

# In the Beginning – a Concise History of Intranets and Knowledge Management

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I've been working on a history of the development of intranets as a chapter of an intranet handbook that will be published later this year. In this issue I thought you might be interested in a summary of the early days of intranet technology and also some thoughts on the origins of knowledge management.

In my view the history of intranets can be traced back to Plato, or more correctly PLATO. [PLATO](#) stood for Programmed Logic for Automatic Teaching Operations, a computer-based assisted learning system developed by the University of Illinois in the 1960s. Many modern concepts in multi-user computing were developed on PLATO, including forums, message boards, online testing, e-mail, chat rooms, picture languages, instant messaging, remote screen sharing and multiplayer games. Control Data Corporation acquired the commercial rights to PLATO in the mid-1970s but after early success the company found that it was very difficult to market and the operation was closed down in 2002.

One of the members of the PLATO development team was Ray Ozzie. In 1984 he set up [Iris Associates](#) in Littleton, Massachusetts, with the aim of developing PLATO Notes, created by David R. Woolley in 1973, as one of the first online message board applications. This work was funded by Lotus Development Corporation, which had been founded in 1982 with the intention of developing the Lotus 1-2-3 spread sheet application. Lotus Notes was launched in 1985 as a groupware application, which was then enriched in 1991 when Lotus acquired cc.Mail and bundled it in to Lotus Notes, creating an "intranet" platform that still exists today in some organisations.

The concept of collaborative computing was first considered by Doug Engelbart in 1951, the inventor of the mouse and of remote database access amongst many other applications. The term 'groupware' for [collaborative computing](#) came into prominence through an [article](#) written by Louis Richman and Julianne Slovak in Fortune magazine in 1987.

"Linked desktop terminals running the new software will coordinate schedules and route messages. Novel products will emerge as networks of computer workstations guide teams of workers through large shared databases; a pharmaceutical company, for example, might search a database of organic chemicals for possible new drugs. Managers will confer with colleagues, suppliers, and customers via wall-size video screens as cameras

connected to computers record and store their conversations. And - hold on to your space helmets - even meetings will become more effective as today's low-tech conference rooms turn into multimedia 'war rooms' controlled by software that helps keep everything on course. Software that supports group work may not be as far out as it sounds. Advanced prototypes are already in use at a handful of research labs around the country; the first commercial products are beginning to reach the market. Says Jerry Wagner, a professor of management information systems at the University of Texas Business School in Austin: 'This technology could be one of the most important contributions to management effectiveness in business history.'

Not bad for 1987!

I'd now like to jump forward to 1993 and the development by Netscape of the Navigator web browser. Netscape Navigator was based on the Mosaic web browser, co-written by Marc Andreessen, a part-time employee of the National Center for Supercomputing Applications and a student at the University of Illinois (the home of PLATO!) One of the important features of Navigator was the on the fly loading of text and graphics screen as the web page downloaded. Earlier web browsers would not display a page until all graphics on it had been loaded over the network connection. With the low-speed networks then available this often made a user stare at a blank page for as long as several minutes. With Netscape even users with dial-up connections could begin reading the text of a web page within seconds of entering a web address. Especially large IT companies quickly recognised the benefits of Navigator as a corporate browser for internal web services. Steve Tellen is credited with coining the term "intranet" when at Amdahl (a competitor to IBM in the manufacture of large main-frame computers) in 1993, and the term was in fact trade marked by Amdahl.

According to [Steve Tellen](#):

"In April 1993, a few of the technical experts in Amdahl's Open Enterprise Systems (OES) organisation acquired a copy of the Mosaic beta release and began playing with it. They hooked-up with the open systems competitive analyst, who had a volume problem making information available to our field sales organisation. This resulted in a skunkworks pilot project focused on a problem inside our firewall. When I coined the term 'IntraNet' at Amdahl Corp. in the summer of 1994, it did have the connotation of an internal Web rather than just an internal Internet. In fact, the term we used internally before this was the too-cumbersome 'Enterprise-Wide Web.' So, while the ambiguity of 'intranet' was apparent even back then, for lack of a better alternative, it caught on.

In the early days, I defined an intranet as 'An infrastructure based on Internet standards and technologies that supports sharing of content within a limited and well-defined group.' The 'infrastructure' referred to the organisational and management infrastructure that created, managed, and shared the content. The only technical constraint was that the physical network be based on the Internetworking Protocol (IP)."

