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Strategic Management Theories

Highlights

Examining a Norwegian Clients

Motivation and IT Project Success

Discovering Thoughts, Inventing Future

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Motivation and IT Project Success

By Richard Scroggins

Capella University, United States

Introduction- The goal of this literature review is to Compare and contrast the types of quantitative research approaches used to conduct studies on the relationship between motivation and IT project success. Additionally, the secondary goal is to Examine and discuss the issues of sampling, validity, reliability, and bias within these contexts. Wester, Borders, Boul, and Horton (2013) define research as, "An activity conducted to increase knowledge by systematically collecting, analyzing, and interpreting data to answer carefully formulated questions about publicly observable phenomena." (p. 280). Research is a critical part of the scientific method that allows our society and species to understand the world around us. Research can be divided into multiple categories.

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Motivation and IT Project Success

Richard Scroggins

I. INTRODUCTION

The goal of this literature review is to Compare and contrast the types of quantitative research approaches used to conduct studies on the relationship between motivation and IT project success. Additionally, the secondary goal is to Examine and discuss the issues of sampling, validity, reliability, and bias within these contexts. Wester, Borders, Boul, and Horton (2013) define research as, "An activity conducted to increase knowledge by systematically collecting, analyzing, and interpreting data to answer carefully formulated questions about publicly observable phenomena." (p. 280). Research is a critical part of the scientific method that allows our society and species to understand the world around us. Research can be divided into multiple categories. The two predominant research categories are qualitative and quantitative. Simply making the choice between quantitative and qualitative research is a challenge that deadlocks many research projects. Students struggle with this very dilemma, often changing the direction of their research multiple times before settling on a solid direction.

Although there is value in the qualitative approach for some aspects of IT research, challenges with this type of research are often presented by limiting the ability to provide solid numbers that are typically needed to justify a project. Ann (1998) makes the case for the limitation of the qualitative approach when applied to data that needs to be quantified. According to Ann (1998), "Both forms of qualitative work look for details about preferences, motivations, and actions that are not easily made numeric." (p. 162). Beyond the initial challenge quantitative research presents challenges that are specific. Quantitative research can be defined as the investigation of some phenomena through the use of statistical, mathematical, or numeric data and applying some computational, observational, or mathematical techniques to show a fundamental connection. This process typically follows the scientific method and involves some hypothesis to which a defining relational question will be evaluated and proven or disproven. The overall research design for quantitative research typically includes models, theories, hypotheses, instruments, methods, controls, variables, collection, and analysis.

II. TYPES OF QUANTITATIVE RESEARCH APPROACHES

Determining the purpose of the research and creating a purpose statement is the primary challenge of performing quantitative research. Two examples of potential research methods for this type of study are exploratory research and descriptive research. Exploratory research would be useful to explore the topic and identify new insights, while descriptive research relies more on an existing body of scholarly work and statistical data. Exploratory research would better fit the goals of a study that is exploring questions that pertain to the impact of perceived IT project success. Exploratory research is research that explores something new. While typically used when a problem has not been clearly defined, exploratory research can be combined with a review of existing literature to satisfy all aspects of the research. In the case of the perception of IT project success, especially in the direct area of virtualization technology, exploration is needed, as the perceptions of success are not clearly known. Mansourian (2008) writes, "One of the most important and extensive stages of this study was the period of data collection and analysis. In this stage, the researcher sought to find the answer of the primary research questions through a systematic data collection and inductive analysis which ended up with reasonable answers to the primary questions." (p. 273). Questioning is exploring and that is the root of scientific study. By exploring and answering questions, you contribute knowledge, whether it is for all mankind, or just for a small population. Exploratory research suggests an area where a question needs to be answered through exploration. Exploratory research is often associated with qualitative research, as there is a qualitative nature to any answer given to any question posed or answered by a human. This is relative to our basic nature, but the statistical data collected can still be quantified and is thus appropriate for quantitative research. Quantitative research is narrow and specific, and is able to reduce a complex question to a single number or set of numbers.

From the purpose of the research comes the research purpose statement, which is central to the research. The purpose statement describes the controlling idea of the study. Although research purpose and purpose statements are common to both quantitative and qualitative research, they are very specific to each type of research. In quantitative research, the purpose statement includes variables that

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can be independent, dependent, mediating, moderating or control variables. Identifying variables is a very important process that is unique to quantitative research.

III. ADDITIONAL ELEMENTS OF CONDUCTING QUANTITATIVE RESEARCH

Choosing an instrument for the collection of data is another challenge of conducting quantitative research. There are many instruments to evaluate and choose from and often they are proprietary or must be modified for the specific research purposes. Examples of potential instruments that relate to a study on the impact of perceived IT project success on future IT project decision making include the use of direct interviews, observations, or surveys. Direct interviews present a challenge in arranging and facilitating the large number of interviews needed to collect enough data for an accurate quantitative study and are more frequently associated with qualitative research. Observations, while very useful in most hard scientific research, are difficult to facilitate in this type of study. Directly observing project and IT managers would present logistical difficulties. An ideal option for a qualitative study of this manner is the use of an online survey tool.

Due to the maturing nature of technology and survey services such as Survey Monkey, online surveys have become increasing prevalent. Sproull and Kiesler (1986) looked at patterns by comparing paper and electronic questionnaires and found that respondents made fewer errors and submitted supplementary content along with their answers on the electronic submissions. Surveys have the ability to reach more participants with greater simplicity and at a lower expense. Surveys also provide quantifiable answers that can be analyzed using statistical testing. Like any quantitative instrument, the objectives of the instrument must be defined and the method of data analysis must be accounted for prior to creating or submitting the survey.

Analyzing the data is a fundamental challenge to quantitative research. Rabhi, Yao, and Guabtni (2012) write, "Data analysis is an important part of the scientific process." (p. 489). Although collected data is analyzed in both qualitative and quantitative research, quantitative research uniquely analyzes the data mathematically. One way to mitigate the challenge of analyzing data within a quantitative study is to take advantage of technology. The use of software programs like SPSS allow for the importing and manipulation of data. Statistical tests like T-tests or ANOVA tests can be run from within the program and the statistical output is given in report format. Bhunia (2013) writes, "SPSS consists of an integrated series of computer programs that facilitate the user to understand data from questionnaire surveys and other sources, to maneuver

them in diverse traditions and to generate an extensive choice of statistical analyses and reports, together with documentation." (p. 154). The most important aspect of data analysis is ensuring that the question posed by the research is answered. In other words, the results of the analysis must support the goal of the research and ensure that the hypothesis is either proved to an acceptable margin or disproved. Before analysis is done, levels of measurement must be determined. Levels of measurement are categorized as nominal, ordinal, interval, and ratio. These levels of measurement have a direct influence on the types of analysis that is done. An initial step in analyzing the data is to simply tabulate the results using frequency and percent distributions. This will provide an overview that can be used for more detailed analysis. The analysis must also be data driven. There are several data analysis techniques that can be used to interpret the data, some include: histograms, T-tests, F-tests, ANOVA tests, cross tabulation, correlation, linear regression, or text analytics. Regardless of the methods employed, ultimately, the data must be interpreted, conclusions must be drawn, and the research question must be answered. It must be ensured that no bias is present as well.

IV. SYNTHESIZING AN APPROPRIATE QUANTITATIVE RESEARCH STRATEGY

Beyond the above identified challenges, the process of synthesizing these challenges into one quantitative research strategy is a prodigious challenge. Evaluating the core question of the study allows this synthesizing process to begin. The core question is, what is the impact of perceived IT project success on future IT project decision making among IT managers? Data collection through the use of a survey will produce data that can be correlated based on age and gender. Correlations based on age will provide insights as to how different generations of IT managers perceive and define success within completed IT projects. Correlations based on gender will provide insights as to how IT managers of different genders perceive and define success within completed IT projects. Looking at age and gender together will provide deeper insights into how men and women of different generation define success within completed virtualization technology projects. While studying the effects of gender and age on new technology implementation Elizabeth, Al-Gahtani, & Hubona (2007) wrote, "Demographic variables (e.g. gender and age) that have been reported to be significant moderators of the influences of attitude, subjective norm and perceived behavioral control on behavioral intention" (p. 352). Correlating the data analysis by age and gender contributes to a larger impact on the IT managers; which are the target audience of the study. Beyond this primary audience

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this data correlation strategy will likewise provide a greater contribution to the field in general and advance the stream of research.

In determining the elements needed to synthesize an appropriate quantitative research strategy, a research problem must be defined through a research statement. The research statement is very important to the overall strategy. The exam question describes a study on the impact of perceived IT project success on future IT project decision making. This problem is significant because IT managers are hesitant to engage in new technology projects unless there is a clear motivation, or there is a perception that project will be successful. It therefore becomes a valid action to research a solution to this significant problem through the mechanism of an exploratory online survey, where the perceptions of past project success can be computed and analyzed mathematically. Once this is completed, it can be presented to the target audience and community at large. In order to achieve the best results for this scenario, a statistically valid random sample is appropriate. This will include a random selection of IT managers in the United States who have completed a past IT project. In addition to information directly related to the perception of the past success of IT projects, some additional demographic data will be collected. Most important of this additional data is the age and gender of each survey participant. Correlating the resultant data based on age and gender will benefit the study by providing a more rich and substantive result.

One important aspect of this research is the intended audience, that of IT Managers. IT managers are also the participants of the study on the impact of perceived IT project success on future IT project decision making. The initial plan might be to sample a smaller geographic area. This, however, may prove too narrow for the sample results needed. In this case, the survey would be expanded to a larger geographic area. It is very important to the research that these participants be IT managers directly involved in past IT projects. The role of the IT manager has changed dramatically over the last few decades. Businesses and functional groups grow more and more dependent on the IT department and the IT manager for not just technology, but also strategic business direction and process design. The modern IT department is transforming into the role of a corporate brain trust in many companies thus giving the modern IT manger much more control over the direction of corporate spending and strategy, and make this research more directly relevant to the entire corporation and long term performance. Therefore, this research has a greater potential impact on the field and potentially a wider audience. Kharuddin, Ashhari, and Nassir (2010) write, "Prior researchers have shown that information system adoption did increased firms' performances and operations efficiency." (p. 28). Understanding your audience and the impact that the research has is a separate challenge and needs to be addressed, as it impacts decisions regarding the research strategy. One potential alternative to a quantitative research study might be a qualitative research study on the perception of IT project success. However, given the technical aspects of the subject and the reliance on hard data that IT managers demand, the audience drives the research to a quantitative study.

In creating or determining an appropriate quantitative research strategy for a study on the impact of perceived IT project success on future IT project decision making, the next critical element is a valid theoretical framework. This framework is made up of concepts and theories or statements that are a combination of preconceptions and what is drawn from the research. The theoretical framework is what will connect this research to the existing research and advance the stream of knowledge. A core theoretical element to a study on the impact of perceived IT project success on future IT project decision making is that there may be a significant relationship between the perceptions of IT managers who have performed past projects and the effect that this has on future IT project decision making. This can be evaluated many ways. How does the perception of one IT Manager effect the decision of another? What percentage of success is enough to make a new IT manager comfortable with a project? There are many potential questions from this research. When the data is correlated on age and gender, these questions have much more depth and potential meaning for the research and primary audience. Evaluating these questions allows for a deeper ability to evaluate the phenomena associated with the larger or more general question. The process of developing the full theoretical framework unfolds throughout the entire research process and comes from several aspects of the research. The research problem is the first building block of the theoretical framework. The research variables are another key to the overall theoretical framework. The literature review will also contribute greatly to the theoretical framework and will provide the answers to the research question. The purpose of the theoretical framework and these elements are to allow the specific data to be analyzed and interpreted from the specific viewpoint of the researcher.

V. Issues Associated with Research Elements

Sampling, or the sampling plan, is a critical piece of the overall research strategy. Sampling is the process of selecting participants for your research. The plan for this study is to use a random sample of survey participants. A random sample is a basic type of

probability sample. In order to draw a random sample, a population of interest is needed first. In the case of a study on the impact of perceived IT project success on future IT project decision making, the population of interest is IT managers within the United States. From this population of interest, a subset will be randomly selected through the use of an online survey tool. One issue with sampling is choosing the correct sampling plan for the study. A purposive sample was initially considered for this study, but the risk of bias was a concern. A random sample through the use of an online survey tool lowers the risk of bias. This also lowers the level of effort verses the use of a purposive sampling plan. The research strategy includes the plan to use the software program GPower to calculate the appropriate sample size for this study. GPower is an analysis program that performs analysis for many statistical tests such as T-tests or ANOVAS. This is very important to this study, as correlations will be tested and analyzed. In other words, the power represents the probability that the null hypothesis is correctly rejected. This is significant to sampling, because sampling size is a major factor in determining sampling error in any test result. Therefore, making sure that the sample size is large enough is critical to ensuring a large enough power rating for any statistical test that will be applied to the sample date collected. Given the correlation of the sample data in this study based on age and gender, multiple statistical tests will likely be required.

