Perceptions on Continuous Improvement in Postal Services

Thabiso John Mokoena and Charles Mbohwa
Faculty of Engineering and the Built Environment
Department of Quality and Operations Management
University of Johannesburg
P.O. Box 524, Auckland Park 2006
mokoenajay@gmail.com, cmbohwa@uj.ac.za

Abstract

Postal services contribute positively to economies while serving a significant role to human lives through their broad reach and extent of business. While postal services have been in existence for centuries to date, continuous improvement always remained pivotal for their existence, survival, growth and successes in line with industrial revolution. This paper discusses the perceptions of continuous improvement in postal services; factors such as communication, total involvement, commitment, project and change management were revealed to have a significant impact towards continuous improvement in postal services. Furthermore reliable methodologies on implementation of appropriate CI tools have a greater opportunity of recovering the postal business which has been impacted adversely by mail volume decline including other internal factors.

Keywords

Continuous Improvement, postal systems, Mail, Z Postal

1. Introduction and Background

The postal environment has been for the past significantly considerable years faced with performance driven challenges which imposed the need for deploying effective continuous improvement initiatives with the aim of ensuring relevance, survival and growth both within the industry and business space postal operators fall under. The business of postal services demonstrate a highly predominant contribution in the communication, social and industrial interactions space at large; they offer variety of services including mail, telecommunications, financial, logistics, courier services, freight and e-services. Xaba (2008) concludes that the South African Post Office demonstrated a weak efficacy; that although its strategy seemed to be flawless, it may not be regarded as sufficiently inclusive to react to the external environment as well as fully optimizing opportunities inherent on its internal environment. He further emphasize that the organization acknowledges threats that emanate from factors such as deregulation, postal crime, weak market intelligence, electronic communication alternatives and formidable competition from other sectors of business. Chan, Chan, Lau and Ip (2006) pointed out that postal organizations whether small or large are challenged with new technologies, with distinguishing between profitable and non-profitable products and coping with almost constant change particularly under the circumstances of deregulation. They further indicated that benchmarking becomes a widely used key element of continuous improvement.

The Deutsche Post (2012:19) has indicated in its 2012/13 performance report to have employed personnel to approximately 475 thousand spread across countries and regions exceeding 200 in their global chain while United Kingdom's Royal Mail (2012-13: 01) delivers to more than 29 million addresses within its scope. Both these postal service providers including many others across the globe have been faced with known survival imminent threats due to the nature of business they provide and have to strive for continued

innovation to secure relevance in emergent markets and thereby avoid the so called postal death spiral. It is therefore in this light that continuous improvement (CI) in postal business was studied.

This paper seeks to gather the concept of continuous improvement from researched literature, industry application as well as people's perceptions in relation to postal systems. Furthermore the purpose is to also interrogate the necessity, relevance and significance of the subject in question to the postal industry; while also revealing the applicability, possible inefficiencies and potential successes. The Postal business remain one of the significant contributors to economies as well as human lives; while the mail industry may be faced with business decline challenges, postal organizations still serve an important role of distribution and delivery of essential items such as medication which a human life may be dependent upon, a key mechanical component a small firm relies on for its profitable operations as well as offering the only important available financial facility (banking) in a very remote rural small village.

