MARKET PROSPECTS ASSESSMENT

Right of Reply – Tell your Truth

Protecting Reputation for Individuals and Enterprises

PREPARED FOR

Right of Reply, Ltd

PREPARED BY

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BEAR
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Executive Summary

Like retailing, the global media economy is being transformed from localized printed media and broadcast studios to the borderless, frictionless world of the internet. Transcending both space and time to dramatically increase choice while reducing search and transaction costs, supporting explosive global growth of news, entertainment, and social media. With this increased variety of content sources comes an increase in the ambiguity and decrease in the verifiability of information sources, exposing people and institutions to cyber-defamation and fake news. **Right of Reply** (ROR) harnesses strong blockchain technology to add a level transparency and a platform for verifiable responses to online media, opening new horizons for market and social engagement, managing information and reputational capital, supported by the most efficient digital job matching and payment technologies. **Our analysis of today's global online media markets, digital settlement mechanisms, and other relevant technologies indicates that ROR has the essential elements to break out as a market leader in the Age of Digital Reputation and Credibility Management. Its disruptive technologies can capture a large share of the existing reputation management business, while igniting new markets beyond the reach of traditional marketing and identify protection technologies.**

Online media has transformed populations of consumers of traditional national and local media sources into a global population of prosumers who consume and produce content in real time, 24/7, irrespective of borders, identities or backgrounds, and in general creating a decentralization and 'debranding' of information sources. The production of media has been facilitated to the point where the act of consuming, with or without 'liking', has become in itself a production of potential value which is exchanged on the fluid and growing digital influence market. Whether for marketing or for political goals, this decentralization and automation is a double edged sword allowing spontaneous and "community-verified" information to flow freely but also providing a mechanism for malicious influences to generate fake news, fake communities and fake opinions. This system presents a new economic frontier where the attention of prosumers is the currency and the reputation of the "poster" be they a person or an institution, sets the exchange value. Emitting and exchanging this value in the form of items (stories, pictures, posts, likes, stars, shares, comments…) in the network should therefore be verified with the same rigor with which verify monetary transaction.

If reputation is the currency, protecting the value of personal and institutional reputations is vital. Several characteristics of online media in general, and social media in particular, make reputation management uniquely challenging. The first of these characteristics is the "train wreck" phenomenon in which negative, defamatory or salacious items attract more attention than positive items. The flow of attention online passes fleetingly onto an

item that may or may not be true but is for some reason attention-worthy, click-worthy, share-worthy. If a negative story attracts more than a positive story it is also clear that a response to correct a negative story will also garner less attention.

As a wholly digital experience, online media is prone to programs or "bots" which can disseminate and endorse content automatically, creating self-fulfilling "like storms" or 'hate-storms" on selected items. It is the nature of the instantaneous consumption of online media that favors these extremes of like and hate over more nuanced positions. A single negative post can be immediately amplified and is forever available, even after the swarm passes onto something else. A single item that degrades the reputation of a person or an institution can cancel a lifetime of positive activity. Recent studies on the dissemination of fake news items have shown that negative news travels more rapidly and more broadly than positive news and that humans share fake news more often than bots do.

Into this seemingly chaotic and dangerous context Right of Reply inserts a modern take on concept from British common Law, the individual *Right of Reply*. This principal of fairness allows anyone who has been defamed or about whom something has been claimed, to reply to that claim in the same venue and with the same instrument as the offender. In the online world the venue is the "post" and the reply should therefore have the same timeliness and weight as the original post. Because of the nature of commenting and the weighting of negative content as discussed above a corrective response to a post is likely to disappear. ROR works by first verifying the identity of the person cited in the original post and, as a consequence, reserves a response position for that person which is pinned to the original post. This allows the consumer of the post to immediately access the response of the cited party(ies). The blockchain ledger is permanently affixed to the response to that item so that any future changes in the ledger will result in another alert on the ROR profile page of the cited person(s) or institution(s).

These micro media items form an economy of reputation value that must be managed. The ROR system is positioned to manage them technically with its ability to reduce the ambiguity of cited identities and the ability to manage micro-transactions which comes from its background in the block chain enabled platform space.

In conclusion, our analysis reveals enormous growth potential for ROR to break out in its core markets, credibility and reputation management for enterprises and individuals in online media and other information sources. By dramatically reducing search time and cost while greatly enlarging horizons of opportunity, ROR is poised to capture shares of established "1-3 billion" user internet media markets and promises to create new markets for reputational risk management and online media advertising.

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I. Introduction

The mission of Right of Reply (ROR) is to enable individuals and enterprises to protect their reputations, communications, and identities against misrepresentation, defamation, and fabrication ("fake news") propagated by online and other electronic media. ROR is responding to a dramatically emergent need to protect personal and company information from opportunistic misrepresentation, a threat that has proliferated at an unprecedented pace with the global diffusion of internet, cellular, and other digital communication technologies. This report assesses the scope of the threat, potential for economic damages, and willingness to pay for the reputational risk management tools offered by ROR. All current evidence suggests that the explosion of electronic media, across a diverse spectrum of global regulatory regimes, requires individuals to invest in their own reputational security. Like digital literacy, identity protection is an essential skill for successful participation in the digital age. **ROR offers the most innovative, effective, and convenient tools for this.**

Through the application of specific patents which protect their intellectual property, Right of Reply offers a suite of tools which enable their subscribers to:

- be promptly informed of any web content that mentions them
- analyze such content and assess its accuracy and reputational risk
- respond to that content
- have their responses flagged and made available to anyone who decides to view the content which mentions them
- have the fact that their response to the original content is now available to everyone who has viewed that content
- have an item of content they choose positioned at the highest ranking on search engines

The advantages of these ROR services are obvious, but until now their importance has only been apparent to a few organizations and inferred from media coverage of viral phenomena like fake news and schemes to manipulate popular (e.g. voter) opinion. In this report, we review recent evidence showing how digital media have become compromised by an epidemic of misleading and completely false content. Because this corruption of content has coincided with unprecedented growth in public reliance on electronic media, it has elevated potential costs for both active and passive media users. These technologies enable misrepresentation by lowering search and communication costs, as well as perceived risk to bad actors. As misleading messages proliferate, victims

incur costs to filter, refute, or otherwise counter them. Meanwhile, public awareness of the overall problem undermines credibility of media messages generally, requiring greater investment in positive aspects of reputation. Without deterrence, these forces sustain a downward spiral where bad news drives out good news. Ultimately, responsible actors cannot afford to stay in the media, compounding their losses and denying the public accurate and beneficial facts to inform choice and action.[1]

This report assesses the prospects for ROR deployment across global markets, with particular reference to the anchor or OECD markets of the EU and United States.[2] Based on detailed analysis of current and recent trends in traditional and emerging media technologies, we believe that ROR can be a potent catalyst for managing reputational risk and limited the costs of misrepresentation. ROR's individualized, real time content monitoring and response technology platform, implemented on handheld and any other browser enables platform, can dramatically improve individual awareness of and recourse to media/internet representation, all at sharply lower lowering search, transaction, and redress costs than prevail today. With these disruptive competitive advantages, ROR can generate and sustain dynamic growth in several ways, capturing misrepresentation earlier, at lower cost, and with viable consequences in terms of rebuttal and deterrence.
This assessment report is divided into three primary components. First, we review the global emergence of media generally and electronic media in particular. We then examine the content of these global information channels, with special attention to questions of empirical accuracy and the more behavioral idea of information credibility. Finally, we focus on the issue of reputational risk and its economic importance to individuals and enterprises. Perhaps there is no need to observe that all three issues have evolved very dramatically over time, are intimately linked, and will drive significant social adaptation. We shall see that the final outcomes of this process could differ sharply, depending on whether or not robust risk management tools like ROR are widely available.

II. Media Globalization and Market Potential for ROR

ROR is a transformational technology for digital management of reputational risk to

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[1] This kind of "adverse selection game" is particularly dangerous when state actors target private information and use censorship, technology advantages, or discretionary resources to prevail over public opinion.

[2] The "high income" economies of the Organization for Economic Cooperation and Development (OECD) comprise 18% of global population, but two-thirds of global GDP.

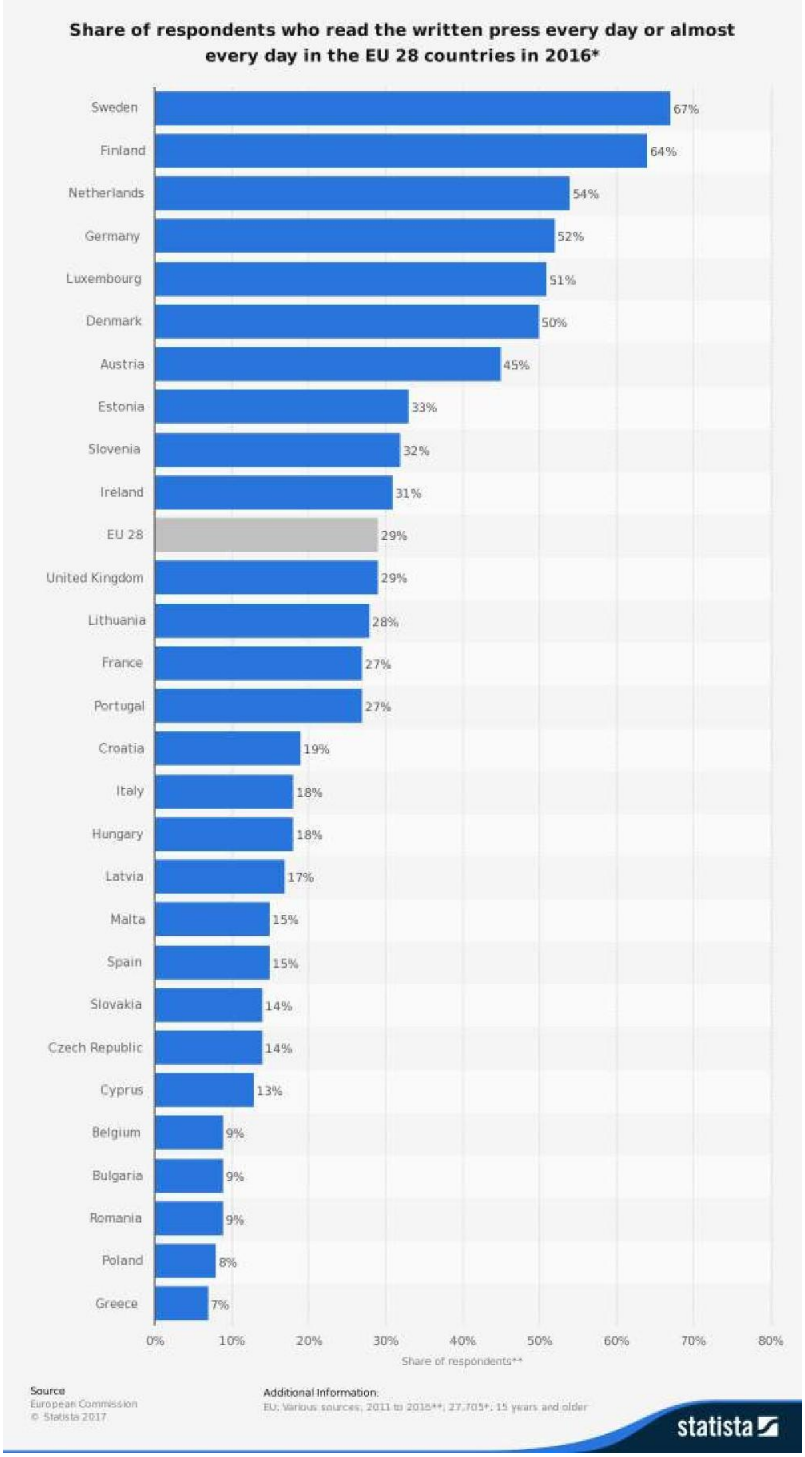
individuals and enterprises. By 2020, it is predicted that 4bn people will be online, with 1.5 billion alone in the US and Western Europe. This is a vast and connected market place where content, communities and communication can travel freely, unconcerned by local borders or geographies. Today, the majority of Western internet time is spent on global platforms like Facebook, Amazon, Twitter or Snapchat. The possibilities for businesses are immense, with direct access to networked audiences 10, 20 or even 100 times the size that print and broadcast media could dream of delivering.

