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Communicating the Value of Data Management to Non-Technical Stakeholders

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Abstract

This paper focuses on a key point of failure in information management projects, i.e., the inability to communicate the benefits of the project to non-technical management stakeholders. It discusses research on this communication gap and identifies content areas in which this gap is most critical. It then uses the Project Delivery Management Process (PDMP) Communication Framework as a means of further analysing this gap and then describes a case study which demonstrates some of the practical issues related to bridging this gap. The paper ends with a brief summary of best practices for communicating technical data to non-technical management.

The Business Problem

One of the key reasons for failure of information management projects is an inability to communicate the benefits of the project to non-technical management stakeholders, as revealed an analysis of a set of comprehensive peer reviews from the Middle East and Asia (Kozman, 2005). A challenge or barrier to the necessary effective communication can occur when a technologist, defined here as someone applying science or engineering data for a practical purpose, attempts to communicate the value of information management to a subject matter expert with a background and metier in business, financial, or organizational development without considering their target's background and orientation.

In today's oil and gas industry, non-technical stakeholders are likely to come from a variety of operational backgrounds with career paths and expertise in areas including financial or human resources (Lloyd, 2008). These managers are required to efficiently assess return on investment for all projects proposed within their domain and to give the project team the responsibility to execute. This requires goals and expected outcomes to be expressed with the vocabulary and conceptual frameworks these non-technical stakeholders understand.

An extreme example of the type of non-technical manager that may be responsible for the business success of an information management project can be seen in the United States federal government programs for managing public databases and developing intelligence or actionable information out of

the raw data to identify emerging systemic risks. A recent set of interviews showed that the primary qualifications for a chief data officer to oversee this project were consensus building, financial experience, and risk management. Specific data management skills were considered unnecessary and even a hindrance (Kentouris, 2010).

The Communication Gap

As in all project communications, it is critical for an information management team to choose the right communication approach—message, recipient, timing and medium—to present the goals and results of an information management project to each stakeholder, and to demonstrate with quantitative metrics how the project addresses the specific business need most relevant to each stakeholder. Unfortunately, technical team members often lack the "soft skills" required to meet this challenge such as presenting scope, challenges and future potential of projects to non-technical stakeholders. This is no surprise, since information management training seldom addresses these areas. At the same time, the non-technical stakeholders may lack the technical knowledge required to understand and appreciate the value of the information being managed, further adding to the communication challenge. This deficiency of knowledge and skills on both sides of the technology divide often results in a serious communication gap that results in unnecessary delays and misallocation of data management resources.

Perceptions of the Communication Gap

In a recent survey of over 120 professionals from inside and outside of technology-related disciplines (Eggert, 2010), the most frequently stated perception of the non-technical project stakeholders is that the technologist's "lack of people skills" creates a barrier to the effective conduct of business, followed by comments loosely classified with the perception that they "think like technologists," i.e., in ways with which the non-technologists are unfamiliar.

The comments from the technologists in the group further clarify the nature of this gap with slightly over 25% reflecting the belief that barriers are created by non-technical team members who "don't understand what we do," and the large majority of the remainder referring to the non-technologist's lack of insight, skills and motivation required to make effective use of information provided by technologists. (Figure 1).

Topic 1: Barriers "technologists" and non-technologists bring to the party

The following is a summary of answers to the request: "Please describe in 10 - 100 words the behaviors of action or thought demonstrated by non-technologists [technologists] that sometimes get in the way of the effective conduct of business."

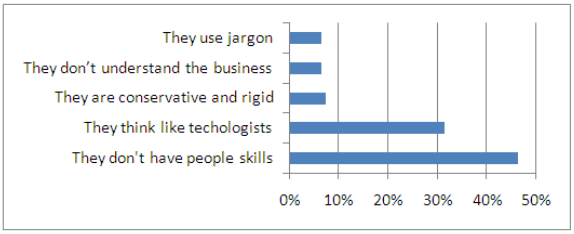

Exhibit A: Non-technologist's characterization of barriers presented by "technologists"

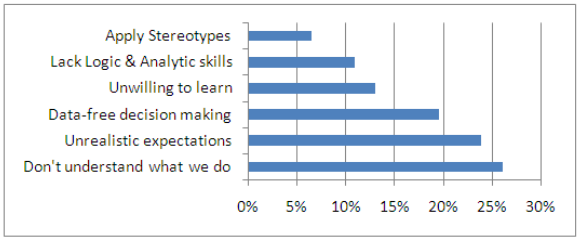

Exhibit B: "Technologist's" characterization of barriers presented by non-technologists

Note: "Technologists" was defined as those who "consider themselves to be professionals in science, technology or engineering."