Reliability and validity are both important concepts in measuring and analyzing statistical data. They are, however slightly different. Reliability can be understood as consistency, where validity can be understood as accuracy. This is similar in concept to an archer or rifleman shooting at a target. Many shots placed in a small group would represent high consistency or reliability. This does not mean that those shots are placed near the bull's eye but only that they are near each other. Accuracy, opposed to this describes shots that are close to the bull's eye, but not necessarily close to any other shots. In terms of statistical analysis, validity is the concept that a test is measuring what it is designed to measure where reliability measures that a test shows results that are consistent. In order for a test to be considered proper, it must be both valid and reliable. Reliability does not imply validity, and conversely validity does not imply reliability, both must be independently established. Brown and Ki (2013) write:

"Similar to other disciplines, including psychology and marketing, as future studies are conducted to measure these constructs, the gap between the need for better, more valid measures and the lack of these measures must be addressed to enhance empirical research. Reliable and valid scales should be adapted or created to measure these constructs as precisely as possible. Such measurement of constructs is an important component of all scientific research." (Brown & Ki, 2013, p. 363).

As stated, these concepts are important to scientific research in general. There are several types of statistical validity, but for this research, the most important is construct validity. Stated another way, in developing a complete and appropriate quantitative research strategy for a study on the impact of perceived IT project success on future IT project decision making, the determination must be made as to whether the tests do in fact measure what the theory says that they will. Although these tests have not been designed at this point in the process, construct validity can be applied through the process to make sure that as the tests are created that they do measure what they are designed to measure. This is another reason to look at a complete research strategy when considering or designing the research study.

Reliability, as stated above, is a measure of consistency. Tiku, Azarian, and Pecht (2007) write, "Reliability is the ability of a product or system to perform as intended" (p. 547). Unlike validity, a verification of reliability does not imply that a test is measuring what is intended. Reliability is simply a measure that a test is providing consistent results. If validity is a measure of accuracy, then reliability is a measure of precision. One challenge of scientific research is error. Establishing reliability in a test should help to reduce errors. This is because consistency should show any errors to be outside of the concentrated group. This should produce an observable measurement of errors in the statistical data.

Bias is another important factor in research. As stated above, bias consideration was a factor in selecting a random sampling method. Bias can occur when a researcher, consciously or unconsciously affects an experiment. By choosing a purposive sample, for example, bias could have entered the research by choosing survey subjects that the researcher already knew to harbor certain opinions on the subject. This is why much of the research done in the scientific community is blind to some degree. In the case of a random survey sample from an online survey tool, the researcher will not have any direct interaction with any test subject, so this will yield a blind result. This should eliminate bias from the study participant selection process. Beyond the initial sampling, there are many forms of researcher bias and areas where bias can occur. During the research phase the researcher can introduce bias by only selecting articles in the research that support one point of view. Bias can also be present when the data is analyzed and interpreted. Bias prevention or reduction is important in all scientific research. One area that can be concentrated on to reduce bias in the later stages of research is that of variable selection, or in choosing which variables to control (Soh, Harrington, & Zaslavsky, 2008).

Due to its complex nature ethics presents another challenge when executing research. Outside of research, ethics is often contrasted with legality. What is ethical is not always legal, and what is legal is not always ethical. However, this construct is very dependent on the individual's point of view or world view. The ethics of research are not as dependent on personal viewpoint, but they can still be complex, because research ethics can extend beyond the scope of a single research project. This gatekeeper role is played by many scientific institutions, whether at the university or national level. Beyond the external viewpoint, ethics, similar to bias, is important to research. One important ethical consideration is consent. In this particular research study, all survey participants must give their consent to participate in the study. This is very important for legal and ethical reasons. Beyond that it is important that the researcher follow the rules of ethics and use the data in an appropriate way. The researcher also has an ethical obligation to protect the privacy of the research participant within the study. Topic or research area does not negate the responsibility of the researcher to conduct the study in an ethical manner. In any case the researcher has an ethical responsibility to protect the identity of the participants. If comments that were made during the study were exposed, the participant could face a reprimand from their company. Regardless of the topic being researched, ethics plays a vital role in performing a valid study.

VI. CONCLUSION

Properly identifying all aspects of a quantitative research study can be challenging. All of the factors and challenges revealed by the research must be considered completely. To create an appropriate quantitative research strategy for a study on the relationship between motivation and IT project success, these challenges must be addressed directly. Determining the purpose of the research, creating a purpose statement, properly defining the target audience of the research, choosing an instrument for the collection of the data, and analyzing the resulting data must be considered. Additionally, challenges within the research itself such as validity of the information, reliability of the source, the biases possessed by the researcher and participants and the ethics all of aspects of the study must be evaluated. This research is important and valuable to the target audience, which needs to be properly defined. The completed quantitative research strategy for a study on the relationship between motivation and IT project success should allow stakeholders to make more informed and scientifically based decisions in relation to future IT projects.

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NeuralGDFS: Neural Network Guided DFS for Progressive Cluster Performance on Large Data Set

By Suyog Dixit & Dr. Pankaj Dashore

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Abstract- GlusterFS is the most advanced Distributed File System. GlusterFS uses Devis Meyer's Hashing algorithm as a one way hashing function to save file across the cluster network. Based on GlusterFS, we introduce a new kind of DFS known as NeuralGDFS. NeuralGDFS will incorporate the probabilistic neural network to identify the most probable Brick in which requested file might be located. We also studied GlusterFS performance in virtual cloud environment.

NEURALGDFSNEURALNETWORKGUIDEDDFSFORPROGRESSIVECLUSTERPERFORMANCEONLARGEDATASET

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NeuralGDFS: Neural Network Guided DFS for Progressive Cluster Performance on Large Data Set

Suyog Dixit [α] & Dr. Pankaj Dashore [σ]

Abstract- GlusterFS is the most advanced Distributed File System. GlusterFS uses Devis Meyer's Hashing algorithm as a one way hashing function to save file across the cluster network. Based on GlusterFS, we introduce a new kind of DFS known as NeuralGDFS. NeuralGDFS will incorporate the probabilistic neural network to identify the most probable Brick in which requested file might be located. We also studied GlusterFS performance in virtual cloud environment.

I. Introduction

Demands for data storage capacity is increasing day by day. Proprietary DFS leading in storage industry are unable to cope up with the costing, simplicity & customizability as per the requirements of data enterprises.

GlusterFS is developed to solve these problems and extended NAS for the cloud environments.

Gluster allows storage clustering of large number of individual computer nodes to deliver a high performance centrally managed pool. Depending on the workload, capacity and performance can be increased from few terabytes to multiple petabytes. It is possible to connect on-site nodes as well as public cloud infrastructure nodes like Amazon Web Services or Microsoft Azure.

a) Gluster Elastic Scaling

Gluster can cluster hard-disk, processor and corresponding input/output resources of multiple thousands of inexpensive computer nodes so that an organization can create a very large storage pool. On demand, if organization wishes to add more storage, they can directly add more hard-disks. If organization needs performance, more levels of virtual RAIDs can be configured by installing more hard-disks distributed among different computer nodes.

Elasticity in Gluster refers to direct proportionality of number of units with the performance. Necessary requirement to achieve elasticity is not to use metadata. Scalable and reliable architecture of fully distributed Gluster server nodes uses parallelism.

There are scenarios with performance throughput exceeding 22GB/s [1].

b) No Metadata with the elastic hash algorithm

All other distributed file systems keep track of physical allocation of data by indexing file system. But this creates a single point of failure and significant bottlenecks. This also results into logarithmic scaling of the whole system. To avoid this performance chokepoint, Gluster finds location of file using Elastic Hashing algorithm which is based on Davis Meyer's one-way hashing algorithm. Hence, Gluster does not require a metadata sever. With the input of directory name with filename on Davis Meyer algorithm a hash is generated. Davis Meyer's hashing algorithm has determinism and uniformity. Each pathname corresponds unique numerical value.

$$FileH_i = Enc_{File_i}(FileH_{i-1}) \oplus FileH_{i-1}$$

For the collision of files to the same brick, $O(2^{\frac{n}{2}})$ encryption operations are required (to find same hash value for two files).

Gluster also uses SuperFastHash whose collisions can be easily found eg, finks collides with vinic.

Figure 1 : GlusterFS DHT Architecture

Distributed Hash Tables enables lookup service for GlusterFS. Advantage is that files are uniformly districted over the volume and decoupled from physical network.

II. How dht Works

When open() is called, distribute translator is provided with the filename. To determine its location in GlusterFS, translator runs the filename into hashing algorithm.

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Python file is as follows:

```
gf_dm_hash.py file:
#!/bin/env python
importctypes
importsys

glusterfs =ctypes.cdll.LoadLibrary("libglusterfs.so.0")

defgf_dm_hashfn(filename):
    returnctypes.c_uint32(glusterfs.gf_dm_hashfn(
        filename,
        len(filename)))

if__name__ =="__main__":
    printhex(gf_dm_hashfn(sys.argv[1]).value)
```

We installed GlusterFS on Virtualized environment Proxmox 3.0 KVM virtualization on 4 Ubuntu 14.04 LTS instances. We calculated hash as follows:

```
ganeshji@ubuntu2:~$ python gf_dm_hash.py camelot.blend
0x99d1b6fL
```

Distribute translator queries to see if it has the mappings for that directory cached. If it doesn't, it looks all the distribute sub-volumes for the DHT mappings for that directory. Let's look on the mappings:

```
ganeshji@ubuntu2:~$ getfattr -n trusted.glusterfs.dht -e
hex */shivji/shree
# file: a/shivji/shree
trusted.glusterfs.dht=0x0000000100000000bfffffffdfffffffff
# file: b/shivji/shree
trusted.glusterfs.dht=0x00000001000000000000000003fffffffe
# file: c/shivji/shree
trusted.glusterfs.dht=0x0000000100000003fffffff7fffffffd
# file: d/shivji/shree
trusted.glusterfs.dht=0x0000000100000007fffffffebfffffffc
```

The trusted.glusterfs.dht value ends in two uint32 values. By investigating start and end values, most probable location can be found. In our case $0x00000000 <= 0x099d1b6f <= 0x3fffffe$ query was sent to brick b. If the file is there, great. That was pretty fast and proficient.

If the file's is not found there, hopefully there's a file there exists a file with the same filename of zero bytes, mode 1000 with the extended feature "trusted.glusterfs.dht.linkto". This is a sticky-pointer, also known as DHT link pointer. This tells the distribute translator that "File is moved to…" This is usually generated while renaming a file. Two network calls will be no big deal.

III. DHT Failures are Expensive

If file is not found at brick b, the client calls dht_lookup_everywhere. This sends queries to each distributed sub-volume. In our research setup there is 4x3 volume space, that means 4 queries out of distribute, and 3 queries each out of replicate for a total of 12 lookups. We can understand that this happens in parallel but that's still a lot of overhead.

Imagine a scenario in which we look for files that don't exist repeatedly, this adds a lot of wasted lookups as the client queries every distribute sub-

volume every time the file doesn't exist. If that is for example a magneto app, there's commonly a long include path that gets searched for each of 1000 includes. It's common for 30000 non-existent files to be referenced for a single shop home page load.

Quick solutions could be including paths while querying, which practically not possible for each open() request. Next could be a use of metadata server, which is again a problem as discussed in section I[B]. Next solution could be setting a flag for future ease that this file does not exist. But none of the solution is found to be an efficient solution to be problem.

