Status Reporting in IT Projects

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Omar Shaya

21141570

WiSe 2012/2013

+49 176 648 963 29

omar.shaya@gmail.com

Computer Science

Dr. Robert Wayne Gregory
Electronic Finance and Digital Markets
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Abstract

Accurate status reporting is crucial to the success of IT and IS projects. Indeed, many major projects fail because employees are reluctant or selective in their reporting of bad news. As an investigation into the reasons behind this reluctance and/or bias in reporting, this paper concludes with a series of recommendations on ensuring effective and timely project updates. Due to the diversity of the modern IT world, we consider the ethical and cultural differences that lie behind what and how employees report. With the ever-expanding presence of women in the IT workforce, we turn our attention to gender differences in status reporting. Due to a lack of research into this specific area, we suggest research hypotheses based on gender difference studies from related fields. Furthermore, we propose a gender-power analysis matrix that could form the basis of such research. We employ these findings, taken from ethical, cultural, and gender research, to make a series of personnel, managerial, and organizational recommendations to improve the quality of status reporting. Finally, we argue that social networks and mobile technology would be effective tools in facilitating the fast, open, and effective communication needed to ensure IT project success.

1 Introduction

Information technology has transformed the world we live in. Everyday we make use of an extraordinary array of products that we take for granted. Even in many of the world's poorest regions, few can imagine life without mobile phones. Yet behind these apparently ordinary solutions and products we see and use everyday lies a succession of incredibly complex, expansive IT projects. A closer inspection of these projects reveals the complex chain of events that bought the product to market:

1 The terms IT (Information Technology) and IS (Information Systems) are intended to be understood interchangeably in this paper.
from identifying the business opportunity to planning to implementation and finally, the release. The timely identification of, communication about and rectification of problems is often revealed to have been crucial to the success of the project. Indeed, the failure of major IT projects can often be traced to apparently minor problems that were ignored and allowed to snowball.

These failures demonstrate how crucial it is to identify problems on IT projects both quickly and accurately. Indeed, it has often been later revealed that team members were aware of problems, but were unwilling to report bad news to their superiors. It is thus unsurprising to discover that there is significant evidence to show that status updates directly affect project outcomes. Maximizing the flow of up-to-date information is therefore crucial to improving the chances of a project's success. On that basis, this paper is an investigation of what motivates employees to avoid delivering bad news reports, and what measures can be taken to encourage them to deliver timely, accurate information.

Our work represents an extensive literature review on status reporting in IT projects, particularly in relation to cultural differences and, given that there was no directly related research published, on studies of gender differences in related fields.

Firstly, we discuss the major factors that are likely to impact on status reports on IT projects. The trend over the last 15 years towards offshore outsourcing has made the IT workforce truly global. This diversity has made apparent the need for better understanding of one another's cultures, especially given the importance of delivering and receiving accurate status reports.

Secondly, we discuss updates from an ethical perspective by investigating the possible implications of not reporting or inaccurate reporting of a project's true status. Obviously, bad news can be communicated in a number of ways, and we discuss how these different biases – be they positive or negative - can distort a superior's impression of progress.
Finally, based on predictions that an increasing number of women will join the IT industry in the coming years, we turn our attention to the role gender differences may play in status reporting. We argue that the current lack of research into this topic needs to be urgently addressed. For this much needed future research, we propose a matrix which would serve as a powerful analysis tool in such studies. Furthermore, based on research in related areas, we put forward three hypotheses that could provide valuable insights into gender differences in status updating.

We conclude by making a series of recommendations - for both employees and management - designed to improve IT status reporting. Finally, we propose a technical solution using social networks that is designed to facilitate the implementation of effective, efficient and accurate updates.

1.1 The Importance of Status Reporting

The reluctance to report bad news is a problem that is endemic in many organizations. When large projects get derailed, it often takes weeks, months, and sometimes even years before senior management becomes fully aware of what has happened (Keil et al., 2004).

Discovering errors early on gives the team a chance to correct them and to prevent them from escalating. Furthermore, unreported or undetected problems can lead to greater problems than simply exceeding the budget or being behind schedule, they can endanger the future of the company or even cost customers their lives. A hidden problem with therapy planning software created by U.S. firm, Multidata Systems International, miscalculated the proper dosage of radiation for patients undergoing radiation therapy. In this particular case, at least eight patients died as a result of radiation exposure (Garfinkel, 2005). Had the problem been reported, those people would not have died, and the company would not have had to recall its software or suffer such a major blow to its reputation.
As an increasing number of businesses becoming automated and fully dependent on IT, the consequences of even apparently minor errors can have major effects. The largest bank error in history was caused by a programming error, in which the accounts of 823 customers of a major U.S. bank were credited with $924,844,208.32 each (Park, Keil, & Kim, 2009). CONFIRM was a large travel reservation system that failed because the management team deliberately covered up serious performance and technical issues. Which resulted in a $125 million loss (Sajeev & Crnkovic, 2012). Recently, problems with the maps application in the new Apple iOS 6 operating system were not only disappointing to users, they were considered positively dangerous by the Californian police, who warned drivers not to use the application. Consequently long-time executive and vice-president of iOS software Scott Forstall was fired by Apple. If the problems with the maps application had been reported at the right time, Apple would have saved itself significant damage to its precious reputation.