Issues discussed by audience and presenter at November HODN meeting

Figure 1. Differing perceptions between technical and non-technical team members

Although this was a subjective survey with open-ended questions and a clear self-reporting bias, it does support some common findings of the previously described peer reviews. The majority of technical team members tend to take for granted that the value of an information management project to the business will be perceived by non-technical stakeholders. Meanwhile, the non-technical stakeholders perceive an inability by the technical team to communicate that very value. In the same survey, the non-technologist's most frequently cited advice to those in the technology disciplines was to "engage the non-technologists as individuals", while those with a technical background most often proposed "collaborating toward common goals". As the study's primary investigator pointed out, while orientation to individuals and orientation to common goals are both valid approaches that indicate a desire to work effectively with each other, this desire may go unrecognized and unfulfilled because of different orientations, leadership styles, or levels of resistance to change (see also Long and Spurlock, 2008).

Early recognition of these orientations and incorporation into tailored communication plans can enhance the ability of a project team to build trust with stakeholders, and enable consistent communication about how the project benefits the organization's efficiency, effectiveness and bottom line. This parallels studies in major oil and gas organizations that show that the value of data to an organization can be substantially increased if the data management projects include communication and

visibility with the highest “C” level non-technical managers and are demonstrably aligned with their financial objectives (Schultze, 2010).

This conclusion is also supported by a recent survey of data management professionals (Tidemann, 2010) by the Public Petroleum Data Management organization (PPDM) in which almost 80% of technology practitioners either agreed or strongly agreed with a statement that “A program to help 'management' to understand ...opportunities in (technology) would see better outcomes ... at our company” (Figure 2).

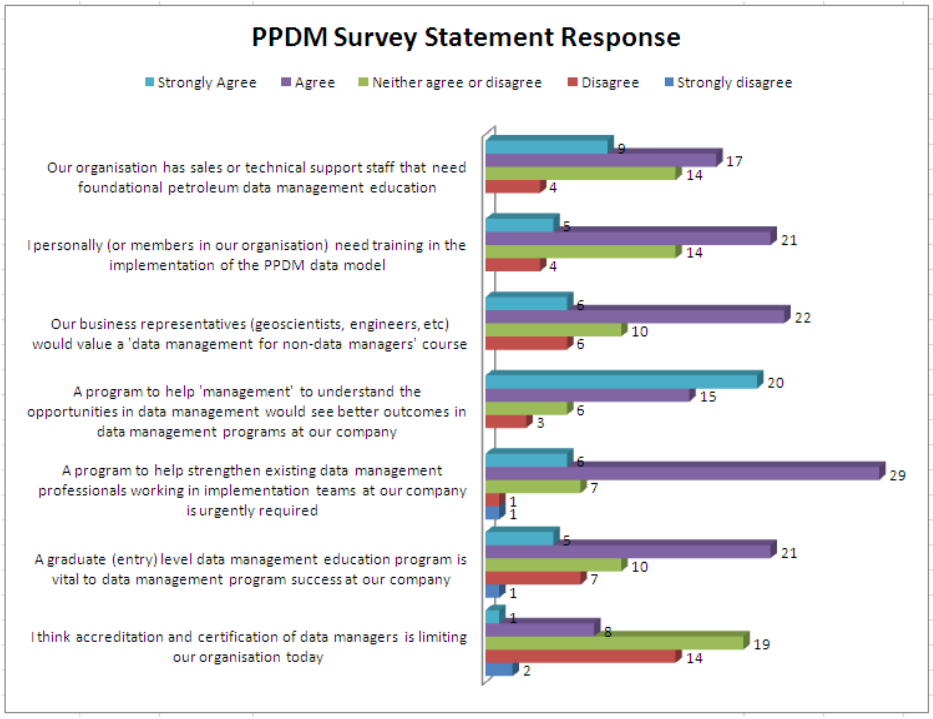

Figure 2. Results on a survey of training needed by petroleum information management professionals

Comments on this statement included observations that non-technical managers needed primarily ”insight to scope, challenges and future potential”. Statements that this was “critical to business success” and “absolutely needed” lend weight to data management professional’s view of the importance of educating non-technical management.

