Tech Challenges: Surfing and Diving Deep

A thought leadership whitepaper on technical communication
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EXECUTIVE SUMMARY

The Transformation Society collaborated with Adobe on a transmedia experiment to create a series of four communication events that gathered and shared information around different technological challenges. To follow these participatory activities, our audience had to use transliteracy skills in order to access and integrate fragmented information from blog posts, surveys and webinars, and reformulate its meaning. The results of the study show that they not only gathered facts and concepts, but interpreted the ideas while building strong personal opinions around them. They integrated their concern with ethical and social consequences of technological innovation with the benefits the new technologies can bring. They also indicated that they are concerned with community building and collaborative work, while at the same time furthering their own personal advancement and interests. In other words, today's technological challenge is not simply to produce digital technology, but also create a digital social ethos for innovation.

The research also suggests the need to change some roles and create new ones. Some of the needed roles we have identified for business include:

- Product curator
- Client innovator
- Flow designer

From Media to Transmedia

Today's technological challenges are not just about finding new devices to add to our traditional tools, or about exploring different ways of using technology. They are about how human beings will relate to technology, and how we create new community experiences to make technology more useful and meaningful.

How can we learn what users expect from a technological innovation? How can we drive a particular audience into deep reflection, direct interaction or active debate? The authors of this white paper have experimented with designing a transmedia[i] discourse, where participants are led from input-reading situations to active on-line participation, stimulating collective transliteracy.[ii]

Throughout 2014, The Transformation Society
(a research organization that studies how digital society can empower values in the global age) developed a series of surveys and webinars to explore attitudes and perceptions about technology.[iii]

Four topics were chosen to open a discussion about consequences and future development of digital technology:

- The Internet of Things
- Digital Reality
- Human Bionics
- Digital Learning

For each topic, after presenting an initial debate in a blog post at Adobe TechComm Central, a detailed survey was offered to the on-line audience and a webinar was delivered with data from the survey, further information, and deep reflections on the results. Interestingly enough, the very interactive participants in the webinars were much more engaged with the ethical side of these topics than with the exploration of their technological potentials:

Participation Data

- ■ SlideShare Views
- ■ eMail Campaign Readers
- ■ Survey Completions
- ■ Webinar Registrations
- ■ Webinar Attendance

81% 8% 5% 5% 1%

Tech Challenges: Surfing and Diving Deep (2014)

- How is The Internet of Things going to affect human decision-making, human rights and personal responsibilities?
- Can digital reality – augmented reality, virtual environments – modify (or even mutate) human perception of space, time, or sensorial input?
- Will human bionics become a technique for enhancing our natural capacities?
- Are we developing useful educational environments to help the new generations adopt and inhabit new digital realities?

These and other questions helped generate a flow of communicative interaction through the blog-posts, surveys and webinars, designed to create a connected transmedia universe of related content: How will society be affected by technological challenges? What transcendent values will be transformed? How are communities, enterprises and social organizations reacting to the economic significance of these technologies?
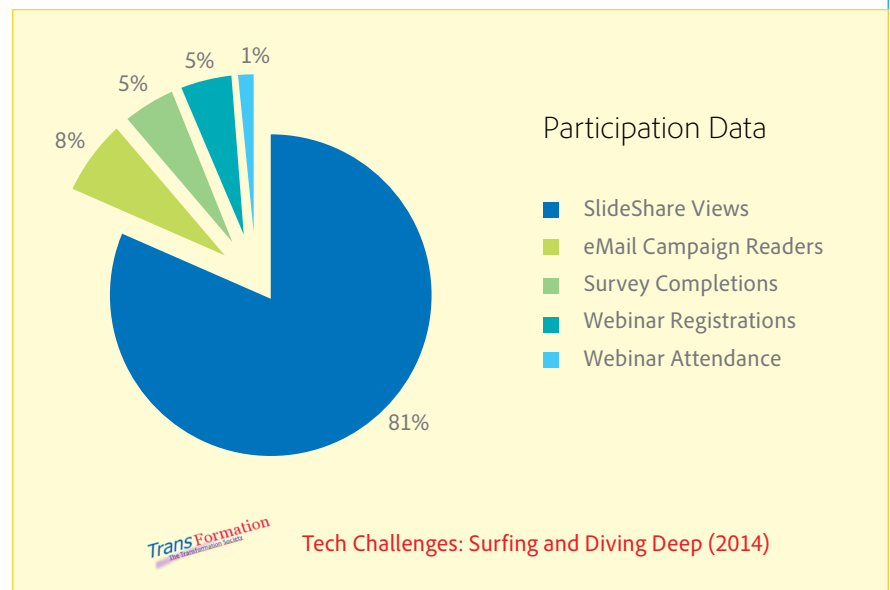
[i] Transmedia is the technique of communicating a single discourse or experience across multiple platforms and formats using current digital technologies.

