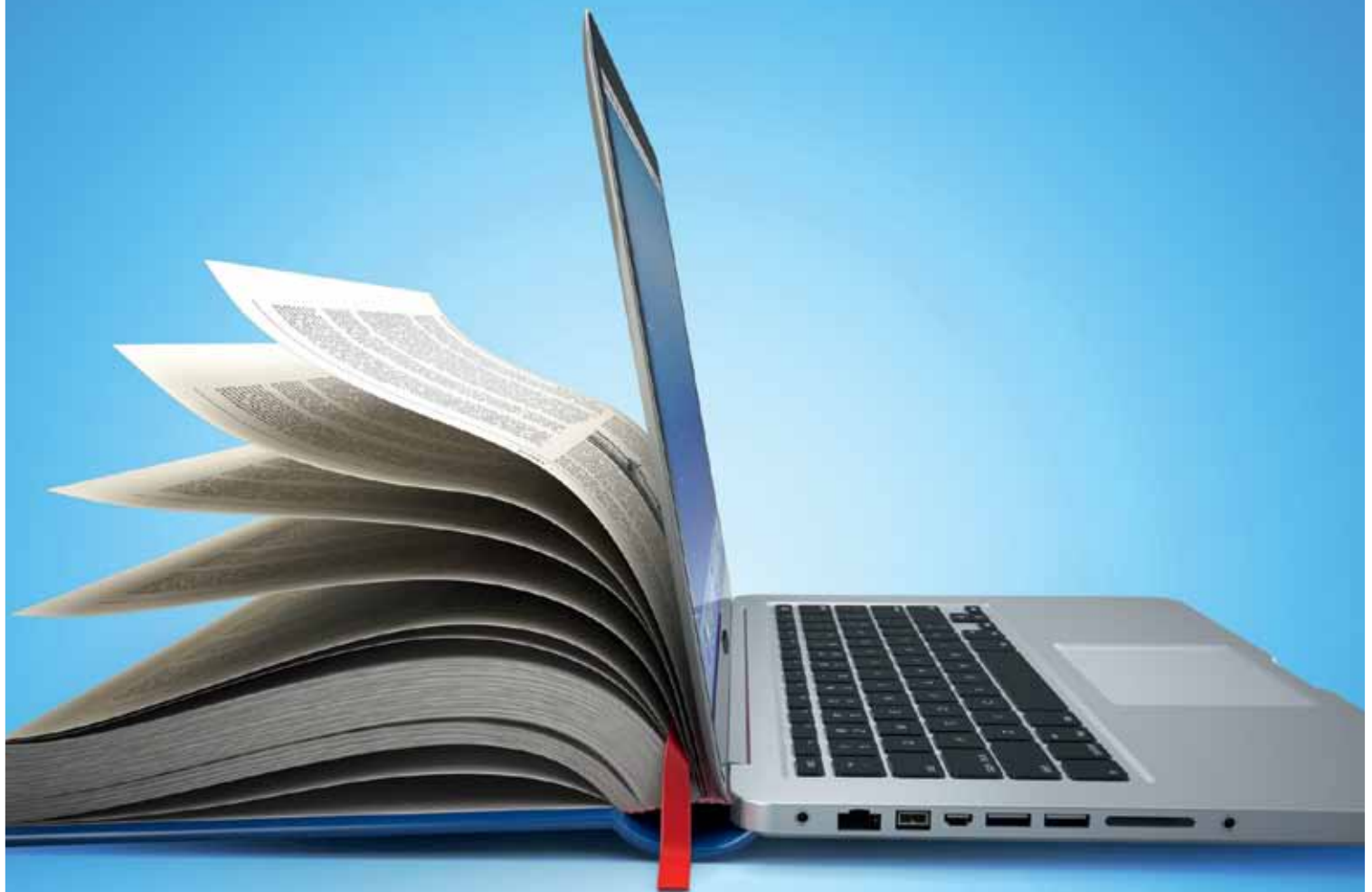
magazine for international information management

tcworld

NOVEMBER 2021

The evolution of TC

Tech Doc will go social and semantic - as the Web did



Collaborative AI

The path to fast, reliable concept maps

Can't read, might not survive

The vital need for clear, concise
messages across communities

NEW CUSTOMER SUCCESS STORY

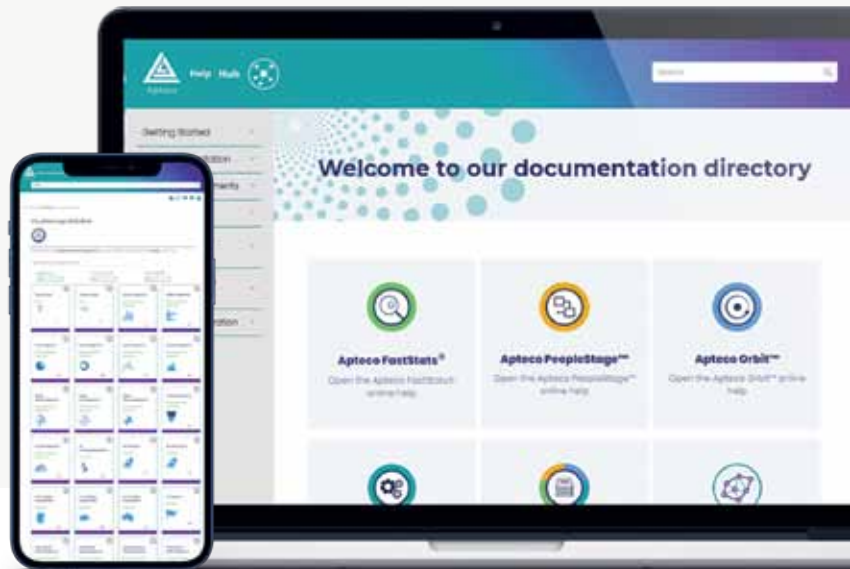
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tcworld

magazine for international information management



From the editor

Year after year, tech writers, content marketers, translators, and localization experts have traveled across the globe to get together to discuss the latest developments and challenges, offering solutions and new glimpses into what the future might hold. From today's perspective, this might appear like a luxury of the past. Still, there is no doubt that our industry strives for these international conferences that shed light on common trends and challenges, broaden our professional network, and – last but not least – remind us that we are part of a rich and colorful community that has witnessed unprecedented growth over the past decade. At tekomp, we are aware that many of our members are longing for the day when they can once again gather face to face. Yet, after carefully considering the ongoing limitations on visitor numbers for public venues, we made the call to turn tcworld conference 2021 into a fully virtual event. Taking into

account your requests for a vital, dynamic, and versatile event, we are pleased to present you with a program of inspiring presentations, meetups, and workshops, a digital showroom featuring interactive experiences, a virtual café, and plenty of innovative platforms to network and exchange thoughts and ideas.

With over 75 presentations and workshops either held in English or interpreted from German, this year's program offers more sessions in English than any previous tekomp event. In addition, our satellite conferences will feature 20 presentations from a number of our country organizations, who will offer special insights into their regions' specific challenges, strengths, and developments. These satellite conferences will be hosted by NORDIC (tekomp Denmark, tekomp Sweden, and representatives from Finland), tekomp Israel, tekomp Bulgaria, tekomp Belgium and tekomp Netherlands.

During the Technology Days, at least 60 global players from our industry will present their tools and services in our modern, functional showrooms. Here, you'll have the opportunity to download information, watch our exhibitor presentations, set up appointments with consultants, and carry out video consultations.

BYO coffee and join the conversation in our virtual Café tekomp! This online exchange platform will feature "coffee tables" for various topics such as translation, content management, visualization, and many more.

All details on the conference program, showroom, Café tekomp, and how to register are available online at www.tcworldconference.tekom.de. We look forward to seeing you at the 2021 conference, November 8–19!

Corinna Melville



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The evolution of TC

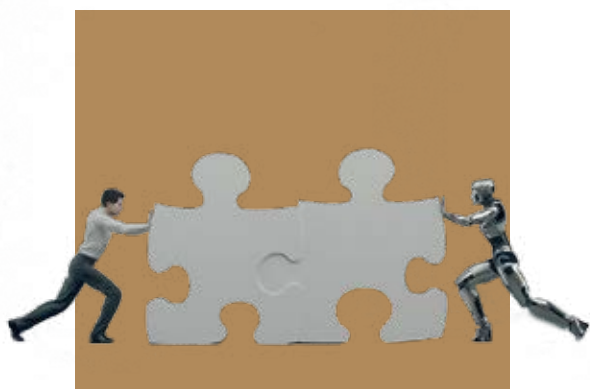
Over the last three decades, the Web evolved from a static content library into an interactive platform fed by both humans and machines. Could technical communication be on a similar track?

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Collaborative AI: The path to fast, reliable concept maps

Creating taxonomies is a tedious process for many businesses. The good news: Artificial Intelligence can come to the rescue. But how reliable is auto-taxonomization and how can we assist it?

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Can't read, might not survive

The COVID-19 pandemic has shone a light on the significance of communicating clear, concise messages across communities. Here is what we have learned along the way.

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Hybrid work models still evolving amid ongoing uncertainty

The global pandemic forced IT teams and business leaders to dramatically rethink where and how their employees work. With the post-pandemic recovery underway but challenged by the Delta variant and uneven vaccination rates, many organizations are still trying to determine what their future hybrid work model will look like. Recent survey data from the International Data Corporation (IDC) shows that stability and geography will define the balance of future work strategies.

On a global basis, physical office sites are still expected to be the dominant location for work as organizations find themselves in a more stable and “steady state” environment. However, the mix of office-based, remote, non-office, and field workers is expected to vary from region to region. Asia/Pacific

workers, for example, are more likely to claim the physical office space as a primary work location compared to the United States and Europe, the Middle East, and Africa (EMEA). In EMEA, a much higher share of survey respondents (27%) prefers remote or work-from-home as their primary work location. Meanwhile, the share of the U.S. workforce currently working remotely (44%) is expected to decline, but field and non-office locations are gaining favor as primary work locations.

“The ratio of support for hybrid work opportunities within and across geographies will no doubt continue to evolve. Work primarily within office facilities, while a dominant choice, will certainly be part of a hybrid mix that will flex to address new and unforeseen challenges to organizational, political,

and social instability,” said Holly Muscolino, research vice president, *Content Strategies and Future of Work*.

Another aspect of these evolving hybrid work strategies is the effort to achieve “experience parity” – a comparable employee experience for a hybrid workforce by ensuring that all workers securely interact with corporate resources (including people) with a consistent experience and context across locations. While experience parity has not yet been achieved by most organizations, nearly half the companies surveyed by IDC indicated that their hybrid work technologies, policies, and processes were “in progress” with most key resources available to remote employees with some lingering access or user experience issues. U.S. organizations have made slightly more progress toward experience parity, but considerable work remains to be done.

“Investment in digital and work transformation technologies align with organizational imperatives around improved business resilience and increased employee productivity,” said Amy Loomis, research director, *Future of Work*. “We are also tracking a direct correlation between spending levels with stronger momentum toward achieving experience parity for hybrid workers while lower spending levels align with more limited or ad hoc approaches.”

As organizations accelerate and expand digital transformation initiatives, traditional work models are no longer sufficiently nimble, adaptive, or scalable. IDC’s *Future of Work* research practice helps organizations recognize the necessity of moving to work models that support an increasingly diverse, distributed, and dynamic workforce securely, effectively, and productively.



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The bumpy ride of emerging markets towards digitization

Emerging markets have been following the digitization race. However, a lack of a user-oriented approach when designing e-services has been slowing down their progress, resulting in poor user engagement and unfulfilled expectations of citizens. According to Mindaugas Glodas, CEO at NRD Companies, a global IT and consulting group of companies specializing in e-governance, Design Thinking (DT) methodology could help address the problem at its core. Employed by the world's leading governments, DT principles can aid in developing user-oriented e-solutions and, as a result, drive expedient digitization of the public sector. When it comes to modernizing services, the initial ideas tend to revolve around the need to digitize and automate services, not around the people who will be using these services. For this reason, a great deal of government efforts to present modern e-solutions fall short of public expectations. This approach has been hindering the development of e-governance initiatives, especially in emerging markets. For example, in Lebanon, inadequate service delivery has severely weakened the public's trust in the government. In an attempt to

remedy the situation and deliver greater value to citizens, it started to implement strategic reforms to transform its e-services. However, excessive focus on the IT framework, rather than its citizens' aspirations and needs, resulted in progress slowdown, without solving the problems at hand.

"There is no point in creating new technology just for the sake of it – citizens should find the solutions necessary and use them on a daily basis. Creating such solutions is done by involving citizens: conducting surveys and inviting them into the planning processes. Only then, based on their behavior, should a government aim to create services that reflect their needs, not vice versa," Glodas explained.

According to Mr. Glodas, putting people, rather than technology, at the top of the priority list maximizes the likelihood of successful e-service adoption. This is where Design Thinking comes into play. Design Thinking is a methodology whose principles are based on deep-level user analysis, aiming to discover the needs of the user and build from there. Glodas notes that although widely utilized by the business sector, Design Thinking is also successfully applicable in the govern-

ment sector. For example, studies show that in the UK, which has applied DT for building e-government e-service systems for the past twenty years, the confidence of citizens towards e-solutions has increased to 78%. Mr. Glodas noted that Design Thinking methods have shown to be effective in building e-government systems in emerging markets.

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THINK GLOBAL AWARDS NOW OPEN FOR ENTRIES

The Think Global Awards 2022 is now open for entries until November 30, 2021. There are 16 unique categories available to enter for free. The theme of year five of the Think Global Awards is "Reimagining Culture." It explores the various facets that enable thinking globally and organizational culture in an ever-changing world. Since its inception, the awards have attracted interest and entrants from Europe, the USA and Asia, seeing a growing number of entries each year. It recognizes organizations and individuals who have excelled in areas such as digital transformation, sustainability, and life sciences.

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LANGUAGE WEAVER NOW AVAILABLE FOR SERVICE NOW CUSTOMERS

RWS, provider of technology-enabled language and content management services, has released a new Language Weaver Connector for ServiceNow, allowing customers to translate content across 130+ languages within their ServiceNow environment. Language Weaver is RWS's highly secure, adaptable machine translation (MT) platform that processes and instantly translates large volumes of content. The Connector supports the translation of most business content – including documents, chatbot discussions, email conversations and incident tickets.

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Key technologies spurring innovation through trust, growth and change

Engineering trust, accelerating growth and sculpting change are the three overarching trends on the Gartner, Inc. *Hype Cycle for Emerging Technologies, 2021* that will drive organizations to explore emerging technologies such as nonfungible tokens (NFT), sovereign cloud, data fabric, generative AI and composable networks to help secure competitive advantage.

“Technology innovation is a key enabler of competitive differentiation and is the catalyst for transforming many industries. Breakthrough technologies are continually appearing, challenging even the most innovative organizations to keep up,” said Brian Burke, research vice president at Gartner. “Leading organizations will lean on the emerging technologies in this year’s Hype Cycle to build trust and new growth oppor-

tunities against a background of continued strategic change and economic uncertainty.” The *Hype Cycle for Emerging Technologies* distills insights from more than 1,500 technologies into a succinct set of “must know” emerging technologies and trends that show promise in delivering a high degree of competitive advantage over the next five to ten years (see Figure 1).

“As organizations continue their focus on digital business transformation, they must accelerate change and cut through the hype surrounding emerging technologies,” said Melissa Davis, research vice president at Gartner.

“This Hype Cycle provides a high-level view of important emerging trends that organizations must track, as well as the specific technologies that must be monitored through

the themes of Trust, Growth and Change,” said Philip Dawson, research vice president at Gartner.

Three themes of emerging technology trends

Engineering Trust: Trust demands security and reliability. However, it can also extend to building innovations as a resilient core and foundation for IT to deliver business value. This foundation must consist of engineered, repeatable, trusted, proven and scalable working practices and innovations.

For example, the market for digital and cloud technology and services is currently dominated by U.S. and Asian providers. As

a result, many European companies store their data in these regions, creating political uneasiness as well as concerns about retaining data control and complying with local regulations. Countries can engage a sovereign cloud to achieve digital and data sovereignty, which will in turn provide legal requirements to apply data protection controls, residency requirements, protectionism and intelligence gathering.

