Using energy data analytics to drive commercial customer engagement and savings

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Abstract

Commercial electricity and gas customers are increasingly viewing their energy suppliers in similar ways to their telecomm, financial services, and multimedia providers – they want tailored advice and new product and service offerings that are easy to access and understand, meet their unique needs, and help reduce their costs. Innovations in big data technologies, advanced analytics, and cloud-based software are driving new-in-kind applications to help create this personalized experience for each and every customer. While service to all customers is becoming more customized, these technological advances particularly impact smaller business customers, where needs are diverse and traditionally underserved.

E.ON UK, one of the leading energy providers in the UK, and FirstFuel Software, a market-leading commercial building analytics company, have partnered to develop a large-scale customer engagement platform for nearly 500,000 small-medium enterprise (SME) customers. This multi-channel platform provides customized insights about a customer's energy usage, actionable tips to save energy and money, and new product and service offerings to drive greater efficiency and customer satisfaction. In this paper, we discuss some key factors to consider in delivering personalized engagement tools that support energy management across large sets of business customers.

Introduction

New advances in information technology, data utilization, and global interconnectedness have transformed what customers expect from their suppliers of products and services. While in the past, customers may have been largely satisfied with standardized solutions also delivered to their peers, they now desire products and services that are uniquely tailored to their individual needs and interests (Accenture, 2014). In recent years, we have seen this transition play out across a number of industries, including telecom, retail, financial services, and multimedia. For example, the telecomm industry has moved from a system of telephone poles and wires that delivered similar services to everyone, to an industry defined by personalized service and application delivery that enables consumers to use phones in ways that align with their lifestyle. With retail firms such as Amazon and Netflix, consumers now receive personalized recommendations paired with the ability to bypass traditional purchasing channels and access the offering they want, whenever they want it (Bain, 2013).

These trends have begun to alter the customer-supplier relationship, especially as it relates to customer expectations. For example, ample evidence suggests that customers increasingly rely on self-service tools, and when needed, may prefer to interact with their suppliers via alternative channels such as social media (Accenture, 2013). A growth in choice and control over the consumption of services has empowered customers to expect the same type of personalized offerings across a wider breadth of services (IBM, 2007). When customers receive this kind of personalization, they more actively engage, participate, and even help shape the future of the product or service (Opower, 2014; Forrester, 2013; Ernst & Young, 2013).

The energy industry is increasingly witnessing the growth of this newly empowered customer in key regions around the world. While often discussed in regard to Residential sector efforts (where the consumer has been re-branded by some as the 'Prosumer') (IBM, 2007; Accenture, 2014), Commercial and Industrial (C&I) (or Business) customers are also shifting their expectations about energy supply and service (YourSay, 2013).

In this paper, we argue that energy suppliers have a large opportunity to harness this shift in Business customer attitudes and expectations. Specifically, we use a real world case study of E.ON's Energy Toolkit to explore how energy suppliers can provide personalized intelligence that supports a key Business customer need – the better management of energy use. This customized insight for every energy user is driven by recent advancements in data analytics, and represents one example of the transition that energy suppliers can make from passive transporter of energy to active and trusted energy advisor. Through more effective support of customer energy usage, this paper will suggest that suppliers have an opportunity to help deepen customer relationships and secure greater levels of engagement, satisfaction, and long-term loyalty.

Background

ENERGY MANAGEMENT AND SAVINGS: A KEY BUSINESS PRIORITY

While commercial businesses have long recognized the potential impact of energy management initiatives, the sector has more recently demonstrated a significant uptake in direct conservation efforts. For example, a 2014 Deloitte study found that 61 % of companies now rate the importance of allocated energy management resources as four or five on a five-point scale – up from just 20 % of companies in 2012 (Deloitte, 2014). In addition to bottom-line cost considerations, environmental sustainability has played an increasingly central role across the sector. As cities, regions and governments adopt measures to curb climate change and shareholder pressure to be better environmental stewards continues to increase, energy management has become increasingly important to business strategy. For many already, country- or region-wide targets – such as the U.K.'s ambitious 80 % carbon reduction by 2050 – have begun to nudge businesses towards stricter conservation efforts (UK Govt, 2013).