[ii] Transliteracy is defined as the ability to understand and communicate—i.e., to be "literate"—across all communications platforms, including sign language, speech, reading, writing, mass media, and social media, in different languages.

[iii] This study was developed with collaboration and sponsorship of Adobe, which published four guest blog-posts and sponsored four one-hour webinars on its Technical Communications portal.

Digital Technology: What Do We Expect From It?

The simple existence of a new tool is not enough to create an innovative paradigm or socio-economic change. A frame of reference is needed, in which collective meaning will develop, consolidate, and define both the tool and its function at individual and community levels.

Is a knife useful if nobody uses it? Will an actor have a fan club if he has never performed anywhere? How does a community of users self-organize in virtual territory? Innovation usually involves identification of need and concept sharing, but we humans seem to be disturbed by the social change that these imply. Bows and arrows were used for thousands of years to hunt animals, and one could imagine that an improvement in the tool would have been very well accepted, but the truth is somewhat different.

The Crossbow or Arbalest dates back to 600BC in Ancient China, and although the Greeks and the Romans also used it, the Medieval crossbow was reintroduced to Europe by William the Conqueror in 1066.[iv] It was notable, not only for its battlefield efficiency, but because it allowed any lowly peasant to kill a trained aristocratic knight with the simple squeeze of a trigger, threatening the natural order of power in society. It is believed that, fearing consequences, Pope Urban II banned the use of crossbows in 1096, a prohibition that was apparently upheld by the Second Lateran Council under Pope Innocent II in 1139.

Any digital innovation also develops in an emerging social environment, and creates its own media landscape, bringing new challenges to reflect on. Digital Technology is not only the tangible evidence of a deep interconnected flow of evolving content, but the essential structure that shapes singular events and community experiences. Both digital tools and digital content are deeply mutually embedded, and shape each other. Enterprises are slowly coming around to integrating both as business assets, but the increasing abundance of products of digital innovation makes it difficult to dive deep into the globality of their consequences, their future implications, or the related values that should be encouraged to make them worthwhile. At individual level, though, ethical questions and social impact easily come to mind when thinking of innovative technology.

Fragment, Crossbowmen at the Battle of Crecy 1346

As an example, when asked about the Internet of Things, most participants in our research said it is potentially positive for individuals (65.52% of respondents view it as a way of providing useful or vital services, while 34.48% consider it rather superfluous or frivolous). They accept that the Internet of Things can be useful for optimizing services and institutional life (42.24%) or reinforcing security and standardization (57.76%), but fully 62% of our survey population also said they were worried about surveillance or loss of decision-making power, as a consequence of automation and technology.
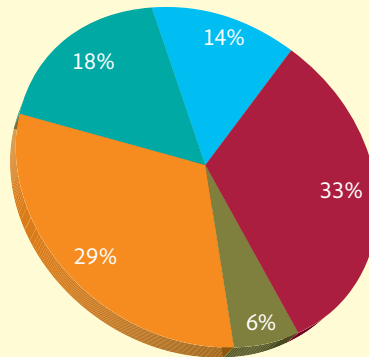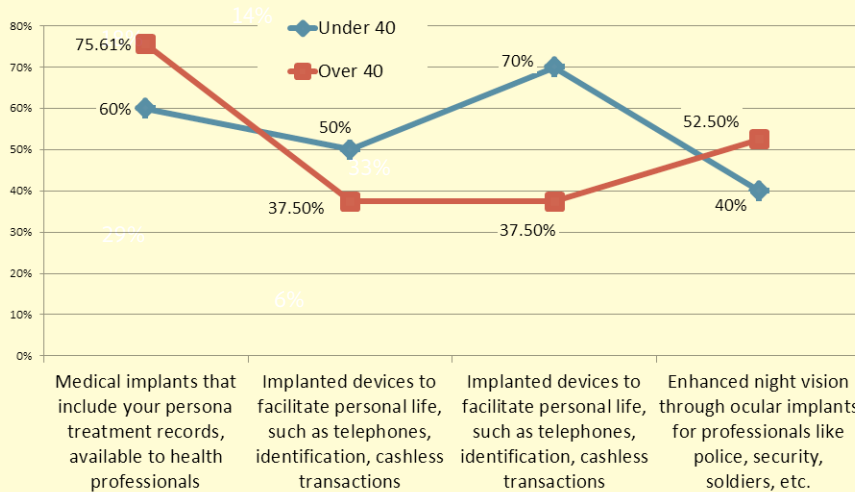
The main worries about Internet of Things

