

# Google Wave

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**Abstract:-** Google Wave based on the Diffusion of Innovation theory and secondary data from online forums that discussed the failure of Google Wave. Web-based communication and collaboration is a significant trend in modern enterprises. It aims to provide features of established communication technologies like email and instant messaging in combination with features of Web 2.0 technologies like wikis, blogs and fotosharing in a single tool. The goal of this paper is to provide a detailed comprehension of the concepts and possibilities based on a very early version of Google Wave regarding the application in an enterprise context. The paper discusses characteristics of Google Wave those facilitate creation of personalized learning spaces accessible to students anywhere and anytime.

**Keywords—** Google Wave, Collaboration, Communication, Networking,

## I. INTRODUCTION

Google Wave is an internet application made by Google. Google describes Wave as an application which "lets you communicate and collaborate in real time". This means that Wave can be used for several people to edit a document at the same time, or for a group discussion. Waves can be used in a similar way to a forum, or just for emails and instant messaging between two or more people.

To use Google Wave in some browsers like Internet Explorer, you have to install Google Chrome Frame. This makes Internet Explorer behave like Google Chrome on the Wave website. This is needed because Internet Explorer does not have enough features for Wave to work: it does not have full HTML5 support.

Google Wave was discontinued in 2010. It has been open sourced as Apache Wave.

The tool was first introduced in the annual Google I/O conference in May 28, 2009. It was positioned as a mixture of email,

instant messaging, and online synchronous and asynchronous collaboration, or in other words a social form of Gmail, where a group of people can communicate with each other in a single thread and can share images, files and videos in real time. Also, it allows users to embed and integrate different types of multimedia, such as YouTube and Google Earth, as well as has the ability to extend its features by installing different extensions, such as PDF support and Mindmap.

According to Rogers, adoption is a decision to continue using an innovation. Therefore, this paper sets to understand why many individual users decided to discontinue using Google Wave. It seeks to identify factors accounting for the adoption failure of Google Wave. Clearly speaking, this research attempts to answer the following research question:

**“Why Google Wave fail?”**

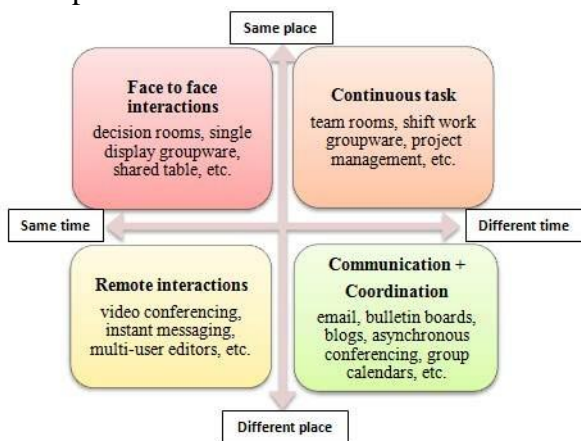
The individual level, rather than the organization level, is of interest, as the individual users are generally the driving force in diffusing the technology across distance. Diffusion of Innovation theory is applied as an initial framework to guide the content analysis of Google Wave users' viewpoints on the failure of the tool.

The rest of this paper is structured as follows. Section 2 reviews and discusses prior literature on the adoption of collaboration tools and relevant IS adoption theory. Section 3 outlines selected research methods for this paper. Section 4 deliberates research findings, and finally section 5 summarizes the findings and discusses research limitation and potential future work.

## II. COLLABORATION TOOLS

A variety of collaboration tools are available. According to Johansen, they can be classified by two dimensions: time and location, as shown in Figure (1).

Google Wave is one of the hybrid tools which attempt to support activities across the two dimensions. Benefits of collaboration tools are well recognized. They can help increase efficiency and team's productivity. All project-related work, such as planning documents, budgets, progress reports, and discussions, can be gathered in one place in which all group members can access. As a result, the tools help save teams time by having a common place to look for information on a project. Besides, time spent in unnecessary meetings could be reduced as the tools allow background preparatory work and information to be circulated before meetings. Improved meeting outcome quality and reductions of project calendar days up to 90 percent are also reported.



**Figure 1: Classifications of collaboration tools**

Since collaboration tasks are varied and there is no tool which serves all purposes, the use of a variety of tools to collaborate is encouraged. Some recent case studies also support the notion that “a mix of asynchronous and synchronous tools is vital to team success” in collaboration.

However, the majority of prior literature on the adoption of collaboration tools focused on a single solution rather than a set of solutions.

This study is, therefore, expected to add to the void as Google Wave combined a set of solutions to supports several collaboration tasks (e.g. information sharing, video sharing, group editing, and group decision-making) both synchronously and asynchronously.