The technologies to watch to engineer trust are sovereign cloud,

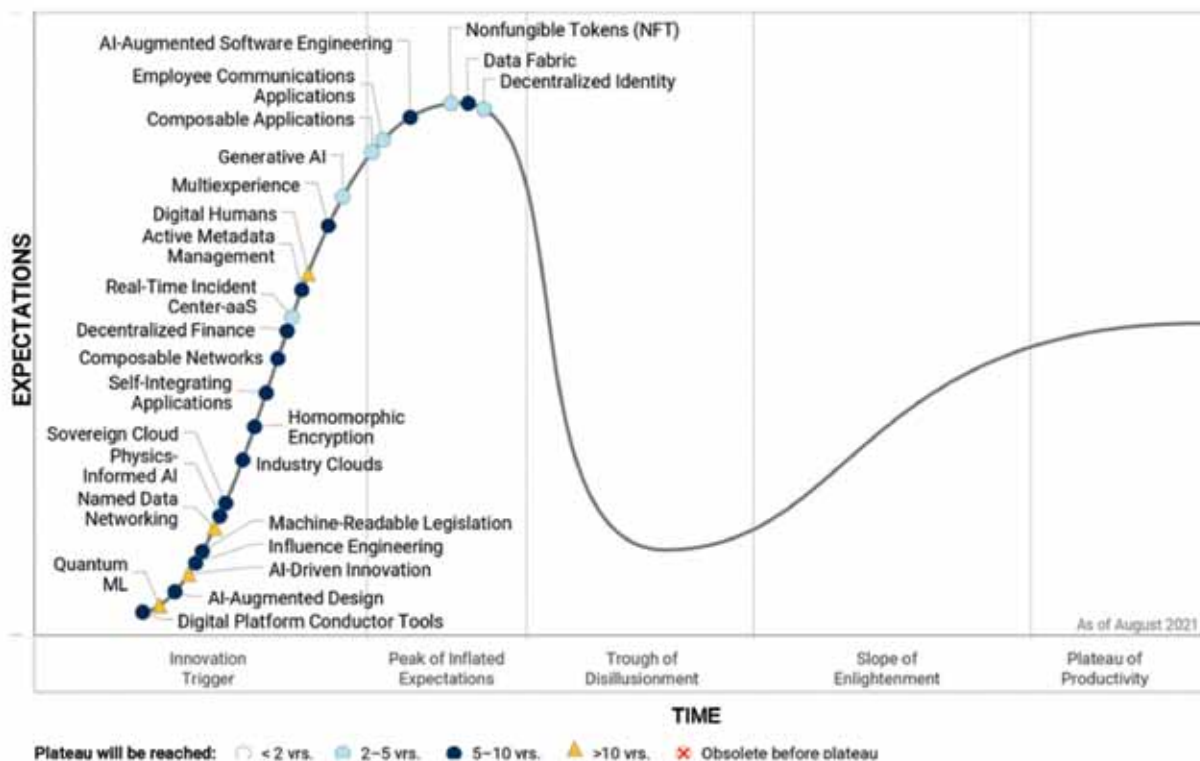


Figure 1: Hype Cycle for Emerging Technologies, 2021

Source: Gartner (August 2021)

NFT, machine-readable legislation, decentralized identity, decentralized finance, homomorphic encryption, active metadata management, data fabric, real-time incident center and employee communications applications.

Accelerating Growth: After the trusted core business is established, recovery and growth can happen. Organizations should balance technology risk with the appetite for business risk to ensure near-term objectives are attainable. Once the innovation-led core is scaling, accelerated growth extends delivery and value.

For example, generative AI is an emerging technology that the pharmaceutical industry is using to help reduce costs and time in drug discovery. Gartner predicts that by 2025, more than 30% of new drugs and materials will be systematically discovered using generative AI techniques. Generative AI will not only augment and accelerate design in many fields; it also has the potential to “invent” novel designs that humans may have otherwise missed.

To accelerate growth, the following technologies should be explored: multiexperience, industry cloud, AI-driven innovation, quantum machine learning (ML), generative AI and digital humans.

Sculpting Change: Change is traditionally disruptive and often is tied to chaos, but

organizations can use innovations to sculpt change and bring order to chaos. The art is to anticipate and auto-tune to the needs of change.

For example, composable business applications enable a better match of application experiences to a changing, operational business context. Composable business, founded on composable application technology and built with composable thinking, positions organizations to recognize and exploit business opportunities, respond to unexpected disruptions, and meet customers’ changing demands at their pace, retaining their loyalty. Organizations looking to sculpt change should consider composable applications, composable networks, AI-augmented design, AI-augmented software engineering, physics-informed AI, influence engineering, digital platform conductor tools, named data networking and self-integrating applications.

The *Hype Cycle for Emerging Technologies*, 2021 is part of the Gartner Special Report “2021 Hype Cycles: Innovating Delivery Through Trust, Growth and Change.” The 2021 Gartner Hype Cycles help organizations to make innovation a core competency and shape and prioritize their approach to innovation delivery.

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Quick! What should I say?

Being able to think and respond quickly is a career game-changer.

Text by Leah Guren

I met Kevin while conducting an in-house workshop with a local client. He was a bright, competent engineer, but he was mostly overlooked during all group discussions. He wasn't shy; in fact, he often spoke up and added some comments during group exercises and discussions. The problem was that they were seldom on point and were not perceived by others to be of value. During a break, I asked him how he was doing. He just looked at me and sighed, "I always think of the right thing to say when it is 20 minutes too late."

I've thought about Kevin a lot over the years, especially whenever I see other qualified tech professionals fail to meet their potential or reach a career plateau because of delayed verbal responses or an inability to express themselves clearly.

Whether a person does not respond at all, or responds too late for the input to be appropriate, or responds in a way that is generally sub-par, I lump all of these together and think of them as people with a Slow Response.

The cost of Slow Response

There is a persistent myth that TechComm professionals are quiet introverts who sit

alone in their cubicles and write or edit. Whether you identify with this stereotype or not, the reality is that if we can't respond quickly, be proactive, and interact with many different people, we will fail. Successful introverted TechComm professionals are those who have honed their verbal communication skills.

Perhaps more than practitioners in any other tech field, the TechComm professional must excel at communication. Our ability to listen, ask the right questions, and contribute to discussions is essential if we are to deliver top-quality product documentation for our clients.

Slow Response can lead us to being overlooked and underestimated. When that happens, Tech Pubs can be relegated to a secondary priority, and our rich insights into better UX go unheard. Our clients and their users all lose, while we face a stagnating career.

The causes

There are many causes for Slow Response. While I am not a psychologist, I can offer these examples based on my observations over 40 years of training and coaching:

The Perfectionist: This person doesn't want to commit to saying anything that is

not flawlessly crafted and carefully edited. They may eventually come up with the perfect *bon mot*, but if it is delivered four minutes after the comment that triggered it, it becomes embarrassingly inappropriate. Rather than appearing witty, the speaker ends up being perceived as clueless and socially awkward.

A case in point is Joan: Joan is a brilliant writer who has been posting inspiring posts on social media for years. She is sharp, witty, expressive, and writes beautifully. But if you were to meet her face-to-face, you would notice that she is totally unable to join in the conversation or contribute anything useful to a group discussion. As you get to know her better, you realize that she is one of the many tech professionals who can communicate flawlessly in writing, only because they have enough time to gather their thoughts and edit their text. Because many TechComm professionals build successful careers based on their ability to communicate clearly in writing, it is no surprise that verbal acuity and quick thinking become neglected.

The Socially Anxious: Shyness or an introverted personality may be a factor, but Social Anxiety Disorder causes more people to freeze up and not speak in meetings, or to agonize over what they said. Sufferers of Social Anxiety Disorder place disproportionate importance on what others think. Their concern for others' opinions can hold them back from achieving their full potential. This disorder has become far more common in recent years, and the pandemic has only exacerbated it. [1]

A case in point is Jerry: A fact-checker and researcher for a local media outlet, Jerry is the poster child for Social Anxiety Disorder. He radiates anxiety and his presence at a social gathering can upset the natural



give-and-take of the conversation. His intelligence is ignored because of his inability to contribute in a meaningful way in any group situation.

The Poor Listener: Sometimes, gregarious extroverts fail to respond appropriately because they are not fully engaged and actively listening. They are excitedly waiting for the moment to interject.

Robert is the classic hi-tech CEO. He is smart, quick, and has enormous confidence. But he usually ends up saying the wrong thing because he is not in tune with the overall discussion. His off-point comments are politely tolerated within his organization (he is, after all, the CEO), but have caused problems when he interacts with managers from other companies.

The Out-of-Practice: Do you feel that your brain has slowed down, your verbal skills have deteriorated, and that you have forgotten how to interact with others? If so, you are not alone. Many of us have been forced to work in almost total isolation during the pandemic. As such, our social and work interactions have diminished significantly enough to impact our skills. There are days when I don't actually speak until a late-afternoon call from a client. When the phone rings and I answer, I end up sounding hoarse and strained. And it isn't only the lack of speaking: I am not having meals surrounded by people in a client's cafeteria. I am not sitting in in-person meetings. I am not commuting and making small-talk with people on the train. I have, in fact, become semi-feral! I am starting to doubt my ability to wear shoes all day, sit up straight at a table, or interact with others in a normal manner. Worst of all, I feel my brain congealing like a bowl of oatmeal. All joking aside, psychologists agree that the pandemic may be causing us to lose our natural ability to make and maintain social connections. [2]

The solution

Here are some tips to solve a Slow Response problem:

To the Perfectionist: Let it go! Your comment or contribution does not have to be perfect; it simply needs to be on-topic and useful. Sometimes even authentically agree-

ing with someone can shift the direction of a meeting and change the outcome. If you disagree, say why in a short, clear manner. Don't wait for the exact words. It doesn't have to be perfect.

You can play games to overcome the fear of imperfection. Timed activities where quantity wins out over quality, for example, can reinforce those skills. In her article in the July issue of tcworld magazine, Maryland Sara wrote about using improv exercises to improve communication soft skills, and specifically, learning "to be comfortable with failure and mistakes." [3]

To the Socially Anxious: Tackle your fear! A friend of mine, also a senior TechComm professional, recently posted about new directives from the college where she teaches writing for engineers. Apparently, 30 percent of her students have never attended in-person college classes before. The ramifications of this are profound. We have a generation of people who have not had the same socialization support and may be missing some basic skills that we take for granted.

If you are a manager or team leader, you can have a positive effect on employees with Social Anxiety Syndrome by providing them with the support and soft-skill training that they have missed in their lives. [4]

To the Poor Listener: Learn to listen! Listening is essential for good communication, and good communication is valued in most professions. You can improve your listening skills and increase your focus. By being able to stay attentive to the discussion, you can reduce the risk of off-topic comments or responses. The Indeed Career Guide offers some tips for becoming a better listener. [5]

To the Out-of-Practice: Get back in training! For those of us who have become hermits, the good news is that it is easy to reawaken these skills and get back into quick-witted verbal shape! Practicing impromptu speaking, playing performance games, and joining team verbal games can all help you respond more quickly. They can improve your lateral thinking, creativity, and problem-solving skills, too. For a taste of these games, join my workshop at the tcworld conference, "Impressively Impromptu: Fast, Fearless, and Fabulous", this November. [6]

Conclusion

Our profession is all about communication. And if we allow our verbal communication skills to deteriorate, we miss out on many professional opportunities, and our clients miss out on potential ideas and contributions.

Do you have a Slow Response story to share? Let us know!

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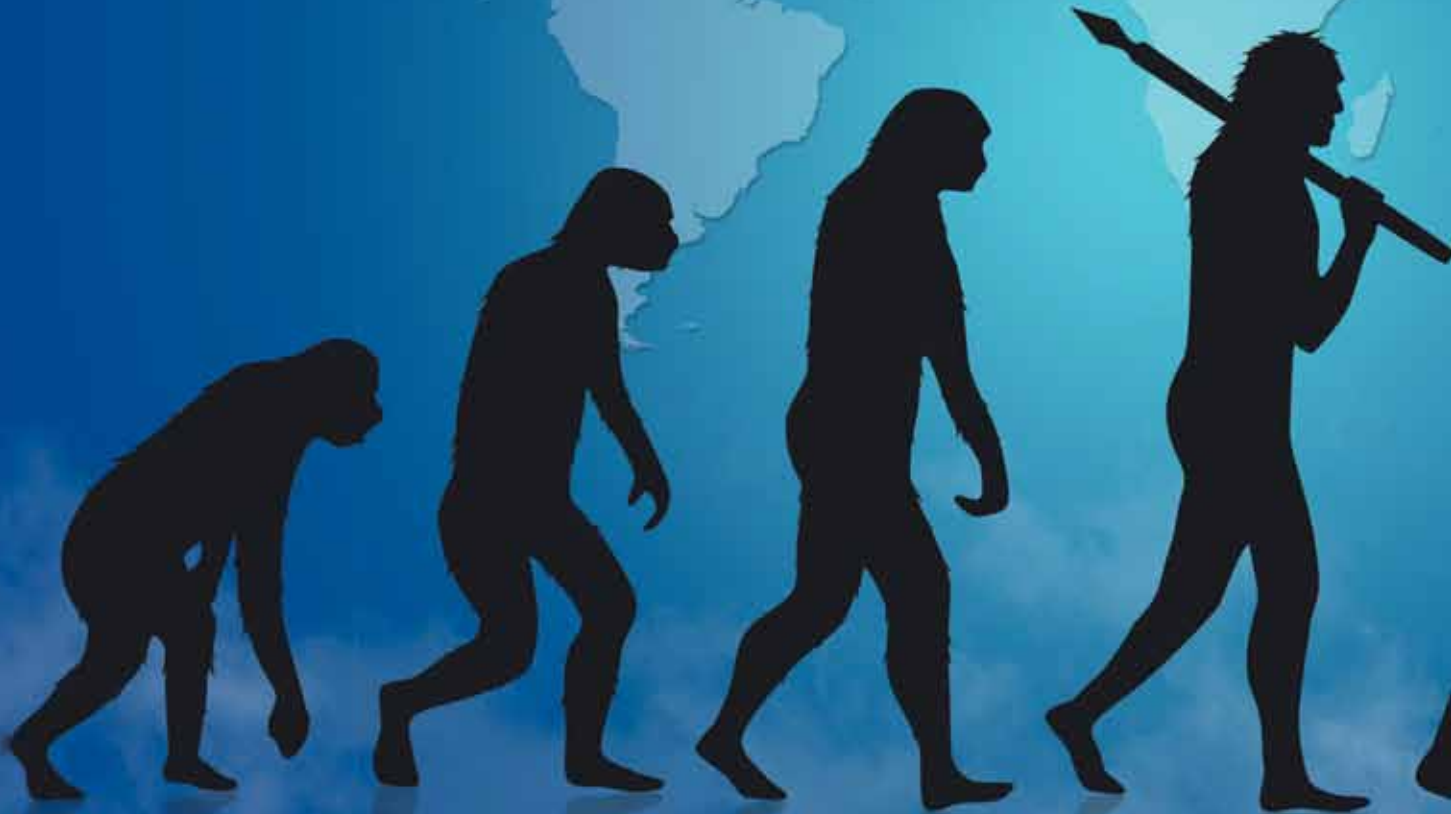


Leah Guren is the owner/operator of Cow TC. She has been active in the field of technical communication since 1980 as a writer, manager, Help author, and usability consultant. She now devotes her time to consulting and teaching courses and seminars in technical communication, primarily in Israel and Europe.

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The evolution of TC

Tech Doc will go social and semantic – as the Web did



Text by Fabrice Lacroix

In 1990, Tim Berners-Lee invented a distributed hyperlinked information management system he called the World Wide Web, known today simply as “the Web”. It was meant as a way for humans to publish content intended to be read by other humans, and its simplicity, efficiency, and versatility led to quick and sustained success. The Web quickly became the de facto standard for content publishing on the Internet, the emerging global network layer at that time. The combination of both overtook all other systems and this initial web – a vast collection of static sites of read-only pages of content known as Web 1.0 – became the foundation on which modern computing developed, transforming the world more than anyone could have imagined.

Twelve years later, Web 1.0 underwent a major transformation: Due to the evolution of underlying technologies and to widen its use and adoption, it became less one-way. The Web evolved into an interactive platform where each user could be an active contributor instead of just a passive reader. It saw the emergence of forums, personal websites, blogs, and wikis, which ultimately led to the development of social networks such as LinkedIn (2003) and Facebook (2004). This shift would be understood as the rise of the Social Web, or Web 2.0.

Another decade later, and on the back of a seminal 2001 article by Berners-Lee, the Web evolved again: This time, the ecosystem would not be limited to human content creators and consumers but opened as a platform to and for machines. On this platform, computers could find and use information needed to solve complex questions and execute tasks that required dynamically aggregating information from multiple sources. Whether organizing a vacation or diagnosing a rare disease, computers could leverage the richness and decentralized nature of Web 1.0 that made it so successful. This new Web would become known as Web 3.0, the Web of Data, or the Semantic Web, and it would give rise to new technologies necessary for letting computers unambiguously exchange information such as RDF. Web 3.0 still needs to

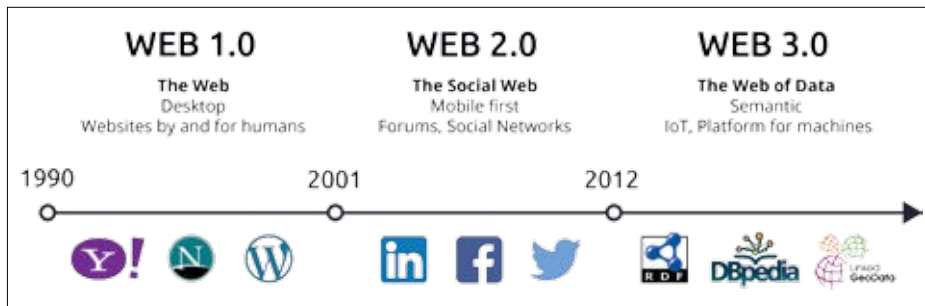


Figure 1: A timeline of the World Wide Web, from 1.0 to 3.0

mature but new enablers such as machine learning and the IoT will continue to drive its development.