A. TRENDS IN NEWS MEDIA CONSUMPTION

In the most general sense, media is a very old way for societies to share information. Beginning with oral narrative histories and continuing with centuries of official and commercial innovations to spread messages, media expanded steadily with literacy and, much later, printed communication technologies. Finally, the modern media age opened with electronic communication, including telegraph, telephone, broadcasting, and finally the internet. On the demand side, literacy and leisure were the primary constraints to media growth. These barriers began to fall in the Twentieth Century, especially after the Second World War, when more widespread education and economic security set the stage for a genuine Mass Media in OECD countries. Along with popular news and entertainment consumption, the entire commercial sector became more information dependent for its decision making and marketing. Later in the last century, the inexorable progress of globalization accelerated media diffusion beyond the imagining of Edison, Bell, Hearst, and the other communication/media pioneers.

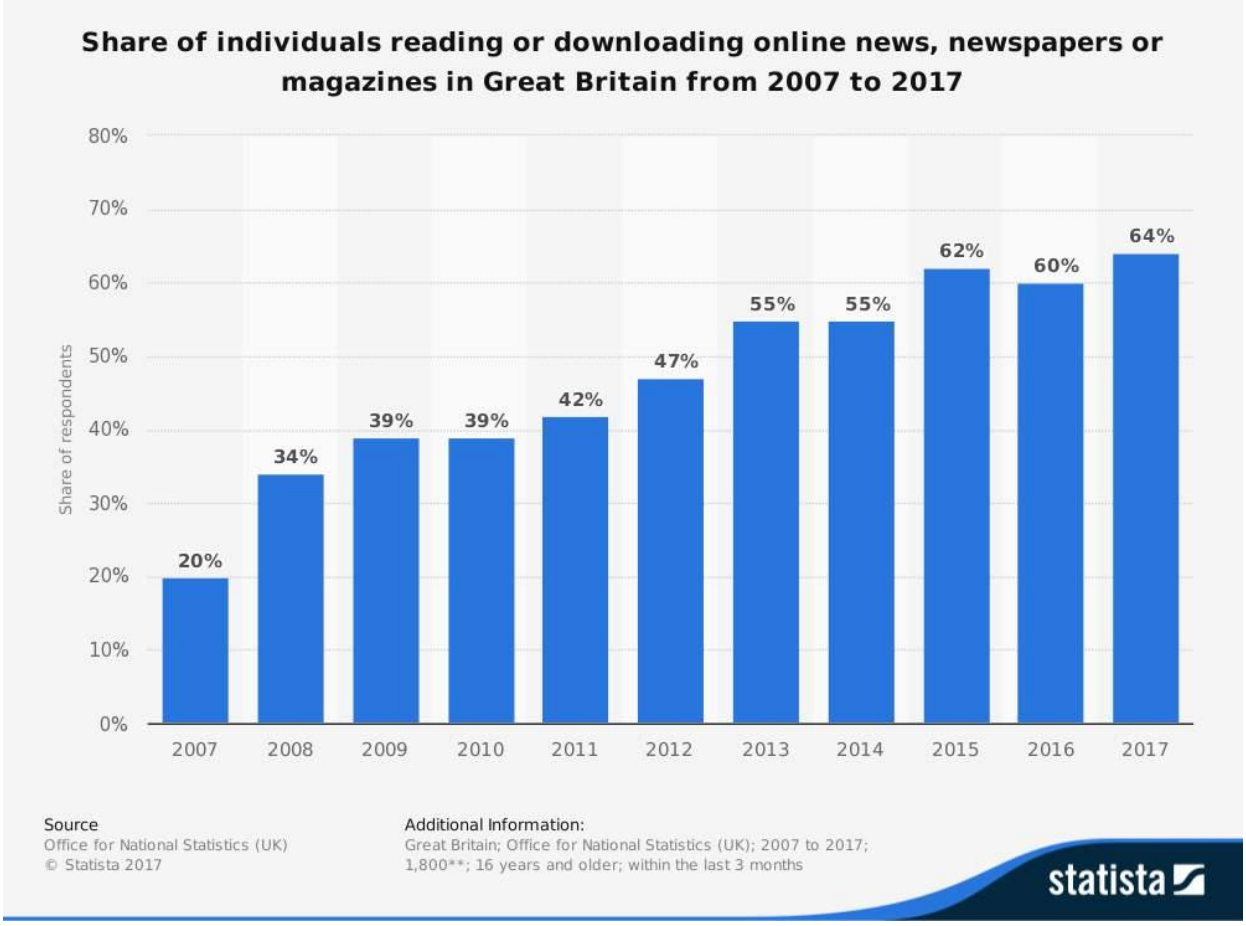
The “gift” of printed media is reflected in OECD printed news consumption (Figure 1) for Europe. Although there are significant disparities, about a third of all EU28 adults (>15 years of age), over 125 million people, read a printed newspaper or magazine every day. Readership is over 50% in Northern Europe, driven by a combination of higher average income and education levels. Taken together, these results suggest that an already huge appetite for news will only grow over time with education and income.

Figure 1: Daily Printed News Readership



The third major transition in media, after print and broadcasting, occurred at the turn of the last century with the diffusion of the internet, cellular communication, and supporting digital technologies. As Figure 2 makes clear for the example of Great Britain, this process was rapid and irreversible. Over the last decade, the population accessing news on digital media has exploded from 20% (essentially 0% a decade earlier) to 64%, a market of 37 million people. Note that this dramatic move to digital news is largely **additional**, meaning that regular printed readership has thus far remained high. Tradeoffs between the two are inevitable, of course, as many new digital users may not have been printed readers and printer readers learn and adopt digital media. In any case, regardless of the long-term viability of printed media, electronic information is now firmly embedded in information consumption patterns, and therefore public perception and understanding, throughout the OECD and beyond.

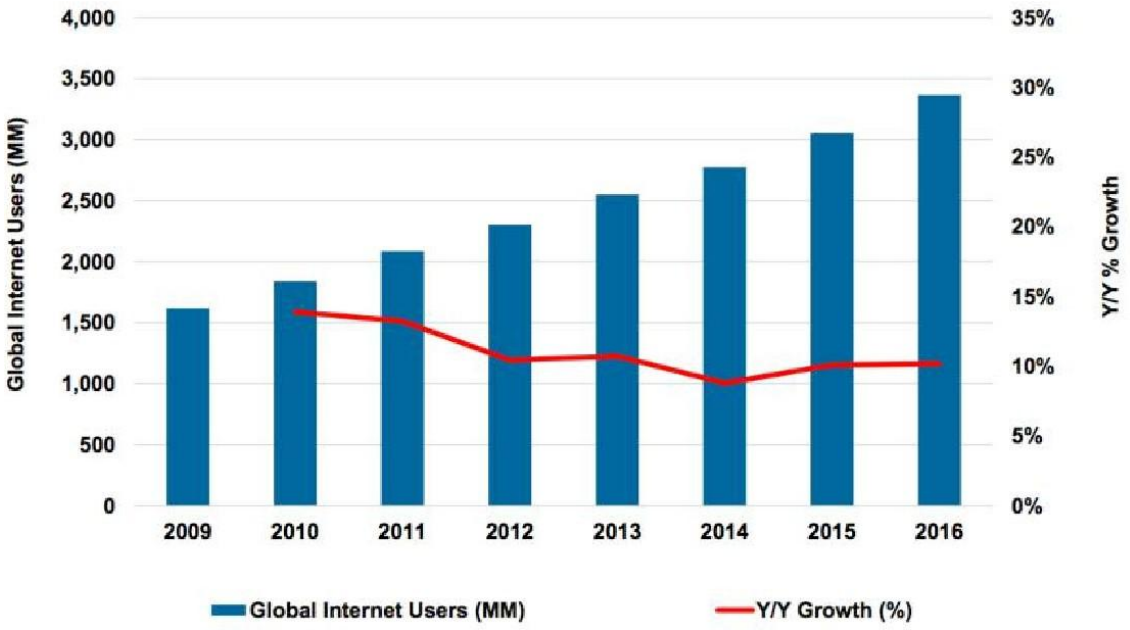
Figure 2: Transition from Printed to Electronic News, Great Britain



B. TRANSITION TO SOCIAL MEDIA

Media history until very recently was about a relationship between individuals and enterprises, authorities, or professionals who produced content communicating information for news and/or entertainment. With the rise of the internet, a completely different theatre of information exchange, so-called social media, has decentralized the supply side of media information flows. Today any individual or other entity with digital access and enough digital literacy to construct or associate with a pre-existing internet presence, presenting content that may comprise original, secondary, true, or completely fabricated information.

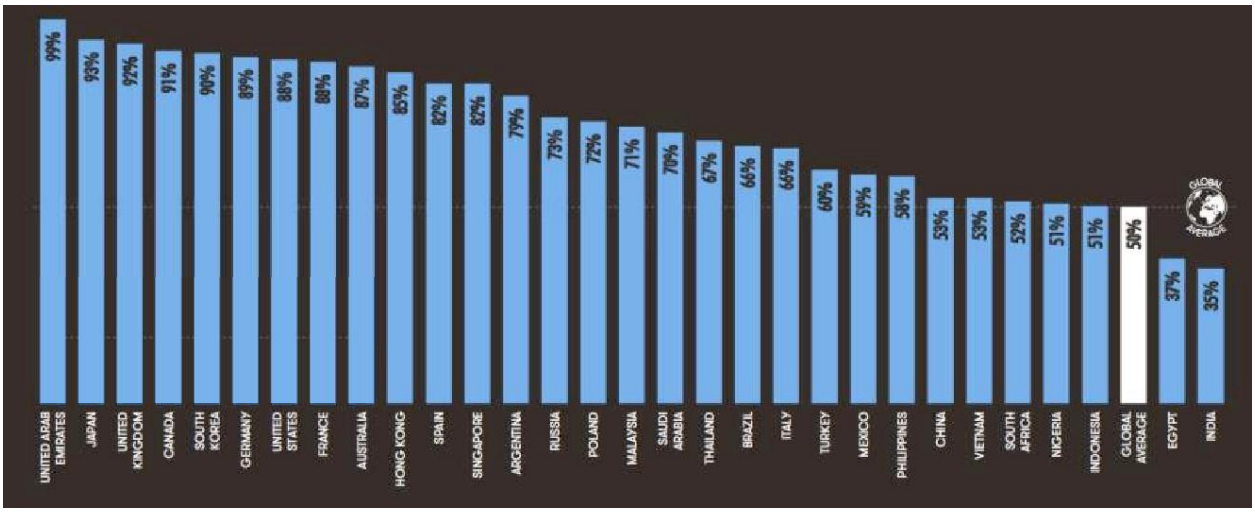
Figure 3:Global Internet Users



Source: United Nations / International Telecommunications Union, US Census Bureau. Internet user data is as of mid-year. Internet user data for: USA from Pew Research, China from CNNIC, Iran from Islamic Republic News Agency / InternetWorldStats / KPCB estimates, India from KPCB estimates based on IAMAI data, Indonesia from APJII.

Figure 4: Internet Penetration, 2017

(percent of households with internet access, including mobile)



The extent and pace of social media adoption/diffusion have been truly astounding, even by the standards of recent IT history. Again, this medium was essentially non-existent 20 years ago, and has achieved most of its growth to date over the last decade. On a global scale, access remains quite unequal, but the most recent estimates suggest that 50% of humanity now have internet access, or about 3.8 billion people (

Figure 5). Today, the fortunes of some of the world's largest and most dynamic enterprises are rooted in this market. Although the glass is already half full, growth of access remains very rapid (Figure 6) at 10% per year or more than three times the rate of average global real income growth.

Even more arresting is the scope and growth of social media, which in 2017 was estimated to have nearly 3 billion active users (37% of population) and an average annual growth rate of 21% or twice the rate of internet deployment. The fastest growing segment of social media is the most distributed, with new social media users on handheld mobile platforms growing at 30% per year. To say that these new markets are vast is an understatement, and the demographic trends underlying them are on track to dwarf printed and other traditional media by the end of this decade.

