Scale Development for People Process Maturity and its business outcomes on staff, firm and customer dimensions

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1. INTRODUCTION TO PEOPLE PROCESS MATURITY

While HR and Organizational Governance practices exist to produce the desired outcomes, the degree of internalization and establishment of such practices in the Organization creates a more mature people process system in the organization. People Process Maturity is determined by the degree of capability and consistency of people processes and its resulting outcomes. There are formal frameworks to measure People Process Maturity such as the People Capability Maturity Model (PCMM), which measure maturity in a highly structured fashion. The level of maturity of people processes is a function of how well the practices are institutionalized and made as a “way of life” in the company and can be measured through the investigation of process establishment as perceived by practitioners and other stakeholders. We postulate that level of people process maturity attained by institutionalization of people and organizational management and the associated practices could be the mediating variable which enables the achievement of final outcomes from employee, firm or customer perspectives.

PCMM (Curtis, 2002) is a 5 maturity level framework which is well utilized by many firms in the Technology and Services sector. PCMM has 22 Key Process Area (KPA) across 5 maturity levels. The model brings in 499 practices across these 22 KPAs which are essentially good practices distilled from practical implementation across industries that promote specific capabilities needed to demonstrate particular maturity levels. 50% of these practices are oriented towards particular implementation and another 50% towards institutionalization, which covers enablers for the practices and their ongoing evaluation mechanisms, thereby stressing heavily on the institutionalization aspects to assure continuous sustenance.

PCMM draws heavily from the disciplines of HRM, TQM (Total Quality management) and OCD (Org Change and Development) across its KPAs. PCMM groups its focus across 4 “threads” which have KPAs cutting across maturity levels. There are 4 threads: Developing Capability, Building Workgroups, Motivating & Managing Performance and Shaping the Workforce aligned to business objectives. Fundamentally, the KPAs are situated in Maturity Levels ranging from Two to Five with KPAs across maturity levels contributing to the theme of threads as illustrated below.

Table 1 : PCMM Structure and its Key Process Areas

<table>
<thead>
<tr>
<th>Maturity Levels</th>
<th>Developing Competency</th>
<th>Building workgroups &amp; culture</th>
<th>Motivating &amp; managing performance</th>
<th>Shaping the workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Optimizing</td>
<td>Continuous Capability Improvement (CCI)</td>
<td>Organisational Performance Alignment (OPA)</td>
<td>Continuous Workforce Innovation (CWI)</td>
<td></td>
</tr>
<tr>
<td>4 Predictable</td>
<td>Competency based assets (CBA) Mentoring (MTR)</td>
<td>Competency Integration (CI) Empowered Workgroups (EWG)</td>
<td>Quantitative Performance Management (QPM)</td>
<td>Organisational Capability Management (OCM)</td>
</tr>
</tbody>
</table>
Literature Study Summary

PCMM Related Studies:
There are very few studies specifically on PCMM implementation but several other studies quoted in this paper touch upon the threads or the topics covered in the KPAs of PCMM. In a study looking at the degree of support provided by Oracle HRM suite to PCMM practices, Turetken et al (2004) point out that only PCMM earlier maturity levels of 2 and 3 are covered with some variability. In a manufacturing setting study in 2011, Joneghani et al point out that it is possible to measure excellence across three dimensions of individual, process and organization using PCMM. Oakland et al (1998) in an interesting study of past research work around key aspects of effective people management explore the downstream links with satisfied employees, who can make a difference in delivering services, which enables exceptional levels of customer satisfaction and corresponding business results. Highly mature people process systems will be a great enabler in this context. Prahlad et al (1986) explore the links between diversity and performance building on past research. Well aligned people processes will help attract varied talent that builds such diversity effectively in organizations

Snell et al (1995) point out that from a study of 102 firms that behavior and input controls are far better than output controls as an approach to HRM practices. The study of Ahmad et al (2003) explores impact of HRM practices on Operational Processes and looks at an ideal system for manufacturing plants.