SUPPORTING SMALL AND MEDIUM ENTERPRISES (SMES)

Energy management resources have traditionally been a luxury afforded to larger business customers with more energy budgets and resources to put towards energy savings initiatives. On the other hand, small and medium enterprises (SMEs) present a significantly more challenging Business segment to actively support. A significant number of SME market studies reveal very similar findings – these businesses are "extremely diverse in nature", "cash and time starved", "less energy literate", and "value simplicity" in comparison to their larger counterparts (YourSay 2013, Navigant 2012, PG&E 2013, ACEEE 2014).

In addition, the sheer number of SME's – which number approximately 5.2 million in the UK alone (Gov.UK, 2014; FBS, 2014) – makes them a challenging customer segment to reach with products and services. As a result, SME's often receive little attention within the energy management ecosystem – from energy services companies (ESCOs) and contractors to utility efficiency programs and administrators (Navigant, 2012; PG&E 2013). Broader studies indicate that these challenges in serving SMEs are correlated with comparatively lower levels of satisfaction and engagement compared to other Business segments (The Research Perspective, 2013).

THE DESIRE FOR DIGITAL SERVICES

Numerous studies from across industries point to an increasing desire for digital, self-service tools to support consumer and business decision making. CEB, a leading research and advisory services firm, has coined the term 'Effortless Experience' to explain the broader need for self-service. Through an extensive multi-year analysis, CEB researchers argue that providing customers with simpler ways to access relevant information from their suppliers can provide a tremendous boon to satisfaction and loyalty (Dixon et al, 2013)

Specifically to the energy sector, a 2014 Accenture study on customer preferences reveals that 88 % of customers prefer electronic billing only-options through their energy suppliers (Accenture, 2014). In addition, when surveyed across additional supplier-customer touchpoints such as learning about new energy services or energy packages, changing bill addresses, and switching providers – customers prefer low-touch, digital channels (e.g. email, portals, mobile applications) to high-touch channels (e.g. in-person, telephone). (Accenture, 2014.)

THE GROWTH OF PERSONALIZED ENERGY INTELLIGENCE

In the past few years, the energy industry has witnessed two major trends that are now enabling suppliers to provide **personalized energy usage information and guidance to every business customer across their digital channel of choice**. First, the new availability of energy usage data has provided the basis for energy analysis and intelligence dissemination. This trend has been partially driven by the proliferation of smart grid and smart meter deployments across the world, which has exponentially increased the granularity of energy consumption data for utilities, energy suppliers, vendors and customers to access and utilize. In the United States alone, the Edison Electric Institute estimates that 50 million smart meters have been installed across the nation's electric infrastructure (IEI, 2014). In the UK, smart meter deployments are currently less advanced but must expand to meet government mandates in future years (Gov.UK, 2012).

The second complementary trend has been the creation of scalable data analytics platforms that can extract meaningful intelligence from large quantities of raw energy consumption data. FirstFuel Software provides one such platform, which is detailed further below. Historically, the ability to provide customized energy intelligence to business customers could only scale linearly to the number of field practitioners or the number of advanced systems and devices installed within buildings. Now, advanced analytics platforms can remotely analyse consumption data, in combination with complementary third-party or public data sources to provide building- and customer-specific intelligence across a broad set of customers.

These analytics platforms fuse Data Science methodologies with two critical additional disciplines to provide energy intelligence to Business customers (Figure 1). First, data-driven outputs are grounded in the physics of real-world Building Sci-

