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The Internet

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“Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphic representation of data abstracted from banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding...”

William Gibson, *Neuromancer*, 1984

The Internet provides a continually shifting and seemingly infinitely responsive context in which to create and develop innovative marketing strategies. As such, an understanding of how and why people use the Internet is crucial to creating strong and effective digital campaigns. While many readers will have a working knowledge of social media and online retail from the user side, the following pages offer practical insights into the facts and figures behind the interfaces. Beginning with a short biography of the Internet, the chapter then delves into the details of its usage in the 21st century, exploring the digital consumer, social media channels, and the ways in which all these terabytes of data are utilised.

What is the Internet anyway?

As any good introductory paragraph will tell you, the 21st century has thus far been one of increasingly rapid change and connectivity, driven by advances in technology that would seem the stuff of radical science fiction only a few decades earlier. Central to these developments is the Internet, the spread of which was described in alarmingly vivid detail by cyberpunk writer William Gibson (1984) in the 1980s, when social networking was a sort of dull card game played by businesspeople and a mouse was a very difficult creature to put to work. It's likely that you've already made use of the Internet at least

twice by the time you've arrived at this sentence, and we don't blame you: it's really quite useful.

Yet, although many of us would feel thoroughly panicked without access to it, the vast majority of the roughly 3.2 billion Internet users (Sanou, 2016) have little or no knowledge of how the Internet actually works. We should also acknowledge that whilst the Internet is a significant technological development, more than half of the world's population does not have access to it. While Search Engine Optimisation (SEO) and Pay-Per-Click (PPC) might not be of significant interest to the average user (whoever that might be!), knowledge of such techniques is vital to the 21st century marketer. Going a little further back and stripping the Internet down to its most basic level allows us to appreciate not only the speed and extent of this phenomenon's development, but also the extraordinary social, political and economic benefits of a near-global, near-instantaneous, and predominantly decentralised communications network. And like the origin stories of all great superheroes of the modern age, this begins in the imagined fires of nuclear apocalypse.

■ The post-nuclear network

In its first iterations in the 1960s, the Internet was conceived as a response to impending nuclear conflict. Briefly, existing methods of person-to-person and person-to-computer communication relied upon switching facilities at their centre, and if this centre was destroyed in a nuclear attack, then the entire network would be lost. If communications were to have any chance of surviving a nuclear war, then this reliance on a control centre would have to be removed. Paul Baran's (1964) work, *On Distributed Communications Networks*, showed that a distributed (or decentralised) digital communications network would be significantly less vulnerable to nuclear attack than one with a central node (Tucker, 2014). You may already know (or have guessed) that such networks were being discussed as a resource for the American military, in the midst of the Cold War. Baran was part of a small network of scholars, which included Leonard Kleinrock and Donald Davies, working on this same theory (Blum, 2012), and even when these theoretical nodes were connected, it took significant technological advances to produce the computational infrastructure necessary to allow us to interact via the Internet in real time.

However, the utility of these networks to marketing was almost immediately apparent to Baran (1968), who presented his work, 'Some Changes in Information Technology affecting Marketing in the Year 2000' to the American Marketing Association just four years after his initial paper. This makes for

fascinating reading, detailing predictions of personalised, Below-The-Line (BTL) advertising, streaming entertainment, online education and, not only the rise of online retail, but the precise hierarchy by which our 21st century online shopping experience would be organised.

As Baran (1968) notes, the prototypes for the equipment necessary for such an experience were being developed at the time of writing. Yet it was not until the early to mid-1980s that networked computers made significant forays into homes and offices, allowing a fairly small number of enthusiasts, academics, and government employees to exchange basic, textual information. Not only did equipment need to become more affordable, the Internet needed a serious image change. Perhaps surprisingly, this aesthetic shift was driven not by advances in technology, but by an evolution in language.

■ The elements of digital style

This new language was Hypertext Markup Language (HTML). Proposed by Tim Berners-Lee (1989) in the late 1980s, developed throughout the 1990s, and becoming an international standard in 2000 (ISO/IEC 15445:2000), HTML provides a (near) universal (and constantly evolving) language for writing web pages. Adapted from Standard Generalized Mark-up Language (SGML), the idea was that text could be marked up by a host behind-the-scenes into categories such as headings, lists, paragraphs etc., which would then be interpreted and displayed by a piece of software (e.g. a browser like Google Chrome). These categories are known as tags, pairs of which signal the beginning and end of a particular category of text, e.g. `<p>Once upon a time in Paris</p>` displays the enclosed text as a new paragraph. Add to this the links that navigate us from page to page, and we have the foundations for entirely new digital standards of expressing and experiencing information. Hypertext Transfer Protocol (HTTP) was also created by Berners-Lee and was the process used to move the HTML code from a host to an individual Internet user (often called a client). The interconnected hosts and clients were referred to as the World Wide Web (WWW), and this established convention of a common language and retrieval method laid the foundations upon which a global and ever-growing ecosystem of users and developers could be established.

Alongside the now-familiar HTTP and WWW Internet standards, the spread of HTML was once again facilitated by nuclear research. In 1993, CERN (the European Organisation for Nuclear Research, now better known for their Large Hadron Collider) popularised these standards which, co-inciding with the release of the very user-friendly early Web browser Mosaic, gave many