In a Russian study of 101 foreign firms operating there Fey et al (2000) attempt to map HRM practices to firm outcomes through a mediating variable of HRM outcomes. Becker et al (2006) in their study look at the black box between HRM practices and firm performance and investigate whether integrating strategy implementation could provide the missing link. They also point out the need for differentiated HR practices both across and within firms. People process maturity could be an enabling factor in this context.

Studies on People & Quality Governance Systems:
The research on quality systems has broadly covered areas of Total Quality Management (TQM), ISO and related systems, Deming awards and such mechanisms, but seems to be fairly limited in terms of People Process Maturity coverage. The studies have largely focused on manufacturing sector. There is very little coverage of high tech services sector, people process maturity determinants and enabling advanced quality systems that will be of greater relevance in this context, such as People CMM, among others. Further, the studies do not appear to focus much on firm outcomes beyond basic financial measures and are quite limited in terms of parallel correlation with customer and employee outcomes.

Based on a NZ manufacturing sector study, Carre et al. (1997) suggest that while there appears to be a difference in business strategy dimension between ISO and Non ISO companies, there is very little difference in terms of quality or reporting systems. The study however is limited to manufacturing sector in NZ and only based on ISO systems. There is also little focus on firm outcomes. The study found positive difference in ISO companies focus on process improvement and metrics however.

On a case study approach, Jensen et al. (1994) demonstrate that TQM is a way of application of scientific thought to organizational operations and helps decentralize decision making and knowledge dissemination in the firm. This offers a good connect between corporate governance and quality governance, however this study is based on a single case in Chemicals sector in the US. The study also does not appear to focus much on firm outcomes.

A study by Krishnan et al. (2005) observe that there is a positive correlation between IT investments and customer satisfaction through a focus on perceived quality and perceived value. This offers a good connect between quality
governance and customer satisfaction but is largely restricted to viewing IT as a business enabling investment and customer outcomes thereof. The enabling mechanism of process systems does not seem to be covered in the study.

In a study linking Quality enhancement thro structural synthesis, Lowder (2007) stresses the need to analyze strategic choices in evaluating TQM programs. In another study, Anand et al. (2005) cover Balanced Score Card implementation in Indian companies. The study points out that there is an over emphasis on financial performance dimension in BSC implementation and there are issues around weightage of dimensions and the need to examine causality. Focus on enabling mechanisms around quality governance could help cover a missing link here as well.

A study on Strategic Performance Management in practice, DeWaal et al. (2008), covers 17 Dutch organizations and points out that with the right focus, specific advantages have been achieved by the companies offering a link between strategic systems and outcomes. The study does not seem to cover process quality as a lead variable. In a theoretical study, Bediet al. (2006) trace the journey of quality movement and define “Qualitopia” as a quest and a continuing journey.

A study on Quality Management and Job Quality by Levine et al. (2010) brings focus on Employee outcomes such as earnings, health, safety results. This is a California based study of 1000 organizations, predominantly in manufacturing sector utilizing fairly basic ISO systems.

The study of the role of business improvement models in providing a good linkage from strategy to performance by McAdam (2002) brings out the point that measurement systems aligned to strategy are more effective in driving outcomes. A study by Chan et al. (1997) points out the fact that increased business as well as IS strategy alignment promotes more effectiveness.

Hung (2006) in his study brings out the point clearly that process alignment coupled with people involvement brings out better organizational effectiveness. Wongrassamee (2003) points out in his study the similarities between balanced score card and EFQM models though he argues that there may not be any “perfect” match between organization needs and measurement systems.

In relating organizational change initiatives to performance, Guh et al. (1997) point out that successful initiatives had several people and culture related positive factors, underscoring the importance of people processes in successful change.

In a largely theoretical study De Bruin et al. (2000) point out the development of BPM maturity model which has people, culture and governance has key factors. Lesser et al. (2001) study the role of Communities of Practice in creating organizational value and how the underlying phenomenon of “social capital” enables better behavior and performance. Robust people processes and systems will definitely help enhance such value. Similar focus on critical success factors on BPM implementation was studied by Ariyachandra et al. (2008).