Figure 5: Global Digital Technology Access, 2017

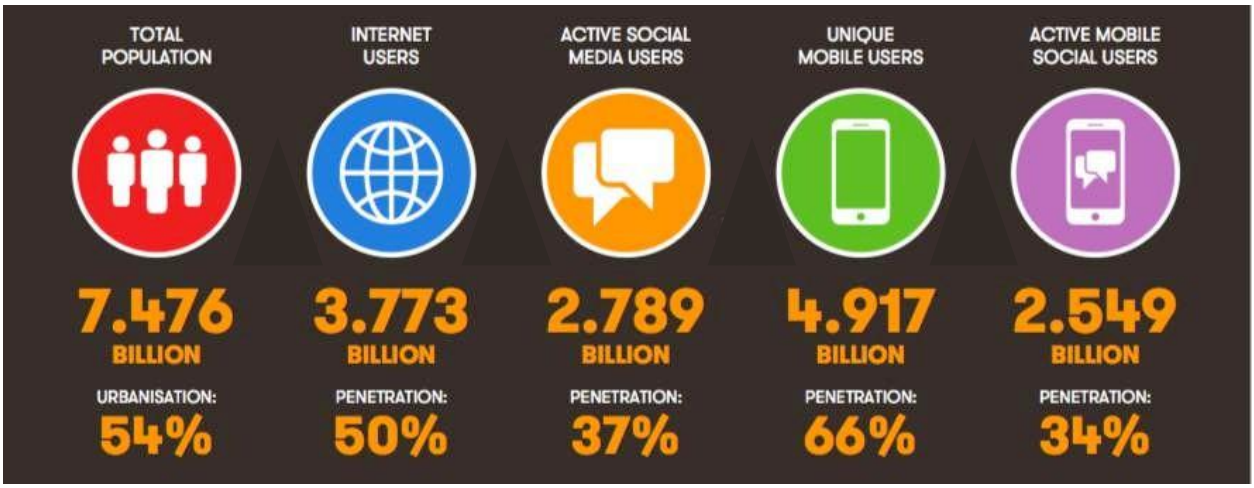


Figure 6: Growth of Digital Access

(12 months prior to January 2017)

We have already noted that traditional media use is correlated with education and income levels, and we see in the following data that the relationship is also positive, but more weakly so, for social media. European social media participation in the 2014-2017 interval averaged 40-50% across the EU28 (Figure 7 and Figure 8), with higher rates in more educated, higher income countries. In all, nearly half a billion social media subscribers comprise the European market, three quarters of them using mobile phones for access.

Figure 7: Digital Media Across Europe, 2017

Figure 8: Social Media Penetration by EU28 Country, 2014

The situation is similar in the Americas, although markets are concentrated in the United States, Canada, Mexico, and Brazil. By 2017, the Americas as a whole presented a market of over half a billion, with handheld mobile platforms the primary means of access. Because this huge market is represented by only three main languages, it promises an explosive opportunity for media content development.

Figure 9: Digital Media Across the Americas, 2017

Figure 10: Digital Media Across Asia and the Pacific, 2017

Of course, the most legendary consumer market remains in Asia, where there are lower current adoption rates but many more existing users than the EU an Americas combined.

Combining India, China, and the rest of this region accounts for nearly 2 billion existing internet users and 1.5 billion people already on social media (almost all of whom are accessing via mobile technology). With about 4 billion mobile subscriptions extant in the region, the upside for social media subscription remains very strong. Of course many western internet and social media have found this a very difficult market to deploy their products and services, and this may remain a challenge. For this reason, we will focus the remaining discussion on European and American markets.

Having established a market with over 1.25 billion current users and robust growth momentum, it remains only to demonstrate compelling need for the suite of ROR risk management products. This need depends the risk of real (financial) reputational damages from social or other electronic media misrepresentation of individual identity, conduct, association, etc., which in turn depends on two factors: the credibility of the internet as an information source, and the agency of those who would propagate false or misleading information. We address each of these in the following two sections.

C. KEY TAKEAWAYS

Our review of the scope and pace of deployment for internet access, online media, and above all social media reveals robust growth opportunities for ROR technologies for reputational risk management.

- ***The modern era of media began during the last century, fueled by rising incomes, education, and technology. Its most recent manifestation, internet and social media, has exploded in the last decade to reach half of humanity.***

- ***Even if ROR marketing were restricted to the EU28, it would have access to over 500 million current social media subscribers, with this group growing by 20% in the last year alone.***

- ***Expanding ROR services to the Americas would more than double market size, adding another 600 million current social media subscribers who are served by only three main languages.***

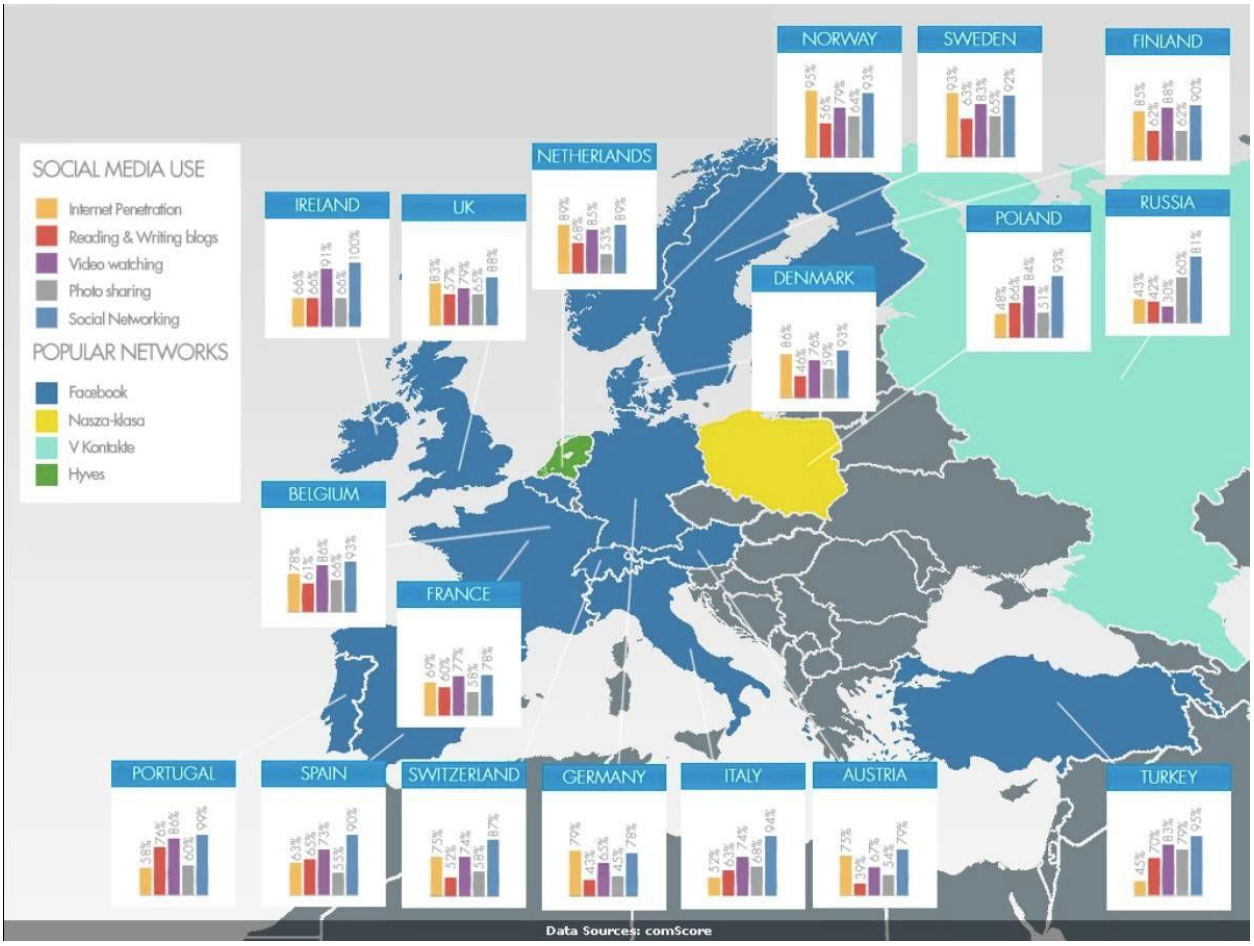
- ***Market size could more than double again if ROR were projected into Asia and the Pacific, but western internet products have had significant difficulty penetrating these markets.***

III. Media Credibility and Reputational Security

A. Social Media Content

Under current norms of internet neutrality, there are limited restrictions on standards for content, and even fewer protections for viewers consumers who want to access internet information, appraise its accuracy, or interpret the risks of acting on it. There may be many initiatives under discussion to develop more rigorous standards and enforcement mechanisms for both posting and accessing content, but these have yet to improve security substantially. The mutable, adaptive, and globally dispersed nature of the technology makes protection difficult even when standards can be agreed and regulations adopted by individual governments or groups. Even the most obvious and easily accepted norms, such as controlling children's access to adult content or screening out hate speech, have proven very difficult to implement effectively. Suffice to say at the present time that we are living in a "Wild West" environment, meaning risks are endemic, unpredictable, and the first line of defense rests with each individual media user.

Figure 11: Internet Access and Social Media Use Patterns, Europe 2017



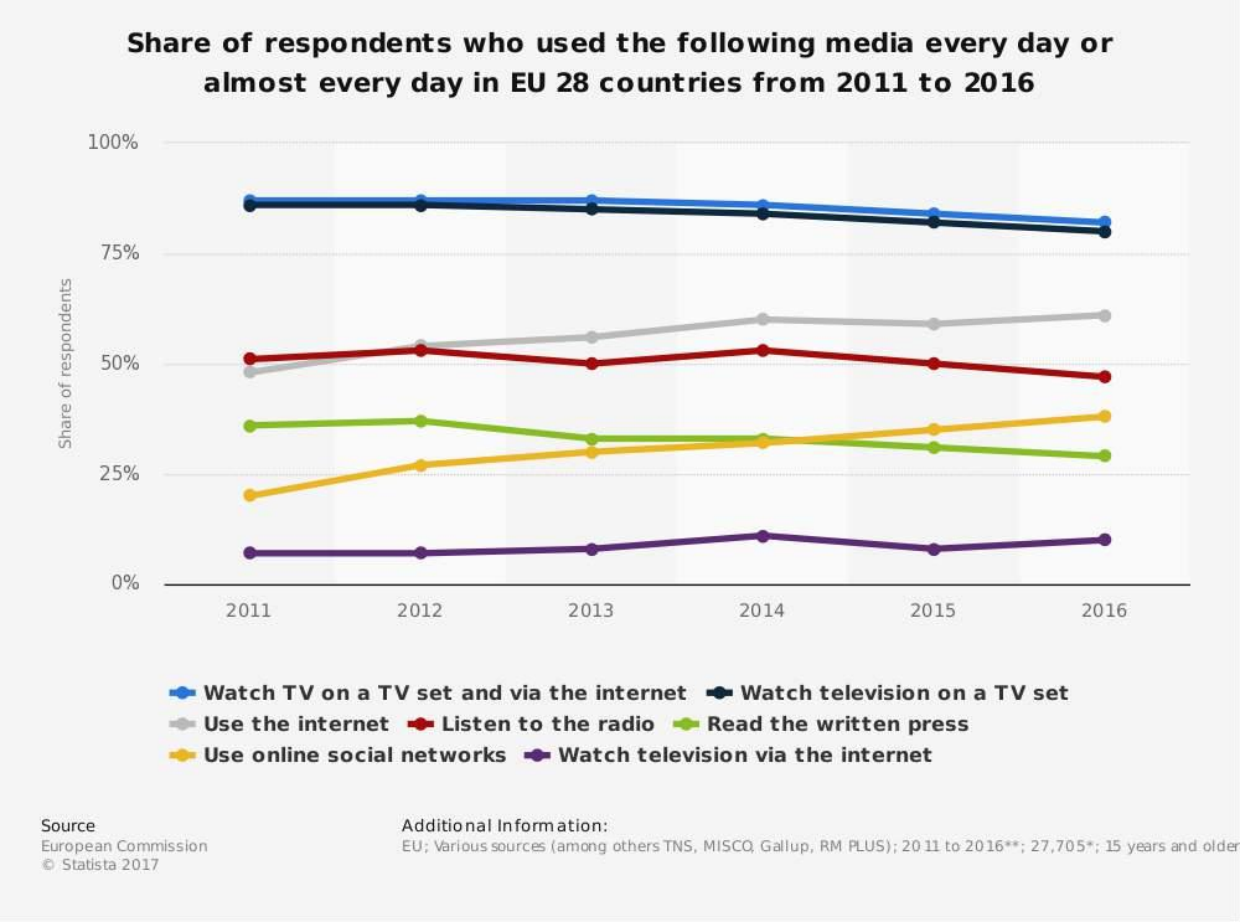
Patterns of internet content evolution are driven by several factors, including internet access demographics (especially language, education, and income), use patterns, and regulatory oversight. As

Figure 11 reveals, most European economies have high rates of internet access and nearly everybody with an internet account uses social media for networking. Other popular activities are viewing video content, with reading/writing activities and photo sharing alternating in third place.

In comparison to more traditional media, we recall from the previous section and see more specifically in

Figure 11 and Figure 12 that daily social media use is steadily rising and, combined with overall internet information medium, it has the potential to rival or displace established television and radio content consumption. The main difference in these new sources, of course, is the degree of regulation, supervision, or curation of content. There are there literally thousands of times as many content sources available via the internet and on average they are far less regulated. Taken together, these sheer numbers and lack of standards can reasonably be expected to foster "diversity" in terms of information quality, especially in a world where there there may be strong economic, political, or other incentives to compromise informational integrity.