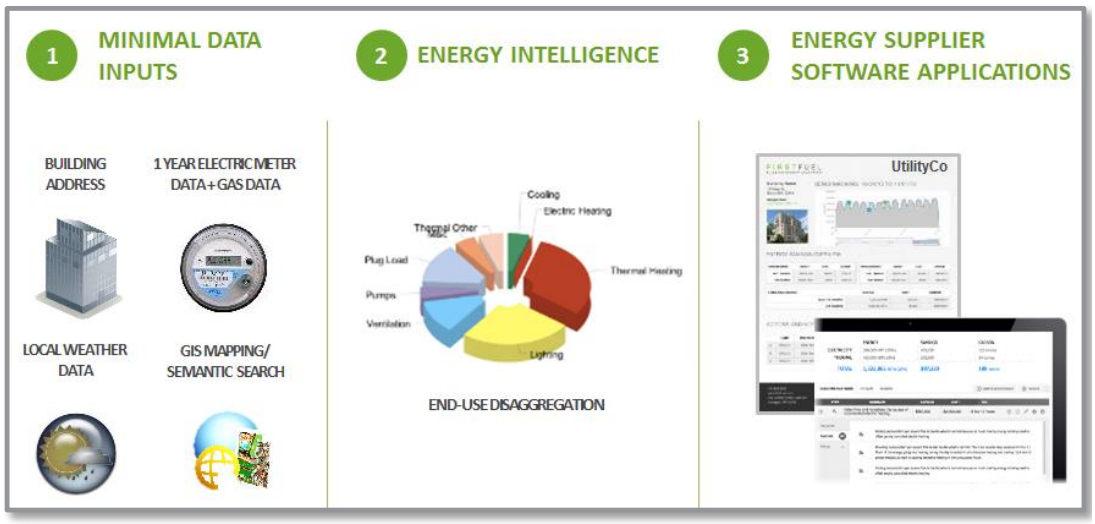

Figure 1. A conceptual description of advanced analytics platforms, including representative inputs, outputs, and insight dissemination channels.

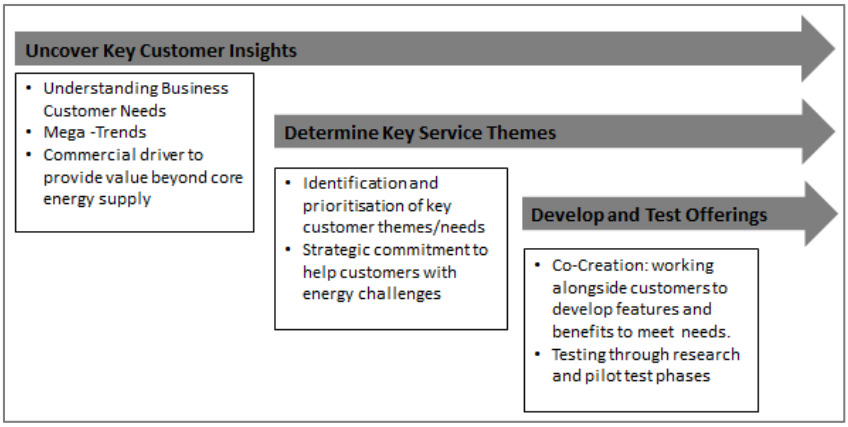

Figure 2. The overall customer insight and research methodology behind E.ON's multi-year initiative.

ence. And second, delivering these insights through a secure and scalable cloud-based, Software-as-a-Service (SaaS) platform enables the widespread dissemination.

The combination of these two major trends provides the potential to transform the shift away from the supplier-customer energy relationship typified by an impersonal monthly transaction. Now, energy suppliers can start to provide every customer with personalized intelligence about their energy usage that can be accessed at any time.

Methodology: An Empirical Approach to Business Customer Engagement

Beginning in 2010, E.ON UK (hereafter referred to simply as E.ON) embarked on a large strategic initiative to provide its Business customers with a more tailored, personalized set of services and experiences. E.ON undertook a series of quantitative and qualitative research activities to identify key gaps, needs, sentiments, and expectations from their energy supplier.

In 2010 and 2011, E.ON contracted with specialist 3rd party firms to lead focus groups across 13 distinct business market sectors (e.g. manufacturing, hospitality, farming, real estate, health care, retail etc.). The focus groups, which included the same discussion topics across market sectors, focused on uncovering key customer needs around energy supply and services.

The focus groups were supplemented by four different internal E.ON surveys in 2012 and 2013 across 1,200 business customers within the aforementioned market sectors. The surveys included a mixture of quantitative and qualitative components, which was driven by a marketing survey platform called YourSay. These surveys were focused specifically on the energy information and management trends that were surfaced during the focus groups, including specific energy management needs, existing tools, and new digital tool concepts. Customer responses and reactions remained central to the entire process, from early concepts and usability tests through in-market service tests.

