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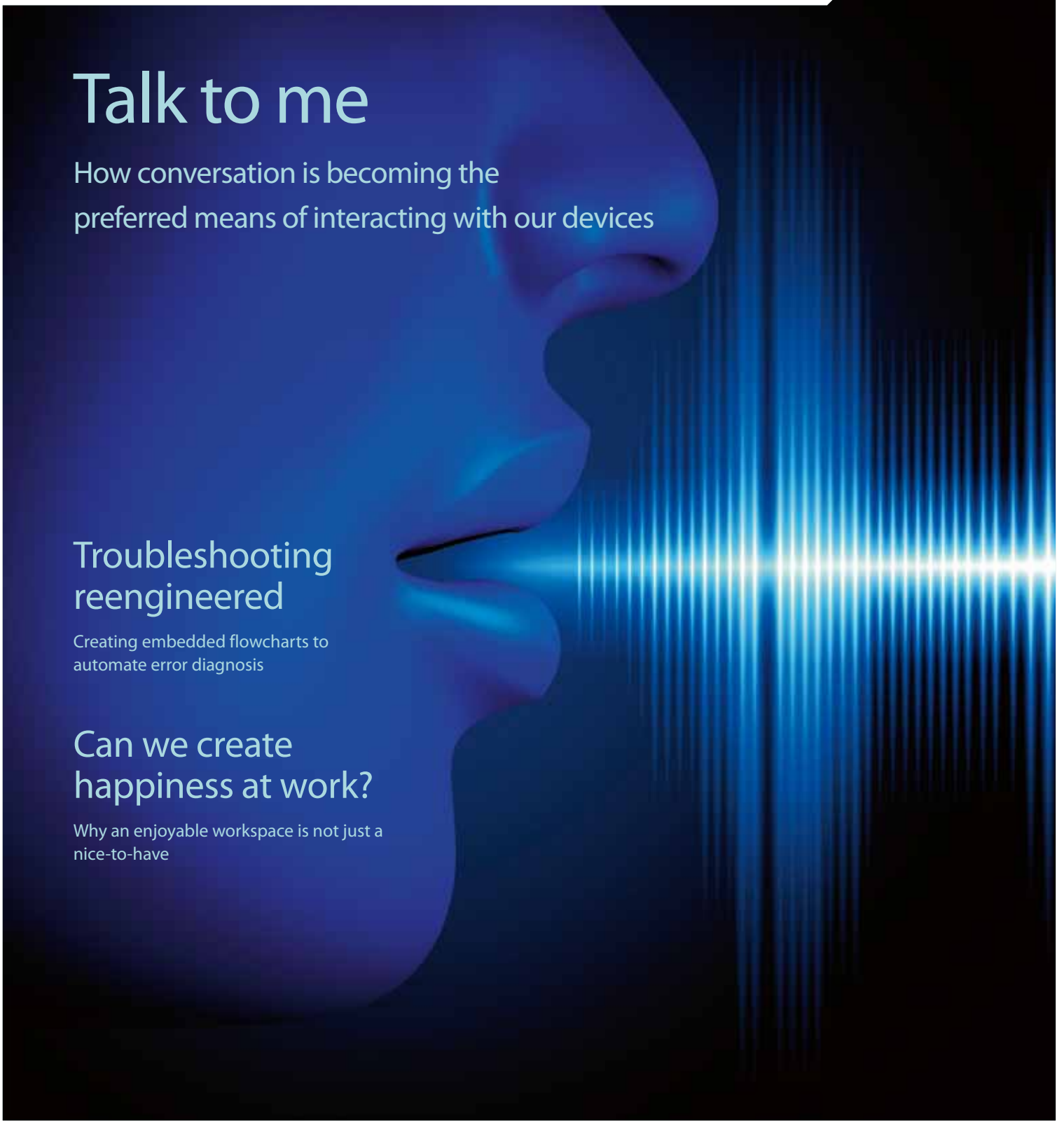

Talk to me

How conversation is becoming the preferred means of interacting with our devices

Troubleshooting reengineered

Creating embedded flowcharts to automate error diagnosis

Can we create happiness at work?

Why an enjoyable workspace is not just a nice-to-have

imprint

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From the editor

Only a few years ago, voice-controlled devices and services weren't taken all that seriously: The first versions of Siri and other virtual assistants integrated in mobile phones gained much media coverage and much laughter, but no serious ground in terms of changing user behavior. But that changed suddenly and drastically in 2015. According to the Local Search Association, searches on virtual assistants such as GoogleNow, Siri and Cortana jumped from a statistical zero to ten percent of the overall global search volume in just twelve months. In 2016, this trend continued with Google announcing that 20 percent of searches now had voice intent. This translates to 20 billion voice-based searches each and every day!

Voice control had certainly taken its slice of the cake, and why not? After all, chatting and conversing come so much more naturally to humans than typing, clicking, and tapping. The broad adoption of smart speakers such as Amazon Echo and Google Home are expected to increase the proportion of voice-based input even further as search engines evolve to support hands-free experiences.
Organizations must start thinking about how they are going to reach and engage their audiences through these new technologies. While we have previously focused our efforts on writing relevant, keyword-heavy content to meet our SEO targets, the emergence of voice-based searches presents us with new challenges. Optimizing content for voice searches is certainly a topic that will occupy our community of technical writers, information developers, content strategists, translators, and localizers greatly in the near future. As the experts in providing relevant, accurate, precise and unambiguous information, we can and should be at the forefront of this discussion.

You can meet many of our authors at this year's tcworld conference. For articles by authors who will also give a presentation at the event, you can find the information about their lecture at the end of their article.

Corinna Melville

technical communication
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Talk to me

Ever since movies like *Star Wars* inspired our desire for natural, flawless interactions with machines, we've been experimenting with and improving conversational user interfaces. While there is still room for improvement, today voice-based technologies are here to stay and tremendously changing the way we interact with our devices.

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Troubleshooting reengineered

Embedded troubleshooting flowcharts put relevant information on malfunctions exactly where it is needed: in the machine that produces the error. And there is much more to be gained from this approach...

page 26

Can we create happiness at work?

Happy employees are more motivated and productive, make fewer errors and increase sales. A guide to a happier, healthier work environment.

page 39

NEW RESEARCH ON CONTENT CREATION

Research firm Common Sense Advisory has released the report *The Winds of Content Are Changing*. The report highlights the fundamental changes that content creation and production are currently undergoing and includes trends as well as suggestions for optimizing appropriately within the constraints of rapid changes.

www.commonsenseadvisory.com

NEW EBOOK: BEYOND DTP

SDL Knowledge Centre has published a new eBook: *Beyond DTP – Benefits of Structured Authoring* guides readers through the process of migrating from traditional authoring and DTP to structured authoring. The eBook is available for download free of charge.

www.sdl.com/software-and-services/knowledge-delivery

PLUNET 7.2

Plunet has announced the latest version of its translation management system Plunet BusinessManager. Highlights include improved usability, high functionality and almost fully automated quote and order creation.

www.plunet.com

MEMOQ 8.2

Kilgray Translation Technologies has released version 8.2 of its flagship product memoQ. New features and concepts include a new WPML filter to translate WordPress files, self-learning machine translation and simplified project package imports.

www.kilgray.com

Worldwide wearable device sales rising sharply

Market intelligence firm Gartner, Inc. forecasts that 310.4 million wearable devices will be sold worldwide in 2017, an increase of 16.7 percent from 2016 (see Table 1). Sales of wearable devices will generate revenues of $30.5 billion in 2017. Of that, $9.3 billion will be from smartwatches.

In 2017, 41.5 million smartwatches will be sold, reaching a revenue of $17.4 billion. They are on pace to account for the highest unit sales of all wearable device form factors from 2019 to 2021, aside from Bluetooth headsets. By 2021, sales of smartwatches are estimated to total nearly 81 million units, representing 16 percent of total wearable device sales. Revenue from smartwatches is bolstered by relatively stable average selling prices (ASPs) of Apple Watch.

Table 1 shows the (predicted) amount of sales for wearable devices.

www.gartner.com

Device	2016	2017	2018	2021
Smartwatch	34.80	41.50	48.20	80.96
Head-mounted display	16.09	22.01	28.28	67.17
Body-worn camera	0.17	1.05	1.59	5.62
Bluetooth headset	128.50	150.00	168.00	206.00
Wristband	34.97	44.10	48.84	63.86
Sports watch	21.23	21.43	21.65	22.31
Other fitness monitor	30.12	30.28	30.97	58.73
Total	**265.88**	**310.37**	**347.53**	**504.65**

Table 1: Forecast for wearable devices worldwide 2016-2018 and 2021 (millions of units) *Source: Gartner (August 2017)*

Image: ©Halfpoint/istockphoto.com

New portal connects humanitarian interpreters with non-profit organizations

Translators without Borders has launched TWB Interpreter Connect (https://twb.interpreterconnect.org), a portal designed specifically to connect non-profit organizations with humanitarian interpreters working in crisis situations. Developed with extensive input from users, TWB Interpreter Connect will help organizations identify interpreters and cultural mediators. It also provides resources and skill development for partner organizations and interpreters working in the Greek refugee response. In the future, TWB hopes to include testing as well.

The need for quality humanitarian interpreting is acute in Greece, where the 40,000 refugees speak a myriad of languages. A study conducted by TWB in April 2017 pinpointed the lack of interpreting services as one of the major barriers to effective humanitarian assistance in the refugee crisis. Further assessment following the study indicated that non-profit organizations had a difficult time sourcing qualified interpreters. According to the study, there were never enough interpreters, who were seen as a critical link to share important information with refugees and migrants on issues like healthcare, food, shelter, medical services, immigration procedures, or accommodation information. Even those who had filled the required positions said that testing of the interpreters' skills was very difficult, and that their level of quality was not known.

TWB Interpreter Connect was developed to address those needs. The portal connects humanitarian interpreters with non-profit organizations needing interpreting services, making it easier to identify the right interpreter for a particular need. Additionally, TWB Interpreter Connect aims to upskill humanitarian interpreters by providing them and their employers with free training materials and resources such as glossaries, guides, and training videos.

https://translatorswithoutborders.org

ADOBE AND MICROSOFT PARTNER TO DRIVE COLLABORATION IN THE CLOUD

Adobe and Microsoft Corp. have recently delivered their first set of joint solutions to help enterprises transform their customer experience with Adobe Experience Cloud, Microsoft Azure and Microsoft Dynamics. The companies are expanding their strategic alliance to increase workforce productivity and drive more efficient business processes. Beginning in September, Adobe Sign, the e-signature service in Adobe Document Cloud, is now Microsoft's preferred e-signature solution across the company's portfolio, including the 100 million monthly commercial active users of Microsoft Office 365. In addition, Microsoft Teams, the new chat-based workspace in Microsoft Office 365, is now the preferred collaboration service for Adobe Creative Cloud, Document Cloud and Experience Cloud. The partnership ensures individuals and teams can efficiently collaborate, communicate and drive decision-making across devices.

www.adobe.com
www.microsoft.com

Smart and intelligent information

Intelligent information is a hot topic in technical documentation departments these days. In fact, as a tekom survey with German companies from early 2017 revealed, 55.5% of the companies were already discussing this subject. Altogether 9.1% of the interviewees stated that they had already implemented a solution for intelligent information development, while 11.6% declared that they were in the project planning phase. And in 18.9% of the software companies intelligent information development is already part of the process. As expected, large enterprises with more than 5000 employees were early adopters of this trend. Three quarters of the respondents from these companies confirmed that intelligent information is a relevant topic for them. And 11.4% of these companies – significantly more than the overall average of 9.1% – have already implemented processes for intelligent information development.

Characteristics of intelligent information

But what is actually meant by smart and intelligent information? There is neither a single definition of the term, nor its features, nor how it is implemented in companies. Instead, different approaches and implementations are considered. The term is used, for example, if a machine or an installation can be maintained or repaired with the help of Augmented Reality. Electronic documentation in the form of "eDok" is also referred to in this context. Intelligent information is modular and format-neutral, adapts dynamically to the application context, can be queried in a targeted manner and be displayed on different output devices. Intelligent information provision in technical communication focuses on the idea that defined target groups receive the information that they need online and in real time, in a particular context and for a specific purpose.

Status of intelligent information development	Industrial enterprises	Software companies	Service providers	Total
Not relevant	44.5 %	52.5 %	36.0 %	45.5 %
In the investigation phase	36.4 %	21.3 %	37.1 %	33.8 %
In the project phase	12.2 %	7.4 %	12.4 %	11.6 %
Already part of the process	6.9 %	18.9 %	14.6 %	9.1 %

Table 1: Status of intelligent information development

Status of the development of intelligent information					
Characteristics of the information	Not relevant	In the investigation phase	In the project phase	Already part of the process	Total
Content is reusable	55.00%	70.40%	71.60%	61.20%	61.60%
Targeted compilation and provision of information	47.40%	50.60%	42.00%	44.80%	48.60%
Product content dynamically adapted to the product status	24.30%	21.80%	32.10%	32.80%	25.10%
Content is media-independent and supports different end devices	14.70%	21.40%	35.80%	31.30%	20.90%
Dynamically adapted content provision for individual use cases	11.10%	12.80%	23.50%	29.90%	15.00%
Targeted access for different target groups	6.60%	10.70%	22.20%	23.90%	12.00%
Context-sensitive dynamically adapted content provision	6.30%	9.10%	22.20%	23.90%	10.30%
Content is stored in various networked data sources	6.50%	9.30%	8.00%	14.80%	8.70%
Dynamic content provision from different data sources	4.50%	4.50%	11.10%	14.90%	6.30%
Automated classification of content	2.40%	2.10%	4.90%	13.40%	3.80%
Content can be extended dynamically by further information and/ or operating parameters in the application scenario	2.10%	2.50%	7.40%	4.50%	3.00%
Content is networked with content from other manufacturers	0.60%	1.20%	1.20%	7.50%	1.70%

Table 2: Status of the development of certain characteristics of intelligent information

Information development with intelligent information

Whereas intelligent information refers to features and characteristics of information, technical communication managers must define how the organization and the processes have to be designed so that content, media and technology interact perfectly to allow the development of intelligent information. The results reveal a "must-have" content strategy for intelligent information development: Almost 50% of the companies where intelligent information development is already part of the process also have a content strategy, while a further 20% are in the conceptual phase.

Technical implementation of intelligent information

Intelligent information takes place within the context of mobile media and digital provision. After all, it is the technical innovation of the new mobile media and its applications that allows intelligent and smart information to be realized at all. Around 30% of the companies planning to implement intelligent information within the next two years rely on browser-based apps. Of those companies where intelligent information development is already part of the process or in the design phase, between 50% and 60% rely on browser-based apps, e.g. on the basis of HTML5.

Information provision

The fact that apps play a crucial role in the creation of intelligent information is also shown by the results regarding the question of how documentation is accessed: In approximately 30% of the companies where intelligent information is already part of the process users accessed the technical documentation via apps. This is also true for 26.2% of the companies where intelligent information is in the design phase. In contrast to that, only 5.9% of the companies where intelligent information is not relevant use an app for technical documentation.