Kennerley et al. (2003) discuss in their study the dynamic business environment and the need for measurement systems to keep with the pace of changes to effectively support the evolution. Implementing such systems will need dynamic people practices that are kept in sync with the changing needs.

McAdam et al. (2003) in their study point out that the ethical basis of quality systems will help enhance the effectiveness of CSR initiatives and hence the overall firm performance. Mann et al. (1994) bring out the point that the quality activities, particularly TQM, have beneficial effects on business performance. But they also mention that it has to be sustained over many years to produce a significant positive effect on performance.

Terziiovskiet al. (2003) point out in a study in Australia on ISO 9000 implementation that there is a significant and positive relationship between the manager’s motives for adopting ISO 9000 certification and business performance. Those organizations that pursue certification willingly and positively across a broad spread of objectives are more likely to report improved organizational performance, underscoring the importance of people factors in implementation success.

In a UK study, Grattanet al. (1999) point out the linkages between business strategies, HR strategies and performance underscores the importance of people factors in successful results. Schuler (1992) in his study points out the links between business needs and HR practices and how they mutually reinforce the performance.

Yeung et al. (1997) in an interesting study explore HR processes and its impact on business results. In a case study approach, they identify paths through which HR practices contribute to business performance—Organizational capabilities leading to employee satisfaction and then on to customer satisfaction.

Bourne et al. (2003) point out how the improvement in underlying processes contributes to better corporate performance. They also emphasize the need to broaden performance measures beyond the financial ones to give the correct long term picture.

Ulrich (1998) in an interesting study emphasizes the changing role of HR and the need for line managers to enforce accountability of HR in the transformation journey. This brings back the focus on people processes for enabling transformational results.

Schoeffler (1974) in their extensive study of 57 corporations point out the linkages between strategic planning and performance and how there is a need to take a holistic and industry wide view that will help develop win-win strategies. Factors around people and culture will help facilitate the same.
Lopez et al. (2005) discuss in their study in Spain of 195 companies the impact of learning on organizational performance and how people processes around learning help foster innovation and improve competitiveness and results. Hendricks et al. (1997) study the linkages between quality awards and market value of firms. The study points out that the stock market reacts positively to quality awards and the effect is even more pronounced for smaller firms. This may be due to the underlying expectations of better performance on the basis of quality improvements and risk reductions due to the same.

Zhang (2000) explores in a Netherlands based manufacturing sector study the implementation of TQM and points out that TQM has an edge over simpler ISO models on business performance. Rahman (2001) in a study of TQM in Western Australia take up the SME sector and point out that there is a good linkage between various quality factors and business outcomes. However, there is need for more focus on people and leadership factors for sustained improvements.

McAdam et al. (2001) studied the role of measurement systems in TQM implementation. The study emphasizes the need to link improvement plans more effectively with measurement trends. Seth et al. (2005) did an extensive study of TQM, TPM initiatives and business performance in the Indian manufacturing sector. They identify critical factors such as leadership and process planning in effectively achieving results in such cases.

Wright et al. (2003) explore the impact of HR practices on business unit performance within a corporation. With a sample of 50 autonomous business-units within the same corporation, the study revealed that both organizational commitment and HR practices were significantly related to operational measures of performance as well as operating margins and pre-tax profits.

Guthridge et al. (2008) in his article summarized the findings from McKinsey research. The findings underscore the importance of maintaining deep commitment to talent throughout the organization. The HR team also needs to be able to improve their capabilities to translate business needs to talent strategies. Guthridge et al. (2008b) point out a strong correlation between financial results measured by profit per employee and score on talent management practices. Prahalad et al. (1986) explore the links between diversity and performance building on past research. Well aligned people processes will help attract varied talent that builds such diversity effectively in organizations.

Paul et al. (2003) has made a study on Indian software companies to develop and test a causal model linking HRM with organizational performance. The study has found that though there may not be a direct effect on financial performance due to any of the HR practices, there is an indirect influence of the practices on the operational and financial performance of the organization. The study notes that practices such as training, job design, and compensation directly affect the operational performance parameters such as retention, productivity, quality, cycle time and cost.