These are just some high-profile examples of the severe problems or failures of major IT projects caused by apparently minor errors. Indeed, half of all projects suffer either serious difficulties or fail completely (Standish Group, 2004). The importance of detecting problems early and addressing them as soon as possible is beyond question, for that reason, quality status reporting is essential. A study by Smith, Thompson et al. (2009) backed up that supposition, finding that the quality of status reports is positively related to project outcomes.

2 Status Reporting

From a project management perspective, status reporting is defined as a:

Formalized report on project progress against the project plan. Its purpose is to effectively and efficiently communicate project status at regular intervals to project stakeholders. Project status reports can also be used to provide a
documented history of the project. This can then be applied to strengthen lessons learned and to evaluate, review, and learn from how the project succeeded and where it may have had difficulties. Project status reporting is a project management monitoring and controlling function that is performed iteratively throughout the life of the project and typically includes:

- General project information such as project name, project manager, number of resources, etc.
- General status report information such as date, author, legend, etc.
- Executive milestone overview
- Project summary status
- Project milestone status
- Planned accomplishments status
- Internal/External Integration milestone status
- Project issue summary
- Project risk summary
- Project metrics. (CDC Unified Process, 2006).

2.1 Reporting Bad News

Managers or executives need to receive timely, accurate status reports. The non, late or inaccurate reporting of unexpected problems can have serious consequences down the line as correcting steps will not be taken. For a number of reasons however, such as the fear of being held responsible, many employees are reluctant to report bad news. This thesis is therefore an investigation of that key question; what are the barriers to reporting bad news, and how can they be alleviated.

The reluctance to report bad news is referred to in several ways in the literature. In their groundbreaking 1979 study, O'Neal and Levine et al (1979) named it the mum effect and defined it as the risk arising from people’s reluctance to communicate
negative information. Since then, it has become more widely known as the *whistle-blowing theory* which holds that individuals undertake a predictable series of assessments in deciding whether or not to report bad news, see Figure 1 (Miceli & Near, 1992). Whistle-blowers are organizational members who disclose information about dysfunctional organizational activities to the people or organizations that may be able to address the problems (Dozier & Miceli, 1985). In another study, Near and Miceli, argued that whistle-blowing theory is relevant in situations in which illegitimate, illegal or immoral behavior is observed. More recently, researchers have studied *organizational silence*, which seeks to explain organizational climates which create the reluctance to report bad news (Morrison & Milliken, 2000).

Three major factors are responsible for the reluctance to report bad news on IT projects: *the communication gap, fear of consequences, and team solidarity* (Sajeev & Ramingwong, 2010).

![Figure 1. Basic whistle-blowing model with partial mediation (Keil & Park, 2010)](image)

The *communication gap* arises in the absence of good communication channels in the organizational hierarchy. Complimentary to the communication gap concept is the level of information asymmetry in the organization. Low information asymmetry is when all the information about a project is visible to the organization, meaning there is nothing to be gained from hiding information. In other organizations where monitoring is not tight enough, and information asymmetry is high, the probability
employees will hide bad news is evidently higher. Thus, information asymmetry and the organizational climate have a significant effect on the individual’s willingness to report bad news (Keil et al., 2004). In organizations with a centralized decision making policy, employees are likely to perceive a greater climate of silence than in non-centralized organizations (Park & Keil, 2009).

Fear of consequences usually arise when employees fear losing their position or job. In an environment where managers react negatively to bad news or fail to regularly seek negative feedback from subordinates, a climate of silence is likely to develop (Morrison & Milliken, 2000). Fear of negative consequences, such as being fired, have a greater effect on employee decision-making than positive consequences, such as receiving a promotion (Morrison & Milliken, 2000). As Park, Im et al (2008) put it, the negative effect of the fear of being held responsible for a problem will greatly inhibit bad news reporting. It is therefore crucial to create an organizational culture in which individuals are expected to report bad news.

Finally, team solidarity is when team members are unwilling to communicate information that could affect the relationship within the group or their team's reputation. Group decision making about reporting the project status differs from individual decision making. When the group is responsible for reporting bad news, individuals will feel less personal responsibility to report (Keil et al., 2004). This is a critical issue as groups rather than individuals are typically responsible for decisions in organizations. The homogeneous or heterogeneous nature of the group also affects the decision making process, with mono and cross-cultural groups having different group dynamics and therefore different decision-making processes (Tan, Wei, Watson, Clapper, & McLean, 1998).
2.2 Cultural Diversity

With people and companies operating across cultures and across countries, the consideration of cultural factors in information technology is crucial. Changing organizational structures, and in particular the trend toward offshore outsourcing, makes developing cultural understanding even more pressing. Subsequently, IT project managers should be prepared to deal with international teams from different cultural backgrounds who, naturally, have different cultural habits, attitudes and expectations. Indeed, cultural factors affect if, how and when employees complete status reports, regardless of their level in the hierarchy. This raises two key questions. Firstly, how do cultural differences affect status reporting? Secondly, what metrics or framework can be used to compare different cultures?

Morrison and Milliken (2000) found that the greater the demographic dissimilarity between employees and their superiors - based on differences such as gender, ethnicity or age - the greater their reluctance to report bad news. Specifically, Morrison and Milliken posited that when a large number of employees see that people like themselves are underrepresented at the top, they may be more likely to conclude that the organization does not value the input of people like themselves. This may invoke a fear that it would be riskier for them to voice concerns or opinions than for employees who are more demographically similar to their superiors. Park and Keil (2009) concluded that when management differ from the rank and file in terms of age, gender and ethnicity, employees tend to perceive - and therefore contribute to- a greater climate of silence within the organization.

