Introduction
Gender inequity manifests itself in various geographies from developed nations to third-world countries, in various scenarios from female infanticide to harassment to glass ceiling. Out of those issues, this paper has a very narrow but in-depth focus of analyzing possible causes for gender inequity even in the IT industry which despite boasting well educated, broadly exposed and affluent members, do not have proportional women populace.

For our paper we are keeping the focus on software engineering and our data is mostly based on studies and surveys we have done among Indian engineers working in the booming IT industry.

Various studies put the percentage of women in the multi billion dollar IT Industry in India between 25—35% at the end of year 2007. Details are a bit sketchy on what is considered to be IT industry—some of these studies might be including BPO or call center jobs as well. If for example one were to consider core software development alone as an engineering job, the percentage of women is much less. Keeping that aside, even if we were to take the numbers optimistically as is, there is still a lot of room for improvement. We also have to realize the higher end number of 35% projection is after a whole lot of conscientious as well as economically shrewd initiatives by many companies to make the work-force more inclusive.

Causes
In the first few pages of this paper, we will deal with the causes for the inequity.

In our informal chats with many men and women about reasons for such disparity there were a lot of intuitive and related reasons that emerged. We could almost see a pattern of response. However, without having a good handle on the causes, the initiatives taken to improve the presence of women might become useless at best and counter productive at worst. So we have tried to approach it by statistically collecting data from various sources and trying to extrapolate if the intuitive and conventional wisdom holds good. In the Software industry in India data pertaining to the workforce is hard to come by. It is a higher than average attrition environment and any data that talks about the work culture, employee satisfaction, demographics etc., could be easily exploited by competition. Adding to that is the caution in projecting the best to be able to attract newer employees. So, wherever applicable we have supplemented the data by our own surveys as well as reinterpreting some hidden information from the already done surveys.
Let’s try and analyse the different factors that may be directly or indirectly contributing to this inequity.  

**Educational Background:**

As the first point let us see where the first problem lies. Is the disparity in the work force simply because there aren’t sufficient women engineering or management graduates? Are there simply not enough women going through school, undergraduate, graduate level education?

For starters, “Girls top SSLC exams yet again”, “Girls repeat the winning feat yet again in the Pre-University exams this year too” are very common headlines in leading newspapers in India during high-school results announcements. Take for example the data from Mumbai school district - Let us consider the percentage of girls who have passed the exams to boys. The recent secondary school education results of a state shows a very interesting trend. The number of girls registered in even remote districts were on par with the number of boys registered for school, they fared better than the boys and the repeaters data always had the number of girls lesser than the number of boys. The focus here is not only on the number of girls registered but on the fact that the girls always fared on par or better than the boys. It also goes to prove that at the secondary school level, there aren’t too many life changing events before school exams or that most families even in remote areas realize the importance of school education. The data clearly shows, the discipline and individual attention of teachers, assure parents that their girl child is in safe hands and hence basic schooling is not denied to most girls, be it small towns or cities. However, in some towns and small cities, only basic education is provided to a girl child and a qualification or higher education is only a luxury for most of the girls in such towns and small cities School education is to a certain extent a small, safe and close-knit environment for girls according to parents.

If we were to look at engineering degrees next we see that the number of women graduates drops down to 25% average. When it comes to universities/colleges, there is concern about the safety of the girls. For one, parents may have insecurities about the fact that the number of people the girl would have interaction with would be more. It is a bigger world for the girl. The competitive environment may be another concern for parents or for the girls themselves. Many girls who do not have support of the family and who are not confident of themselves, are made to believe that college/qualification is not their cup of tea. Thus many a brilliant girl student never makes it to college/universities.

Things get even more intriguing if we were to look at the data from the IITs. This is the crème de la crème of Indian engineering education. While there are about 25% girls in non IIT education the IITs have an abysmal single digit percentage when it comes to girls. In the IITs itself, there are 25% women on non B.Tech programs whereas B.Tech programs have a 7% girls—this hasn’t changed considerably during the last two decades. We believe there is a message here. The number of girls who sit for the JEE itself is low. So it is not that the girls are somehow genetically predisposed to failing admission into IIT. IIT preparation is considered to be more rigorous than most engineering exams. It often requires parents shelling out money for extra tuitions for preparation. It also requires a lot of time from the student. In big cities too, a

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1 We are awaiting permissions for quotes and for reproduction of external survey results.
technical qualification may not be available for a girl due to financial problems in family or lack of support from family. Families are affected by societal norms and are often led to believe that a woman needs to learn more about cooking and other household chores to help her take care of her family after marriage. The stress is more on household management than business management or engineering. So family support and encouragement is one of the most important factors in the education of women. Very few women are able to stand against family and fight for their right to education.

So while the society in general has progressed enough to realize girls need basic education, it has not progressed enough to realize girls need equal opportunity and support to pursue their fullest potential.