- ■ Hacker attack
- ■ Loss of decision-making
- ■ Irreversible behavior changes
- ■ Big Brother surveillance
- ■ Others

14%
18%
33%
29%
6%

The Transformation Society Survey Results (Dec. 2014)

Which of these uses of human bionics would you accept for yourself?

- ◆ Under 40
- ■ Over 40

75.61%
60%
50%
14%
13%
70%
37.50%
37.50%
52.50%
40%
6%

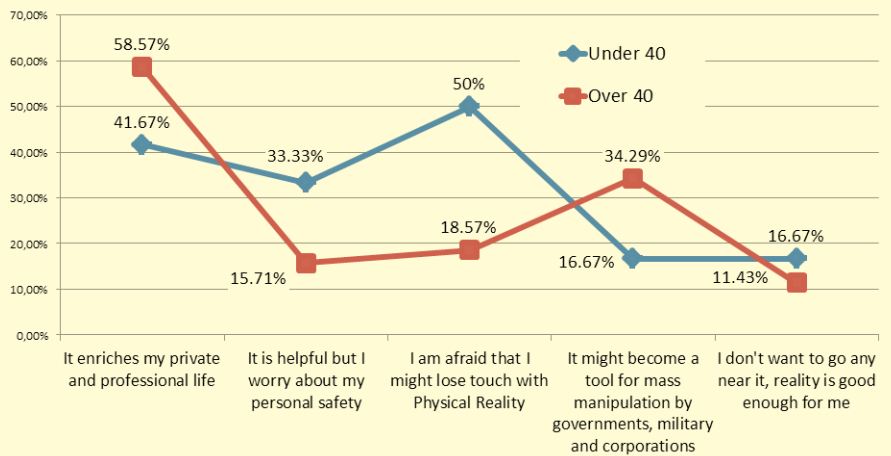| | Medical implants that include your persona treatment records, available to health professionals | Implanted devices to facilitate personal life, such as telephones, identification, cashless transactions | Implanted devices to facilitate personal life, such as telephones, identification, cashless transactions | Enhanced night vision through ocular implants for professionals like police, security, soldiers, etc. |

Transformation Society Survey Results (Dec. 2014)

In spite of natural apprehension about unknown technology, most people are ready to accept it for health care, such as medical implants (an average of 71.15%) or even implanted devices to facilitate personal life, such as telephones, identification, or cashless transactions (70% of the under 40 age group).

With respect to digital reality (augmented reality and virtual environments), 56.1% of respondents see it as enriching both private and professional life, but 31.71% express worry that it might become a tool for mass manipulation by government and military. Surprisingly, it is the younger generations (18-40 years old) that most fear - by 50% - that they might lose touch with physical reality (only 18.57% of people over 40 feel the same way).
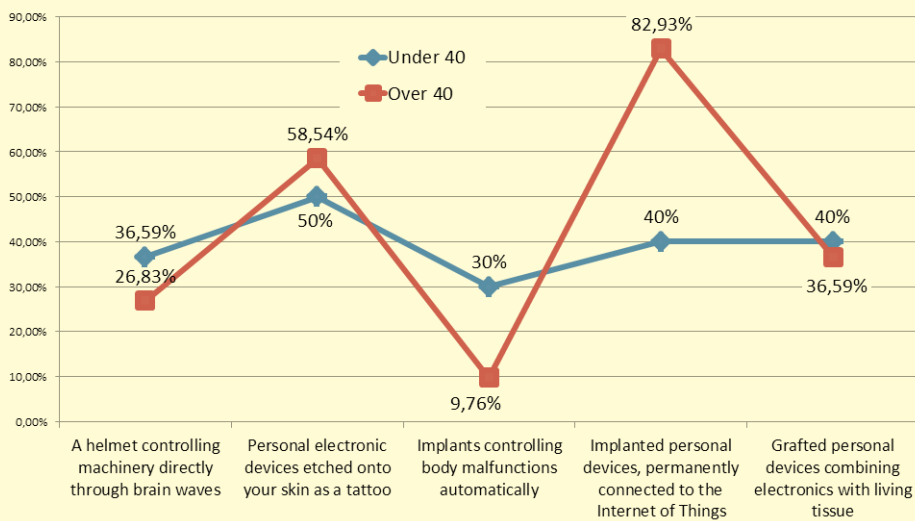
Which of these statements best describes your feelings about Digital Reality being integrated into your daily life?