Neumark et al. (1999) point out that high performance work practices could help increase productivity. However, the study cautions that it can also increase labor costs. The overall balance needs to be considered as there is a beneficial effect due to greater staff motivation and ownership effects as well.

Neal et al. (1999) attempt to study the process flow through which HR interventions influence individual performance. This has implications for HR processes around performance management, job enrichment, motivation and others while the overall impact on organizational performance is not covered in this study. Huselid et al. (1995) studied the impact of high impact HR systems on firm performance and conclude that it is both economically and statistically significant. This has significance for firms planning to enhance their HR systems for improved performance.

Combs et al. (2006) in a meta-analysis of various studies on High Performance Work Practices (HPWP) and firm performance infer that there is a linkage, though observed more in the manufacturing sector. Delaney et al. (1996) in their study of 590 firms found positive relationships between HPWP in training and staffing and corresponding perceptual management measures.

Youn et al. (1996) bring forth a contingency approach, in a study covering 97 manufacturing plants, on the impact of HRM practices on firm performance. The study argues that the strategic positioning really determines the degree of impact. Vanderberg (1999) in a study of 49 firms conclude that high impact work practices impact organizational effectiveness and results positively.

Batt et al. (2002) examined the relationship between HR practices, attrition rates, and organizational performance in call centers. The study infers that quit rates were lower and sales growth was higher in establishments that emphasized high skills and employee participation in decision making. The study of Ahmad et al. (2003) explores impact of HRM practices on Operational Processes and looks at an ideal system for manufacturing plants.

Becker et al. (2006) in their study look at the black box between HRM practices and firm performance and investigate whether integrating strategy implementation could provide the missing link. They also point out the need for differentiated HR practices both across and within firms. People process maturity could be an enabling factor in this context.
In a Korean study with 138 firms in Korea, Bae et al. (2000) point out that firms with high scores on valuing HRM and people as a source of competitive advantage were more likely to have high-involvement HRM strategies. The study infers that these variables also had positive effects on firm performance. Arthur (1994) in his study in the steel manufacturing sector of commitment versus control type HR systems points out that commitment system produced better results in terms of productivity, scrap rates and staff turnover. An empirical study by Agarwala (2003) points out that extent of introduction of innovative HR practices is perceived to be a significant predictor of organizational commitment. But this study covered largely firms that are already perceived to be innovative and also does not link the outcomes with financial results. Garvin (2013) in his recent study on Google analyses how engineers working there perceive the value of management and concludes that it is necessary to demonstrate actual value added, through data using people analytics. This also helps managers constantly improve their performance. This underscores the importance of quantitative people process management in adding business value.

Our Research Objectives and the need for scale to measure variables around People Process Maturity (PCMM):

Our research objectives centered around examining specific contribution in areas intersecting People Governance, Quality Systems and Business Results for the firm, employees and customers. The study aims to look at building a framework/model linking People Process variables to HR and Business Outcomes and validate certain assumptions on linkages across Governance, People Processes and Results. As a consequence, the study will look at elucidating further areas for investigation for future researchers.

The expected contributions from this research study are in three dimensions:

1. Theoretical -- Development of a possible framework exploring the interconnected nature of Corporate People Governance, People Process Maturity, Quality Systems Governance and Firm/HR Outcomes
2. Empirical -- Testing and validating of hypothesis linking variables of People Process Governance to perception of firm and employee outcomes
3. Managerial / Policy -- Pointers for a more holistic measurement of Corporate Governance incorporating People Process and Quality Governance aspects as well, mapping out more lead variables for better prediction of firm outcomes

In order to execute the study, we need a reliable and valid scale that will measure the needed variables around People Process Maturity. While there are validates scales for some of the related aspects as illustrated in Table 2 below, we could not find any established scales around the antecedents and consequences of People Process Maturity as postulated in the PCMM framework as illustrated in Figure 1 below. We hence went about developing the scale, based on the PCMM theoretical framework, drawing good practices from related studies and subjecting the scale to industry expert validation before doing an extensive pilot study to statistically determine the reliability and validity, in the context of Services sector, as explained in our paper.

