COMPETENCE VERSUS CONFIDENCE

in IT Project Leadership and its Impact on Project Outcomes

DARRYL CARLTON
• Industry Fellow, Professor at the Swinburne University of Technolog - Australia
• dcarlton@swin.edu.au

• ABSTRACT •

Cobb's Paradox (Bourne, 2011) asks: 'We know why projects fail; we know how to prevent their failure—so why do they still fail?' This study immerses itself into a major Australian IT project in order to unearth the drivers of project failure. Several new and novel findings have emerged. Using Multi-Grounded Theory this research has developed models and rich descriptions of new phenomena. The phenomena identified in this research, are drawn from social psychology and economic theory and highlight the issues of project execution as a social undertaking. This paper addresses one of those findings, namely the lack of domain expertise by senior management and vendor representatives. This paper examines the consequences of 'actors-working-in-organisations' (Manning, 2008, p. 678) and in particular looking at individual interactions, decisions and consequences (Goffman, 1959) through the lens of the Kruger-Dunning Effect (1999).

• CONTRIBUTION •

The practice of information systems projects has an appalling success rate. Estimates vary, methods of calculation of success and failure are inconsistent making it difficult to compare individual project performance. Furthermore, and most challenging, objective and transparent data is rarely available. This research has been able to reconstruct a very large project and map its failings and ultimate failure. The results challenge the accepted advice of both academics and consultants and proposes a new set of measures to improve project performance. It identifies several new areas of continuing research.

INTRODUCTION

Information Technology projects fail at an alarming rate (Standish Group, 1994, 2001, 2009, 2010; Croteau and Li, 2003), for a range of different reasons (Ewusi-Mensah, 1997; Baccarini and Salm, 2004; Al Neimat, 2005; Al Ahmed, et al., 2009), and are increasingly being seen as unsuccessful (Standish Group, 2015). Despite a significant body of research into the causes of these failures little consensus exists (Jones, 2004, 2006) as to both the rate of actual failure or even how to measure failure. It is however agreed that in no other engineering discipline would this level of failure be tolerated (Reel, 1999).

Given the immense cost to society of this level of failure (Charrette, 2005; Hass, 2007), it is indeed puzzling that greater progress has not been made after more than 50 years to ensure that IT Projects are consistently delivered to specification and customer satisfaction.

In order to undertake a post-mortem examination of a failed project the study needed access to a wide range of project artifacts. Furthermore, the documentation needed to complete a post-mortem investigation needs to be comprehensive. Access of this nature, and to the detail and specificity required would be virtually impossible to obtain from a failed commercial project where knowledge of that project's failure is closely guarded. The study is therefore directed towards projects in the public sector. Government projects maintain formal documentation, and, if necessary, the data can be accessed under freedom-of-information (FOI) requests.

LITERATURE REVIEW

Government spending on Information Technology is running at approximately 9.1% of total operational expense (Gartner, 2013) making investments in information technology one of the single largest items of Government expenditure. 71% of that expenditure is on 'run-the-business' activities, and 29% on new initiatives and new programs (ibid.), but the success of these new initiatives has been limited with 'a number of high profile cost and time blow-outs in ICT' (Victorian Ombudsman's Report, 2011). The costs involved in the failures of public sector IT projects can be staggering. In the State of Victoria (Australia) we can count few successes in large-scale projects, with disasters such as MyKi ($1.5 billion), HealthSmart ($600 million), Link and RandL (double their projected spend). A study of information technology projects in the British public sector estimated that 20% of expenditures were wasted, and a further 30% to 40% led to no perceivable benefits (Wilcocks, 1994).

Standish Group (2010) has put the declining success rate at just 6% of all projects undertaken, having previously been recorded at 14%. There is contention and dispute as to whether the Standish data is completely accurate (Eveleens and Verhoef, 2010; El Emam and Gunes Koru, 2008; Glass, 2005; Jogensen and Molokken, 2006; Sauer, Gemino and Reich, 2007), or that it reports the whole truth with respect to Information Technology project outcomes. The research data across the industry (Al Neimat, 2005; Baccarini, Salm and Love, 2004; deBakker, Boonstra and Workman, 2009; Bannerman, 2008; Benamati and Lederer, 2001; Beynon-Davies, 1999; Boehm, 1991; Jones, 2004; Charette, 2005; Curtis, Krasner and Iscoe, 1988; Drummond, 1998; Oz and Sosik, 2000; El Emam and Gunes Koru, 2008; Ewusi-Mensah, 1997; Glass, 2006; Goh and Kauffman, 2004; Grenny et al., 2007; Hass, 2007; Humphrey, 2005) is showing that success is becoming increasingly rare in IT project delivery, irrespective of whether or not that success rate should be measured at the Standish defined metrics, or by some other indicator.