IV. Neural Network Backed DFS

a) Pattern Parallel Training

Pattern parallel training is a method in which full artificial neural network and full set of training data is replicated on each cluster node. This can also speed up the training of the network because nodes broadcasts their computed weights over the network.

b) Probabilistic Neural Net

The Probabilistic Neural Network (PNN) model, described by D.F. Specht is a neural implementation of the Parzen windows probability density approximation method, mainly (but not exclusively) oriented toward classification problems. It was originally devised to provide a neural tool capable of very fast training on real-world problems; as compared with the backpropagation, for a given level of performance, the speedup reported was about 200000:1 [2] Neural network have confusion, compression and diffusion properties. We will try to classify hash function based on a neural network. Let us define our neural network as:

$$H = f_2(W_2 f_1(W_1 C + B_1) + B_2)$$
$$H = f_2(W_2 D + B_2)$$
$$H = f_2(W_2 f_1(W_1 f_0(W_0 P + B_0) + B_1) + B_2)$$

Where f_i are transfer functions, W_i are weights and B_i (i=0,1,2) are the bias of the ith neuron layer. As we wish to have a distributed setup, no single point of failure and parallel computation, we take each of the node of Gluster as a node of neural network. The repeated iteration improves the randomness of the relation between H and D and thus strengthens the cryptosystem[3]. Learning of Neural Network will be a continuous process, which also works as a cache system. We also suggested one more layer after output layer as decision layer. This will give final outcome that where a file resides. Figure 2 shows the suggested neural network setup for our NeuralGDFS.
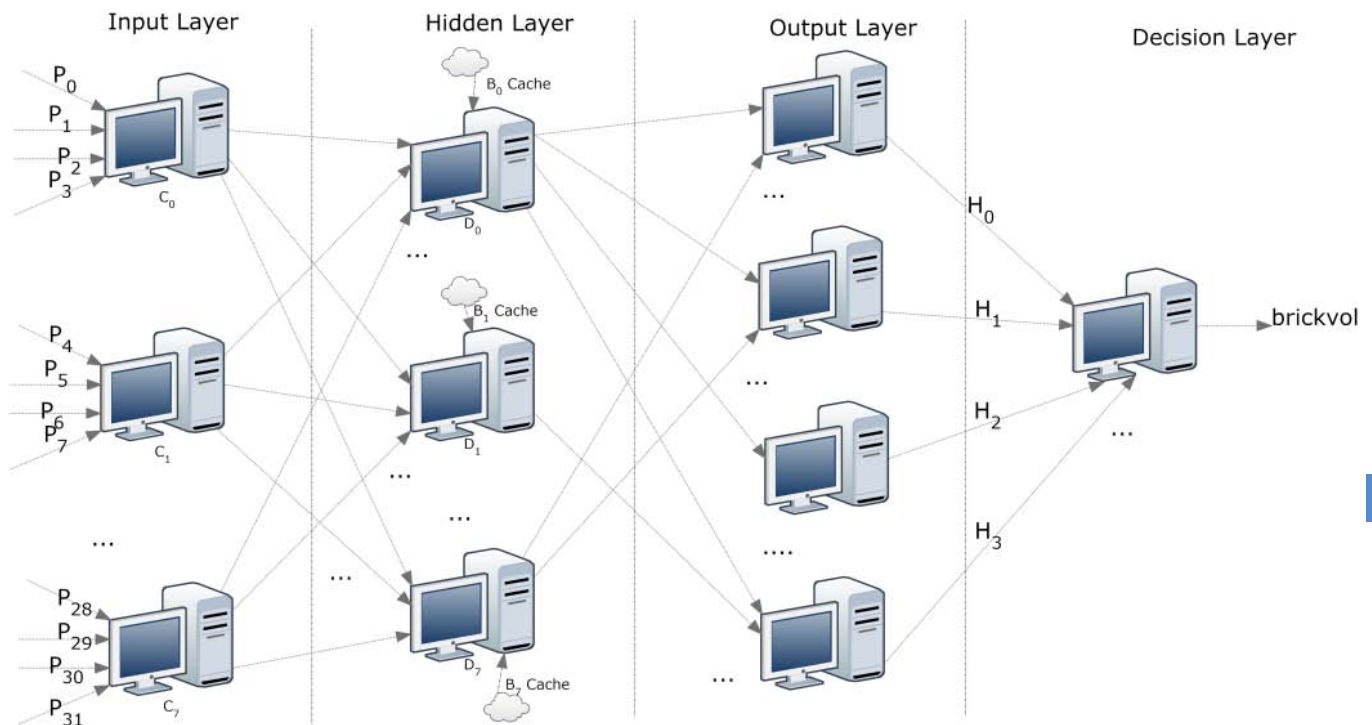
Figure 2 : Probabilistic Neural Network based on proposed NeuralGDFS network

V. GFID is Just a Workaround

A new approach has a fundamental limitation. Let us choose a division of the bricks to store the basic directory structure. It contains directories with allocated GFIDs (GlusterFS ID). This gives "structure" to the network. Files in a given directory is then spread/hashed across many servers. But this is again a direction towards a metadata server.

Solutions like "directory-span" option which limits a given directory's scale-out factor are not effective or ideal because their limits restrict sub-directories' spanning and also impose on the parent directory's spanning.

Rebalance needs to bring the cluster into a balance state by moving data is a time consuming process. While renaming a file, name and cache do not co-reside, causing current design to put the file out of balance, and also is a very state driven operation triggering probable inconsistencies during its execution.

VI. Parzen's Estimate with the Bayesian Decision Criterion

E. Parzen estimated a non-parametric method of KDE (Kernal Density Estimation) for estimation of probability density estimation.

$$\widehat{Brick}_h(x) = \frac{1}{nh} \sum_{i=1}^{n} K\left(\frac{FileID - FileID_i}{h}\right)$$

Where, K is kernel positive function, n integrates to one and has mean zero, h is smoothing parameter called bandwidth.

We used KDE.m[5] on MATLAB this example, the data are a synthetic sample of 70 FileIDs drawn from the standard normal and 70 points from a normal distribution with mean 6 and variance 2.
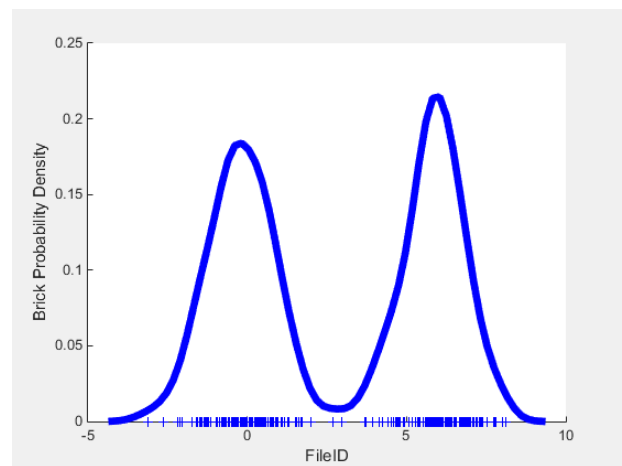

Figure 3 : Kernal density of 70 sample Files

We can use Bayesian decision theory can be used for classification of files over the bricks as probability density function of brick is now found.

$$brickvol = \mathrm{argmax}_k \left\{ \gamma^{(k)} \widehat{Brick}_h(x) \right\}$$

9

VII. NEURALGDFS

In the NeuralGDFS, we keep training probabilistic neural network with random file calls. It is always most probable that a nearby file is called which can be easily computed by probabilistic neural network. MATLAB 2014b was used to simulate the Neuro-DFS environment. No internal tool of MATLAB was used for creation or simulation of neural network.

To increase the efficiency of our neural network, example vector will use cached location of last called file. These are frequently updated as per the misses of neural network. Output layer is not full connected with hidden layer. This is because we wish to have classification of file among the bricks. Hence, node for a given brick is connected only to that brick's output node and not all (See Figure 2).

George and Alan in their paper of Parallel Neural Network Training for Cluster System [4] suggested Network Parallel Training. Similarly, here neurons of our probabilistic neural network are distributed across our NeuralGDFS nodes. The nodes work in parallel to process each pattern of the training set. Communication between nodes is via Gluster peer probing.

Brick node activation can be calculated via corresponding brick cache product with File as input feature vector. Brick output activation can be then calculated as:

$$Brick = \frac{\sum_{i=1}^{N} e^{\frac{(Cache_i.FileID-1)}{\gamma^2}}}{N}$$

Where, N is the total Number of Bricks in cluster space and γ is a smoothing factor. Smoothing factor can be customized while installing NeuralGDFS. If smoothing factor is very large, it will unable to classify a file and if it's too very small, then our Neural Network will not generalize well.

Given with the FileID, the node's brick activations will be calculated and its sum will be forwarded to output layer via classes as bricks. From here, decision layer will take the largest activation will output the brick of FileID.

Almost no training is required hence it is very fast. And as our NeuralGDFS is also based on Network parallel training, rest of the layers also responds very fast. But still as everything depends on Brick's cache, network's consistency problems may arise.

Solution of this is in our architecture of NeuralGDFS. It has tight coupling of whole cluster system with probabilistic neural network. At first when open() is called, we will send our request to DHT module as well as PNN module. If DHT responds first with the corresponding Brick, Cache will updated and then PNN will adjust itself. If there is miss on DHT,

PNN's brick will be contacted for file. If still there is a miss, broadcast request to all bricks will be sent for the search.
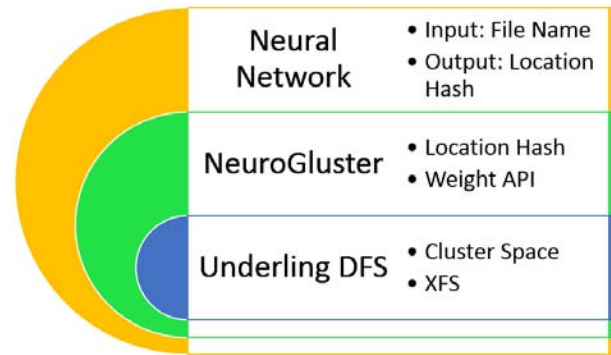

Figure 2 : Tight coupling of Gluster with Nerual Network

This will reduce network calls which were discussed in section III. Separate Cache is incorporated with each brick. It contains FileID's Davis Meyer hash for last called file.

To verify that neural network approximates a function well, we tested MATLAB with own Neural Network. Figure 3 shows number of epochs taken by neural network for learning. Although our PNN will be much faster as it will not be a back propagation neural network. We studied a sample funtion learning on MATLAB.
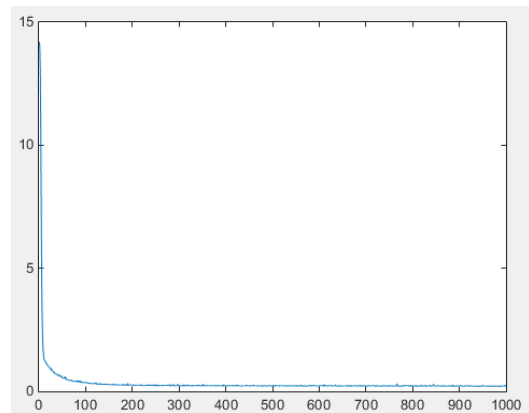

Figure 3 : Epochs taken for stabilization of network

We concluded that even after 200 epochs, approximation curve generated by Neural Network is more than enough for separating conditional class probability densities. Which can be further used for classifying files among bricks over the whole Gluster network.
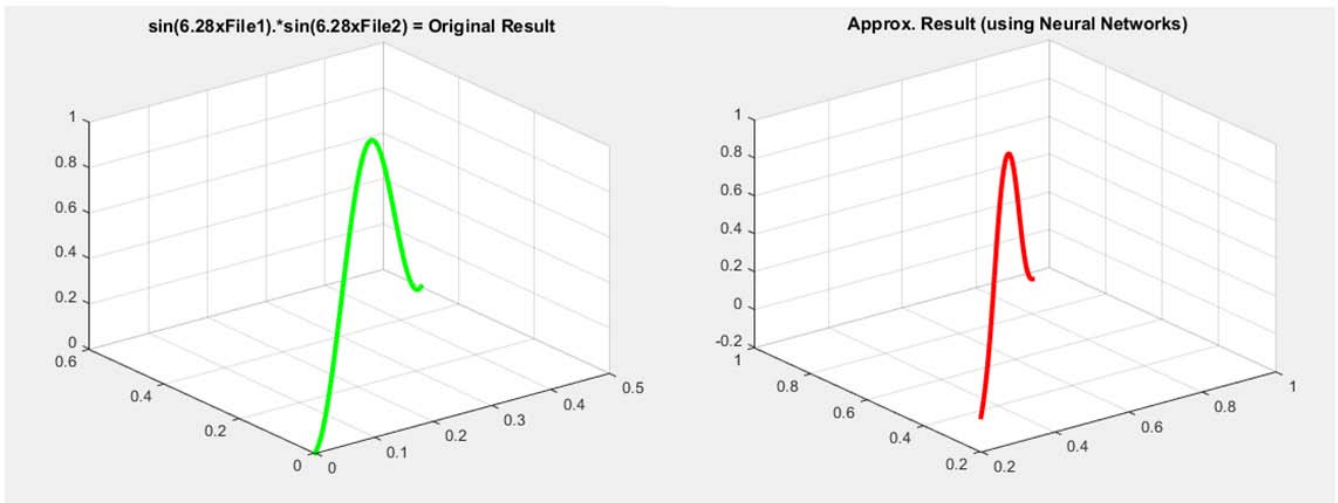
Figure 4 : Simulation of Neural Network on MATLAB

VIII. Benchmarking Performance

In our study for Gluster, we used IOzone tool for benchmarking. We applied variety of file operations on our kernel virtualized Ubuntu machines. We used 64 MB Cache surveillance hard-disks and not SSD as most of the industrial environments do.

The persistent rate was less than the burst rate as it does not get advantages of cache or buffer memory in the harddrive.