Methodology for Scale Development

The methodology for the research scale development covered four phases of work as elucidated below:

Phase 1 : Background Study :

- Extensive study of past research in variables around people process maturity, governance and business/customer/employee outcomes
- Theoretical study of frameworks in use (People Capability Maturity Model-PCMM, Corporate Governance Score, International Standards Organization—ISO, Capability Maturity Model Integrated-CMMI, Services CMMI, Malcolm Baldridge--MB) to uncover possible gaps as well as areas of more effective application
- Study of particular cases of alignment of governance, people process maturity and business/human resource outcomes in some leading IT services organizations
- Study of questionnaires and scales in use to measure variables similar to the antecedents of people process maturity of PCMM framework as given below

Phase 2 : Development of a conceptual framework with antecedents of People Process Maturity in a PCMM context

The conceptual framework linking People Process Maturity as postulated in the PCMM model with its antecedents and consequences is as illustrated below.
Fig-1 : People Process Maturity Conceptual Framework with Antecedents

Independent Variables :
- Corporate Governance Practices
- People Governance Practices (Staffing , Performance Management, Career Development, Rewards & Recognition)
- Quality Governance Practices
- Training and Knowledge Management Practices
- Depth of Management Involvement

Dependent Variables :
- State of People Process Maturity (mediating)
- Employee Outcomes
- Business / Firm Outcomes
- Customer Outcomes

Phase-3 :Scale Development with Operationalization of Variables
- A new scale was developed for each of the antecedent variables as above aligning with the PCMM framework practices to measure the extent of implementation and institutionalization of each of the aspects in the field
- Items were assigned in accordance with PCMM framework for each of the variables delineating possible dimensions within them

Table-2 : Operationalization of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Elaboration</th>
<th>Sources Studied</th>
<th>PCMM—Key Process Areas Mapped</th>
<th>Designed Items, Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corp Governance Practices (CG)</td>
<td>Practices around corporate and organizational management</td>
<td>Governance Score(Brown), PCMM(Curtis), CMMI(Paulk), BSC(Kaplan)</td>
<td>CBP, WP, CI</td>
<td>CG-SYS = 5, CG-EXE = 5</td>
</tr>
<tr>
<td>People Governance Practices--Staffing (PG-S)</td>
<td>Staffing, recruitment, selection and onboarding practices</td>
<td>PCMM, Role(Rizzo), HRM(Scott), JCQ(Karasek)</td>
<td>STF, MTR</td>
<td>PG-S = 12</td>
</tr>
<tr>
<td>PG-Performance Management, Career Development (PG-PM-CD)</td>
<td>Performance Management and Career Development practices</td>
<td>PCMM, Career Salience(Sekaran), Leadership(Fred), JDI (Smith)</td>
<td>PM, CC</td>
<td>PG-PM = 8, PG-CRD = 4</td>
</tr>
<tr>
<td>PG—Rewards &amp; Recognition Practices (PG-RR)</td>
<td>Compensation, Recognition and Reward practices</td>
<td>PCMM, Job Involvement(White)</td>
<td>COMP, CRD</td>
<td>PG-RR = 11</td>
</tr>
<tr>
<td>Quality Governance Practices(QG)</td>
<td>Practices to manage delivery and quality aspects</td>
<td>ISO(Levine), CMMI, PCMM,Servqual(Parasuraman)</td>
<td>WGD, CMPDEV, CMPANL</td>
<td>QG-SYS = 6, QG-EXE = 5</td>
</tr>
<tr>
<td>Training Practices (TKM)</td>
<td>Training and Development practices</td>
<td>PCMM, Training (Bae)</td>
<td>TD, CBA</td>
<td>TKM-TRG = 5, TKM-KM = 5</td>
</tr>
<tr>
<td>Depth of Degree and</td>
<td></td>
<td>PCMM, ISO, CMMI, HRM practices</td>
<td>WE, PC</td>
<td>DMO = 4</td>
</tr>
</tbody>
</table>
Management Involvement (DMI) | level of continuity of commitment demonstrated by management team (Jayaram) |  |  |
---|---|---|---|
People Process Maturity (PPM) | Maturity of People Processes demonstrated | PCMM, HRM Effectiveness (Chang) | QPM, CWI, EWG |
|  |  |  | PPM-BASIC = 4 |
|  |  |  | PPM-ADV = 6 |
Staff Outcomes (SO) | Outcomes for the employees | PCMM, High Perf (Bae), MB (Wonggrassamee), HR Effectiveness (Huselid) | CCI |
|  |  |  | SO-ENGAGED = 4 |
|  |  |  | SO-EMPOWERED = 6 |
Firm Outcomes (FO) | Outcomes for the firm | PCMM, MB, BSC, GovScore (Brown) | OPA |
|  |  |  | FO-BASIC = 6 |
|  |  |  | FO-GROWTH = 6 |
Client Outcomes (CO) | Outcomes for the customer | PCMM, MB, CMMI, HRM Impact (Huselid), CuSat (Krishnan) | OCM |
|  |  |  | CO-GROWTH = 4 |
|  |  |  | CO-DELIGHT = 6 |