Technical documentation has the same objective as Web 1.0, and it delivers it in much the same way that the Web was delivered twenty years ago: static publishing of one-way textual content by humans to be read by other humans. Yet, considering the evolution of the web from static to social and to semantic, what evolution can we expect for technical documentation? How could Tech Doc be reshaped from passive one-way content into something “social”, and then something “semantic”? What will Tech Doc 2.0 and Tech Doc 3.0 look like? How will they change the way users interact and participate with tech docs? What does Semantic Tech Doc mean and what could it enable? If we want to be ready for and foster this transformation, these are questions that demand examination.

Social Tech Doc

To imagine what Tech Doc 2.0 could be, we can consider two different use cases and user engagement situations: one-to-few and one-to-many.

One-to-Few

The one-to-few scenario exists when a user wants to contextualize the tech doc, adapt it to their needs, capitalize on their knowledge, and share it internally with a limited group of users. A typical one-to-few use case is the maintenance of a machine, where a technician wants to take notes on the documentation to keep track of something done during service or to transmit important information for a future operation.

In the past, the technician might have done this with a pen in the margin of a spiral-bound manual but, with static Tech Doc 1.0, this is difficult if not impossible.

When publishing static and read-only content in the Web 1.0 style, we force users to copy-paste content so that they can adapt it and create documents of their own on the side. If we want to support users in engaging with existing content, Tech Doc must evolve from being “just” content to being the basis for a full-featured platform. The textual content is only a fraction of the value proposition here as the tools allowing users to read, comment, highlight, and share become an integral part of the solution in much the same way that a social network like Facebook or Instagram is as much an application as it is a repository of content.

Hence, Tech Doc 2.0 is not just a set of PDFs or some HTML on a website. Instead, we must think of it as a rich application that not only gives access to content through search and read capabilities but also embeds features dedicated to content interaction and group sharing.

One-to-many

The one-to-many scenario is even more challenging: It entails a radical change in the way content is produced, and perhaps even in the definition of technical documentation itself.

In the classical paradigm of tech doc creation, tech writers interview people, try to understand every part of the product, draft manuals, and then have them reviewed by experts to ensure their accuracy. More advanced companies have revised this pro-

cess to increase their writing throughput: Tech writers design the storytelling, have SMEs write the details, then review, proofread, and align content to ensure its consistency. This latter approach broadens the base of stakeholders involved in knowledge production, but it still maintains tight control over the process by engaging only a limited number of people under the direction of internal stakeholders.

At the core of Web 2.0, though, is the notion that anyone can be a contributor. For tech doc, this means empowering people external to the company such as partners, resellers, customers, and end users to be content producers, allowing them to provide not just comments and feedback but also to create real content. These external sources have developed expertise about the product and often have done things your internal teams could not have imagined, solving problems in creative ways, and pushing the boundaries as they develop new use cases. And all of this is exactly what other users would like to learn.

Many companies address this demand by providing a forum or a community website distinct from the documentation portal, where users can ask for tips from other users, offer help, and share what they do and how they do it. For companies that haven't set up such sites, it is still common to see posts and threads spawning on external social platforms entirely out of the sight and control of the company. Yet, this “forum approach” is far from adequate: Discussions are volatile and lack clear contextual information, making it difficult to be sure whether a solution might be applied in a similar situation. As a result, forums often see the same question asked multiple times demonstrating a low level of confidence by users in past threads. Additionally, these forums are a place where people go to solve problems by asking others rather than a tool where knowledgeable users are encouraged to proactively share expertise. Blogs or wikis would both be tools that are better adapted to such sharing, yet either would be just another site for a company to set up and yet another silo where information might be lost. In short, usually all a company gains by deploying such community sites is transient information lacking

context despite the certain value that might be derived from these contributions and the volunteers who provide them. Now imagine a documentation platform that would allow users to start discussion threads grounded in the documentation and hence within a specific and unambiguous context. These discussions and tips would be an added layer of information to the core documentation, multiplying its value by adding details on how it applies to real use cases. These threads would not be limited to simple short phrases like a comment in a Microsoft Word document but instead could be rich text containing examples, code samples, screenshots, video, and more. In effect, these contributions would resemble fully featured documentation, which naturally leads to an obvious question: What if users could write and publish documentation just like the tech writer team does – not only comments on content that already exists but entirely new standalone documents? Impossible? Too dangerous? A good chance that the user-generated content could be inappropriate, misleading, or wrong? Let's see.

Tech Doc 2.0 – a necessary paradigm shift

This is a change of paradigm that is somewhat frightening, as all paradigm shifts are, yet there is no good reason to reject this evolution in tech doc creation.

First, a social documentation portal is not an open-to-the-world social network like Facebook. It's more likely to be a B2B portal and the user-generated content capacity can be restricted to authenticated users that are known individuals, working with one of your customers, and listed in your corporate directory. Social network experience has proven that when people are identifiable, they are more likely to behave. Second, what is published by end users could be clearly tagged as such, or even displayed differently with styling visibly distinct from existing and certified "home-grown" content. User-generated content might also be excluded from default search results so that users seeking it must specifically extend their searches.



Figure 2: Applications that mix user interactions and content create new user experiences

Companies could choose to have internal reviewers be charged with validating such content before making it accessible to visitors, with visibility remaining limited to the author, or to the members of his team in the meantime, a temporary one-to-few scenario as discussed above. Alternatively, companies could also leverage the wisdom of their crowd by encouraging readers to rate end user-created documents, and then automatically surface content that has proven to be valuable to others. Or mix both approaches: Review only content that has been tagged as valuable by the crowd so that it is marked as approved and then

automatically included with the official content.

Going one step further again to advance the process, users that contribute to highly rated or approved content can be given credit so that any new contribution they make is given a higher score from the outset. Such a strategy leads to a focus on how to motivate users to participate and share socially, and shows how the principles of gamification can be applied to tech doc. Confidence in this approach can also be gained by considering one of the most successful Web 2.0 experiments, Wikipedia. In just a few short years, Wikipedia overtook all

THE CASE OF THE ENCYCLOPEDIA

Before the Web, scholarly knowledge was conveyed to the masses through imposing sets of books that were a must-have in any respectable house – it was the heyday of the leather-bound brands such as the Encyclopedia Universalis and the Encyclopedia Britannica. Encyclopedias shifted to digital formats with the rise of the Web, and new digital competitors were born, such as Microsoft's Encarta. Yet, the principle behind the digital encyclopedia remained unchanged from its printed predecessor: Knowledge was written by few experts and released in a top-down, one-way manner.

With the advent of Web 2.0, however, came a paradigm shift to an industry that had resisted all change for most of the previous two millennia. Within just a few years, the open and collaboratively edited Wikipedia became the world's go-to source for factual knowledge. A social creation, many scholars and academics criticized the standard of articles and doubted that it could ever replace its historic rivals. After all, how could knowledge produced by anyone with an internet connection ever be trusted?

Yet, scientific studies have shown that Wikipedia has, with time, proved just as reliable and far more complete than its historic counterparts. In the same vein, then, why would information written by users and partners be less reliable than knowledge produced by a team of tech writers?

For more, see

- https://en.wikipedia.org/wiki/Reliability_of_Wikipedia
- www.cnet.com/news/study-wikipedia-as-accurate-as-britannica/ (2005)

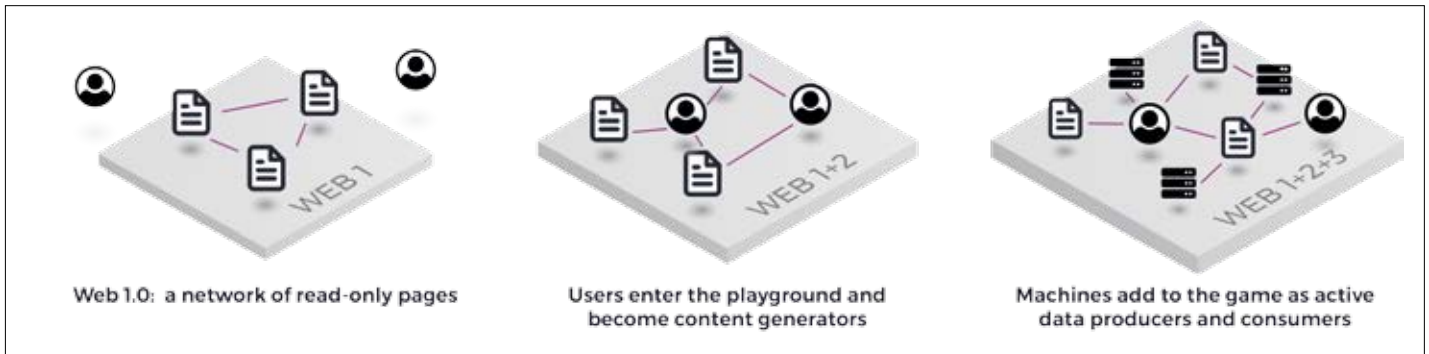


Figure 3: The evolution of the Web – the fundamental transformations brought by Web 2.0 and Web 3.0

competing encyclopedias (see text box on page 15) and continues to grow in reputation and usability with each passing year. From a technological standpoint, it is obvious that everything discussed here is only possible if it is natively supported by the content delivery platform, which itself must evolve from a search-and-read website to a truly collaborative solution.

Semantic Tech Doc

The Semantic Web is an evolution of the Web, which originates from the idea that its distributed nature is its force. It is scalable in all dimensions: the number of contributors, the depth and richness of content, traffic, users, and more. The Web is fast, resilient, and adaptable. When it comes to content, the Web has outgrown any past enter-

prise, system, or database that has tried to capture and represent information in a centralized way.

The challenge then is, how to leverage the existing Web 1.0 that has been designed for humans so that it can be turned into a platform where machines could also be information consumers and publishers.

This evolution has led to the definition of new technologies to support the modeling and exchange of information between machines (among them OWL, RDF, and SPARQL) and to the emergence of Linked Open Data, a web of interlinked structured content consisting of thousands of sites exposing databases and actionable information (see lod-cloud.net). The availability and sharing of knowledge at scale via the Web have been instrumental in the rapid progress of biology and medicine, including genome sequencing, in recent years. Scientists today use the Semantic Web as their preferred medium for publishing and exchanging data. How can this evolution of the web inspire a similar shift in technical documentation?

Use case: The production line

Consider the case of a production line in an ACME Corp fab made up of dozens of different machines for cutting, folding, soldering, and painting, originating from several different vendors, with each machine itself a collection of subsystems from different providers.

Legend	
Cross Domain	Orange
Geography	Light Blue
Government	Yellow
Life Sciences	Red
Linguistics	Green
Media	Dark Blue
Publications	Light Green
Social Networking	Grey
User Generated	Pink

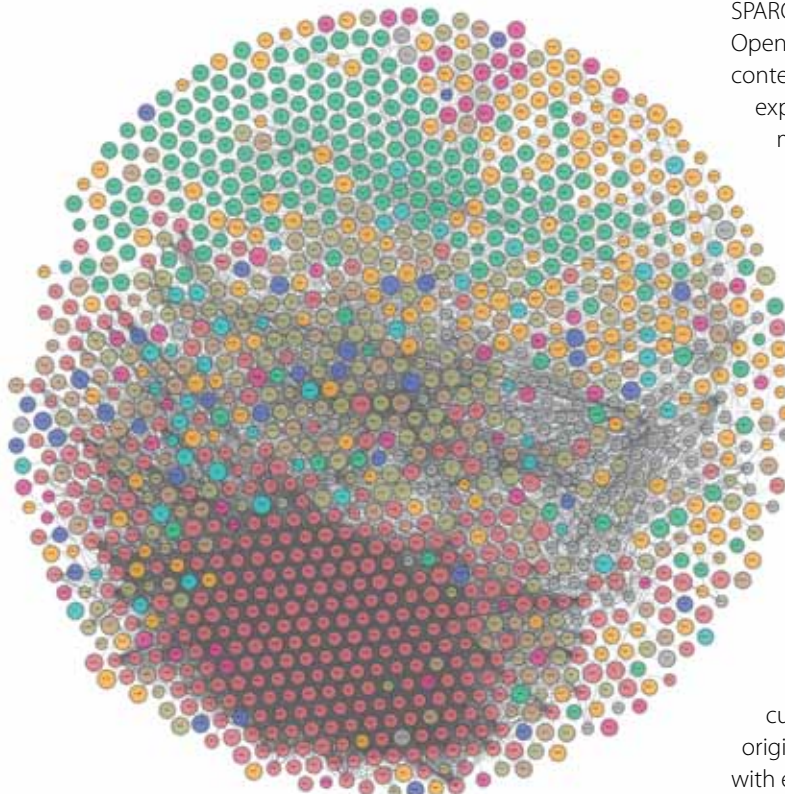


Figure 4 – The Linked Open Data Cloud
<https://lod-cloud.net>

How can ACME technicians efficiently maintain or repair such a production system? ACME would need to collect and store a copy of the documentation for each machine, and possibly for some of the different machine components as well. They would end up with a vast collection of unrelated and unorganized PDF files on a file server somewhere, something that field technicians will struggle to find when they need it. Even if the documentation from each vendor is available online, the technician would need to navigate each vendor's portal and find the right documentation to execute a single maintenance task. Now imagine instead that each vendor makes the documentation for its machines accessible in a fine-grained and normalized manner through APIs so that it can be retrieved by external applications.

The technician at ACME could use a field maintenance application that only needs to know the "description of the machines in production" (model, characteristics, etc.) and the application would then retrieve the relevant content from the different vendors through these remote APIs and dynamically create and display a purposely assembled document. Should the documentation evolve on the vendor side with updates, fixes, refined instructions, new images, or even the configuration of a machine, this would be automatically reflected the next time the technician opens their dynamically crafted document.

From a vendor perspective, it would be easier: The part of the documentation corresponding to the sub-systems embedded in the machine would not have to be written, but just referenced as it is generated by the provider. The vendor would just have to write the additional information that describes how to maintain that part in the context of its machine and otherwise point to the core documentation (drawings, images, instructions, and more) on the provider's site.

A long shot or the next step?

Even if this vision of Tech Doc as an ecosystem of collaborating systems is likely a



Figure 5: Tech Doc 3.0 – The Production Line documentation is dynamically assembled by retrieving the relevant content from different vendors

long shot, the emergence of formats such as iIRDS points to this direction by normalizing vocabularies and offering a way for machines to understand each other. Being business-driven and risk-averse, companies will continue to do as they have always done, and the progress towards Semantic Tech Doc will only come when the killer app has been found. It is likely that the IoT and Industry 4.0 along with the use case of preventive maintenance will be the trigger. With each machine being unique, the idea of generic documentation will become harder to support and the necessity of a documentation tailored to each machine will foster an evolution. Meanwhile, publishing platforms should get prepared and continue their maturation to support capabilities that expose their content to machines.

Conclusion

The Web has evolved from a network of static textual content to a social platform, and now to a way of exchanging knowledge at scale between servers. These evolutions should be carefully considered by the world of technical documentation, as they point in the direction of more efficient ways of working and engaging users. Tech Doc software solutions will be challenged to evolve and support these use cases,




but perhaps the biggest challenge will be forcing the change of mindsets within companies that create Tech Doc.

Will you be among the first to move?

ABOUT THE AUTHOR

Fabrice Lacroix is a serial entrepreneur and a technology pioneer. He has been working for 25 years on the development of innovative solutions around search technology, content enrichment and AI. He is the founder of Fluid Topics, the leading Content Delivery Platform that reinvents how users search, read and interact with technical documentation.



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Content-as-a-service for Industry 4.0

Servitization of products and content

Text by André Schlotz, Chris Scheper and John Ling



Image: © wavebreakmedia/shutterstock.com

There was a time, not so long ago, when products were just products. However, as technology has advanced and products have become ever more sophisticated and digitally connected, expectations around customer service for products and after-sales support have soared. And as the Internet of Things increasingly becomes a day-to-day reality, these expectations will only grow.

