**SAP business transformation at Caterpillar**

Caterpillar wanted to replace the disparate ERP systems of different departments, with SAP across the organization. The motive was to standardize.

As a pilot CTCC was the first one that was chosen. They worked on this transformation exercise for more than a year, but later on was abandoned because it was demanding more local resources than was expected. Also, after some analysis it was revealed that CTCC had some unique requirements – the business of TBM was different - because of which it was required that a separate SAP template was required to be designed from scratch. And finally it was decided that CTCC would continue using its old ERP system and there won’t be any further investment done in this.

**CTCC – business overview:**

* Founded in 1972
* Originally Lovat Inc
* 330 people
* Was in the business of tunnel boring machines manufacturing and also services of TBMs
* It has several high profile projects in different geographies
* Acquired in 2008 by Caterpillar, because Caterpillar wanted to enter the field of TBMS; renamed it CTCC which would be under the umbrella of Caterpillar Diversified Products Division
* LOvat was basically a family business and project management processes were not in place. They worked in reactive manner; many decision makings were done with tribal knowledge which were undocuennted. On the other hand Caterpillar’s processe wree highky methodical. As such there was need to streamline the processes. But, since the business of CTCC was more project based, whwreas the one of Caterpillar was repetitive manufacturing, hence the established processes of Catrepillar couldn’t be directly applied to CTCC
* Before the acquisition, the project mgmt. processes were quite lax and lacked consistency and ststus reporting in timely fashion – It would be after months that the PM team realized that the project was over-budget.
* To overcome the above issues, and external consultant was hired to asses and redesign, and train the people. A web-based portal was also put into place for fast and reliable status reporting.

**Business systems landscape:**

Before the current ERP system was brought in there were other predecessors too – first access DB that was used for keeping account of basic things. Thereafter a customized system was developed. And all the historical data was not integrated into current ERP and hence much of the data was accessible only to selected users.

Apart from the ERP system, there was a QA system too, but with very basic functionalities and it didn’t provide reporting facilities. The data captured by QA system was untapped in spotting trends.Dir

The latest ERP system consisted of all the necessary modules for all the departments. This implementation was completed in consultation with the subject matter experts at the company. To be noted that the ERP packages were selected in the wrong way:

* By executive members of the company
* Because of attractive offers from the software company
* The original design was meant for European market, and the software company wanted to do a pilot in North America, they wanted to partner with an American company, so as to customize and test or “experiment”. Because of this the implementation ended up being faulty with unpredictable behavior resulting in complaints and dissatisfaction among the users. ERP became a touchy subject. The cancellation of SAP implementation further aggravated this.

There were other silo applications too that were developed by different departments for their own usage and ERP system was not good enough to support those. But, some of them utilized data feeds from ERP systems.

**IT deptt:**

IT deptt was a support function earlier but was later integrated with the GIS of the parent organization which gave a wider exposure. The IT deptt also came behind the firewall of the parent organization and hence data was more secure.

But no formall assessment about the overall information needs of the CTCC and hence the rest of CTCC didn’t know how to leverage the IT resurces available at the disposal of CTCC Also it was challenging for them because they didn’t know whom to approach for specific matters. Also GIS was a shared service, and hence their response was not prompt.

**ERP depatt:**

Earlier under IT, but now was separated and put under McEwan. Lang was the key person who was responsible for providing soulution to all the ddifferent depatt that needed ERP enablement. She helped the different deptt get rid of many BI and reporting issues and streamlined a lot of things. **But, still the adotption of technology was still sparse. Lang was competent and she was becoming indispensable and she knew it. 1. Company needs to create a backup for her. 2. ERP deptt and esp. Lang was competent and could move the things. Better processes were required.**

**Organizational Business Needs at CTCC:**

**Spare parts sales and field services**

* There was no way - other than doing manually and hence too time consuming - that sales deptt data could be made available to analyze. Since there was no availability of data, no analysis could be done. The ERP system didn’t provided a tool for such an analysis. Neves, the marketing director, got in touch with ERP deptt, and was helped by Lang to develop systems that let him overcome the problems described. This was a fruitful exercise and Lang again proved he r mettle.

**Project Management Office:**

PMO too suffered because of a lack of capable BI/ERP functionality because of his there was often a delay in project management. There was no way to see and analyze the big picture about the project status and this used to badly affect the project status.