Future outlook

Industry 4.0 is based on the idea of intelligent and digitally networked systems. This involves the exchange of information as well as the automated control of value-added processes. Industry 4.0 pursues similar solutions as intelligent information. The survey question was how technical communication was interlinked with industry 4.0 projects. It is evident that companies where intelligent information is already part of the process, are involved in industry 4.0 projects about four times as often than companies where intelligent information is not relevant.

www.technical-communication.org

Involvement of technical communication in in-house projects for Industry 4.0	Status of intelligent information in the company			
	Not relevant	In the investigation phase	In the project phase	Already part of the process
No, there are no in-house projects regarding industry 4.0 in our company.	58.1%	40.2%	35.6%	40.6%
No, although there are in-house projects regarding Industry 4.0 in our company.	12.1%	19.7%	12.6%	7.2%
No, but it is being planned.	10.5%	25.5%	19.5%	18.8%
No, and there is no interest either.	15.3%	5.4%	3.4%	14.5%
Yes, we are involved in in-house projects regarding industry 4.0.	4.0%	9.3%	28.7%	18.8%

Table 3: Involvement of technical communication in Industry 4.0 projects

The Burnout Paradox – coping with the stress in a tc career

Text by Leah Guren

As an independent tc practitioner with my own company, I am used to juggling different projects, clients, and tasks. To make my schedule work, I have specific times each week allocated to specific tasks. For example, Sunday afternoon is my time to sit down and correct student homework for one of my online courses.

But on the last Sunday in August, my neatly planned schedule fell apart as I learned that Genevieve (not her real name), a dear friend and colleague, had suffered a complete breakdown. Her stress level was such that she was unable to make even the smallest decision. She looked gaunt and exhausted – a dreadful change from her usual glowing health. While we talked, she wept. She needed help, so the homework was ignored while I spent the evening making calls, arranging meals, and researching doctors and care options.

Genevieve had always been a strong, confident woman. In the years that I had known her, she had managed a Tech Pubs group, launched a networking group for local businesswomen, and been active in her community. But as I listened to her that afternoon, I realized how much she had been hiding over the years and the heavy price she was paying for working in a high-stress company.

Genevieve confessed to being perpetually sleep-deprived. She talked about her constant anxiety and the knot in her stomach as she sat in some of the management meetings. She talked about the high turnover rate in the company since it had been bought out by a larger hi-tech company. She talked about the toxic management style and callous treatment of longtime loyal employees. "The new boss only cares about the deadlines," she whispered. "We are like rats running on a wheel. One sprint is over and another starts. We never get to do more than emergency patches and nothing is ever enough."

A common tale

Sadly, my friend's situation is not unique. The sense of excitement and adventure that was present when I entered hi-tech in the early 1980s has mostly faded. Stress and burnout are at an all-time high. In an article for *Business Insider,* Mariana Simoes summed up the situation with the brutal title, "Don't Work for a Tech Company If You Want a Stress-Free Job."[1] She discussed how 82 percent of tech employees considered their work environments extremely stressful.

In the past few years, the spotlight has been on the toxic work culture in the biggest tech players in Silicon Valley. Sharon Gaudin, a senior writer

Image: © GeorgePeters @ istockphoto.com

at Computerworld Magazine, wrote about the "pressure cooker" conditions.[2]

Worse, those of us on the mature side of the employment market are finding the conditions even bleaker. Julie Bort wrote about tech workers over 50 "working themselves to death" in an environment where youth is worshipped.[3]

The statistics vary worldwide. In Western Europe, for example, tech employees report less stress and a healthier work climate. Most European companies seem better at keeping work separate from home life; they don't expect tech employees to answer emails in the middle of the night or work while sick. However, some tech employees in the Far East report a work atmosphere akin to a sweatshop – long hours, cramped cubicles, insane deadlines, and little or no creative input.

There is no doubt that the stress is real and increasing.

Causes

There are many factors that contribute to the situation:

- **Competition:** Tech careers are seen as high status and high pay, attracting more people to tech fields. This, in turn, creates more competition for jobs. In many cases, it becomes a buyer's market, putting the power and control in the hands of the tech companies.
- **Buyouts:** Successful startups are inevitably sold to larger companies; companies merge; larger companies often consolidate. Ultimately, this reduces the number of unique employers. It can also cause a toxic work culture to take over and spread as the parent company swallows up smaller companies.
- **Status:** Some of the stress is self-induced. In a culture that values speed, youth, and aggressive success, young tech employees often internalize the distorted values. Suddenly, working 18 hours is a badge of honor or status rather than an unhealthy, unsustainable situation.
- **Commoditization:** Tech workers are not always seen as intellectual contributors. Once, the highly specialized training and knowledge made tech workers participators in the process, using their intellectual abilities to analyze issues and solve problems. Now, many tech workers, especially Millennials at the start of their careers, are treated almost as piecework employees. Their value is measured in their output (x number of lines of code per day, x number of topics written, etc.) For us in tc, it is even worse as many managers still think that "anyone can write." Once a company views an employee as a commodity, it becomes very easy for them to outsource jobs or replace people with little thought to their special value.
- **Economics:** Salaries have been relatively stagnant while costs have been rising. In the U.S., for example, housing, education, and medical care have become so expensive that even well-paid tech workers in Silicon Valley are forced to have roommates or endure long commutes. Whenever people are struggling to make ends meet, they are easy to take advantage of in the workplace. They are less likely to leave a bad job as they cannot afford any loss of income.

What can we do?

The situation may seem bleak, but there are things we can do to try to reduce and manage the stress:

- **Do your homework:** Before accepting a job offer, find out as much as possible about the corporate culture and work environment. Sometimes it makes sense to pick a less exciting project in favor of a more humane company.
- **Learn to say no:** Setting boundaries is crucial. But rather than saying "I can't" or "I don't want to," researchers at Boston College and the University of Houston suggest that you say, "I don't…"[4] (I don't work on holidays, I don't take business calls at night, etc.).
- **Take advantage of built-in support:** Chances are that your company has policies and procedures to deal with employee complaints. It is sad that many people don't understand that unreasonable stress is abuse and must be addressed by Human Resources.
- **Don't expect balance to happen organically:** You may need to actually block off chunks of time to spend with family, to socialize with friends, or as personal time to take care of yourself (meditation, dance classes, hobbies, etc.). People who don't schedule their personal time risk having their work demands expand to fill all available time.
- **Encourage our professional organizations to be our advocates:** One of the values of a professional society is the ability to work to improve the way we are perceived and treated in companies. Don't let tekom or other tc organizations focus purely on the bureaucratic issues. Let's remind them that the human side of tc is as important as standards and metrics!

Conclusion

After over 37 years in tc, mostly in hi-tech projects, I still love this profession. I believe that the benefits far outweigh the disadvantages. However, we all need to be protective of our health and sanity. There are too many Genevieves who have been sacrificed on the altar of technology.

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ABOUT THE AUTHOR

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Talk to me

How conversation is becoming the preferred means of interacting with our devices

Text by Don DePalma

There's an explosion of speech interfaces for computers, smartphones, and other devices. None of them would pass the Turing Test, a classic test for determining whether a computer is thinking and responding as a human would. However, developers around the world are enhancing conversational user interfaces (CUIs) to mimic human response. Billions of people around the world would benefit from a human-machine interface that requires no training, specialized hardware, or skills beyond being able to talk and listen. The mission: To enable conversational interactions with machines like those we've seen for decades in *Star Trek* or *Star Wars*.

Computers underpin the modern world, adding intelligence to everything from the most mundane household appliances to sophisticated power grids. The nature of computers is changing. Embedded in smartphones and activity trackers, they enable communications with others and monitor our movements and rest. As the cost, size, and complexity of computer chips continue to shrink, computer-powered devices will find their way into even more applications as the Internet of Things (IoT) expands to help us control, compute, connect, and even care for us throughout every aspect of our daily lives.

What we should remember is that this expansive Internet of Things is not just about stuff, but also about the people using those things. This means that all of this computer-equipped gear has to communicate with whoever is wearing it, using it, or affected by it. Traditionally, we tell computers what we want them to do via a keyboard and mouse, by a touchscreen, gestures, or simply by pressing buttons such as on/off/mute. The computer – in whatever device it happens to be embedded – responds via a screen message, by simply turning on, or by muting itself. Wearables on our bodies and the surrounding and nearby IoT change this. Some devices autonomously do what we tell them to, others provide haptic feedback through our fingertips or skin, and yet others interact through immersive Virtual Reality headgear and gloves.

But there is one interface that will rule them all; especially as the next one or two billion users of computing, smartphones, and Internet technology come online: speech.

From automated call centers to virtual assistants

Our voice and ears are the most natural interface for communicating not only with other people, but also with businesses, cars, and phones:

- Speech recognition software (SRS) has long powered interactive voice response (IVR) systems that direct us to the appropriate agent when calling companies or government offices. Cheaper computers and better software led to widespread use of IVR as ways to optimize contact centers. Because IVR limits callers to pre-programmed dialogues, straying from an expected script leads to communication failures. IVR is limited by the operational dialogues that their owners devise – thus, they would fail the Turing Test because they "think" like a workflow, not like a responsive human agent in a conversation.
- Automobiles began incorporating voice-command devices (VCD) for in-vehicle communications and entertainment in the early 2000s. Initially, this specialized speech recognition software understood just a handful of commands to operate the radio and air conditioner, then added support for navigation systems and, over time, expanded to thousands of commands as they added queries for driving directions or finding gas stations. But like IVR, many in-vehicle systems

still react only to known scenarios and aren't very conversational. Only the latest generations have incorporated smartphone SRS technology in the form of CarPlay and Android Auto, automotive versions of Apple Siri and Google Assistant respectively.

- Mobile phones initially offered speech support for simple canned actions like "call Mom", but over the last six years have evolved their speech interfaces into what seems like more conversationally capable virtual assistants. Then Apple Siri, Google Assistant, and Microsoft Cortana migrated from the phone to the desktop and into cars. Along with Amazon Alexa, they started finding their way into other devices. Today, those technologies represent the most powerful speech interfaces available to the mass market.

Improved as they are over IVR and VCD, even virtual assistants are not yet where users want them to be. So where would that be?

Conversationally challenged devices

Everyone really wants the fully conversational and intuitive talking computers that science fiction has tantalized us with for years. For all their power, today's mobile-phone conversational user interfaces (CUIs) are still an early demonstration of technology rather than the evolved *C-3PO* or *Marvin the Paranoid Android* experiences we expect.

Let's consider the shortcomings of today's interfaces, and then outline what's happening in development laboratories.

First, where do today's CUIs fail to meet user expectations? Every user of speech recognition has experienced problems with understanding and gaps. For example, the device doesn't recognize you or your accent, so you have to repeat or enunciate. Or it misses something you say because a car horn sounds, another speaker talks over you, or you turn away from the microphone for a second – and unlike a human, the technology doesn't fill in that short gap with the known context the way a human interlocutor would. People are understandably frustrated when Alexa or Siri respond with "I don't understand" to even simple requests. In turn, users raise their voices, speak more slowly, dumb down their questions, or simply abandon the interface.

You might stray from the dialogues or domains that the phone understands, say something unprogrammed by the CUI developer, or ask a question that requires the ability to make an inference or interact with another application. For example, you ask your brother-in-law in Poughkeepsie what the weather will be like for your visit this coming weekend. Knowing that you're visiting, he will realize that you're asking him what you should pack and he answers, "It looks like thunderstorms Saturday afternoon, so bring some rain gear."

Now let's ask one of these CUIs about Saturday's weather in Poughkeepsie. It will tell you the forecasted temperature and the likelihood of precipitation. But it won't make the inference that your brother-in-law did, so you ask more explicitly, "Will I need a jacket in Poughkeepsie tomorrow?" You'll either get the temperature or maybe directions to a site telling you under which conditions you might want to wear a jacket, but it won't make the connection between your request and the weather. Or it might simply misunderstand one or two words and give you the wrong answer.

Given this inability, you won't rely on Alexa or Siri to arrange all the details for your next trip. If a CUI can't extrapolate your intent in asking a simple question about what you should wear the next weekend, we can be sure that the combinatorial complexity of an international trip – with call-outs to other websites or micro-services for things like flight reservations, hotels, and possible visa requirements – is well beyond its current capability. Finally, none of them remember state – that is, memory and context – so you really can't have a conversation with one of them. For example, a CUI won't remember what you asked it to do a few minutes ago, so subsequent dialogue starts from scratch. CUIs can't save results or provide a persistent link. Until they can remember state, they remain conversationally hobbled.

Those are some of the flaws of today's CUIs. We're still at a crossroad waiting for even more intelligence to take us to meet our expectation of a meaningful conversation with our at-hand devices.

Technological advancements leading us into the future

Successful conversational interfaces deal with vague, non-deterministic, arbitrarily complex, and very likely contradictory input. The potential for semantic errors multiplies dramatically as these inference engines work through steps and transitions between tasks fulfilled by different systems. These evolved CUIs will use program generators to parse input, determine intent, create code on the fly, and call the services that can deliver them. According to our findings at Common Sense Advisory (CSA Research), their technology is advancing on a few fronts – speech recognition, connectivity, and inference.

Speech recognition

Speech platforms must process complicated utterances in a variety of accents, dialects, and idiolects. In August 2017, Microsoft announced that its speech transcription software generated fewer transcription errors than a team of humans would have. This was a lab test and simulated audio from a stable landline, but it's a step in the right direction for dealing with the noisy backgrounds of mobile phones, factory floors, and fast-food drive-through ordering systems.

Connectivity

Everything benefits from broad usage. This network effect mandates that CUIs interact with a wide variety of programs. Similar to WeChat (China) and Line (Japan), they'll allow for integrating an array of specialized functions. Unlike these, they'll offer even broader portfolios of services and – for several of them – the ability to support dozens of locales in these interactions. Earlier this year, developers of the leading CUIs announced open interfaces so other systems could incorporate a conversational interface. Amazon and Microsoft have already agreed to have Alexa and Cortana talk to each other, thus allowing them to exchange knowledge from each other's domains.

Inference

To avoid the Poughkeepsie rain gear problem, these evolving speech platforms are adding artificial intelligence (AI) to help decipher the intent of user input and provide the conversation with some context and memory. Inference engines apply AI techniques to figure out what people are actually asking and to provide an appropriate response – which will often require a determination of state and history, disambiguation, clarification, and calls to other services. Hence, connectivity to other systems is essential. Developers are also adding machine learning frameworks from Amazon, Google, IBM, Microsoft, and other big-data suppliers so

that the CUIs benefit from previous interactions. Backed by AI software, these apps will learn from interactions, become more predictive and insightful in their responses, and simulate a more conversational interaction.