Figure 12: Viewer Attention by Type of Media, Europe 28



B. INTERNET AND SOCIAL MEDIA CREDIBILITY

Hard data on internet information quality are very difficult to obtain, and what we know about the problems of misinformation in this medium is largely anecdotal. Of course consumers are well aware of the problem, however, so user surveys provide a useful indirect means to assess the problem. As Figure 13 indicates, the internet is less credible than traditional broadcast media in nearly all of Europe. Given that viewing patterns are shifting so strongly towards online sources, however, we can conclude that the average credibility of media messages is declining. While this trend may be regrettable, it can be offset by two things, viewer skepticism and remedial technology solutions like ROR.

Figure 13: Public Trust in Media Sources, EU28

A variety of surveys in Europe and the US suggest that individuals are adapting to perceived deficiencies in internet information quality. In the absence of defensive tools like ROR, however, their primary recourse is skepticism. Figure 14 clearly shows deep skepticism among European audiences, with the internet significant less trusted than broadcast and print media, and social media on the internet least trusted of all media.

Breaking this down by country, we see widespread internet skepticism (Figure 15), with only about a third of Europeans trusting internet source material and degrees of credibility varying between a low of 24% and a high of 50%. Interestingly, countries with higher incomes and education levels have lower levels of internet trust, meaning they would be prime candidates for technologies like ROR that can quickly identify, assess, and remedy misinformation. Indeed, the entire internet credibility problem is an opportunity for ROR and other "credibility technologies" to improve internet services and add value for all constructive actors in the online economy.

Figure 14: Trust in Media, EU28

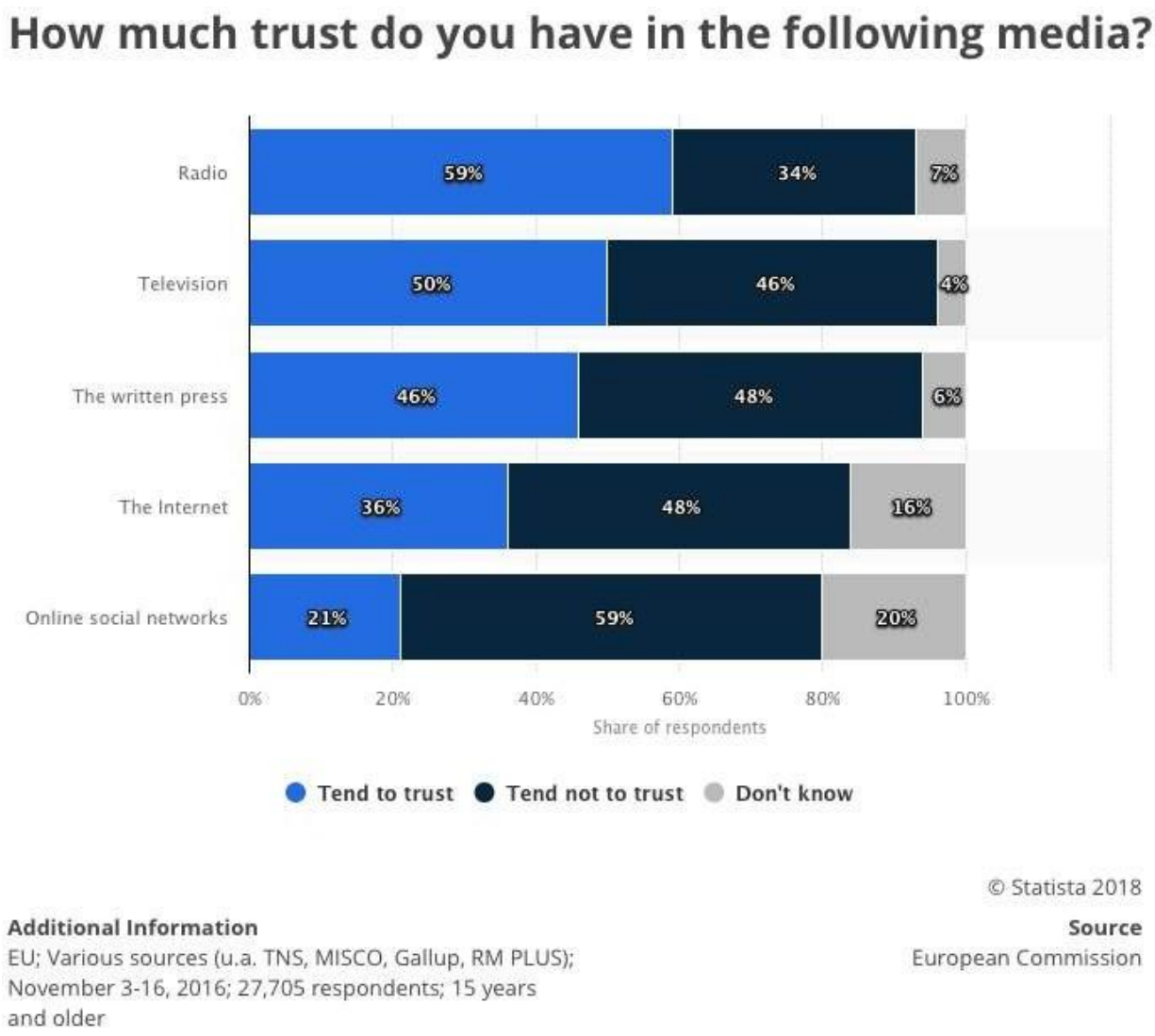
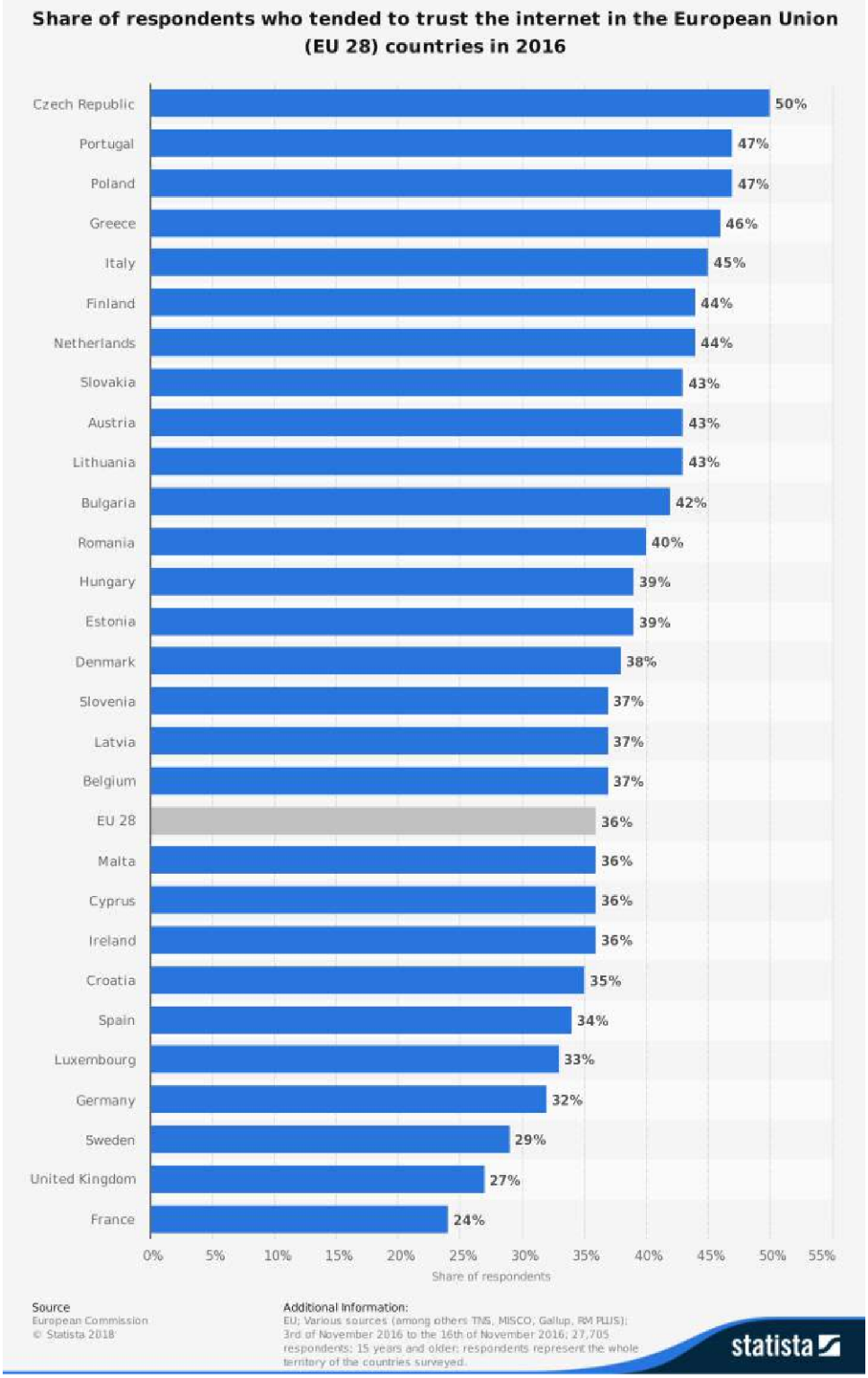


Figure 15: Trust in the Internet, EU28



Judging from public opinion on the risks posed by fake news, American media consumers

are even more emphatic in their distrust of online sources. Figure 16 shows that about two-thirds of the US population believes that fake news is currently an endemic risk in media generally. Like Europe, we see that higher income and education groups are the most skeptical, suggesting both a credible social threat to decision making and a significant market opportunity.

Figure 16: Perceptions of Fake News Impacts

Belief that fake news causes confusion shared widely

% of U.S. adults who say completely made-up news has caused ____ confusion about basic facts of current events

	A great deal	Some	Not much	No
	%	%	%	%
Total	64	24	6	4
Men	61	25	8	5
Women	68	23	5	4
Ages 18-29	67	26	4	2
30-49	66	21	9	4
50-64	64	23	6	6
65+	58	29	6	5
High school or less	61	23	8	7
Some college	67	24	5	3
College+	67	26	5	1
<$30,000	58	26	8	7
$30,000- $74,999	65	27	5	2
$75,000+	73	19	5	2
White	65	25	6	3
Black	67	18	11	4
Hispanic	61	19	6	10
Republican	57	28	9	5
Democrat	64	25	4	6
Independent	69	23	6	1

Note: Whites and blacks include only non-Hispanics.
Source: Survey conducted Dec. 1-4, 2016.
"Many Americans Believe Fake News Is Sowing Confusion"

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Since inaccurate information can undermine judgement and thereby impose costs on individuals and enterprises, we might be encouraged by "healthy" skepticism toward the world's most extensive and accessible information resources. On the contrary, however, low credibility is merely denying everyone enormous potential benefits from a transformational technology. In the most practical terms, in the absence of credibility technologies like ROR, the online misinformation problem forces users to discount the value of internet information using intuition or rules of thumb. Because this approach is subjective and imprecise, it has a "chilling" effect on users' overall valuation of internet messages. This might be beneficial as a defense against potentially dangerous messages or content, but inevitably it also undermines marketing and brand information that companies invest in to promote their reputations. In this way, the credibility problems of the internet damage all three of the medium's principal stakeholders, users who seek information as a basis for economic decisions, enterprises who want to communicate positive messages about their goods and services, and the hosting portals and other intermediaries whose livelihoods depend on robust internet commerce. Adding to this the evidence that credibility problems are greater in more affluent economies, and **we have a robust argument for using ROR credibility technologies to bring the internet closer to its enormous economic potential.**