Read and Write tests were conducted for different sizes with different number of records with number of methods. By comparing even with the two node we can obverse significant increase in the reading and writing speed with respect to a single virtual machine. It can be observed from figure 5 that for similar size of file with similar number of records, higher speed are illustrated in the case of Gluster.
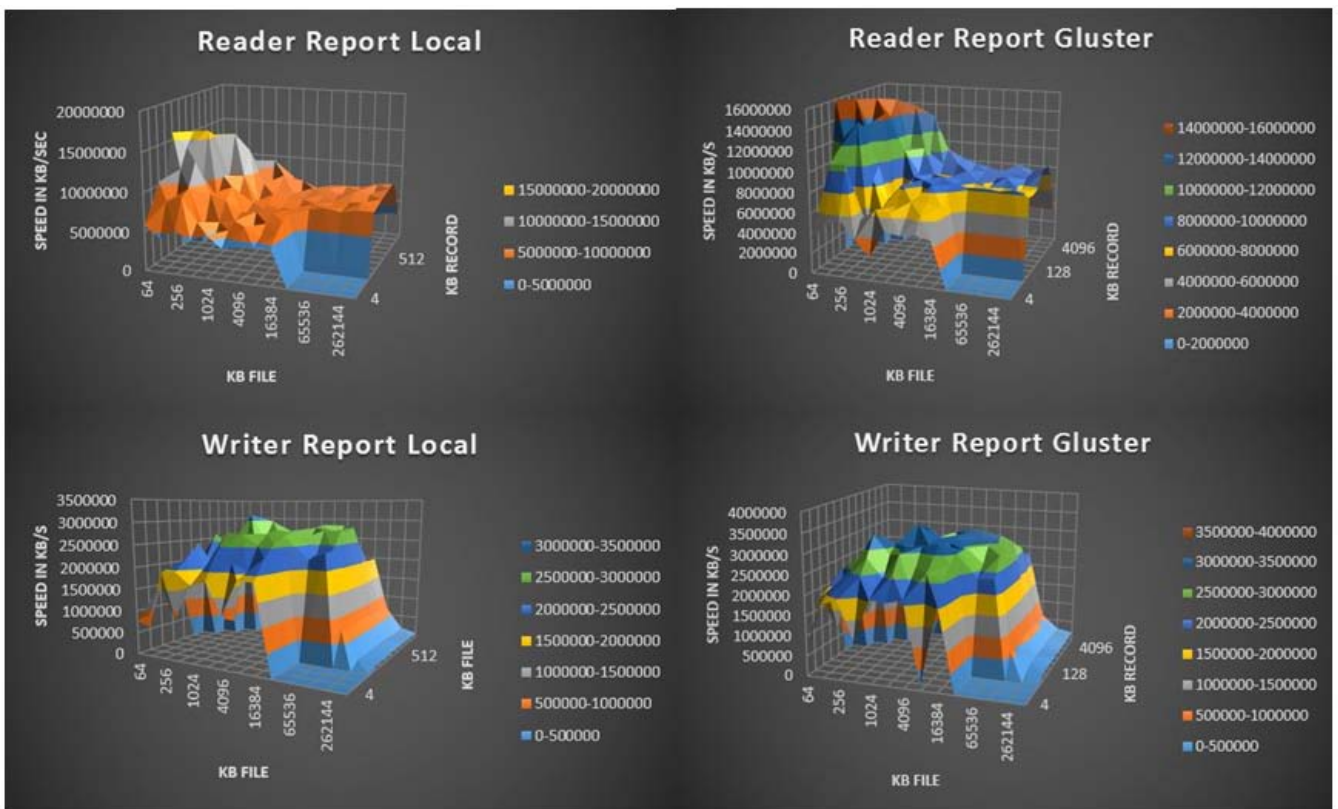

*Figure 5 :*IOzone Gluster Performance Benchmarking

IX. BRICK CLASSIFICATION

In our MATLAB experiment, we have taken FilesID as two element input vector to its associated Brick. Then we converted Brick into its vector form. We then created a new probabilistic neural network. After its testing, its vector output are converted into indices. Then our network classified this new vector with our network. See generated figure 6 which shows how our network classified the FilesID into corresponding brick.
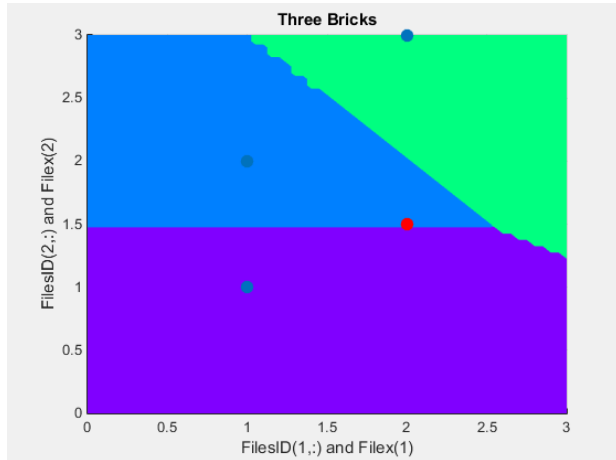

Figure 6: Classification output of PNN

X. CONCLUSION

Gluster filesystem is a self-integrated, multi-procol, highly scalable upto 72 brontobytes of data supporting infiniband. It can be updated to NeuralGDFS which uses neural network for alternate classification of files among bricks. We suggested procedures which can be developed for better handling of misses of files. This in turn, reduces network lookups and jams.

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Leadership of Global Information Technology Projects

By Richard Scroggins

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Introduction- The goal of this literature review is to evaluate the cultural variables critical to successful leadership of a global information technology project. Also to analyze the fundamental challenges to today's IT projects. To properly evaluate variables critical to successful leadership, a thorough investigation must be made of the leader, which in most cases will be the CIO or IT Manager. Technology acceptance is the concept of how end users accept and therefore use technology and is a key cultural variable critical to success. The concept of technology acceptance is very important and applies to a wide scope of users including both personal and business end users, IT employees and managers, and business executives. Jiun-Sheng and Hsing-Chi (2011) write, "Consumers' adoption of new information technology has been a central concern to many researchers and practitioners owing to its importance in technology diffusion." (p. 424).

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Leadership of Global Information Technology Projects

Richard Scroggins

I. Introduction

The goal of this literature review is to evaluate the cultural variables critical to successful leadership of a global information technology project. Also to analyze the fundamental challenges to today's IT projects. To properly evaluate variables critical to successful leadership, a thorough investigation must be made of the leader, which in most cases will be the CIO or IT Manager. Technology acceptance is the concept of how end users accept and therefore use technology and is a key cultural variable critical to success. The concept of technology acceptance is very important and applies to a wide scope of users including both personal and business end users, IT employees and managers, and business executives. Jiun-Sheng and Hsing-Chi (2011) write, "Consumers' adoption of new information technology has been a central concern to many researchers and practitioners owing to its importance in technology diffusion." (p. 424). For the purposes of this research, the focus is on business acceptance, specifically IT managers. When presented with any new technology, many factors influence decisions made regarding the use or acceptance. This is no different than being presented anything new, whether food, tools, or toys. The human brain is very complex and any decision goes through many steps and is greatly influenced by the individual. Many of these individual influences include personal esthetic preference, culture, core values, etc. To account for these individual tastes and feeling, researchers look to behavior on a larger scale and seek to determine how technology is accepted by a larger group or population. This can be thought of as a technology acceptance model. There are many technology acceptance models that vary in how they look at human decision making. In order to select a technology acceptance model that best fits the purpose of this research several models need to be evaluated so that they can be compared and contrasted. The following models influence technology acceptance: the theory of planned behavior; the theory of reasoned action; diffusion of innovations; the technology acceptance model or TAM; the extended technology acceptance model; the unified theory of acceptance and use of technology; the task-technology fit model; the greenfield technology acceptance model; and the perceived characteristics of innovating model.

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II. Role of the cio

Businesses rely on IT and the CIO role far more than they used to, and that is fine as long as proper boundaries are maintained. The IT department and IT resources represent a large part of any modern business and are justified by large savings for the business in money and manpower. A few decades ago the IT department was seen as not needed at all, then as a necessary evil. Today, it is a foregone conclusion for any executive or business student that the IT department will play a large role in any company at least of medium size. So this is progress for sure, that allows the modern IT department and CIO to have a place of honor, purpose, and great responsibility. One role that is important of any CIO or IT Manager is that of leading and inspiring the IT department. Yes, the role of the CIO has expanded over the last few decades to one that provides more for the company overall, but the first duty should always be to the IT department. This may include providing leadership and direction, or maintaining a high level of moral. One way to keep moral high may be by providing newer equipment; most IT employees like to use and play with the latest toys and have good equipment for everyday use. Another way might be in providing occasional team building activities, like a weekly lunch or monthly activities that the department does together. Communications to the group and keeping everyone in the loop to company changes is also important. Treating everyone with respect and letting them know that they are doing a good job and contributing. Also, the CIO has to function as a buffer between upper management and IT department employees for many things, like programming or support issues, or corporate policies that effect the IT department. Basically, the CIO is in a position to look out, so to speak, for the people in their department, and their interests. This also includes managing the expectations of the upper management group.

Another major aspect of the CIO role that has changed over time due to legal and cultural changes is the contribution to IT and corporate policies. These policies can cover a broad range of topics, from the use of thumb drives and burners to the acceptable use of corporate computers. These policies will be different in each company based on their values and circumstances. An acceptable use policy is one that is very common in most companies and may govern

things like the ability to listen to music at work; this is one that might be a coordinating effort between the CIO and the HR Manager. This policy might be affected by the company's internet connection speed, which if slow might restrict the use of online music. Companies also might not want music stored on hard drives or servers for space or legal reasons. All these things and many more are factors that the modern CIO must evaluate when drafting or contributing to policies and this is an issue that can get very deep. Overall, the position of CIO is one that is far more improved and respected than it once was, to spite the complications that come with the job. I also believe that this trend will continue in the same direction in the future as the CIO role will take on more and more strategic importance in the company and corporation of tomorrow. I am currently at the IT Manager level, but once I am finished with my doctoral degree, the position of CIO is a reasonable goal for my future. I am looking forward to the challenges and opportunities that I may face if fate and determination lead me in that direction.

III. Cultural Acceptance Models

The theory of planned behavior is a theory within the field of psychology that attempts to connect a link between beliefs and behaviors, including acceptance. Although this theory helps to explain behaviors such as acceptance, it is not directly focused on technology acceptance. This theory was proposed by Icek Ajzen and based in part on the theory of reasoned action. The theory of planned behavior states that attitude toward behavior, subjective norms, and perceived behavioral control shape behavior (Ajzen, 1991). Pickett, Ginsburg, Mendez, Lim, Blankenship, Foster, and Sheffield (2012) write, "Ajzen's Theory of Planned Behavior (TPB) maintains that an individual's behavior can be predicted based on attitudes, subjective norms, perceived behavioral control, and especially, intentions." (p. 339). Within this theory, social influence is recognized as a major factor in human behavior. In the modern world of social networking and smart phones, there is a tremendous level of social pressure to conform. Therefore despite the original intentions of this theory, it has direct relevance to modern technology acceptance. The heavy use of social media and smart phones has become what Ajzen (1991) referred to as a social norm. Although this theory provides a foundation for other theories and is relevant to some types of technology acceptance, it does not directly address technology acceptance in business. While there is some level of social pressure within IT, this theory is not specific enough to this industry to be the dominating theory of the research.

Another base theory that helps to establish some of the modern technology acceptance models is the theory of reasoned action. The theory of reasoned action is a model that seeks to predict behavior and attitude. The theory of reasoned action is a theory that heavily influenced the development of the theory of planned behavior discussed above. The theory of reasoned action was also created by Icek Ajzen along with Martin Fishbein. The main components of the theory of reasoned action are: behavioral intention, attitude, and subjective norm. Attitudes is described as the sum of beliefs about a particular behavior weighted by evaluations of these beliefs. Subjective norms look at the influence of people in one's social environment on his or her behavioral intentions. Behavioral intention is a function of both attitudes toward a behavior and subjective norms toward that behavior, which has been found to predict actual behavior (Ajzen & Fishbein, 1980). Nguyen (2011) writes, "Human behavior such as cooperation can be explained by the theory of reasoned action." (p. 61). Ajzen and Fishbein make reference to subjective norm, similar to Ajzen's reference to social norm. This concept of norm, or what is normal, is a major contributing factor to the adoption or acceptance in general. This is equally relatable to technology, clothing, or behavior in general. Subjective norms continue to establish peer pressure as a potential causal factor in acceptance. Again, within the context of our modern world that has become both engrossed in and socially dependent on social media and technology, peer pressure is likely a major factor in the use of a particular technology and furthermore in the eventual or immediate acceptance of that or any technology. Like planned behavior, reasoned action helps to establish a basis for understanding behavior and acceptance, but is not focused sufficiently on technology. Therefore it is not relevant enough to the IT industry to use as the basis for technology acceptance research.