## III. INITIAL REACTIONS TO GOOGLE WAVE

The demonstration of Google Wave at the Google I/O Conference literally ended in a standing ovation (a rarity at technology conferences). I was fortunate enough to have attended the conference, and in addition to being impressed by Google Wave itself, I was also awed by the audience reaction that day. People around me literally gasped, screamed in excitement, clapped, and cheered during and after the demonstration. I can honestly say that until that day, I had not witnessed developers in the audience raising their laptops frantically in the air with sheer excitement about a new web platform.

As you may have likely observed, the web was filled with news articles, blog posts, and an explosion of social network messages about Google Wave in the days after Google I/O. The news was not limited to the web either, as media outlets around the world released print articles about Google Wave and its potential to transform how web users communicate and collaborate. Although it is impossible to cover all of the reactions that ensued in the hours, days, and weeks that followed the preview demonstration, it is worth exploring some of the more salient reactions that appeared on the web.

Shortly after Google Wave was introduced, Tim O'Reilly posted a profound observation on his blog.

*“When I saw Wave for the first time on Monday, I realized that we’re at a kind of DOS/Windows divide in the era of cloud applications. Suddenly, familiar applications look as old-fashioned as DOS applications looked as the GUI era took flight. Now that the web is the platform, it’s time to take another look at every application we use today, and ask the same question Lars and Jens asked themselves: ‘What would this look like if we invented it today instead of twenty-five years ago?’”*

The Guardian’s John Naughton summarized Google Wave in three thoughts:

*“Having watched it, one was left with three thoughts: wonderment at the scale of Google’s ambition; admiration of its technical ingenuity; and scepticism about the prospects of something this complex becoming a mainstream product. But one thing is now clear: the browser has become the platform. And that’s big news.”*

And Gartner Research released a preliminary analysis of Google Wave’s likely influence on the web on June 2, 2009, less than a week after the platform was announced.

*“Wave will not challenge Lotus Notes, Microsoft Exchange or Microsoft Office SharePoint Server for five to 10 years, if it ever does. Nevertheless, Wave will create both competition and opportunity for other players in the market. Wave shows that workplace offerings will eventually have to combine Internet standards and a decentralized, federated architecture. Whether or not Wave ultimately succeeds, the Web will win.”*

Lastly, MG Siegler contributed the first post on TechCrunch about Google Wave,

drawing over 500 visitor comments in the first two weeks. As MG Siegler observes, Google Wave is a risky endeavor with a significant payoff

*“It’s a really interesting concept, one that you really do need to see in action. It’s ambitious as hell — which we love — but that also leaves it open to the possibility of it falling on its face. But that’s how great products are born. And the potential reward is huge if Google has its way as the ringleader of the complete transition to our digital lives on the web.”*

#### IV. IN A NUTSHELL

Simply stated, Google Wave is a real-time communication and collaboration platform that incorporates several types of web technologies, including email, instant messaging (IM), wiki, online documents, and gadgets. In more technical terms, Google Wave is a platform based on hosted XML documents (called waves) supporting concurrent modifications and low-latency updates.

Google Wave itself represents a new approach aimed at improving communication and collaboration through the use of a combination of established and emerging web technologies. Google generally describes Google Wave as a platform, and in a broader context, as a set of three interdependent layers:

##### 1. *Product Layer*

The Google Wave product is the web application people use to access and edit waves. It’s an HTML 5 application, built on Google Web Toolkit. It includes a rich text editor and other functions like desktop drag-and-drop (which, for example, lets you drag a set of photos right into a wave). Throughout the remainder of the book I will refer to this product as the *Google Wave Client*.

## 2. Platform Layer

Google Wave can also be considered a platform with a rich set of open APIs that allow developers to embed waves in other web services, and to build new extensions that work inside waves.

- WHAT IS GOOGLE WAVE GOOD FOR?

Brainstorming, early concept creation and discussion is what I see Google Wave being used for extensively in the near future. It can also serve as a multi-user note-taking platform for meetings and sessions in your company or university. If you want to organize an event collaboratively, Google Wave will most likely replace wikis. That's a punch in the gut for all creators of wiki software. These are just the most obvious uses. As more people use Google Wave and become comfortable with it, they will begin using it in entirely new ways. The real-time communications it makes possible will override its weak points because of the greater efficiency it allows for any group trying to work together. One day the wave is gonna rock! But that is not today.