Figure 1 is a generic postal service operational model that depicts an overview of the inflow and outflow of how mail items including parcels enter the stream from the first customer to the end customer; the model in summary indicates that for postal organizations to operate optimally, tools such as transportation be it land, sea or air become vital for the network. Mail processing and distribution centers also become key for postal operations as well as delivery management hubs and retail outlets; all these business operational areas utilize resources from human, capital to equipment and it is in these areas that continuous improvement bears the most impact when implemented and integrated fully.
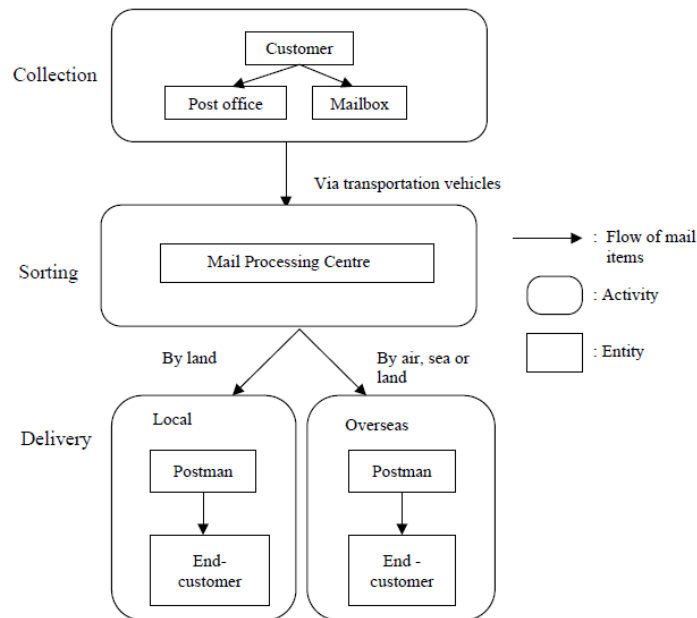

Figure 1: Flow of mail items in a postal operation. Source: Chan, Lau and Ip, 2006

The philosophy of continuous improvement (CI) dictates a disciplined continuous interaction of behaviors within an organization set to achieving sustainable improvements through various structured techniques; these behaviors include people, functions, processes and resources. While CI programs have been mostly adopted by manufacturing firms, they have proven to be very important for service oriented firms. The application of the practice have proven significant benefits to organizations such as financial institutions, banks, hotels, restaurants, legal firms and others being implemented successfully in areas such as sales and marketing, information systems, research and development and many others. Although CI has proven benefits in many undertakings, it is important to note that it cannot be applied in a standardized approach; organizational structures, departments and processes differ significantly thus it would rather be beneficial if a continuous improvement program were to be implemented in business selected areas that would yield high efficiency instead of areas with highly variable complex activities where the costs of applying it would exceed the returns.

Bessant, Caffyn and Gallagher (2000, 75) concluded that although continuous improvement is of strategic importance, its management is poorly comprehended very frequently in that the discipline requires a detailed focus not only on the outcomes but the processes through which the outcomes can be achieved.

Young (2011:457) highlighted continuous improvement and emphasised two key contexts being processes and people. He maintained that although CI has been recommended by experts in the space of quality; deploying it seamlessly to technical processes has proven very often unsustainable when thought process has not been delegated to human participation. Thus it remained absolutely important that human behaviour related dynamics be considered and ownership with active involvement be totally encouraged particularly when change interventions are implemented in organizations.

Tracc (2010) referred the journey of continuous improvement as the world class journey in which the potential of an entire organization is mobilized. That it yields process based excellence, organisational learning and sustains culture based change. Continuous Improvement should become a cultural way of organization life and such a way is achieved when total excellence is transparently empowered to everyone; when team work, commitment, results and solutions orientation, clear vision and goal, leadership have become the foundation of workmanship.

2. Methods and Results

2.1 Methodology

For the purposes of privacy and non-disclosure policy, the name of the postal organization this study was conducted upon had to be altered. The organization's name was altered to "Z Postal" for research purposes. This study adopted a various techniques methodology in which both quantitative and qualitative approaches were employed (Creswell, 2003). Preliminary study surveys were conducted which comprised interviews and observations followed by pilot studies, population and sampling, questionnaire distributions, statistical data analyses and interpretations.

The sampling methodology employed was that which comprised convenience, subjective and probability subject to each area of study and nature of environment and participants' behaviour. The IBM SPSS Statistics software was exploited to extract and manipulate data into meaningful analytics and all the statistical guidelines were applied during the analyses. Results from the study were statistically analysed, methods such as factor analysis, frequencies and descriptives, empirical and theoretical reliabilities, normalities, comparisons and correlations were employed.