Fortune and White (2006) studied the critical success factors of projects drawn from a review of 63 peer-reviewed publications. They observed that there was 'a lack of agreement between authors' as to what were the CSFs for project success or failure, and that the 'inter-relationships between factors was at least as important as the individual factors'. Fortune and White catalogued their data according to the following:

1. Empirical-data mainly obtained from survey(s);

2. Empirical-data mainly obtained from case studies;

3. Theoretical - but data often based on the work of others.

The results of this work were an observable difference between the CSFs identified through the use of theoretical models or survey instruments that were created from theoretical models, and those observed from case studies.

THE CASE STUDY

In 2002, the State Government of Queensland (Australia) decided to establish a 'shared services initiative' (SSI) to provide Information Technology services as a group resource across most Queensland Government departments and agencies. As part of this initiative the SSI undertook the management of the Lattice Payroll System in use by several departments, Queensland Health amongst them.

By the 1st of July 2003 (WS122, p. 10) the SSI was underway and was named CorpTech. In August of 2005 CorpTech was granted A$125 million to build and operate a whole-of-government human resources and finance solution. Multiple vendors were retained to implement the solution and support CorpTech: Accenture Australia Holdings Pty Ltd (Accenture) with

respect to human resource and payroll programs and Logica CMG Pty Ltd (Logica) for the delivery of finance solutions. There were smaller numbers of contractors from SAP Australia and IBM Australia to build a solution comprising SAP ECC5 and Workbrain for payroll rostering and time and attendance recording.

In March of 2006 Queensland Health had transferred responsibility for the maintenance of human resource software and hardware to CorpTech. At this time the provision of a new computerised payroll system for its employees was thought to be urgent because the existing system, known as LATTICE, was nearing the end of its useful life (WS122, p. 11).

By 2007 an independent review, known as the 'Kelliher Report' found that the new system was significantly behind schedule. At about the same time Queensland Health was advised that the support for the ageing Lattice System would cease in 2008.

A series of reviews and tenders were undertaken to determine a different approach built around the idea of a 'Prime Contractor'. IBM subsequently won that tender and were awarded the contract to proceed on the 5th of December 2007. 'By October 2008 IBM had not achieved any of the contracted performance criteria; but it had been paid about $32 million of the contract price of $98 million; and it forecast that to complete what it had contracted to undertake would cost the State of Queensland $181 million. Accordingly, the Shared Services Solution across the whole-of-government was abandoned and IBM's contract was reduced in scope to providing a new payroll system for Queensland Health' (WS122).

On 14th of March 2010 the system finally went live after ten failed attempts. The resulting system was reported to have 35,000 payroll anomalies (WS059, p. 51) and required one thousand clerical staff to process fortnightly pays. Facing a total expenditure in the range of A$1.2 billion, the Executive Council of the Queensland Government ordered a Commission of Inquiry into the project on the 13th of December 2012.

RESEARCH METHODOLOGY

The documents forming the basis of the data collection are drawn principally from two sources:

1. The published files of the Queensland Commission of Inquiry into the Queensland Health Payroll Project; and

2. Documents obtained under freedom of information requests to the Department of Health Queensland, and to the Queensland Treasury Department.

In total more than 200 documents were obtained. These documents were initially in the form of concatenated PDF files and needed to be separated into individual documents. Once broken up, there were 355 files, of which 116 were witness statements from the Commission of Inquiry, and the balance of 239 files have been sourced by FOI. The documents sourced by FOI contain multiple records in each file, bringing the sum total number of individual files to be examined to approximately 1,000.

The total number of pages of witness statements amounted to 3,850. In addition, there was the collection of project documentation which exceeded 5,000 pages of emails, reports, project plans and other data.