With that cause squared away, let us see what happens further to the 25% women passing out with engineering degrees. We will as a leap of faith assume most of these qualified women do join a company to work. Our research with alumni associations show that most engineering graduates do go to work. Our survey conducted among women of varying age groups showed that 57% of them were married and 93% of the married engineers were still employed.

Marriage Factor
In the S/W industry, we do not see many women leaving just because of getting married. However a crucial side-effect of the marriage factor is the relocation factor which we will discuss subsequently. When surveyed an overwhelming 83.33% of the men were un-hesitant in saying that they will not ‘ask’ their wives to quit upon marriage. This is an upward trend compared to many young men a few decades ago who were vehemently opposed to the working wife.

However, we analyzed data from a few popular matrimony websites. These websites in India are growing in popularity and results in terms of the marriages ‘arranged’ through the website and are thus a very valid source of information. We find that in a couple of the websites there is not a check-box for preference for a working wife or not. While superficially this seems like a good thing, further analysis shows that in the ‘comment’ section or in the education background section, 90% of the men [or their family as the case maybe] show remarkable apathy towards their future wife’s credentials. They also ‘demand’ that the bride quit her job and relocate. As a flip-side 70% of the bride listings we analyzed showed a remarkable subservience and no demand on the location preference or any other career related preferences. Contrastingly, even the most educated women were willing to relocate to the location where the groom-to-be resided. While Marriage as is may not be a major factor in women dropping out of their career race, we do see the relocation factor and the psychological factor that we will expound on closely connected to the marriage factor.

Relocation Factor
As explained earlier, immediately after the marriage [since a lot of marriages are arranged and thus the chances of the husband in the same location is considerably lesser than otherwise], or subsequently women often follow their husbands to a new location.

While Marriage in itself may not be a crucial reason for women to stop working, often marriage puts the burden of relocation on women.
Attrition rates quote relocation as one of the top 5 reasons for employee parting ways. Unfortunately this does not split the data into women and men. Attrition related information is often best kept secrets. In our research, early data shows the top reasons to change based on the gender. Similarly we expect the duration of employment in case of women to be more than that of men.

Some of the women who have changed location claim that they are confident they will get a new job in the new location. However, due to the change happening most likely earlier in their career [Most women get married within 4-6 years of work experience] they do not see the fruit for the time they have put in, in building their careers in one location. They often start afresh in a new company and that too after a major event like marriage.

**Child factor**
Right from childhood, girls are shown that their interests should be more towards the house and caring for family. The toys given to a girl child are usually dolls, the “kitchen stuff” while the boys are given toy guns, cars etc. The school textbooks have lessons that have the father being the breadwinner and the mother the homemaker. Example is the central government book for Class III. Mother takes care of the child. Period.

While marriage in itself doesn’t cause women to quit, children definitely seem to have an impact. And most women expect to have children. Preferring marriage but not preferring to have kids is almost unheard of in India. Most of the IT companies give a maternity leave period of 3 months. However due to lack of good day care centers A short search on the web for comparable availability of day care centers in a cosmopolitan town like Bangalore is woefully poor. The deterioration of the ‘joint’ family system where typically the mother-in-law took care of the child have caused more women to quit. A quick survey amongst both men and women of marriageable age revealed that the kid factor would cause them to quit their job.

Interestingly in our survey, when we did open interviews a few, only a few, nevertheless a few men did say that they might become stay at home dads and take care of the child while their wives went for work. Despite, the miniscule population saying this, it is nevertheless a big deal in a society as conservative as ours. Some men [50%] said that they will leave the decision up to the wife though we suspect this may be because of the burden of political correctness and/or their strength of belief their wives are happy in the role of the stay at home moms despite being engineering graduates. Interestingly though the women themselves preferred to take a break from work to care for the child and a majority women disagreed to the idea of letting the spouse stay home to take care of the child.

In India more than 90% of the time, education is paid for by parents. So even in case of girls, an engineering degree is something they acquire before having mature, thought through, concrete opinions on career, motherhood etc. When surveyed 93% of the college girls said that getting a great job was their highest priority. However, more often matrimony and motherhood follow suit within 6-8 years of graduation. Due to various conditioning most women measure their success based on how good a mother they are. When at a point where men their age are working hard and climbing the corporate ladder, women take a break, sometimes permanently.
**Affluence Factor**
Most men these days recognize the need for an earning wife to be able to maintain and enjoy benefits money can buy. One of the young men, just 26 years old, we surveyed says he has planned to have his wife’s salary go for the home mortgage and he expects to finish off the mortgage within the next 10 years. However, there is also a counter-intuitive effect. Due to the affluence of a s/w professional, if the husband is in the s/w industry, he is most likely to be content with a home maker since he earns enough to keep the family in reasonable comfort. Thus after a decade of marriage, after the initial loans are paid off, once the children come, there is not a lot of monetary motivation for the women to continue working.