### V. ADVANTAGES OF GOOGLE WAVE

- Innovative interface:- The user interface of Google Wave breaks new ground and yet is not unfamiliar as its layout resembles the inbox of your mail application. The timeline that lets you recap how the wave has evolved and changed since your last visit is something that even wikis don't have today—a feature that will surely be copied extensively in the future due to its intuitive usability.
- Waves activate participants to contribute Furthermore, the user interface motivates further contributions to the wave. This is an excellent way to convince a lot of people to participate.
- Real-time collaboration It is a completely new experience to actually see

your friends, colleagues and contacts type in and change content in real time. No other application apart from a few client-side chat tools currently offers such a service via a web interface. If you're a tech geek, you'll love that part of Google Wave. It is a powerful innovation when it comes to real-time communication and collaboration. It is competing with the well-known comforts of email, wikis and chat, but in a lot of use cases, I think Wave will win.

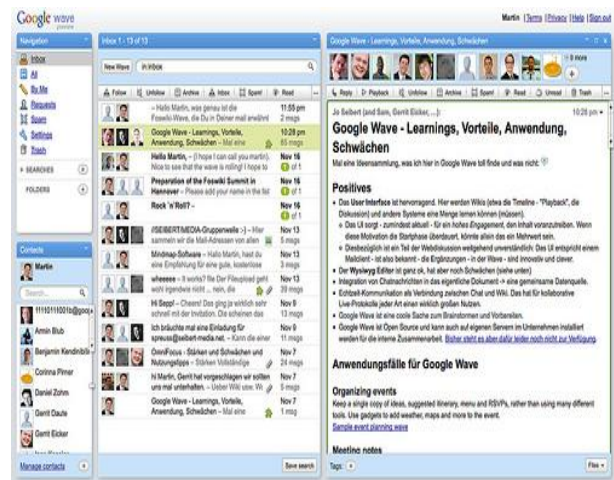


Fig (2)-The interface after login with an open wave

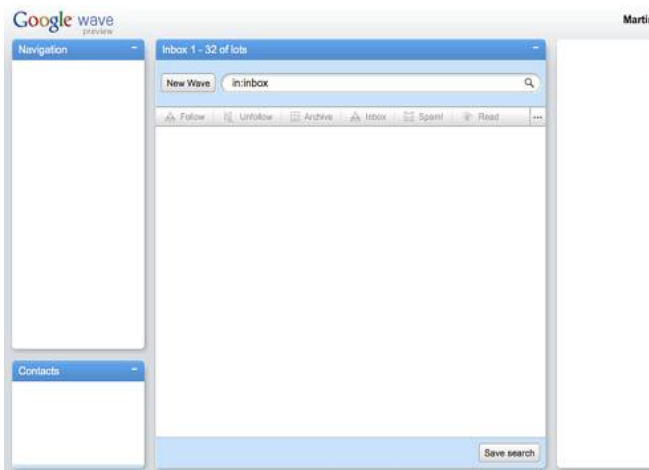
### VI. DISADVANTAGES AND USABILITY PROBLEMS

- Missing revisions with rollbacks there is no professional revisioning system in place yet. If somebody messes up your wave and you want to undo it, you're in for an unpleasant surprise: You have to do it manually. So folks, please do not delete too much content on waves.
- No permanent hiding of replies yet At the same time, Google Wave does not offer a way to permanently hide replies. Result? The main text in the wave is disturbed by images, boxes, colors and text from all participants. This can become a real mess and might even prevent you from reading the important content. The Google Wave team should definitely address this.

- Where are notifications for updates of the waves I follow? There are no means of monitoring waves. This is Google Wave's biggest weakness. I don't get an email, Gtalk alert, or any other notification in the communication systems I already use today when there is new activity in a wave. As I am still heavily using RSS feeds (in contrast to other TechCrunch authors—by the way, almost 4 million TechCrunch readers use RSS feeds as well), I'd love an RSS feed of the waves I want to keep an eye on. Unfortunately, this isn't yet an option.

- Too slow for a real chat For a real chat, Google Wave is much too slow. The performance of live transmissions varies from good to very poor and back without any understandable pattern. Today, you'll want to keep using Skype or Jabber clients for chatting. I expect this to change, once we see local implementations of Google Wave in companies. Most of the server power can then go to the companies' employees, clients and partners.

- Google Wave is unstable If there are peeks, Google Wave seems to have trouble with the load of lots of users. Here is a screenshot that I see way to often.



Google accounts should not be required Why do I need a Google Account to participate in a wave? That is a big problem if you want to engage with clients and non-tech-savvy users.

- Who is really online? Google Wave tries to display who is online by showing a green dot on the profile picture, but it's not reliable yet. In fact, I've even seen people writing content who were identified as being offline.
- No markup editing like in wikis There is no source code view in Google Wave that you would want to use as an experienced wiki user to control what appears and how

#### VII. TO-DO'S FOR YOU TO USE GOOGLE WAVE IN YOUR COMPANY

The following list to be a bit premature. As one cannot install Google Wave yet, this is just a checklist to help you prepare for it.