The task of investigation – detailed scientific investigation – requires the researcher to understand the decision making that was made at the time that those decisions were made, with the information that was available to members at that time (Vaughan, 1996 & 2016, and Dekker, 2014).

Vaughan investigated the Challenger space shuttle disaster and developed new theories to explain how an organisation of experienced, qualified and concerned individuals could make what in retrospect appeared to be ill-informed and careless decisions. Vaughan referred to this phenomenon as "The Normalisation of Deviance". The significant departure in Vaughan's work from other investigations was her insistence on reconstructing the events and data flows surrounding the incident as it unfolded, "To understand decision making in any organisation, we must look at individual action within its layered context: individual, organisation, and environment as a system of action" (Vaughan, 2016, loc: 1245)

Vaughan further opined that "individual choice is constrained by institutional and organizational forces", undermining the notion of 'amoral calculations' (ibid). In other words, individuals attempt to make the best decisions that they can given the data available to them at the time, and within the known or experienced constraints of the institutional and organizational forces arrayed before them.

To examine a case from the perspective of a timeline of events, of data and advice that was available at the time, to the participants, the researcher must endeavor to reconstruct the project from the available information. Dekker refers to this method of investigation as being 'inside the tunnel'. "This is the point of view of people in the unfolding situation. To them, the outcome was not known (or they would have done something else). They contributed to the direction of the sequence of events on the basis of what they saw on the inside of the unfolding situation. To understand human error, you need to attain this perspective." (Dekker, 2014, p.18)

RESEARCH FIDINGS

Project Management failed, there was a lack of requirements definition, and management was in conflict - all of the issues that appear in the literature on failed projects. Yet, such issues as these got flagged by staff and consultants throughout the project (PD103, WS012, WS003, WS053), and still they remained as issues. No one could suggest that management was not made aware of these failures. The findings indicated it was not an absence of problem awareness that allowed a lack of project management discipline to continue unabated.

Management was regularly informed of what was going on with its project, both by staff and external consultants who knew how the project should be run to avoid problems of the nature experienced. The report on the 2005 Whole-of-Government initiative (WS039), the KPMG Report (WS003), the KJ Ross report on testing (PD103), the IBM and CorpTech report to 'reconstruct' the business requirements (PD063) and the 2009 Queensland Audit Office report (PD108) all provided clear statements identifying where the project was failing and what needed to be done to remedy the situation. Yet the problems persisted until the total project costs had blown out to beyond A$1 billion.

To paraphrase Cobb's Paradox - the State Government of Queensland understood why projects fail and what specifically was going wrong on their payroll project; they had been informed of what needed to be done to prevent failure and were well aware of the methodologies and governance arrangements that were required — so why do they still fail?

The proximal causes of failure, as identified in this research, are:

1. a lack of domain expertise by senior management responsible for the project as evidenced by the inability or unwillingness to adopt appropriate governance processes;

2. stakeholders remained in conflict throughout the life of the project;

3. internal advice was ignored (or worse) and team members were unable to find an avenue to raise their concerns;

4. there was a complete lack of accountability for failure evident throughout the project and especially when it came to vendor and contract management.

A LACK OF DOMAIN EXPERTISE

An Information Technology project employing dozens or hundreds of people from different stakeholder groups, with different training, experience and motivations is a microcosm of society - it is its own unique social construct, existing within a larger organisation. This research is studying the consequences of 'actors-working-in-organisations' (Manning, 2008, p. 678) and in particular looking at individual interactions, decisions and consequences. Goffman (1959), investigating the microsociology of face-to-face interactions developed a theory referred to as 'dramaturgy' that states 'we are all performers in the interest of order' (Manning, 2008, p. 679). Dramaturgy refers to the manner in which individuals 'perform' in social situations in order to produce a result. Performance 'comes and goes as required' and 'selectively presented, selectively responded to, and selectively adequate to sustaining the working consensus on which interaction depends' (ibid.).

The actors in the Queensland Health Payroll project came from many different organisations: IBM, CorpTech, Queensland Health, Department of Works, KJ Ross & Associates, independent contractors working for any of the aforementioned, and several senior executives with no discernible experience or knowledge of information technology projects being asked to run a large and complex project interacting with other individuals all 'acting their parts'.