The Importance of Prioritizing Info

Given the necessarily limited resources of time and attention from non-technical stakeholders, it is essential to identify the data most critical to project success and to relate these to the concerns most important to these stakeholders. The previously described PPDM study rated the functional areas defined by the Data Management Association (DAMA) International in terms of their importance and relevance to professional petroleum data management projects (Figure 3).

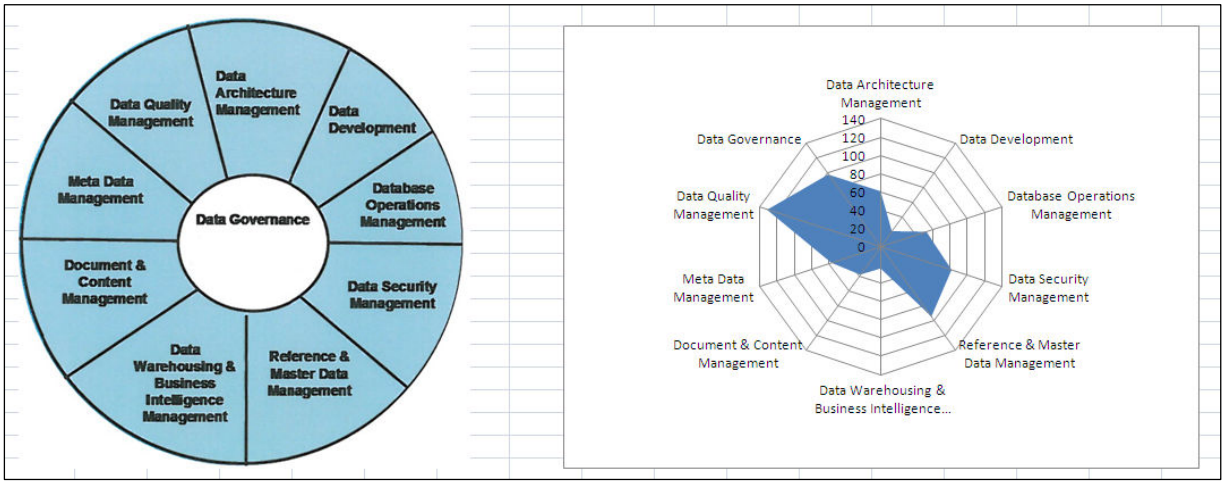

Figure 3. Functional areas of the DAMA model and their relative weightings by oil and gas data managers.

The three areas that consistently rated as most critical were Data Quality, Data Governance, and Reference and Master Data Management. The benefits to the organization as a whole of these key areas must be communicated effectively in a language based on the non-technical stakeholder's background, experience and business drivers.

The comparatively low rating on this matrix of Data Warehousing hints at another facet of the communication gap. While technical data managers may recognize and acknowledge the differences between data warehousing and the other more successful strategies for oil and gas on this matrix, the profession has not done a good job of training technical professionals to either illustrate or communicate to non-technical stakeholders the relative costs, risks and benefits of those different solutions (Schroeck, 1999).

Tailoring technical communications to stakeholder priorities

One key to overcoming barriers between technical and non-technical stakeholders on an information management project is having a communication plan tailored and aligned to each stakeholder's business needs and perception (positive, negative or neutral) of the project. A study by a government agency shows the positive benefits of including multiple types of stakeholders in strategic communication plans for wide-reaching information management projects (FGDC, 2005).

Some organizations have attempted to bridge this communication gap by implementing an industry-standard project delivery management process (PDMP) that focuses the project communication plan on aligning disparate stakeholders with how the project meets business requirements (Figure 4) and how it supports the corporate mission, strategy, expectations, and operations (Gonzalez, 2010).