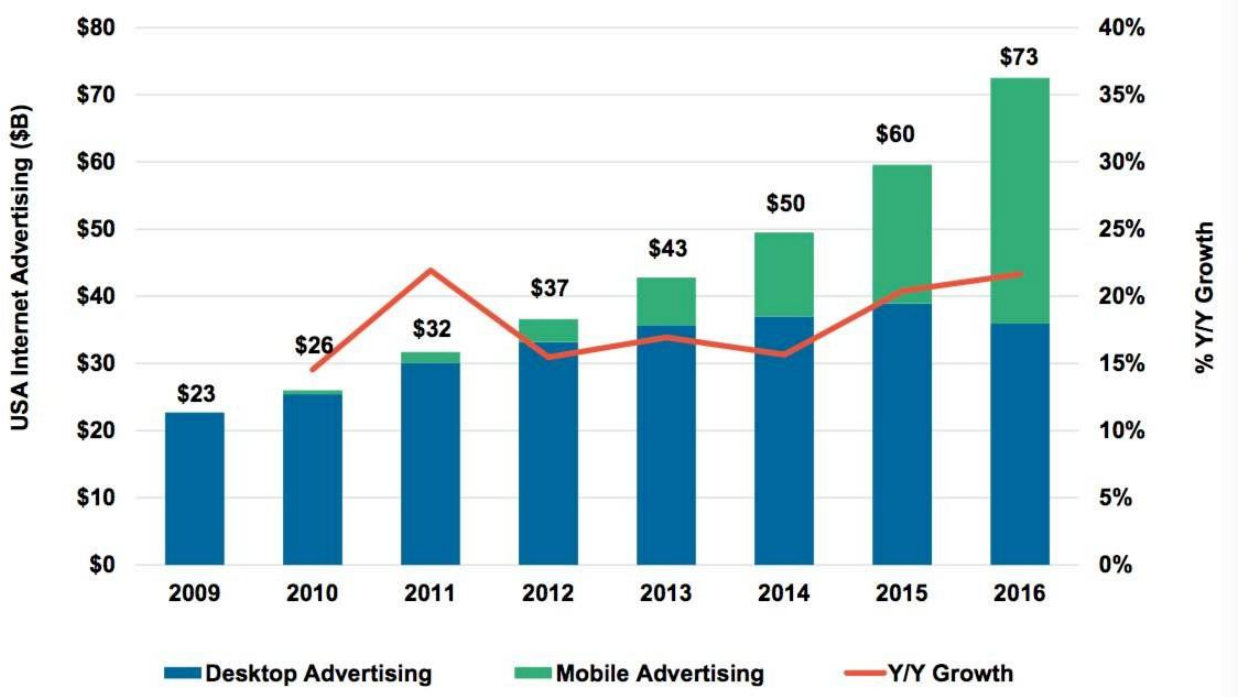
C. Reputational Capital – Rewards and Risks

Social and economic relationships are built on mutual perception, exchanging the basic information that identifies opportunity, guides counterparty engagement, and mediates risk. In traditional society, the interactions were generally based on deep foundations of tribal and customary familiarity (in the literal sense of family). In the modern world, most new counterparty interactions occur between agents with limited or negligible direct knowledge of each other. Instead, we now rely on legal systems for risk management and secondary information to help us with identification and prediction. One of the most important kinds of secondary information is reputation, cumulative knowledge from other sources that can help us relate to and predict the behavior of a counterparty. Because reputation depends on past experience, enterprises and individuals have incentives to offer (and advertise) positive counterparty outcomes. Unfortunately, reputation can also be affected by misinformation, overstating the positive or propagating false negative information. As the emergence of online media dramatically expands information provision and access, with very uncertain quality standards, the risk of misinformation and attendant economic damages is increasing rapidly.

1. Risk perception by Enterprises

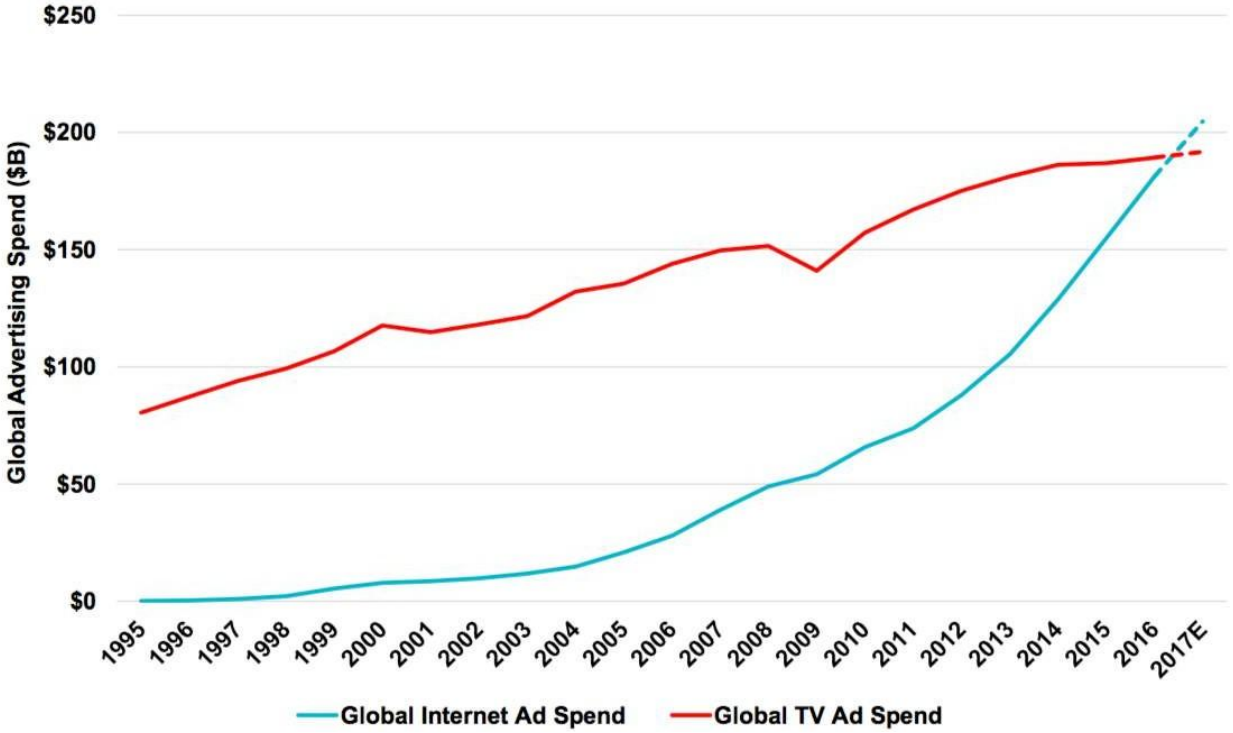
Any business owner will tell you that reputation is one of their most valuable assets. Indeed, reputation is a form of "soft capital" that contributes directly to business value and can be improved over time in response to sustained investment and commitments to quality and client satisfaction. In a modern global economy, mass media is the primary channels through which reputation is communicated and even marketed. As result, local, national, global enterprises support a significant portion of printed and electronic media through commercial advertising. In other words, advertising monetizes the soft concept of reputational capital and translates it into hundreds of billions of dollars of global annual revenue. Technology has a direct role in this process and drives structural change across the advertising industry. As mass media expanded into the new medium of the internet, advertising (reputational investment) followed, sustaining the emergence of some of the world's largest corporations (e.g. Google, TenCent) in this process (see

Figure 17:Interment Advertising (USA, $billions)



Source: IAB / PWC Internet Advertising Report (2016)

Figure 18: Global Advertising Revenue, Television and Internet ($ billions)



Source: Zenith Advertising

While businesses are promoting their reputations with advertising investments, the demand side of this information channel has been expanding at least as rapidly on its own initiative. A recent US national poll by Forbes magazine (Forbes: 2016) indicated that nearly half of internet users use search technologies to evaluate enterprises before doing business with them. Among these:

- 45 percent said they found something in an online search that made them decide not to do business with the person
- 56 percent have found something that solidified their decision to do business with the person

reinforcing both sides of the value proposition from online information. Assuming the information they obtained was accurate, they would presumably be willing to pay (even a small amount) for such information. Likewise, they would probably pay part of the same amount to know the credibility of the information source, since it's value would have to be discounted by known uncertainty. Finally, a premium would also accrue to correcting information. **All these are pecuniary elements of the information economy, and all represent potential revenue streams for ROR-type credibility technologies.**

Going a step beyond generic online search tools, the next tier of reputation assessment tools are online reviews. While these are also subject to manipulation, they are extremely popular because of low transactions costs. Among those with internet access, a recent article in Forbes magazine indicated how pervasive is the appetite for secondary information on enterprise reputation:

1. 90% of consumers read online reviews before visiting a business
2. Online reviews have been implicated in 68% of purchasing decisions
3. 84% of people trust online reviews as much as a personal recommendation
4. 74% of consumers say that positive reviews make them trust a local business more
5. On average, a one-star increase in a Yelp rating is associated with a 5-9% increase in revenue
6. 82% of Yelp users said they typically visit Yelp because they intend to buy a product or service.

2. Impact on Business Revenue

Of course the above trends in consumer behavior will find their way directly to firm's bottom lines, as results of similar studies (linked below) indicate:

1. Businesses risk losing 22% of business when potential customers find one negative article on the first page of their search results.
    - Businesses with two negatives on the first page of search results risk losing 44% of its customers.
    - If three negative articles pop up in a search query, the potential for lost customers increases to 59.2%.
2. Enterprises and products with four or more negative articles appearing in Google search results can expet to lose 70% of potential customers.

Figure 19: Revenue Impacts of Adverse Online Reviews

Source: Forbes, 2015

3. Nearly half of U.S. adults said they have Googled someone before doing business with them. (2012)
    - 45% said they have found something in an online search that made them decide not to do business with the person.
    - 56% have found something that solidified their decision to do business with the person.

3. Effects on Human Resource Management

As enterprises have adopted more aggressive online reputation management strategies for their own brands, they are transferring these lessons and skills to managing human resources. From this perspective, every employee represents the brand, and every prospective hire has their own brand. In recognition of this, enterprises are beginning to more diligently monitor online reputations of their own staff and use online research to evaluate prospective job candidates. Some evidence on the cost implications of HR based reputation includes the following (with links to sources):

- A bad reputation costs a company at least 10% more per hire.
- 70% of employers use social media to screen candidates, up from 11% in 2006.

- Of all recruiters, 95% believe that the job market will remain or become more competitive. If you don't stand out online, your competition will. (2015)
- Seventy-five percent of HR departments are required to research job applicants online.
- Eighty-five percent of U.S. recruiters and HR professionals say that an employee's online reputation influences their hiring decisions at least to some extent. Nearly half say that a strong online reputation influences their decisions to a great extent.
- Seventy percent of U.S. recruiters and HR professionals have rejected candidates based on information they found online.
- 57% of employers are less likely to interview a candidate they can't find online

All these activities have to co-exist with privacy standards, but these vary with circumstances and jurisdictions, and in any case the boundaries are often quite vague. Morale and productivity can also be influenced by enterprise surveillance regimes. However, it is increasingly clear that online reputation us becoming ever more important for career development of existing workers and the placement opportunities of aspiring new workers. For the latter, many high schools and universities offer online reputation risk assessment and management training for prospective graduates.

D. GETTING PERSONAL – ONLINE REPUTATION AND INDIVIDUALS

Of course, individual people are at least as preoccupied with reputation as enterprises. Until the advent of social media, personal "advertising" was generally limited to individual initiatives for social recognition via traditional notoriety, appearance or authorship in printed and broadcast media and, for celebrities, outright commercial promotion. Social media as we know it began with informal bulletin boards and matching technologies like online dating services, but came into its own as a mass medium with a sequence of portal products (e.g. MySpace, FaceBook, etc.) that strive to fully decentralize personal communication, both in terms of transmission and reception. A modern FaceBook page is in principle available for posting by any approved individual or enterprise with internet access for examination by any approved individual or enterprise with internet access. Page information content is also not restricted to the page host, but can contain information about nearly anything or anybody, and the veracity of such information is currently impossible, difficult, or costly to assess.

Despite all the potential this system holds for misinformation, the medium is nearly irresistible, as the results of a global poll (Google: 2014) indicate:

1. 91% of online adults use search engines to find information on the web

2. 65% of people see online search as the most trusted source of information about people and companies. That's a higher level of trust than any other online or offline source.

3. 93% of searchers never go past the first page, instead using only the first 10 search results to form their impression

In these ways and countless others, the internet now provides valuable informational, educational, and entertainment services to billions of individuals. Most of these experiences are positive, which to a large extent explains the huge popularity of this medium.

The online experience also appears to be an irresistible social magnet, as the statistics in Figure 20 indicate. Significant majorities of all internet users feel compelled to represent themselves and others online.