Hofstede (2001) proposed five cultural dimensions to study and compare different cultures. These dimensions are power distance, individualism versus collectivism, long-term orientation versus short-term orientation, masculinity versus femininity, and uncertainty avoidance. Compared to their Indian counterparts, American employees scored higher on individualism, and lower on power-distance and long-term orientation. In cultures where long-term orientation is higher, people tend to
hide more information and keep it within their own group (Hofstede, 2001). In cultures such as India where power distance is higher, employees tend to avoid questioning their superiors. In contrast, employees in low power-distance societies such as the UK find questioning their superiors crucial for effective problem solving. An attempt by an IT team from the UK to engage an Indian IT team in learning through conflict were unsuccessful (Nicholson & Sahay, 2004). Likewise, German clients often were frustrated that their Indian vendors kept to the specifications of the project and rarely contributed their own suggestions (Winkler, Dibbern, & Heinzl, 2008).

Several studies have focused specifically on cultural differences and their effects on IT project status reporting. As a common outsourcing site for IT projects, Sajeev and Ramingwong (2010) chose Thailand for their study of the effects of Hofstede’s (2001) cultural dimensions on the reluctance to report bad news in different cultures. They asked, how do power distance, individualism and long-term orientation affect the three key factors in bad news reporting, that is, communication gap, fear of consequences and team solidarity? Sajeev and Ramingwong compared two groups, IT professionals with work experience and a control group of college students without any work experience. Both groups said that power distance is the main cultural dimension that contributes to the reluctance to report bad news. Nevertheless, the IT professionals were less affected by power distance than the control group, which was representative of normal culture (Sajeev & Ramingwong, 2010).

While Sajeev and Ramingwong (2010) found a difference in cultural attitudes between experienced IT professionals and normal people, other studies do not support these results. Sajeev and Crnkovic (2012) found no difference between students without work experience and IT professionals, they argued that the education and ethics curriculum taught in higher-education institutions play a significant role in determining attitudes to reporting bad news. Sajeev and Crnkovic surveyed experienced software engineers and recent graduates without any
experience from three main regions: Eastern Europe, Western Europe, and Asia. The questionnaire aimed at comparing the groups' attitudes to reporting bad news to their supervisors. Furthermore, the study tried to ascertain how persistent employees were, by asking if they would go to someone higher up if their supervisor failed to react to their reports (see Figure 2).

Figure 2. Items to measure willingness to report bad news. From (Keil et al., 2004).

The table below illustrates that people are less likely to report bad news to higher executives when their direct supervisors do not respond to their reports.

<table>
<thead>
<tr>
<th></th>
<th>Supervisor</th>
<th>Next level</th>
<th>Higher executive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor</td>
<td>1</td>
<td>0.50</td>
<td>0.33</td>
</tr>
<tr>
<td>Next level</td>
<td>0.50</td>
<td>1</td>
<td>0.86</td>
</tr>
<tr>
<td>Higher executives</td>
<td>0.33</td>
<td>0.86</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1. Inter-item correlation matrix for Figure (Sajeev & Crnkovic, 2012).
In some cultures, the opportunity to save face or avert blame can play a key role in negative status reporting. Ho (1976) described the Chinese concept of face and saving-face as referring to the respectability and/or deference which a person can claim for himself from others, by virtue of the relative position he occupies in his social network and the degree to which he is judged to have functioned adequately in that position as well as acceptably in his or her general conduct.

Keil, Im et al. (2007) found that face-saving mechanisms can encourage bad news reporting. Figure 3 below shows that people in more individualistic cultures such as U.S. were more likely to report bad news when there was an opportunity to shift blame onto another party. Despite the fact that people in collectivist cultures such as South Korea were often unwilling to report bad news as it could negatively impact on their social or organizational status, the opportunity to shift blame did not increase the likelihood of reporting (Keil et al., 2007). Figure 3 shows how these factors increase or decrease the willingness to report problems.

![Figure 3. Willingness to report bad news as a function of country and the presence of a blame shifting opportunity (Keil et al., 2007).](image-url)
### South Korea

<table>
<thead>
<tr>
<th>Blame-shifting opportunity present (i.e. vendor present)</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Severity of project consequences (12)</td>
<td>• Vendor’s fault (13)</td>
</tr>
<tr>
<td>• Vendor’s fault (11)</td>
<td>• Responsibility as a project leader (10)</td>
</tr>
<tr>
<td>• A small chance of success (9)</td>
<td>• Mr A can use options to rescue  (7)</td>
</tr>
<tr>
<td>• Responsibility as a project leader (7)</td>
<td>• Severity of project consequences (6)</td>
</tr>
<tr>
<td>• Honesty (5)</td>
<td>• A small chance of success (5)</td>
</tr>
<tr>
<td>• Personal reputation (3)</td>
<td></td>
</tr>
<tr>
<td><strong>Desire to try fixing the problem before reporting</strong> (7)</td>
<td></td>
</tr>
</tbody>
</table>

### USA

<table>
<thead>
<tr>
<th>Blame-shifting opportunity present (i.e. vendor NOT present)</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Responsibility as project leader (9)</td>
<td>• To avoid surprise (7)</td>
</tr>
<tr>
<td>• Honesty (8)</td>
<td>• Responsibility as a project leader (6)</td>
</tr>
<tr>
<td>• Severity of project consequences (7)</td>
<td>• Honesty (4)</td>
</tr>
<tr>
<td>• Company’s reputations (6)</td>
<td>• Severity of project consequences (4)</td>
</tr>
<tr>
<td>• A small chance of success (5)</td>
<td>• A small chance of success (3)</td>
</tr>
<tr>
<td>• Personal reputation (3)</td>
<td><strong>Desire to try fixing the problem before reporting</strong> (5)</td>
</tr>
</tbody>
</table>

Table 2. Most frequent factors viewed as influential in the decision to report or not to report (Keil et al., 2007). Numbers in parentheses are frequency counts. Explanations with a frequency count of less than 3 are not shown. Items in bold represent reasons not to report.