Diffusion of innovations is one of the first major technology acceptance theories or models, being first proposed by Rogers (1962). Diffusion of innovations evaluates new technology and how it is spread though a culture. "Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1962, p. 5). These certain channels in the modern world include the various protocols that make use of the internet. The speed of communication in modern social systems like social media extends and magnifies the significance of this theory. This theory relies heavily on human interaction and supposes that a technology must be widely adopted before it reaches a self-sustaining level. The diffusion of innovations theory suggests that four main factors effect acceptance: the innovation or actual technology, available communication channels, time, and the existence of a social system. The diffusion of innovations theory also provides four basic categories of technology adopters: innovators, early adopters, early majority, and late majority. Additionally the diffusion of innovations theory lists five stages of the technology

acceptance process: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 1962). A question remains as to whether or not this social aspect that permeates the acceptance theories explored thus far extends to business environments, specifically in the IT industry. Despite the age of the theory, diffusion of innovation is still relevant theory utilized in our modern society. Kilmon and Fagan (2007) write, "A case study approach was taken using a component of diffusion of innovations theory as a framework for exploring the research questions." (p. 134). This suggests that the diffusion of innovations theory has potential as the technology acceptance model that would serve as a basis for the research framework for an IT industry related study. This theory is very robust in the description of the various elements of technology adoption and stands as a strong candidate for research on the IT industry.

One technology acceptance theory, simply called the technology acceptance model or TAM, models technology use and acceptance. The technology acceptance model identifies factors that influence decisions related to acceptance and use of technology. Two prominent factors noted are perceived usefulness and perceived ease of use (Davis, 1989). Davis (1989) defines perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance." (p. 319). Davis (1989) defines perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort." (p. 319). The technology acceptance model is based on the theory of reasoned action, explored above. The technology acceptance model also identifies constraints, such as the limited freedom to act. Ease of use is an important concept introduced by the technology acceptance model and may be an important part of applying a technology acceptance model to the IT industry. Ease of use is important because many users have difficulty in learning to use new technology even when the features are very similar in use to the old technology that they are more comfortable with. The technology acceptance model is in very wide use and is very adaptable. Pasaoglu (2011) writes, "The technology acceptance model (TAM) is another theoretical model commonly used for predicting and explaining user behavior and IT usage." (p. 157). The technology acceptance model was one of the few early theories that looked at human behavior within the context of the technology explosion of the late 1970's and early 1980's. This is the same technology boom that gave rise to companies like Apple and Microsoft. This is a core technology acceptance model that many newer models are built on or adapted from. The technology acceptance model is still popular for direct adaptation and use in modern technology acceptance research. As such, this theory has high potential for use with research with the IT industry.

The unified theory of acceptance and use of technology is a technology acceptance model that seeks to explain a user's intentions and behavior. This theory was formulated by Venkatesh, Morris, Davis, and Davis (2003). The theory has four key elements: performance expectancy, effort expectancy, social influence, and facilitating conditions. The Unified theory of acceptance and use of technology also lists four variables that Venkatesh, Morris, Davis, and Davis (2003) call "direct determinant of use behavior." (p. 425). These determinants are: gender, age, experience, and voluntariness of use (Venkatesh, Morris, Davis, & Davis, 2003). This is the first theory that mentions age and gender. Variables like age and gender allow for correlation in the research analysis and produce stronger research results. The unified theory of acceptance and use of technology is based on several other theories, including: the theory of reasoned action, the theory of planned behavior, diffusion of innovations theory, and the technology acceptance model. This is a good example of how research extends the stream of knowledge and how each new theory build on those proposed before it. Venkatesh, Morris, Davis, and Davis (2003) write, "Information technology acceptance research has yielded many competing models, each with different sets of acceptance determinants." (p. 425). There are many different theories related to the acceptance of technology, many of which explore the same or similar themes like social pressure and communication. The only drawback to this theory is that while is seeks to unify multiple theories, it relies on over forty variables, which will likely exceed the scope of a research study on the IT industry. The unified theory of acceptance and use of technology model would likely require much more time and detailed data than a simpler model like the diffusion of innovation model.

The extended technology acceptance model is based on the TAM, or technology acceptance model. It is sometimes referred to as TAM2. The extended technology acceptance model was developed by Venkatesh and Davis, who were principle contributors to the unified theory of acceptance and use of technology theory. The extended technology acceptance model is a theoretical extension of the TAM, or technology acceptance model that evaluated usefulness and usage intentions in terms of social influence (Venkatesh & Davis, 2000). On this point, Venkatesh and Davis write:

The extended model was strongly supported for all four organizations at all three points of measurement, accounting for 40%-60% of the variance in usefulness perceptions and 34%-52% of the variance in usage intentions. Both social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use) significantly influenced user acceptance. (Venkatesh & Davis, 2000, p. 186)

The findings within their research suggest that this combination of factors, when combined, greatly expands the understanding of technology adoption behavior (Venkatesh & Davis, 2000). The extended technology acceptance model is a significant improvement over the technology acceptance model, without the complexity of the unified theory of acceptance and use of technology. The extended technology acceptance model has great potential to be used as the primary model for the research on IT project success.

Most of the theories or models discussed to this point have been very general in their target population, specifically normal technology user rather business or IT industry users. The Greenfeld technology acceptance model is specifically designed to evaluate technology acceptance within nonprofit organizations. It is important to evaluate the Greenfeld technology acceptance model for potential research use or adaptation for the general IT industry. This is because it is necessary to understanding the ability to adapt models. Greenfeld and Rohde (2011) write, "During the past decade there has been an increasing interest in research within Not-for-Profit (NFP) organizations. Research has indicated that there are a number of characteristics that make NFPs different from other organizations." (p. 26). The Greenfeld technology acceptance model was developed by Greenfeld and Rohde and based on the technology acceptance model or TAM. The Greenfeld technology acceptance model was developed because there was a concern that the technology acceptance model or TAM was not able to predict across all situations (Greenfeld & Rohde, 2011). This is a concern, as many of the contemporary technology acceptance models are based, at least in part, on the technology acceptance model. The Greenfeld technology acceptance model suggests that career choice is a variable the technology acceptance model does not account for. The career choice of an individual likely reveals something deeper about their psychology and may be a significant factor in their behavior, attitude, perceived usefulness, and perceived ease of use in relation to technology that effect their individual technology acceptance (Greenfeld & Rohde, 2011). This suggests that that this model might be used if the research study on the IT industry were limited to IT departments within the nonprofit sector. This may also suggest that a new and independent model is needed, possibly to be developed as part of this independent IT industry research project.

The task-technology fit model is a very simple model that is specific to the IT industry that does not directly address acceptance, but instead addresses utilization, as well as individual performance. This theory was developed by Goodhue and Thompson in 1995. Goodhue and Thompson identified four total variables: task characteristics, technology characteristics,

performance impacts, and utilization. Additionally the task-technology fit theory proposes that there is a direct relationship between task characteristics and technology characteristics to performance impacts and utilization. Most importantly, the theory makes the argument that information system or technology and the intended technology benefits are achieved when the technology is well suited for the task. This is a simple concept, but likely a significant factor of variable in overall technology acceptance (Goodhue & Thompson, 1995). Goodhue and Thompson (1995) define task-technology fit (TTF) as "the extent to which a technology provides features and supports a fit with the requirements of the task." (p. 213). Describing the application of the task-technology fit theory, Forman (2014) writes, "From an organizational perspective, the more an organization perceives a technological fit, the more likely that technology will be utilized" (p.41). This is shows that the task-technology fit theory, despite being simple in design, exposes the same reliance on social systems and communication for the acceptance of technology that is detailed in many other technology acceptance models. However the task-technology fit theory is more compact in design and potentially more efficient as a model when inserted as part of a complete research strategy. Many research studies that employed the task-technology fit model as a core part of research strategy were discovered during the research. This suggests the theory is well suited to be adapted to many specific technologies within the IT industry. This is likely due to the simplicity and flexibility. However, a model with very few variables may not provide enough of a theoretical construct to meet the needs of research specific to the IT industry.

The perceived characteristics of innovating model, or PCI, developed by Moore and Benbaset in 1991 identifies elements that are fundamental to technology adoption. The perceived characteristics of innovating model identifies four factors that influence the adoption of innovation or technology: image, result demonstrability, visibility, and voluntariness (Moore & Benbasat, 1991). These factors vary from the previous models explored, but they are valid none the less. Image, one of the identified factors, is a used to market technology today and it has a large effect of sales. A simple look at the marketing surrounding the many Apple products on the market make the power of image very evident. This also connects the concept of image to that of the social construct that many other technology acceptance models have focused on. The image that a technology has or presents is largely driven by social factors. Additionally, the perceived characteristics of innovating identifies two additional constructs: relative advantage and compatibility. There are potential problem with the model. The perceived characteristics of innovating model is industry specific as originally envisioned, similar to the Greenfeld technology

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acceptance model. In the case of the perceived characteristics of innovating model, it was developed to evaluate the adoption of innovation within government. Additionally, like the Greenfeld technology acceptance model, the perceived characteristics of innovating model could be used for IT industry research that was limited to a specific job sector. So, one potential option would be to use the model for a research study within government IT departments. However, the model could also be modified or adapted to apply to the whole IT industry or just private sector IT departments.

To this point, the research has encompassed several technology acceptance models or theories. Many have common themes, such as social pressure and communications. Outside of these structured technology acceptance models, one question remains as a gap in this research thus far. That question is, beyond the obvious factors that affect technology acceptance, what underlying or subconscious drivers are responsible. In researching an answer to this question, Maslow's hierarchy of needs was coming up often in the research. Maslow's hierarchy of needs, is a theory by Abraham Maslow introduced in 1943 in a paper called a theory of human motivation. In the theory of human motivation, Maslow (1943), describes his observations of the innate nature of humans. In the theory of human motivation, Maslow (1943), developed a hierarchy of needs that included the following, in order of the most basic to the most evolved: physiological, safety, belongingness or love, esteem, and self-actualization (Maslow, 1943). It is the needs of belongingness and esteem that best relate to the social aspect of technology acceptance. On this relationship, Cao, Jiang, Oh, Li, Liao, & Chen (2013) write, "In level three, we find needs of belonging and love that are also termed social needs, including love, be loved, and a sense of belonging." (p. 170). According to Maslow (1943), humans need a sense of belonging and acceptance as humans, and this comes from our social groups, whether large or small. (Maslow, 1943) This theory seems to be connected to acceptance to a degree that on that strength alone it should have a connection to this research on technology acceptance in the IT industry. Outside of the ability to feel socially connected and accepted by using certain technology, some technological device can also serve as a surrogate for human social networks. An additional aspect of technology acceptance in modern times may be the extent to which a technology serves as a social surrogate. Esteem is also a factor, as much of our modern identity is tied to what technology humans are able to possess. Technology can be a status symbol. Today, people usually carry their smart phone in such a way that the screen size is obvious to any observer, and this is part of that is part of modern identity within the western culture. This is true as well within the IT industry and Business in general. Businesses tend to provide technology as a benefit to certain positions within a company, and that can be a badge of rank. The simple providing of a laptop or cell phone as part of your benefit package within a company can elevate social status within the company.

IV. Conclusion

Several different theories related to the acceptance of technology have been explored. Seminal articles were a core part of this effort. Some of which could be forcibly applied to the specific field or industry of Information Technology. Others, however, where specifically designed and conceived for this application. Some were very specific in scope or industry, and others very vague. One very common theme revealed was the social aspect of technology acceptance and how peer-pressure and social acceptance drive technology acceptance. This research, while focused on business acceptance within the IT industry cannot ignore this strong relationship between technology acceptance and social systems. The diffusion of innovations theory, though not a new model, seems to be very relevant to the overall process of technology acceptance within the context of social media. Lane and Coleman (2012) write: "The advance of the use of social networking systems is rapid and compelling. People are continually connected to each other on their blackberries, i-phones, netbooks and computers. People are texting, talking, e-mailing and in general, communicating through electronic rather than face-to-face methods at an accelerating pace." (Lane & Coleman, 2012, p. 1)

Social media accelerates or magnifies several of the factors identified by the diffusion of innovations model: communication channels, time, and a social system (Rogers, 1962). The model that best suits this research may be a modified diffusion of innovations model that directly accounts for social networking. Social networking is a technology that magnifies the effects of behavioral influences. Because many behavioral influences are present in a real time environment, the social network acts like a catalyst to the behavioral reaction. This is similar to the process of heat catalyzing a chemical reaction. Within the ecosystem of a social network time, communication, and social interaction frequency are increased well beyond what is normal or common. Social networking is relevant to the IT industry as it is to other industries. Many companies now have a social networking presence and monitor the lives and actions of employees. This relationship is relevant to the study of behavior and to the workers within the IT industry. Knowing how social networking affects technology acceptance in the workplace needs to understood as part of any research effort.

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Examining a Norwegian Client's Response over Information Security and Privacy Policy

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Abstract- The core purpose of this article is to investigate how different a Norwegian subscriber's point of view about the terminology of understandability, technicality, importance and awareness of privacy policy. Indeed this research article has its demographic limits and was targeted for Norwegian clients but it may suggest a first step to reshape policy for better realization. The emerging ambiguity in information security has raised much privacy and trust issues that are context dependent. Therefore there are several uncertainties and risks seen today concerning the privacy policy & subscriber trust. It is a responsibility of services providers before amending their policy to notify their subscribers. Since if they do not take this initiative then it creates trust deficit for their subscribers and this affects their business and goodwill.

Keywords: privacy; personal information; service providers; subscriber`s policy; issues; legislation; practices; information security.