If technological change and rising customer expectations weren't enough to contend with, many manufacturers face market saturation and limited growth prospects. And with technology constantly evolving, products that can take years to develop may quickly become outdated and redundant, threatening the company's return on investment. In addition, customers are becoming increasingly wary of investing heavily in products that have a shorter and shorter lifespan.

The challenges are certainly daunting but some manufacturers have found a way through them that embraces the relentless technological changes and gives them a more profitable and sustainable business model.

A "Product-as-a-Service" business model requires fundamental changes to how you operate and how you structure your "production". It moves away from the idea that "we make products" to "we deliver services". Pioneered by Rolls-Royce in the 1960s, with its "Power-by-the-hour" Viper engine, [1] it moves beyond the purchase of the physical product to include after-sales service and maintenance. Customers no longer make a one-off purchase and hope for the best with the product's performance – they are purchasing help and high performance for the lifetime of the product.

"Servitization" helps extend the operational lifecycle of products and introduces additional services that can be offered throughout the lifetime of the product to add value for the customer – such as Predictive Maintenance (PdM). The product lifecycle can be managed to optimize or shorten it in terms of value, durability, and efficiency. Uptime, performance, quality, and maintenance can all be monitored and acted on more quickly – and before repair issues emerge.

ROLLS-ROYCE PIONEERS THE WAY

Originally, Rolls-Royce would just sell their engines and parts for aircraft to customers. They noticed that, on average, their engines would last for 20 years but needed an overhaul every five years. Within these periods, many service and maintenance intervals were necessary. In the 1960s, Rolls-Royce decided to move to selling their Viper engines by the hour (power-by-the-hour). This shift to product-as-a-service started within a specific group of business aircraft, but is now used more widely across the business – services today account for 49% of their total turnover.



Obviously, this requires a much closer and ongoing relationship with the customer – one where trust matters. They have to trust that you are delivering superior performance for them – that your "product" is more efficient, performs optimally, and that you're committed to a long-term relationship with them.

Why does it matter?

The "Product-as-a-Service" model can be a game-changer. If you do it right, not only will you gain a competitive advantage over your rivals, you will also be rewarded with customer loyalty and a more sustainable customer base. Servitization not only benefits customers with improved performance and reliability – it also boosts company profits and increases market value.

The average EBIT profitability (operating profit after depreciation) of services is, in many companies, two to five times higher than just product sales, and a long-term U.S. research study shows that stock-listed companies that have adopted servitization have a higher market value.

The business model for Product-as-a-Service has been around for some time now, and 75% of manufacturing companies expect that servitization will dominate their future. Given this, it is surprising that less than 30% of manufacturing companies have a servitization strategy in place. [2]

Why isn't everyone doing it?

The most obvious reason is that it is far from easy and making the changes to your business model, your organization, and the way you operate takes time – you can't run before you've learned to walk.

Content has a critical role to play in the customer experience and in the shift to Products-as-a-Service, but many organizations face significant challenges before they can deliver the digital-first strategy that is needed.

Many content teams remain rooted in the world of print. Content production processes and workflows that have worked very effectively for print over the decades are struggling to meet the new demands of a digital world. And as the volume of all forms of content that are needed rises, this approach is becoming increasingly unviable.

For many companies, content production is still product-centric, and more often than not, siloed by individual products or product areas – usually with their own processes, systems, and ways of doing things.

Understandably, content production has mainly been driven by the aim to create, manage, translate, and publish content as easily and cheaply as possible. The primary goal is cost reduction rather than the added-value approach that is needed

if companies are to make the most of the opportunities servitization creates. In many organizations, the content architecture just isn't set up for content delivery in the digital age and is simply unable to cope with increasing volumes of content, in multiple formats and many languages, quickly and consistently. The results of this outdated architecture are:

- Increasing difficulty in coping with the growing volume of content
- Struggling to meet the content demands for multiple formats efficiently
- Translating content into multiple languages is laborious
- Achieving consistency across all channels and updating content is a painful process
- No feedback or content interaction between field and after-sales management
- Service technicians can't quickly find the detailed information they need if they have to flip through large PDF or paper-based manuals

So, how do companies overcome these challenges and evolve their content production to meet the needs of a Products-as-a-Service company?

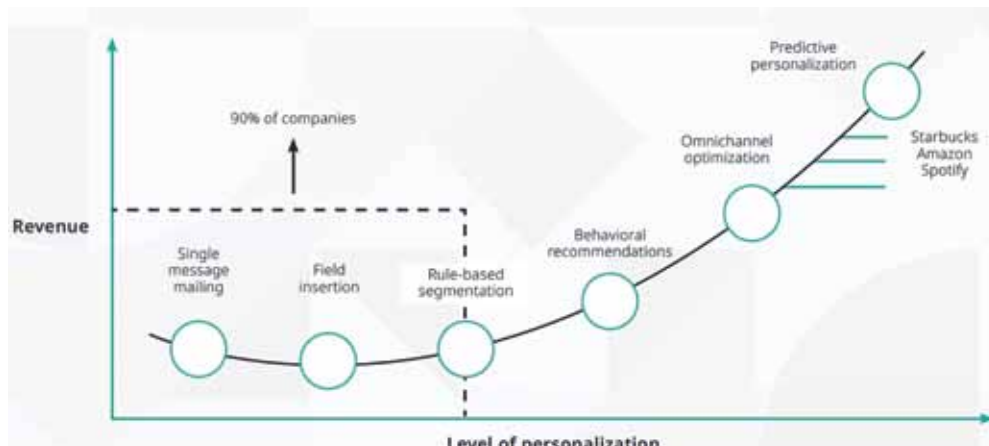


Figure 1: Contextualization and revenue relation

The way forward

For content production to be fit-for-purpose for delivering Products-as-a-Service in a digital age, two key issues need to be tackled.

1. Intelligent content

Intelligent content draws on snippets and components rather than on pages or entire documents as seen in traditional content management systems. Using it in conjunction with metadata and better taxonomy management allows automation throughout the content supply chain.

2. Servitization of content

For connected products that are monitored and have software updates, a Content-as-a-Service (CaaS) approach that supports data-driven dynamic delivery, targeted for the relevant channels, audiences, and use-cases, is essential.

This needs to be done, not just with broad taxonomies and tagging for customer-centricity and use-case targeting, but also with content-interaction services that monitor product conditions to trigger and track maintenance and repair activities.

ARTIFICIAL INTELLIGENCE (AI)

The incredible potential of AI comes with countless expectations of its ability to revolutionize productivity, performance, and profits. Through all the hype around AI, it is important to remember that it is not just one technology, but is in fact a set of technologies that organizations can mix and match in various ways to learn, understand, and act.

These technologies can either augment or perform human tasks better and can improve skills and performance over time through continuous learning. A core characteristic of AI is the ability to learn, adapt, and improve. Through this method, growth can be powered continuously and incrementally.

AI means providing solutions for machine and deep learning, computer vision, natural language processing, visualization, forecasting, and optimization.

The promise of AI for enterprises lies in operational efficiencies for employees as well as driving top-line revenues through highly relevant, personalized experiences that drive customer loyalty and lifetime value (LTV).



Image: © Tatiana Shepeleva/shutterstock.com

Intelligent content

Improving the customer experience

A company that is being built upon a Product-as-a-Service business model has to deliver a great customer experience – and technology has an increasingly important role to play in providing it.

Personalization remains an important application of Artificial Intelligence (AI) and with fast-maturing technology, it can be realized with even higher granularity. To see how hyper-personalization [3] helps with higher revenue, we only need to look at brands like Amazon, Starbucks, and Spotify. They have begun using predictive personalization, where AI and machine learning power their individual recommendation engines. However, improving customer engagements based on the predictive power of data is just one element of the opportunity AI opens up. When AI becomes an essential component of every process, it enables

far greater automation, which can lead to growth that goes far beyond just the customer-facing aspects of a business. Every individual today is looking for answers and they want them now, regardless of their role. To achieve this, the solutions and services offered by organizations must embody the following traits:

Immediacy – enables experience and discovery of information on demand each and every time without fail.

Hyper-personalization – utilizes behavioral and real-time data to create highly contextual experiences that are relevant to the user/machine.

Interpretation – establishes relationships between information sets to discover meanings and insights to fuel innovative digital services.

Accessibility – creates ways to access information beyond a single format and delivery channel.

Findability – makes it possible to find precise and exact information at a click (or voice command) that is timely and relevant.

All the above can be facilitated by content that can be unambiguously read by machines and humans alike. In other words, “intelligent content”.

What is intelligent content?

Intelligent content forms the information fabric of an organization that wants to digitally transform itself. Intelligent content is content that is treated as a valuable business asset. It is modular, written, and stored in small chunks (or topics). These modular chunks can be reused in a variety of outputs and each chunk is its own “single source of truth” – thus making it easy to write, reuse, and update.

Intelligent content is also semantically rich. This means that it is tagged with information that makes it easy to find. Finally, intelligent content is separate from output format. This allows you to use the same content in a variety of contexts, displayed on a variety of devices, while still maintaining the single source of truth.

Intelligent content creation should be an organization-wide initiative. Breaking the

departmental silos to unify content across the organization is necessary for any digital transformation initiative to succeed.

Unified intelligent content across the organization has several benefits:

- Cost savings with content reuse
- Information governance with access rights and tracking changes
- Adaptive delivery of information to any digital channel
- Discovery of insights usually hidden away due to departmental silos
- An important source for all service and maintenance interactions

In other words, intelligent content shines when it is centralized across the organization without the barriers of departments. To successfully embed AI throughout an organization and properly enjoy its benefits, organizations must have a unified technology base for their information management.

The role of information architecture is to provide a framework for content creators to be able to easily write the required information so that it can be leveraged by AI as well as traditional delivery systems.

Today, machines can use AI-enabled deep learning to:

- Translate content into any language (machine translation).
- Break down human speech and written language against human-constructed taxonomies to identify the sentiment, intent, and subject of a phrase (natural language processing).
- Construct new content from data and human supplied strings and templates to approximate human authoring (natural language generation).

The use of these semantic technologies increases content intelligence and enables organizations to take the next step towards a highly relevant customer and after-sales experience.

AI can drive improvements in the customer experience by providing deeper metrics, tracking, feedback, and measurement – giving the organization superior methods to measure and improve content utilization. For example, new semantic AI technology can collect metrics, with the ability to highlight specific content for

author/review cycles to improve the user experience. All of this helps to significantly improve the after-sales experience. After-sales requires intelligent content to meet customers’, operators’, and service technicians’ needs, and as the IoT becomes commonplace, content for guided diagnostics too.

AI can leverage this content – but it can’t replace it. For example, even if AI can identify a product issue, it is unable to help the user unless it can provide the right information to address the issue. AI gives you intelligent content and can help drive significant improvements in the customer and after-sales experience, but it can’t do everything by itself – it relies on having the right information architecture and technology in place to orchestrate all this data and content.

Servitization of content

As manufacturers move away from producing products to delivering services, far greater attention needs to be paid to service features and after-sales services. This is where considerable value can be added, but managing all the content, data, and information demands to deliver a great service isn’t easy.

As the world becomes increasingly connected and digital, the opportunities to improve products and their performance have ballooned, as we can see in Figure 2. New opportunities to serve customers better are emerging within technical publications, such as deeper integration with maintenance plans and direct connection with the products themselves. These opportunities now allow technical publications to play a critical role in mission success – through streamlined asset availability and efficiently guiding customers and operators to execute their regular product maintenance or solve specific problems.

Despite the existence of many disparate engineering and monitoring systems, it is now possible to deliver immediate, relevant, and applicable maintenance and repair information to the service technician. Real-time information from external platform monitoring systems can also be shared through application interfaces, the

Internet of Things (IoT), and new technical publication integration methods. Even the smallest time and cost savings over the expected life of a product – by providing correct and relevant technical content, spare parts, and tools – will return considerable savings. Reducing the need for technical manual “page-flipping” also significantly increases the effectiveness of the service technician and improves customer satisfaction. Chatbots, voice assistants, and Augmented Reality (AR) applications are increasingly popular and offer a more efficient way for customer support or help desks to engage with customers or service technicians.

Smarter products demand smarter content

Undeniably, the maintenance status of a machine has an impact on its reliability and resilience – especially for heavy-duty

equipment. Historically, maintenance plans are managed as part of the maintenance procedures within the operator’s and service information package, and these can be very complex for heavy-duty equipment.

But in our increasingly digital world, how can a company expect to be able to offer lifetime service packages and Condition-Based Maintenance (CBM) if regular maintenance tasks are documented on paper?

Maintenance plans should be digitalized via a web application that is an integral part of the service for customers, dealers, and service technicians. These digital maintenance plans need to be interactive so they can help to trigger, monitor, control, and log any service and maintenance activity. They can be managed as part of the product’s lifetime service record, providing a digital twin record. This digital service

record then becomes a “single source of truth” for all maintenance activities. Paper – if requested at all – will then just be used as a confirmation of service actions executed and not as the base for customers, operators, and service technicians to document actions.

Align your content processes

Although the opportunities that digital technology and the IoT open up to those looking to move from selling products to selling services are exciting, implementing them successfully is challenging – particularly with regard to all the new content needed, along with managing it efficiently. To successfully implement content servitization, you need to align your content processes to deliver the right information

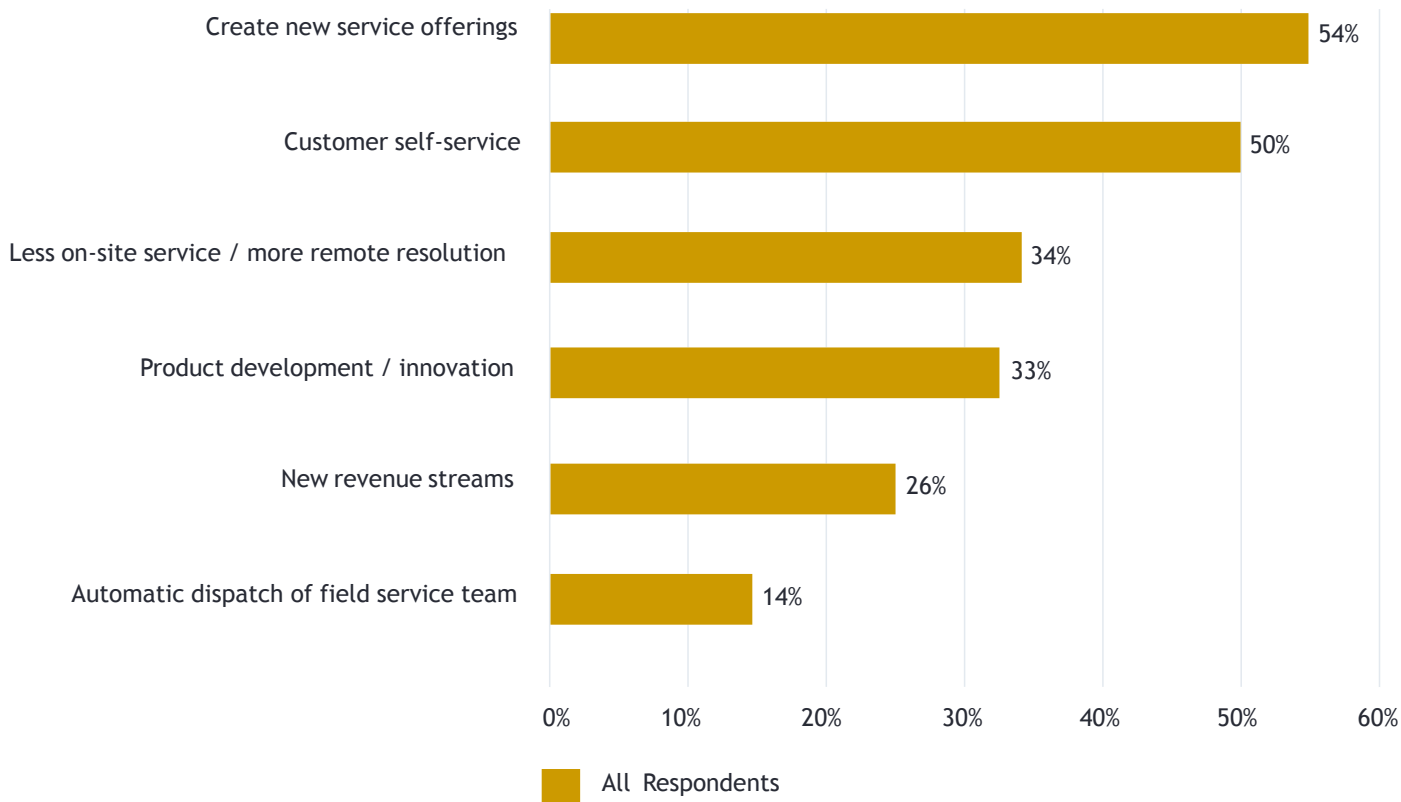


Figure 2: How the Internet of Things can enhance the service experience © Aberdeen Group, June 2017: The untold story from the field: reducing costs and creating happy customers

i ABOUT THE AUTHORS

to the right person or machine, and use the right information from people and machines at the right moment. The shift to content servitization doesn't happen overnight, but the more you can close the gap between "people, process, and products", the more efficient you become at providing Products-as-a-Service.