The first World Wide Web conference was held in Geneva in May 1994 and a number of the papers were about internal, rather than public use, of web technology. One of these

papers was given by Russ Jones about the embryonic web server application in Digital Equipment, arguably the first ever paper on applied intranet technology. Other early adopters were Ford, Sun Microsystems and Boeing, though this level of early commitment was not apparent until 1995 and 1996 when articles started to appear in the technical press.

If you want to know what happened to intranets between 1987 and 2003 then you will either have to come to the [Intranet Now](#) conference on 30<sup>th</sup> September or wait for the book to be published by [Intranatverk](#) later this year.

As I was writing the intranet history I was also reading [The Secret War](#), a recent book by Max Hastings. This started me thinking about the origins of knowledge management. Where did knowledge management come from? This in fact is the title of an essay by Larry Prusak published in the [IBM Systems Journal 2001, 40\(4\), pp1002 -1007](#). Interestingly he does not answer the question, noting only that the beginning of the knowledge management timeline was a conference he organised in Boston in 1993! Karl Martin Wiig suggested ([Expert Systems with Applications, 1997 13\(1\), 1-14](#)) that the earliest example of knowledge management was Chaparral Steel, which in 1975 had established an internal organisational structure and corporate strategy to take advantage of the explicit management of knowledge to secure technical and market leadership. The concept of “knowledge management” seems to have been inaugurated by Wiig at a conference organised by the International Labour Organisation in 1986 but was not until the early 1990s that “knowledge management” gained more widespread attention. Prusak makes no reference to Wiig in his essay. So on the surface it would seem that knowledge management appeared somewhat mysteriously in the 1980s.

I would like to suggest that the basic principles of knowledge management were established forty years earlier. In WW2 a very substantial amount of effort was made by the UK, USA, Germany, Russia and Japan to decipher military wireless traffic. Much is made, and rightly so, of the efforts of Alan Turing, Gordon Welchmann and others at Bletchley Park and out of their efforts came the [initial developments of computing](#). However, what emerged from Bletchley Park were the raw messages, perhaps with some clarifications on spelling and other message elements. The challenge was how to apply those to influence the course of the war. This is where the contribution of [Frederick Winterbotham](#) to knowledge management needs to be recognised.

Winterbotham, who held the rank of Group Captain in the RAF but was an MI6 officer, set up a process whereby the information in the messages was handled by Special Liaison Units attached to military operations across the world. This information source was designated Ultra. The people working in the SLUs were personally responsible for working with the most senior officers. Their role was to evaluate Ultra intelligence, present it in useable form to the Commanding Officer and to those of his senior staff officers who were authorised Ultra recipients (not all were!), assist in fusing Ultra intelligence with intelligence derived from other sources and give advice in connection with making operational use of Ultra intelligence in such fashion that the security of the source was not endangered. This last element was of great importance because of a very real concern that German forces were not made aware of the information that Bletchley Park had

decrypted. In reality the German forces were able to read some of the Allied codes, but that's another story.

It was not until 1974 that Winterbotham wrote his book [The Ultra Secret](#), revealing for the first time the intelligence/knowledge operations that he developed and initially ran. The book, though very readable, contains many inaccuracies, most likely a result of writing it at the age of almost eighty. The impact of Bletchley Park and the Ultra material has been subject to much analysis over the last fifty years. There is no doubt there were both triumphs and failures, and some of these can be found in an undated document written by the [US National Security Agency](#) that provides a more balanced analysis. Hastings makes the point in his book that in the UK, Ultra management was decentralised and managed within the Army, Air Force and Admiralty chains of command. In the USA it was centralised under the overall direction of Henry Stimson, the Secretary of State for War.

Reading "The Secret War", and indeed the many other books that refer to the management of Ultra (notably [Ultra Goes to War](#) by Ronald Lewin) it is interesting to read about the way that individual commanders embraced or rejected Ultra intelligence, and then later either accepting or rejecting that Ultra had any part to play in their decisions. Seventy years later knowledge management is still subject to the same reactions.

I'm not suggesting that the current concepts of knowledge management stem directly from Ultra, but it would be interesting to consider whether knowledge management would have been adopted earlier, and with more enthusiasm and commitment, if the experience gained from Ultra had been in the public domain earlier than the mid-1970s. The same could be said of computing technology if extreme efforts had not been taken to conceal the way in which military messages had been decrypted during WW2. It would be interesting to know if the early pioneers of KM had some informal awareness of Ultra and, with the public disclosure in the early 1970s of the Enigma decoding operations, felt that some of the KM lessons learned from Ultra could now be put to good use.