GJCST-H Classification: C.2.0

EXAMININGANORWEGIANCLIENTSRESPONSEOVERINFORMATIONSECURITYANDPRIVACYPOLICY

Strictly as per the compliance and regulations of:

Examining a Norwegian Client's Response over Information Security and Privacy Policy

Murtaza Hussain Shaikh

Abstract- The core purpose of this article is to investigate how different a Norwegian subscriber's point of view about the terminology of understandability, technicality, importance and awareness of privacy policy. Indeed this research article has its demographic limits and was targeted for Norwegian clients but it may suggest a first step to reshape policy for better realization. The emerging ambiguity in information security has raised much privacy and trust issues that are context dependent. Therefore there are several uncertainties and risks seen today concerning the privacy policy & subscriber trust. It is a responsibility of services providers before amending their policy to notify their subscribers. Since if they do not take this initiative then it creates trust deficit for their subscribers and this affects their business and goodwill. For this article we have adopted a survey questionnaire methodology based on clients' own perspectives. Generally observed that, before accepting privacy policy, it`s hard to read these policies and understood by common user, and taking this prospect ahead, many policies & regulations have a difficult context to recognize.

Keywords: privacy; personal information; service providers; subscriber`s policy; issues; legislation; practices; information security.

I. Introduction

More than a century ago, Warren & Brandeis have defined privacy as *"the right to let alone"* and their concern about privacy was quite prompted [1]. The emerging ambiguity in information society has raised many privacy and trust issues that are context dependent. These issues will pose many challenges for policy-makers and stakeholders because people's notion of privacy and trust are different and shifting [2]. Policies are considered as a fundamental factor to provide security and privacy in applications such as, file sharing, web browsing, web publishing, networking, and mobile computing. Such applications demand highly accurate policies to ensure that resources remain available to authorized access but not prone to compromise. The policies of the past are not suited to deal with new challenges and we are probably entering into new era that would require developing more effective policies. There are lots of uncertainties & risks today concerning our privacy & trust. It is also seen that people are sometimes compelled in circumstances to surrender their personal data to gain something [2]. Two non-expert groups of policy authors are on the rise. First are the non-technical enterprise policy authors, typically lawyers or business executives, who have the responsibility to write policies governing an enterprise's handling of personal information [3]. Second are end-users, such as that wish to set up their own spam filter, share photographs, videos or important files with friends but wants to protect them from un-authorize access [4]. It is important to continue researching better mechanisms for security & privacy policies authoring and to establishing good guidelines; because to achieve the best security goals it's crucial to obtain high quality to ensure the intended policy. This work shows the current role of privacy policy in policy management, but it is still immature in making security analysis and assessments [5]. Furthermore with this research, the interest to make the organizations flexible with respect to privacy matters, consistent over the design of policy language that could be enforceable.

II. Background Realities and Issues

This section is laid down to get a good basis for specifying the ground of this area and creates a sense about the level of clients` concerns on privacy policy.

a) What are privacy policy and security trust issues?

Privacy policies are meant to protect the privacy of the user: they need to reflect current regulations and possibly promises made to the customers. *"A privacy policy is a legal document that discloses some or all of the ways a party gathers, uses, discloses and manages a customer's data. The exact contents of a privacy policy will depend upon the applicable law and may need to address the requirements of multiple countries or jurisdictions"* [6]. While there is no exact universal guidance or recommendations for the content or text of specific privacy policies, a number of organizations provide example forms, templates or online consultant for this purpose [6]. Privacy policies arise further issues in comparison to access control policies, as they require a more sophisticated treatment of deny rules and conditions on context information; moreover privacy policy languages have to take into account the notion of "purpose", which is essential to privacy legislation [7]. *"A subset of privacy policies are enterprise privacy policies which furthermore have to provide support to more restrictive enterprise-internal practices and may need to handle customer preferences"* [7]. This means that an enterprise level privacy policies plays a vital role to increase the loyalty with the users.

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b) Is a policy context difficult with typical legal jargon?

Many researchers of system security are asking the question; why do few people read the privacy policies [8]. One common fact is simply that policies are often written in a hard and complicated language which a common user or subscriber cannot understand [8], [9]. In privacy notice research conducted by [10] the research is conducted in 2001 and in that research, 29 percent of the respondents expresses their feelings that policy contents are very difficult to read and 45 percent of respondents said that it was difficult to understand them. Another good reason subscribers have given for not understanding the policy is that they contain a lot of legal and lawful jargon [10]. In the survey by Milne [11], about 53 percent of the respondents agreed, or strongly agreed to, that privacy notices often use legal language which is very hard to understand or is confusing for most people. Same as described in [12] those policies use certain statement and distinct vocabularies which made them very hard to understand, even for the experienced reader.

c) What is the standardization of policy context?

Lack of standardization of privacy policy contents is also a problem. Different websites use different ways for structuring the information in their policies. Many service operators claim that their security statement first explains what particular information they are collecting and then how they will use those details [13]. Other service operators tells where on the website they would collect personal information, and then explain what they will do to protect this information [13]. Some service operators post on their website F.A.Q (Frequently Asked Questions) format focusing on answering the most common questions that mostly asked by the users regarding their privacy [13]. There is no particular standardization adopted across the organizations / companies for comparison [12]. The ability to compare policies could be helpful in many situations (e.g. where users have a chance to select a company /organization to fulfil its requirements on privacy and security).

d) What are the main privacy concerns?

The privacy threats of which people are concerned include;

i. Visit to the websites will be tracked secretly without informing the user [16].

ii. E-mail Id`s and other official information will be stored and used for marketing, publicity and other similar purpose without permission of the user [16].

iii. Personal information will be sold to third parties without getting permission from user [16].

The advances of internet & database technologies increase information privacy threats. Data entered into forms or contained in existing databases, can be combined almost effortlessly with banking transaction records, and records of a user's every click of a mouse on internet. Privacy concerns increase further as data mining tools and services become more widely available [17]. There is a potential for fraudulent activities on the internet, as few regulatory standards exist [18]. The security of banking card information for online purchase is also incorporated with the privacy concerns. Amazon.com admitted that hackers undetected over four months have stolen about 98,000 bank card numbers. Hackers from time to time publish a list of stolen card numbers and related information over the internet [18]. The information without permission may lead to a fraud, which has very serious consequences [17]. Although personal information may not be used after collecting them, it must be noticed that keeping information is a liability for a website when it meets some good consumers or some old users that take the safeguard of their privacy seriously. The Internet based businesses should take good care of the privacy concerns because the common consumer does not really care about going through every line of policy context. Surveys show that people are more comfortable if they see privacy statement has been approved by a third party, such as Trust-E [19], [20].

e) How client`s trust on security policies?

Just like other studies have discussed on users` trust on privacy statements, a study conducted by [21] also discovered that respondents were most willing to provide information with a strong privacy statement. Based on the responses for providing personal information, it appeared that many Internet users would be unwilling to provide personal information online, except when offered a strong policy statement. In this context, the importance of the privacy policy becomes apparent. It is the only way a website can communicate privacy issues with the users. The article [21] concludes by showing strong concern for the low percentage of policy readers, given the impact that such statements would purportedly have on consumer trust. It has however been found that consumer trust relies on other aspects than the privacy policy. Studies have found that users tend to not read the whole privacy policy because they gained trust to the company through previous experience [22]. Almost half of the respondents in the study by [11] agreed or strongly agreed; when asked if they did not read the privacy policy because of pervious offline experience with a company and just 25 % disagreed. Similarly in the same study 45% agreed that they do not read the policy contents if it belongs to a well known organization or by a well reputiated service provider. In a 2000 survey, about 66% responded that they got increased confidence in a site if a privacy policy was present [23]. In other words, by just seeing a privacy policy posted some users may believe that the sites they are visiting are safe in terms of privacy. They may also naively believe that *"a security policy exposes a website to*

potential legal action; a website will always adhere to its policy" [23]. These findings can be related to that some users believe policies are all the same, look like and have same context and that just by seeing it posted could make them believe its content is similar to other polices.

III. Primary Privacy Principles

We will see that different approaches to regulate privacy protection has led to a global patchwork of privacy laws, regulations and enforcement mechanisms which vary greatly from state to state, region to region , adding complexity to the privacy landscape. Many of the laws and regulations enforced today do however have something in common which is that they are based on privacy principles and guidelines developed over past 40 years.

a) *Fairness and lawfulness:* This principle implies that personal information should be handled fairly and lawfully. Behind this important principle is a requirement that the data controller should respect and take into consideration the data subject's interests and reasonable expectations. The data subject should not be forced to submit personal information or to accept that this information is used to other specific purposes [24].

b) *Limitations on collection:* The basic purpose of this principle is to limit the amount of data collected to what is necessary to carry out further processing of the data which corresponds with OECD's collection limitation principle. In [24] the authors mention that there is not enough reason that the information is useful, the information must be necessary. The further processing of data should correspond with the purpose of which the data was collected for [24].

c) *Purpose binding:* This principle means that personal information should be handled to a stated, legitimate purpose and should be handled to this purpose only. The purpose should be stated in a reasonable accurate way not later than at the time the information is collected, which complies with the purpose specification principle and the use limitation principle of OECD [24].

d) *Quality of the information:* This principle is concerning the quality of the information. The information should be correct compared to what the information is supposed to represent [24]. The information should also be relevant, adequate and complete based on the purpose of which the information is to be used, and to be up to date, which correspond with the data quality principle of OECD [24].

e) *The co-determination:* This principle implies that the data subject should to a certain degree be able to participate and influence other`s processing of information concerning it [24]. Persons can decide

themselves if personal information about them is to be collected by others and for what purpose, unless the collection is done by the legal authority. This implies that persons can oppose to some types of processing of personal data, such as personal marketing etc [24].

f) *Security safeguards:* The confidentiality and integrity of personal data should be protected by reasonable security safeguards. Confidentiality here means protection of personal data from unauthorized access or disclosure, and protection of integrity means protection against unauthorized destruction, use and modification of personal data [24].

g) *Data sensitivity:* Certain types of personal information are more sensitive for the data subject than other personal information. This is mostly information concerning the data subject's health, sexuality, race or ethnical background, political, religious or philosophical opinions, or memberships in certain type of organizations *(e.g. Trade agreements, unions, joint business strategies etc).*

IV. Methodology and Evaluating Results

We circulated a questionnaire to the peoples that are working & living in Norway. This response was collected by sending 4 times reminder on different working days via email and messages to fill out the survey. Approximately, 81 percent incorporate their opinions about the privacy and security issues that have risen in this research. About 19 percent rejected or did not try to record their response.
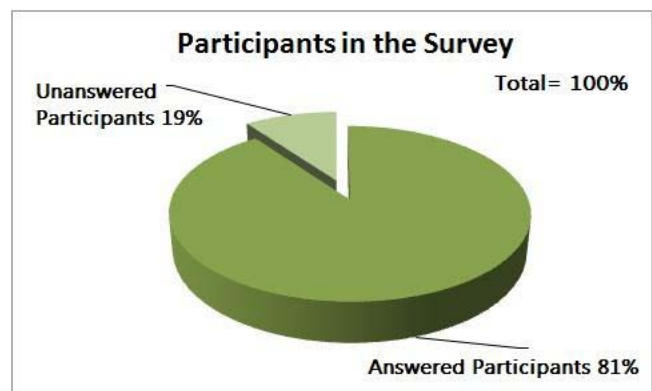

Figure 1 : Number of user participants in the survey

We have sent the questionnaire to our Norwegian friends and fellows. The user surveys were based on high probability samples and thus statistically valid. It was indeed a good initiative to collect the above mentioned number of respondents to calculate the ideas and understanding about the issue.
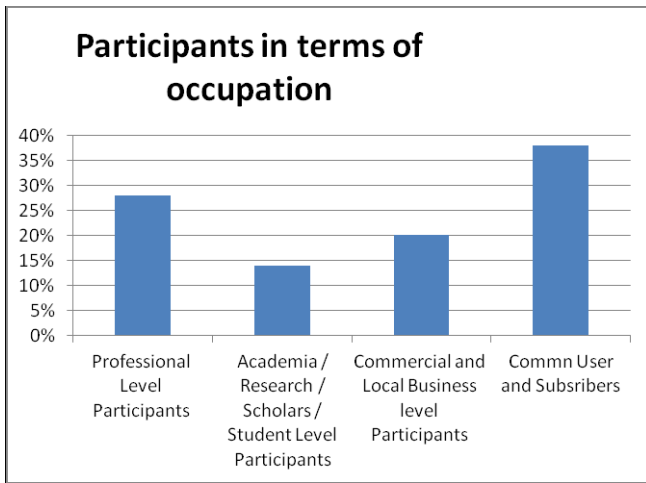
Figure 2 : Response level of participants on occupation

In fig 2 we show the occupation types of participants. On top we have found about 38% of the participants were common user & subscribers. It was our motive by this survey to target primarily the common user and subscriber. The next higher categories of participants were from professional level containing 28% and 14% of the participants were belongs to academia and research. Just 20% of the participants were commercial and local business community. We have asked a question of familiarity with privacy policy from our participants and we have got some confusing answers as shown in fig 3.
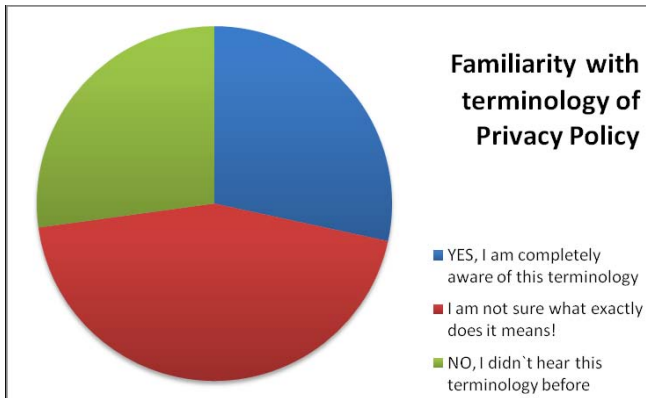

Figure 3 : Response of participants over privacy policy

The majority of the respondents, which is 36%, are not familiar or not sure what this terminology actually means what concept is behind in privacy policy. 23% of the respondents know exactly what it is and how it works whenever they subscribe themselves to a service provider. Lastly, 22% of the respondents have never heard this term before and may be they have no idea about the terminology of privacy policy. The result in fig 4 shows out almost 50% of the common users has no interest to read the privacy policy whenever they became a new subscriber of a service provider.