- The validity of each of the set of items for variables was examined by reviewing the scale with experts from the industry who are well versed in human resources, business management and PCMM areas as a pilot study.
- Senior CXOs from 10 organizations in services industry gave valuable feedback in the pilot which was reflected in the final items to make it more relevant and valid.
- The refined scale was used to collect responses from around 130 professionals spanning from human resource, services and management functions.
- Two responses contained some missing entries which were removed.
- Responses to negative worded items were reversed before using as input for statistical analysis with SPSS system.
- Reliability was measured and analyzed for each variable together as well as within each dimension as suggested by factor analysis.

**Phase 4 : Analysis and Refinements: -**

Reliability analysis was done for each set of items of respective variables. Further for each set of items in a variable, factor analysis was done to determine loadings using principal components analysis method and reliability again checked post the analysis for each factor items to check for adequate clustering and internal consistency. Factors within each variable were also checked for theoretical alignment as per the PCMM framework before confirming the structure in the final scale.

**Table 3 : Reliability and Factor Analysis insights for the variables in the scale**

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>CRONBACH ALPHA (FULL ITEM SET)</th>
<th>FACTOR ANALYSIS CLUSTERING ITEMS</th>
<th>CRONBACH ALPHA POST CLUSTERING ITEMS</th>
<th>DIMENSIONS SELECTED POST FACTOR ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corp Governance Practices(CG)</td>
<td>0.813</td>
<td>CG-SYSTEM -1, 5, 7-9</td>
<td>0.780</td>
<td>CG SYSTEM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CG-EXECUTION-2,3,4,6,10</td>
<td>0.699</td>
<td>CG EXECUTION</td>
</tr>
</tbody>
</table>
### People Governance Practices--Staffing (PG-S)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGS-SYSTEM-1-3, 5-9,11-12</td>
<td>0.861</td>
<td>0.840</td>
<td>NOT ENOUGH LOADINGS -- PLAN TO GO WITH PG-S</td>
</tr>
<tr>
<td>PGS-EXECUTION—4,10</td>
<td>0.424</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PG-Performance Management, Career Development (PG-PM-CD)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-1,3-8, 12-13 CD—2, 9-11</td>
<td>0.861</td>
<td>0.831</td>
<td>PM, CD</td>
</tr>
<tr>
<td></td>
<td>0.747</td>
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</table>

### PG—Rewards & Recognition Practices (PG-RR)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>REWARDS-3-6, 8-11 RECOGNITION—1,2,7</td>
<td>0.885</td>
<td>0.627</td>
<td>NOT ENOUGH LOADINGS -- PLAN TO GO WITH RR</td>
</tr>
<tr>
<td></td>
<td>0.323</td>
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</tbody>
</table>

### Quality Governance Practices(QG)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>QG SYSTEM-1,2,4-6 QG EXECUTION-3, 7-11</td>
<td>0.757</td>
<td>0.847</td>
<td>QG-S QG-E</td>
</tr>
<tr>
<td></td>
<td>0.741</td>
<td></td>
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</tbody>
</table>