Preparing for conversational interfaces

How should your company react to these changes? Our data at CSA Research finds that speech is becoming the dominant interface, especially for new users with mobile phones or for interacting with IoT around the planet:

- **Add mobile to your content and platform strategy – and budget accordingly.** Mobile and IoT devices constitute a tremendous growth opportunity in both developed and new markets. Besides provisioning for staffing and technology changes to your existing localization models, you'll also have to conduct the budgetary exercise of establishing the return on investment for adding mobile-centric locales with big, but not economically attractive populations.

- **Add plans for speech to your global content strategy.** Extend current processes to meet expanding requirements for spoken interactions such as searches and customer support. Devices and content types differ for mobile, but core development concepts such as separating presentation and content from code still apply. Recognize the need to meet increased expectations for local experiences arising from the proximity, immediacy, and intimacy of mobile devices, so train staff and contractors.

- **Experiment with commercial software for spoken language support.** Today's virtual assistants provide an off-the-shelf, evolving platform for spoken interactions with a variety of devices. Evaluate the alternatives and choose the one that best meets your requirements:
  1) If your app is cross-platform, identify one that runs on multiple devices – Google and Microsoft currently lead in this area;
  2) Pick one that has an API or SDK to allow integration with your app – in 2017, suppliers began releasing these low-level interfaces; and
  3) Consider the current state of foreign-language support and quiz prospective suppliers on future offerings – today, Apple and Microsoft are ahead on that front.

- **Work within that platform's ecosystem.** Today's mobile apps are largely single-function affairs. Speech is one of the first shared services that many will incorporate. We expect that apps will increasingly be re-developed around micro-services, using modularized code that runs a single process and interacts with other services through a well-defined interface. Make your own apps self-describing or interrogatable so that they can be more easily discovered by others. More metadata about what they do will enhance the ecosystem.

In the final analysis, the spoken language that people use to communicate with fellow humans will be their interface of choice for dealing with machines. As billions of people interact with an enormous number and variety of computer-equipped devices, conversational interfaces will become more prevalent. Commercial enterprises and government agencies should begin researching and experimenting with spoken-language interfaces that their customers and citizens will come to expect.

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Exploring voice applications for user assistance

Voice assistants such as Amazon Alexa or Apple Siri have been around long enough to become much relied-on aides for millions of users. They also offer great opportunities for user assistance. However, while the tools are already out there, the tc community has yet to fully seize these possibilities.

Text by Alan Houser

Image: © mikkelwilliam/istockphoto.com

"Alexa: Who is the Chancellor of Germany?"
"The Chancellor of Germany is Angela Merkel."
"Alexa: When was she born?"
"Angela Merkel was born on July 17th, 1954."

This natural-language spoken interaction happened very recently, between me and a device – the Amazon Echo voice assistant in my home. "Alexa" is the *trigger word* for the Alexa; I can interact with the Amazon Echo at any time by saying the trigger word. Calling the device by name – Alexa – contributes to the feeling that the interaction is natural.

In yesterday's science fiction, humans often engage computers by voice. And why not? Virtually all humans are capable of speech. We use our voices all day, every day, to interact with each other. Speech is perhaps *the* most natural, easiest way for most humans to communicate with each other.

When humans engage computers, however, voice interaction has been relatively rare. Voice has been available in very specific niche areas, such as automated telephone attendants and voice dictation software. But until recently, voice control of computers was not widely available.

But a grand convergence of improvements in speech recognition, natural-language processing, and cloud computing is quickly making voice interaction possible, even preferable.

The possibilities of science fiction are here today, through the increased popularity of voice assistants – Apple Siri, Google Assistant, Amazon Alexa, Microsoft Cortana, and others. These voice assistants have been most popular for personal tasks (setting timers, checking calendars, setting reminders), playing music and other audio (with voice control), and for web searches and fact-checking. But the devices can also empower application developers to provide rich user assistance experiences, all based on the human voice.

The growing popularity of voice assistants

The first popular voice assistant was Apple Siri, released in 2011. Siri is only available on Apple computers, tablets, and smartphones. Google Assistant is a similar service for Android tablets and smartphones. With Windows 10, Microsoft introduced its voice assistant, Cortana.

More recently, manufacturers have sold voice assistants as dedicated devices. Amazon launched the Amazon Echo in 2015. Google followed with Google Home, and Apple has announced a Siri-enabled device called the HomePod, due to be released before the end of this year.

The research company eMarketer estimates that these dedicated devices are already in 35 million U.S. homes, double that of last year, and that they will be in three-quarters of U.S. households by 2020.

Soon voice assistants will be even more widely available. Amazon recently announced the Alexa Voice Service, which allows developers to deploy voice-based applications on any Internet-connected device with a microphone and speaker. This capability may help to launch a new wave of smart voice-enabled devices. Most importantly for technical communication, this capability will allow developers to provide voice-based user assistance in virtually any product or device.

Voice-based user assistance?

Voice assistants are particularly suitable for technical communication. They can provide user assistance in a natural dialogue. We just need to program them to do so. The good news is that most manufacturers of voice assistants support third-party developers. They provide software developer kits (SDKs) and frameworks that spare developers the technical minutiae of deploying a voice-based application.

Some manufacturers of voice assistants focus on supporting developers who wish to provide voice control of Internet-connected devices, such as lights, thermostats, and security cameras. Their SDKs and developer documentation reflect this focus. In fact, Apple calls their developer framework "HomeKit," as it focuses on home automation.

Google and Amazon are more expansive in their developer support. Both Google and Amazon allow developers to deploy custom voice applications. Google calls these applications *actions,* while Amazon refers to them as *skills*. Both Amazon and Google provide excellent documentation as well as copious examples and tutorials. Individuals with rudimentary development skills can successfully deploy a basic application.

According to Amazon, more than 15,000 third-party Amazon Echo skills are available. Currently Amazon supports skills in U.S. English, U.K. English, and German.

These devices are clearly at a tipping point in capabilities, market penetration, and support for third-party developers. It's time to consider them viable platforms for delivering user assistance.

AVAILABLE VOICE APPLICATIONS

While true voice-based user assistance is in the near future, these applications are available in the Amazon Echo Skills Store, and provide insight into possible designs for dialogue-based user assistance.

- Tide
- Guitar Teacher
- Glad Recycler
- Stain Remover
- My Workouts

Concepts and terminology for designing voice applications

If you wish to program voice applications for user assistance, you must be familiar with the concepts and terminology of voice application development. Let's consider the language and terminology necessary to express, at a high level, the design of a voice application. Here, we will use terms from the Amazon Echo developer documentation, though the concepts are universal across voice platforms.

- The ***trigger*** word is the word or phrase that signals to your device that you are about to begin an interaction. For Amazon Echo, the trigger word is "Alexa" (customers can configure a different trigger word from a small set of options, such as "computer"). "Hey Siri" and "OK Google" are other trigger words for Siri and Google voice assistants respectively. Most voice assistants are always on and listening for the trigger word.
- The ***intent*** is an action that your user requests, like "search flights" or "get help." When you develop your application, you may choose to confirm specific intents. For example: "Alexa: Tell me how to print." (Alexa response) "Do you want help on printing?" An application may offer many intents within the flow of a dialogue.
- An ***utterance*** is a literal word or phrase that customers might say to initiate an action. These are the literal words and phrases that form the user interface of your voice application. You must anticipate your users' utterances – as in real life; different people may speak the same request in different ways. One user may say "Search for help on printing." Another may say "Find printing help." Or "Tell me how to print." Your application must handle all reasonable variants of these phrases.

- A ***slot*** further defines an intent. In the utterance "Find flights to New York," New York is a slot that your application will use to constrain the search to New York flights.

You must program your application to accept a reasonably wide variety of word/phrasing variations for the same intent. For example, a user may say "Yes," "Sure," or "OK" to confirm an action. You must also provide a response if your application does not understand the user's utterance. For example, your application may respond to an unknown utterance: "I'm sorry, I do not understand what you said. Can you please repeat or phrase your question another way?" Just as a voice application may provide several or many different intents, your application will likely respond to different utterances, in different contexts, throughout the flow of your application.

Candidates for voice-based user assistance

Consider the possibilities of voice-based user assistance for the following products and services:

- Products/services that are not computer-based, such as mechanical devices or machinery.
- Products/services in which voice interaction is natural, such as smartphone apps.
- Keyboard-based products or services in which voice assistance might be helpful. For example, voice-based user assistance for desktop software applications. Here, voice-based assistance might be less likely to interrupt a user's workflow than conventional keyboard-based help.
- Tasks done outdoors, or in environments that aren't conducive to getting help by typing on a computer, table, or smartphone. For example, when stuck on a roadside with a flat automobile tire, having a voice application guide you through changing the tire could be very useful.
- Tasks that require the use of both hands. Imagine a surgeon, airline mechanic, or thousands of other roles or tasks that don't allow the user to easily type on a keyboard.

Design considerations for voice

Similar to a conversation between humans, a voice application consists of ***requests*** by the user and ***responses*** by the application. And just like a normal conversation, the interaction between user and voice application can go back and forth, with a natural progression of the interaction.

Voice applications present new user interface challenges compared to the graphical user interfaces of conventional applications and help systems. When designing voice applications, especially complex question-and-response applications that will provide robust user assistance, developers must consider user interface issues:

Flow of control

Especially if you are creating a complex, multi-turn voice application with many options and paths, you will want to flowchart the application flow. Map the entire possible user journey through the application. For complex voice assistance applications, you may want to divide your flowchart into specific modules or areas of the application.

Context and navigation

Your application must maintain the user's context as he/she navigates through the application. How will your users:

- Invoke the application?
- Go to the first step?
- Go to the next step?
- Go back a step?
- Repeat a step?
- Start over?

Understanding your user

Users can express the same intention in many different ways, such as, "Help me print," "Help me with printing," or "Tell me how to print." Your application will need to handle the utterances your user will use to engage your application.

Confirmation

In your voice application, you may want to confirm some or all of the user's utterances. For example, your application may confirm by saying "Do you want help with printing?" However, excessive confirmation, particularly for utterances like "yes" and "no," can be tedious for the user.

Error handling

You will need to handle circumstances in which your application does not understand the user's utterance.

Prototyping and user testing

Because your voice application must understand the user, you will want to prototype your application with real users. This will help you to prove or disprove your assumptions about the user, and improve your voice interaction model. You may discover that your users do not interact with your application as expected, particularly with regard to the words and phrases they use to express their intents.

Conclusion

Voice assistants provide the capability of natural interaction with computers through voice dialogues. As voice assistants and voice-enabled devices become ubiquitous, they provide exciting opportunities for delivering user assistance through voice. We can begin to design voice-based user assistance today.

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- Amazon Alexa Voice Design Guide: https://developer.amazon.com/designing-for-voice/
- Alexa Voice Service: https://developer.amazon.com/alexa-voice-service

Learn more about this topic at the **tcworld conference:**

Date: Tuesday, October 24
Time: 9.45 - 10.30
Room: C6.1

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Why click when you can chat? – Transitioning to conversational UIs

Conversational user interfaces have made their way into our everyday lives, and they are here to stay. But what does this mean for technical communicators? How can we adjust our writing style away from the matter-of-fact tenor that has been instilled in us and towards a relaxed, conversational tone?

Text by Nithya Krishnan

Not all that long ago, conversations between man and machine were a thing of science fiction movies or at least reserved for an unforeseeable, distant future. Today, the technology is here, and conversation is set to become the de facto standard in engaging with user interfaces.

Whether servicing your car, checking your diary for today's appointments or running your daily errands, it is all done through natural language and simple conversation. Say goodbye to conventional clicks and welcome the age of conversational interfaces.

New technology is forever changing the way we interact with applications. Since the advent of Graphical User Interfaces (GUIs), we have become well accustomed to visual commands such as clicking, dragging and dropping, selecting a button or selecting an item from a menu to accomplish

Image: © wutwhanfoto/istockphoto.com

a certain task. Conversational User Interfaces (CUIs), on the other hand, dispense with all these actions. You can now interact with your applications with the simple use of text and/or voice (which is later converted into text). Such conversational interfaces make the experience more natural for humans, and can even transcend the need for learning to use an application. Everything works seamlessly with natural language.

Many applications, one mouthpiece

In today's digital world, we use a multitude of devices and applications and we use them everywhere: at work, at the store, in the gym, in the cab going through the city, and of course at home. GUIs have reached a threshold where our overall digital ecosystem is bursting with apps and interfaces. But most of these do not assimilate information. The interfaces we work with are not harmonized across all devices.

CUIs provide a common channel through which we can interact with all applications on all devices. In fact, we don't even need to remember which device or application we have stored a certain piece of information on. Using CUIs, users can concentrate on the task at hand without having to think about what app to use or which UI works best. Digital assistants such as Google Assistant, Apple Siri, or Amazon Echo help us to achieve this. Enabling these assistants with conversational UI capabilities completely transforms the way we interact with systems. And how? By using simple natural language.

Chatbots and digital assistants

CUIs in the current digital setup are conversations between a human and a computer. This is enabled by what we commonly call chatbots or digital assistants.

In the context of an enterprise or a business, a CUI must have the ability to react to questions initiated both by the user and by itself. It must be able to fully understand the business data at hand. In this way, a digital assistant not only provides the data for the request initiated but also provides information for a suitable course of action. Another important point is that a digital assistant remembers past conversations, so that it can pick up where it left off. This includes past interactions as well as preferences. Getting a service performed through natural conversation simplifies processes, enhances the experience and actually involves less training on the user's part. This holds true even for inexperienced or occasional users.

Writing for CUIs

When we look at CUIs from a development aspect, it seems obvious that the bulk of the work lies in design and programming tasks. However, what we tend to overlook is the crux of the CUI. The conversations! And this is where we, as professional technical communicators, come in. Looking back, the challenges that we now face creating conversations for CUIs are unprecedented. When GUIs came into the world of applications, we had to adjust to a new space-constricted, keyword-focused style of writing. However, as technical writers, we already knew a thing or two about precise texts, labels, messages, titles, procedures, navigations and so on. But so long

BUILDING YOUR CHATBOT

So you've decided to build a chatbot to cater to your users' needs? Here are some basic steps that you can follow:

1. **Setting goals and defining a persona**
   Before constructing your chatbot, understand the service that your CUI needs to offer the user and set the desired goals. We build relationships not only through the information we exchange with one another, but also through the emotions with which we deliver this information. A chatbot must convey a personality of trust and emotion. Therefore, it is crucial to define the persona of your chatbot and instill in it a character that reflects your brand. Instead of delivering information to users in an automated format, the chatbot must aim to be conversational and cater to the service it is created for.
2. **Structure and flow**
   Structured conversational flow is at the core of building effective and engaging conversational interfaces. Any breaks in conversation are generally very disturbing and interrupt the flow. Your chatbot must be intelligent enough to bridge these breaks to make the experience more fruitful. It should always drive the conversation forward, for instance by helping users discover additional functionality, or by providing actionable phrases or buttons to redirect them to a place that might solve their issue. Keep conversations natural by giving the user space to speak or write.
3. **Content matters**
   Of course, content is the foundation of every chatbot. Determine the various entry points to the CUI, possible moods of the user, more and less likely questions, and so on. The intention behind a chatbot is to save time and to direct users to the right source to get the task done. If your chatbot doesn't fulfill this task, it's not much better than any website or app. While designing the content for the chatbots, you have to create boundaries for the conversation by giving your users either buttons to select or actionable commands to use. Don't leave the conversation open to interpretation. It is also a good practice to repeat the information back to the users, so they feel more comfortable knowing you got it right. And remember that you don't want your users to feel like they're talking to a machine. Use friendly, inclusive language. Attaching context to the conversation helps. This gives a more personal touch and a whole new dimension to the conversation.
4. **Build your conversational script**
   With the flow and content in hand, you can create chat clusters and determine (on paper) what the overall conversation could look like.
5. **Consulting with developers and deciding on a platform**
   Understand how you can digitize your overall script with the help of your colleagues from development. Upon completing the coding of your chatbot, you can decide which platform best suits your business needs such as Facebook Messenger, Slack, Telegram, WeChat, and so on. Select the platform based on your target audience and the user experience it offers.

our focus has always been on explaining the *why's* and *how's*.