The challenge for organizations is therefore to develop systems that both encourage bad news reporting and discourage blame-shifting behavior. Figure 4. shows how these factors are affect the willingness to report i.e. reduce or promote.
2.3 Ethics

The failure to report problems is unethical because it could result in harm to others, the project and indeed the organization itself. Numerous real world examples illustrate the potentially disastrous effects of the failure to report problems. One extreme example is in Garfinkel's (2005) case study of the death of eight cancer patients. An unreported bug in the therapy planning software led to their exposure to fatal levels of radiation. Investigating and understanding the reasons problems are not reported is a central focus of many business studies. Goldberg and Centers' (2012) study investigated the ethical behavior and the effect of ethics on the decision making process. Their aim was to find out methods of developing ethical decision
making skills, such as the decision to, or not to, report bad news. The failure to report bad news is often not seen by the employee him or herself as unethical behavior. Goldberg and Centers (2012) claimed that each person has two selves, the should self and the want self: While the should self is a more analytical, long-term thinking mechanism, the want self usually takes over when making decisions. Furthermore, they argued that people have different ethical standards for themselves than for others, making excuses for and justifying behavior they would view as unethical when performed by someone else.

They use the analogy of the frog which stays in the water even while it gets slowly warmer rather than jumping out of it. Likewise people are willing to make small changes over time which ultimately accumulate in significant change. This principle applies to ethics (Goldberg & Centers, 2012).

Another significant factor in determining ethical decision making is the focus on real people rather than statistics. Goldberg and Centers also found that employees behaved more ethically – that is, they were more careful, aware and responsible - when they focused on the effects their decisions would make on individuals rather than on simply the numbers of people their decisions would effect. The death of someone we know is likely to affect us more than the daily media reports of the death of hundreds, thousands or even millions of people we do not know. Park and Keil (2009) found further evidence for this personal effect; employees on an IT project were more willing to report problems when loved ones may have been hurt because they perceived the impact of their actions. Keil, Smith et al. (2004) reported that people were more willing to report bad news when they perceived themselves as personally responsible. Similarly, Dozier and Miceli (1985) concluded that there was a strong inverse relationship between personal responsibility and the reluctance to report, that is, the more someone felt personally responsible, the more likely they would report.
Having more time to think over the implications is also likely to affect one's final decision, though how exactly is unclear. Goldberg and Centers (2012) for example, suggested that time delay would result in a more ethical decision, because when people had more time to think, the should self would be more likely use the opportunity to take control over the want self. Their claim that the should self, which is focused on long-term thinking, would make a more ethical decision seems to be, at best, an oversimplification. Hofstede (2001) found that cultures with a long-term orientation, such as Indian culture, where in fact less likely to report bad news. Indeed, Park, Im et al. (2008) concluded the opposite to Goldberg and Centers, and argued that people under time pressure were more willing to report bad news, because time urgency helps one to determine if (1) the status ought to be reported and (2) whether there is personal responsibility to report. They argue that creating an organizational climate of constant time urgency, in addition to other factors such as low-fault responsibility, would encourage the reporting of bad news. This is also highly questionable. Park et al said that time urgency is a situational factor, but [they also said] we should be aware that sensitivity to time is a personal factor that differs between individuals and cultures (Park, Im, & Keil, 2008).

While these authors argue that environmental factors determine decision making processes, Khazanchi (1995) argued that habituation was the key to determining right from wrong and therefore to reaching ethical decisions. Through ethical education, he argued, companies could foster the development of ethical habits that would lead to appropriate decision making and status reporting. This education would include case studies, practical training and role-playing real cases to demonstrate the importance of reporting bad news. Likewise, Sajeev and Crnkovic (2012) suggested whistle-blowing theory, the mum effect and bad news reporting case studies should be included in the ethics curricula in universities. Scholars such as Park and Keil (2009) agreed, emphasizing the importance of education and training in moral issues. Nevertheless, they pointed out that the issues people face in organizations are likely to be more complex and ethically ambivalent than the cases they would come across
in training. Iacovou, Thompson et al. (2009) argued that it was crucial that employees at all levels received training. This training would help executives develop a better understanding of the issues facing their subordinates in reporting. Furthermore, executives should also receive training in communication methods that not only encourage employees to report, but also enhance the quality of those reports (Charalambos L. Iacovou et al., 2009).

2.4 Approaches to Reporting Bad News

In the previous sections we discussed the importance of reporting bad news, while in this chapter we will turn our attention to three main concerns about the nature of reporting; how bad news is reported, what different approaches are taken by reporters, and how does the nature of reporting influence the reaction to and approach to problems.