Want to find out more? Please go to www.rws.com/content-management/tridion/resources/content-servitization

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Collaborative AI: The path to fast, reliable concept maps

Creating taxonomies can be a tedious process, particularly for companies that already hoard masses of data. Artificial Intelligence could potentially lower cost and time, but can we really fully rely on auto-taxonomization? Collaborative AI promises the best of both worlds.

Text by Michael Wetzel



Collaborative AI refers to processes in which humans and artificial systems work together. Our recent work has analyzed whether such a method can help terminologists turn existing “flat” terminology lists into a structured concept map, also known as a “knowledge graph”.

In this article, we outline our progress in using Collaborative AI to facilitate the speedy creation of concept maps. Which AI or Machine Learning (ML) algorithms help to draft such maps, and what are the strengths and weaknesses in terms of speed, approach, and quality?

In our research study, we compared a purely manual approach with a semi-automatic, collaborative AI-based knowledge graph creation implemented using the Coreon multilingual knowledge system. Our findings: The increase in efficiency makes the taxonomization of even large terminology databases feasible.

From a haystack of concepts to a systematized knowledge graph

The values and benefits of concept systems for managing terminology are obvious: Instead of capturing concepts and terms on an ad-hoc basis, a systematic approach keeps control of the data, maintains its quality, and thus ensures its value remains secure. Instead of scrolling and searching, users explore and navigate as if using a map, with related concepts stored close to each other. Through its semantic nature – sorted according to the relationships between the concepts – all the rich terminological information can now be leveraged in several business processes outside of technical writing and translation: semantic cross-lingual search, auto-classification of content, employee training, or the tuning of AI/ML solutions such as chatbots or text analytics.

So, how do we get from an unstructured haystack of concepts to a fully organized knowledge graph?

With a little help from your (AI) friend

When you start from scratch, i.e. you start with an empty repository, add the first concepts, and let the system grow. Eventually, building the knowledge graph is pretty straightforward. For every new concept or term you add, you would:

- ask yourself if similar concepts already exist and what the most relevant broader concepts to this new one would be, and then
- simply click a button to insert the concept or term at the most appropriate location on the graph. This process is just as easy as selecting a folder in your file system to store a new file. So far, so good.

Things get trickier if you want to “taxonomize” an existing terminology collection, potentially already containing hundreds or thousands of concepts and terms, into a newly organized knowledge graph. Hopefully, the data is already of good quality, with terms stored in numerous languages and with definitions and metadata, etc. Regardless, individual concepts reside isolated as part of a large haystack of data, and this makes the next step the most difficult – elevating the data into a knowledge resource by identifying the relationships between each concept, and organizing it accordingly.

Imagine these concepts as a chaotic pile of books being magically and automatically sorted into shelves, branches, and sub-

branches, together with an index to help quickly find the desired book.

We aimed to produce at least a “draft” of the relationships between concepts to give the taxonomization of data a significant head start. This is, for example, a process that can roughly identify that the concepts “USB plug”, “Thunderbolt plug”, “Micro USB”, and “USB-C” all have something in common. Such a process should also recognize that these are all specific concepts derived from a broader category such as “Connecting Devices”, which itself could be categorized under something even more generic such as “Hardware”.

This describes what Coreon’s semiautomatic taxonomization method can do. An initial knowledge graph – visualized as a so-called *concept map* – is produced by Machine Learning using language models stored in huge neural networks. Clustering algorithms on top of word embeddings automatically converts the haystack of concepts into a structured tree. The final curation of that concept map is still carried out by a human, but the most time-consuming and tedious aspects of the task have already been dealt with, and in a consistent way.

“Cobot” versus manual creation of the concept map

In our study, we benchmarked this collaborative robot approach (or “Cobot” – ML

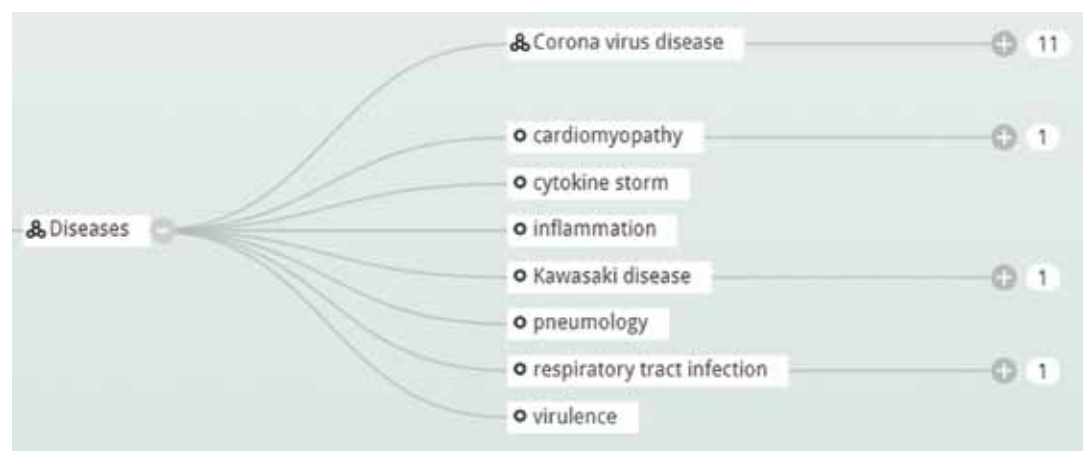


Figure 1: The higher-level group concept **Diseases** helps structure the map

auto-taxonomization combined with human curation) against an entirely manual job done by an expert linguist. We aimed to taxonomize 424 concepts related to COVID-19. The resulting taxonomies from both methods consisted not only of the concepts and the relations between them but also additional, higher-level nodes that were required to bring a meaningful structure into the taxonomy. In Figure 1 (page 25), the concepts *Diseases* and *Coronavirus disease* have been added. In the software these nodes are marked as "Group Concepts" and visualized with a triple circle symbol to easily distinguish them from the "real" concepts – which are visualized with a single circle. The traditional manual method was tedious and tiring for the human expert, who took a flat list of 400+ concepts and turned them into a systematic knowledge graph

by working concept by concept to get everything in the right place. Wading through the list from scratch (including constantly switching contexts, e.g., from drugs to vaccines to social distancing) made progress on the task difficult to measure. Having no perception of how many clusters of concepts still needed to be created was demotivating.

Automatic taxonomization – The draft concept map

For the Cobot approach, we initially created a "first draft" concept map via auto-taxonomization. We have developed a novel algorithm for automatic taxonomy induction, which takes a list of context-free tokens as its input. In the context of this

study, each entry comprises several terms or synonyms of a concept. Using Machine Learning methods, we can construct a proposed taxonomy for those concepts. The resulting taxonomy starts from a *root* node and expands until the *leaf* nodes reach the input concepts. All other intermediate *branch* nodes are labeled with temporary IDs that will be manually changed to a permanent label later on. This essentially forms concept clouds (clusters), as concept nodes form clouds with a common parent node. Neighboring cloud concepts are also semantically closer than concept clouds that sit further away on the map.

Our semi-automatic method started with a tree of 55 suggested clusters of leaf concepts, each representing a specific context. Of course, ML doesn't always produce the exact results a human expert would (we hear you, AI skeptics!), so some algorithm-

suggested clusters were a bit off. Yet, even when the clustering sometimes fails, the main topic someone is working on remains stable. You are not jumping contexts. This approach would also facilitate parallel working: "I am curating the sub-tree underneath temp-id-15, you are curating the sub-tree underneath temp-id-48". Overall, the majority of the 55 clusters were pretty accurate. They were ready to be worked on in Coreon's visual UI, making the human curation task much faster and easier. This also enabled progress to be measured, as the job was done cluster by cluster.

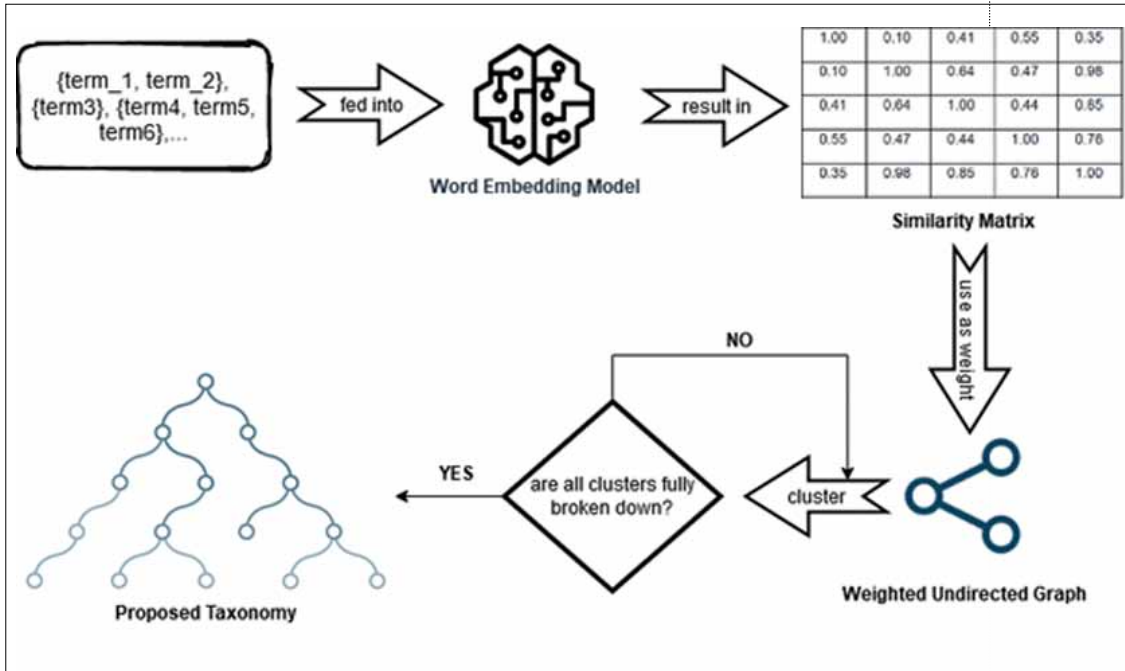


Figure 2: The algorithm is used to draft the concept map

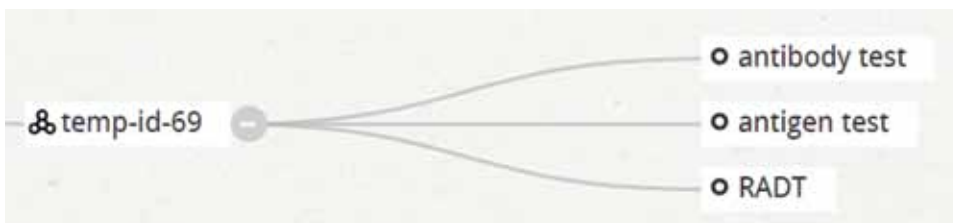


Figure 3: A good cluster: now simply rename "temp-id-69" to "test" and you are done

Human curation: Less a language activity than a knowledge activity

Taxonomizing a set of concepts is an intellectual activity that requires a quick understanding of each node in view. As both curators in our study were native German

speakers, it turned out to be very helpful to also have the German terms in the data. Indeed, both curators soon switched to German as a working language. As a side effect, some of the sample screenshots taken during the work also render the German terms and node labels. This does not affect the resulting taxonomy, as the concept system is language-neutral. The software requires a set of capabilities and interaction functionalities to comfortably restructure the draft concept maps, namely:

- A function to **drag-and-drop** a node onto another node to create a broader/narrower relationship.
- The ability to **pin** one or more concepts onto the software's "Clipboard" to temporarily store them there before dragging them onto a target concept to establish a relationship.
- A **filter** for branches to focus on a subset of the concepts.

The following screen print shows how the concept *inflammation* is dragged from *Diseases* to *immune system*. Note how the red dotted line shows the relationship that will be deleted and the green solid line highlights the new relationship being established. This highly visual feedback helps the taxonomist to review the effect of the drag-and-drop before confirming the action.

Advantage: automation!

From a business perspective, the most important result was that the semiautomatic method was five times faster. The plain manual approach required 40 working hours to produce the final knowledge graph of nearly 500 concepts, with almost 1500 relationships created, edited, and often changed again during the process. In contrast, the structured Cobot head start enabled the human curator to work methodically through the concepts, branches, and sub-branches. The clustered nature of the ML-suggested taxonomy would also allow the workload to be distributed, e.g., one expert could focus on medicines, another on public health measures. In our study, this approach took only 8 working

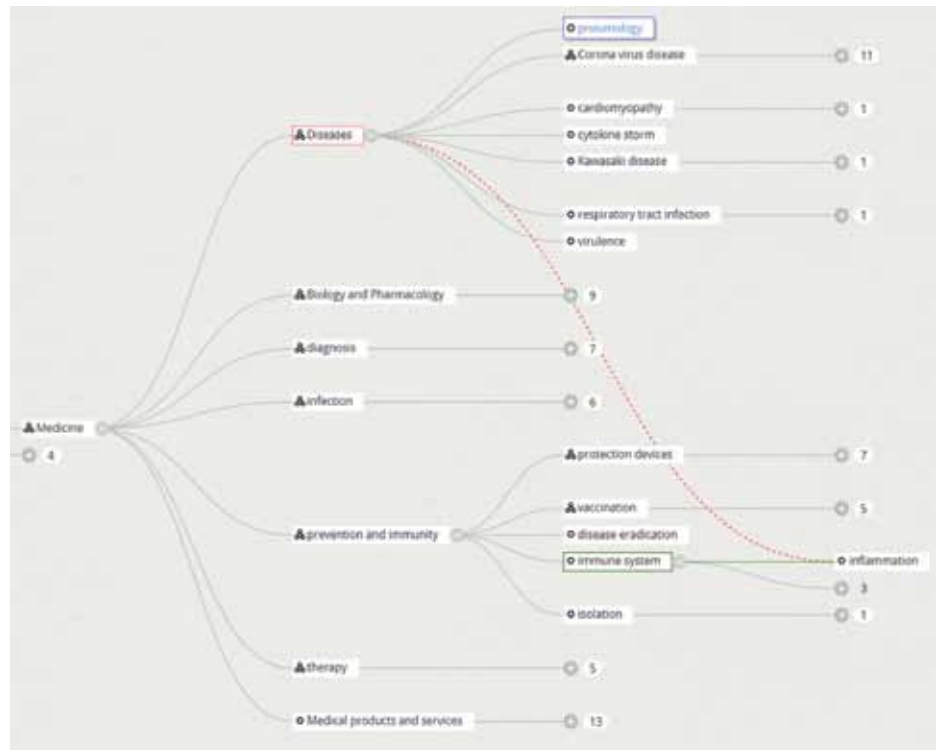


Figure 4: Dragging the concept *inflammation* from *Diseases* to *immune system*

hours, with 432 relationships modified or newly created. More difficult to measure was the quality of the two resulting knowledge graphs. While our linguist did a sterling job working manually, the automatic approach produced a tidier taxonomy, which is easier for humans to explore and can be effectively consumed by machines for classification, search, or text analytics. Significantly, as the original data was multilingual, the taxonomy can also be leveraged in all languages. Sometimes the leaf nodes of a cluster had little in common semantically, in the sense that it was difficult or sometimes impossible to assign a name to the cluster. Most or even all of the concepts of such a cluster were eventually moved elsewhere, and the cluster dissolved. However, one of the observations of the Cobot curator was that such concepts still actually had enough in common for associative relations (e.g., to be labeled with "see also") to be established. Even when a cluster could not be used for establishing hierarchical relations, it remained a good indicator that certain concepts had something in common.

The cost for a complete taxonomization depends not only on the productivity of the curators. An important factor is also how many different domain experts need to be trained and managed. The effort required to set up the process depends on the quality of the input terminology database, the availability of related documents for training language models, and the consistency of term definitions. Most of these setup efforts are independent of the number of concepts eventually pushed through the process. The cost-per-taxonomized-concept will thus go down the more concepts are processed.

Using this Cobot method enables large databases to be taxonomized at affordable cost and within reasonable time frames. Depending on the availability and consistency of metadata (such as definitions or domain classifications), this effort could even be reduced.

A barrier removed

So, can we auto-taxonomize a flat list of concepts? The answer is yes, with some

human help. The hybrid approach frees knowledge workers from the tedious work in the taxonomization process and offers immediate benefits: The ability to navigate swiftly through data, and efficient conceptualization. Most importantly, though, linking concepts in a knowledge graph enables machines to consume enterprise data. By dramati-

cally reducing the effort, time, and money needed to create taxonomies, managing textual data will become much easier, and AI applications will enjoy a tremendous boost. When it comes to maximizing the long-term potential of the mass of data that your company probably already possesses, auto-taxonomization provides a clear new way forward.

i ABOUT THE AUTHOR

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Are you keeping your messages clear?