Figure 4 : Response of reading the policy content

Around 30% of the respondents don`t read the context because they don`t understand them or has no time to read the policy before getting registered. Only 20% of the respondents have voted that they read the contents of the privacy policy when they are registered as a new subscriber.

Figure 5 : Level of difficulty in policy contents

The basic purpose of this question was to analyze how important a privacy policy for a subscriber, whenever they register and give their personal information to the service provider. In this question we have asked from our survey participants how difficult they feel when they read the policy content. By looking at fig 5, shockingly majority (46%) of the total respondents are feeling problem in understanding the content of the privacy policy. 19% of the respondents have informed us that they have not ever read & understand the privacy context before using the services. Lastly, just 35% of the respondents do not feel any difficulty in understanding the context of the privacy policy.

Figure 6 : Relevance of privacy contents as a subscriber

In fig 6 about how relevant are the privacy policy contents from a common user point of view, almost 42% of the respondents agreed that they are not at all relevant from them. Around 30% of the respondents says that policy contents are useful whenever they registered and relevant for them. Finally we can see that round about 28% of the survey respondents has no any idea about the relevancy of these privacy policies from the subscriber point of view.

Figure 7: Level of confidentiality of personal information

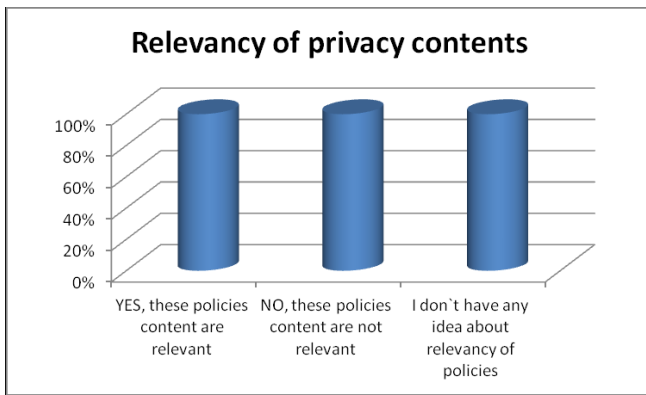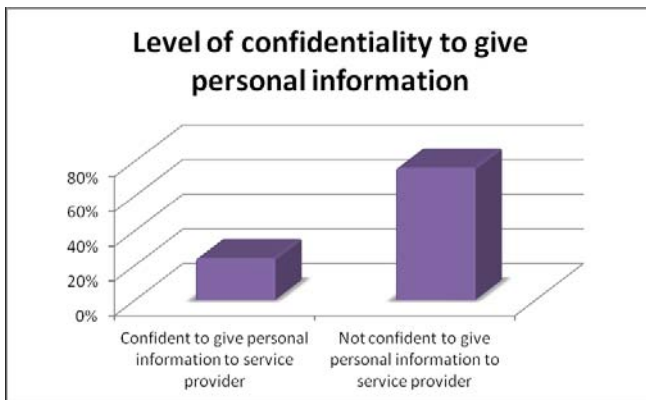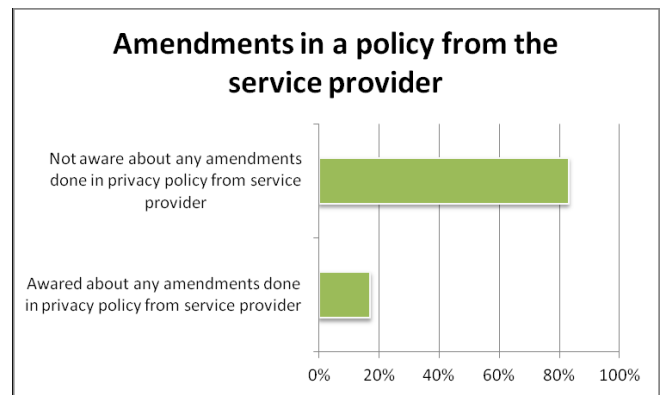We have asked from our participants to what extent they are confident enough to give their personal information to a service provider. We analyzed the results as shown in fig 7 that 81 percent of the respondents are not confident to give their personal information to the service provider and just 19% of the respondents are confident to give their personal information to the service provider. Finally, we have asked from our participants that whether they are aware whenever their service operator amends the privacy policy on website or on any other platform of communication.

Figur 8 : Response of amendment of policy contents

The results are given in fig 8. It was shocking that majority of the respondents (81%) are not aware when there is any amendments performed by their service provider. According to our research survey just 19% of the respondents are aware when there are any amendments from the service provider.

V. LIMITATIONS & TRENDS

As seen from our evaluations, future approaches to alternative ways of presenting privacy policy are quite limited. While the idea of a unified policy and regulation on the topic of privacy and is unlikely to ever happen. The development of data protection laws throughout the globe is promising, and could create a better foundation of taking the user into confidence, and creating innovative ways of presenting privacy policies in the future. There have, however, emerged several interesting topics regarding privacy policies through this online web survey, and especially the different aspects that defines user confidence in sharing online information seems fruitful to base future research on. Further analysis in modifying the version of privacy seals could also be interesting to investigate further. Being a self-regulatory approach, the idea of how this approach could effectively work in the context of defined legislation can be a positive aspect for further study.

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Strategic Management Theories

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Introduction- The goal of this literature review is to compare and contrast contemporary strategic management theories. Additionally, the secondary goal is to evaluate the implications for strategic information technology management. Management of people is the direct control of human motivation and behavior. Human motivation, like behavior is complex, and a science unto itself. Human motivation theory seeks to understand human motivations, and therefore understand human behavior to a level such that predictions can be made. The study of human motivation has a background or base in physiological, behavioral, cognitive, and social sciences. However, those existing disciplines are not sufficient alone or combine to study this complex topic. The behaviors linked to human motivation are linked to very evolutionarily basic aspects of our biology, despite the advanced cognitive abilities of man. The ability to predict human motivation and behavior is very important to companies and organizations as they are always seeking new strategies to motivate and respond to the needs of their employees.

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Strategic Management Theories

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I. Introduction

The goal of this literature review is to compare and contrast contemporary strategic management theories. Additionally, the secondary goal is to evaluate the implications for strategic information technology management. Management of people is the direct control of human motivation and behavior. Human motivation, like behavior is complex, and a science unto itself. Human motivation theory seeks to understand human motivations, and therefore understand human behavior to a level such that predictions can be made. The study of human motivation has a background or base in physiological, behavioral, cognitive, and social sciences. However, those existing disciplines are not sufficient alone or combine to study this complex topic. The behaviors linked to human motivation are linked to very evolutionarily basic aspects of our biology, despite the advanced cognitive abilities of man. The ability to predict human motivation and behavior is very important to companies and organizations as they are always seeking new strategies to motivate and respond to the needs of their employees. This in turn makes the organization more efficient and can increase profits or success. Human motivation theories or strategies can be classified in one of several types: humanistic motivation, arousal motivation, instinct motivation, incentive motivation, or drive motivation. Each category of motivation theory or strategy presents value as well as challenges. In the overall process of increasing job satisfaction and commitment within the IT department, human motivation is necessary, but choosing the most appropriate strategy is difficult. Therefore, each human motivation theory or strategy must be researched and examined in detail to understand the value and individual challenges presented. Only then, can the best fit be made and an appropriate human motivation strategy be chosen and applied to the IT department. Additionally any independent challenges that are motivation theory agnostic must also be evaluated and presented as part of the research. This will allow for the creation of a complete human motivation implementation strategy that extends beyond the basics of theory.

II. Theories of Motivation

Humanistic theories of motivation propose that human motivation and behavior are based on cognitive function. The principal theory in this category is Maslow's hierarchy of needs, which was discussed briefly in the previous section. Maslow's theory outlines five basic needs: physiological, safety, belongingness or love, esteem, and self-actualization. These needs are presented as hierarchical, meaning that higher needs will not manifest until lower need are met. Physiological needs are the most basic, and include the need for such things are air, water, or food. Security needs include safety and security. Job safety and security are important needs to employees and should be considered when evaluating basic human motivation in the effort to form a motivation strategy within business. Social needs include love and affection, but also belonging. The sense of belonging, or inclusion in groups or projects could be an important factor in job satisfaction and commitment in IT departments. Esteem needs include self-esteem, personal worth, social recognition, and accomplishment. These needs definitely translate to business in terms of salary, promotion, and recognition. Finally, self-actualizing needs are the highest level of needs and are more self-focused, including things like lifetime achievement or just fully realizing ones potential (Maslow, 1943). Can this theory actually be directly applied to business or the IT department? To this point, Cao, Jiang, Oh, Li, Liao, and Chen (2013) write, "With respect to Maslow's hierarchy of needs theory, we found that social needs and self-actualization needs are particularly relevant in capturing the motivations of SNSs." (p. 170). This is core to this research, that a theory developed to study human motivations can be used and expanded to fit a particular subset of humans, that being those within a business or IT department. More than simply adapting the theory or model, but using it to create a human motivation strategy that can be used not only to predict, but also respond to factors like job satisfaction, success, and commitment.

Arousal theories of motivation propose that a person's behavior is linked to a need or desire to increase or decrease their level of arousal. By participating in tasks that are either exciting or relaxing a person is able to regulate their level of arousal. This class of theories would not seem, on the surface, to apply directly to the business or IT environments, but the Yerkes-Dodson law suggests a direct relationship between arousal level and performance. According to the theory, increased arousal, to a point of diminishing return, can improve performance. Also, it suggests that there is an optimal level of arousal or stress that varies

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from person to person or from task to task. The theory suggests that this is partially due to stress providing focus (Yerkes & Dodson, 1908). Using this concept to increase job satisfaction and commitment, however, is a different matter. Increasing performance or focus through the application or reduction of stress by a manager may very well lead to increased performance, but a stressful environment is unlikely to increase job satisfaction or commitment. This is far more likely to lead to an increase in burn out and turn over. This theory is widely used. Palethorpe and Wilson (2011) write, "The Yerkes-Dodson law has been widely adopted in numerous forms." (p. 420). While the concept of arousal may be linked to business and performance, it does not appear to be useful as part of any strategy that would increase job satisfaction and commitment in IT departments unless it is approached from the stress reduction perspective or maintaining an environment where the stress is below the optimal line describes by the Yerkes-Dodson law.

Instinct theories propose that human behavior is based on evolutionary programming, genetics, and heredity. Just like birds migrate based on instinct, humans likewise behave based on instinct according to this idea. According to this theory, all life forms are born with innate, biology based tendencies that favor survival. Instincts in this case are behavior patterns that are not based on learning or experience (Melucci, 2010). "Instinct theory proposes that organisms engage in certain behaviors because they lead to success in terms of natural selection. Instinct theory casts motivation as essentially intrinsic and biologically based. Migration and mating are examples of instinctually motivated behavior in animal." (Melucci, 2010, p. 232) While it can be clearly shown that lower animals engage in instinctive patterns of behavior, this is difficult to show in humans, due to the difficulty in separating these supposed instincts from learned behavior or actions based on life experience. Humans do have observable instincts, such as the suckling instinct, or the instinct to hold your breath under water. The challenge for this research is how this theory can be used to analyze job satisfaction and commitment in IT departments. Complex behaviors like the tendency to stay with a company or leave may be difficult to tie directly to instinct. To be classified as an instinct, a behavior must be shown to exist as a pattern within an entire species, however most psychologist view human behaviors as being rooted in both physiological and psychological factors (Myers, 2011). So while instinct may exists in humans and have some control over behavior, is not significant enough. Neither has it been sufficiently shown to be the driving force such that a human motivation strategies could be built based on instinct for business purposes. While such factors as safety and security might have a biological origin and have a role in job satisfaction and commitment in IT departments, the Instinct theory of

motivation is simply not a logical tool for this type of research.

