Natural Language: The User Interface for the Fourth Industrial Revolution
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Today’s times have been defined as “The Fourth Industrial Revolution”. Coined by Klaus Schwab, founder and executive chairman of the World Economic Forum, the term describes a world where individuals move between digital domains and offline reality with considerable agility, using connected technology to enable and manage their lives, as part of a wider culture shift.

This new era of consumer-driven connected technology has given users the upper hand in dictating how, when and where businesses and enterprises make themselves available. It is no coincidence that Siri, the first popular, voice-based, mobile personal assistant, was launched as a tool for consumers, not businesses, and the clamor for similar intelligent, assistive technologies has continued unabated since then.

Virtual assistants like Siri are conditioning individuals to put more trust in conversational technologies and to try new activities and services. In doing so, they cause companies to redefine their branding, marketing, customer support, loyalty, self-service and e-commerce strategies on a constant basis. It no longer suffices to say that a company is “customer-centric” or dedicated to providing the best “customer experience”.

This shift in power has also heralded a shift in expectations – consumers are increasingly looking for solutions that intuitively understand them, and are correspondingly disinclined to use technology that puts the obligation on the user to learn commands and usage instructions by rote.

During this Fourth Industrial Revolution, leading-edge businesses must support a multitude of conversational touchpoints, which comprise a “continuum of care” (from each business’s perspective) and “intelligent assistance” (from the view of the individual).

The New Measure of Success: Staying in the Conversation

Each manifestation of intelligent technology aims to understand the user’s intent and respond accordingly and appropriately. These include virtual personal assistants on smartphones, home electronics or automotive telematics, along with bots on popular messaging platforms and virtual agents embedded in enterprise websites or contact center infrastructure.

The technologies that give shape to the Fourth Industrial Revolution have irreversibly changed users’ expectations and descriptions of an effective customer experience. Consumers are now setting the pace and enterprises must respond immediately if they don’t want to be left behind.

Marketing and sales channels must now routinely include social networks, messaging platforms, search engines and other digital media as a communications channel. Mobile traffic is a significant channel to accommodate and service, and has very different expectations as a service option.

Furthermore, the idea of “staying in the conversation” has distinct meanings in different vertical industries. Banks and financial service providers have direct threats from challenger banks that are totally digital, have no physical branches and carry out commerce solely through mobile phones. Media and entertainment companies are challenged by digital-only streaming services that forge bonds with customers through social networks and referrals. Travel and hospitality has already been revolutionized by intermediaries like Orbitz, Expedia, Kayak and others. They serve as brand-independent filters capable of searching and presenting information on room rates, availability and other attributes.
As both customers and prospects become comfortable with digital alternatives, incumbent businesses have grown wary of disintermediation and loss of touch with their most attractive customers. The power pendulum has definitely swung toward the customer. Search engines, internet marketers and social networks have put traditional businesses on notice. They have put messaging platforms and bots in each individual’s pocket. They have put intelligent speakers in kitchens and living rooms. Most importantly, they are working non-stop to make their offering the “go-to” place for discovery, comparison, referral and, ultimately, transactions.

What’s Your Natural Language Strategy?

In an increasing number of instances, the secret sauce is an application or service that lets people communicate in their own words. The democratization of IT, in the context of real-time customer care, has been chaotic. Different knowledge bases support web-based e-commerce, mobile apps, contact centers and IVRs. As IT decision-makers seek common ground among their digital commerce initiatives, Opus Research has a simple suggestion: Support natural language-based interactions (NLI).

The technology underpinnings for NLI include:

- **Natural language processing** – Enabling both customers and employees to interact with automated systems using their own words.

- **Fast access to consistent responses** – Regardless of touchpoint, the solution must offer consistent and correct responses to queries or instructions.

- **Ability to learn and improve** – Whether it is “trained” by the top subject matter experts in the company or designed to refine responses based on customer feedback, the system should be dynamic in nature and improve over time.

- **Leveraging existing resources** – Ironically, “The Revolution” is the product of evolutionary processes that build off of existing knowledge management, analytics and reporting resources.

Where to Begin: Take a Hard Look at Your Existing Data

No third-party is as intimately knowledgeable about your products, services and customers as you are. Transforming your offering into one that provides personalized, conversational commerce is the most important step toward accommodating each customer or prospect’s requests.

Defining and implementing an intelligent Natural Language strategy is no longer a trip into the wilderness. Solution providers have the benefit of years of experience and millions or billions of interactions to inform the rapid definition and deployment of truly useful, branded intelligent natural language applications. Their experience and special-purpose development tools speed the time to market and minimize the need for professional services from vendors or third-party integrators.