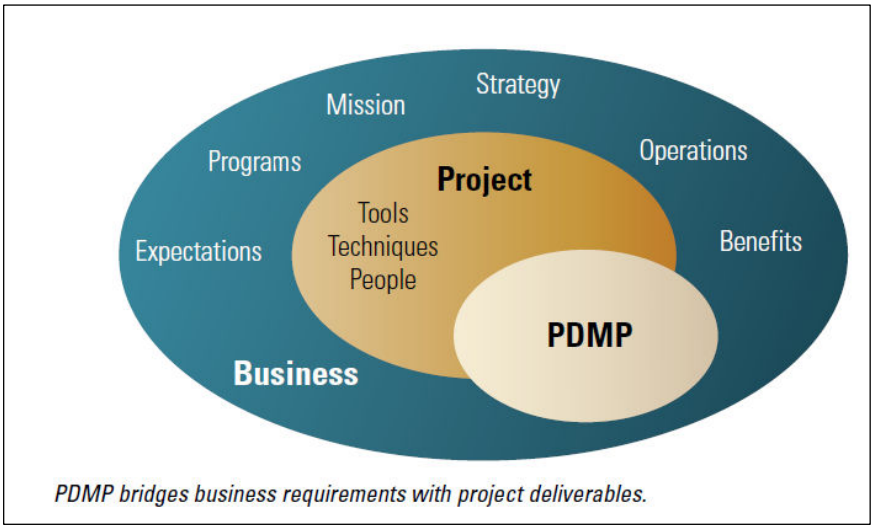

Figure 4. Areas of focus for the oil and gas industry Project Delivery Management Process (PDMP) showing the interface between project management and the business (after UKOGC, 2002 and Gonzalez, 2010).

The process combines principles from PMBok® Third Edition and the PRINCE2® Process Method (UKOGC, 2002), and was developed specifically to facilitate the successful completion of petrotechnical and information management projects for the oil and gas industry. T he PDMP focuses specifically on controlling those communication aspects of information management projects that, when neglected, led most often to failure. These critical areas include: defining a business case (Kozman, 2005), clearly identifying issues as Requests for Change or Out-of-Scope, and identifying and managing technical and business risks. The process also links projects to other parts of the company infrastructure (Figure 5), including financial, human resources, help desk functions, and risk management systems.

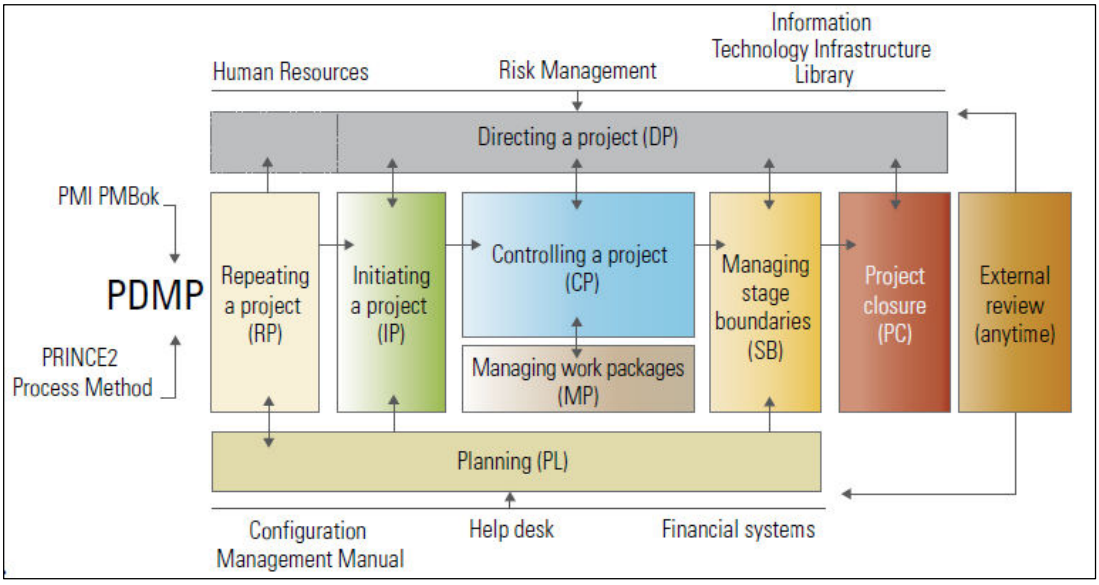

Figure 5. Other parts of a company infrastructure with stakeholders in an information management project, from the industry standard PDMP (from Gonzalez, 2010).

Having an integrated system based on the PDMP saves time between the communication of project recommendations and actions taken, allowing more efficient use of resources. It also specifies in the project communication plan how often and in what format project goals and deliverables are to be communicated to different types of stakeholders, including customers, users, and suppliers of technology.

Tailoring Data Quality Metrics for Non-Technical Managers: A Case Study

A recent case study evaluated information management projects designed to deliver production data to asset level non-technical management in support of mission critical decisions around optimization, maintenance and resource allocation. In one of the information management projects examined, a group at a global integrated energy company was tasked with populating a set of 16 Production Excellence Key Performance Indicators (KPI) from information thought to be standardized in their SAP system. The project was championed by the Production Engineering Group, and the implementation team consisted mainly of IT professionals, SAP support staff, project management practitioners and business analysts. The intent was to create a set of KPI's that could be tied to financial targets and compared with published "world class" standards.