Clarity is crucial for the user experience. It is how we transfer knowledge to our users and guide them towards their goals. So, how clear are your messages?

Text by Shwetha Madhan



Image: © Olly/shutterstock.com

Aiming for clarity

One of the most critical components of modern web design – sometimes left out of the discussion – is CLARITY. Users, now more than ever, want speed and great usability. Attention spans have decreased and by keeping your design and UX clear, you'll ensure a much better user experience. User experience (UX) is more than the user interface design. What you write in your UI can make or break the UX. By keeping designs simple and keeping interfaces clear, you increase your chances of satisfying the demand for speed, functionality, and usability. In this article, I'll talk about some of the UX principles that strive for "simplicity and clarity".

Grammar, spelling, and UX

How do you rank spelling in terms of your user experience? Do you think it is important?


Spelling errors not only reflect on your brand credibility, but also impact readability and localization: While it is easy to make spelling errors, it is even simpler to replicate them across microcopies, products, and versions. Spell-check and grammar are some of the most crucial steps while designing the UI. Always make sure that you run a spell check on all the text layers on the page before your brand's reputation takes a hit. A popular grammar resource that can help you to better develop your understanding of grammar and the English language is Grammarly, a Chrome browser extension that functions as an editor and grammar assistant as you write.

Pro Tip: Typos and poor grammar are a big red flag for your brand's credibility.

Plain language for everyone

Do you think you need complicated language and big words to sound smarter? If you make your content easy to read, you aren't "dumbing down", you are opening up your information to anyone who wants to read it. You are making it accessible. You are

trying not to exclude people based on their education, cognitive function, or reading ability. In other words, plain language is NOT:

-  Stripping out technical information
-  Dumbing down content
-  Imprecise



Studies show even experts prefer to read simple, plain language that is easy to scan. Use words and sentences that are easy to understand across all reading levels. Writing in plain language is a "whole" process and is much more than the editorial "polishing" after you finish writing.

Five tips to help keep your UI content simple

1. Use laymen's terms

When making word choices, pick the familiar or commonly used word over the unusual or obscure. Using simple and familiar words wherever possible doesn't insult your readers' intelligence, but emphasizes clarity rather than formality. Don't use words that are too big for the subject. For example, when you can say "use", "don't say "utilize" and make it sound complicated. A few more common examples:

2. Edit your writing

 Don't Say	 Say
accurate	correct, right
anticipate	expect
approximately	about
assistance	help
benefit	help
caveat	warning
implement, commence	start

Go through your writing until you can be sure you're giving only essential information.

A few editing examples:

First draft: You might encounter this warning message in the event of database synchronization failure.

First edit: You may see this warning message if your database synchronization fails.

Second edit: You see this warning if your database synchronization fails.

First draft: Database administrators are allowed to perform this action, as they have admin privileges.

First edit: Database administrators can complete this action, as they have admin privileges.

Second edit: Database administrators with admin rights can complete this action.

3. Kill the filler

Filler words fill in space and add no meaning to a sentence. Removing these filler words tightens your writing. Compare the two sentences:

"Basically, clarity helps you write better."

"Clarity helps you write better."

In the first sentence the word "basically" really does nothing! The second sentence flows smoothly because "basically" is removed.

Here are a few examples of filler and glue words:

Remove extra filler words in order to clean up your writing.

This is a word that you should only use for clarity.

If your design works without it, you just don't need it.

Filler words don't really add value. They're essentially useless.

These very common filler words are actually not useful.

Pro Tip: You need fewer words than you think. Your reader will thank you for it.

4. Readers first

In your writing, aim to focus on the readers' needs. Look to answer their questions, help them achieve their tasks, reassure, support, and inform them. Communicate only important details, so users can focus on their tasks.

Avoid providing details that aren't essential for your users to know, such as how an action is performed.

For example:

// This process requires device synchronization before you log in to your account. The process might take up to 5 minutes to complete. Sign in to your account after the process is complete.//

Becomes:

// Your device is contacting us, which can take 5 minutes. Sign in later.//

5. Make it feel effortless

Write in shorter sentences and use common words. Change passive verbs to action verbs. The table below shows a few examples.

Professional jargon – Your biggest enemy

What's jargon? According to Google, "Jargon is a special word or expression that is used by a particular profession or group and is difficult for others to understand". When we say not to use jargon, we're not asking you to leave out key technical terms, we are saying to make sure your language is as clear as possible.

Consider the following example. The plainer version conveys technical information just as accurately as and more clearly than the jargon version:

Don't Say



Failure: An Authentication Error has occurred

Say



Sign-In Error: You entered an incorrect password

Here's another common example of an error message that pops up when you have an IP address issue:

Don't Say



Network Error: System Error - IP Address Conflict

Say



Network Error: Another computer on this network has the same IP address

A generic error message that talks about an IP address conflict is far more difficult to comprehend than an error message that explains the error in simple and plain English. You may believe that everybody knows what an IP address is. Well, some users know that IP stands for Internet Protocol, but not everyone knows what this is. Wherever possible, use simpler words. Your users will be grateful.

Pro Tip: Decoding jargon is difficult – when in doubt, explain your terms!

Don't Say	Say	Rationale
The reporting API will improve the report management for your devices.	You can use the reporting API to download the report faster.	Tell your users what the new API does, and don't make them guess what report management is.
Experience flexible printing capability by configuring the Printing Profile for Chrome OS devices.	You can either use the Printing profile for Chrome OS to get a print preview with Google Cloud Print or use the system print dialog window.	Use simple words and action verbs. While aiming for clarity, do not use short punchy sentences; write meaningful sentences that are easy to understand.
We understand that it is extremely frustrating when things actually don't work and we want to help reduce some of your frustration, so we are looking at our error messages to see where we can improve them.	We've improved our error messages to better explain what went wrong.	Get to the point. Your unwanted filler words can add a layer of frustration.

Language and style

How do you aim for clarity with your language and style? Be practical and focus on the customer. Avoid letting politeness or apologies get in the way of communicating. Here are a few tips that can help you write in a language that is easy to understand for all users.

Call-to-action language

Write clear and predictable content. Help your users anticipate what's going to happen next when they click a button or link. Write the way you speak and structure your UI elements in such a way that your users take the right actions. When you are writing UI labels, make sure you're using the user's vocabulary and imply an outcome.

Don't Say



Uninstall Internet Security?

Yes

No

Say




Uninstall Internet Security?

Yes, uninstall


No, keep it

A user's context influences not only whether they see a message, but how they act on it. Consider the example below of a warning message that uses different word choices. The message on the left only checks if the user would like to delete a mockup sketch, while the message on the right helps the user understand how "delete" impacts their next action. Always be clear in specifying the consequence.

Don't Say

 **Deleting File:**
Are you sure you want to delete the file mockup.sketch?
Keep file Delete

Say

 We keep backups of deleted files for a week. After that, it's gone forever.


Deleting File:
Are you sure you want to delete the file mockup.sketch?
Keep file Delete


Remember, your users are using your warnings and error messages to help them cycle between "What's going on?" and "What do I do next?" Write your messages so that it's clear what's going on, and what the user can or should do about it. Always try to provide useful feedback. Here's another example of why you need to explain your error messages:

Don't Say

 **Cannot rename the smart group. Specify another name.**

Say

 **A smart group with the same name already exists. Specify another name.**


 **Pro Tip:** Always write actionable error messages.

Customer-focused


Write from the customer's perspective, not the system's. Make sure the user understands what you want from them or what they can do to fix an issue. Here are a few

examples of error messages that are neither clear nor useful.

Don't Say

 **Unrecoverable unexpected error**


Say

 **Check if you have enabled VT-X in your virtual machine settings**


Don't Say

 **Invalid target disk adapter type: pvscsi**


Say


 **We've found a problem with your disk adapter. Click edit settings to check your SCSI controller.**

Don't Say

 **The field username must make a unique set**

Say


 **This username is already taken. Please pick another username**

 **Pro Tip:** Add enough information in error messages to help users get out of a bad situation.


Three C's – clear, concise, and consistent

Don't use confusing words that might lead users to make a mistake. If you're targeting the global market, it might be challenging for users to understand differences such as these:


Don't Say

 **Email: _____
Password: _____
Sign in or Sign up**

Say


 **Email: _____
Password: _____
Sign in or Create account**

Don't Say

 **IP Address: _____
Port: _____
Continue or Go Back**

Say


 **IP Address: _____
Port: _____
Previous or Next**

 **Pro Tip:** Don't use synonyms. Pick a word and stick with it.


Hyper-politeness

Be polite enough so users know they are respected and valued, but avoid overdoing it. Hyper-politeness is not concise or direct. And if you're too polite, you can even make an instruction look like a request. See how hyper-politeness gets less direct and harder to scan:

Don't Say


 **Please migrate your existing virtual apps to Collections at the earliest. Future versions will no longer support app integrations unless you have migrated your existing integrations to Collections.**

Say


 **Migrate your existing virtual Collections as our future versions do not support app integrations.**

There is no need to be extra polite to appease the user. Instead, provide the user with the information they care about:

Don't Say

 **We request you to kindly wait and be patient. Our backup process takes 3 hours to complete. You can continue with your work as this process runs in the background.**

Say

 **The backup process takes 3 hours. You can continue with your work as this process runs in the background.**

Pro Tip: A perfect hint does not always need a polite expression.

Take your UX to the next level: Voice and tone

Voice and tone are important for two reasons: First, all communication with users and customers must come across as personalized and from a human being – not a robot! So natural, real-world language is important. Second, it's through voice and tone that you can convey the personality of your brand.

So, what is the difference between voice and tone? A good analogy is that your voice is your personality and your tone is your mood. Voice and tone are a combination of what we say and how we say it. Voice is about your brand's unique personality. Tone, however, isn't about you. It's about your customer and their context. While your voice remains consistent across all your content, your tone changes based on the audience and the situation.

Voice is "What we say"

When you start thinking about the design language of the system you include color, typography, spacing, and more. Your visual design language will be the foundation of your UI library. Similarly, your voice will be the foundation of your communication library.

Your company probably already has a brand identity. That's the voice (personality) you need to write with. When the voice in your UI matches the voice on your company website, in your documentation, and in all your other brand assets, users know exactly what they are going to get. And that consistency builds trust and confidence.

Tone is "How we say it"

The tone is use case-specific and will change from point-of-contact to point-of-contact. What's your user's state of mind? Are they relieved to be finished with some task? Are they confused and seeking help? Do they want to know more about a new feature? Once you have an idea of their potential emotional state, you can adjust your tone accordingly.

Recognizing the user's potential action in a scenario helps you determine your tone. It can be a delicate balancing act to stay true to your voice in different contexts. However, there are some simple questions to ask yourself to make sure you're getting it right. Let's consider a few examples:

Tone baseline: The goal is to let admins know that they have successfully completed a task. You can congratulate the user for a job well done, or simply report on the success they've achieved.

Success messages should be conversational and human.

Pro Tip: Remember to speak directly to your users.

Tone baseline goal: Assist unhappy users to make informed decisions about the next steps and help them resolve the error with minimum hassle.

For instance, when a user experiences a sudden, unavoidable failure, a cool and informal tone of voice isn't courtesy – it only adds yet another layer of frustration.

Alerts, warnings, and error messages are usually more formal in tone, and must always be informational. Use clear, direct language to describe the thing that's gone wrong, and what the user can do. Using exclamation marks or a friendly tone may not be the best fit in this context.

Pro Tip: Thoughtfully written error messages = Better UX!

What is the right tone of voice when writing legal content?

The way we write legal content is different from many other kinds of writing. Legal information is serious business; hence the tone is more formal.

Tone baseline goal: We want users to thoroughly understand the information that is written. Whenever possible, use plain language rather than legal jargon.

Pro Tip: While legal content is more formal, try to present it in the most pleasant way possible.

Always match your tone to your customer's context. In simple words, ask yourself:

- Where is my customer reading this? Your answer influences your tone.
- What's the user's mood likely to be? Avoid making an unhappy user happier with an incomplete message or inappropriate tone.
- If I read "X" as a user, would it feel natural? Or would I find it too friendly, annoying, or overly formal?

Conclusion

When designing websites, keep in mind that your user's cognitive ability is still evolving. State the objective and how to achieve this objective clearly with simple directions. Make sure that you craft commands that are within your user's level of understanding but not too prescriptive. It is important that you weigh your user's prior knowledge and mental models to get them familiar with your website. Designs that fail to consider the user's cognitive capability won't bring pleasure, only frustration. Clarity in design plays an important role in the user experience and is usually determined in the very first seconds a user sees it. Make a good first impression by aiming for CLARITY!

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Informal learning and how we can assist it

With every instruction we provide to our users we help them understand a process or achieve a practical goal.

Informal learning is learning by doing and exploring— with technical communication in the role of the mentor.

Text by Saul Carliner



Image: Kiselev Andrey Valerevich/shutterstock.com

Technical communicators often say that our content contributes to learning. In some cases, the link is direct, such as when instructors integrate user assistance and other documentation into formal training programs. In other cases, the link is not direct, such as when learners find a way to troubleshoot a complex software problem by reading the documentation, or when a user figures out how to engage a particular type of animation on a slide by following the user assistance. This second type of learning is an example of informal learning: unplanned, unexpected, yet capable of enhancing the knowledge and skills of the user. Let's take a closer look at what informal learning is, how technical content contributes to it, and the types of challenges that can arise when users rely on technical content for learning purposes.

What is informal learning?

Learning refers to a long-term change in physical or cognitive (thinking) behavior – that is, how people perform a task or approach a process. When learning occurs, the behavior change continues in the long term. Learning can happen formally or informally.

Formal learning refers to instructional experiences that are formally scheduled and taught in face-to-face or live virtual classrooms, or through self-study materials such as e-learning. Formal learning also refers to experiences in which the instructor establishes the objectives that learners should achieve, the content to be covered, and the assessment that determines the extent to which learners have succeeded in mastering the objectives. Training programs and academic courses are two common examples of formal learning. One of the advantages of formal learning is its efficiency. With prescribed objectives, structured learning activities, and built-in feedback, learners can master one or more work-related responsibilities in a short period of time [2].

In contrast, informal learning refers to the skills and knowledge gained outside of these formal educational experiences.

Informal learning can include insights on how to treat Subject Matter Experts learned by watching an experienced technical communicator handle a particularly challenging expert, understanding how to use the latest version of the project management software by a combination of trial and error, and reading the online user assistance, or learning to set up a portable crib by watching a YouTube video.

According to British researchers Helen Colley, Phil Hodgkinson, and Janice Malcolm, informal learning includes shared control over [3]:

1. The **process**: Who controls and assesses learning. The more learners (users) control and assess learning, the more informal it is.
2. The **location**: Where learning occurs. Learning occurs in places intended for purposes other than teaching such as by the water cooler, in the cafeteria, or over the cubicle wall.
3. The **purpose**: Whether learning is a primary or secondary goal of the activity in which learning occurs. In a formal course, a formal ongoing change in physical or cognitive behavior is the primary intended goal. By contrast, for a procedure, the intended outcome is that users can complete the task at this particular time. Most technical communicators expect users to refer back to the procedure if they need to perform it again later rather than commit to mastering the procedure in the long run. When learners master the procedure anyway, that learning is considered a secondary goal: nice to have but not expected.
4. The **content**: The extent to which content is practical (considered informal) or conceptual (considered formal). The more practical the content, the more likely the learning is informal. As the late British researcher Michael Eraut [6,7] observed, formal learning efficiently teaches foundational definitions and concepts, and general procedures. By contrast, informal learning – often learned by one observation or explanation at a time – provides learners with guidance on applying those definitions and concepts in the

real world: the unwritten rules and guidelines that explain how to handle challenges and exceptions.

Canadian researcher Christine Wihak and her colleagues add a fifth characteristic: **Consciousness**: the extent to which learners are aware that learning occurs. Although we think of learning as a conscious process, it often happens unconsciously, especially with informal learning [10]. For example, a technical support representative might recall a process for helping a caller with a particular problem that the representative retained from the last time this problem arose.

American researcher Victoria Marsick suggests that formal and informal learning are interrelated [8, 9]. Michael Eraut noted that formal learning lacks context, which informal learning provides [5,6,7]. In their actual work contexts, people use the tasks and apply the knowledge in particular ways, and learn how to adjust the applications of skills and knowledge for the particular context they are faced with [8].