Another key consideration is the controversy about data security and ownership. Many of the tech giants sell the sizzle of AI, but keep the sausage of the actual data it generates, in order to further their own goals and end-uses. Many businesses are oblivious to the huge goldmine they are giving away.
While consumers are happy to part with a certain amount of personal data as part of a two-way relationship with a business, it is unlikely that either party would be happy with that data ultimately being owned, mined and benefited from by an unrelated third party.

**Artificial Solutions and the Teneo Platform**

A prime example of a “works straight out of the gate” solution is the Teneo Platform from Artificial Solutions. Teneo is a fully-integrated NLI development and analytics platform that enables businesses to build intelligent natural language applications on any platform, device or language; and quickly deliver these to a waiting market. It applies the principle of “user first”, intuitively understanding and responding to inputs; and learning from them to continually optimize and improve itself. The user has to expend no more effort than they would in speaking to another person, in order to receive a remarkably intelligent, humanlike and useful experience.

**Key features of Teneo**

- Built as a development platform means that natural language solutions can be built and managed open-endedly; and optimized as business needs grow and change. This is a unique proposition in a market crowded with vendors offering isolated, “fully baked” point solutions that address a single issue on a single channel.

- With users having access to potentially thousands of ways to communicate, Teneo offers the ability to reuse single pieces of content across multiple applications, devices and channels. This agility means that businesses are not tied down to a fixed scope, and allows for central control and management of content, with the benefit of local fine-tuning.

- Pre-analysis, scoping, design, development, integration, testing, deployment, logging, analysis, data-driven automated optimization are all accomplished on the same resource.

- Collaboration among developers and business unit subject matter experts is encouraged. They can work together to build, visualize, optimize and deploy NLI applications, using Teneo’s structured and easy to use “building blocks” approach. Teneo can be deployed in-house or via partners, whatever best suits the business needs and resources at any given time.

- Machine learning is built in, enabling Teneo to learn, predict and proactively recommend improvements; then test and deploy.

Companies that have deployed Teneo have found that they are able to develop and deploy sophisticated multi-modal interfaces without the need for highly-paid specialists.

Thanks to the graphical approach that Teneo takes to NLI development, subject matter experts or business unit employees, rather than computational linguistic experts or VUI designers, can build solutions. Once deployed, the system is constantly learning from the latest interactions, following each individual’s train of thought so that it can predict positive outcomes and recommend improvements that enhance each company’s ability to offer personalized services.
Case Study: Shell’s Digital Employees

Royal Dutch Shell (better known as Shell or Shell Oil) is a household name in energy and petrochemicals, with over 93,000 employees and activities in more than 70 countries. It also has nearly 190,000 documents or records describing actively-marketed motor oils and other lubricants. The company turned to Artificial Solutions to employ its Teneo platform to create Emma and Ethan, digital employees with the ability to advise both distributors and customers regarding which products are most suitable for a specific vehicle, engine and use case.

Introduced in August 2015 in the US and UK, Emma and Ethan provide answers and information on over 3,000 Shell products using information based on 100,000 information data sheets, 1,000 different pack options and 1,100 different physical characteristics. They recognize and recommend current alternatives to 2,000 obsolete Shell products and over 31,000 competitive products. Their core capabilities are listed in the graphic below.

The application is now available in several languages, including complex ones like Russian and Chinese. Shell has found that Emma and Ethan understand 97.4% of the questions asked of them correctly and has already reduced the activity to call center agents by 40%. They have also found that communication through digital employees enables them to supply consistent and legally accurate answers across many different markets and regulatory environments.
Based on experience and a wide range of other global deployments, Teneo has evolved its ability to integrate with key back office systems. It can ingest conversations from chat logs, contact center transcripts and relevant data (both structured and unstructured) from relevant knowledge bases and repositories. At the same time, it is highly modularized, so that enterprises can be flexible in their deployment plans and strategies. This results in fast, flexible implementations at the lowest possible cost.

As a growing number of companies and executives want to offer intelligent, natural language solutions, Artificial Solutions, with its Teneo platform, represents a mature, proven platform to simplify key processes, speed the time it takes to deploy and reduce the cost of duplicating efforts.

About Opus Research

Opus Research is a diversified advisory and analysis firm providing critical insight on software and services that support multimodal customer care. Opus Research is focused on “Conversational Commerce,” the merging of intelligent assistant technologies, contact center automation, intelligent authentication, enterprise collaboration and digital commerce. (www.opusresearch.net)

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