

GOOGLE WAVE FAILURE: LESSON LEARNED FOR DIFFUSION OF AN ONLINE COLLABORATION TOOL

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INTRODUCTION

Background and Motivation

Collaboration has become increasingly important to the success of today's enterprises. Modern organizations have been attempting to capitalize on their ability to collaborate between business units and manufacturing facilities to develop better products and services [17]. To achieve their goals, they no longer rely only on internal collaboration within their organization, but also on working closely and exchanging ideas with external partners. In other words, collaboration is viewed as a critical success factor in achieving a sustainable competitive advantage [2]. The need to collaborate is also seen in everyday's life. A family, which has one or more family members who live abroad, might need to find a way to plan their holiday together. A group of friends who want to organize a party may need a tool to help them obtain common decisions more efficiently. As a result, many collaboration tools have been implemented to facilitate this kind of information sharing as well as decision-making tasks. Nevertheless, little has been reported on adoption success of such tools. In fact, diffusion of collaboration tools still remains as one of the most challenging problems in the area of IS research [31, 43].

Challenged by the problems and considering collaboration important activities, Google has launched many online tools to promote collaboration. Some of their popular tools are Gmail, Google Docs, and Google Calendar. An infamous tool, Google Wave, was one of the most ambitious products which many features that can help to facilitate online collaboration. Google Wave was defined as "... a live, shared space on the web where people can discuss and work together using richly formatted text, photos, videos, maps, and more" [16]. In short, it is "a personal communication and collaboration tool" [48].

The tool was first introduced in the annual Google I/O conference in May, 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 [16]. 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 [37].

Despite such innovative features and the initial hype, Urs Hölzle, the senior vice president of operations and Google Fellow at Google, has announced on August, 4th 2010, around a year after its launch, that Google ceased the Google Wave project.

Such decision by Google has become widely criticized, and many early adopters were puzzled and written to call for public discussion on various popular tech websites. The adopters posted valid questions on why Google Wave failed. This enigma also gain much interest from IS researchers. The downfall of Google Wave was very interesting that it posted a reasonably initial hype amongst general internet users but did not get much attention after its launch to guarantee its survival.

Objective and Research Question

According to Rogers [40], adoption is a decision to continue full use of an innovation. Therefore, this paper sets to understand why many individual users decided not to continue full use of 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 did 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 [31]. 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.

LITERATURE REVIEW

IT/IS adoption and relevant theories

The issue of IT/IS adoption have long been discussed but still receive continuously attention. This is partly because of mixed findings among studies which were conducted with organizations of similar size [35]. Also, it is arguably that different technologies may possess different characteristics and have divergent effects on the adoption decision. For example, prior research on Group Support System (GSS) adoption found that the success of GSS is frequently attributed to its specific characteristics, such as the ability to communicate anonymously and in parallel, and to keep record of the meeting minutes [33].

However, prior literature on Collaborative Information Technology (CIT) adoption mainly focused on organizational and environmental factors affecting the adoptions. Technological aspect seemed to be disregarded or received very little attention. For example, Munkvold and Anson [32] focused on management supports and roles of project champion and found that the two factors played an important role in the adoption of an electronic meeting system in an organization. Bajwa *et al.* [1] were interested in organizational factors, such as organization size, IT function size, and degree of integration and centralization of decision making significantly and found these factors influencing CIT adoption both in United States and in Australia. Besides, despite the fact that diffusion is often seeded at the individual level [31], these prior studies were

conducted at the organization level. Examples of prior studies which focused on CIT adoption factors are presented in Table 1.

Table 1: Prior studies which focused on CIT adoption in organizations

Authors	Research focus
Munkvold and Anson (2001)	Organizational Adoption and Diffusion of Electronic Meeting Systems
Mark and Poltrock (2004)	Diffusion of a collaborative technology in a large, complex, distributed organization
Bajwa <i>et al.</i> (2005)	Antecedents of collective adoption and use of CITs in the US, Australia, and Hong Kong organizations
Pervan <i>et al.</i> (2005)	A study of the adoption and utilization of seven collaboration technologies in large organizations in Australia and New Zealand
Chong <i>et al.</i> (2009)	Factors affecting the adoption level of c-commerce in electrical and electronic organizations in Malaysia

The prior studies reviewed in this research mainly are those concerning adoption factors. Although there are other adoption studies which attempted to explain IT/IS adoption as a complex process going on in various organizational/individual settings, this research attempts to identify factors contributing to the adoption failure of Google Wave; therefore those studies were not included here.