In the Queensland Health Payroll project there was a range of people, with different backgrounds and experiences interacting in an organisational setting. The manner in which they respond to 'events' or 'problems' depended upon a range of inputs - their personal experiences, education and training, the availability of explicit knowledge in the form of documented and available materials, and the use of tacit knowledge. Vo-Tran (2014, p. 15) found that 'stakeholders who possessed greater amounts of experience tended to rely upon the use of their tacit knowledge to manage and share information. Whereas stakeholders who possessed lesser amounts of experience had a tendency towards the use of explicit forms of documentation'.

In a 'Goffmanesque' environment individuals will behave differently depending upon whether or not they are 'acting' front-stage or back-stage (Vo-Tran, 2014, p. 131, Manning, 2008):

• **Front Stage** – where the actors' actions are visible to the audience and form a part of the performance. The person knows that they are being watched and acts accordingly.
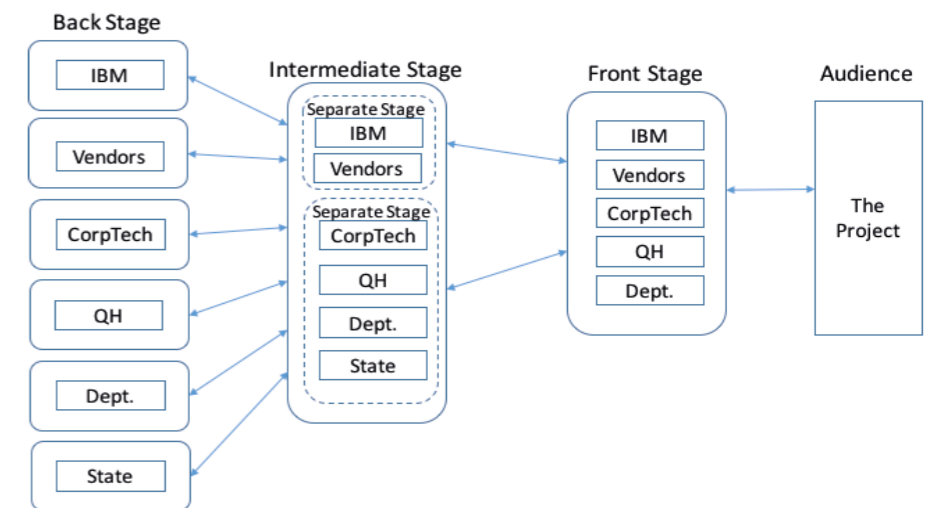

FIGURE 01. Enhanced Goffman Dramaturgy Model

• **Back Stage** – where the actors' are present and the audience is not, performers are able to step out of character without fear of disrupting the performance. It is where the facts that are suppressed in the front stage or various kinds of formal actions may appear. No members of the audience can appear in the back stage and performers draw on many methods to ensure this.

• **Intermediate Stage** – the nature of a complex project such as Queensland Health has many players engaged on many stages simultaneously, playing many parts. Exposing different truths to different players depending upon which stage they are appearing upon at any point in time.

Dramaturgy 'is not concerned with aspects of theatre that creep into everyday life. It is concerned with the structure of social encounters - the structure of those entities in social life that come into being whenever persons enter one another's immediate physical presence' (Goffman, 1959, p. 254).

Within the context of the Queensland Health Payroll project there was not a single front-stage or back-stage. There were 'multiple shows' happening on the Queensland Health payroll project, where multiple stakeholders were taking on multiple roles. We might characterise the Project as 'the main stage', each stakeholder group then had their own back-stage, which in a micro-sociological perspective was a front-stage for that team.

Information that flows between the back-stage and (multiple) front-stage(s) is going to be compromised, not unlike what happens in the children's party game of 'Chinese whispers'. Mintzberg (1994) provides several examples of both unintentional as well as intentional distortion of the flow of information as it moves between parties. With such a complicated organisational structure as that exhibited in the Project, and with multiple stakeholders acting upon different stages, the reliability and transparency of information would have been compromised - both intentionally and unintentionally.

'A fundamental problem in software projects is the presence of unreliable information. In initial information as well as in subsequent status reports' (Sengupta and Abdel-Hamid, 1996). Carpenter, Bauer and Erdogan (2016) report that communication between individuals is challenged by a range of factors including 'filtering, selective perception, information overload, emotional disconnects, lack of source familiarity or credibility, workplace gossip, semantics, gender differences, differences in meaning between Sender and Receiver, and biased language'.