### Training Practices (TKM)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAINING 1-5, 9,10 KM—6-8</td>
<td>0.836</td>
<td>0.901</td>
<td>NOT ENOUGH LOADINGS -- PLAN TO GO WITH TKM</td>
</tr>
<tr>
<td></td>
<td>0.572</td>
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</tr>
</tbody>
</table>

### Depth of Management Involvement (DMI)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMI-11-14</td>
<td>0.881</td>
<td>0.881</td>
<td>DMI</td>
</tr>
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<td></td>
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</tbody>
</table>

### State of People Process Maturity (PPM)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC PPM-1,2,8,10 HIGH PPM-3-7, 9</td>
<td>0.793</td>
<td>0.691</td>
<td>BASIC PPM HIGH PPM</td>
</tr>
<tr>
<td></td>
<td>0.798</td>
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</tbody>
</table>

### Staff Outcomes (SO)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO-Engaged SO-Empowered</td>
<td>0.807</td>
<td>0.526</td>
<td>NOT ENOUGH LOADINGS -- PLAN TO GO WITH SO</td>
</tr>
<tr>
<td></td>
<td>0.749</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Firm Outcomes(FO)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FO- Base FO-Growth</td>
<td>0.746</td>
<td>0.671</td>
<td>FO- Base FO-Growth</td>
</tr>
<tr>
<td></td>
<td>0.743</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Client Outcomes (CO)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>Loadings</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO-Delight CO-Growth</td>
<td>0.83</td>
<td>0.775</td>
<td>CO-Delight CO-Growth</td>
</tr>
<tr>
<td></td>
<td>0.693</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- As seen above, in cases where there is inadequate clustering of items and low Cronbach Alpha, we have recommended to go with the initial dimension planned. This also is logically seen from the items addressing a homogeneous dimension in the given set for that variable from a theoretical perspective as well.
- The validated scale now covers seven variables that are antecedents of people process maturity spanning 10 dimensions within the 7 variables.
- The people process maturity variable is covered in 2 dimensions—Basic and Advanced differentiating the level and extent of people process maturity.
- There are 3 consequent variables that are captured in the scale around employee, firm and customer themes spanning within them 5 possible dimensions.
- The scale as designed to capture different antecedent variables of people process maturity and its dimensions is thus seen to be a reliable and validated one for use by researchers in the field.

**Conclusions and Suggested Areas for further work**

Based on the detailed reliability and factor analysis of the items for each of the antecedent variables as well as for the state of people process maturity and its consequences, it is seen that the designed scale is appropriate for measurement of the variables. However it may be noted that the data for this study is based on professionals from technology and services sector in an emerging market context, who are exposed to people process, quality and other governance systems. The reliability and validity for application of this scale in other sectors and business environments may need to be verified by the researchers for the particular context.

It is proposed to use this validated scale further in the technology and services sector to collect additional data with a view to map the dependencies and construct a possible model among the variables and the consequences which will help stakeholders get deeper insight into the dynamics of people process maturity and its business outcomes. The development of such a model will enable greater leveraging ability for all stakeholders to plan the antecedent variables to get the desired maturity in the system as well as to achieve set outcomes from staff, firm and customer perspectives.
REFERENCES


[29]. Fernando AC (2012), Corporate Governance, Pearson, 2012


[38]. Hall RH (1972) Organization Structure and process, Prentice Hall, NJ


[41]. Humphrey Watts (1989), Managing the SW process Addison Wesley, Reading, MA


[44]. Ishikawa K (1976), Guide to Quality Control, Tokyo, Asian Productivity Organization


[47]. Juran JM (1991)—Strategies for World Class Quality, Quality Progress, March , pp 81-85


[60]. Mary Beth Chrissis, Capability Maturity Model Integrated, Addison Wesley, NJ, 2007
[92]. Soltani I and B N Joneghani (2011) A Study on Determining the Level of Individual, Procedural and Organizational Maturity Based on Integrated Pattern of People Capability Maturity Model: (P-CMM) and 3-
Dimensional Pattern of Organizational Maturity in Production and Industrial Organization—International Business Research Vol. 4, No. 3; July 2011