Figure 20: Social Media Engagement

% of internet users who have uploaded/shared a photo, uploaded/shared a video or posted a review online in the last month
Source: GlobalWebIndex

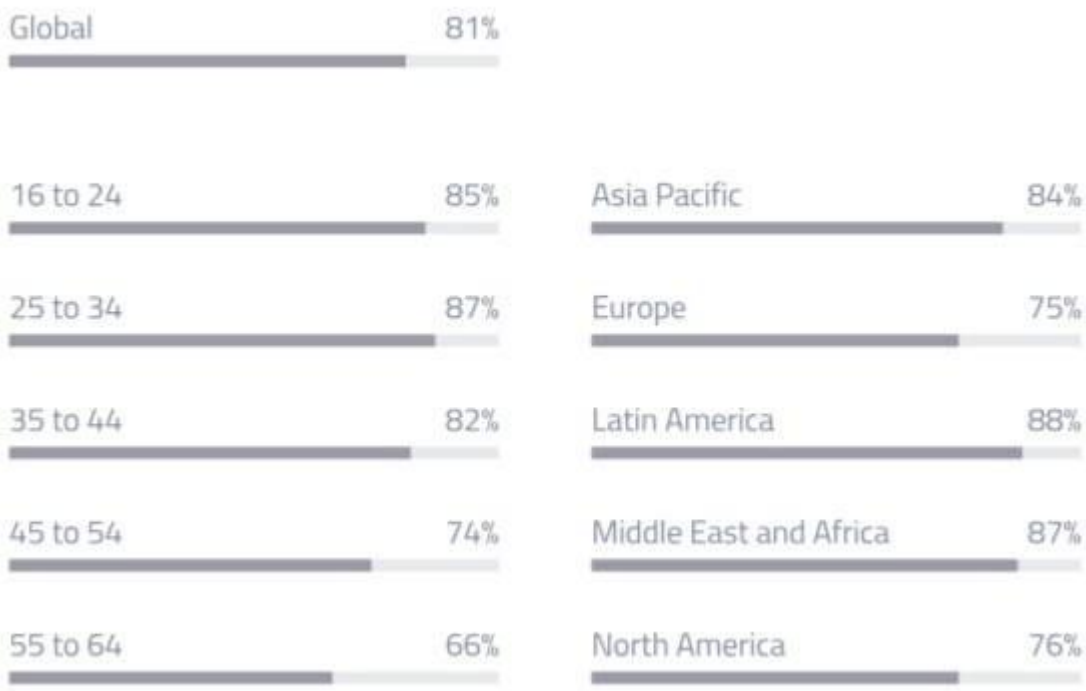
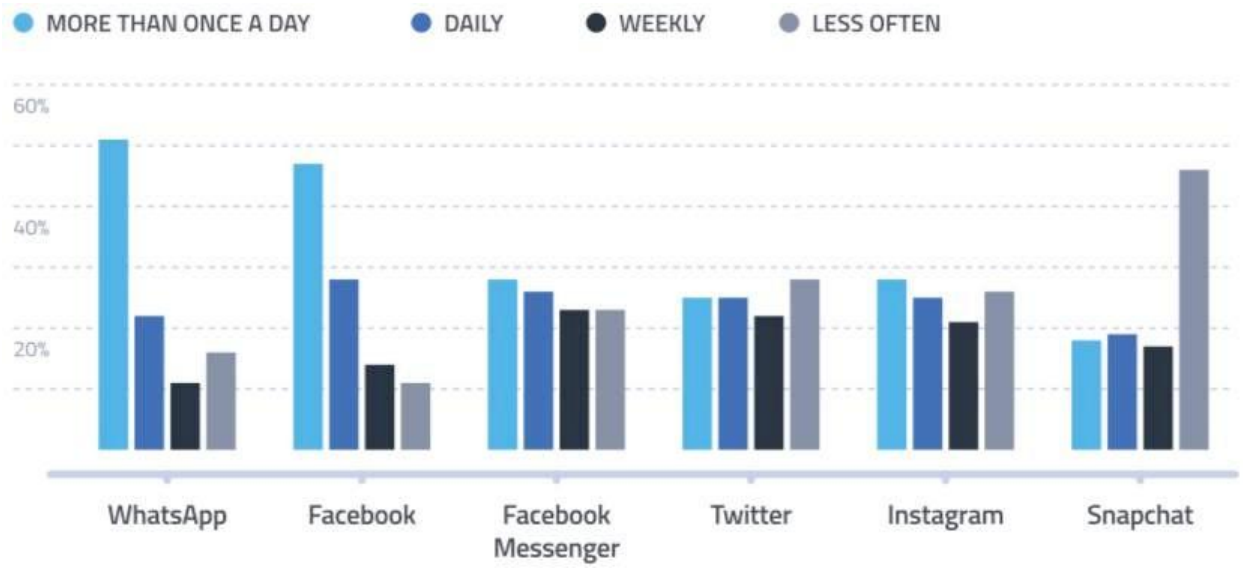


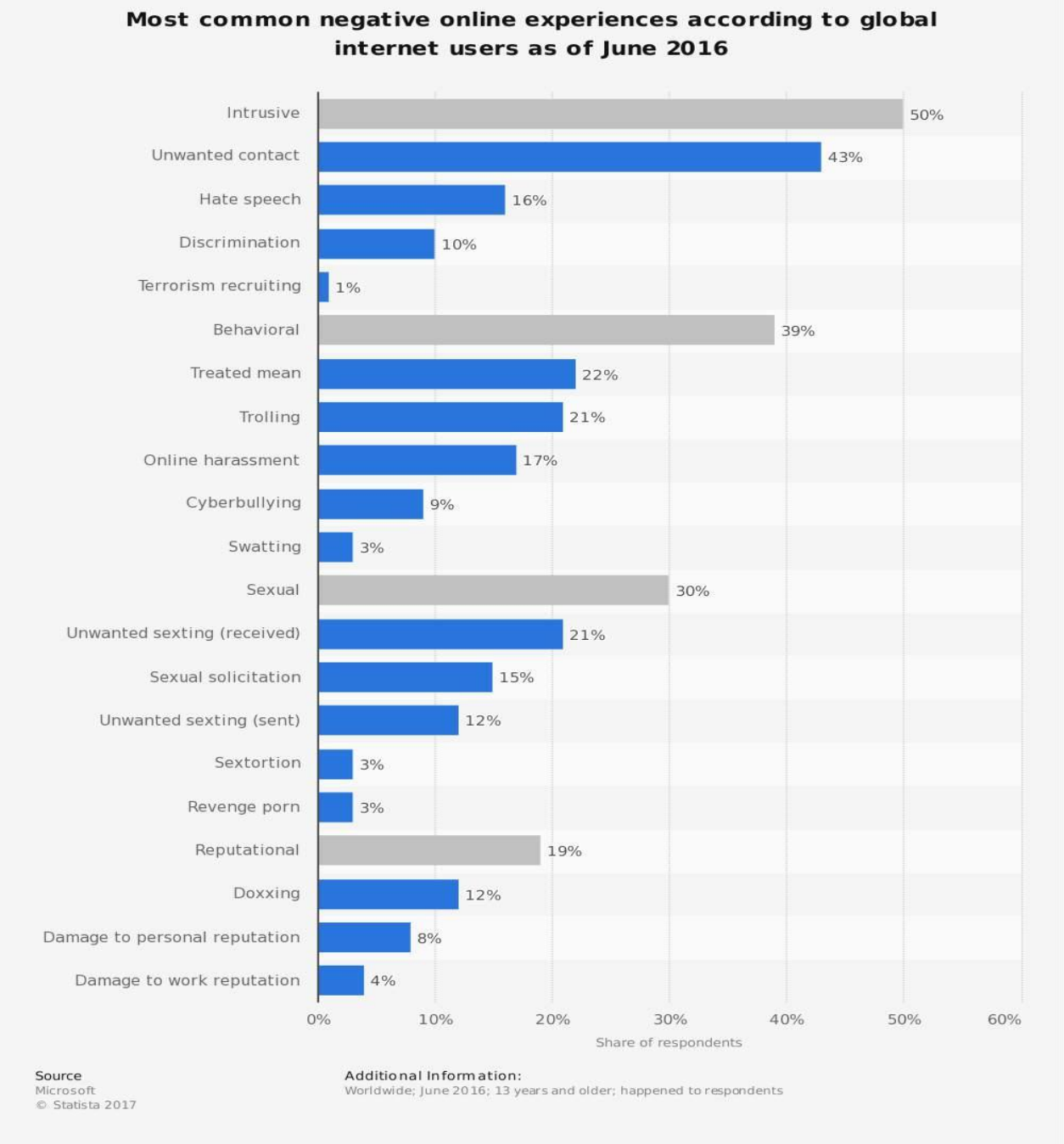
Figure 21:Social Media Frequency of Use
(% of registered users accessing, by platform)



Finally, social media use has become so intensive that it could be considered addictive. As Figure 21 makes clear, most users are on their social media accounts every day, and among the daily group most access content more than once a day. These urges are a natural expression of human instinct and of course they are the foundation for a radically more connected society, but it also exposes every one of these people to online misrepresentation.

Negative internet experiences, however, are frequent and increasing. Simple examples are unwanted communication and content, which at best can waste your time but can also lead to more serious adverse personal impacts. For example, the Google study cited above found extensive evidence of reputational damage. As an indication of individual concern about reputation, the report found that 75 percent have “Google’d” themselves. What they perceived about their online reputation varied from positive to extremely negative. For example, 50% of US adults expressed disappointment that the results aren’t positive. Another 30 percent said nothing of relevance came up, and 13 percent said they would change the results to better reflect who they are.

Figure 22: Patterns of Adverse Internet Experience



At the other end of this spectrum is outright informational aggression, using (true or false) information to undermine the reputation or otherwise attack or insult an individual. The global incidence of these actions was surveyed by the Pew Foundation in 2016, and the results, summarized in

Figure 22, are diverse and troubling (see footnotes for definitions of some actions).[3] It should also be borne in mind that, even when percentages are small, we are talking about a population of over 2 billion internet users (Pew's sample was much smaller, but they believe representative). During the survey period, 30 percent of global internet users experienced sexual risks online, the most common risk being the recipient of unwanted sexting messages. A total of 21 percent of survey respondents received unwanted sexting messages. A total of 19% of negative online experiences are related to reputational issues that ROR can directly help manage. Combining personal and professional contexts, 31% of online users expressed concern about damage to their reputation.

E. KEY TAKEAWAYS

- ***The paradox of the online media is that they are at once the least trusted and most popular information resources in the history of humanity. Thus they pose the greatest risk of misinformation, yet they have become the fastest growing repository of reputational information for enterprises and individuals.***

- ***Reputation is an essential form of enterprise capital, and firms will invest heavily to sustain the image of their products, services, and brands. As public attention has shifted to online information, firms are scrambling to develop positive information about themselves there.***

- ***Likewise, individual people's reputations have been caught in the web of ever growing internet engagement, conferring social benefits as well as risks on them, depending on their own conduct and how it is represented/interpreted by others.***

- ***The explosive growth of internet engagement thus makes us all more connected, but also more vulnerable. Both positive and negative information are greatly magnified in their social impact, making the risk of misrepresentation greater than ever before. Consumers, employers,***

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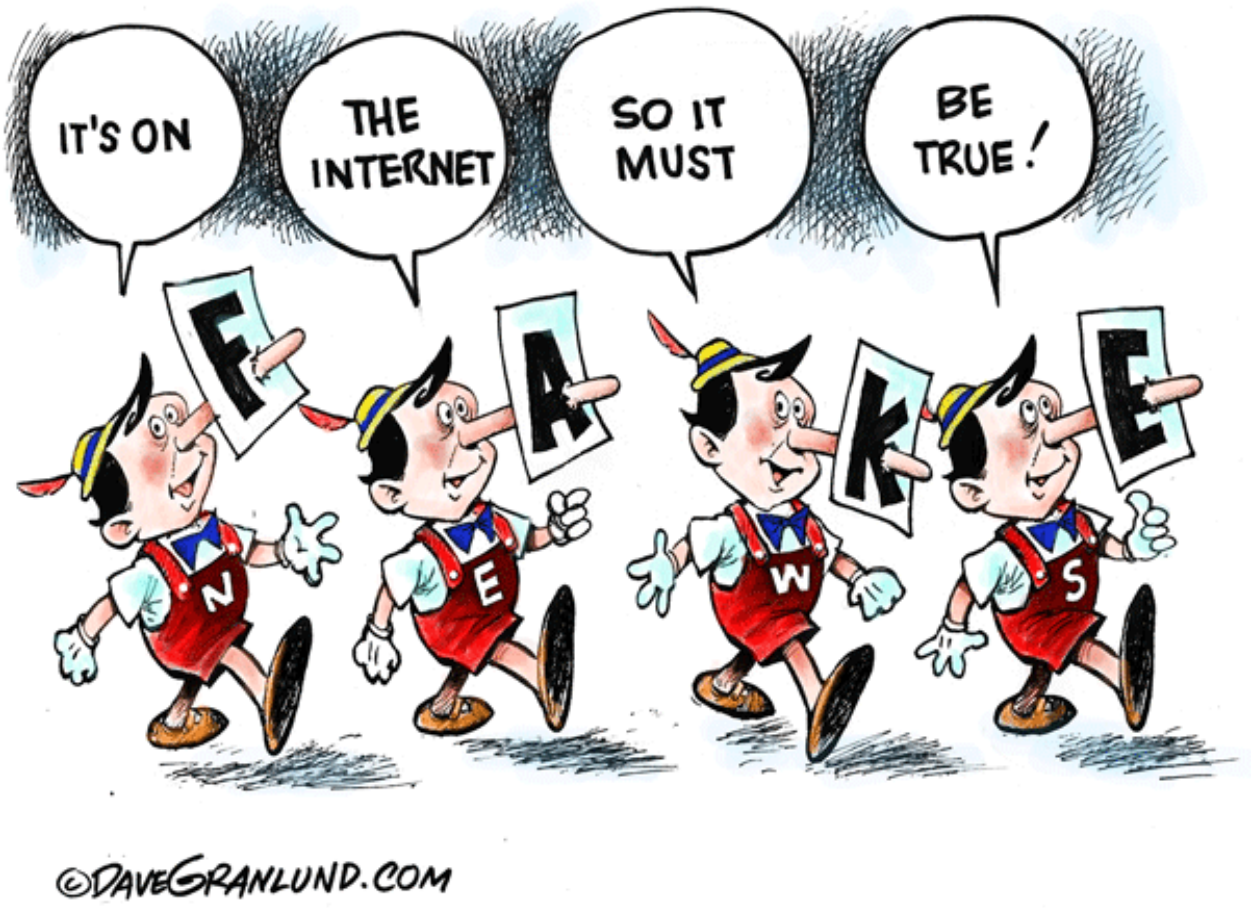
[3] Internet aggression defined – Doxxing: a cyber-attack that involves discovering the real identity of an Internet user and revealing that person's details with destructive intent, including slander and third party incitement to target them with malicious attacks. Spoofing – Using someone else's identity to commit undesirable acts via the internet. Swatting – Summoning an armed police response to an individual's home or place of work. May also refer to misattribution/misdirection of other services (deliveries, prostitution, etc.).