Legend: Under 40, Over 40

- It enriches my private and professional life: Under 40 41.67%, Over 40 58.57%
- It is helpful but I worry about my personal safety: Under 40 33.33%, Over 40 15.71%
- I am afraid that I might lose touch with Physical Reality: Under 40 50%, Over 40 18.57%
- It might become a tool for mass manipulation by governments, military and corporations: Under 40 16.67%, Over 40 34.29%
- I don't want to go any near it, reality is good enough for me: Under 40 16.67%, Over 40 11.43%

Transformation Society Survey Results (Dec. 2014)

When we start combining technologies and connecting them to human bodies, people seem a bit more troubled. An average of 73.58% of participants say they are uncomfortable with the idea of having implants permanently connected to the Internet of Things, with 40% of people under 40 fearing it compared to 82.93% of those over 40.

Worries About Human Bionics

Legend: Under 40, Over 40

- A helmet controlling machinery directly through brain waves: Under 40 36,59%, Over 40 26,83%
- Personal electronic devices etched onto your skin as a tattoo: Under 40 50%, Over 40 58,54%
- Implants controlling body malfunctions automatically: Under 40 30%, Over 40 9,76%
- Implanted personal devices, permanently connected to the Internet of Things: Under 40 40%, Over 40 82,93%
- Grafted personal devices combining electronics with living tissue: Under 40 40%, Over 40 36,59%

Transformation Society Survey Results (Dec. 2014)

Potential of Human Bionics

Transformation Society Survey Results (Dec. 2014)
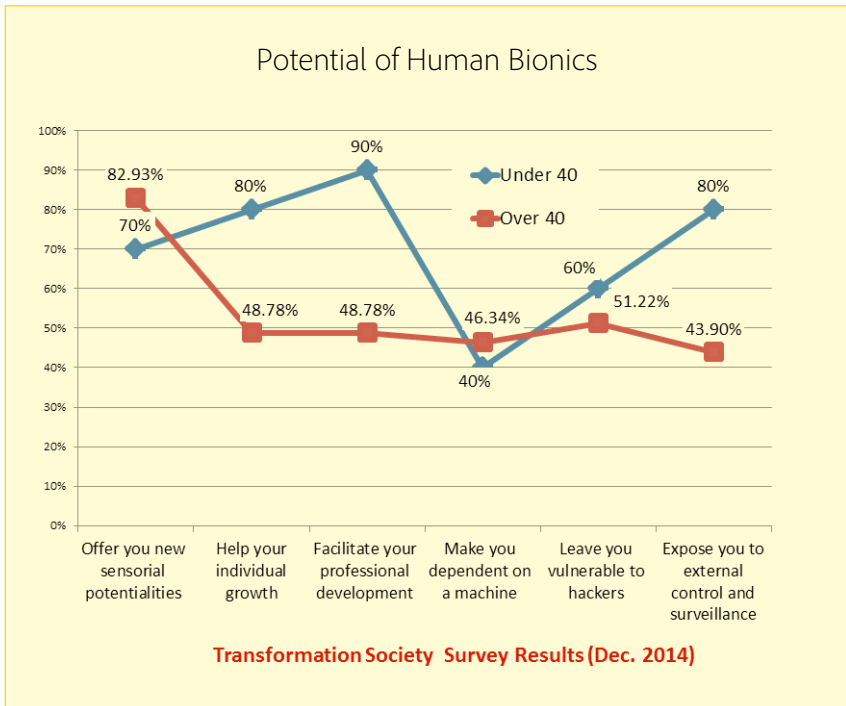
Nevertheless, our audience seems quite enthusiastic about the potential of bionic technology, even to the point of accepting prosthetic devices to provide new sensorial potentialities (82.93% of respondents over 40) or for personal and professional growth (80-90% of respondents under 40).