In some cultures, people tend to be more indirect when reporting bad news. The employee may use softening phrases such as *don’t worry* or *this is only interim*, comforting the listener and, potentially disastrously, reducing the perceived severity of the problem (Brown & Levinson, 1987). Reporting bias that, intentionally or not, misrepresented and therefore distorted the true status of a project, may in fact be even more harmful than not reporting at all (Snow & Keil, 2002).

Imagine that project managers A and B made reports to company executives about their respective projects. The manager of A reported that his project was within budget and on-track, while B focused on the difficulties her project faced, as it was behind schedule. In this scenario, executives would be more likely to allocate the resources to project B in order to get things back on track. While this may be the best decision based on the available evidence, the problem may be with the evidence itself. Any number of factors, such as the desire for promotion, may have motivated
project manager A to comfort management by misrepresenting the project status. Manager A is what Iacovou, Thompson et al (2009, p. 786) refer to as optimistic biasing, that is “when a manager reports a project to be in a better situation than s/he truly believes”. This type of selective status reporting is a common form of bias. Selective reporting refers to “behaviors that a manager pursues while providing status reports to his/her supervisor in order to convey an impression that doesn’t accurately reflect the manager’s perception of the project’s bona fide status” (Charalambos L. Iacovou et al., 2009, p. 786). Line managers may unintentionally affect status report quality through their responses to information. Iacovou (1999) found that managers tended to stop reporting negative information to supervisors who were unwelcoming toward it. This problem is even more serious when organizations and cultures discourage bad news reports (Keil et al., 2007).

There are a number of other motivating factors that contribute to reporting bias and is therefore essential to remember that employees make decisions in a personal, cultural and organizational context. As discussed above, a manager may be motivated to have an optimistic bias for a number of reasons, such as the possibility of promotion. In contrast, a manager wishing to become a hero for saving a troubled project, or who simply wishes to gain more resources for their project, may be motivated to have a pessimistic bias. Whether optimistic or pessimistic, bias may have a self-serving motivation to enhance one's career, for example, or a project-serving motivation may demand unnecessary resources to ensure project success (Charalambos L. Iacovou et al., 2009). The table below summarizes the reasons for these biases and provides examples of the self-serving and project-supporting motivation for both optimistic and pessimistic biasing.

Deriving concepts from politeness theory, Lee (1993) investigated the effects of different reporting biases and approaches on the informative value of reports. She also focused on communication directions and the power distance relationships within a company. Communication can go in three directions: upward (subordinates
report bad news to their supervisor), downward (supervisors communicate bad news to their subordinates) or horizontally (both parties are at the same level within the organization).

<table>
<thead>
<tr>
<th>Reasons for biasing</th>
<th>Optimistic Biasing</th>
<th>Pessimistic Biasing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Fear of delivering bad news</td>
<td>• Desire to secure resources</td>
</tr>
<tr>
<td></td>
<td>• Desire to make themselves look good or avoid looking bad</td>
<td>• Hope to be perceived as heroes who turned around a troubled project</td>
</tr>
<tr>
<td></td>
<td>• Desiring or expecting a promotion</td>
<td>• Concerns about their team’s abilities</td>
</tr>
<tr>
<td></td>
<td>• The belief that project problems could be overcome in the end</td>
<td>• Desire to lower the executives’ expectations</td>
</tr>
<tr>
<td></td>
<td>• The desire to avoid letting the users down</td>
<td></td>
</tr>
<tr>
<td>Self-Serving motivation example</td>
<td>Project manager exaggerating the completion percentage of project tasks in anticipation of a review of his performance for promotion.</td>
<td>Project manager overstating delay estimates in early stages of the project so that s/he appears to be a hero at the end of the project in anticipation of an annual review at that time.</td>
</tr>
<tr>
<td>Project-Supporting motivation example</td>
<td>Project manager eliminating secondary development issues and problems from his reports to reduce the information load of the project executive so that the executive can perform her project-related tasks more effectively.</td>
<td>Project manager exaggerating the complexity and risk of project tasks to secure needed resources that were not originally allocated to the project.</td>
</tr>
</tbody>
</table>

Table 3. summary of the reasons and motivations for biasing as found in (Charalambos L. Iacovou et al., 2009).

According to Iacovou, Thompson et al (2009), downward communication from the project executive to the project manager is a significant factor that might lead to
selective status reporting. Morrison and Milliken (2000) reported several key factors in creating a culture of silence, and therefore a failure to properly report problems. These factors included a centralized decision making process, a lack of formal upward feedback mechanisms, a failure to informally solicit negative feedback, and a tendency to respond negatively to dissent or negative feedback.

*Power distance*, where *power* refers to the power of the listener over the communicator and *distance* is the similarity/difference between the communicator and the listener (Brown & Levinson, 1987). Power distance was again significant in affecting status reporting. In their study of IT projects, Iacovou, Thompson et al (2009) found that the perceived power differences between the communicator and listener caused or contributed to selective status reporting. Trust in the executive is also likely to effect the reporting manager's status updates (Bean, 2001).

