Application of human and electronic measures to enhance college efficiency – an African case study

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Introduction

Background

In 2010 I was approached by a friend who spent the major part of his life as an administrator in the South African university environment with the proposal to jointly purchase a university in Africa. During our initial investigation we crossed paths with a South African university academic who owned a vocational college close to the university, and we decided to join forces. At that stage the university had 10 employees and 3 students, and the college had a handful of students doing a variety of short courses.

Since they were an accredited university and TVET college, it was clear that they presented a great opportunity, even though they were both in a state of disarray. This presentation outlines the issues as well as the many tools and techniques used to turn these institutions from chaos into profitable and reputable institutions with top academic and administrative standards.

The timeline

After a visit to meet the owner, collect documentation and do an initial investigation at the end of 2010, the transaction for the university and college was concluded early 2011. To improve the organisation's image, new branding was designed and both entities were relocated to a site with good street visibility and a high volume of foot traffic.

Initially, a continuous presence was maintained by the new owners to collect information, investigate and re-structure business processes, implement basic changes and train staff in a variety of key business skills, including computer and sales skills. Once the business stabilised and started

gaining a bit of momentum, our South African academic colleague took over as CEO, commuting in and out twice a month. A while later, our other partner joined him full time as Registrar responsible for all non-academic issues.

Progress remained slow with considerable internal resistance to change. The key moment to change the organisation came when the college principal, academic head and most senior university staff member all departed from the organisation in quick succession early in 2012 – this forced us to reconsider every aspect of the organisation. The changes described in this paper therefore focus on the five year period after this change.

The results

The organisation grew from 3 students to 4 500 active students in 5 years. In 2016, the university graduated 4 PhDs and 3 cabinet ministers. The college adopted an engineering program based on the local NCV program but with an NQF 5 (1-year post school) final exit level – this immediately created considerable interest and helped revitalise the interest in vocational education.

When the Education Ministry instituted a strict system of accreditation requirements, both these institutions were the first to qualify despite a considerable head start given to public institutions.

Defining the problem

Core of the challenges

The challenges faced could be divided into four groups:

- Dealing with a consistent lack of information
- Being able to make good high-level decisions on an ongoing basis
- Dealing with the volume of expert-level processing required
- Dealing with politics ranging all the way from one-on-one to international politics

Not the answer

It became apparent very early on that the typical "consultant" answers would not suffice in this unique and complex environment, especially those entailing:

- Appoint more of the "right" people
- Institute more (or less) management levels
- Contract expert consultants or other wise people with toolboxes full of answers
- Embarking on a corporate programme (similar to "lose 10 kg in two weeks")

The analysis

The only way to steer a business through all the obstacles facing it is to have a thorough understanding of every aspect of its internal operations. In addition, external forces (e.g. customers) are as important to its success or failure.

Understanding the internal and external forces and processes framed the definition of a three-phase plan. This plan had a rider: think outside the public college education box which has been designed to deal with a multitude of limitations not relevant to our institution (or in the 21st century).

The simplified plan was:

1. Develop a model showing all the external inputs into the college. Ensure there is enough focus on customers' inputs and needs.

2. Develop a model showing how the college systems deal with all these external inputs, also the systems dealing with internal demands, the skills allocated to each system and the time it takes to deal with it.
3. Once these aspects are thoroughly understood, wastage can be removed, processes can be optimised, standardised and where possible, automated.

As a group strong in developing engineering solutions to industrial problems, it was at first cautiously speculated that we could consider using industrial engineering principles and techniques, where applicable, to address problems. While a "corporate diet" was not an option, three such programmes were widely used and served to inform our choices, they are:

- Lean manufacturing
- The "20 Keys" business improvement program
- The theory of constraints

While finding good long-term solutions was the primary objective, there were severe limitations that had to be dealt with before a solution was deemed possible, namely:

- Financial constraints
- Technology and infrastructural limitations
- Minimising staff confidence disintegration
- Time constraints
- Our own FUD-factor

The solution

Identified issues

The analysis showed an organisation in chaos, and in the few cases where systems actually operated well, the systems often directly worked against the customer and thereby defeating the purpose of the organisation. Eight areas were identified for urgent attention, namely:

- The student management system (SMS) was full of data mistakes, unwieldy to capture or retrieve data and did not include student payment data.
- Enrolment was an unwieldy process where mistakes and human interventions made it a burden rather than a tool.
- Study guides were of poor quality, expensive and the supply chain was a considerable logistical burden.
- As student numbers grew, payment and the collection of debt was demanding huge effort and presented a threat of tarnishing the college's reputation. The financial situation of students required a unique solution.
- The poor quality of assignments and examinations as well as the quality of marking was a threat to the reputation of the institution.
- Accounting practices, security, tax compliance and financial statement quality were all sub-par.
- The administrative functions were so undeveloped that both staff and supervisors could either not cope with the workload or had long periods of being idle.
- As more "occasions" (e.g. graduation, audits) were added to the calendar, the more slip-ups occurred.

Solution identification and implementation

The identification of issues rarely results in a single solution to which everybody agrees. More often, intermediate solutions are tried and if they do not succeed in resolving the issue, a long process of trial and error often followed. The solutions below show the end results:

- Only a partial solution to the SMS deficiencies was found after an expensive, overseas development failed completely. The multiple deficiencies of the overseas system were hard to anticipate but overshadow the many features of the system. The SMS that had to be adopted in desperation is much more basic, still not integrated with student finances and requires different modes of data transfer to other applications.
- Self-enrolment by students, either on-site or off-site was implemented and resolved virtually all registration issues. Automated subject and pricing options and informative guidance pages reduced the requirement for personal student support to a minimum.
Enrolment takes place throughout the year with students able to sit in any of the following 4 examination opportunities as long as required year marks are achieved.
- Open education resources were used to develop top quality study guides at a limited cost and when this is accompanied by an on-site stocking and supply agreement, the effort and cost were reduced massively.
- A pay-as-you-go system was implemented which allows students to enrol and study as they are able afford. All debt collection efforts have been suspended with considerable staff cost savings.
- Question banks were created as well as an examination engine that creates questionnaires covering Bloom's taxonomy, question length, chapter distribution and different difficulty levels. Detailed model answer sheets and the option of adding / removing questions make it a fantastic tool where skills are scarce.
- Converting the software to an on-line accounting system with local tax capability allows the bulk of the work to be done by the home office. An interactive communication platform helps with resolving problems quickly.
- To ensure the standardisation and quality of administrative functions, standard operating procedures were generated and now maintained through a collaborative process between admin staff and a facilitator. A virtually paperless office was also instituted.
- The activities around big occasions have been gamified with staff taking on a selected role e.g. Placard Man, responsible for all signage, seat numbering, banners, etc. Each role is detailed in an script (effectively an SOP) to the finest detail so that even a complete outsider should be able to fulfil a given role.

Epilogue

In 2017, a major education group in South Africa bought my share in the college and university to support their African growth aspirations. However, profit is a poor indication of a successful venture and I rather take pleasure in every student, staff member and colleague who gained from this venture. My own personal enrichment came from every interaction and learning experience I shared with these people and the joy of planting a seed and seeing a tree grow. I challenge you to take the courage to make a difference.