- Factor Analysis: This analytical methodology was employed to determine the possibility of developing or identifying further relationships from the data variables; to further arrive to closely grouped factors related to a certain set of questions from the questionnaire for meaningful analyses.
- Frequencies and descriptives: To analyse the distribution of different respondents' characteristics as per their demographics; to also analytically quantify their different perceptions on research questions.
- Empirical and theoretical reliabilities: To confirm the reliability of data scales prior in depth analyses.
- Normalities: To assess and verify if data distributions per study factor and group conform to statistical normality principles in terms of robustness, reliability and justification for further use.
- Comparisons: To determine if there are differentiated perceptions between participants' groups (age, education, occupation, etc.) on the questions of the study. More of parametric tests were applied on the study due to their toughness on reliable compared results regardless of the nature of data set.
- Correlations: To statistically quantify the strength and direction of the linear association between two factors of the study.

Discussions and results have been summarised below:

Two factors were extracted and developed from the questionnaire; namely (F1) Project Management, (F2) Change Management. These factors were formed to classify and represent all the points of the research questionnaire from the study. The subjects of the study were further classified into further variables; that is each factor named above would analyse respondents' results as per clusters (Highest Education Level, age and Level of Job) as variables and results would be discussed from these varying perspectives.

Tests for Normality: For data distribution reliability affirmation purposes, normality assessments were conducted whereby Project Management factor's scores were normally distributed across all variables; whereas the change management factor's scores were not on certain parts of variables. Pallant (2005:57) however deduced that it is quite reasonably common and acceptable for studies with higher samples not to have normal distributions on data results.

2.2 Results and Discussions

2.2.1 Comparisons

Table 1 below gives an indication of the number of participants under each group which also included the standard deviations and mean scores; an indication that samples have been confirmed correct and reliable thus not to diverge analyses to follow.

Parametric tests were used for comparisons due to their robustness and ability to produce consistent meaningful results.

Table 1: Descriptives on Age and Qualification Groups

			N	Mean	Std. Deviation	Std. Error	Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
Age Group	Mean_F1- Project Management	30 years or younger	24	2.73	.701	.143	2.43	3.03	1	4
		31 - 40 years	40	2.58	.723	.114	2.35	2.81	1	4
		Older than 40 years	37	2.78	.869	.143	2.49	3.07	1	4
		Total	101	2.69	.773	.077	2.54	2.84	1	4
	Mean_F2- Change Management	30 years or younger	24	3.54	.611	.125	3.28	3.80	2	4
		31 - 40 years	40	3.43	.620	.098	3.23	3.62	2	4
		Older than 40 years	37	3.45	.820	.135	3.17	3.72	1	5
		Total	101	3.46	.693	.069	3.32	3.60	1	5
Level of Qualification	Mean_F1- Project Management	Below Matric	16	2.46	.938	.234	1.96	2.96	1	4
		Matric	50	2.91	.737	.104	2.70	3.12	1	4
		Tertiary Level	35	2.48	.666	.113	2.25	2.71	1	4
		Total	101	2.69	.773	.077	2.54	2.84	1	4
	Mean_F2- Change Management	Below Matric	16	2.90	.808	.202	2.47	3.33	1	4
		Matric	50	3.61	.505	.071	3.47	3.76	3	5
		Tertiary Level	35	3.50	.755	.128	3.24	3.76	2	5
		Total	101	3.46	.693	.069	3.32	3.60	1	5

Table 2: Homogeneity in Variance Tests

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Age Group	Mean_F1-Project Management	1.564	2	98	.214
	Mean_F2-Change Management	.928	2	98	.399
Level of Qualification	Mean_F1-Project Management	2.248	2	98	.111
	Mean_F2-Change Management	5.191	2	98	.007

Table 2 above depicts the Levene's homogeneity of variation analyses conducted on both groups to test the extent of equality on variation scorings. Most factors across the two groups resulted to equality of variances on scores which reflected no significance at values greater than (p> .05) with the exception of Change Management factor under the level of qualification group which was at .007. The Analysis of Variation became necessary since it has been recommended reasonably strong to counter violations of assumptions (Pallant, 2005).