Most of the time, writers across companies follow certain templates and guidelines to document product-related content. These guidelines have led us to develop an academic and formal writing style that is not suitable for conversational UIs. So, how can we change our writing style from an academic or technical one to a more conversational tone of voice?

Perhaps you are thinking, "Why would that be difficult?" or "Finally, I can really get creative." Unfortunately, both assumptions are incorrect. The challenges of writing natural conversations should not be underestimated. Language is the major medium framing a conversation. How to keep a user engaged through the course of a conversation, in which sequence the steps should appear, how to respond to user reactions, are all essential questions in the context of CUIs. In simple words, the crucial part of creating conversational experiences is the conversation itself.

This shift from graphical user interfaces to conversational ones necessitates a new skill set; it requires user experience professionals with a deep understanding of narrative and conversational design and writers who can help frame the conversations in a natural way.

The integration of conversational UI capabilities into digital assistants humanizes the way we interact with computers. These digital assistants make conversations more context-based and intent-based by taking advantage of technologies such as Artificial Intelligence (AI) and machine learning, resulting in a more human-like interaction.

Turn-taking, context, and threading are all part of a cooperative or fruitful conversation, an idea popularized by linguistics philosopher Paul Grice. Grice called this the "Cooperative Principle". He also developed Grice's Maxims to define the essential conversational rules he observed – namely, that people should be as truthful, informative, relevant, and clear as possible when talking with each other. A conversational UI should follow these inherent rules of cooperation as well.

- Quality – the speaker conveys only truthful information
- Quantity – the speaker provides as much information as he can
- Relation – the speaker provides relevant information that is pertinent to the topic being discussed
- Manner – the speaker organizes the information and avoids ambiguity and obscurity

By leveraging the conventions of natural conversation, chatbots can be created in such a way that people intuitively know how to use them.

The future of conversational UIs

It seems evident that CUIs are here to stay and will keep moving a notch higher each day on the technology adoption curve. With more AI and deep learning algorithms, CUIs will certainly gain popularity. As we know, emotions influence conversation the most. The better CUIs can master human emotions, the more mature they will become in catering to varied user needs. Interpreting emotions through voice or facial expressions, or even understanding physical conditions (for example based on your body temperature), are areas that will enable this advancement.

With the proliferation of devices and their varied interfaces, CUIs will help bridge the gap between humans and technology and enable users to carry out tasks using simple and natural language. In the near future, CUIs and digital assistants (as the extended version of CUIs) will become the preferred UI for digital natives.

Learn more about this topic at the **tcworld conference:**

Date: Tuesday, October 24
Time: 17:15 - 18:00
Room: C4.2

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Are chatbots the new thing in technical documentation?

Across industries, Chatbots are sprouting from corporate websites like daisies in spring. But are they really helping to engage customers? Or are they merely a source of frustration or even ridicule?

Text by Dima Ilieva and Ekaterina Mitova

Image: © BraunS/istockphoto.com

Chatbot development has occupied many industry publications and events. Our documentation team at SAP recently decided to give it a try and develop a chatbot as part of our software documentation. The aim was to test how users would react to a chatbot in our documentation, find out if they would use it at all, and see if it would make sense to create a more complex documentation digital assistant. What would be the value of having a chatbot? Would it be difficult to build and maintain?

Contrary to the common perception, it is not necessary to use Artificial Intelligence (AI) in your chatbot, at least not at the beginning. Building a prototype chatbot requires coding skills in English and a lot of manual work. Most probably, AI will become inevitable further down the road, but this is a long way off, and it's better to start with something simpler and easier to test.

Today, almost anyone can create a chatbot. It can have a single purpose, or it can perform multiple complex tasks. It can include a simple conversational UI, or analyze the interaction with a human using AI. And even though a chatbot most probably won't have its own hardware body, it will be as smart as we program it to be.

But is it really necessary to have a chatbot on your website? Here are a few thoughts to consider.

Giving users someone to chat to

Let's face it, most people like to chat, whether there are other people around or not. These days, we spend more and more time using messaging applications in order to engage in conversation.

Businesses want to be present at the same places where their customers spend their time. And customers are on the move. They are moving from not-so-intuitive UIs to a more immersive way of searching for a product or information, to simply asking for it verbally. And this is where chatbots come in. Chatbots will "talk" to users, offer advice, perhaps even make a joke. They will do what you tell them to do, and nothing more.

Chatbots are no spawn of superintelligence. But they can be designed to provide customers with what they need. And chatbots that don't use AI are the perfect means to test precisely that. They are relatively easy to design and modify, and they are perfect tools for getting a feel for what your customers require. You may spend months trying to make your chatbot more human-like only to find out that an overly human appearance irritates your users. If you test with users early, you have a great chance of ending up with a chatbot that will serve your ultimate goal – to attract and keep people engaged.

Interesting examples of chatbots already exist in different applications: Viber, Duolingo, and Slack are just a few examples. The fact that chatbots can be used successfully for different business purposes points to their flexibility.

Less is more

At first glance, a chatbot that includes only a conversational UI may seem rather limited. It cannot exceed the boundaries of what it has been programmed to do. But then, it is precisely this trait that makes it so adaptable: The purpose it will be used for is up to you. How much information will it provide? Will it be serious or exceptionally friendly? Will it be inclined to ask questions or will it do the talking? You decide and you design.

As you do, keep in mind that users are often impatient. We switch to another site when we don't find what we are looking for on the first or second page, if we don't see it written in big letters somewhere instantly, or if a page dares to load for longer than a few seconds. We get frustrated easily, and if there's a useless bot on the website, chances are we'll get frustrated even faster. That's the risk. If we create a chatbot just so that we have one, it might have the opposite effect. But if we do it right and test it properly, it may help users find the right product or information faster, leave them with a positive feeling, and perhaps even make them revisit the site.

The good thing is that chatbots can be included in websites, software and messaging applications. In our case, our chatbot lives in a documentation portal. Its purpose is to help users find the most suitable information for their specific case.

It's easy to design a simple chatbot

Let's say a few more words about our case: A chatbot that was designed to be part of software documentation. We started with a simple prototype. We wanted to test how our users would react and if they would use it at all. We wanted to find out if it would make sense to create a more complex documentation digital assistant sometime in the future. We collected a lot of feedback, drew conclusions, and used them to continuously improve our chatbot. It turned out that having a chatbot in documentation is a very promising idea.

Instead of using AI, we used pure conversational UI techniques to design conversations. We interconnected the possible questions and responses, developing a conversation graph. This included a lot of manual work and imagination, but it's something any author can achieve.

If you want to give your own chatbot a try, here are some tips and tricks for you that were very helpful for us:

1. Offer predefined options

It's easier to start building the conversation with predefined options that users can choose from. There are at least two reasons for this:

a) It's easier to offer options to choose from than to consider all possible user responses. Just think of a simple yes/no question; there are at least ten different ways to reply with yes: "yes", "yup", "y", "you got it", "you bet", "sure", "why not", "yeah", "I would", "I'm in", "count me in", and so on.

b) People are always tempted to fool around with a chatbot, to find its disadvantages, to test how it would react to slang, vulgar words, and insults. If the chatbot is not designed especially for that purpose, most probably you don't want this to happen.

Limit the options to three or four. The more options you provide, the more difficult it will be for users to make a choice. Provide options like "Go back" and "Start all over" to keep the conversation simpler.

As a start, predefined options are a good choice and make chatbot testing easier. However, in the end, users might want the option of writing. So, consider having some parts of the conversation where users are able to share their thoughts. You don't need a complicated AI for that, just more manual work and more testing.

2. Keep it short and simple

Particularly when it comes to documentation, rather than reading, people skim the text in the search of a keyword. Therefore, the text that the chatbot provides should be kept as short as possible. If the predefined options are too lengthy, users might start clicking here and there and miss the context altogether. Short responses allow users to skim the conversation without losing the meaning and the purpose.

3. Think about your design

You might be tempted to play with the chatbot's look and feel. If you want to add some human characteristics, be aware that, most probably, this will raise user expectations. It was great fun working

on the human-like appearance of our chatbot and designing the conversation flow as if users were interacting with a human. However, the tests revealed that many users were more disappointed with the robotic behavior. As a result, we now keep the appearance of our chatbot more robotic-looking, and work on improving the conversation instead.

4. Test and update according to user feedback

And last but not least, be patient. Designing a conversation and creating a chatbot takes a lot of time and it can be very exhausting. Create it bit by bit, and it will work out eventually.

Takeaways

Chatbots are an innovative and intriguing way to add value to your website and interact with your readers and customers. Here are some links to help you get started:

- Chatbots and Conversational UI: https://uxdesign.cc/chatbots-conversational-ui/home
- Conversational UI Principles – Complete Process of Designing a Website Chatbot: https://medium.com/swlh/conversational-ui-principles-complete-process-of-designing-a-website-chatbot-d0c2a5fee376
- Some good conversational UI examples to learn from: https://chatbotslife.com/some-good-conversational-ui-examples-to-learn-from-e36f907df932
- Chatbot Magazine, *Conversational UI:* https://chatbotsmagazine.com/tagged/conversational-ui

To create a chatbot, you need not only information, but also a tool. There are a lot of tools to choose from, most of them integrated into different messaging platforms. First, identify where you are going to use your chatbot. For example, you can embed it in your website or integrate it into Facebook Messenger. Then, check which tools support your requirements and select the one that is easiest for you to understand and work with. Here is our starter list:

- Octane AI: https://octaneai.com
- Motion.AI: www.motion.ai
- API.AI: https://api.ai

And there are many more:

- Top 10 Best Chatbot Platform Tools to Build Chatbots for Your Business: www.entrepreneur.com/article/289788
- 10 Tools to Build Your Own Chatbots: www.hongkiat.com/blog/tools-to-build-chatbots
- 25 Chatbot Platforms: A Comparative Table: https://chatbotsjournal.com/25-chatbot-platforms-a-comparative-table-aeefc932eaff
- 15 Tools You Can Use to Beta Test Your Chatbot: https://chatbotsmagazine.com/15-tools-you-can-use-to-beta-test-your-chatbot-5a0723c7f4b2

It's your turn to choose your tools and start prototyping. Happy chatbotting!

Learn more about this topic at the **tcworld conference:**
Date: Wednesday, October 25
Time: 8.45 - 9.30
Room: C7.1

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Troubleshooting reengineered

Are you still trying to solve defects and malfunctions by delivering large volumes of documentation and providing training to your customer's service engineer? Perhaps it is time to rethink your approach and start creating embedded troubleshooting flowcharts.

Text by Jang Graat

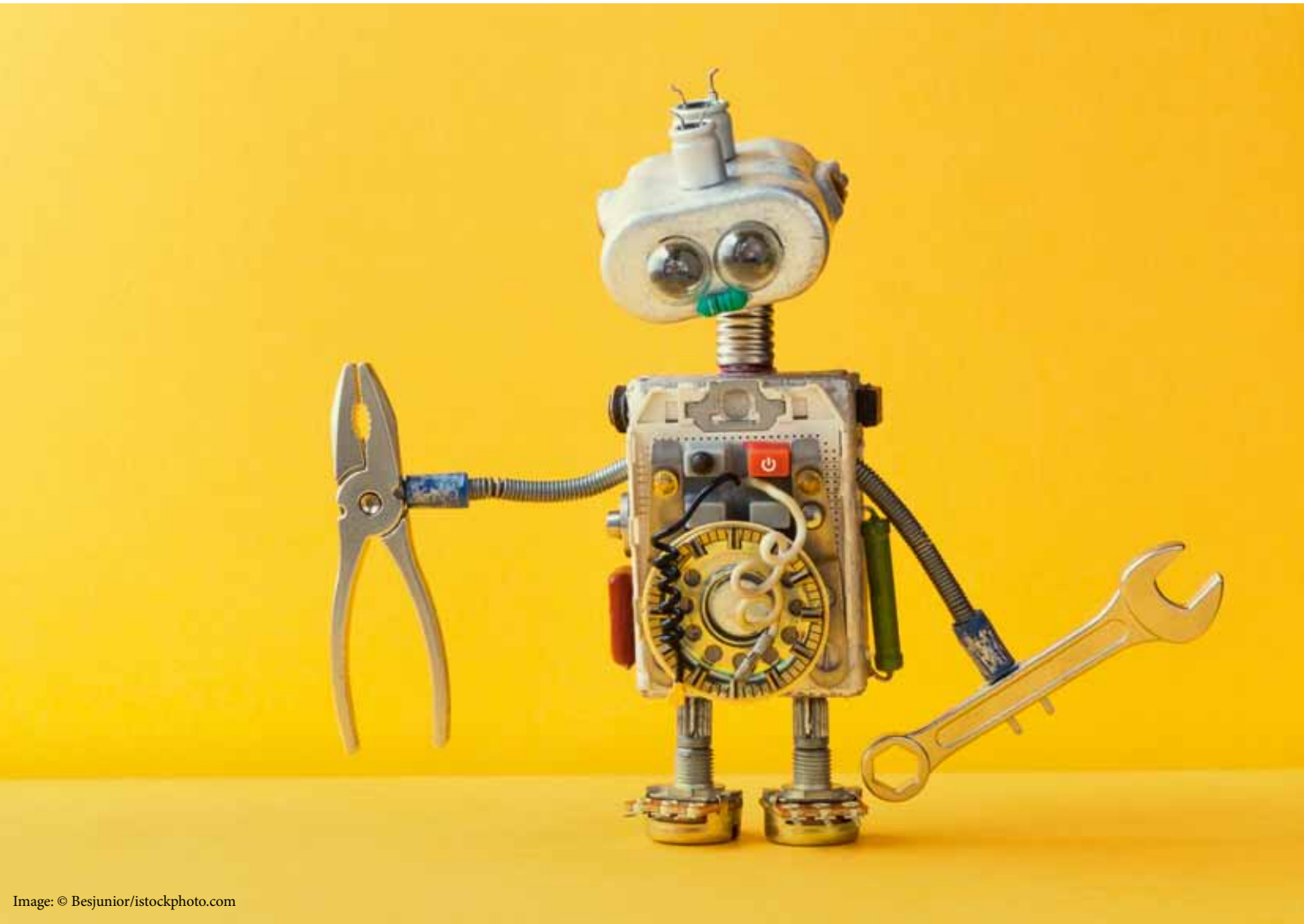

Image: © Besjunior/istockphoto.com

This article outlines a methodology that is undervalued in the world of technical information development: the use of flowcharts. Instead of merely drafting flowcharts in the design phase and pushing them aside when the implementation is done, I am suggesting the use of flowcharts as the core of real-life troubleshooting. This approach can save a lot of time, effort and money.