<table>
<thead>
<tr>
<th>Communication Direction</th>
<th>Upward</th>
<th>Downward</th>
<th>Horizontal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Power + Distance</strong></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 4. Levels of Power and Distance for the Three Levels of Communication Direction (Lee, 1993)

Organizational structure and climate are significant determinants of how employees report information, and bad news in particular. Organizations should therefore aim to foster and develop a climate in which all employees, regardless of their cultural background, feel able and obliged to report honest and accurate information. Organizations can not afford to forget how much damage inaccurate information can cause them.
2.5 Women, Men, and Status Reporting

Even in the technology industry, IT stands out as a particularly male-dominated field. Indeed, in 2009 only two in every ten employees in the IT workforce were women (Croasdell, McLeod, & Simkin, 2011). While many of the studies discussed in this thesis have focused on inter-personal and inter-cultural differences in relation to status reporting in IT projects, there has been (to our knowledge) no published research on gender differences. We argue that there is an urgent need for research into gender differences, and propose an analysis matrix that could form the basis of future studies. Furthermore, drawing on research on gender differences in the workplace, we will predict several key gender differences in IT status reporting.

Researchers and businesses have become increasingly aware that a lack of women has had a retarding effect on IT industry growth. Several key reasons have been identified for the need to attract women to the industry. Firstly, in a sector where there is a serious shortage of skilled employees, more women entering the industry would enlarge the pool of qualified employees to draw from (Croasdell et al., 2011). Secondly, hiring women would help break down the image of IT departments as male-dominated clubs (Lomas, 2008). Thirdly, organizations should promote diversity and gender equality, as the social composition of team-managers or team-projects can be a hindrance to the woman or man who is responsible for leading its employees (Alpha & Vincent, 2011). Companies such as Intel are aware of this and have anthropologists working with designers to help them develop an understanding of what female – and non-American – customers want (Bell, 2012). To counter the lack of women working in the industry, campaigns such as Tech Women (ECA, 2013) and Women in Technology International (Leighton, 1989) were launched. People like Sheryl Sandberg who is the chief operating officer of Facebook is leading a big campaign talking about gender in the workplace, as she spend time taking leadership position in tech companies from Google to Facebook. Furthermore, teachers and academic institutions are addressing the misconception that technology-related fields
are only for social loners or computer geeks, and are stressing that these careers are both respectable and valued (Croasdell et al., 2011). Organizations need to be prepared for a more gender-balanced workforce, which is likely to exhibit different behaviors and develop a different workplace culture.

Despite the fact there has been extensive study of cultural and organization differences and their effects on IT status reporting, there has yet to be any studies investigating the effects of gender differences. Since the rise of feminism in the 1970s, there has been enormous amount of research into gender differences in relation to attitudes and behavior both inside and outside the workplace. Drawing from these studies we can first examine some crucial gender differences. Poorsoltan et al (1991) was one study to conclude that women are more conservative than men, while married women are even more conservative than their unmarried counterparts. This ties in to the common supposition that women are the less risk averse than men, a supposition backed by numerous studies (Eckel & Grossman, 2004). The willingness to take risks may be related to levels of self-confidence, whether these levels are justified or not. Indeed, men report higher self-perceived ability than women in the performance of complex tasks (Busch, 1995), difficult tasks with uncertainty and with less feedback from superiors (Alpha & Vincent, 2011).

However, with the rapid growth of the female workforce, there is an urgent need for research into gender differences in IT reporting. We propose that research be carried out comparing status reporting for women reporting to women or men, and men reporting to women or men. We have designed the following matrix to make this clear. Any research should take into account these four potential variables, as illustrated in the matrix, Figure 5.

As we have demonstrated, bad news reporting can be viewed as an ethical question. On that basis, studies of gender differences in ethical behavior are both relevant and enlightening. There is a significant body of direct and indirect evidence to suggest that females are more likely to behave ethically. For example, a disproportionate
number of computer criminals are young males (Wolk & Luddy, 1986). More
directly, in a study of gender-differences in the IT industry, Khazanchi (1995) found
that women were better at recognizing unethical behavior.

<table>
<thead>
<tr>
<th>Subordinate (Reporting)</th>
<th>Supervisor (Reported to)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
</tr>
<tr>
<td>Women</td>
<td>1</td>
</tr>
<tr>
<td>Men</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 5. Subordinate-Supervisor matrix for research on gender-differences in the context of status reporting in IT projects.

Khazanchi (1995) gave participants seven different case studies that each represented a different type of ethical dilemma. Women outperformed men across all seven categories, that however especially important, given that most ethical dilemmas in IT fall under these seven categories (Parker, 1979). The difference was only significant for dilemmas of disclosure, integrity and conflict of interest (Khazanchi, 1995). Parker (1979) defines these three categories as follows:

**Disclosure**: Obligation not to divulge confidential or private corporate knowledge or information to competitors or individuals; Not use the resources of employer(s) for personal gain or for any purpose without explicit approval.

**Integrity**: Obligation to act with integrity or honesty at all times; Not to use or take credit for the work of others without specific acknowledgment and authorization.
Conflict of Interest: Obligation to avoid conflict of interest and ensure that employers or clients are aware of any potential conflicts; At all times act faithfully on behalf of employers or clients.

See table 4 for results.