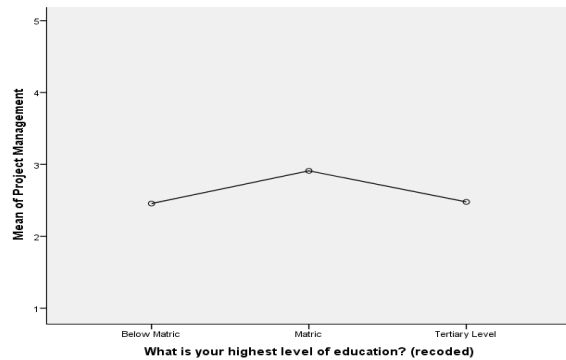Table 3: Analysis of Variation for Groups

ANOVA							
			Sum of Squares	df	Mean Square	F	Sig.
Age Group	Mean_F1-Project Management	Between Groups	.839	2	.419	.698	.500
		Within Groups	58.911	98	.601		
		Total	59.749	100			
	Mean_F2-Change Management	Between Groups	.215	2	.107	.220	.803
		Within Groups	47.783	98	.488		
		Total	47.998	100			
Level of Qualification	Mean_F1-Project Management	Between Groups	4.875	2	2.437	4.353	.015
		Within Groups	54.875	98	.560		
		Total	59.749	100			
	Mean_F2-Change Management	Between Groups	6.293	2	3.147	7.394	.001
		Within Groups	41.705	98	.426		
		Total	47.998	100			

To analyse respondents' perceptions on Z postal's continuous improvement, the singular variance analysis (ANOVA) was undertaken between groups of age level and qualification level. This was to analyse participants' separate views guided by their different age groups as well as qualifications on Continuous Improvement related research questionnaire posed to them. Age was categorized into three groups being from younger than thirty to older than forty; qualifications into three clusters as well being lower than matric to tertiary qualified respondent groups. The results revealed that age had no influence on how participants observed Project Management and Change Management related factors towards Continuous Improvement initiatives in the organization; the results were statistically greater than the set requirement of sig. value (p>.05) which implied age not to be a factor. In regards level of qualification groupings, both factors of project and change management demonstrated a significant difference on qualification level

groups; this was statistically confirmed with the (PM) factor at significant value of .015 and (CM) at .001 leading to exploration of multiple comparisons analysis.

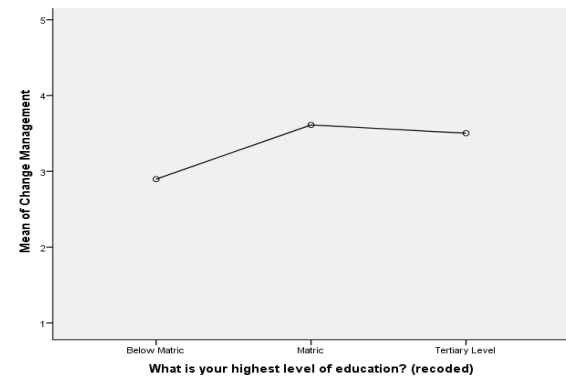Table 4: Project Management Factor Means

Multiple Comparisons						
Dependent Variable: Mean_F1-Project Management						
Scheffe						
		Mean Difference			Confidence	
					Lower Bound	Upper Bound
(I) rA4.2		(I-J)	Std. Error	Sig.	Bound	Bound
Below Matric	Matric	-.455	.215	.112	-.99	.08
	Tertiary Level	-.023	.226	.995	-.58	.54
Matric	Below Matric	.455	.215	.112	-.08	.99
	Tertiary Level	.432*	.165	.036	.02	.84
Tertiary Level	Below Matric	.023	.226	.995	-.54	.58
	Matric	-.432*	.165	.036	-.84	-.02

Given the substantial difference found on ANOVA analyses; the Scheffe's Post-Hoc analyses were done on Project management; the multiple comparisons analysis on table 4 above revealed matric participants group being significantly different with the mean scores (m=2.91, sd=.74) as well as participants who acquired tertiary qualifications at scores (m=2.48, sd=.67). These results pragmatically implied how differently the two groups, being those with matric and those with tertiary qualifications perceived project management related factors' impact on continuous improvement in the organization; a different view from one group to the other. The participants with lower grades than matric revealed no substantial difference with either of the other two. Although the difference was noted, the actuality of the variability seemed very small between mean scorings (2.5, 2.5, and 2.9) as can be seen on the mean plot graph.