All work is about interaction between individuals (Manning, 2008, p. 681) and 'organizational artefacts such as mission statements, goals and objectives, strategic plans and the like function as tools to reduce choice, not to guide it'. In the same manner, the specification of requirements, the business case, the architecture and solution design of the Project are all intended to constrain choice to deliver 'order'. In this project 'order' is represented by a working payroll system.

To manage a project, any project, in such a challenging communication environment would take exceptional skills. Essentially the question that this research examines is: what skills were required to manage the Project to success, and were they evident in the Project?

Communication is critical. 'Managers don't leave meetings or hang up the telephone to get back to work. In large part, communication is their work' (Mintzberg, 1990). Information that flows between the back-stage and front-stage, between actors and stakeholders is compromised both intentionally and unintentionally. The recipient of information needs to be able to assess the data provided and be able to judge its

value, veracity and completeness.

Experienced stakeholders 'tended to have greater back stage presence' (Vo-Tran, 2014, p. 132) through the use of tacit knowledge built-up by experience. In contrast less experienced actors were 'thrust onto the front stage where they relied upon 'the script' (explicit forms of documentation) to complete their performance' (ibid.). On a project as complex as Queensland Health payroll, with multiple vendors and stakeholders, actors would be holding one set of conversations back at 'home office', another with their 'partners' and a third with the client. When the conversations finally presented themselves to executive management in the State Government, without skills and personal experience to fall back upon the only resources at their disposal were the formal procedures, committees and documentation.

This issue of transparent flows of information between parties, of experts being able to make informed decisions utilising tacit information compared to less experienced people needing to 'follow the script' (Vo-Tran, 2014, p. 135), of actors controlling the release of information, and of stakeholders presenting different versions of themselves across multiple stages becomes critical when one considers both the make-up of the governance and management of the Project and the individuals involved.

An appropriate lens through which to view this performance construct has been described by Justin Kruger and David Denning (1999) and is referred to as the Kruger-Dunning Effect.

In essence, the 'effect', as described by Kruger and Dunning (1999, 2009), reasons that the less competent an individual is in a particular domain then the more they are likely to overstate their knowledge and ability. This may be referred to as a 'confidence/competence dissonance'. Individuals that lack competence in a particular domain (incompetent) generally perceive their performance to be not significantly inferior to those who possess significant competence, training and ability.

Despite early criticism to the ideas popularised by Kruger and Dunning, subsequent research has reinforced the principles of the 'unskilled-and-unware problem (UUP)' (Ryvkin, Krajc and Ortmann, 2012). The Kruger-Dunning Effect has entered the mainstream and has been reported in the popular media with the BBC Magazine publishing 'Does Confidence Really Breed Success?' (Kremer, 2013). The BBC article was reporting on the rise in narcissistic attitudes in the United States of America and their correlation to success and performance.
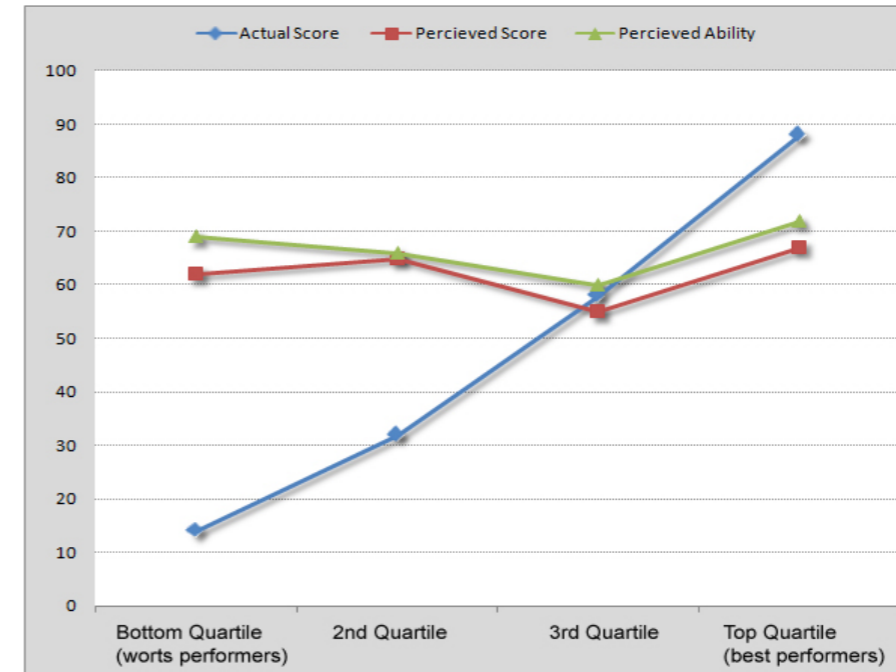