E.ON's Research findings

ENERGY MANAGEMENT AND SAVINGS: A KEY BUSINESS PRIORITY

Through its research, E.ON found that as customers continue to desire and expect more from their energy suppliers, they are placing energy conservation and savings out front. This finding conforms to a 2013 YourSay survey across 260 UK Business

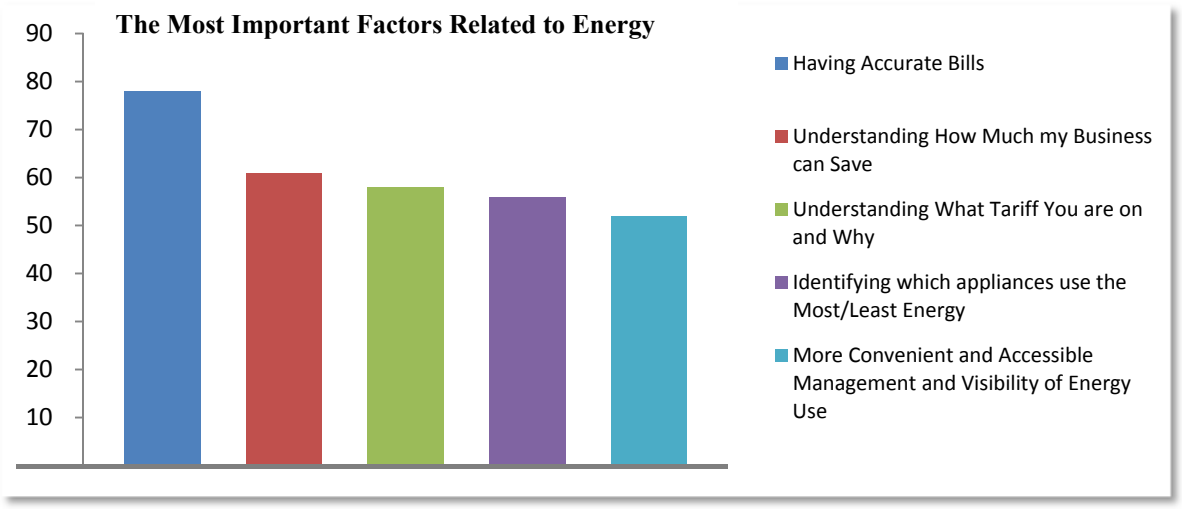

Figure 3. Survey conducted by YourSay, which tested Business customer opinions across 14 distinct energy statements, of which the Top Five are listed above. A Max-Diff Analysis was used to understand the trade-offs between statements. The results provided a score out of 100 for each statement. Scores over 50 show that Business find the statement to be important.

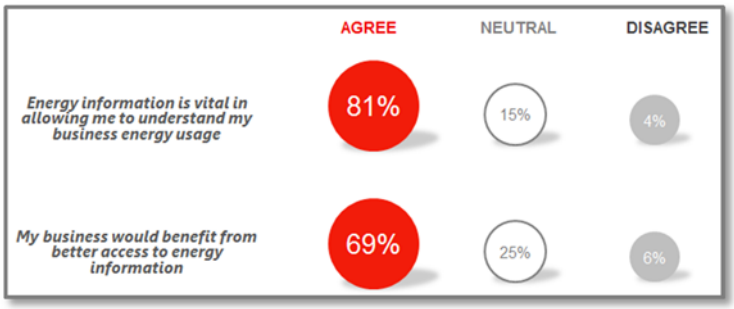

Figure 4. YourSay survey of 265 survey respondents. The questions were posed as 'energy statements' and customers could respond across the three dimensions listed above. The results above did not vary significantly across business type or size.

customers, which found that three of the five most important energy-related factors directly relate to better energy management and reduction (YourSay, 2013).

E.ON discovered that customer sentiment around energy management was directly linked to a desire for better tools to help businesses save money. A different YourSay survey across a wide spectrum of Business customer types and sizes posed a short set of 'energy statements' to respondents. As the following questions illustrate, Business customers strongly value better energy information to inform decision-making (Figure 4).

This data suggests that energy suppliers have a unique opportunity to go 'beyond a monthly bill' and provide this kind of valued energy usage information to their Business customers.

SUPPORTING SMALL AND MEDIUM ENTERPRISES (SMES)

A YourSay survey revealed that less than half of its smaller customers have sought energy advice from E.ON or any other entity. The survey also revealed an even lower percentage of respondents answering positively to other key 'energy statements'.

These data suggest two complementary lines of thinking. First, energy suppliers focused on providing better energy usage guidance to their Business customers can ill afford to ignore this large and underserved segment. Second, a personalized and effective energy management solution could fill a large service gap that positively impacts satisfaction and engagement levels.