You cannot be an expert on everything

Let's begin by analyzing the situation today: Every day, expert service engineers board airplanes to fly to customer sites around the globe. All too often, the problem is solved by some simple actions that could easily have been taken by an employee with basic engineering skills. The problem is not the actions that need to be performed; it is deciding which actions will solve the problem. More often than not, the solution turns out to be a simple replacement of a defective part, or simply changing a setting that has caused an avalanche of problems and symptoms that then covered up the original issue and made it almost impossible for a non-expert service engineer to fix it.

In the software industry, problems tend to be deeply embedded in the code and often require a developer to fix the issue. The advantage is that today's fast and reliable internet connections allow engineers to log into the customer's system remotely. Using standard remote access software packages, developers can completely take over your computer system and make the required changes without leaving their desk. This saves a lot of time and travel expenses.

Other industries rely on on-site service engineers to fix malfunctions. Machine manufacturers try to solve troubleshooting issues by creating massive amounts of documentation and/or providing extensive training for their customers' service engineers. But this approach is highly questionable, and here is why: The manufacturer's service engineers can concentrate on the machines that their company produces, which are usually variations of the same basic design. Having expert knowledge about one machine makes them capable of solving issues with all of them. Simply by being exposed to just one type of machinery, they become specialists in their company's business domain. The customer's service engineers, on the other hand, are in a completely different position: They need to maintain and service a dozen or more different machines for which they are responsible. Another issue is that the machines usually work fine during the first months or even years after installation. When a machine eventually starts to malfunction, the training that was provided by the machine's manufacturer (often by expert engineers who are not necessarily experts in training) is long past. The customer's service engineer might have used the knowledge acquired during the training to correctly maintain and service the machine, but when the servicing information is needed the most, little is left of all that precious knowledge and rarely used skills. In addition, service engineers do not always remain with the same customer throughout their career, and the new engineer rarely gets the required training.

How problems are really solved

Machine documentation invariably contains a chapter on troubleshooting. In most cases, this is simply a three-column table linking symptoms to possible causes and remedies. The remedies may just be hints or references to service procedures that are listed in other sections of the manual. These tables are so common that various technical documentation standards include a troubleshooting topic of this type. Sometimes an extra column is added to the table to allow for combinations of symptoms, but it is almost impossible to create all conceivable combinations of symptoms in a table without making it impossible to navigate. When the customer's service engineer gives up and calls in the expert, a completely different method of finding and fixing the cause of the problem is set in motion. The expert – perhaps without even realizing it – uses a mental flowchart to find out what the ultimate cause of the symptoms may be.

Whenever the problem is too complex (many symptoms at the same time) or too vague (no clear indication where the real problem is), the expert will start to check on basic conditions, trying to rule out possible causes one by one, zooming in on the probable cause until the real issue is found and can be fixed.

Let me give you a simple example from my own life: A few years ago I was on a business trip when my wife called me in a state of mild panic – she needed to get to work but the car wasn't starting. This is a vague symptom, so I asked whether she could hear a click when turning the key. She told me that there was no sound at all. This removed a number of possible causes (out of gas, forgot to use the choke, etc.). I asked her to switch on the lights and tell me whether they worked. The lights worked, so I could rule out a dead battery. I suspected that the starter engine was in a position where it would not move no matter how much electric power was applied to it. There is just a fraction of an inch where the magnetic fields cancel each other out. The roadside service would open the hood and hit the starter engine with a hammer in these cases, but I could not begin to explain where the starter engine is, and my wife could have hit something else instead. So I told her to put the car in gear and push it forward or backward a few inches. She followed my instructions and then tried to start again. The engine fired up and she made it to work in time.

I must add that this was a pretty old European car for which I knew this strategy would work. But nevertheless, it illustrates how we use mental flowcharts to solve real-life problems. Our mind does not use a lookup table that matches symptoms to causes and remedies. Instead, it navigates a map on which it can move from one area to another, zooming in and out as required to find the one spot where the solution lies.

Making flowcharts explicit and interactive

It has always puzzled me why technical authors ignore their natural mental flowcharting skills when creating troubleshooting chapters. This may be due to two main reasons: a lack of imagination and unavailable tools. The first one I am trying to eliminate by writing this article and giving presentations on the topic at various conferences. The second reason can be solved by using adequate flowchart modeling software. Visio used to be the only suitable software package for creating flowcharts. For the past several years, an online product called Lucidchart has

been quite popular. But both of these software packages (and lesser-known similar ones) are mainly known and used in the business modeling world, rather than in technical documentation. Which is a shame: Once you start creating flowcharts, you quickly find that this is really the only effective way to design potent troubleshooting information.

So how are you going to present the flowchart to the customer? The few troubleshooting flowcharts that I have found were just images embedded in the technical documentation. These flowcharts are necessarily unspecific, as there is only that much space on a page. The true power of troubleshooting flowcharts lies in their complexity, their level of detail, the coverage of every possible fault-finding scenario. These flowcharts quickly become too complex and too large to be presented in their entirety at one glance.

This leads to my conclusion that flowcharts need to be processed into interactive media to become effective for troubleshooting. As the majority of technical documentation has already moved to the Web, this is not a huge step to take. It just requires the right tools to create and maintain the flowcharts efficiently, and to convert them into the required interactive browser pages.

Self-diagnosing machines

But there is more to gain, especially in the domain of large, specialized machines. These machines are equipped with lots of sensors that keep track of production conditions. The signals are used to adapt to all possible circumstances. Service engineers push virtual buttons on a touchscreen instead of making manual changes to physical settings.

Under normal operating conditions, machines are pretty much self-regulating. They are equipped with sensors that feed signals into the central processing unit, which in turn activates servos and valves to influence the production process. Of course, there are limits to what the machine's actuators can do, and there will also be limits to the conditions the machine is keeping track of. Still, most machinery does a pretty good job at continuously diagnosing itself.

All the available signals are of importance to the service engineer when trouble arises. This is why logs were invented: They show the expert engineer what happened in the seconds and minutes leading up to the machine failure. But the core intelligence is still in the mind of the service engineer, who scans through the logs to detect patterns or specific messages that feed into the mental (or explicit) troubleshooting flowchart.

This is where I propose a paradigm shift, by pushing troubleshooting intelligence into the machine itself. Instead of showing an error code and letting the service engineer solve the issue at hand, the machine uses an embedded troubleshooting flowchart to check on possible causes and zoom in on the true cause of the failure. When the limitations of the machine's set of signals and actuators are met, the engineer is called upon via the touchscreen (much like telling my wife to switch on the headlights in the real-life example given above). The input given by the engineer allows the machine to proceed in the flowchart.

When the machine's embedded troubleshooting procedure reaches a conclusion about a defective part, it will show the replacement procedure on the screen and wait for the engineer to perform the procedure. When the engineer is done, the machine proceeds to the next step in the flowchart to check the result of the intervention. Depending on those checks, more procedures may be required until the true cause of the problem is solved.

Moving intelligence to where it we need it

The key to this approach lies in putting the intelligence where it has the highest chance of being effective. First of all, the machine gets direct access to lots of signals without human intervention. More importantly, each machine only needs to know about itself, whereas in the traditional paradigm, depicted at the start of this article, the service engineer needs to be an expert on all the machines his company operates. When the intelligence about a particular machine is placed inside the machine itself, the engineer only requires basic engineering and servicing skills to fix problems that may arise. Less effort creating huge sets of manuals, less hours spent on training for cases that may never happen in the course of the machine's life span (or in the remaining time of the engineer's employment at this company). No more effort and money wasted on trying to put intelligence in places where it is least effective (the documentation and/or the head of the customer's service engineer).

When trouble arises, the machine will use its built-in intelligence to determine what the causes may be. Where required, it will tell the engineer which actions to take, and which parts to replace, until the problem is solved. Only in rare cases that are not covered by the embedded troubleshooting flowchart will the customer have to call in help from the manufacturer and an expert board an airplane.

But wait, there is more

With troubleshooting procedures embedded in the machine comes the virtually free option of capturing every step in the troubleshooting procedure in a detailed report. Creating this report does not require any of the hopelessly flawed and outdated methods to do debriefing with an exhausted service engineer (who has just spent a couple of frantic days on the other side of the planet to solve a complex problem and is not looking forward to the backlog of regular work that is waiting for him back home).

And there is potential for even more. As logging all kinds of operational data is an integral part of today's complex machinery, predictive maintenance data can be accessed from the flowcharted troubleshooting procedures. This will hugely increase the effectiveness of such procedures, as it enriches the generic troubleshooting strategies with the unique operational history of each individual machine.

Learn more about this topic at the **tcworld conference:**

Date: Tuesday, October 24
Time: 16.15 - 17:00
Room: C9.2

ABOUT THE AUTHOR

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Operationalizing Augmented Reality in the enterprise

Augmented Reality (AR) is a technology that superimposes virtual information over a physical device in the real world. Consumer deployments in areas like gaming are more common and well known, but how does AR apply to companies that do not necessarily deal with consumer products? And how do you go about implementing an AR solution in a large enterprise?

Text by Sam George

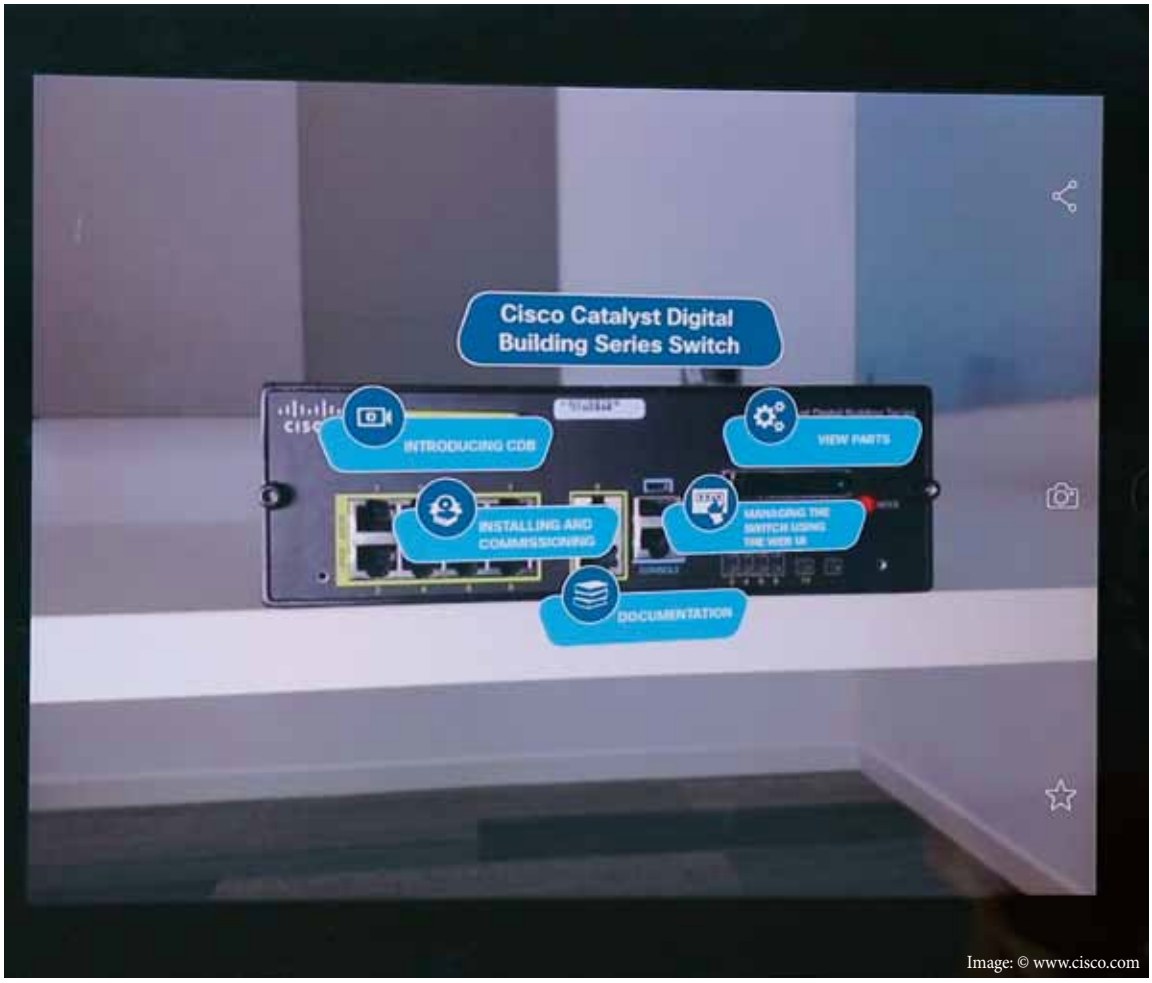

Image: © www.cisco.com

AR technology has been around in some form or another for several decades now. However, it's only in the past few years that large enterprises have started realizing its potential as a tool to increase operational efficiency and product usability.

From a usability perspective, some might view AR as the next step in a natural progression: from a command line interface to a graphical user interface to an AR interface, which provides an immersive experience. A recent study by market intelligence firm Tractica estimates that there will be around 70 million active enterprise AR users by 2022. Studies indicate that AR-based instructions significantly improve worker productivity and first-time accuracy.

There are several companies that provide TechCom AR solutions, and many companies

are evaluating the use of AR for user instructions. However, not many TechDoc groups in large enterprises have embraced AR today. Let's find out why.

Current AR technology and limitations

AR investment in the past has been skewed towards wearable design, and the industry has progressed from unwieldy AR headgear to the sleek smart glasses available today. Smartphones with high processing power have also helped make AR a household name. However, there hasn't been adequate investment or progress made in training AR software to recognize real-life objects. Current AR software recognizes an object mostly based on predefined markers, which can be Quick Response (QR) codes placed on the object, images of a distinctive part of the object, or images of the entire object. While the current technology has helped introduce the benefits of AR to the enterprise, there's a long way to go before AR reaches its true enterprise potential.

Implementing an enterprise AR solution: a case study

I'll illustrate the opportunities and challenges of current AR technology with a close look at how Cisco Systems, a worldwide leader in IT and networking, is implementing AR for its hardware products.

A Moonshot

The TechDoc team at Cisco started exploring AR solutions over a year ago. It started more as an experiment to see how we could use an emerging technology to enhance the usability of our core networking products – routers, switches, and wireless devices. Imagine that you're in a networking lab, and you're either installing a router or troubleshooting a switch that won't boot up. You don't have access to online technical manuals, and you don't know how to proceed. Now, what if you are able to point your smartphone at the router or switch to get in-context information about the problem you're facing? You can even see an overlaid animation of the steps to follow to resolve the issue.