**Psychological Factor**
The underlying thread of continuity in all of the above mentioned factor is the psychological factor. Out of the engineering students, only 23% felt they were confident to take up a complex problem in their first job.

Our data shows that there is a skew in testing jobs versus development jobs. There is a lack of confidence despite potential and ability to take up more challenging roles. This continues through out.

Most of the time women are willing to sacrifice their careers for the sake of their husband’s. More women measured their success in life only based on their home life.

This paper does not go into the rightness or wrongness of these factors. But would like to highlight that due to the unique combination of parents paying for education 90% of the time and the almost immediate follow up of matrimony and childhood, the psychological factor is most crucial. It is more often than not, not a well thought out planned career.

Most of the software companies are beginning to notice the benefits of a more inclusive work force. The software they build is often for a more diverse customers and women’s inputs become crucial. Women are also relatively more hard-working due to the burden of proof. In our surveys 83.33% of men said that they will hire women as opposed to men when everything else is equal. Women are also a more stable work-force. Thus it makes more economic sense as well to attract more women employees.

**Initiatives**
The survey from NASSCOM puts the projected women employees at a heartening 45% by 2010. Clearly S/W companies can’t achieve these impressive numbers by just continuing their existing practices. The improvement in the 2007 year-end numbers themselves indicate that these are results of a focused set of initiatives.

The bigger problem of attrition that is plaguing the s/w industry in India is causing a favourable side effect for women. Employers are more sensitive to the needs of the workforce.

**Peripheral Benefits**
While most of these peripheral benefits listed below are appealing and are used to the maximum by men as well, these are particularly attractive to the women employees.

Flexible work hours & Working from home option: At IBM the mobility team takes care of setting up and helping employees work from home. RS, who has a 2 year old child, works from
home. If this option had not been there for her, she would have chosen to quit. She has a full-
time maid, a relatively inexpensive luxury to have in India, who plays with her son and takes
care of most of the household work, while she works. RS is relaxed because of her confidence in
the safety of her child and she is also feeling like a super-mom and has more reasons to actually
continue to work.

Certain companies again like IBM, allow their work-force to go to an office, a satellite
location, few days of the work to avoid the commute.

However, this is not so conducive for very junior level s/w engineers or for those women in
s/w management path.

Distributed development is the norm for most companies inn Bangalore. If they had been
required to stay in the office for taking late night calls, the authors of this paper would not have
been gainfully employed with a multi-national company. The infrastructure is today present in
India wherein you can connect from home, take calls from home and can virtually define your
own work hours.

Le concierge services is something most companies these days provide. If you have to book
tickets or pay your bills, you could simply use their services for a very nominal fee. If only they
could start doing kids projects as well.

Many multi-nationals have also woken up to the fact that lack of a good day care is a major
inhibitor for women to come back to work. Day care centers co sponsored by the companies is
another latest trend.

While they wouldn’t prefer to be fully stay at home, men don’t have any inhibition in
working from home. So quite often we do find some men working from home on those days
when their wife has important meetings or deliverables. The burden of the household due to the
peripheral benefits are shared willingly by most men.

**HR Initiatives**

Of late, due to increased awareness of the benefit of a more diverse work-force, there are quite a
few initiatives started by companies. IBM is most likely the most leading company in terms of
their focused attention on diversity.

**Referral**

IBM started a program where an employee referral where the monetary reward for a referral of a
women employee is about a 100$ more than a male employee. The referrals increased
considerably after this program. This is a picture of one of the acquisitions done by IBM.
Company X had 0% women in senior management in India. Now in the same position they have
40% women, after acquisition.

In our survey 83.33% said they felt women were better employees.

IBM also has a gender sensitivity training for new managers. Questions typically asked in
these trainings reflect a lot of inhibitions and conditioning around women employees.
Interestingly the success of the other women managers puts a positive spin on it.
Bring Back Women
This HR initiative is the most interesting of all. The drive is expressly focused on those women who had taken a break after child-birth and want to come back to work. This segment of women population is well qualified and are likely to be more mature and stable.

One of the top execs from T**** has this to say—it is not enough to just have HR programs to attract this segment but there needs to be training as well. She also asserts the right opportunity in terms of what they can handle and will boost their confidence have to be identified.

One thing that stood out in the survey was that the women did not face gender bias at the workplace. They all firmly believed that the famous quote “The test for whether or not you hold a job should not be the arrangement of ‘Y’our chromosomes” was adhered to.

Conclusion
Despite all of this it is the authors opinion, the core development/R&D type roles still could do more in terms of improvement. And in the series of interviews we had with men and women, one strand seem to consistently emerge. And it is that of the individual responsibility.

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