Although a large number of technology adoption studies have been conducted, Google Wave possessed a different set of characteristics and therefore requires specific research. Since Google targeted the tool for a wider audience, including general public, attributes of the technology are a main focus of the study rather than other organizational and environmental factors. Therefore, DoI is considered an appropriate theory to start with.

METHODOLOGY

The objective of this paper was to understand the reasons Google Wave failed to get adopted. The mixed method research design will be applied. The researchers combined content analysis, *a quantitative research technique*, with an in-depth interview, *a qualitative research technique*. The latter was used in order to triangulate and complement the former. Therefore the research methodology was divided into two parts.

Quantitative Research

In the first part, the researchers attempted to i) identify factors that Google Wave users considered responsible for the adoption failure of the tool, and ii) rank the factors from most-cited factors to least-cited factors.

Content analysis was chosen to make inferences from the data. According to Krisppendorff [24], Content analysis is a research technique for making replicable and valid inferences from data to their context (p.21). It can be used to examine any piece of writing or occurrence of recorded communication [28]. Therefore, the method is considered appropriate and helpful.

Data Collection

As mentioned in the introduction, many early adopters had written on various popular websites and called for discussion on Google Wave failure. The researchers considered those written opinions an interesting and appropriate source to learn about Google Wave failure for three reasons. First, online forums were places which usually gathered a number of early adopters who were keen on sharing their opinions about certain tools. Therefore online forums which discussed Google Wave failure seemed to be a good source of opinions from early Google Wave adopters. This could provide as equally relevant as primary data from interview. Second, it reduced the limitation on data collection as there was no need to search for Google Wave users. Besides, the written form is considered appropriate and helpful in avoiding transcribing mistakes [28]. Third, individuals usually expressed their views freely and naturally on online forums; hence it seems to be neutral and free from pressure. Therefore, instead of surveying a number of users who have used and decided to discontinue their use of Google Wave, the researcher chose to understand the underlying reasons of such decision from existing sources of data.

Sampling Frame

To obtain the secondary data, the researcher first checked out the official Google Wave Blog (<http://googlewave.blogspot.com/>) and also Google Blog (<http://googleblog.blogspot.com>) to see if there is any discussion on the termination of Google Wave as a standalone product or Google Wave failure. The two blogs, however, contained no comments pertaining to why Google Wave failed to get adopted. Consequently, the researcher turned to other blogs and forums which usually discussed new technologies through Google search engine, using search keywords pertaining to Google Wave adoption failure. Although Google is an owner of Google Wave, the company is not related by any means to websites which are sources of data of this research. Therefore, the researchers believed that using Google search engine as a tool to locate data did not affect the reliability or validity of the data.

Since Google search results were normally ranked by relevancy and quality of result pages, the researchers sampled the top ten search results of a certain keyword and selected only the websites which contained comments from readers. However, the researchers acknowledged that the top ten is not a good representative of the huge amount of web data. Therefore, more searches were conducted using different keywords until no new results were found in the top ten search results of each keyword. This was expected to help increase the quality of data sampling. Table 3 captures sources of secondary data and numbers of comments posted in the selected forums.

Table 3: Secondary data collected from online forums in which Google Wave failure has been discussed

Keyword: Google Wave Failure		
Results	Published Date	No. of comments
Lessons Google Can Learn From Wave's Failure	August 6, 2010	88
Terminal Wave: The Google Wave Failure The Milwaukee SEO	December 14, 2009	58
Reasons why Google Wave Failed Blog Godown	February 11, 2010	18
Lessons from Google Wave failure ZDNet	August 5, 2010	55
Google Wave failure may help Google Me succeed – Computerworld	August 5, 2010	19
Shouldn't We Be Celebrating Google's Failures?: Tech News and ...	August 5, 2010	29
Wave Goodbye To Google Wave	August 4, 2010	228
Keyword: Google Wave Failed		
Results	Published Date	No. of Comments
On Google Wave and “Failed” Experiments	August 5, 2010	51
Why Google Wave Failed And What It Means - Slate Magazine	August 24, 2010	60
Why Google Wave Failed - 5 Reasons Why Wave Tanked: TP Tells It ...	August 5, 2010	7
R.I.P. Google Wave TechHaze.com	August 5, 2010	44
Why Google Wave failed? YugaTech Philippines, Technology News	August 5, 2010	23
Keyword: Google Wave Adoption Failure		
Result	Published Date	No. of Comments
Why did Google Wave fail to get significant user adoption? – Quora	August 4, 2010	22
Google Wave Gone, But Not Quite A Failure Javalobby	August 4, 2010	7
Total Comments		709