Table 5: Change Management Means

Multiple Comparisons						
Dependent Variable: Mean_F2-Change Management						
Dunnett T3						
		Mean Difference			Confidence	
					Lower Bound	Upper Bound
(I) rA4.2		(I-J)	Std. Error	Sig.	Bound	Bound
Below Matric	Matric	-.715*	.214	.010	-1.27	-.16
	Tertiary Level	-.606	.239	.050	-1.21	.00
Matric	Below Matric	.715*	.214	.010	.16	1.27
	Tertiary Level	.109	.146	.839	-.25	.47
Tertiary Level	Below Matric	.606	.239	.050	.00	1.21
	Matric	-.109	.146	.839	-.47	.25

There was also a difference with regard to (CM) from respondent groups of those with below matric (m=2.9, sd=.81) and those with matric at (m=3.61, sd=.51) in terms of the mean scores; this also reflected that the two educational groups regarded change management's contributions to continuous improvement differently. Although significant differences were observed on these comparisons, the actual differences were very small between mean scores.

The statistical analyses on respondents' Job Level were also conducted to establish if the perceptions on the study may be influenced by different ranks within the organization. Two categories were formed being *operations* with the second group being *supervision to management*. Parametric assessments were also uitilised and mean scoring, samples and standard deviations were confirmed to be reliably correct for further analytics. Since only two participant groups were at avail to compare job levels, Independent samples t~tests were utilised.

Table 6: Job Analysis Group T-Test

Group Statistics		N	Mean	Std. Deviation	Std. Error Mean
rA5					
Mean_F1-Project Management	Operations	45	2.78	.770	.115
	Supervisory to Management	44	2.66	.720	.109
Mean_F2-Change Management	Operations	45	3.48	.666	.099
	Supervisory to Management	44	3.53	.648	.098

Table 7: Independent Tests

Independent Samples Test		Equality of Variances		t-test for Equality of Means					95% Confidence	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Mean_F1-Project Management	Equal variances assumed	.683	.411	.783	87	.436	.124	.158	-.191	.438
	Equal variances not assumed			.783	86.828	.436	.124	.158	-.190	.438
Mean_F2-Change Management	Equal variances assumed	.481	.490	-.380	87	.705	-.053	.139	-.330	.224
	Equal variances not assumed			-.380	86.999	.705	-.053	.139	-.330	.224

There was no substantial difference related to the job level statistical factor since the variance indicated equality which implied that the participants' levels of job positions had no influence on how they regarded change and project management factors.

2.2.2 Correlations

The below analysis depicts an extract of two factors out of a group of others which correlation studies were conducted. All of statistical protocols were observed and confirmed in terms of normality, non-parametric analyses, variables, absolute values, samples and significance conformities.

Table 8: (Fctr1) Project and (Fctr2) Change Management Correlation

Spearman's rho	Fctr1 Project Management	Fctr2 Change Management
Correlation Coefficient	.452**	.452**
Sign. (2-tail)	.000	.000
Sample Size(N)	101	101

The analysis revealed a medium positive association between the factors project and change management at {r=.452; n=101; p<.05} which meant a moderate association between the two factors existed and thus further implied that respondents perceived project management factors to have a positive impact towards change management factors. Although a positive relationship existed between the two, the extent of influence would need careful attention to detail with regards to implementation at business level but it was revealed that if properly approached and implemented, exceptional results on change management initiatives will automatically influence great result on project management given correct principles and methodology application. This generally means project and change management become equally important and should both be regarded highly in the postal environment particularly if they are embarking on continuous improvement initiatives. Furthermore the relationship between the two emphasize that certain important aspects of project management contribute significantly towards achieving change as a continuous improvement strategy, vice versa.