THE DESIRE FOR DIGITAL SERVICES

Due to the proliferation of different tools that Business use to manage their operations, E.ON focus groups across SME segments revealed a customer preference for 'one-stop-shop' portals that supported various service options related to energy (E.ON, 2011-2012). When E.ON introduced an online portal concept for energy management guidance, a significant percentage of customers indicated they would use the portal on a recurring basis.

Through additional customer interviews and usability research of the SME customer segment, E.ON developed a set of key principles that were deemed critical to designing the right kind digital service enhancement:

- **Personalized**: The Toolkit must provide insights that were specific and relevant to every customer.
- **Tangible**: The Toolkit insights needed to be tangible enough to prompt action.

- **Simple**: The core offering must meet the needs of the majority of its Business customers, most specifically Small-Medium Enterprises (SMEs).
- **Accessible**: The Toolkit must be multi-channel and available on multiple devices to support heterogeneous customer preferences.
- **Intuitive**: The Toolkit must include appealing visuals, interactive tools, and clear calls-to-action.
- **Relevant**: The Toolkit must drive continuous engagement and prompt timely customer interaction points.

Figure 5. Survey conducted by YourSay. The data above was segmented to include responses from smaller businesses.

E.ON's Energy Toolkit

In September 2014, E.ON **launched the E.ON Energy Toolkit, an energy intelligence platform** geared specifically towards its small and medium business enterprise (SME) customers, in line with its commitment to provide personalised energy profile tools for all E.ON customers (Residential through Large Corporate). E.ON partnered with FirstFuel Software, a Boston-based provider of commercial energy intelligence solutions for utilities and energy suppliers, for over one year on Toolkit design and implementation.

Through the Energy Toolkit (Figure 7), E.ON offers personalized information tailored to a business's specific characteristics and needs. Using customer-specific information, such as electricity consumption data and addresses, the tool incorporates local weather patterns, building data and other information to identify energy patterns and calculate where and how the business can reduce usage. Going well beyond simple energy benchmarks and comparisons, the Toolkit is powered by the FirstFuel analytics platform, which combines historical usage data, local weather data, business data and physical building characteristics for each customer to provide business-specific energy savings recommendations and options to take direct steps to implement recommendations.

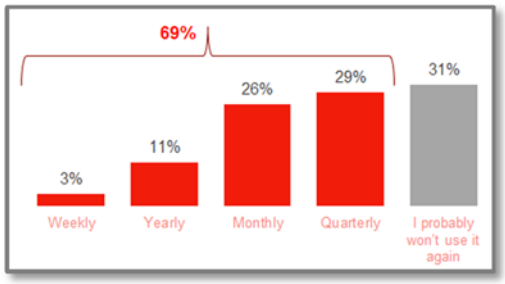

Figure 6. E.ON customer experience survey of 108 SME Business customers that were provided with a concept preview of an online portal for energy management.