Because of the wide variability of maturity of SAP implementations across different global assets within this company, and the reality of the source data being stored in widely disparate systems, the completeness and quality of the calculated KPI's was highly variable across different assets. When the first months calculated KPI's, based on an analysis of production data, were presented to the Vice President of Global Production (an identified non-technical stakeholder), his immediate feedback was that the variability of the KPI quality was preventing him from recognizing the benefit of the entire information management project. The project needed a way of communicating the quality and completeness of the KPI's so the business could evaluate if the calculated KPI's were suitable for benchmarking and comparison across multiple assets, and if not, what data quality facets needed to be improved. To deal with this issue, a business analyst with a production data management background was was taked to visually map standard quality and completeness as a characteristic of each KPI (Figure 6) in a way that aligned with the key stakeholder's financial incentives.

The quality and completeness metadata was collected based on statistical analysis of the number of data stores contributing data to a given KPI, the variability of processes used to generate the KPI's, and self-reported quality as a measure of how fit-for-purpose the underlying data was in the system from which it was collected.

A facilitated workshop was then held with multiple stakeholders to determine the best way to format and communicate these metrics in a dashboard format that could be incorporated into the company's intranet information portal. The workshop deliberately elicited comments and feedback on the differences in visual comprehension styles between technical and non-technical stakeholders (Bateman et.al., 2010), their alignment to common and/or individual goals, and their perception of the value of the project to their area of geographic responsibility. In particular, the completeness and quality metrics were mapped to quality measures being used in other parts of the organization such as six-sigma and

capability maturity models, so that the value of the information management project would be measurable by non-technical stakeholders.

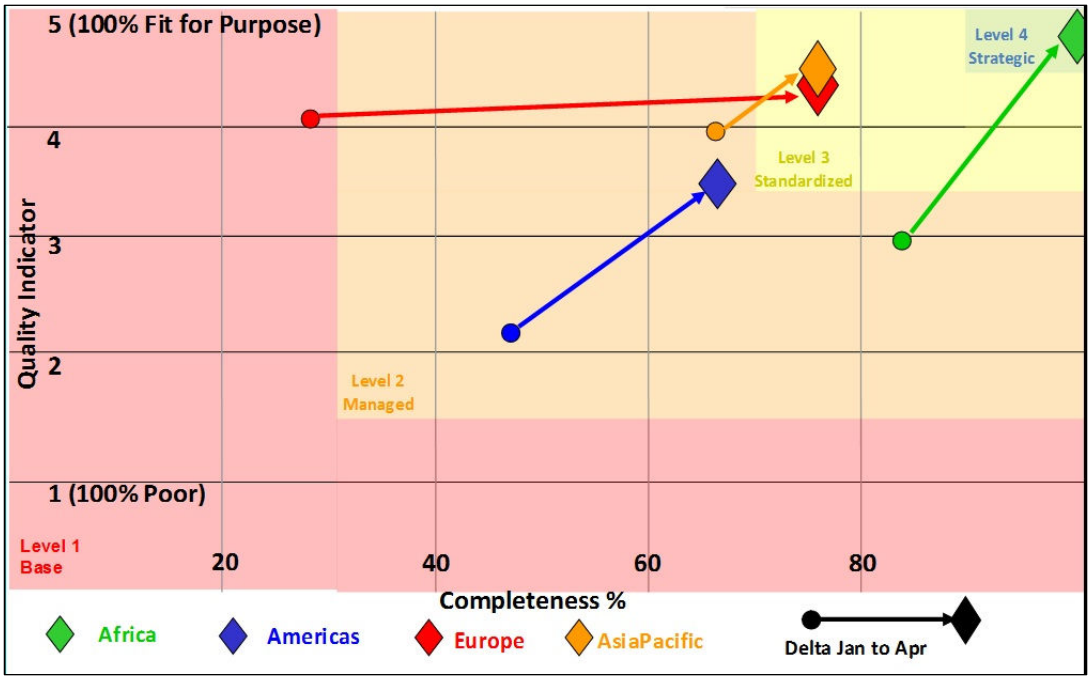

Figure 6.Changes over time in a set of quality and completeness measures for tracking and communicating the progress and value of a Production Excellence KPI Project, showing the relationship to capability maturity and six-sigma measures

The figure above shows 4 geographical regions from the case study mapped onto a maturity model. Data quality of the KPI's is expressed on the Y-axis and data completeness on the X-axis. By presenting a visual display of the increasing quality and completeness of the KPI's as a proxy for the progression of the project, the non-technical stakeholders were able to align their evaluation of the KPI's and the underlying data with the corporate mission and strategy and focus attention on the parts of the organization where processes were not standardized.