It is difficult to synthesize what a participant in digital culture needs to consider in order to adopt and integrate a new digital tool, its content, and the social connections it brings. There is evidently a common thread of concern among individuals about how these technologies are going to affect their lives, and how institutions, enterprises and organizations are going to use them. People seem consciously concerned about how technology will affect behaviour at a community level, how it can transform the cultural environment or how it can create new meanings in order to consolidate a continuum of new knowledge. This is also reflected in our survey data on digital learning, where 32.94% of respondents identified how-to training as important for them (33.33% over 40 age group, 28.57% under 40 age group), and 25.88% of participants also said that conceptual training, including the ideas behind the technology they worked with, was a priority for them (23.81% over 40, 33.33% under 40).

Sixty percent of participants see training courses as a way to develop individual skills to benefit the company and enhance chances of advancement (57.14% over 40 and 71.43% under 40), and 57.65% see it as a strategy for building teams with new abilities to solve problems together and improve performance (57.14% over 40 and 71.5% under 40).

What's Changing The World: Not Just Technology, But Digital Social Innovation

Adrien Treulle was a confirmed gamer who came up with a novel idea: He was convinced that difficult, "wicked" problems of scientific research could be solved by gamifying them. He developed a game to do protein folding - a process that gives protein molecules a functional structure that allows them to do their work. Treulle wanted to find stable models to be reproduced in the lab that would help HIV research. He got more than 300,000 players for his FoldIt game, and in three weeks they solved an enzyme mystery that had been plaguing researchers for years. His digital, gamified crowd sourcing experiment harnessed the power of hundreds of thousands of minds, working in parallel.[v]
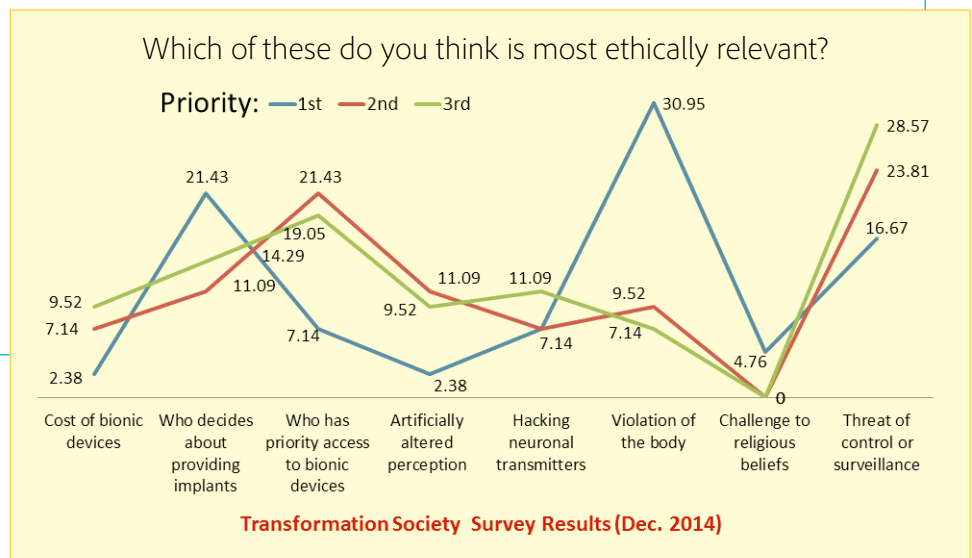
What are the innovative social behaviours that are emerging from social knowledge building processes in the virtual world? How will human communities develop new adaptive relational skills for interaction and collaboration in digital environments? Digital Social Innovation is permeating every aspect of our lives, perhaps most importantly in our scientific and economic activities. This goes far deeper than the simple existence of what are collectively called "social media."

The incredible power of the combination of ubiquity and virtuality that shapes our interconnected digital world forces us to change our focus towards intangibles that are becoming part of our products:

- Personal privacy
- Intellectual property rights and royalties
- Liability in a world where machines make decisions
- "Informed consent" when no one reads EULA's
- Blurring of public and private domains, professional and personal domains
- Transparency, access, digital neutrality, possible technological oligarchies

In the workplace, we are increasingly being called on to solve problems collaboratively, while our training still emphasizes personal interests, autonomous problem-solving and individual competition. The social challenge of a globalised digital world is to examine our economic system, and redefine notions such as profit, return on investment, success, or personal advancement, in terms that are determined as much by individuals and their local contexts, as by the interworking of cultures, business models, and the environment in global digital networks.

