The Economics of Software Process Maturity and Its Interaction with Perceived Organizational Support: A Holistic Case of the United Arab Emirates.

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ABSTRACT

The paper spans (a) the theoretical and practical aspects of both management decision making and support, (b) the importance of integrating the interfaces between IT process models (Capability Maturity Model Integrated - CMMI® in particular) and organisational support strategies, and (c) the complementarity of hard and soft systems. All three are particularly significant in the current era where the boundaries of corporate entities have become increasingly indefinite. Equity (and debt) and therefore ownership is dispersed globally: so coordinating management decision in Information Technology Offshoring (ITO) for example is becoming more and more complex.

Following the popular hard/soft distinction pioneered by Peters and Waterman (1982), if perceived organisational support (POS) which is primarily a soft system, is to be effective in the ITO, it must be integrated with process models such as CMMI®. The integration of people-centric strategies demands attention because of the changing socio-cultural setting; it is also challenging, sizable and significant (Chevers and Grant, 2017). However, we propose a solution. We synthesise our empirical work on people-centred strategies in the UAE, based on an analysis of Perceived Organisational Support (POS) with new data on the adoption of

CMMI®. We use two sets of data (quantitative and qualitative), an analysis and a review of the most up-to-date scholarly work on CMMI® to produce a management model, POS-CMMI® (NCOSE, 1999).

The software industry is dominated by global giants and the offshore companies that supply them. Both compete aggressively; speed and quality of software delivery and speed of development are critical to the profitability and survival of both parties. CMMI® is the industry standard measure of performance. However, we argue that the extent to which employees feel that they are supported by their host companies is an important factor determining its success (Rhoades and Eisenberger, 2002; Aselage and Eisenberger, 2003).

We propose that theory of POS provides valuable insights into the problems of boosting the gains to both the industry giants and the software companies who supply them. In this paper, we focus on the UAE because it is a leading region for offshoring and outsourcing. We offer an empirical model as a method of integrating Perceived Organisational Support with CMMI® with particular reference to the role of the human interface between them.

Software companies in the UAE use CMMI® as one of their preferred processes to generate and deliver their IT deliverables (Naim and Dabash, 2015). As of today, CMMI® is viewed globally as a viable model to produce high-quality IT deliverables. Increasingly, the CMMI® model has become essential to meet and satisfy the rapidly changing needs of clients. Recent studies have indicated 50% of programming related work is performed after the implementation stage. Globally, the estimated cost of software maintenance remains 40-80% of the life cycle cost (Chevers and Grant, 2017).

The criticality of generating software value efficiencies is well documented in the literature, (Jorgenson and Wessner, 2006; Jones, 2014). Delivery organisations strive to achieve delivery maturity by adapting distinguished maturity practices, because, delivery maturity enables the software businesses to build, develop and retain competitive advantages. However, sustaining those advantages is only possible when the business organisations are prepared to use human involvement through POS to a sizeable level (Goldblat, 2013; Kumari, 2019; Evans, 2009).

Recent literature records widespread difficulties with implementing CMMI®; meeting budgeted time deadlines, ensuring the quality of existing products and at the same time developing distinct software applications (Alshehhi, 2011; Naim and Dabash, 2015). The effectiveness of implementation is a key issue for CMMI®. The implementation does not happen in a vacuum. Integration of the human interface becomes a necessity with CMMI®. We emphasise the need for integrating POS with CMMI®. POS is an active organisational practice, which prioritises human involvement and contributes to firms' CMMI® strategy. We draw on literature that spans CMMI® practices worldwide (Aselage, and Eisenberger, 2003; Rhoades and Eisenberger, 2002; Naim and Dabash, 2015).

We add to the broad literature by adopting recent findings in a yet unpublished doctoral thesis by the first author. In addition to a review of the recent literature on CMMI® and POS, we draw upon 9 interviews collected from CMMI®-enabled information technology companies for empirical data analysis with distinctive results for UAE.

It is believed that the research will bring a significant understanding of developing a people-oriented process strategy aiming increased organisational outcomes.

References

Alshehhi, H. (2011). The Implementation of Maturity Models in the United Arab Emirates
.[online] . https://bspace.buid.ac.ae/bitstream/handle/1234/235/60049.pdf?sequence=1 ١
[Accessed 21 Mar. 2021].

Aselage, J. and Eisenberger, R. (2003). Perceived organizational support and psychological
contracts: a theoretical integration. Journal of Organizational Behavior, 24(5), pp.491–509.

Carmel, E. and Tjia, P. (2005). Offshoring information technology : sourcing and outsourcing
to a global workforce. Cambridge: Cambridge University Press, Cop.

Chevers, D.A. and Grant, G.G. (2017). Information Systems Quality and Success in Canadian
Software Development Firms. Information Resources Management Journal, 30(3), pp.1–25.

Dubai.com. (2019). Dubai City Information and Travel Guide - Dubai.com.

Elmuti, D., Grunewald, J. and Abebe, D. (2010). Consequences of Outsourcing Strategies on
Employee Quality of Work Life, Attitudes, and Performance

Evans, C. (2009). Capability maturity model integration® (CMMI® ®) why does it go
wrong? In Proceedings 2009. Defense and Systems Institute (DASl). Retrieved from
http://www.dasi.unisa.edu.au/Academic_Program/LMSI/2009/papers

Goldblat, R. (2013). Capability Maturity Practices: Contributions to the Competitive Advantage of an Organization Goldblat, Reuven. Northcentral University, ProQuest Dissertations Publishing.

Jones, C. (2014). Software Industry Goals for the Years 2014 through 2018. Journal of Cost Analysis and Parametrics, 7(1), pp.41–47.

Jorgenson, D.W. and Wessner, C.W. (2006). Software, growth, and the future of the U.S. economy : measuring and sustaining the new economy : report of a symposium. Washington, D.C.: National Academies Press.

Kumari, D.G.S. (2019). The Role of Human Resource Practices in Creating Organizational Competitive Advantage – Elucidate Employee Satisfaction through Intervention Programme. International Journal of Psychosocial Rehabilitation, 23(4), pp.1563–1573.

Lake, J. (2001). Process Standards vs Capability Maturity Models. INSIGHT, 4(1), pp.47–48.

Naim, A. and Dabash, A. (2015). Study the Factors Affecting Maturity Level in UAE Information Technology Organizations [online] . Available at: https://bspace.buid.ac.ae/bitstream/handle/1234/750/110047.pdf .

NCOSE. (1999). Position on Capability Models and the Capability Maturity Model Integration (CMMI) Effort. , 2(2), pp.19–20.

Niazi, M., Babar, M. A. and Verner, J. M. (2010). Software process improve ment barriers: a cross-cultural comparison. Information and Software Technology, 52(11), 1204-1216.

Rhoades, L. and Eisenberger, R. (2002). Perceived organizational support: A review of the literature. Journal of Applied Psychology, 87, 698-714.

Peters, T.J. and Waterman, R.H. (1982). In search of excellence: lessons from America's best-run companies. London Profile Books.