Tailoring Communication on a Major Application Upgrade Project: A Case Study

In the E&P community, upgrading to new versions of software is a very common activity. Indeed, replacing an existing application with a technology better suited to the organization's business needs often results in an information management project that non-technical stakeholders did not anticipate. Recently in South East Asia a major integrated energy company successfully identified and realized data management benefits by effectively planning and deploying new technology to hundreds of users through a committed multi-skilled project team and well planned and executed communication plans.

The drivers for upgrading or switching technology included but were not limited to; access to better features and functionality to improve workflows and integrate new science and ideas, enhanced

information integration or use, usability, and cost versus value benefits. Ultimately this would deliver better decisions and outcome capabilities to the organization.

Major version milestones or application replacements often require a project team to tackle 'data migration' and when migrating, project teams are presented opportunities to bring additional business benefits including; improving data quality, reducing data duplication, increasing maintainability of the information, and increasing the depth of information and metadata captured. Risks include losing information, migrating data which is no longer required by the organization (incurring an unnecessary cost), and introducing data error or 'translation' problems.

Upgrading to a new version or replacing and existing core piece of software technology requires an effective project communication plan in order to derive and demonstrate the identified business benefits while ensuring a smooth transition and improving data quality and value. These milestones can create an information management project unexpectedly for those who either fail to identify all expected business benefits or effectively communicate with all non-technical stakeholders.

In South-East Asia the major oil and gas company in the case study used the Prince 2 project communication methodologies to effectively identify and plan a communication strategy to deliver identified business benefits and mitigate risks. The project involved delivery of new technology to a community of hundreds of E&P professionals located in multiple geographic locations. Upgrade, rationalization and improvement in data quality for over 15 years worth of 'project data' was successfully achieved.

Recommendations for best practices

A number of recommendations for communicating technical data to non-technical audience can be drawn from the information presented in the paper. It is hoped they will provide a starting point for the data management community to begin defining best practices.

1. Recognize that communication skills are necessary for the success of information management projects and ensure that technology professionals with these skills are available as required resources for such projects. Recognize that communication skills are a core competency for development programs for information managers.

2. Recognize that non-technical stakeholders are not always equipped to appreciate the importance of various aspects of a data management project, nor the relevance to their priorities. Assess the relative understanding of these issues of key stakeholders and design project communications with these realities in mind.

3. Use consistent frameworks, such as PDMP, to design communication strategies into projects and to manage their execution, as consistently-styled communications will lead to increased understanding.

4. Identify the communication styles and preferences of key stakeholders and leverage these for effective communications. For example, a quick conversation over a water cooler may sometimes be more effective than a formal report for a given non-technical stakeholder. These communication formats can be defined and documented in the project plan.

5. Reality dictates that all stakeholders are not created equal. Different stakeholders may need to be weighted differently in the overall end-result decision making, project influence and communication processes. Recognise that all value judgements stakeholders make are influenced subjectively by their experiences and backgrounds and that these differences should be noted, understood and acknowledged within communication processes and planning. These roles can be formalized by using a standard Project Governance structure such as that included in the PDMP.

6. Reduce the “us” versus “them” barrier often apparent between technical and non-technical project stakeholders, with effective communication and team building. Ensuring that you have mutually vested and engaged stakeholders that develop collaborative teams will increase and enhance communication and leads to high value outcomes with less risk. Project teams with a Project Board of both technical (supplier) and non-technical (business owner) stakeholders, that jointly build the Business Case for an information management project, for example, will be forced to develop success criteria that bridge this barrier.

7. Remain conscious of the increased challenges when communicating with remotely situated teams and stakeholders. Design and tailor the communication plan to this challenge.

8. Ensure transparency of the key project plans, goals and objectives. Publish these in a clearly visible and easily understood form (this may involve publishing the same information in varying forms styled to the preferences of key stakeholders).

9. It’s a mistake to assume that all stakeholders (internally and externally to the project team) view all aspects of the project positively. You must realistically assess and respect ‘neutral’ and ‘negative’ perspectives of the activities of the project and devise a communication and action plan to address these needs and perspectives. View challenges to the business benefit as an important opportunity to increase the success of the project if acknowledged and appropriately addressed.

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