and many others who use online resources to inform their choices have become extremely sensitive to reputational data. If all online information were accurate, this would create a powerful incentive to improve user experiences. Otherwise, it presents a powerful incentive to distort information in ways that can seriously damage economic interests. The ultimate defense in today's online media world must be individual diligence, supported by state-of-the-art credibility technologies like ROR.

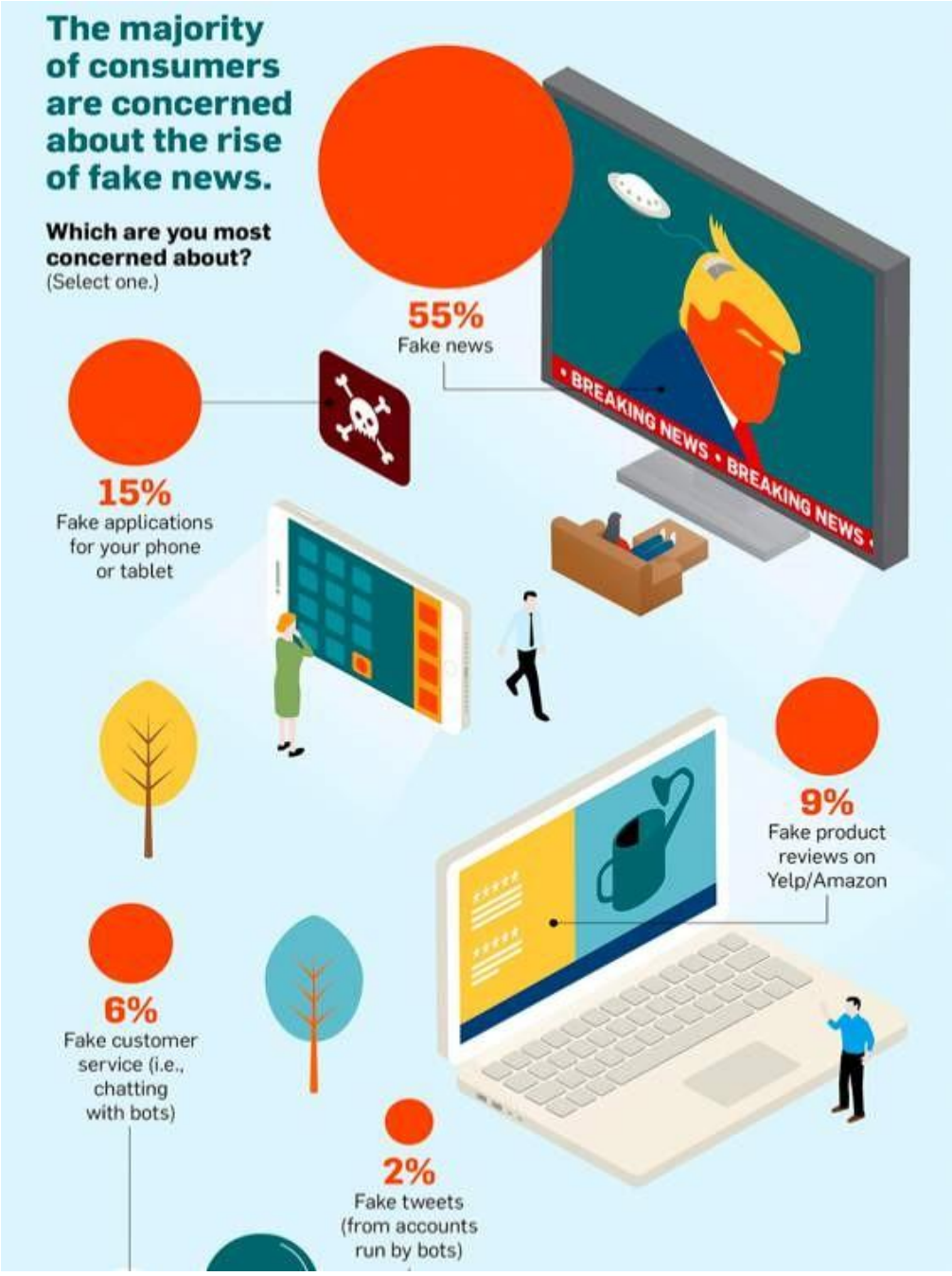
IV. Right of Reply as a Disruptor of Fake News and Content



Until now we have focused on the positive dimensions of ROR's future market, the meteoric growth of internet media, global enterprise and social engagement, and the importance of leveraging networks and reputation across new horizons of economic opportunity. Now we turn the darker side of this socio-technical revolution, where malign actors and incentives have created a world of artificial, misrepresented, or "fake" information to distort perception and behavior. Just like a child's lie in the schoolyard, these false messages may begin from simple motives of greed, envy, fear, anger, or some other negative human emotion, but today they are playing out on a global scale and can have far reaching and destructive effects on individuals and society as a whole. At the highest level, we have already seen scandals about fake news influencing national elections, but in this assessment we focus on the risk of individual economic damages. Like negative reputational information, fake news can impose significant direct and indirect costs, and ROR is designed specifically to protect individual and enterprise online

users from these threats. In our discussion, we make a distinction between “Fake News” and “Fake Content”. The former relates to traditional media narrative about events and experiences. The latter comprises all other online information, including messages, web content, and code embodied in software products.

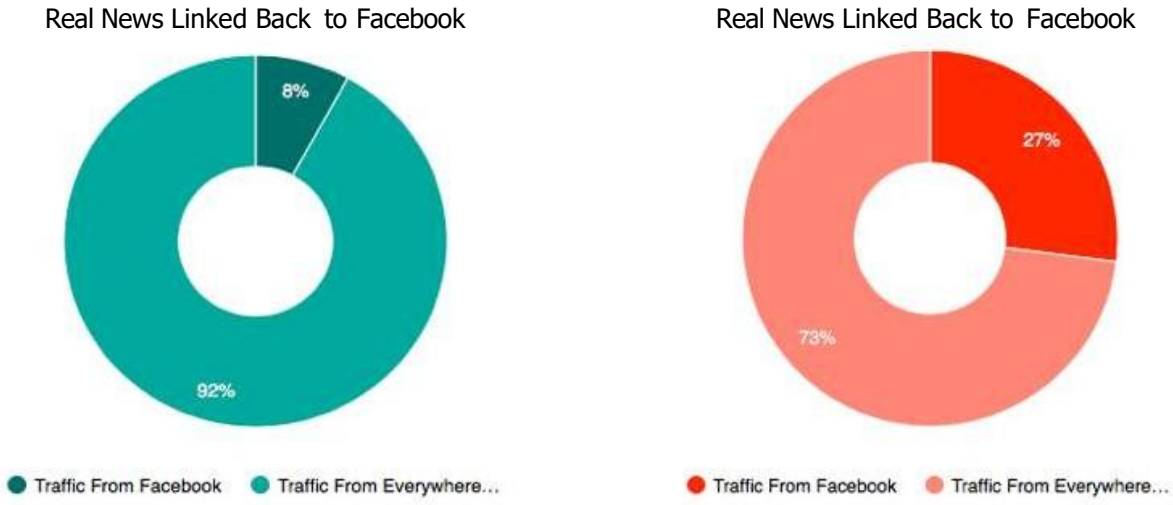
Figure 23: Public Awareness of Fake News



As Figure 23 indicates, public sensitivity to fake information varies with the medium. The

highest perceived risk is for Fake News, in part because it receives the most media attention and appears to be propagated on the largest scale. Less widely appreciated, but in some ways, more insidious, is corruption of information targeting individuals, including hacking but also messaging, posting, or otherwise communicating false information that damages individual reputations or prompts behavior with the same effect (e.g. doxxing, swatting). Because social media are so prominent in the emergence of new information channels and networks, we are seeing the salient of fake information shift from Fake News to Fake Content (see Figure 24).

Figure 24: Shifting Fake News to Social Media



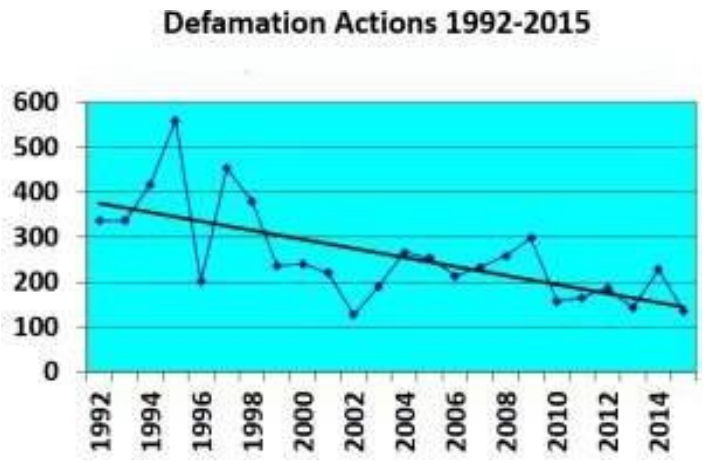
The implication of this trend is as obvious as it is inevitable – individuals and enterprises will be seeing ever more diverse and frequent threats to the integrity of online information that informs their reputations and actions. What recourse can we reasonably expect to exercise against this new, multi-faceted, and high frequency threat? Historically, the main public defense against reputational threats or damage in the courts, using libel, defamation, and privacy laws to discredit false information and, where possible, punish its perpetrators.

A. COURT ACTION AGIANST FAKE NEWS AND CONTENT

1. Defamation Litigation

Based on European experience, it appears that legal recourse is a relatively inefficient mechanism to fight the individual effects of Fake News and Content. English courts have seen a steady decline in defamation cases from all causes over the last 25 years (Figure 25) and there is no indication that emergent online misinformation is reversing this trend. In addition to reforms over the last decade that make defamation more difficult to prove, legal experts believe this mechanism is relatively expensive for individuals and too slow to effectively deter online misinformation.