When asked about what is more ethically relevant in human bionics, our audience placed a high priority on questions such as violation of the body, as well as the threat of control or surveillance, indicating concerns at both individual and collective level.
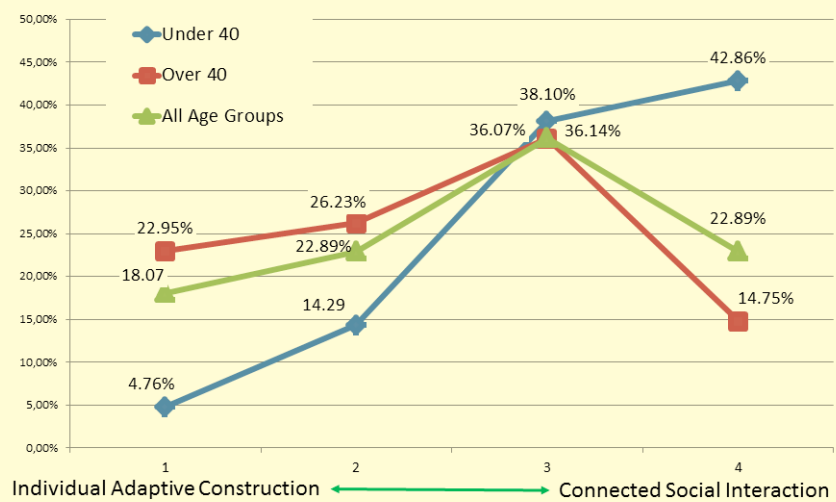
Which of these do you think is most ethically relevant?

Priority: —1st —2nd —3rd

Transformation Society Survey Results (Dec. 2014)

[v] Retrieved from *https://www.youtube.com/watch?v=xiLNCT6lUsU* [time: 40'40'']

Based on the rest of our survey data, this seems to represent rather accurately the general trend in attitude of our audiences with respect to the social and ethical implications of technology.

Similarly, learning in digital environments is seen by our survey respondents as the flow that connects learners in a social interaction, rather than an individual process of adaptation and personal self-construction. This demonstrates a clear understanding that knowledge-building and community-building are intimately related:

Digital Learning: Individual Adaptive Construction or Connected Social Interaction (Rate 1-4)

Under 40
Over 40
All Age Groups

42.86%
38.10%
36.07% 36.14%
22.95%
26.23%
22.89%
22.89%
18.07
14.29
14.75%
4.76%

Individual Adaptive Construction ⟷ Connected Social Interaction

Transformation Society Survey Results (Dec. 2014)

Facing Challenges

Fourteen-year-old Matthew James wrote to the head of Mercedes' F1 team asking them for $57,000 for a bionic hand. He said he would allow the company to sponsor the hand by putting the Mercedes logo on it - like ads seen on F1 cars. Mercedes F1 engineers designed a bionic hand for this kid (with a Mercedes logo on it), because he asked in a clever manner.   When we presented this story in one of our webinars, we pointed out how Matthew instinctively made major changes to the economic paradigm that:

- Generate news and media content - the itinerary of a product's development becomes added-value content
- Stimulate ethical corporate behaviour - goes beyond corporate mission and vision paradigm
- Require creative communication skills - the customer is the communicator who generates the flow of the transaction
- Modify the productive economy - returns to the traditional model of crafted, on-demand production
- Alter the commercial transaction - opens new mercantile relationships where multiple social and business interactions provide return on investment.
- Change the traditional role of the client - validates the concept of prosumer, and adds a role as innovative agent

The flow of engagement by our readers, survey participants, and webinar audiences, points clearly to the need for traditional roles to evolve. After tribes, nation-states, and multinational corporations, new "social singularities" are emerging in the Internet, with different roles, needs, and opportunities.

The client acquires a new dimension as client innovator, a driver of digital innovation. When clients appropriate and identify with the products they use, they become engaged advocates, and social critical commentators. In this way, they open new economic territories.

Accordingly, sales and pre-sales roles need to evolve into product curation. Their function is to know the global product universe, not just inside the organisation, but in the transmedia universe. They must be able to identify customer experiences and interconnect disparate products to best solve the client's problems.