Types of informal learning

Informal learning can take a number of different forms, including [2,3,10]:

- Information, mostly available online, such as (but not limited to) user assistance, technical references, customer support knowledge bases, introductory videos (also called guided tours), how-to videos (also called explainer videos), frequently asked questions (FAQs), books, journal articles, news articles, and how-to articles
- Conversations with others through face-to-face, virtual or online chats, online forums, and communities of practice. Some of these conversations only involve two participants, other times they involve several participants. Sometimes these conversations might be recorded for later retrieval, but often they are not. One particular class of conversation is mentorship and coaching, which is tailored to the particular needs of that

learner, and in which a more experienced person provides observations and advice to the learner.

- Observations of others performing tasks
- Reflections on material read, heard, and observed

How do technical communicators contribute to learning?

Admittedly, the materials produced by technical communicators often lack some of the key features needed for formal learning, including formal objectives, opportunities to practice the skills described in the materials and receive feedback on

the practice, as well as a formal evaluation or test assessing the extent to which users have mastered the objectives.

But technical communication products often have learning as a secondary goal and can help experienced learners with incremental development of their skills. Consider this situation: Canadian researcher Steven Avon [1] studied the launch of a system update for insurance agents in a large financial services firm. Although they had access to a formal e-learning course on the subject, most said that they relied on the online help to learn about the changes to the system and master any new skills.

Similarly, many professional technical communicators who have basic skills with

complex authoring tools use the online help and forums to build skills with particular tasks, such as specific types of video and sound editing, and processing images.

In both of these scenarios, users commented on how clear explanations and work examples provided them with the material they needed to successfully perform the tasks and master them in a way that they do not need to consult the help again later: the true essence of learning.

The challenges of informal learning

Although informal learning can provide powerful lessons, research suggests that it is not always efficient or effective.

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In fact, workers sometimes think they've solved a problem on their own when, in fact, they have only made things worse. For example, in his study of a customer support center, American researcher Joe Downing [3] found that – in their haste to solve customer problems – support representatives usually took the first solution offered by a Google search, and had customers thank them for their quick response. Only after customers hung up and tried the solution did they realize that it did not work. This happened so many times that the organization eventually commissioned a revamp to its processes for responding to service calls to address the situation. Even when learners do master a skill on their own, it might not achieve the desired outcome. For example, Canadian researcher Robyn Millar [2] tells the story of fast-food workers who, after being told to make ten hamburgers per hour and to be productive, figured out how to make twelve per hour. But the young workers did not realize that the restaurant did not require twelve hamburgers per hour and the remaining food might go to waste. Perhaps the most significant challenge with informal learning is its lack of recognition [2,3,10]. As there is no formal framework for it, workers do not receive credit for it as they would when completing modules of employee training or courses run by educational institutions. Educators have developed methods to identify the competencies that people have achieved informally and provide recognition for them, whether that recognition takes the form of credit for completing academic or training courses, or certification for particular types of work. But these processes, called Prior Learning Assessment and Recognition (PLAR), are evolving and time-consuming [2].

Helping users learn

Technical communicators need to be aware of the challenges described above

and try to help users avoid them when using materials. In addition, technical communicators might play an increasingly big role in helping to recognize prior learning by adopting the Experience API (xAPI) in their work. xAPI is intended to provide recognition for informal learning by tracking activities performed in a browser such as reading articles, answering questions in forums, performing certain tasks, and recognizing people when those activities align with particular combinations of skills and knowledge, which are called competencies. Technical communicators might become familiar with this standard and begin incorporating it into their work.

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Technical translations and how to post-edit them like a pro

As the translator's role continues to evolve into that of post-editor, efficient strategies for correcting Neural Machine Translation output have never been more important.

Text by Michael Schroeder



There is no doubt that the traditional role of translators is changing with automated machine translation driving the revolution. Whereas in the not-too-distant past, computer-generated translations were dubious at best, the improved accuracy of Neural Machine Translation (NMT) has already significantly changed the entire localization industry. This can be seen in the increasing prevalence of multilingual Internet chatbots and on-the-fly presentation captioning. At the same time, localization professionals benefit from higher-quality translations that often just need a bit of touching up to make them suitable for the general public as well as existing or prospective customers.

Despite its recent advances, NMT is still limited by the input it receives: It is not (yet) possible, for example, to effectively "transcreate" an advertisement from a target group in one country to the same target group in another country. This "limitation" is an advantage in the area of technical translation, however; the translation engine can only work with the text it receives. And because technical documentation by its very nature is meant to be as clear and unambiguous as possible – and technical translation as faithful as possible to the source language – NMT can be an extremely valuable asset if paired with an effective post-editing strategy. This article will present some helpful tips in the two most important areas regarding post-editing machine-translated text: quickly detecting errors, and quickly correcting them.

Detecting errors: Putting the framework in place

So, what exactly is an error? The answer is simple: You decide what an error is. In other words, the definition of an error will change depending on whether you are doing "light" or "full" post-editing, for example. Light post-editing generally involves making only the most necessary changes to make a text understandable by the reader. This can be useful for urgent or "internal" (i.e. non-public) translations where proper grammar, style, and terminology take a back seat to speed or basic understand-

3.4.1 Units

a) Numbers and units are always separated by a space:

55mm
55mm
55 mm

DVI-D Kabel, 10 m.
DVI-D cable, 10m.
DVI-D cable, 10 m

b) No space is included between numbers and the percent sign:

100 % Displayhelligkeit
100 % display brightness
100% display brightness

c) No space is included between numbers and the degrees sign (temperature or angle):

max. 3 Jahre bei 30 °C
Max. 3 years at 30 °C
Max. 3 years at 30°C

Figure 1: A translation style guide should include style information in a translation context as well as negative and positive examples.

ability. Full post-editing entails a greater level of intervention by the post-editor, who will generally correct all style, linguistic, and terminology errors to ensure a high level of overall quality. We may even find in-between scenarios. What's important is to establish a framework for what needs to be fixed depending on the situation at hand. This framework starts with a translation style guide.

According to Wikipedia, a style guide is a

"set of standards for the writing, formatting and design of documents [...]. [It] establishes standard style requirements to improve communication by ensuring consistency both within a document and across documents [...] in areas such as punctuation, capitalization, citing sources, formatting of numbers and dates [...] and other areas."

A *translation* style guide includes all of this information for the target language, but it goes further by describing specific, translation-relevant scenarios and how they should be handled.

For example:

- **Sentence/phrase structure:** In addition to complete sentences (with subject and verb), other sentence types or phrases may be appropriate in the target language, for example for short error descriptions (compact form: "Threshold exceeded"), explanations of what a toolbar button does (s form: "Closes the file") or section headings (-ing form: "Configuring the hardware"). In many cases, these "special" structures can vary from the form used – correctly – in the source language. For this reason, the translation style guide should define these various sentence structures, as well as where they should be used, so that the post-editor can apply them properly in the right places.
- **Discrepancies in style between source and target:** It is useful to note in the translation style guide where the target language style does not correspond completely to the source language style, for example with symbols

or spacing with measurement units (e.g., "25 %" vs. "25%"). In addition, the style guide should explain what to do in "ambiguous" cases where the source language itself does not follow the correct style. In some cases, it may make sense to follow the source language ambiguity; in other cases, it may make more sense to ensure the consistency of the target document. Once this has been defined, the post-editor no longer needs to take the time to consider how best to proceed.

- **Special style rules:** These will likely depend on the particular industry, type of translation, etc. For example, there may be rules about how to correctly handle file formats, formulas, user interface texts, source code, external company or product names, etc. Defining these special situations can accelerate the work of the post-editor considerably.
- **Any other translation-relevant topics:** Any additional information that is useful to the post-editor, for example when to apply light or full post-editing, when to merge (or not merge) translation segments, how to handle rejected/reviewed segments, segment locking, structure/formatting tags, information about terminology/termbases, etc.

The more information is included in the style guide, the better. It should be a "living" document and updated as needed, as it will play such a major role in determining

what to look for when post-editing the text returned from machine translation.

Inside the translation editor

A quality translation editor also plays a significant role in the post-editing process. We use Trados Studio from RWS (who recently acquired SDL) in our company, so the information below is geared towards this software. However, other editors have similar functionality. Trados Studio has extensive options for supporting post-editing of machine translation, most of which are located in the project's verification settings. One major benefit of the options here is that they can be configured as needed and then saved in different project templates for use with different types of documentation or post-editing scenarios. All of the settings here are important and should be tuned to your specific requirements – especially if there are special considerations such as which segments to exclude or limitations to the length of a target segment. Nevertheless, there are three main areas I would like to focus on that are essential for high-quality post-editing: word list, regular expressions, and terminology verification.

1. The word list

The word list makes it possible to define words and phrases that should never be used in a target translation. For example:

- Common mistakes that won't be caught by the spell checker: When I type the word "ratio", for example, my fingers can't help but type the word "ration" due to the prevalence of the -tion suffix in English. The word list catches this error and forces me to take a second look at the segment. NMT may also return words that do not directly match the regional flavor of your language (American English vs. British English, for example).
- Case-sensitive errors: This is where the word list excels compared to terminology verification, which in Trados Studio cannot detect uppercase/lowercase errors. If you untick the "Ignore case" checkbox, the editor will highlight every instance of "PT1000" when it should be "Pt1000", for example.
- Style errors: If your style guide specifies that references should include "For more information" instead of "For additional information", for example, these phrases (and other related variants) that may be returned by the NMT engine can be entered in the word list. Remember that uppercase and lowercase variants must be entered separately if case is ignored.
- Punctuation and special characters: Examples for these are "logged-in user" vs. "logged in user", or invalid HTML entities ("&#amp;" instead of "&").

When well maintained, the word list can play an important role in finding text returned from machine translation that must be corrected during post-editing.

2. Regular expressions

To me, this section represents the best that Trados Studio has to offer when it comes to verifying the correctness of the target documentation. It essentially allows you to define text patterns – for the source segment, target segment, or both – that will determine whether a particular translation unit is valid or not. For example, if the source segment contains "THIS", then the target segment must contain "THAT"; otherwise, an error or warning will be output. Some practical examples include the following:

Severity	Message	Origin
Error	Wrong word detected: is to be (correct form: should be)	QA Checker 3.0
Warning	WARN: x19: Check for missing angled bracket <...>: found in source but not in target ((>greater thanless L.	QA Checker 3.0
Warning	WARN: x16: Check for missing parenthesis (...): found in source but not in target (().	QA Checker 3.0
Warning	WARN: x16: Check for missing parenthesis (...): found in source but not in target (().	QA Checker 3.0
Warning	WARN: 3.4a: Number in source not found in target: found in source but not in target (([1AM]PM]Last [0-9]+ (.	QA Checker 3.0
Warning	WARN: 3.4a: Number in source not found in target: found in source but not in target (([1AM]PM]Last [0-9]+ (.	QA Checker 3.0
Warning	WARN: 3.3.2d: Remove space before colon unless in source code or similar: source matches count 0, target.	QA Checker 3.0
Warning	WARN: 3.3.2d: Remove space before colon unless in source code or similar: source matches count 0, target.	QA Checker 3.0
Warning	WARN: 3.3.2: Check capitalization after colon → Only lowercase if in series, parentheses, parameter/variab.	QA Checker 3.0
Warning	WARN: 3.3.2: Check capitalization after colon → Only lowercase if in series, parentheses, parameter/variab.	QA Checker 3.0
Warning	Target segment does not contain the translated term for "Wellendichtung" - "oil seal" expected.	Terminology Verifier
Warning	Target segment does not contain the translated term for "Versorgung" - "power supply" expected.	Terminology Verifier
Warning	Target segment does not contain the translated term for "Versorgung" - "power supply" expected.	Terminology Verifier
Warning	Target segment does not contain the translated term for "Umgebungsbedingungen" - "ambient conditions" e.	Terminology Verifier
Warning	Target segment does not contain the translated term for "Umgebungsbedingungen" - "ambient conditions" e.	Terminology Verifier
Warning	Target segment does not contain the translated term for "Schwingstärkenstufe" - "vibration severity level" ex.	Terminology Verifier

Figure 2: Verification results before post-editing. Tuning the word list, regular expressions, and terminology verifier will greatly accelerate the post-editing process.



Figure 3: The word list is useful for finding forbidden words or notations. It is very powerful when differentiating between uppercase and lowercase.

- Ensuring capitalization style rules are observed in the target segment, e.g., in section headings.
 - Ensuring that certain words are lowercase/uppercase in certain contexts, e.g., “see page 14” vs. “see Page 14”.
 - Checking for proper use of punctuation such as an Oxford comma, comma after an introductory conjunctive adverb, closing brackets, proper quotation marks, missing full stops, etc.
 - Checking that numbers are properly localized (e.g., with or without thousands separator, or proper decimal mark).
 - Checking for proper spacing in version numbers, device dimensions, measurement units, etc.
 - Checking for proper usage and spacing of mathematical and other symbols (→ instead of ->, ≥ instead of >=).
- Checking for proper usage of abbreviations such as e.g., i.e. and etc. (with regard to commas, spacing, etc.).
 - Checking for special formatting and situations such as non-breaking spaces, duplicate words, or an accidental space before a full stop.
 - Checking that proper technical style is observed for phrases as defined in the style guide, for example:
 - Avoiding the use of certain formulations, e.g., “If, for example, ...”
 - Using “must” instead of “has/needs to be” (where practicable)
 - Ensuring that “see” references are formulated properly

The regular expression rules defined here should match, as much as possible, what is outlined in the translation style guide. They

should also be updated whenever necessary to avoid false positives as much as is feasible. If you are new to regular expressions, don't worry! Some basic patterns can easily be figured out and applied (Trados Studio includes some predefined examples). In addition, there are countless free online resources available that can get you started, as well as many helpful Internet forums that offer support. This is a time investment that will definitely pay off!

3. Terminology verification

The final area that's essential to post-editing is terminology verification. As the name suggests, this involves making sure that a source term is translated properly. In Trados Studio, the settings for terminology verification are also included in the project settings. However, there are a few things

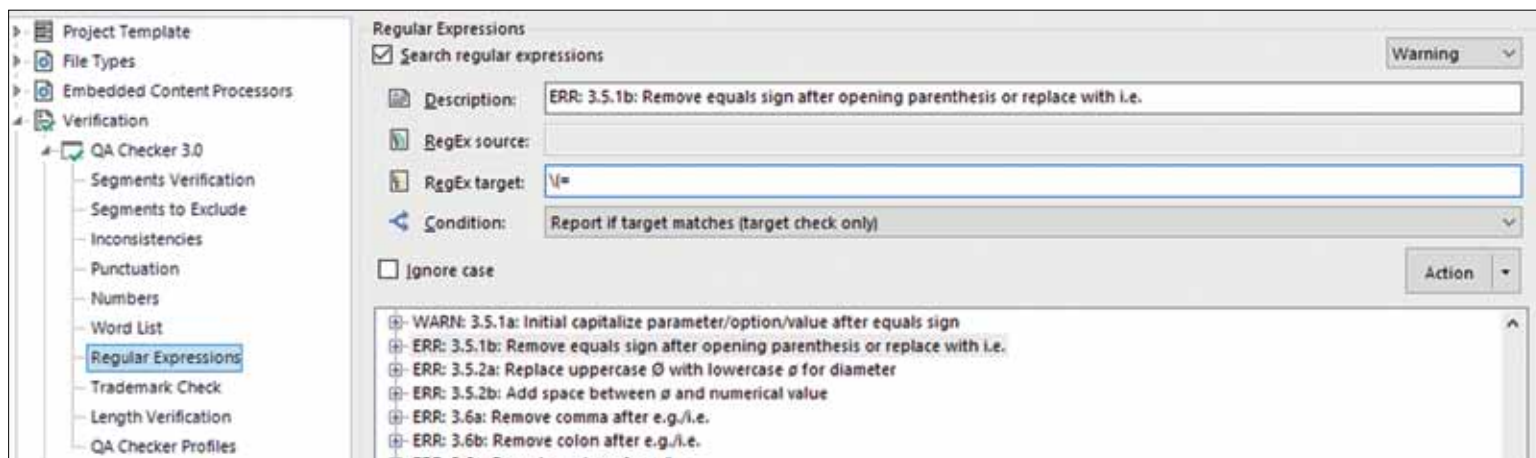


Figure 4: Example of a regular expression that only checks the contents of target segments. The description indicates whether this is an error (must be fixed) or warning (might have to be fixed) as well as the relevant section in the translation style guide where more information can be found.

to watch out for. First and foremost, the "Check for terms which may have been set as forbidden" setting with its option of selecting a "forbidden" term field is misleading. If you use any term in the termbase that is marked as forbidden, regardless of whether the term may be correct (and required) in another context, the program will mark this as an error. Because of this, I find it is useful to have and maintain two termbases: one that contains all the necessary term information and aids in autocompletion and one, a subset of the first, that only contains "must" terms. I then ensure that the "must" termbase is the one used for terminology verification. If you find that your NMT engine is not translating terms properly, you can define the correct terms in this termbase so that incorrect usage will be detected.