<table>
<thead>
<tr>
<th>Category (or type) of ethical dilemma</th>
<th>p-value for main effect: GENDER (df = 132)</th>
<th>Mean ‘degree of unethical’ score</th>
<th>SNK test for differences in means (α = 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Men (n = 69)</td>
<td>Women (n = 65)</td>
</tr>
<tr>
<td>S1: Disclosure</td>
<td>0.007*</td>
<td>4.768</td>
<td>5.631</td>
</tr>
<tr>
<td>S2: Social responsibility</td>
<td>0.111</td>
<td>5.116</td>
<td>5.523</td>
</tr>
<tr>
<td>S3: Integrity</td>
<td>0.022*</td>
<td>5.797</td>
<td>6.293</td>
</tr>
<tr>
<td>S4: Conflict of interest</td>
<td>0.001*</td>
<td>3.609</td>
<td>4.739</td>
</tr>
<tr>
<td>S5: Accountability</td>
<td>0.683</td>
<td>4.884</td>
<td>5.000</td>
</tr>
<tr>
<td>S6: Protection of privacy</td>
<td>0.181</td>
<td>4.490</td>
<td>4.862</td>
</tr>
<tr>
<td>S7: Personal conduct</td>
<td>0.177</td>
<td>3.536</td>
<td>3.985</td>
</tr>
</tbody>
</table>

*Significant at α = 0.05

Table 4. Disaggregated ‘degree of unethicalness’ scores and GENDER (Khazanchi, 1995)

Given that women are more likely to view questionable behavior as unethical, we put forward the following hypothesis; that it follows that women will be less likely to commit unethical acts, and are therefore more likely to produce honest status updates, even if that does mean reporting bad news.
Furthermore, Alpha and Vincent (2011, p. 159) were more efficient than their male counterparts in carrying out immediate action at the operational stage within an organizational framework. The immediate action dimension is as follows: “*The managers’ attitude towards their ability to cope with urgent actions oriented towards direct contacts and apprehension rather than comprehension, showed differences in management practices and in achieving their organizational goals*. The reasons women coped better with immediate action obstacles is not made clear in the study. Nevertheless, this difference leads to my second hypothesis; because women are better than men at dealing with serious and immediate problems, as subordinates they will not only be more likely to report serious issues to supervisors, in a managerial position, their own subordinates will be more likely to report bad news to them.

Finally, Lee (1993) did indeed reported politeness differences between the genders in her study of status reporting in organizations. As discussed previously, according to Brown and Levinson’s (1987) politeness theory, under-representing the severity of a problem is a way of being polite. In contrast to men, women tended to be more polite when communicating bad news to people who were less rather than more power distant to them. This leads to my final hypothesis; because most status updates on important projects are to power distant managers and executives, and not to colleagues on the same or similar organizational level, women are more likely to deliver more honest reports.

Prior research into gender differences in a business environment provide interesting clues to female behavior in relation to IT status reporting. However, with an increasing number of women working in the IT industry, these suppositions are not enough. Research and empirical studies are urgently needed to gain a greater understanding of the role gender plays in the nature of IT status reporting. Any future studies should employ the gender-based superior-subordinate matrix - first proposed in this paper - as a research tool. I believe that testing the three hypotheses proposed here would be a good starting point for future research into gender differences in IT status reporting.
Table 5. Predicted implications of previous gender research for an IT status reporting context.

<table>
<thead>
<tr>
<th>Properties</th>
<th>Gender</th>
<th>Effect on status reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognizing unethical behavior</td>
<td>Women: outperformed men in recognizing the unethical behavior</td>
<td>Women are more likely to report than men because they recognize more unethical behavior</td>
</tr>
<tr>
<td></td>
<td>Men: -</td>
<td></td>
</tr>
<tr>
<td>Politeness in transferring the bad news</td>
<td>Women: more polite when transferring bad news with less power distant</td>
<td>Women are more likely to report the exact project status to higher executives and managers</td>
</tr>
<tr>
<td></td>
<td>Men: more polite when transferring bad news to more power distant people</td>
<td>who are more power distant from employees</td>
</tr>
<tr>
<td>Response to immediate problems</td>
<td>Women: found better than men in responding to immediate obstacles and</td>
<td>Employees are more likely to report to women because, women, found to be better responding</td>
</tr>
<tr>
<td></td>
<td>problems</td>
<td>o immediate problems</td>
</tr>
</tbody>
</table>

3 Recommendations For Better Status Reporting

This paper has illustrated the importance accurate status reporting has for the success of IT projects, and ultimately, for the company itself. This research illustrates the multiplicity of cultural issues that affect IT status reporting. Based on research into
gender differences, we believe the following carrot-and-stick recommendations to be the cornerstones of efficient and effective reporting systems.

1. Team diversity

Creating teams from diverse backgrounds will help balance out the possible culture or gender based behaviors that can lead to inaccurate status reporting. As we have seen, people from less power distant cultures such as U.S. are more likely to report accurate information to upper managers and supervisors in contrast people from collectivist rather than individualistic cultures tend to feel an affinity with and care more about both the project and the organization. Gender diversity will also deliver great benefits. Based on research which found that women are less polite – that is, more direct - to power distant executives and managers, we theorize that they are more likely than men to accurately report project status.

2. Personal responsibility

As people in groups feel less personal responsibility to report, important areas should be officially assigned to specific, individual team members. Research shows that people who are held personally responsible are more likely to report bad news.

3. Personify the customer

Employees take personal responsible if they can envisage their loved ones being hurt by their failure to report problems. The customer should therefore be personified. While this does not mean that employees should be filled with anxiety, it does mean that they should be made aware of the possible harm their failure to act could have on real people with real families, not just on a bunch of statistics.
4. Training in ethics and norms

Employees should receive academic and in-house training not only on ethics, but also on the importance of and how to produce honest, accurate status updates. A culture of openness in which status reporting of both good and bad news is the norm would be further encouraged by good management approaches.

