1. User experience analysis

I got my Capstone project assignment from General Electric. I was challenged to analyse the impact of the Skype for Business introduction into the company. My main goal was to develop some data driven dashboard what can be used during Business reviews with various level of attendees. The main problem was at that time, there was limited/no visibility why user adaptation of this technology received such a negative feedback from end user community.

1.1. Project scope

- GE rolled out MS Skype for Business in Q42017 as a one-shot approach to 420k+ end users globally
- As an outcome of this approach
 - NPS of the service is down to -45
 - Daily escalations to Corporate CIO & CEO level due to quality issues
- NO data to figure out how much of the noise is coming due to the resistance against the change, how much is about user knowledge about how to use product, how much is related to product issues and how much is related to underlying infrastructure problem(s)

1.2. Requested outcome

- Create a data driven dashboard & identify issues vs noise
 - \circ This should be available 24 x 7 with real time data
 - This should be able to filter by Business Units, by pole, by country
- Present it in Tableau
- Develop strategy to introduce Skype dial tone timing & recommended personas

2. Solution summary

In my project, I tried to look multiple angle and find some correlation between what voice of the customer survey shows vs. what can be found as supporting data. In a multinational company is never easy. It is not easy because there is a need to access some data, sometime there is no data available at all, people used to use assumptions versus relying on datasets. Sometime data shows different outcome what individuals believed and obviously this is causing internal conflicts.

At the beginning I tried to look some data, there was no other data captured than generic Net Promoter Score survey results. I didn't like this dataset as this was part of an overall IT tool survey, in which SfB was one of the questions and the response rate didn't convince me that the sample represent the entire user population. Why didn't I like the NPS?

If we look at this without any further knowledge about what this supposed to measure, we can say that statistical validity of the survey seems to be valid as we have constant data flow week by week, response rate seems to be similarly "high". Adding one more data point would further enhance the validity of this. (This sample had been collected from 576 sites across the globe ~on average 43% response rate) If we add some further data point we might say the statistical validity of the survey can't be proved. GE has ~2500 locations across the globe, the response rate drops down to ~10%. Adding the number of users into the equation NPS reliability is getting even less convincing (on average ~300 response per week out of the 422k users, 0,07%)

I tried to dig into this in details. I figured out there was no reliable data to back up the NPS rating. I reached out to Microsoft to better understand their reporting capabilities regarding user

experience. I was told this kind of negative NPS scores are caused by voice quality issues. MS provide Call Quality Details information out of the box, I was happy that I found the source of true. Browsed to the relevant MS reporting portal and I got plenty of data, unfortunately quite often there is a but ... Yes, there was one at this case too.

Data was showing on individual level, each and every call related data and there was no information available about the user behaviour and user access, it was quite hard to aggregate data and draw meaningful conclusion out of it.

As a next step I had to collect multiple information, IP subnet information, user device database, etc. It shouldn't be a difficult task in general, at the same time if we are considering the complexity of the company, it took a while to compile a reliable IP Subnet database. (Class "A" contains 16777216 IP addresses what can be split into multiple subnets ...)

I started to flow all kind of data (Microsoft CQD data, IP Subnet information, network type, business feedback, ServiceDesk data regarding Skype incidents, etc.) into SQL databases and started to run various analysis based on this to see if I can find some data driven reason why Skype user experience isn't at the acceptable level.

Once I was able to match all these data with some keys, I was able to start displaying all these by leveraging Tableau. I found this method a very powerful way to show data driven behaviours and influence other leaders to start some remediation work to enhance user experience.

The first dashboard what I delivered was a global map where Microsoft CQD data was displayed and multiple filter enables anybody to dig as deep as (s)he wants (from global view down to individual site level). This dashboard didn't show any surprise to those who were aware of company's network design and the way Microsoft Skype for Business had been implemented. At the same time data proved that there are significant differences in different geographical regions. Why was it important? It was showing that decisions made at another level in the organization or at another technical silo have a huge influence on application level user experience. If backbone, network related development are limited in ASPAC as an example, do not expect great user experience.

As a next dashboard, I developed a story about each and every site where I was able to show various important factor what is impacting how user feel about SfB. This visibility helped me to convince leadership to initiate the following programs

- WAN upgrades called BOT program, moving towards SD-WAN solution and let Internet related traffic reach the closest internet exit vs bring all this traffic up to regional network hubs
- LAN & WIFI network optimisation for real time traffic called Pegasus program. This program is replacing legacy 2,4 GHz wireless networks with 5 GHz ones. This had a site impact too, I advised each site IT leader to recommend to end user to use wired connections vs wireless until Wifi refresh completed.
- Skype approved headset & education It was a shocking experience to see that users in open office environment tried to use skype without a headset, obviously this had/have major impact on user experience
- Site visits one of the very interested outcomes of the data driven approach was that users kept raising concerns via NPS even if their site data was not showing technical challenges. We started to visit some of the key sites and met individuals and realized that most of them are giving negative feedback because of change fatigue. Company went through too many changes and some of the users couldn't accommodate all these and used NPS to share their disappointment with all these changes and they confirmed it was not necessarily related to Skype.

I did develop another dashboard for Level2 operation to show daily Skype incidents and aggregate all these by month. I asked Level2 Team to classify each Skype incident into various categories. It was interesting to see that their classification related to poor voice quality is following the same trend as MS CQD data (\sim 3,5 – 4,2% on average)

My last challenge was to develop a migration strategy to enhance Skype application and add dial tone service. As I felt more and more comfortable and appreciated the power of data visualisation powered by Tableau, I decided that I'm going to build a cockpit rather than create a simple project plan.

I started to load data back to the SQL server to see what outcome could be driven by data. I tried to understand what are those input variables what influences the readiness of a site or an individual readiness/eligibility to migrate to full Skype experience. I took a dataset of 53921 lines and started to apply filters, based on multiple interviews. As an outcome, based on the current eligibility filters, there are 21433 users who are ready for migration and 24371what requires further remediation. (Don't be confused that these 2 categories doesn't add up the number of lines, there are legitim reasons behind it, explaining it would be out of the scope of this summary)

As a last deliverable I worked on recommended bundles. It was a very interesting part of the project as I had to find reliable data source to define personas and had to make sure this is something what the broader audience is willing to accept and adopt. I based on this segmentation on PC asset database as SfB with dial tone enabled would require a PC to run the application and not a physical legacy phone, this was a mindset shift what everybody had to digest and accept.

As I was preparing for all these, collected and analysed data I ran into a challenge, what was the billing compliance of some of the services. At that time there was no easy, simple way to cross check what had been charged to the company and what are the services consumed. I was asked by my internal assignment leader to see if I can help here and add it to my Capstone as an extra effort.

I turned back to SQL and uploaded all available information into various databases and created a process for Level 2 Teams to be able to run this monthly.

3. Key takeaways

- 1. Data driven approach always pay out. By analysing data you can always make more precise decision versus leveraging only on emotions
- 2. Make sure you understand not just your data but the environment to be able to translate all these into meaningful outcomes
- 3. Don't be afraid to challenge some data
- 4. Build your story on facts and you can influence leadership to support your initiatives
- 5. Sometime challenges are not necessarily technical ones, you may have to be a good listener or psychologist and run interviews at various level inside the organisation
- 6. Never underestimate the power of data visualisation. I "won" many discussions by showing data
- 7. Technical skills are important to analyse data but sometime it is more important to tailormade and explain your story at various level inside the organization
- 8. User experience depends on technology but education, information sharing is equally important