Actual reality

However, this scenario is not entirely a reality yet. As mentioned earlier, current AR technology recognizes devices only through markers placed on the device, or by using image recognition to map what you're seeing to an existing image database. For a large company like Cisco, placing a marker on all its products is not a feasible option, considering the huge existing installed base. Also, image recognition works only when you can predict what your product will look like in its native environment. In a networking lab, a router or switch can be modular, and therefore configured in different ways. This means you cannot use a single image (or even a set of images) to help the AR software recognize the product. There could also be unpredictable cabling around the product, which makes recognition almost impossible.

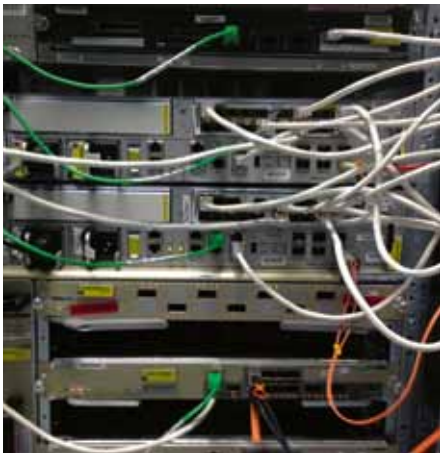

Image 1: Device with unpredictable cabling

Image 2: Same device with different configurations

Cracking the AR code

Considering these limitations, the TechDoc team at Cisco decided to focus on a single use case that was possible with current technology – AR-enabled instructions for hardware product installation. When a Cisco customer installs a router or a switch fresh out of the box, we know exactly what the device looks like, and there are no cables to disrupt the AR camera's field of view. An AR solution in this scenario could be a valuable aid to users who are not familiar with the installation procedure, especially if they don't have easy access to traditional online or printed instructions.

Let's now take a look at various aspects that you need to consider before rolling out an AR solution in your company.

Canned vs. made to order

You've decided to evaluate an AR solution for your hardware products. Now, should you pick an AR experience off the shelf, or build a customized solution? If you're looking to conduct a pilot without a significant investment, the obvious answer is an off-the-shelf product. At Cisco, we used Blippar (www.blippar.com) for our pilot. After several cycles of customer feedback and fine-tuning the solution, we're now scaling it across multiple products. However, there are certain limitations to this approach, the biggest one being that you can't always customize the available AR functionality in an off-the-shelf product to suit your organization's evolving needs.

Cisco's current AR solution provides users with static information about hardware products that is stored in an existing database. For example, if you're trying to install a Cisco product and it doesn't work as expected, you can look up a set of static troubleshooting instructions to resolve the issue. However, the AR software does not dynamically change the options available to you based on the success or failure of the installation. We're exploring our options to build a more intelligent solution that can provide dynamic information about a switch or router that is directly sourced from the network controller (a device that manages all the products in a networking lab). Such a solution will add tremendous value to customers, but it's obviously not something that you can pick up off the shelf.

The reality of content

AR is a technology that enables user-friendly delivery of content. The content that you display needs to be contextually relevant for the experience to be successful. At a high level, there are two kinds of content you can include:

- Spatially aware content, which projects directly onto a part of the device you're viewing, and is accurate only when it's projected on that specific part. A good example of this is a label describing a specific part, or an animation that shows how to insert a module into a specific slot.
- Links to published content that provides information about the product you're viewing. This is sometimes called "Informed Reality" because it doesn't augment your reality by overlaying information directly onto the product in front of you but directs you to information about the product (for example, quick start guides or troubleshooting guides).

A good AR experience should have a proper mix of these two types of content. It is critical to tap your internal stakeholders (marketing, customer support) to ensure that you include the most relevant content for your product. At Cisco, the content for every AR experience we create is curated by the customer support and marketing teams.

Target audience and products

So now that you've decided what AR solution to use, and what content to include, do you roll it out for all your hardware products? Before you answer that question, you need to understand the level of expertise of your users. Expert technicians installing a device in a lab will most probably not need AR-enabled instructions. However, if your products are handled by low-skilled workers, AR is a great medium to provide instructions.

At Cisco, we partnered with the marketing team to identify high-volume products installed by low-skilled workers. One such example was the Cisco Catalyst Digital Building Series Switch, which is a networking device for smart lighting that is installed when a building's electrical connections are being set up. AR-based instructions make it easier for electricians with absolutely no networking knowledge to install these switches, thereby eliminating the need for highly-skilled technicians and reducing customer costs.

Scaling the AR solution

I'd now like to touch upon three key tasks involved in implementing AR on a large scale – developing writer skills, creating reusable assets, and driving customer adoption.

The core skill sets for writing procedures remain the same. However, visual thinking is a key skill that will enable writers to develop effective AR-enabled instructions. Writers will also need to learn to work with 3D models if they are animating instructions. The major shift will be that of perspective – reorienting a writer from being a remote instructor to somebody who is virtually present right there in the moment, visually guiding users through complex tasks. At Cisco, we're reskilling our writers through several in-house training programs focused on visual design and storyboarding.

To provide a consistent user experience across a large set of products, you'll need to create templates and other user interface artifacts that can be reused across AR projects. You'll also need to involve your marketing, branding, and UX teams to ensure that the experience is uniform and complies with company guidelines.

A robust customer adoption strategy is key to the success of any innovation. At Cisco, we formed a core team to drive customer adoption by socializing the AR solution with relevant customer segments. The strategy involves developing customer communication plans, adding product inserts, getting adequate exposure on product pages, and tracking overall usage.

Customer feedback

User testing and feedback are critical for an AR solution to succeed. The TechDoc team at Cisco showcased its AR pilot at several customer events, and used the feedback from customers to fine-tune the solution. Most customers felt that AR solutions will make their jobs easier because contextually relevant information will allow them to complete their tasks more efficiently. Customer interactions also helped validate the content choices we'd made in partnership with marketing and customer support. Customers were thrilled to see specific information that they found difficult to locate in traditional user guides.

Effectiveness measures

We're currently working on defining effectiveness measures that go beyond incidental customer feedback to gauge the overall impact of the AR solution. Off-the-shelf AR software provides inbuilt analytics like the number of users, number of interactions, location of the interactions, etc. A good way of measuring the effectiveness of an AR solution is to analyze the trend in customer support cases that relate to the specific areas targeted by the AR experience. Establishing a downward trend in support cases can also go a long way towards convincing management to invest in a customized solution that further enhances the customer experience.

Is true enterprise AR a distant reality?

As discussed earlier in this paper, the true potential of AR in the enterprise will be unlocked only when AR technology evolves to a level where it can recognize modular objects in unpredictable environments. The AR industry is currently exploring Artificial Intelligence and machine-learning algorithms to help AR software recognize a hardware product even if it looks very different across multiple customer installations. Given the current state of research, I believe it's going to take the industry at least a year or two to develop AR technology that can achieve accurate object recognition without markers.

Enterprise AR in its current avatar offers a lot of opportunities for companies that are looking to augment their documentation offerings and enhance the product user experience. AR solutions are relatively well developed in certain industries like aviation where precision is of the utmost importance. For others, I wouldn't go to the extent of calling AR an indispensable tool. However, in my experience, an AR-based technical communication solution, when targeted at the right customer base, helps increase first-time accuracy and worker efficiency. If your documentation reality is still rooted in HTML and PDFs, I would definitely recommend that you augment it with a judicious dose of AR.

Learn more about this topic at the **tcworld conference:**

Date: Thursday, October 26
Time: 15.30 - 16.15
Room: C5.2

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Sam George manages the Switching and Wireless documentation teams at Cisco Systems. He has been exploring Augmented Reality solutions for some time, and is very passionate about using AR to enhance the overall customer product experience. One of his current focus areas is the large-scale adoption of AR at Cisco.

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The new translation economy and how to succeed in it

The days in which "going global" simply meant launching a website are long gone. Organizations waiting for the world to speak their language are losing out – big time. So get busy speaking the world's many languages.

Text by John Yunker

This October, Amazon celebrated an important holiday, though you might not have noticed it if you visited Amazon.com or Amazon.co.uk or Amazon.de.

You would have noticed it if you visited Amazon.in – a celebration of the Hindu holiday of lights known as Diwali (see Image 1). Diwali is one of the busiest shopping seasons in India and an increasing percentage of that shopping has gone online. India added more than 100 million Internet users in 2016, more than any other country – to more than 450 million Internet users in all. In a world in which most large economies are growing at a glacial pace, India's economy is booming. Image 1 shows what the Amazon India home page looked like for Diwali in 2016.

Image 1: Amazon.in during the Hindu holiday season of Diwali

Image 2: Amazon.cn on Singles Day

Amazon has committed more than $3 billion to succeeding in India, and it still has much work to do. As you can see on the home page, Amazon supports only English. While English may be widely spoken throughout India, there are 22 official languages other than English, such as Hindi, Malayalam and Gujarati.

According to the *2017 Web Globalization Report Card*, just 6 percent of the world's leading brands currently support Hindi. Most global companies have done little so far to support Indian languages, largely hoping that English will suffice. But this is changing as Indian consumers seek out local-language content. According to research firm IDC, 46 percent of India's Internet users primarily consume local-language content – more than 150 million people. Google and Facebook got the memo some time ago and now support a significant number of India's official languages.

India is a lot like China was a decade ago, when few websites supported Chinese because many companies deemed the country too "emerging" to invest in translation. Today, nearly every website that purports to be global supports Simplified Chinese. And China is home to the busiest and richest day of online commerce on the planet: Singles Day, which takes place on November 11. Nearly US$18 billion was spent

Image 3: Yahoo.co.jp at its first launch in 1996

on this day in 2016. And Amazon is heavily invested in Singles Day as well, as shown in Image 2 from 2016.

Amazon's global expansion reflects a new era we have entered, one in which emerging markets are just as relevant as developed markets to companies that seek global success.

Today's emerging economy is tomorrow's developed economy.

And localization is an undervalued asset, one that companies have viewed for too long as a cost rather than a competitive advantage. I call this new era the translation economy, and it will redefine the winners and the losers in the decades to come.

From the information economy to the translation economy

The internet connected the world's computers, and the digitization of content enabled the rapid flow of information around the world, which drove several decades of what came to be known as the information economy.

But one of the great myths of the information economy – and the World Wide Web, for that matter – was the idea that a company could go global simply by launching a website. While the Internet connects computers, it is language that connects people, and the information economy has for too many years exhibited an English-language bias.

Based on my research, just 20 percent of all Internet users are native English speakers, a percentage that will continue to decrease as the next billion people come online. That's not to say that English isn't an important global language, but it is just one of many global languages.

Milestones in the translation economy

One of the first milestones of the translation economy occurred in 1996, when Yahoo!, the world's leading search engine at the time, expanded into its first foreign market, Japan (in partnership with Softbank). Image 3 shows that homepage.

Yahoo! triggered a virtual land rush as companies raced to expand their global reach. When Google first emerged two years later, it wasted little time localizing its search engine interface into more than 60 languages.

Another major milestone occurred in 2007, when Facebook began expanding from two languages to more than 74 languages in only two years, relying heavily on volunteer translators. Never before had a company added so many languages in such a rapid and public fashion.

But linguistic expansion as such was not unique to the tech sector. Image 4 reveals the extent to which global players have increased their global reach over the past 13 years.

Over the past fifteen years studying the websites of the major global brands, the average number of languages supported has more than doubled to 31 languages. However, most websites support significantly fewer than 31 languages. This is why machine translation has been so popular among web users.

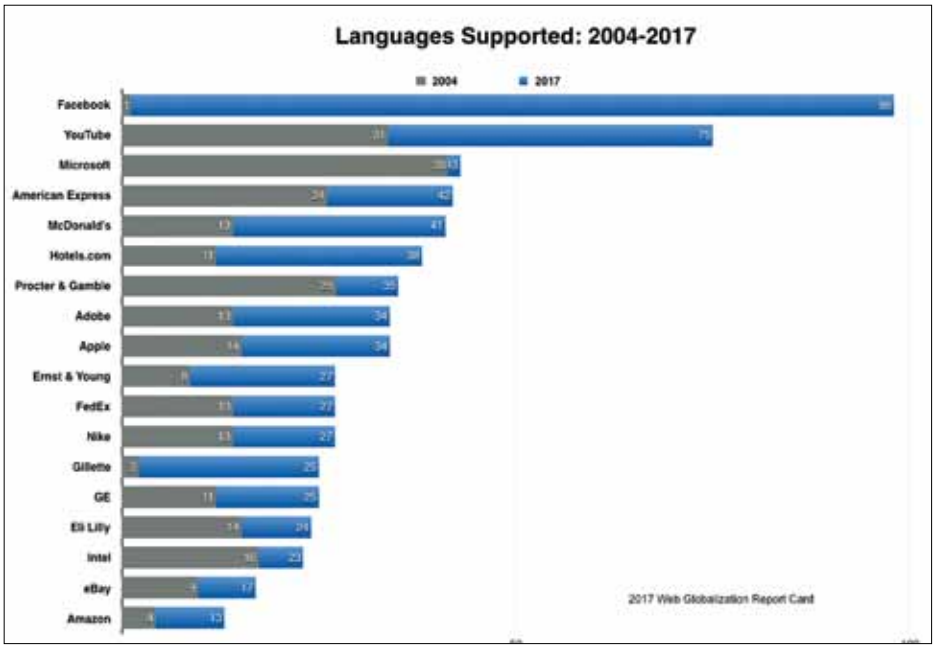

Image 4: Global players are supporting an increasing number of languages.
Source: http://bytelevel.com

Image 5: The home page of Apple (www.apple.com/th/) …

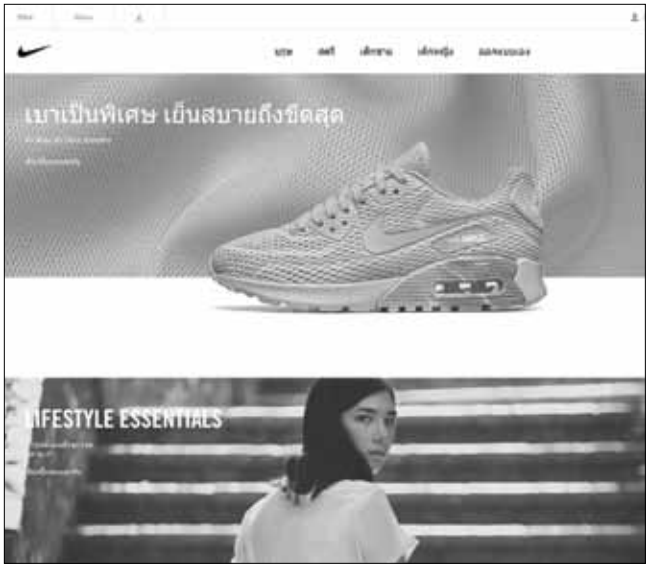

Image 6: …and Nike (www.nike.com/th) shortly after the death of King Bhumibol Adulyadej.