5. A culture of openness

Without a culture of openness, all that training would be for nothing. Employees should know that they are expected to report bad news. Employees must be confident that they will not be held personally responsible for reporting bad news, that reporting will not endanger their jobs or careers. On the contrary, they should be rewarded for stopping problems from snowballing. In addition, employees should be aware that the transparent nature of the organization would make it impossible to cover-up mistakes, removing the temptation to cover them up. Managers & Executives.

6. Management teams

Management should be structured in teams rather than a hierarchy of individuals, thereby avoiding the problem of non-reporting found in centralized organizations.

7. Gender & cultural diversity in management

The faces in management should be diverse, both in terms of culture and gender. Based on research which showed that women are better at dealing with immediate obstacles and problems, we theorize that subordinates are therefore more likely to report to female managers. In terms of culture, the management team needs to reflect the diversity of the workforce as a whole, as research demonstrates that subordinates
are more willing to report bad news when they see themselves culturally-represented in the management team.

8. Effective communication channels

Managers need to create effective information channels for both formal and informal upward feedback to ensure quality communication with their employees. Likewise, monitoring mechanisms that keep information asymmetry low and make it harder to hide information should be established. This would furthermore reduce the ability to and likelihood that subordinates produce either positively or negatively biased reports. Furthermore, to encourage bad news reporting, managers should actively seek out negative feedback and respond positively to bad news, even when this may be challenging.

9. Education

Managers and executives should be trained in effective communication methods that encourage and elicit honest status updates from their employees. Training in establishing effective reporting channels and understanding important cultural differences would also help managers to see through softening phrases such as *this is only interim* or *don’t worry*. Furthermore, understanding employees’ cultural and gender differences is an important tool in mitigating any possible negative effects in power distance relationships.

10. Sense of urgency

Despite differences in individual and cultural perceptions, creating a constant sense of time urgency is likely to be an effective tool in encouraging bad news reporting.
Table 6. Summary of recommendations for better status reporting in IT projects.

<table>
<thead>
<tr>
<th></th>
<th><strong>Subordinates</strong></th>
<th><strong>Managers, executives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teams</td>
<td>Should be culturally diverse and gender balanced. Specific members should be assigned to be personally responsible to report in the team.</td>
<td>Better be teams than individual to solve the centralized decision making problem. Management teams also should be culturally diverse and gender balanced.</td>
</tr>
<tr>
<td>Bad news</td>
<td>They should know they are expected to report bad news. Be awarded for reporting critical issues.</td>
<td>Seek negative feedback. Create formal and informal upward feedback channels. And respond positively to bad news.</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Should know that nothing to be gained from hiding information because it will be revealed to the organization sooner or later</td>
<td>Should keep monitoring mechanism on the organization to keep information asymmetry low</td>
</tr>
<tr>
<td>Time</td>
<td>Should be aware of the deadlines and the necessity of revealing problems as soon as it appears</td>
<td>Should keep a sense of urgency on projects</td>
</tr>
<tr>
<td>Education and training</td>
<td>Education to create habits of recognizing the right from wrong in the context of status reporting. Bad news reporting case studies.</td>
<td>Education in communication methods with their subordinates</td>
</tr>
</tbody>
</table>

3.1 Technical Solution: Facilitating Effective Communication with Social Networks

We propose the use of modern social networking systems to improve the effectiveness, efficiency and openness of status reporting. Social networking has several key benefits that encourage transparency. With literally billions of users around the world, IT professionals are almost surely familiar with the typically easy-
to-use features of networking sites such as Facebook and Twitter. Using social network applications on modern devices also means that updates can be made at any time, from anywhere. Such networks typically include a status update feature, meaning this solution is not only inexpensive but also, importantly, enables instant communication. Developing a solution built upon these platforms would give companies the ability to collect, collate and analyze status reports from throughout the organization more efficiently than ever before.

Due to familiarity and ease-of-use of social networking sites, people across cultures feel comfortable and confident using them (Cheunga & Lee, 2010). Furthermore, this will reduce the on-going training costs and difficulties, as new employees will require significantly less time to familiarize themselves with already common services. The platform and APIs (Application Programming Interfaces) on the established, widespread social networks allow organizations to create customized solutions based on their needs. A status reporting application would be relatively simple to create, and include all the features of the familiar social networking site, providing an ease-of-use and familiarity that would reduce the barriers to status reporting. This familiarity with social networks is furthermore an international trend that have served to create a language and functionality that breaks down cultural barriers to communication, be it the hashtag that categorizes an update, or the omnipresent status update.

4 Conclusion

The list of recommendations above are part of a wider, integrated approach to ensuring effective communication and reliable status reporting. While cultural differences have been studied in-depth, the lack of research into gender differences needs to be addressed. The matrix proposed in this paper could form the foundation of such research. A good starting point would be to test the hypotheses proposed in
this paper (i) that women are more likely to produce honest status updates because they are better at recognizing ethical behavior, (ii) that women are better than men at responding to immediate problems and are therefore more likely to report serious, urgent problems to supervisors and that their subordinates are more likely to report to them and (iii) because they are less polite to power distance individuals, women are more likely to report the exact project status to higher executives and managers. Finally, we believe that organizations should implement the use of social networking systems for status updates. The numerous advantages offered by social networking sites make them a powerful tool in facilitating efficient, effective and open IT reporting systems.

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