Further results revealed a 38% of total respondents agreeing to strategic improvement projects being implemented while 33% couldn't conclusively respond. 36.4% of the total participants indicated that there is no communication to all employees on the importance of strategic projects while 30% were not sure if it takes place and only 20% agreed that it was being made. It was also found that 40% of participants opposed the idea that improvement initiatives were always implemented with success whilst 29% were unsure and only 19% agreed. 36% of participants indicated that there is sufficient support provided by Z Postal to oversee projects improvements whereas 32% disagreed. It was also found out that 36% of the total participants were in agreement that projects that are implemented result to success however 32% remained unsure whilst 23% of them disagreed. Furthermore a significant 49% of total participants agreed that continuous improvement initiatives are always necessary and 37% strongly agreed. An interesting indicator also revealed 44% of total participants could not agree funds and resources were always available to optimize operations and 25% remained neutral. With regards to the question of management's commitment to CI initiatives, 36% of the respondents were unsure about it while 32% indicated it was visible. 37% of participants agreed that there is CI taking place in Z Postal but 30% were not sure and 21% disagreed; the study also revealed that 36% of participants disagreed to being always excited about CI and furthermore 43% agreed that there are internal challenges that hampered success of CI projects. A summary of respondents' perceptions is reflected in table 2

The above results provided an evident deduction that communication, commitment and support remain inclusively important to successful Continuous Improvement interventions. The success of continuous improvement through lean and other techniques has proven worth in many industries through communication and total involvement of work teams from shop floor level to executive level in organizations; a total cooperation and maximization of the entire workforce directed to attaining improved efficiencies at reduced expenditures contributes significantly to CI objectives.

Whilst a significant number of employees at Z Postal were not convinced about management's commitment and resources availability for strategic projects; it is imperative these efforts be always visible to everyone and that the projects be aimed at identifying and eliminating the sources of process variations, wastes and problematic areas so as cost reduction could be achieved as some of small improvements which could yield greater returns in the longer term.

Table 9: Perceptions of Employees on CI in Z Postal

To what point do you confirm the following statements on the bases of agreeing or disagreeing?		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1. There is a positive interaction between business units in Z Postal	Count	17	27	21	32	4	101
	Row N %	16.8%	26.7%	20.8%	31.7%	4.0%	100.0%
2. Strategic improvement projects are currently being implemented	Count	6	15	33	38	7	99
	Row N %	6.1%	15.2%	33.3%	38.4%	7.1%	100.0%
3. Communication is conveyed to all employees on the Significance of strategic projects	Count	11	36	30	20	2	99
	Row N %	11.1%	36.4%	30.3%	20.2%	2.0%	100.0%
4. Improvement projects are always successfully implemented	Count	13	40	29	19	0	101
	Row N %	12.9%	39.6%	28.7%	18.8%	0.0%	100.0%
5. Sufficient support is provided for improvement projects in Z Postal	Count	10	32	21	36	1	100
	Row N %	10.0%	32.0%	21.0%	36.0%	1.0%	100.0%
6. There are improvements observed on projects that are implemented	Count	7	23	32	36	3	101
	Row N %	6.9%	22.8%	31.7%	35.6%	3.0%	100.0%
7. Continuous improvement projects are always necessary	Count	2	3	10	49	37	101
	Row N %	2.0%	3.0%	9.9%	48.5%	36.6%	100.0%
8. Funds and resources are always available to optimize operations	Count	19	44	25	11	1	100
	Row N %	19.0%	44.0%	25.0%	11.0%	1.0%	100.0%
9. Management are committed to continuous improvement initiatives	Count	8	18	36	32	6	100
	Row N %	8.0%	18.0%	36.0%	32.0%	6.0%	100.0%
10. There is continual improvement taking place in Z Postal	Count	8	21	30	37	5	101
	Row N %	7.9%	20.8%	29.7%	36.6%	5.0%	100.0%
11. Employees are always excited about continuous improvements	Count	14	36	29	19	3	101
	Row N %	13.9%	35.6%	28.7%	18.8%	3.0%	100.0%
12. There are challenges that hamper success on continual improvement projects	Count	5	10	19	43	24	101
	Row N %	5.0%	9.9%	18.8%	42.6%	23.8%	100.0%