Machine translation helps power the translation economy

Just because your website supports ten or fewer languages doesn't mean that visitors aren't reading it in up to 100 languages. That's because people have access to machine translation engines, most notably Google Translate.

Google Translate translates more than 100 billion words each day. If you assume that a web page includes roughly 100 words, then we're talking about one billion web pages translated per day. Google Translate now supports more than 100 languages, effectively reaching more than 98 percent of all Internet users.

Facebook, Microsoft and Amazon are also investing heavily in machine translation and the quality continues to improve. While human translators are in no danger of losing their jobs anytime soon, machine translation has a critical role to play in democratizing content for the world. Besides, there are not nearly enough professional translators to translate 100 billion words per day. The greatest impact that machine translation has is raising the language expectations of all web users. And those companies that rise up to meet these language expectations are poised to lead in the years ahead.

How to succeed in the translation economy

The executives and companies that thrive in the translation economy are those who don't look at translation as simply a cost but as an opportunity, who can imagine the day when their websites support a hundred or more languages. Here are a few tips to keep in mind as your company goes global.

Be flexible and fast

When you begin targeting new markets, the rules that applied to your home market often no longer apply. And I'm not simply referring to government regulations, but to cultural rules – formal and informal. Colors may carry different meanings, as may icons, clothing, and gestures. Going global requires flexibility and responsiveness; you need to adapt quickly to changing environments and national events.

Consider Thailand. The death of Thailand's King Bhumibol Adulyadej in 2016 led to stores running out of black and white clothing as the population mourned its leader in color-appropriate clothing. Websites were also expected to show their respect quickly. Images 5 and 6 show the home pages of Apple and Nike shortly after the King's death.

Not all global companies responded equally fast. But those that did showed a degree of empathy and respect that was not lost on the public. And while switching the color palette of your website is hardly conventional website localization, it's a sign of just how responsive you have to be when you do launch a local website. You can't launch it and forget about it.

Look for opportunities everywhere

In the translation economy, you have a choice: You can wait for the world to speak your language, or you can get busy speaking its many languages. And those companies that have gotten busy speaking the languages of the world have clearly benefited – and sometimes in surprising ways.

Consider Facebook; its largest market, based on number of users, is India, followed by the U.S., Brazil, and Indonesia. And Twitter enjoys a higher percentage of users in countries such as Turkey, South Africa, and Japan than in its home market. A decade ago, an executive might have focused purely on developed markets when planning global expansion. But today, things are much more complex. And this phenomenon is not unique to U.S. companies.

Chinese tech company Huawei does not yet offer a localized website for seemingly important markets such as France or Germany,

but does offer localized websites for countries such as Turkey, Brazil, Malaysia, and Russia.

Never stop asking questions

There is a widely held myth that to become a successful global executive you must be some sort of multilingual savant – one of those people who speaks half a dozen languages, carries a passport bulging with extra pages, and was seemingly born in an international departure lounge. The truth is that global success requires considerably fewer airline miles than you might think. Global success requires a simple desire to understand the world outside your own.

The best global executives are those who aren't afraid to ask questions or to rely on cultural and linguistic experts to help guide them. The globalization of any product and business is by nature a team effort. And there are experts all around us. We often work with colleagues from different parts of the world who might enjoy presenting their country to us during lunch hour as part of a "cultural insights" series. Localization vendors can also play a key role in training teams on cultures and languages. The more curious you and your colleagues are, the more empathetic you will be towards other people and cultures. Those of us who are more curious than intimidated by languages and cultures we may not understand are best positioned to succeed in this new translation economy.

Conclusion

Earlier this year, on July 11, Amazon celebrated Prime Day – its self-made shopping extravaganza. And, for the first time and certainly not the last, Amazon celebrated Prime Day in India.

ABOUT THE AUTHOR

John Yunker is the co-founder of Byte Level Research and consults with many of the world's leading global brands, providing web globalization training and benchmark services. He is the author of *Think Outside the Country: A Guide to Going Global and Succeeding in the Translation Economy* and the annual report *The Web Globalization Report Card.*

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Localizing VR: Why Cinderella can't wear glass slippers in Vietnam

Since the dawn of globalization, we've been discussing the challenges of adapting products and information to new international markets. But designing authentic experiences in Virtual Reality environments provides localizers with a whole new ball game. One that doesn't even leave a Disney heroine's wardrobe unchanged.

Text by Emre Akkaş

Image: © da-kuk/istockphoto.com

Once a machination of sci-fi writers, Virtual Reality has today become a very real part of our lives. It is estimated that by the year 2020, the global Virtual Reality market will be worth $30 billion; that doesn't even include the potential worth of Augmented Reality (AR), which is projected to hit a whopping $90 billion. However, as tech companies race towards the future, unexpected hurdles have come up that hinder VR experiences from reaching global markets. Perhaps you are wondering why it even matters for VR to be developed for global markets? After all, the domestic market seems to be thirsting for VR experiences.

Well, to answer this question, we have to step back and realize that the realm of possibilities for Virtual Reality stretches far beyond video games. From companies using VR to train and educate people from different parts of the world, to capturing and sharing personal VR films and meeting friends or even business partners in a VR space online, one thing is guaranteed: Virtual Reality will drive the next wave of globalization and at an ever-accelerating speed. But while the medium is deeply connected to globalization and international business, adapting VR experiences for different markets and cultures remains a major challenge. This might sound obvious with regards to the VR gaming industry, but it actually applies to all industries that make use of Virtual Reality content.

So, why is adapting Virtual Reality experiences so challenging?

Providing authentic experiences

The complex problem to tackle is making sure that the experience within Virtual Reality is authentic for each country, language and culture. Localization is, of course, a challenge for all kinds of products and experiences, but for VR it is of particularly great importance. Before a game, learning experience, or other VR invention can be sold in a particular market, we need to ensure that it is culturally appropriate, accurate and authentic. So, if companies are serious about making VR truly immersive (and making bank on the global market), a lot of work has to be done.

Creating alternate country or language versions of a VR experience is not just about translating the language and shipping it out. Anyone who has tried communicating in another language knows that not everything translates as easily and directly as you might expect. As an example, consider the story of Cinderella: In the North American rendition, Cinderella has a glass high-heeled slipper; in Vietnam, she has a golden one; in the Middle East, she has a golden sandal. It may seem like a small thing, but these cultural and linguistic shifts make all the difference in creating a truly immersive reality for the user.

Setting the stage with audio and video

This leads to the next challenge: creating a harmonious visual and audio experience. In order to stage a believable illusion, the audio you hear in a Virtual Reality environment needs to mimic how we hear sounds naturally. If a bird is chirping outside your window, you process the sound differently depending on which way you're facing, helping us to be able to accurately pinpoint which direction the sound is coming from. As a relic of our hunting and gathering days, this natural phenomenon is incredibly difficult to recreate artificially, and has slowed the progress of VR programs significantly.

Now, consider that the chirping noises you hear outside of your window may sound different than the chirping sounds a person in India, Russia or Argentina would hear. Different place, different birds. That's right – for Virtual Reality to create and maintain a truly immersive experience, even the background noises need to be considered carefully and blended together with the visual cues the user sees. If your story is set in a busy marketplace in Luang Prabang versus in San Francisco, the developers wouldn't be able to just cut and paste the same audio track; it just wouldn't be an authentic representation of that particular environment.

The marketplace scene takes us to another major consideration: lip-syncing. In this VR environment, say you are exploring the market and decide that you want to buy supplies. The way a person's mouth moves differs from language to language. If you ask a vendor a question about their selection of apples and they respond with an audio/visual disconnect, your brain will recognize the discrepancy and you will be mentally pulled out of the scene. The same will happen if text within your VR surroundings is not translated and adjusted.

Image: © tongdang5/istockphoto.com

You might find yourself in an important demonstration about workplace safety. But a sign in Mandarin may take up much less space than a sign written in German; Chinese characters are simply more compact than long, alphabetic German words. So, the text not only has to be translated, but it also has to be resized. On top of that, the developer must also spend time researching the design of the signs: They aren't always red and octagonal. This is true for all UI elements within the VR content.

So is it worth localizing?

Depending on your budget, you might ask yourself whether or not localizing will be worth it. Markets around the world range from startups that are still trying to find their desks, to full-fledged companies who are making significant technological steps. So, for you, the first step is to look at the different market situations around the world. Find out where Virtual Reality is growing for your specific industry and invest there, or think about offering your product on a niche market and owning it. Make sure you set a standard for when you feel a market is viable for localization. To do that, you should look at the current leading markets to evaluate where your cutoff should be.

Let's look at China: With more than 200 startups in the Chinese VR industry, creativity is what makes each company stand out, so content is not only being created for Virtual Reality games, but also for movies and TV shows, social hangouts, and of course, shopping. Despite investments from Alibaba to make trying on clothes from your living room a reality, VR video and games are expected to be the first VR industries to mature in China.

Another geographical market to watch is Europe. The number of companies working on Virtual Reality software and hardware has grown to 300, with more than half based in the U.K., France, Germany, and Sweden. Gaining momentum over the past two years, France is now at the forefront of the European Virtual Reality industry. Although games are still the most competitive product, Europe's approach to Virtual Reality is similar to China's. While making progress in the lucrative gaming industry, the most successful companies in Europe are also looking beyond the status quo to see other areas in which Virtual Reality could be used. Those areas include real estate, as well as pharmaceuticals for both training and treating psychological maladies such as anxiety and PTSD.

While it seems that professionals in the Far East and in Europe are making strides in Virtual Reality programming, other geographic markets may be slower to catch up. When thinking about localizing a Virtual Reality experience for a particular region, it is important to evaluate the value versus the cost. One could argue that it might be the right time to invest in localizing for emerging markets in China, France, Germany, and Sweden, where the growing landscape could help drive market success. On the other hand, a market with little competition could be attractive for localization, as there might not be enough local content, allowing a wide-open space for your product.

The future is now

Yes, localization plays an important role for all kinds of products that are adapted for the global market. But for VR, it is even more important, as people expect it to get as close to reality as possible. Up until the last decade, localization and translation have largely been focused on text. But the new, multi-layered and multi-faceted experiences bring new challenges, and while achieving perfection when it comes to localizing for Virtual Reality seems a tough challenge, it is also an exciting process to be part of. It will enable VR to further drive globalization, change the way we do business and connect people all around the world in new ways.

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Emre Akkaş is the co-founder and CEO of Globalme. Emre is an expert in adapting emerging technologies to different languages and cultures. He regularly writes and talks about his vision and opinion of emerging technology.

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Can we create happiness at work?

Happiness in the workplace helps engage staff, increase productivity, reduce errors, and even raise sales. Happiness is also infectious, which is why, by creating a better work environment, we might just contribute to a better, happier world.

Text by Eva Reiterer

Image: © PeopleImages/istockphoto.com

Happiness at work doesn't mean you have to love every single thing about work. It doesn't mean you have to agree with everything, or that you don't look forward to the weekends. It does, however, mean that you find a sense of fulfillment at work, that you generally enjoy what you do, and that on Sunday evenings, you might even find a smile on your face when thinking about going back to work the next day. If you already find this to be the case, congratulations! You're among the lucky few. If, on Sunday evenings, however, you find yourself wishing to hide from the world or to trade everything for just a few more hours of freedom, and you wish to change that, this article is for you. It is also for you if you belong to the lucky few and simply want more of it.

> *"Happiness at work is not about eliminating all the bad stuff from your job. It's about being happy at work even though all of these things are present." – Alexander Kjerulf*

Happiness at work: must-have or nice-to-have?

There's a reason why happiness at work is a hot topic today. Research with hundreds of companies revealed that happy people are better workers. For example, the happiest employees only take one-tenth of the sick leave of their least happy colleagues. Shawn Achor, author of ***The Happiness Advantage***, even makes the case for the single greatest advantage of the modern economy being a happy and engaged workforce. In over a decade of research, he found that happiness at work raises sales by 37 percent, productivity by 31 percent, and accuracy on tasks by 19 percent. One study even discovered that positive work climates are linked with lower blood pressure and heart rates as well as stronger immune systems.

On the other hand, the Gallup Organization found disengaged workers to have 37 percent higher rates of absence and 49 percent more accidents, and to cause 60 percent more errors and defects. So, in the end, if you want your company or team to succeed, happiness is not just a nice-to-have, but a clear must-have.

There are many ways to increase your team's happiness, but first, let's see how you can capture the status quo so that you can measure the impact of your actions.

How to measure happiness

How do you go about measuring such an abstract concept as happiness? Well, there are plenty of ready-made happiness surveys you can use; a quick Google search will help you here. If you don't have the time, authority, or desire to do a full survey, there are also less complicated methods.

The informal way: listen to what people say

A very easy, yet effective way to measure the happiness at your workplace is to listen to what people say in the course of normal peer-to-peer conversations. Obviously, if they complain a lot, something is very wrong. Pay particular attention to how they anticipate going on a holiday or into a long weekend. Is that the only thing that keeps them going? Or are they simply looking forward to some fun time? How do they take on new tasks: with an eager smile or a grim expression? How do they react to company news: interested and curious or with cynicism? Take it on yourself to write a diary with your observations and, after a few weeks, you'll be amazed how much can change.

A more formal way: the Happiness Index

The Happiness Index is a more structured concept, which originated in the Agile Management movement and is based on asking these four questions:

1. How happy are you? (on a scale from 1 "very unhappy" to 5 "very happy")
2. What makes you feel best right now?
3. What makes you feel worst right now?
4. What would increase your happiness?

You don't need to use all the questions, and you can also adapt them to your team's needs. For example, you might want to include names, or only measure the scale from very unhappy to very happy.

If you work with a large team or company, you can use Google Docs or Survey Monkey to capture the Happiness Index. For small teams, it's always a great idea to get some face-to-face time and have it in a physical office, for example with Post-Its, to provoke interesting conversations.

See the link at the end of this article for more detailed information.

How to increase happiness at work

As a leader, you have great influence on the people you lead, not only because you are in a position of authority, but also because you are a role model. You might have already noticed yourself that employees tend to copy their leaders' behavior to some extent. This means that everything you do, and how you do it, will not only be observed by your employees but, very often, also imitated. This gives you a lot of power to influence your work atmosphere in whatever way you want. As it is well known that people join an organization and leave a boss, you need to be careful of how you act and what you do.

1. Money isn't everything

Conventional management seeks to motivate employees through monetary rewards and, accordingly, a large majority still believes that more money will make employees happier. Interestingly enough, this is only true to a very small extent. There has to be sufficient money for the employee not to have to worry about it. However, several studies have found that beyond that, monetary rewards actually lead to poorer performance and decreased motivation.

> *"One of the most thoroughly replicated findings in the field of social psychology states, the more you reward people for doing something, the more they tend to lose interest in whatever they had to do to get the reward." – Alfie Kohn*

Well, at least you won't have to argue with HR about raises. But what is it then that YOU can do to foster happiness at work?