If enterprises open their products and allow clients to become stakeholders, the enhanced customer experience is fed back to the product curators. The key role in this virtuous circle is a new flow designer, who coordinates and harmonizes the efforts of product curators and client stakeholders, across silos, and even with other enterprises

The resulting customer experience will merge product use, media buzz surrounding the product, related news and events, and the personalized interaction established with product curators, flow designers, and the community of client innovators.

Learning about the product in this type of environment will be through different micro-events: research, user assistance, training, social interaction, marketing, sharing, etc. What's important is not each of these events, but the content flow that occurs between them.

The most important lesson we have learned from this experience is that no one channel or medium rules the process. If organisations are to get their messages across, they need to understand that we are now in the era of omnichannel, transmedia communication. The message is delivered through managing the flow of information, of customer loyalty, and of channel diversification. The flow designer's success depends on mastering how the fragmented message is shaped during its transmedia delivery process (drawing on big data from diverse technologies). The message is received by transliterate consumers, who intuitively integrate the different parts of the message that they receive from each channel, and who are ready, at any moment, to become client innovators.

[vi] F1 fan receives bionic hand from Mercedes team, in The Telegraph, retrieved from http://www.telegraph.co.uk/sport/motorsport/8700621/F1-fan-receives-bionic-hand-from-Mercedes-team.html

Appendix A: Links to Original Material

The following links point to the elements of each interactive event.

Internet of Things—Luxury for the Rich or Sustainable Equity for All?	
Web site	http://www.culturecom.net/TransFormation/webinars_2014/webinar1.html
Blog Post	http://blogs.adobe.com/techcomm/2014/06/internet-of-things-expensive-luxury-for-the-rich-or-more-sustainable-equity-for-all.html
Slides	http://www.slideshare.net/TransformationSociety/internet-of-things-luxury-for-the-rich-or-sustainable-equity-for-all
Webinar Recording	http://adobe.ly/1qoIpNM

Digital Reality—Escape to a Virtual World or Explore an Augmented Culture?	
Web site	http://www.culturecom.net/TransFormation/webinars_2014/webinar2.html
Blog Post	http://blogs.adobe.com/techcomm/2014/08/digital-reality-escape-to-a-virtual-world-or-explore-an-augmented-culture.html
Slides	http://www.slideshare.net/TransformationSociety/digital-reality-39613169
Webinar Recording	http://adobe.ly/1xhHtkN

Human Bionics – More Freedom or Electronic Slavery?	
Web site	http://www.culturecom.net/TransFormation/webinars_2014/webinar3.html
Blog Post	http://adobe.ly/1xzhnXY
Slides	http://www.slideshare.net/TransformationSociety/human-bionics-more-freedom-or-electronic-slavery
Webinar Recording	http://adobe.ly/1vprKe2

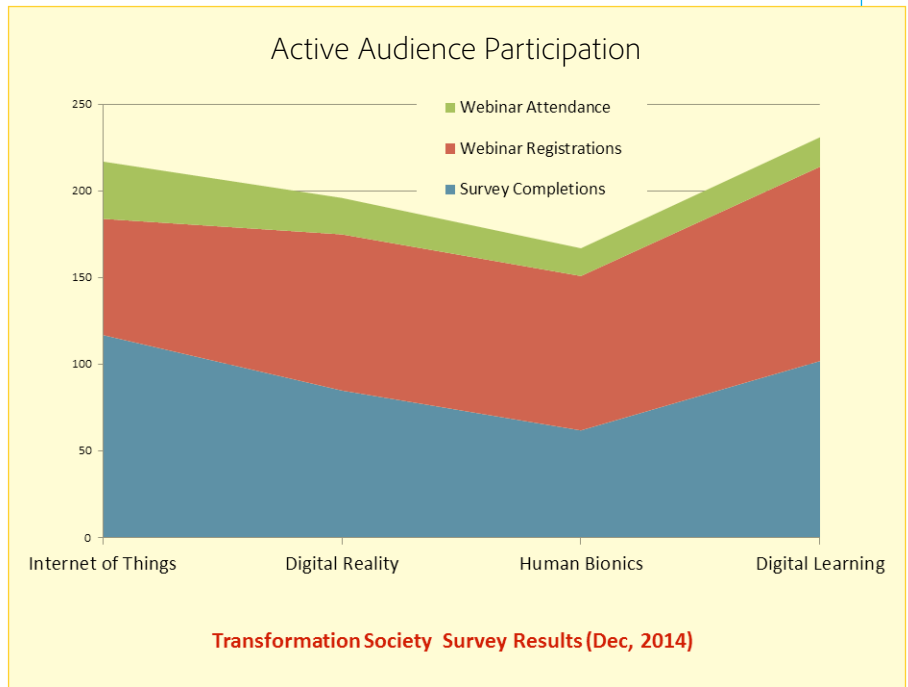| **Digital Learning**—Individual Adaptive Construction or Connected Social Interaction?	
Web site	http://www.culturecom.net/TransFormation/webinars_2014/webinar4.html
Blog Post	http://blogs.adobe.com/techcomm/2014/11/digital-learning-individual-adaptive-construction-or-connected-social-interaction.html
Slides	http://www.slideshare.net/TransformationSociety/digital-learning-42383558
Webinar Recording	http://adobe.ly/1AMm3NM