3. Conclusion

This study has led to the following conclusions drawn:

•   Continuous improvement remains extremely pivotal for the survival of postal service business; perceptions from related literature and respondents from the study have accentuated the importance of change particularly in dire situations similar to those postal systems are faced with.
•   Involvement of people becomes very crucial during implementation and sustainability phases of continual improvement initiatives. Elements such as communication, capacitation and empowerment, recognition, responsibility, accountability and support cannot be overlooked if initiatives are to achieve success.

Postal organizations across the globe have always been imposed by labour flexibility challenges which remain highly influenced by the industry's business operating as well as labour model. While postal systems are government influenced in that to a large extent their mandate and priority is to focus on job creation and serving for the greater good, they are confronted with challenges of having to operate as profitable businesses while fulfilling their shareholder's (government) obligation. The industry's business operational window usually requires flexible labour that would work part time hours daily and this leads to extremely dissatisfied and unmotivated workforce.

As part of continuous efforts, it would be beneficial for postal organizations if they were to consider experts such as industrial psychologists who would specialize directly with the labour distress whilst organizations deploy necessary strategies.

The effort of continuous improvement is open for a number of approaches postal firms could deploy effectively for business regeneration; the effort consist of widely known and used tools such as DMAIC, Kaizen, PDCA, Lean, TQM, JIT, Six Sigma and others that remain available for implementation. It is vital that always when these and other techniques are implemented, that employees be carried with all the time through relevant teams' training, problem solving structures, team performance reviews, job rotations and all other motivating approaches that will ensure success through employee involvement, empowerment and ownership.

While Postal systems have a very significant potential of achieving success through continuous improvement programs; it is imperative that they consider implementing appropriate structures that will oversee and manage the technicalities and dynamics at organizational level. An example would be a deployment of a program management office comprising of Engineers, Human Capital specialists, Finance specialist and experts from other disciplines who will be responsible for ensuring standardization, implementation, and human behavioral stability and also monitor fiscal benefits of such programs concurrently.

While a number of postal organizations at global level are faced with business performance inefficiencies; a significant few of other countries (Europe and Africa) in this very business space have demonstrated to be performing exceptionally well and have successfully inherited continuous improvement. Opportunities remain unlimited for the industry to explore more effective benchmarking strategies with successful counterparts; More postal fora, cross deployment and utilization programs of specialized teams between countries' for benchmarking and implementations as well as global postal network databases could be innovated to broaden communication and knowledge thereby prosper the industry. There is therefore a need for more research into exploration of the development of fundamental opportunities that could potentially be presented by continuous improvement strategies by countries collaboratively while potential bottlenecks to CI posed by shareholders' bureaucracies need to be looked at as well.

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Biography

Professor Charles Mbohwa serves as Vice-Dean: Postgraduate Studies, Research and Innovation in the Faculty of Engineering and the Built Environment at the University of Johannesburg. As an established researcher in the field of sustainability engineering and energy, Prof Mbohwa's specializations include sustainable engineering, energy systems, Life-Cycle Assessments (LCA's) and bio-energy/fuel feasibility and sustainability with general research interests in renewable energies and sustainability issues. He is a co-author of the second chapter of the United Nation's Environmental Programme's (UNEP) Global Guidance Principles for Life Cycle Assessment Databases.

In addition he is Project Leader for the Development of the Climate Change Response Strategy and Action Plan for the Gauteng Department of Agriculture and Rural Development: Use of indigenous knowledge. His is a collaborator in the Enerkey research and implementation project: Energy solutions for Gauteng Province.

Thabiso Mokoena is a Masters Degree graduate with the University of Johannesburg. He wrote and published a few papers in the postal and logistics industry including for the UK's World Congress on Engineering 2013, where he had focused on Performance Management in Postal Systems.