* Lang was proactive and she herself contacted the PMO head and developed for him a very effective BI system with a fine granularity.
* In a way all the BI software system was excellent and very effective, but still lacked a few important features because the PMO members never used the platform and hence didn’t ask for the same.
* However, the all the PMO team members were not eager to learn and use BI platform because of reasons such as lack of time, or resistance to learn. But, the ERP team needed insights and feedbacks so that the BI platform could be contioulsly improved.
* **Finance deptt had a separate financial system and were not integrated with the ERP system, and hence finance deptt used to provide these reports only when asked for.**
* **Lang proved her mettle once again**
* **Finance depatt system could be integrated with the CTCC ERP system. Langg could help there as well.**

**Engineering:**

* The reporting of engineering deptt(primarily the work hours of engineers) too was not insightful – there were very limited features. However, BI platform helped the deptt overcome the shortcomings and granular reporting and insights had now become possible.
* But, the user adoption was still missing or slow because BI ssyetsm was not mandated by management, and rather was a push from the ERP deptt.
* As such there was no proactivity from engg deptt here too and hence not all features.

**QA:**

* The QA deptt had very competent and dedicated staff,
* QA had its own system, and existed long before the latest ERP system came into picture. But, it was a silo system and had serious flaws. There was no automated notification system for driving the workflow. As a result, it was completely dependent on the due diligence of the QA staff and take corrective action as and when required.
* The QA system didn’t even have reporting facilities and hence it was difficult to monitor the overall ststus of NCR.
* QA deptt manager – Malcolm stanly – had to provide QA reports, but there was no way to easily and efficiently do this. Malcom’s supervisor directed him to ERP deptt.
* The ERP deptt helped the QA deptt in integrating the QA system with ERP system and solve all the problems.
* **ERP deptt, esp Lang again proves herself**

**Opertaions Management and Production:**

* Roy Young is the manager.
* The duty encompassed the management of prod facilities, mgmt. staff, equipment maintenance and health and safety issues and expenditures.
* There was no easy way to load balance the resource utilization and hence many times much resources used to be overloaded or idle.
* ERP deptt again comes to rescue and helps a system that facilitates the analsus and presenation on dashboard and because of the insights gained through dashboard idling of resoures were minimized. Also cross training program was also organized for better utilization of human rssources.

**Finance**

* Constant information sharing b/w finance depatt and other deptt were critical.
* But, there were different ways each depatt used to maintain their reports and analyze it i.e. different structures of data. Each one had their own version of reports
* There was no one source of truth and there it was a headache to analyze the similar kind of reports in different ways by finance deptt.
* Each deptt could also manipulate/misrepresent its data as per their own likings and to show themselves in good light.
* All the different departments that may be using a report based on a data that belongs/pertains to different departments should sit together and analyze what and come to a common conclusion about the dashboard/reports that need to created and the way it has to interpreted.
* **There should be one single source of truth and cosnsitent way to report and analyze things.**
* **ERP deptt could come to rescue again**

**BI platform development at CTCC**

* BI platform development was not implemented as a company wide system.
* It was an initiative by Lang that aimed to overcome the reporting shortcomings of ERP.
* It was earlier thought to be a stop-gap arrangement before the parent company SAP (that had anakytics capabilities ) took over.
* But, once the SAP integration was cancelled indefinitely, the BI system became a critical piece of software.
* The daily ops of deptt like spare parts tools, PMO, QA had become dependent on BI platform now.
* Intialliy ERP team would recommend reporting solutions to the diff deppt based on requirements of users. But, slowly user adoption grew from 5 to 50
* Tech expertise in DB and a**nalytics was scarce at CTCC – there were only 2 employees. There was need for more.**

**Interfaces:**

2 inteefaces to the BI platform:

* Web-based – rights based reports viewing
* Client tool – allowed the users to customize or build interactive reports with the available datasets.

**Data Security:**

* Data storage and availability was always an issue
* People used to store and distribute data in different formats – excel, word, access. Data and reports were lying at multiple locations and hence inconsistency was inevitable.
* BI platform resolved these issues by providing a single platform
* There was also restricted access (dependent on needs and in consultaion with deptt managers)

**Training and social media:**

* Since user adotion was growing, there was more demand for training. But it was impossible for just 2 employees to do the development tasks as well as training. To overcome this a closed group wss created on corporate social media and all users of BI were added so that they be communicated about the updates, tutorials.
* But participation was poor – there were different user preferences; some felt distarted, some felt comfortable in receiving updates from social media.
* **Users have to go through training of the BI platform every year and get themselves certified; if they don’t, it has to be escalated to the supervisor. If the user is certified he/she can be sent email updates/newsfeed on social media too about new feature additions. If a new tool has been launched that is relevant for the user, certification must be mandated**

**Problem with SILO reporting:**

* Since reports on BI was developed on the basis of requests, each report had very specific purpose and at times only the requestor and designer used to comprehend the report.
* Overtime, large no. of such reports were developed and diff departments showed overlapping features.
* Since there wss no direction from single authority about the overall development of entreprise reporting, development continued to diverge to meet each requestor’s demands.
* No one had taken the steps to review all reports collectively to determine the conflicts if any.
* Some found it an effective tool for decision making, but others found it confusing and stoopped using it altogether.