2. Create a sense of belonging

Positive and healthy relationships play a big role in everyone's personal happiness, and the same is true for the workplace. Positive social connections have been found to make people happier and healthier. On the other hand, loneliness has been linked not only with an increased risk of burnout, but also with reducing longevity by 70 percent (in comparison, smoking reduces longevity by only 50 percent).

Image: graphicstock.com

You can foster positive workplace relationships by showing an interest in your employees' and co-workers' personal lives, in their passions and sorrows. The next step is to allow them to do the same. Do not tell them off when you hear them talk about something personal at work, but instead encourage them and create opportunities for social outings. These relationships will create a sense of belonging, which in turn will reduce turnover rates and improve dedication and commitment at work. A very simple step to support workplace relationships is to talk about "us" instead of "you and me".

3. Create meaning

One of the biggest contributing aspects to happiness at work is how meaningful your job is. The thing is that most jobs don't include saving lives or reducing world hunger. The good news is that you don't have to do such obviously meaningful things to find meaning at work.

For example, you can create meaning by simply providing a bigger picture. Say your subordinate has to create a very boring report. Telling them how this report will be used within the company, e.g. to improve customer service, creates meaning because they get to see that the report is a valuable contribution. Creating a strong vision will also help in finding meaning, as it gives employees something to relate to and strive for.

Another way to make the workplace more meaningful is to create an environment where people can grow, express themselves and find joy. A happy work environment also allows them to take this happiness home with them, where they can share it with their friends, families, partners, and most of all, their children. And who knows, maybe one of these happy children will someday end world hunger or something of the like, and you will have contributed to making the world a better place, simply by enabling happiness at your own workplace.

4. Allow for autonomy at work

If you feel like you have to control everything your employees do and, moreover, how they do it: STOP! NOW! Micromanagement not only decreases employees' motivation, productivity and confidence, but also increases employee turnover. Autonomy, on the other hand, meaning providing guidance and direction while allowing for a certain amount of freedom and self-determination, brings about the opposite.

5. Create a culture of praise and appreciation

The simplest, cheapest, and yet probably the most effective way to increase happiness at work is to regularly say "good job" and "thank you". It is as simple as it sounds: When somebody has done a good job, say it. When somebody has done a great job, shout it! Be sincerely appreciative of your employees' efforts and contributions on a regular basis, and you will be rewarded.

> *"If you create an environment where the people truly participate, you don't need control. They know what needs to be done, and they do it. And the more that people will devote themselves to your cause on a voluntary basis, a willing basis, the fewer hierarchs and control mechanisms you need."*
> *– Herb Kelleher, ex-CEO of Southwest Airlines*

6. Appreciate your boss

While we're on the subject, have you ever thought about complimenting your boss? About congratulating them on doing a great job with a project? About going up to him or her and saying "You know what? You are doing an awesome job"? About thanking them for what they do for you? Everybody craves appreciation, and while most employees expect this appreciation to come from the top, they tend to forget that bosses usually don't get any appreciation. Neither from the top – especially when there is no one above them – nor from below. There's a reason for the saying: "It's lonely at the top". Imagine, just for a second, how much happier your workplace would be if your boss was even just a little bit happier. Just try it out and thank them or compliment them, and see what happens next.

7. Communicate, a lot

Not only does effective internal communication contribute to a happier workplace, it has also been found to increase customer satisfaction by 40 percent, profitability by 30 percent, and overall performance by 36 percent. By communicating openly with your team, you can avoid miscommunication based on Chinese whispers, destroy rumors instead of letting them destroy your team's morale, and boost your team's motivation by regarding team members as important contributors to the company and keeping them in the loop.

8. Take the bad with the good

Having bad days is only human, and allowing people to be human and to have a bad day every once in a while will in the end make them happier – the same way that being able to express our feelings instead of suppressing them contributes to a healthy mind.

Final thoughts

In the end, happiness is still something that comes from within, and you can't force anyone to be happy. The more you try to pressure people to be happy at work, the less happy you will all be. All you can do, all anyone can do, is to create an environment that allows for happiness. In that sense, yes, you can create such a workplace, and by doing so, you will not only make your own life a lot easier, but also bring more happiness into the world.

Further resources

- Dan Pink: *The Surprising Truth About What Motivates Us*
  www.youtube.com/watch?v=KgGhSOAtAyQ
- Alexander Kjerulf: *Happiness at Work*
  www.youtube.com/watch?v=Q1X4V8esNN8
- Happiness index for large teams:
  https://7oas7er.wordpress.com/2014/01/16/scaling-the-happiness-index/

ABOUT THE AUTHOR

Eva Reiterer

With a university background in both translation and business management, Eva Reiterer found her passion in the human side of the language business. She is now Co-CEO of the technical translation agency MEINRAD.cc and is constantly striving to make the world a better place.

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The technical communicator: sought internationally – but little-known

What does a compliance manager do? And how much are technical communicators paid? In the outside world, not much is known about tc and its many occupational profiles. But this is set to change, with tekom and its many volunteers embarking on numerous activities to change the awareness of this prosperous professional field.

Text by Daniela Straub

Image: © alphaspirit/123rf.com

Unknown professions

With the age of digitalization and of economic change come new requirements, creating new professions. However, despite the good job prospects of these professions, they remain largely unknown to both employees and employers. In fact, today, the number of unknown professions is significantly larger than that of the better known: According to the Federal Employment Agency (Bundesagentur für Arbeit), there are currently 3,200 professions registered in Germany – although an additional 4,800 professions exist. Yet, most job seekers select from only approx. 300 professional fields. Take, for instance, the compliance manager: According to a survey, 79 percent of respondents are not familiar with this profession. Many companies are urgently seeking employees in unknown professions. These jobs offer great prospects, however, only few people know that these professions even exist. It is often said that it isn't the lack of skilled workers that is the problem, but the level of awareness of these professions – thus the demand for training and jobs.

Marketing of the profession as a critical success factor

Since its founding in 1978, tekom has been committed to raising awareness of the occupational profile and further professionalizing it. In 1989, the first description of the occupational profile "technical communicator" was published. The profession was registered in 1996 in the catalog of the Federal Institute for Employment (Bundesanstalt für Arbeit) under code number 8214. Both, the qualification modules from 2003 and tekom's competence framework from 2015, provide an in-depth description of the knowledge and competencies required in the occupational profile. The tekom website provides extensive information about the profession and the access methods for career changers and prospective students. In tekom's so-called qualification consultations, the requirements of the profession can be discussed in detail with an expert and, with the tekom certification, career changers have the option of formally establishing their qualifications.

Although much has been achieved to foster awareness of the "technical communicator" in Germany, there is still a lot to do regarding the promotion and marketing of this occupation. Qualified workers are sought for technical communication, yet trainees are rare – and not just in Germany. According to industry figures, 3700 positions open every year. With approx. 90,000 employees in the sector, this translates to about 4 percent. Prospective students should be encouraged to explore this profession, universities should be motivated to establish networks, career changers should be inspired to strive for qualification, training providers should receive support, and businesses and job agencies should get informed of requirements and job profiles. The Education and Training Committee, with its numerous volunteers, is doing excellent work here.

More qualified workers for the international market

Even internationally, there is a high demand for qualified technical communicators. According to the 2017 industry figures, an industrial company needs 1.3 percent of its workforce as technical communicators, and in the software sector this figure rises to 3.5 percent. To meet this demand, career changers must be qualified and university graduates trained. In many European countries, however, the offerings for occupational training and the training of career changers are lacking, as are training programs for university graduates. While Germany offers around 19 study courses in technical communication, other European countries at the moment offer only seven in total. The situation regarding continuing education is similar. For this reason, tcworld GmbH has developed an online training program, TCTrainNet, which can be completed independent of time and location, and includes tekom certification.

In 2013, tekom Europe was founded as a European association and currently includes twelve country organizations. This year, an in-house international Education and Training Committee was founded with the goal of further supporting the degree of awareness and the professionalization of the occupation on the European level. The newly appointed committee will resume work at the tcworld conference 2017.

TecCOMFrame for an academic standard

To support the development of study offerings, tekom in 2015 applied for the EU program "Erasmus Plus" for its "TecCOMFrame" project and was granted funding. The acronym stands for **Tec**hnical **Com**munication / Competence **Frame**work. High goals have been set for this project. A European standard for the academic education and training of technical communicators will be established with TecCOMFrame. Universities will be supported in developing study programs in the field of technical communication, resulting not only in an increase in the number of academic programs but also in the number of graduates. Improved comparability will promote the mobility of students and employees. "Employability" will be enhanced by the qualification of students in related fields such as translation sciences or engineering sciences.

As a first step in the TecCOMFrame project, the international project group is developing an academic competence framework for technical communication. This is based on tekom's interdisciplinary competence framework for the professional training of career changers. Based on this, the framework was expanded to include academic requirements and was restructured for teaching. The academic competence framework defines the requirements for the academic qualification of technical communicators based on the European qualification framework for the Bachelor and Master academic training program levels. The disciplines, subjects, sub-subjects, learning content as well as educational objectives were defined. The academic competence framework includes six academic disciplines in technical communication:

1. Academic Perspectives
2. Communication and Culture
3. Content
4. Management
5. Technology and Media
6. Multidisciplinary Competences

Based on this, curricula proposals will then be developed for study programs with the following degrees:

- Bachelor
- Consecutive Master
- Non-consecutive Master
- In-depth studies in technical communication for language and translation study programs

- In-depth studies in technical communication for engineering sciences
- Academic training programs

Within the project group, eight professors from various European universities from France, Ireland, the Netherlands, Belgium, Poland, Romania, Denmark, and Germany are lending their expertise to tekom's moderation and project management. Moreover, stakeholders and other interested parties have the option of being involved in the project as "silent partners" and can thus contribute to ensuring the high quality and broad acceptance of the results. Furthermore, the university teachers' meetings, Technical Communication Days, and the tekom Academic Colloquium, as well as numerous conferences, offer opportunities for intensive exchange, feedback and networking on the international level.

Supply and demand on the training and recruitment market

Just as in other areas, the principle of the market economy also applies to the area of training: demand determines supply. To establish study programs and a variety of training programs requires marketing. The profession of the technical communicator must be made known and attractive to career changers and prospective students. Moreover, job profiles, job requirements and qualifications must be communicated to both employers and job centers. The necessity of this is illustrated by another project of the European Commission. In order to make comparable professions and qualifications transparent across Europe, and to increase the mobility and employability of professionals, occupations and their related competences and qualifications are defined in the "ESCO" project in a comprehensive European occupational classification. tekom has also been involved in this project in order to successfully position the occupation of the technical communicator.

To succeed internationally, offering extensive information regarding the occupation through the TecCOMFrame project is crucial. This is due to the fact that the occupation of the technical communicator is little known in many European countries and the job profile is not widespread despite the demand for technical communication workers.

TecCOMFrame international website for occupational information

TecCOMFrame offers a proprietary, internationally-oriented occupational website. This website provides comprehensive information about technical communication to those interested in the profession: prospective students, employers, job centers and universities. It is set up like an international web page for occupational information. With various tabs structured by objectives and target groups, current and comprehensive information is provided about being active in technical communication, and different paths to the occupation are illustrated. An everyday description of the occupation, its tasks, field of work and industry sectors, enables viewers to picture exactly what technical communicators do and where they work.

The requirements indicate what is necessary to enter the occupation. The results of the tekom salary and job market studies provide information about the career, the job and future prospects. The academic competence framework is described in detail with its six disciplines, so that training contents as well as professional requirements are clear and precise. An interactive map supplies information about European study programs and shows alternative paths into the occupation. With the project results, the academic competence framework and the standard curricula, universities receive well-founded information and a secure basis on which to build their own efficient, high-level programs in technical communication, or to adapt them to current requirements. The website will also offer the opportunity to receive information about current events and to network within technical communication across Europe. Events and networking opportunities are announced, such as the Academic Colloquium for Technical Communication, and a blog reports on current news. A newsletter is also available for subscription. Special attention to search engine optimization (SEO) was given in creating the website, so that the page can be found easily online.

The new international occupational website "TecCOMFrame" will go online in late 2017 at the URL:
www.teccom-frame.eu

Everyone contributes to success

tekom Deutschland and tekom Europe have embarked on many initiatives for international occupational marketing and the promotion of technical communication. These are strongly supported by many volunteers. Reaching our objectives would not be possible without their commitment. Their experience and expertise are indispensable for success. Everyone who would like to become active in this professional field will find opportunities at tekom. Additionally, it is important for the success of tekom's work and that of the entire industry to have numerous internationally active, committed multipliers and evangelists sharing and disseminating information and results. Everyone can contribute without great effort: every link to the website and every piece of information significantly contributes to the success of TecCOMFrame and the increase in the degree of awareness of the occupation, whether through presentations, publications, websites or working groups.

ABOUT THE AUTHOR

Dr. Daniela Straub
graduated in Psychology and has been working for tekom consultancy projects since 2003. For tekom she conducts empirical studies, organizes and leads the tekom benchmarking workshops and is involved in the development of the tekom further education guideline and certification system.

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events

tcworld 2017/2018

tcworld conference 2017

October 24-26, 2017
Stuttgart, Germany
http://conferences.tekom.de/tcworld17

Image: © tekom

TAUS Annual Conference

October 30-31, 2017
San Jose, CA, USA
www.taus.net/events/conferences/taus-annual-conference-2017

LocWorld Silicon Valley

November 1-3, 2017
Santa Clara, CA, USA
www.locworld.com

Translating Europe Forum

November 6-7, 2017
Brussels, Belgium
https://ec.europa.eu

Information Development World

November 28–30, 2017
Menlo Park, CA, USA
www.informationdevelopmentworld.com

Outsourcing World Summit

February 18-21, 2018
Orlando, FL, USA
www.iaop.org/summit

Information Energy

March 1-2, 2018
Amsterdam, Netherlands
www.informationenergy.org

tcworld India

March 7-8, 2018
Bengaluru, India
http://tcworld-india.com

tekom and the Technical Writers of India (TWIN) are once again setting the stage for the biggest event in technical communication on the Indian subcontinent. Presentations and workshops will revolve around topics such as content production, project management and career mastery. See page 42 for more details.

Image: © tekom

GALA 2018

March 13-16, 2018
Boston, MA, USA
www.gala-global.org/all-events/gala-2018-boston

tekom Spring Conference (in German only)

April 19-20, 2018
Koblenz, Germany

Content Connections 2018

May 7-9, 2018
Los Gatos, CA, USA
www.acrolinx.com

Madworld 2018

June 3-6, 2018
San Diego, CA, USA
www.madcapsoftware.com/conference/madworld-2018

UA Reloaded

June 13-14, 2018
St. Leon-Rot
http://ua-reloaded.de

Content Marketing World 2018

September 4-7, 2018
Cleveland, OH, USA
www.contentmarketingworld.com

tcworld conference 2018

November 13-15, 2018
Stuttgart, Germany
http://conferences.tekom.de

Intelligent Content Conference

March 20-22, 2018
Las Vegas, NV, USA
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