##### 1. TECHNOLOGY

a) Server infrastructure and a good sysadmin: You will clearly need a server and a skilled admin to set up a Google Wave server, if you want to use it in your company. If you want a lot of employees, partners and clients to use it, you should prepare to invest in good hardware to make the real-time experience a good one. Up until now no one has been allowed to install the preview version of Google Wave. This means that nobody knows how difficult or easy it will be to install it and how easy it will be to connect it with other public wave servers. Still, it should be helpful to have a sysadmin around who knows what he is doing.

b) HTML5-compatible browsers: Google Wave is an HTML5 application. If your company still works on Internet Explorer 6 or below, you will not be able to use

Google Wave flawlessly. Therefore, make sure all participants have access to up-to-date browsers.

c) Fast web connection: A decent web connection for both servers and clients is highly recommended to have a good real-time communication experience.

d) Firewall configuration: Your admin should know how to configure your firewall so that your Google Wave server can communicate with the world.

## 2. ORGANIZATION

a) Define the goal of the wave and make sure everybody understands the purpose and the content of your wave. If you don't, a lot of "side-noise" will arise.

b) Create wave guidelines: You should set up guidelines for your wave participants to make sure they understand what the wave is for.

c) On-boarding: Make sure that everybody you want to work with has a Google Wave account. (I know, this is quite difficult today. And that's why Google Wave isn't that useful yet.)

d) What application is to be used? Differentiate the systems in your company so that everybody understands when to use emails, wikis, chats, databases and when to use Google Wave. How to set them apart? I don't know. This will emerge organically.

e) Give Google Wave a purpose: Make sure people understand how to use Google Wave. You don't want them to turn it down before even testing it thoroughly. That is especially true for the non-geek users.

f) Not too many wavers on one wave: You should beware of inviting too many

people because you can't kick them out afterwards.

## 3. CULTURE

a) Do not delete content without permission: My brother had created a new wave to evaluate Google Wave. We were all filling in texts, comments and arguments. Within a very short period of time, a really cool document had evolved, and I thought: "you should make this a blog post." So I started to restructure it, changed arguments and content into text, and deleted the comments afterwards. The bashing and flaming that triggered from people who were angry with me for killing their content was enormous.

b) Make rules and copyright clear: After I had restructured our wave and taken all the bashing for deleting the obsolete comments, the first participants asked if they could use the content in their blogs. We became aware of the as-yet unanswered question: "Who owns a wave? Who may do what with it? Who is allowed to use its content?" Make sure to clarify this in advance with your coworkers.

c) Be aware of the complexity: The basic use and advantage of Google Wave should be clear to your employees once you roll out Google Wave. If the purpose is not clear, its complexity will quickly drive away many of your colleagues. Good luck trying to convince them to come back.

d) Get ready for live feedback stress: A special problem in a wave is that you get answers to what you write while you're still writing it. Every other means of communication leaves room to formulate and write your message first. In Google Wave the stress of a personal meeting with live communication can occur. (See

the video above if you don't know what I mean.)

e) For now, consider only inviting geeks: Today, nobody can really control documents in waves, and there's no real revision yet. And waves change a lot. Therefore, it's better to invite people who can give good feedback. The more wavers, the more complex a wave will become.

## V. CONCLUSION

If you criticize Google Wave, you should keep in mind that it is a "preview" now. It's not a beta, and it's not a final release. The Google Wave team has set out to create "email as it should be in 2010". And from what I see, they have a good chance of doing so, but 2010 is less than two months away. However, I am willing to bet that this piece of software will eventually overcome Robert Scoble's criticism.

For professional collaboration, I still recommend the wikis mentioned above. But if you're into real-time collaboration, Google Wave will eventually be your choice. Just make sure to bring advanced web skills.

## REFERENCES

1. The Case of Google Wave Adoption Failure. [Laddawan kaewKitipong]
2. Lesson Learned For Diffusion Of An Online Collaboration Tool.[ Laddawan kaewKitipong, Peter Ractham]
3. Entrepreneurial innovation at google\_published version.[Alberto Savoia and Patrick Copeland]
4. Introduction of google wave[Johanna Hane]
5. How does Google Wave fit in the Context of a Web-Based Enterprise Collaboration Platform?[ Philipp Andr'e Heinemann]
6. Google Wave Platform: Exploring the Settings for Personalized Learning.[ Malinka Ivanova, Javed Alam]