FIGURE 02. BBC's article - The rise in narcissistic attitudes in USA correlated to success and performance.

Twenge and Foster (2010) found that 'there has been a 30% tilt towards narcissistic attitudes in US students since 1979', and that 'The Narcissism Epidemic' (Twenge & Campbell, 2010) breeds 'the idea that being highly self-confident is the key to success'. Twenge and Campbell were at pains to point out that there is no correlation between confidence and successful outcomes. Kremer reported that 'over 15,000 journal articles have examined the links between high self-esteem and measurable outcomes in real life, such as educational achievement, job opportunities, popularity, health, happiness and adherence to laws and social codes' (2013, p. 4).

Mark McCormack, the founder of the International Management Group, wrote a book in 1984 called 'What They Don't Teach You at Harvard Business School'. In the introduction to this book he asserted that 'assuming you know something about your own discipline, then ……' (1984, p. xiii). Essentially McCormack was positioning leadership as an extension of competence, of domain expertise, not a replacement or an alternative to capability. As Twenge and Foster noted, over the last 30 years confidence has replaced competence. Positive thinking has replaced knowledge.

When it comes to the Queensland Health payroll project, it was stated very clearly by the Deputy-Secretary of the Department that the Executive-Director was not skilled in information technology but was a very experienced people manager with in excess of 30 years in the public sector (WS026). The Executive-Director described her education and work experience as mostly being in the human resources domain (WS024).

The challenge that this lack of domain expertise causes is encapsulated by the Kru-

ger-Dunning Effect. Specifically 'that incompetent individuals lack the metacognitive skills that enable them to tell how poorly they are performing, and as a result, they come to hold inflated views of their performance and ability' (Kruger & Dunning; 1999, p. 38).

Of even greater concern is the UUP observation that not only do the domain challenged individuals overestimate their own ability relative to their actual performance, they are also incapable of identifying competence in others, 'participants who scored in the bottom quartile were less able to gauge the competence of others than were their top-quartile counterparts' (Kruger Dunning, 1999, p. 37). Moreover, this research identified that 'incompetent individuals fail to gain insight into their own incompetence by observing the behavior of other people. Despite seeing the superior performances of their peers, bottom-quartile participants continued to hold the mistaken impression that they had performed just fine' (Kruger Dunning, 1999. p. 38).

With respect to the Project, what this means is that where managers are not technically competent, not only are they overestimating their own ability and underestimating the relative competence of the skilled workers on the Project, they do not have the skills to discern the quality of advice being given to them. Essentially, they cannot tell the difference between the veracity of a confident/incompetent player providing advice, and a competent/less-confident actor.

The ramifications for this disconnect are massive and cannot be overstated. We have already observed that different parties to the Project, from different vendor and stakeholder groups, are 'acting' in back-stage and front-stage scenarios, and that they withhold information in order to manipulate outcomes. We have already seen that information is compromised as it flows through an organisation becoming 'bland, filtered and unreliable'.

The manager with accountability, respon-

sibility and authority needs to be able to grade the information coming to them in order to make informed decisions. It is the contention of this study that the result of placing a domain-challenged individual in a position of authority will result in an adverse outcome where:

1. the manager will act the part that they perceive they need to adopt;

2. the manager will be incapable of identifying the skilled and competent individuals that can be trusted for expert advice;

3. the manager will not have the cognitive or experiential tools to determine an appropriate course of action when faced with a 'trigger event';

4.the manager will confuse confidence with competence and be subject to undue influence by other 'incompetent' actors.

In summary, the Queensland Health Payroll project was placed at significant risk by failing to appoint management, governance and oversight that had technical skill equal to the challenge.