Incentive theories of motivation suggest that human motivation is connected to rewards. One example of a reward that is directly linked to business is the motivation to work in exchange for the reward of a paycheck. Additionally, the theory is expanded to take reinforcement into account, in other words after the cycle of work and pay is repeated a number of times the motivation will be stronger. To apply this in principle, a reward would be given after a desired action occurred assuming that because of this the behavior would be repeated. This would associate positive meaning to the behavior. Repetition of this action and reward cycle would, according to the theory result in the concept of reinforcement and form a habit. Incentive theory can be further divided into two sub categories: intrinsic incentive motivation theory and extrinsic incentive motivation theory motivation. In intrinsic incentive motivation theory, motivation is theorized to come from one's own self. In extrinsic incentive motivation theory, motivation is theorized to come from an external source or person. The incentive theory of motivation is supported directly by the work of B.F. Skinner, where he stresses the importance of external influence. Skinner suggests that if a person's actions are received positively by others, that those actions are likely to be repeated. The opposite is also proposed that negative reception will likely lead to that behavior not occurring again (Skinner, 1978). The link between motivation and pay is also very strong. Kunz and Quitman (2011) write, "The relationship between extrinsic incentives and intrinsic motivation has attracted much debate over the last decades. Most of the extant literature focuses on the effect of different types of incentives, particularly the role of monetary rewards for intrinsic motivation." (p. 55). The overall concept of the incentive theory of motivation appears to provide a good theoretical framework with which to create a concise human motivation strategy for business and the IT department to analyze and increase job satisfaction and commitment in IT departments.

The drive theory of human motivation suggests that behavior is linked to internal desires to reduce tension related to biological needs. This would include eating to reduce the internal stress cause by hunger. This theory is strongest when attempting to account for base biological needs like hunger or thirst, but does not account for such behaviors completely, as it does not explain overeating, which is not directly related to hunger. The drive theory was principally introduced by Clark Hull, and has been further developed over time. As with other theories, the concept of reinforcement, caused by the reduction of stress or drive, is central. Reinforcement increases the likelihood that the same behaviors will continue to manifest (Hull, 1935). "In order to survive in its environment, an organism must behave in ways that meet these survival needs. When survival is

in jeopardy, the organism is in a state of need (when the biological requirements for survival are not being met) so the organism behaves in a fashion to reduce that need." (Hull, 1935, p. 491) This theory has been criticized for not identifying or accounting for secondary contributors or reinforcers of behavior. Also, many people participate willingly in activities that increase stress, such as dangerous activities like fighting or racing. This theory's lack to completely explain behavior makes it an unlikely candidate for use in this motivation research. There is very little or nothing at all from this theory that can be used to build a complete human motivation strategy to analyze or to increase job satisfaction and commitment in IT departments. The only obvious value to this theory is the place in history as a theory that was used to develop other theories, such as Maslow's hierarchy of needs, the principle humanistic theory of human motivation, which emerged as an alternative to Hull's theory.

III. Success Factors of Motivation Strategies

Motivation can be defined as an innate or internal condition that encourages or causes a person to act. This action is called behavior, and this behavior is often repeated in patterns called habits. The study of human motivation seeks to define and uncover this, while human motivation strategies are defined to control it. There are many factors and challenges in creating a successful human motivation strategy. Something that qualifies as both is making sure that any particular human motivation strategy is based on a solidly supported theory of human motivation. In the case of this research, the incentive theory of human motivation is well supported and exemplifies the theoretical basic of a complete human motivation strategy and overall research strategy. In the case of using the incentive theory, the strategy employed must address incentive. One major incentive related to job satisfaction and commitment in IT departments is pay or compensation. The core motivation theory will help to identify why this factor is important. In other words, does having financial security satisfy base or biological needs and create an employee that is stress free and can commit to the organization? Another factor in developing a complete human motivation strategy is accounting for all of the factors that affect motivation, beyond those identified by the core theory of human motivation used. Achievement is an important factor to consider and measure. Other factors include appreciation, freedom, management style or pressure, environment, social interaction, flexibility, access to technology, growth opportunity, and clear goals among many others. Any complete human motivation strategy must address all of these factors that affect the interaction between the business and the

employee, but especially those that directly affect job satisfaction and commitment.

Job satisfaction is a very complex concept that represents a level of satisfaction with one's job or employment. Satisfaction is based on a multiple factors that will vary on a person by person basis. This is a very qualitative concept and relies on personal feelings and opinion to represent or collect data on. This may vary significantly between person of different age, gender, profession, geographic location, etc. Although job satisfaction is a multifaceted concept, the aspects of job satisfaction can still be linked to basic human motivations. Researchers divide job satisfaction measurements into two categories: affective job satisfaction, or cognitive job satisfaction. Feelings about the job describe affective job satisfaction, while thoughts about the job describe cognitive job satisfaction. It is also to differentiate between job satisfaction and job performance or job commitment. Studies indicate that there is no direct relationship between these concepts. A person may be motivated to perform a task by any number of factors and still not be satisfied with needing to do it. Likewise, a person may be very satisfied with their job and not perform to the level expected by management. Furthermore neither of these, job satisfaction or performance, directly relate to commitment. Therefore it is a very complex relationship between the factors of job satisfaction and the motivations that influence job performance and commitment that provide the complete picture. Ram (2013) writes, "In this age of specialization, motivating a worker and providing him with the much needed job satisfaction is extremely important to enable him to realize his true potential and worth to the organization. It is therefore important to explain the relationship between job satisfaction and job performance." (p. 16). The research suggests that there are four main influences that combine to contribute to satisfaction, performance, and commitment: environment, communication, employee recognition, and aspects of the individual. The aspects of the individual can be further broken down into the following: emotion, genetics, personality, and psychology. The complex challenge that organizations face in trying to increase job satisfaction and commitment in IT departments is to develop a strategy that addresses all of the influences. Fortunately these challenges can be mitigated with the use of one of several established job satisfaction and commitment models.

IV. Job Satisfaction Models

One very prominent job satisfaction model is the range of affect theory. This model looks at the difference between what a person wants and what they have. Satisfaction is determined by evaluating this discrepancy. Job satisfaction is broken down into job

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facets. Changes to any facet of satisfaction can improve or reduce job satisfaction. The model also suggests that a person will most likely value one facet of their job more than the others. For any detailed and accurate analysis of job satisfaction, you must identify what job factor is important (Locke, 1976). This could be done through a survey question. Carmeli, Elizur, and Yaniv (2007) write, "Facet analysis provides an important tool for researchers to understand the structure of work commitment. The multifaceted approach employed in this study enabled the designing and empirical testing of a structural definitional framework of work commitment." (p. 638). Identifying and responding to the individual facets of job satisfaction is important and is a challenge in trying to increase job satisfaction and commitment in IT departments. Therefore it must be incorporated into the organizational strategy.

The dispositional approach is another job satisfaction model. Like the affect theory, the dispositional approach suggests that job satisfaction is based largely on the individual. The theory also suggests that job satisfaction tends to be stable in an individual over their entire career. This, per the theory, suggests that people have an innate disposition and a tendency to maintain a particular level of job satisfaction. The dispositional approach suggests that there are four self-evaluations that determine job satisfaction: self-esteem, self-efficacy, locus of control, and neuroticism (Staw, Bell, & Clausen, 1986). Zhai, Lindorff, and Cooper (2013) write, "Examining the mechanisms underlying dispositions and job satisfaction are important, as they attempt to explain how and why dispositions affect job satisfaction and to what extent theories such as the dispositional model of job satisfaction are supported empirically." (p. 543). While the dispositional approach has support and merit, the focus may be too limited to individuals, however, a model focused on the individual alone might be well suited for a research study using a survey instrument. This model may serve as a model to analyze job satisfaction and commitment in IT departments.

Equity theory is based on the idea that a person balances input and output and seeks an equitable relationship, to which job satisfaction is based. According to the theory, a person will balance the things gained with the things given and make up a ratio. They will then compare their ratio to what they perceive someone else's is to decide if they think that they are being treated equitably. This equity is subject to change as well, if the parameters change. In other words if the person being compared against gets a raise, there will be an imbalance. The theory identifies three types of people: benevolent, equity sensitive, and entitled. The benevolent person is satisfied even when under rewarded. The equity sensitive person believes that everyone should be rewarded equally. Finally, the entitled person believes that they are due anything that

they receive and more (Adams, 1965). This shows a potential connection between the perception of inequity and effort or commitment. Khalifa (2011) writes, "Research has been consistently showing a positive relationship between perception of equity and job satisfaction." (p. 130). This path of study or research has potential for uncovering factors that affect job satisfaction and commitment in IT departments. In terms of using a survey instrument, this model would suffice, provided the participants can be grouped according to their equity sensitivity level.

Discrepancy theory relates job satisfaction to anxiety. When performance and achievement are not met, anxiety builds up. Over time, an individual will learn the aspects of their job. When they fail to perform an aspect correctly, punishment is often the result. This understanding of punishment for failure results in agitation when obligations and responsibilities are not met. Also, if the obligations and responsibilities are met, then rewards like praise or approval are expected. Where the employer has real impact on job satisfaction, according to this is when the opposite employer reaction is present. In other words, if the obligations and responsibilities are met by the individual and punishment is given, job satisfaction will be negatively impacted (Higgins, 1987). Explaining the theory, Siddiqui and Saba (2013) write, "It means that if the actual outcomes of the employees are matched with the expected outcomes then their satisfaction level would be high but if the actual outcomes are lower than the expected one then the satisfaction level will be low." (p. 42). This concept may be difficult to factor into this research on job satisfaction and commitment in IT departments within the parameters of a survey instrument.

The two-factor theory, also called the motivator-hygiene theory, is a job satisfaction model created by Frederick Herzberg. According to the theory, job satisfaction and dissatisfaction are driven by different factors: motivation and hygiene. Motivations, in this case are things like recognition, promotion, raises, challenging work, etc. Hygiene, in this case means working conditions, company policies, supervisory action, job security, fringe benefits, etc. This theory suggests that to improve perceptions of job satisfaction, employers must focus on both aspects of motivation and hygiene. This means understanding which category a job factor exists in, whether it leads to satisfaction or dissatisfaction, and responding accordingly. This could be thought of as ensuring that an employee is satisfied, while at the same time, ensuring that they are not dissatisfied (Herzberg, 1964). In explaining the theory in detail, Tillman, Smith, and Tillman write:

The theory posits that hygiene factors must be present in the job before motivators are used to stimulate the individual. Thus, motivators are unavailable for use until the hygiene factors are in place. Herzberg' s

needs are specifically job related and reflect some of the distinct features that people want from their work. (Tillman, Smith, & Tillman, 2010, p. 107)

While this theory has complexity, it also has a solid foundation to support research on job satisfaction and commitment in IT departments and serve as a model with which to build a strategy upon.

Finally, the job characteristics model is a widely used framework for studying job satisfaction. The job characteristics model, proposed by Hackman and Oldham, provides five core job characteristics: skill variety, task identity, task significance, autonomy, and feedback. These characteristics in turn impact three critical psychological states: experienced meaningfulness, experienced responsibility for outcomes, and knowledge of the actual results. These psychological states further influence four outcomes: job satisfaction, absenteeism, work motivation, and performance. The model provides a method for combining these elements to calculate a motivating potential score, or MPS, for any job. This score then predicts how likely a jobs is to impact an individual's satisfaction and performance based on attitude (Hackman & Oldham, 1976). Michailidis and Dracou (2011) expand on the theory, "The Job Characteristics Model suggests that high internal motivation can be promoted by designing jobs that include the five core job characteristics - Skill Variety, Task Identity, Task Significance, Autonomy and Feedback." (p. 228). Real potential exists with using the job characteristics model, not only in researching job satisfaction and commitment in IT departments, but also in producing results that can properly align jobs to maximize satisfaction and commitment.

V. CONCLUSION

In conclusion, after researching many human motivation strategies and job satisfaction models, many options are available for any potential research into how they link directly to management. While much of the research sources are older, this is because these sources are seminal, and core to the research. However, beyond simply facilitating easy research, the true desire is to produce research results that have an impact on IT departments. To do this requires the correct components as the basic for the overall research strategy. The best theories to do this based on the research are the job characteristics model combined with the incentive theory of motivation. These two theories are complementary and should correspond together well as part of the overall research plan and strategy. After analyzing the research, a gap emerges. Unlike other fields of study, no unified theory of job satisfaction was discovered. This unified theory of job satisfaction would be an important development in understanding job satisfaction and how to use that to develop a proper management strategy.

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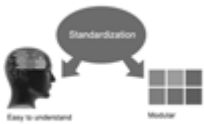
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"
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4. Manuscript's Category,

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14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including <u>definite statistics</u> - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.

- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

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- Do not give permission to anyone else to "PROOFREAD" your manuscript.

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- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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