These three points – the **word list**, **regular expressions**, and **terminology verification** – essentially constitute the core of post-editing. One effective strategy is to simply run a verification directly after the document has been pre-translated. If a term is mistranslated throughout, for example, this can be corrected with a simple search and replace. Personally, I still like to go through a document segment by segment, correcting what I see as I go; anything I miss can be corrected by verification at the end. In addition to staying in context, this approach also helps me to better see error patterns that may require me to update my verification rules.

Fixing errors

Now that we've talked about some useful ways of finding machine translation errors,

we need to switch our focus to different strategies for correcting them quickly. I mentioned "search and replace" in the previous paragraph. This and other "built-in" tools such as filtering may appear basic, but they can actually be quite powerful if you explore the different options that are possible. The advanced display filter, for example, is an essential "go-to" tool for me in Trados Studio. It can be used to filter all units containing a certain term or phrase, for example, or a specific document structure element, so that it can be visually checked if a certain style is being used properly (see Figure 5). The "search and replace" dialog box can also be applied to filtered results, to only change things that are displayed on the screen at that time.

Working most productively

Obviously, the idea is to expedite the post-editing process by working efficiently. The following are some additional helpful tips and techniques that I have learned over many years of translation that you can practice on an everyday basis to become a more productive post-editor:

Avoid using the mouse whenever possible: Each time you use the mouse, you are wasting valuable time if the same results can be obtained using the keyboard. For example, switching from your editor to another open application such as a browser: You lift your hand from the keyboard to the mouse, move the mouse, click into the browser (let's say to the location bar to enter a new URL), lift your hand from the mouse back to the keyboard and

then start typing. The same procedure can be handled in two actions – Alt+Tab and Ctrl+L – without leaving the keyboard, plus your hands are still placed to start typing. Over time, these seconds add up to minutes, which add up to hours.

Master basic Windows shortcuts:

Everybody by now knows how to copy and paste text, but go a step further. There are Windows shortcuts for advancing word-by-word through text in a translation segment (Ctrl+Left arrow, Ctrl+Right arrow), selecting text word-by-word (Shift+Ctrl+Left/Right arrow), selecting all text (Ctrl+A), moving to the top (Ctrl+Home) and bottom (Ctrl+End) of a document, deleting entire words at a time (Ctrl+Backspace and Ctrl+Delete), and many more. I would imagine the same or similar shortcuts are available in other operating systems as well. Mastering these basic text manipulation commands will boost your productivity profoundly (preferably on a standalone, i.e. non-laptop, keyboard).

Trados Studio shortcuts: Trados Studio has made it very easy to set your own keyboard shortcuts under "File / Options / Keyboard shortcuts". Use these to your advantage to configure frequently used shortcuts in a way that suits you best. I generally use the default shortcuts but have found it useful to modify the following: Move to next/previous untranslated segment (Ctrl+Down/Up arrow), select next/previous row (selects the rows themselves, not the text: Ctrl+Alt+Down/Up arrow) and toggle between source and target (Alt+Left arrow). The latter shortcut makes it very easy to use hotkey scripts (see below) to search for terms in the source or target, check context, and much more without having to use the mouse.







6537	Dialog einfügen	 100%	Adding a dialog box	ModHd
6541	Dialog bearbeiten (grafisch)	 100%	Editing a dialog box (graphically)	ModHd
6674	Layout zuweisen	 100%	Assigning a layout	ModHd
6736	Dialog bearbeiten (XML)	 100%	Editing a dialog box (XML)	ModHd
6967	Use Cases	 100%	Use cases	ModHd
6969	Dialog durch einen Button-Klick öffnen	 100%	Opening a dialog box by clicking on a button	ModHd

Figure 5: The advanced display filter can be used to show segments that match specific document criteria, such as section headings, so that the post-editor can look over them quickly and correct any NMT errors.

```

1313 ; Search several dictionaries
1314
1315 !Numpad2:
1316 {
1317     send, ^c
1318     sleep, 100
1319     Run, http://dict.leo.org/german-english/%clipboard%
1320     Run, https://www.dict.cc/?s=%clipboard%
1321     Run, http://en.dictindustry.com/english-german/%clipboard%
1322     Run, http://www.linguee.com/english-german/search?source=auto&query=%clipboard%
1323     Run, https://en.langenscheidt.com/german-english/%clipboard%
1324     return
1325 }

```

Figure 6: Basic AutoHotkey script that copies the selected text to the clipboard and then searches for it in five online dictionaries at the same time.

Trados Studio apps: There are some free apps in the Trados Studio app store that – in my opinion – save a lot of time. One of these is the aptly named "Regex Match AutoSuggest Provider", which allows you to define text patterns that are then offered for autocompletion in the target if found in the source segment. This can be very useful when dealing with long numbers, strange alphanumeric sequences, or CamelCase expressions. Another powerful app is "Term Injector", which can be used to change the output of a translation memory in line with user-defined rules. There are hundreds of free apps available in the RWS AppStore; it's worth looking to see if there are others that you can add to your post-editing framework.

Scripts/Macros: I highly recommend the use of AutoHotkey scripts to create macros for any repetitive task since the computer can handle these much faster than the user. As with regular expressions, there is a bit of a learning curve, but the time invested here quickly pays off as well. Imagine pressing a shortcut key and searching for text selected in your translation editor in several different online dictionaries at the same time. Or opening and closing a particular program that you use often. Or searching Google or Wikipedia for the currently selected text. The only limit to scripts is your imagination.

The following are some additional ideas for working more productively on your PC:

- Tabbed file explorer
- Keyboard shortcuts in other programs (e.g., cycling through open browser tabs with Ctrl+PgUp/PgDn)
- Mouse gestures
- Clipboard manager
- Multiple desktops (as long as it's easy to quickly switch between them)
- Bookmarks and file/folder shortcuts

Conclusion

As we have seen, the efficient post-editing of NMT output requires two things: quickly identifying errors and then being able to fix them rapidly. By skillfully deploying a verification framework tailored to your projects, you will save an enormous amount of time locating the things that must be changed. These time savings will accumulate even more as you become more skillful at using keyboard shortcuts and scripts. With these strategies in your pocket, you will be able to work much more efficiently and save time like never before.



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As technical editor for English documentation at B&R Industrial Automation, **Michael Schroeder** has been



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Can't read, might not survive

The COVID-19 pandemic has shone a light on the significance of communicating clear, concise messages across communities.

What lessons have we learned and how can the localization industry continue to help?

Text by Alison Toon



It's been over 18 months since the COVID-19 pandemic began, bringing huge changes – often tragic ones – to so many families, individuals, organizations, and businesses. This has also been a turbulent time for the localization industry with some companies flourishing while others struggled. In a survey of CEOs at over 100 LSPs, CSA Research reported an increase in translation early on in the pandemic, when businesses and organizations needed to communicate information about the virus and the changes it forced. [1] Communication was essential and meant that these LSPs kept very busy in early 2020.

Whether to help employees move to remote working, inform travelers about flight cancellation policies, or update a website with notices on potential shipment delays, enterprises rushed to translate content. Over the year, many companies transformed their in-person events into global, innovative, and multilingual online gigs, and localization teams had to rapidly adopt new knowledge in the areas of media localization and interpreting modalities. But much broader than the business relationship between enterprises and their language supply chain was one vital need of every inhabitant of this planet: understandable information about the pandemic. We all relied on information enabling us to stay safe, obtain medical help, get tested, support our families, and where to ask for help when we need it. As communicators working in multilingual and multicultural environments, people reading this article probably anticipated the enormity of this challenge.

Disproportionate damage to minorities

Data now clearly shows that the virus disproportionately and more severely affected specific groups of people, with age, race, underlying health issues, housing situation, literacy, fluency in the local language, and income levels just a few examples of the factors in play. These disparities will continue to be revealed and investigated as more data is collected and analyzed. Just how big a part has language played? If

people cannot understand critical information, how can they act on it? When there is a gap in essential information, rumor and untruths quickly fill the void. If misinformation is easier to find than truth in your own language, what do you believe?

The localization industry has been heavily involved in helping to deliver meaningful COVID-19 information in a multitude of languages. Translators Without Borders, for example, quickly established a COVID-19 glossary of key terminology and technical terms to assist field workers and interpreters in raising awareness about the pandemic. LSPs told CSA Research about voluntary activities that they and their staff participated in. No doubt, these actions all helped to protect people and save lives. Yet, there is more work to be done to make sure everyone, in every community, can receive clear and actionable information in a language they understand.

Just as with the content that enterprises create for digital products, services, and marketing, governments and healthcare organizations can no longer consider that their words will reach all of the audience when delivered in one language only. With that as the premise for their content strategy, they can design content and plan categories of human resources to be better prepared for future needs. The reaction to a major earthquake in a specific location might need similar levels of information and communication, for example.

When analyzing languages spoken in a particular country or a particular state, we can often be surprised by the findings. A multilingual market might appear fascinating to language nerds, and profitable to businesses with the capacities to care for their domestic, multilingual audience. Yet, it provides an overwhelming challenge for many organizations that must provide vital information for all their communities. For example, according to the Judicial Council of California, more than 200 languages are spoken by Californians, and the state is home to at least 11 million people who were born outside of the U.S. – many of whom are not confident with English or Spanish (Public Policy Institute of California). [2] Yet the California government's COVID-19 website appears to provide official



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but partial translations to only seven languages and relies on Google Translate for all others. [3] The website covers translations into Spanish, but there are no translations to Nahuatl or Zapotec, or K'iche'. These and the other languages of Mexico, Guatemala, and other Latin American countries are vital to a subset of migrant workers in the farming and hospitality industries who often arrive in the U.S. speaking neither English nor Spanish.

Did the Californian government formally assess this language need, the speakers' access to the internet, and other logistics such as the location and concentration of the language, and decide that the best way to reach these communities was through outreach and spoken communication – such as through the state's ethnic radio stations – in these languages? Or was it all trial and error, learning along the way?

Data gathered from the UK's 2011 census – which happens every ten years – indicates that 7.7% of the British population speaks a language other than English (or Welsh) at home, with more than 20% of Londoners reporting another main language. Yet, the government website for Covid information is in English only, with no easy-to-find link to any of the minority languages such as Gujarati, Polish, or Urdu. [4] While information mailed to every household about the vaccine included a sentence on obtaining help in more than 15 languages, it made the assumption that people would find this information inside the glossy English brochure.

Israel – ahead of many countries and regions in vaccinating its population – has a contact tracing app that played a major role in managing the pandemic. The app has a UI in Hebrew plus the most-spoken non-official languages: English, Arabic, Amharic (Ethiopian), Russian, and French. Other communities – such as Thai farmworkers – were assigned outreach workers, interpreters, and pre-translated materials. This may have played a significant part in controlling the virus and the early rollout of the vaccine.

The challenge is not limited to regions where English is prevalent: The pandemic has brought the communication challenge to any location with multicultural commu-

nities, immigrants, or migrant workers. For example, Arabic, Igbo, Kurdish, Russian, and Turkish spoken in communities in Germany; Karaim, Kashubian, Rusyn, Romani, and Tatar in Poland; or Baniwa, Nheengatu, and Tukano, in the state of Amazonas in Brazil. For successful and trusted outreach into these communities, you have to speak the language of the people. Under the pressure of dealing with a situation nobody had experienced before, it seemed to take government bodies a long time to realize this.

The challenge isn't just linked to content, but communication in general: If contact tracers, for example, do not speak the language of the person they are trying to reach, they cannot succeed. This increases the risk of letting the virus spread further. If a resident phones in to find out where their unemployment claim is, but cannot understand the instructions in the recorded message before reaching an option for an interpreter, the family may go hungry.

Just like identifying the exact revenue generated by language alone for an enterprise, it's challenging to extricate the effect of a missing translation from other factors to determine why certain communities are more severely affected by the pandemic than others. For-profit businesses have a combination of localization, logistics, local presence, staffing, marketing, GDP, fluency, and other costs and considerations to tie into any ROI calculation for the value of language. Anyone scrutinizing the cost of a missing language in communicating the risks, treatment, prevention, and support plans during the COVID-19 pandemic must also identify the parts played by housing, access to health care and technology, trust in government and authority figures, and more. It's not easy – but it is obvious: During a pandemic, it's not so much a case of can't read, won't buy – it might be can't read, might die.

How can organizations make information more accessible – in all languages?

There are measures that organizations can take to make their information as linguisti-

cally accessible as possible to people of all origins and cultures within their communities. Whether you are providing official translations or assuming that readers or community-outreach workers will use a browser-based MT tool, you can write in a way that makes translation easier and more accurate:

- Use short sentences
- Write concise paragraphs
- Avoid ambiguity
- Define and use consistent terminology
- Use simple tenses (past, present, future)
- Use fewer words (“tolerate” rather than “put up with”)
- Do not use slang or jargon
- Don't forget to use the article (“a”, “an”, “the”)
- Describe one action per sequential step
- Use the active voice (“do this” rather than “this should be done”)
- Use a reading level that is accessible to most of your community

Content that is concise, clear, and easy to understand in its original language is vital when communicating during a pandemic. You want people to understand and trust the information without struggling with complex concepts or grammar. It's basic communication, not creative writing (CSA Research, “Writing to Optimize Your Global Customer Experience.”) [5]

The pandemic challenges any assumption that the general population today has access to the internet – or the ability to use it – not only for information about COVID-19, but also for children's remote schooling, claiming government and state benefits, and even ordering groceries online. How you create content cannot fix this – nor can it ensure that every person lives in safe, uncrowded housing, has a healthy diet, or access to all of the medical help they need. But it can make your content more accessible to many more people that might otherwise not be able to use it – whether through machine translation or by making it easier to understand.

What can the localization industry do to help?

We all know there have been challenges communicating information about the COVID-19 pandemic and the testing and rollout of vaccines, as well as for people claiming benefits or asking for help. This is not a one-off for the current pandemic but will continue to apply to many situations ranging from natural disasters, international incidents, or terrorist attacks, to other outbreaks of disease such as Ebola (CSA Research, “Managing Translation of LEP Content”). [6] We don’t control how governments and other bodies create or disseminate information – but as language experts, we can play a role in lobbying, education, and influence.

Here are some suggestions for how localization workers can help:

- **Use data to make your voice heard**

If you know how many people speak minority languages in your location, take those numbers to local or regional government and help influence how information is communicated – in which languages. While these organizations should know their communities, lobbying – with hard data – will bring more awareness. People who grew up with only one language don’t always know how difficult it can be when you are struggling to understand a second – or third – language.

- **Promote clear and simple source language**

When talking with clients or prospects in government, NGOs, and other organizations that must inform people of safety measures, laws and guidelines, help, or benefits, show them how writing style can allow them to translate and interpret more – and more accurately.

- **Publish and share case studies**

If your company or organization has been involved in outreach work to help share information in minority communities, publish the data and human success stories. The more awareness of how communities have suffered from lack of information in an accessible

language – and how easily this can be fixed – the more likely organizations will address this as a basic human need.

- **Connect the dots**

For example, if you know of local radio in a minority language and see a gap in information in that language, find a way to link the two. This is one way that California spoke to communities of farmworkers from Mexico and Guatemala who speak neither English nor Spanish.

- **Monitor social media**

If you are fluent in a minority language within your community, be sure to flag misinformation that circulates on social media. Point people to authoritative and factual information in their language – or use this to identify and report gaps. Local authorities may not have your linguistic insights into what is happening in social media.

- **Talk to the press**

If you have a story to tell, make sure it’s heard by as many of the population as possible. To repeat what has been said frequently during the pandemic: We’re not safe until everyone is safe. News outlets have published human-interest articles about the negative impact of the COVID-19 virus on minority communities. Take this opportunity to make sure the press includes language in the discussion.

- **Volunteer**

If you have language skills that meet a local community need, check with the local government and other organizations such as Translators Without Borders to find out how you can help. Be proactive: if you see gaps in how information is being communicated – such as an important language missing from healthcare communications, or information about interpreting services




being difficult or impossible to understand, suggest improvements.

Above all, remember that dealing with a worldwide crisis has been something new to everyone. Nobody had all the answers in early 2020. People were learning day by day. As an industry, we know how critical understanding is in the dissemination of vital information – workers in other industries don’t always have that knowledge and may need to be tactfully pointed in the right direction. Just as medical experts and scientists have facts and data for their realm of expertise, the localization industry has knowledge and services for language and communication. Together we can help to create and deliver information that will save lives.

ABOUT THE AUTHOR

Alison Toon has over 25 years of experience in the translation and localization industry with an emphasis in management of translation and localization tools, processes, architecture and operation for content management, and e-business services across enterprises. Her experience in these research areas and key projects helps CSA Research’s clients gain key insights into the technologies, pricing, and business processes key to executive buy-in.



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