EXPLORING SOLUTIONS

The research into the Kruger-Dunning effect and the Unskilled and Unware Problem (Ehrlinger et al., 2008) reaffirms that those that lack domain expertise also lack the ability to identify competence in others. The research also found that as competence is improved through training, the ability to identify competence in others simultaneously becomes more accurate (Ehrlinger 2008, p. 118; Kruger and Dunning, 1999, p. 1128).

The Kruger-Dunning research also demonstrated (Kruger Dunning, 1999, p. 1131) that those individuals lacking in domain expertise were least likely to benefit from 'social comparison', that is, they are unable to amend their own performance simply by observing the performance of others. Direct intervention is required by way of explicit education into the domain specifics.

The June 15th, 2015 issue of Businessweek was a special edition about computer coding. The essay which outlined the importance of coding stated:

'Software has been around since the 1940s. Which means that people have been faking their way through meetings about software, and the code that builds it, for generations. Now that software lives in our pockets, runs our cars and homes, and dominates our waking lives, ignorance is no longer acceptable. The world belongs to people who code. Those who don't understand will be left behind' (Ford, 2015).

Horowitz (2014) published an opinion piece in Dr. Dobbs Journal of Software Development arguing 'engineering managers should code 30% of their time'. Horowitz related his own expe-

riences and noted that when he lost coding skills he faced issues such as an increasing 'technical debt' and a loss of 'continuity of understanding'.

While there appears to be little in the academic literature on the benefits, or even the experience, of senior executives learning to code, it is a topic regularly discussed in the professional literature.

Reinforcing the lessons learned from Ehrlinger et al. (2008) and Kruger and Dunning (1999) the benefit that comes from being trained in the domain specific area is to increase the ability of the manager to identify informed opinion, and to make informed decisions. The executive and senior management of the Queensland Government were not equipped to understand the information being presented to them, much less to evaluate the veracity of the actors presenting the data. Senior management 'acting' their part took instruction from vendors (WS012, p. 10) that bypassed their own staff (WS008, p. 13). Complex issues arising between the internal project team and the vendors were treated as 'personality issues' (WS008. P. 13), where the executive director would 'suggest she facilitate a meeting' (WS041, p. 8). Individuals that expressed concern about the direction the project was taking (WS013, p.3) were placed on 'a list of people that (IBM) didn't want on the project … apparently anyone who had put up any objection to what IBM were doing or raised any issues, their name was on that list' (WS013, p. 13). When the CorpTech contract management team attempted to hold IBM to the contract (WS013, p. 12), despite its deficiencies, the 'IBM responded by going to the Director-General of the Department and demanding the removal of "problematic employees". The Director-General then advised Ms Perrott to remove personnel from the contract management team' (WS012, p. 6).

CONCLUSION

Executives that lack knowledge of information technology, and essentially the challenges inherent in developing a large complex body of software, are ill-equipped to manage a complex project. They cannot differentiate between good advice and poor advice. They can neither identify self-serving advice nor understand the consequential impact on the project for which they are accountable. Without explicit training the executive is influenced by others that exhibit strong confidence, but lack the competence to back up their performance.

This situation can be remedied by training the executive in the skills relative to the domain. The goal of this training is not to create a technical professional out of the executive, rather it is to equip the professional with the skills necessary to understand what is happening on the project, to arm the executive with the requisite knowledge to evaluate information presented to them, and to weigh that information using objective analysis. ◆

• AUTHOR •

DARRYL CARLTON Darryl has spent over forty years in the practice of information technology. He was the founder, CEO and Chief Architect of the worlds first SaaS ERP. He was Head of IT Strategy for Telstra, Head of Business Process Engineering for Optus, Chief Executive Officer for BizTone.com, Chief Information Officer for the Environment Protection Agency, IT Strategy Advisor to several Government Departments, and Head of Applications Development for one of the world's largest internet service providers. He has recently been appointed as Industry Fellow in the School of Business, Technology and Entrepreneurship at Swinburne University where is focused on research and teaching related to IT Project and Portfolio Management. He is completing his PhD on the subject of "Understanding Cobb's Paradox: a multi-grounded theory case study of IT project failure in the public sector " at the RMIT University.

darryl.carlton@project-perfect.com.au

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