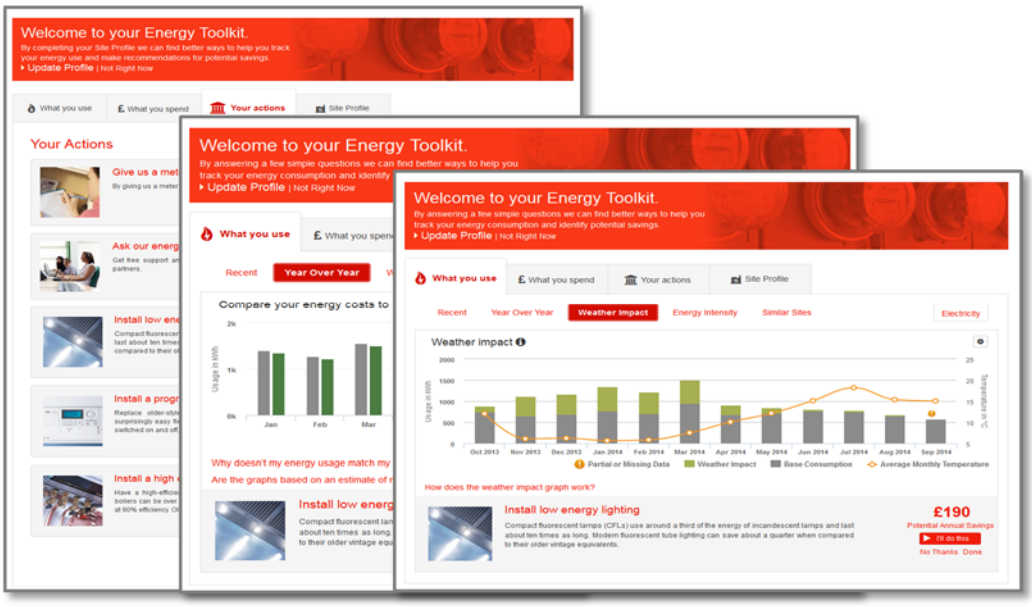

Figure 7. Screenshots of E.ON's Energy Toolkit for small and medium enterprises (SMEs).

One of the added benefits of better energy intelligence is the ability to target and reach customers with additional products and services that are actually relevant to their business and operations. E.ON is also using the energy personalization engine to offer E.ON customers a wide array of additional products and services based on their unique energy profiles – adding an additional layer of guidance and support for its customers. From the fourth quarter of 2014, the toolkit has been available to around 20,000 E.ON customers , the E.ON Energy Toolkit will expand to nearly 500,000 businesses across 2015.

Discussion and Further Research

Energy suppliers have entered a challenging era of service delivery and customer relationship management. They face business pressures from multiple directions, including potential demand reduction due to distributed generation, and storage technologies, competition from new entrants in hardware, services and supply, and changing regulatory frameworks and demands. In addition, they face a customer with increasing levels of choice and increasing expectations for high-quality service and experiences.

In the U.K., a comprehensive study of 1,300 non-residential customers found that 14 % had switched energy suppliers in the last year and 40 % had switched across the past five years (Research Perspective, 2013). In addition, Net Promoter Scores – used as a proxy for customer satisfaction and loyalty – revealed that 11 % of surveyed customers could be characterized as 'promoters' of their energy supplier (Research Perspective, 2013).

As Business customers continue to have access to more choice and control regarding energy supply and services, the research above indicates that energy intelligence platforms such as E.ONs Energy Toolkit have an opportunity to provide a service enhancement that helps drive marketplace differentiation.

E.ON and FirstFuel's major performance metrics tracking from the initial Energy Toolkit launch (available to around 20,000 customers) will be continuously tracked primarily through analytics tools that track web impressions and other digital web usage characteristics. The following core metrics below suggest that user adoption can provide energy retailers with meaningful opportunities to provide more tailored, personalized service, as well as deepen their relationships with customers across time. These performance metrics will be complemented by customer survey and interviews that provide more qualitative insights into service value.

METRIC	POTENTIAL CUSTOMER ENGAGEMENT IMPACT
# OF CUSTOMERS COMPLETING PROFILE	Provides energy supplier with significantly more information about customers to tailor new offerings and services
AVG TIME ON WEB PLATFORM (MIN)	Indicates that energy usage information is engaging and relevant
# OF UNIQUE VISITORS	Indicates strong initial penetration and interest in the Toolkit
AVG REPEAT VISITS FROM LEADING USERS	Indicates that information is valuable enough to become a regular source of reference and energy decision-making
ENERGY SAVINGS TIPS COMMITTED TO	Provides supplier with targeted opportunities to effectively engage customers and offer relevant services

Figure 8. Sample metrics tracked from initial launch of E.ON Energy Toolkit.

While business objectives may vary across energy suppliers, the ultimate goal of such platforms is to deepen customer relationships in a manner that drives more engagement, satisfaction, and loyalty across time.

Conclusion

The energy industry is undergoing significant technological changes that are impacting the nature of the supplier and customer relationship. As energy customers continue to demonstrate a desire for more tailored services as a determinant of their supply decisions, suppliers have the opportunity to provide new-in-kind offerings that help meet these emerging needs. In particular, advances in data availability and data analysis provide suppliers with the foundation to become trusted advisors to their energy customers.

FirstFuel and E.ON believe that offerings such as Energy Toolkit provide one promising approach for building a new kind of supplier-customer relationship. Both companies recognize that more time will be necessary to test the impact of this offering on Business customer service improvements and loyalty, and look forward to sharing these findings as they emerge.

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