Figure 25: UK Court Hearings of



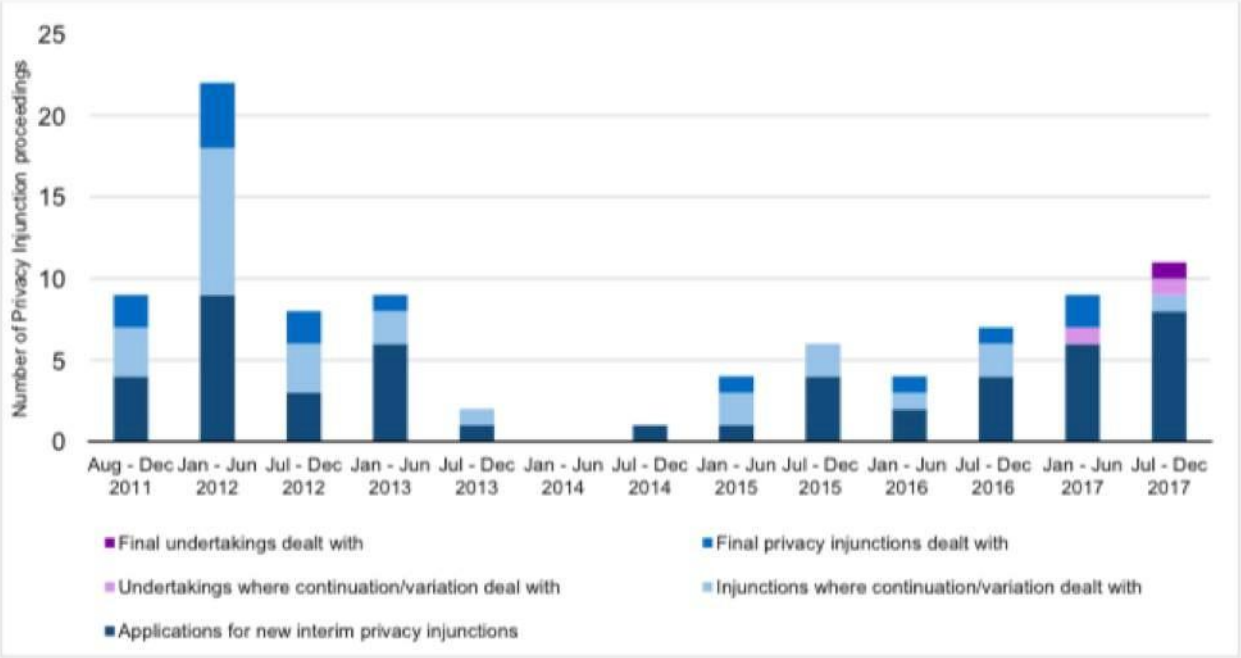
In the overall reputational defense area, Europe has seen shift away from punitive defamation and libel action, toward privacy defense. One survey of Italy found that privacy claims have more than doubled over the course of the last five years. Thus *privacy is a replacement growth area for libel.* Aside from celebrity cases (about ⅕of all cases), more than a third of privacy claims involve information passed to a company, to government, or a public body. “In reputation management a privacy claim is a far more effective claim than libel,” said the Reuters survey. In the UK, for example, the Independent Press Standards Organisation (IPSO) has handled 28,645 complaints regarding inaccuracy since being set up four years ago, ruling that its accuracy provision has been breached

in 174 cases.[4]

2. Privacy Injunctions

In the UK, privacy injunctions can be used when a person or organisation wishes to prevent the publication or dissemination of private or confidential information and applies to the High Court.

Figure 26:Number of Privacy Injunctions, by Type of Proceeding, UK



In the last six months of 2017, there were eight proceedings where the High Court considered an application for a new interim privacy injunction, one proceeding was considered at the High Court on whether to continue or amend an interim injunction and no proceedings were considered to issue a final permanent injunction.

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4 https://inforrm.org/2018/01/27/good-luck-banning-fake-news-heres-why-its-unlikely-to-happen-zhongdong-niu/

Continued on next page

3. Data Protection Claims

In the UK, news outlets say they are being hit with an increasing number of new data protection complaints alongside standard libel, privacy and other claims, threatening a potentially "chilling effect" on investigative reporting.[5] Some claimants are using data laws to have information amended or deleted, publishers say, while others are trying to force journalists to surrender personal data gathered in the course of their reporting.

One leading media barrister said it had become "standard practice" in both libel and privacy cases for a data protection claim to be added. Under UK law, a libel claim can be brought only if there has been "serious harm" to someone's reputation, and it must be issued within a year of the report first being published. But with data legislation there is no such time limit and it is not necessary to prove any reputational or financial impact, only "distress". While the damages are lower than those for libel, newspapers fear legal costs and administrative hassle.

[5] For more details, see UK court case database: http://www.bailii.org/databases.html#ew

B. How ROR can Defeat Fake News while Growing Readership and Advertising

We saw in the previous section that legal recourse, in the form of exercising various protections against libel, defamation, privacy violation, etc., are relatively inefficient ways to deal with online misinformation about individuals and enterprises. These approaches are slow and expensive in an age where Fake News and Content travel at the speed of light and nearly zero marginal cost to their perpetrators. In a world like this, what is needed is individualized, just-in-time protection against digital fraud in all its forms. This need is giving rise to a new generation of credibility technologies, of which ROR will be an early pathbreaker. Other components of ROR's prospectus and announcements detail the technical characteristics of its protections. Here we discuss the opportunity it presents to transform online media from a traditional broadcast-and-receive model to one we call "Dialog News."

Let's assume, for example, that the EU were persuaded to adopt a relatively simple statute protecting online information rights for legal individuals (persons and firms). Here is a simple generic example. Many alternatives have the same potential to transform online news. Consider the following **Iterative Reply Mechanism** (IRM):

1. Any legal individual who is cited by name in digital media is given the **Right of Reply**

2. Specifically, this means (for example) that they have the right to have the complete text of their reply quoted directly below the referring article in the original source medium (e.g. media webpage). Like posting space you see after some online media articles, but with the first position **reserved** for the named individual's response. Maximum word length of reply could be fixed (e.g. half the original article).

3. Any other individuals who are named can also reply, in the order that they are mentioned in the original article.

4. In response to each reply, the article's author(s) can reply to any or all individuals, listed after each cited individual's reply.

5. The citied individuals can reply again (after each author reply), and the process continues to iterate.

6. For legal individuals that are enterprises or organizations, their reply can be posted by an officially designated representative.

7. Other posts can also be included, but only at the "bottom", below of all the pairwise or "dialog" posting.

Recalling that this ROR rule requires original publishers to include the posts inside their original articles, the search status of replies will be identical to that of the original article. This protects the cited individual from Search "subordination", but more importantly it creates a new and potentially explosive market opportunity, **Dialogue Media**, opening the internet to much more intensive extensive public interest. This mechanism would **lead readers to return to leading articles again and again**, promoting exponential growth of "iterative" readership and, of course, advertising.

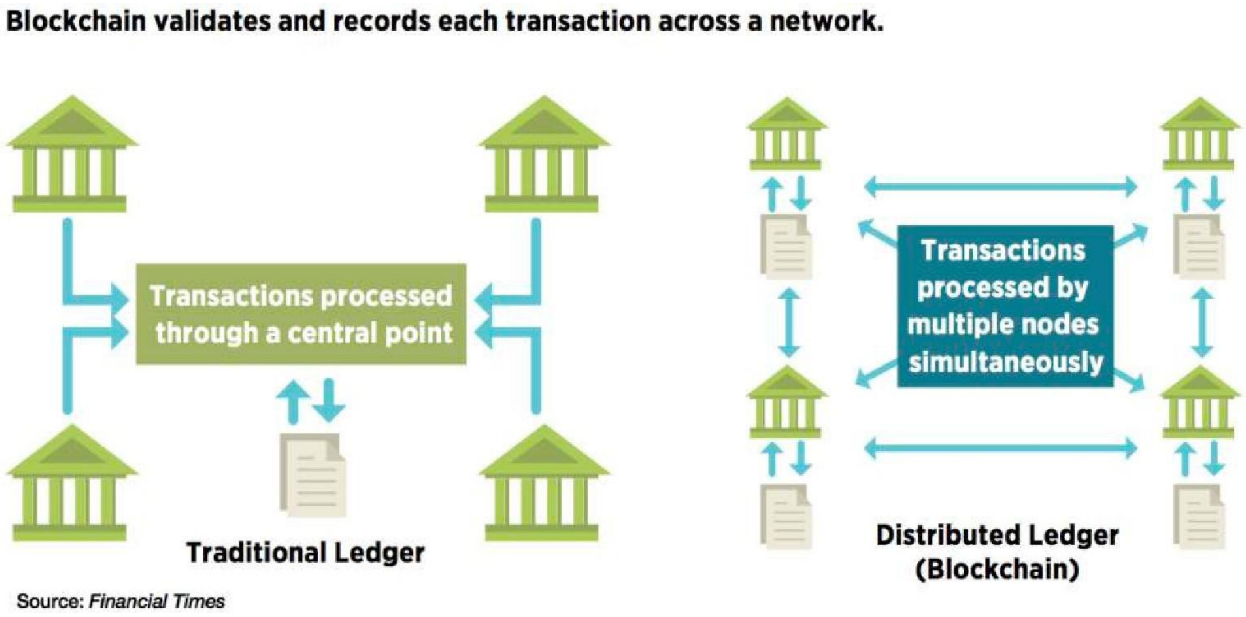
C. ROR SETTLEMENT TECHNOLOGY - THE ROR/HYPERLEDGER PLATFORM

One of the most innovative core features of ROR is its financial settlement service, built on the architecture of blockchain technology leader Hyperledger. Until recently, only a small subset of highest tech enterprises, such as high-frequency trading firms or digitally native companies like Facebook and Google, built their business models around "extreme transaction processing"—settlement architecture with the capacity to process at least 2 million transactions per hour. From these early adopters, a tsunami of induced innovation

is building on the horizon as entire industries are striving to process ever growing numbers of transactions from an expanding universe of sources, concurrently, quickly, and reliably, with no tolerance for latency, loss, inconsistency, or failure. As the Financial Times puts it, "Transaction processing is becoming far more distributed, the data involved far more heterogeneous, and it's blowing out the limits of what traditional transaction processing systems are capable of handling."

A blockchain is a decentralized digital ledger of transactions, processed by a distributed or peer-to-peer network. To create a secure record, a transaction ("block") is transmitted to each node on the network. Using cryptography, each node approves the transaction as valid, and then encodes the block in a "chain" of multiple transactions that each node stores.

Figure 27: How Modern Financial Transactions are Settled



In this way, a single transaction must be validated, synchronized and recorded across the entire blockchain network instantaneously. Blockchain technology first made headlines as the foundation for new types of financial transactions, beginning with Bitcoin in 2009. According to Pricewaterhouse Coopers, financial and technology companies invested over $1 billion in blockchain technology in 2016.

Blockchain and distributed ledger technology (BDLT) offer a transformational tool for financial settlement of employment relationships, particularly when agents are spatially separated and may be operating in different countries. Finance aspects of today's domestic and international information exchange are complex and archaic, with relatively

high transactions costs, making them ripe for technological innovation. Inefficiencies in current systems discourage large numbers of potential placements and make existing ones less profitable to both sides. In this context BDLT offers much lower margins and international neutrality, meaning that counterparty transactions can be linked to any real or synthetic currency, limiting residual exchange rate and liquidity risks. Moreover, BDLT remove third party risks and offer real time auditing because every record stored in the distributed ledger is timestamped and has its own cryptographic signature.

Because ROR is enabled by email and the internet, there is no Digital Divide in its service universe. Embedded in the Cloud, ROR can offers its highly cost-effective, just in time shared technology platform to all internet users regardless of the scale or sophistication of their hardware platform. From the least experienced market entrants - first time, part-time, social media users, to the largest corporate website managers – all can meet in the same marketplace, enabled by identical data management and information exchange technologies.

By delivering extreme transaction capability, the enterprise and individual online media market will evolve with ROR in ways that make growth inevitable. Like other transformative technologies, what begins as a competitive advantage will eventually become a necessity of commercial survival. As ROR and other radically efficient and expedient matching technologies change the nature of online information management, both firms and personal users will have to adapt to this platform to maintain access to efficient transactions technologies.

Going forward, extreme settlement technologies like ROR/Hyperledger will change the world of work just as containerization changed the world economy. Globalization over the last generation was largely driven by transforming shipping from unique whole cargos to assemblies of standard containers, each with its own origin-destination contracting and record keeping. This innovation dramatically lowered transactions costs and efficient scale of production. The result was explosive global market growth and specialization. International trade has grown over 400% in 20 years, while supply chains have been decomposed across space and time, with specialized components produced around the world. Media markets can now be expected to follow, as ROR lowers transactions costs and Hyperledger allows for “containerization” of settlement for services.

D. KEY TAKEAWAYS

- ***Fake News and Fake Content are emerging as a global epidemic of***

misinformation, threatening the reputation of every individual person and enterprise using online resources. ROR offers a completely independent, individually implemented credibility technology to defeat misinformation and protect users.

- ***Traditional legal remedies for reputational damage are time consuming, costly, and ill-equipped to deal with today's rapidly evolving threats. Individuals need bespoke and just-in-time monitoring and intervention tools like ROR to defend themselves in real time.***

- ***ROR offers a unique opportunity to increase both the quality and quantity of online media activity. When implemented with Iterative Reply Mechanisms, ROR can support Dialogue News, managing reputational risk while simultaneously expanding media readership and advertising.***

- ***ROR's cost efficiency and personal technology platform, along with a specific focus on social and other media channels, could give it a competitive advantage in small scale financial transfers like remittances, which despite many imitators is still dominated by traditional settlement providers like Western Union.***

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