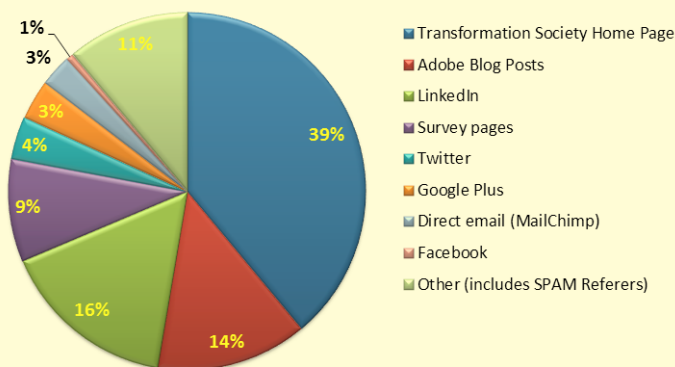# Appendix B: Participation Summary Data

This research study was conducted from July to December 2014 with sponsorship of Adobe, to whom we are grateful. Participants were mainly located in USA, Canada, UK, Spain, France, Denmark and Germany. There were a total of 7,314 identified interactions, including single visits to static SlideShares (5,956 accesses), active survey completion (366) or webinar registrations (358) among other communication actions (data as of 19 January 2015).

In our surveys, five age groups were studied to identify differences in trends (under 18, 18-40, 41-50, 51-65 and over 65). Results are provided in this white paper for two main age groups only: under 40 and over 40. It should be noted that 81% of our participants were over 40 compared to 19% under that age.

The results and conclusions of this action-research revealed different levels of engagement as a function of age group, subject of the event, or type of social media interaction. Taken together, they show that individual self-access to information (5,956 SlideShare visits) is more common than collective participation in live events (358 registrants, with 24.30% live attendance).

Active Audience Participation

Legend: Webinar Attendance, Webinar Registrations, Survey Completions

Categories: Internet of Things, Digital Reality, Human Bionics, Digital Learning

Transformation Society Survey Results (Dec, 2014)

Percentage of Visits from Different Platforms

- Transformation Society Home Page — 39%
- Adobe Blog Posts — 14%
- LinkedIn — 16%
- Survey pages — 9%
- Twitter — 4%
- Google Plus — 3%
- Direct email (MailChimp) — 3%
- Facebook — 1%
- Other (includes SPAM Referers) — 11%

Tech Challenges: Surfing and Diving Deep (2014)

Among the added value of this experience is the meta-data obtained from the information flow, about how our fragmented transmedia discourse was assembled by the audience. Our audience was not a scientific sample, and most probably included a majority of savvy professionals in digital technologies and content industries. All the same, some interesting conclusions and decisions for action can be deduced from the study of how users accessed the Transformation Society website pages for the four webinars, from different platforms:

These results show the paths through which transmedia can facilitate better knowledge of the digital world, and provide information for further corporate decision making:

- An average of 76% of the people that registered for a webinar didn't actually attend it
- LinkedIn seems to be one of the most effective spaces for promoting on line training and information sharing
- Efforts to stimulate engagement through planned action must take the use of multiple digital channels into account.
- New audiences continue to discover the content developed for these events as static material on platforms like SlideShare, from search engine references, and social network mentions.

In sharing this research, the Transformation Society challenges companies to engage in similar communication events and explore their customers' transliteracy habits. Innovation comes from not just surfing, but diving deep.

ADOBE

Technical Communication

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