Qualitative Research

The second part of the research was conducted to increase research validity. The goal was to obtain some primary data from real users to supplement any details that the first part of the research might have missed or lacked.

Data Collection method

The researchers conducted face-to-face interviews to obtain qualitative data in order to help explain the adoption failure of Google Wave. Notes were taken during each interview and used for later analysis. The same interpretation guideline as used in the first part of the research was also used in this part of the research. Importantly, it allowed the researcher to link the research findings from the two parts together.

Sampling Frame

Three early adopters who later on discontinued using the tool were chosen and contacted. Background and other contextual characteristics of the interviewees were not taken into consideration when selecting them. This was because limited background and contextual characteristics of those which made up the secondary data for this research were also limited. The researcher only knew that they were adopters who were keen on using the tool and the failure of Google Wave enough to share their view on the Internet.

Research conceptual framework

The review of prior literatures in chapter 2 has revealed the gap of CIT adoption studies and discussed how and why DOI is deemed appropriate as a conceptual framework. Table 4, therefore, presents an initial conceptual framework, which will also be used to guide the coding step in content analysis. It can be seen from the table that DOI is adopted, and trialability is omitted. This is because Google Wave account was free. Once users obtain an invitation to join Google Wave; they will be able to try and test the tool as much and as long as they would want to. However, as this research is set to explore the reasons of Google Wave failure, the researcher is open to other potential factors which are not included in this initial framework.

Table 4: Diffusion of Innovation Theory as the initial framework and coding scheme for content analysis

Characteristics	Definition
Relative advantage	The degree to which an innovation is superior to ideas it supersedes
Compatibility	The degree to which an innovation is consistent with existing values and past experiences of the adopters
Complexity	The degree to which an innovation is relatively difficult to understand and use
Observability	The degree to which the results of an innovation are clear or may be diffused to others

INITIAL RESEARCH FINDINGS

Of total 709 comments, 373 comments were discarded because they were irrelevant (e.g. they were advertising or discussion on Google Strategy rather than the failure of Google Wave), duplicated, or not able to obtain common code from the two analysts. This accounts

for approximately 50 percent of the total comments. Interestingly, almost 20 percent (61 comments) of the rest 336 comments actually liked and mentioned that they benefited from the tool. The other 275 comments (from the total 336 comments) were further analyzed. They mentioned various factors perceived as reasons for Google Wave failure, making 431 occurrences of relevant factors. Note that the total occurrences of all factors are greater than the total number of comments, because one user usually mentioned more than one factor accounting for the adoption failure. Table 5 presents number of occurrences which are grouped into the same characteristic taxonomy.

Table 5: Findings from the online forums

Characteristics	Examples	Occurrences
Complexity	Difficult to understand and use, User interface is not intuitive	88
Relative advantage	Not better than msn, email, Google Docs	81
Type of adoption-decision	No one to work with because of invitation	79
Compatibility	No integration with email, More thing to check	63
Communication/marketing	Google didn't promote it, Overhyped	48
Observability	Not sure what it (Google Wave) was, cannot explain to others in short what it is	39
System quality	Synchronization bugs, Slow, Not quite finished, Prone to excessive spamming	33
	Total	431

EXPECTED CONTRIBUTION

An understanding of Google Wave failure could yield both practical and theoretical benefits.

- For academics, such an understanding will add to the literature on online collaboration tools, which have become ever more important since collaboration across time and location has become common and critical for firms' success. The research should supplement the existing literature with factors accounting specifically for the adoption failure of online collaboration tools.
- For practitioners, lessons learned from failure of Google Wave will help them learn what to avoid and what to do when introducing other collaboration tools.

CURRENT PROGRESS

This research was presented at an international conference, and the researchers have been attempting to add additional data through in-depth interviews with users in order to extend the paper and further develop this into a journal paper.