

Project Planner/Scheduler Defined - A Key Word Analysis of Current Job Descriptions as the Basis for Exam and Competency Assessment Scoring Models

Dr. Paul D. Giammalvo, CDT, CCE, MScPM, MRICS, GPM-m

INTRODUCTION

One of the major global challenges facing project management practitioners in general is to try to standardize the terminology, and more specifically, as we try to obtain mutual or reciprocal recognition and equivalency in our credentialing programs, is to define what the roles and responsibilities of those providing “Project Management Office” (PMO), “Project Controls”, “Cost Engineering” “Systems Engineering”, Business Analyst” or what is commonly being referred to collectively as “project support services”. (PSA)

In the role of a subject matter expert in developing competency assessments in the field of applied program and project management, cost engineering, project controls and project support services, the author is continually looking for better and more reliable ways to determine what the market is actually looking for when they seek to hire “program”, “project”, “project controls” or “project support services” professionals and use that information to create better competency based assessment models for our clients. While we normally provide these professional services for a fee, as a “sustainable” project management consulting organization, we also have a corporate responsibility to share some of our generic “Lessons Learned” to advance the practice of applied program/project management and as a challenge to other practitioners to experiment with different approaches. This is the purpose of this paper. (See Follow on Research)

Based on many years of prior review of internal job descriptions from both owner and contractor companies indicated no consistency in the requirements, either in terms of levels (i.e. entry or apprentice vs experienced or journeyman vs master or senior level) or exactly what the potential employers wanted or expected the people they hired for these positions to actually be able to do. Based on this “Tower of Babel” of confusing and often conflicting requirements, the hypothesis which was originally developed and tested is whether the help wanted advertisements, as posted on the various job boards would prove to provide a more unbiased and accurate indication of what employers actually were seeking than relying on the job descriptions from different companies, many of which are proprietary and confidential.

This is the first of a four part PILOT RESEARCH designed to perform a “Key Word” analysis from current job postings as the basis to define what the market is looking for in terms of:

- 1) Planner/Schedulers
- 2) Cost Estimators/Cost Managers
- 3) Forensic Analysts/Claims Analysts
- 4) Project Control/Cost Engineers/Systems Engineers/Business Analysts

For this preliminary research the LEVEL of the job was not considered, just what the “preponderance of the evidence” based on the key words being used, showed was expected by employer’s be done by a person in this position, irrespective of level. In this specific example the job title is “Planner/Scheduler”, with the remaining 3 job titles to be the subject of follow on papers.

Not directly the subject of this paper but based on previous papers published on this topic, the author believes the LEVELS are determined not by the “tasks” or “elements” required to be done, (see PMI’s Scheduling Professional Exam Content Outline (<http://www.pmi.org/~media/PDF/Certifications/exam-outline/scheduling-professional-exam-outline.ashx>) or the Global Alliance for Project Performance Standards(http://globalpmstandards.org/wpcontent/uploads/2014/12/GAPPS_Project_Manager_v1.11_50411_A4.pdf) for an example of what a “Task “or “Element” is) but by the types of knowledge required (KNOWLEDGE DOMAINS) to perform or execute those “tasks” or “elements” and how those types of knowledge are applied to perform those tasks or elements. (Blooms COGNITIVE DOMAINS as shown in Figure 1 below.)

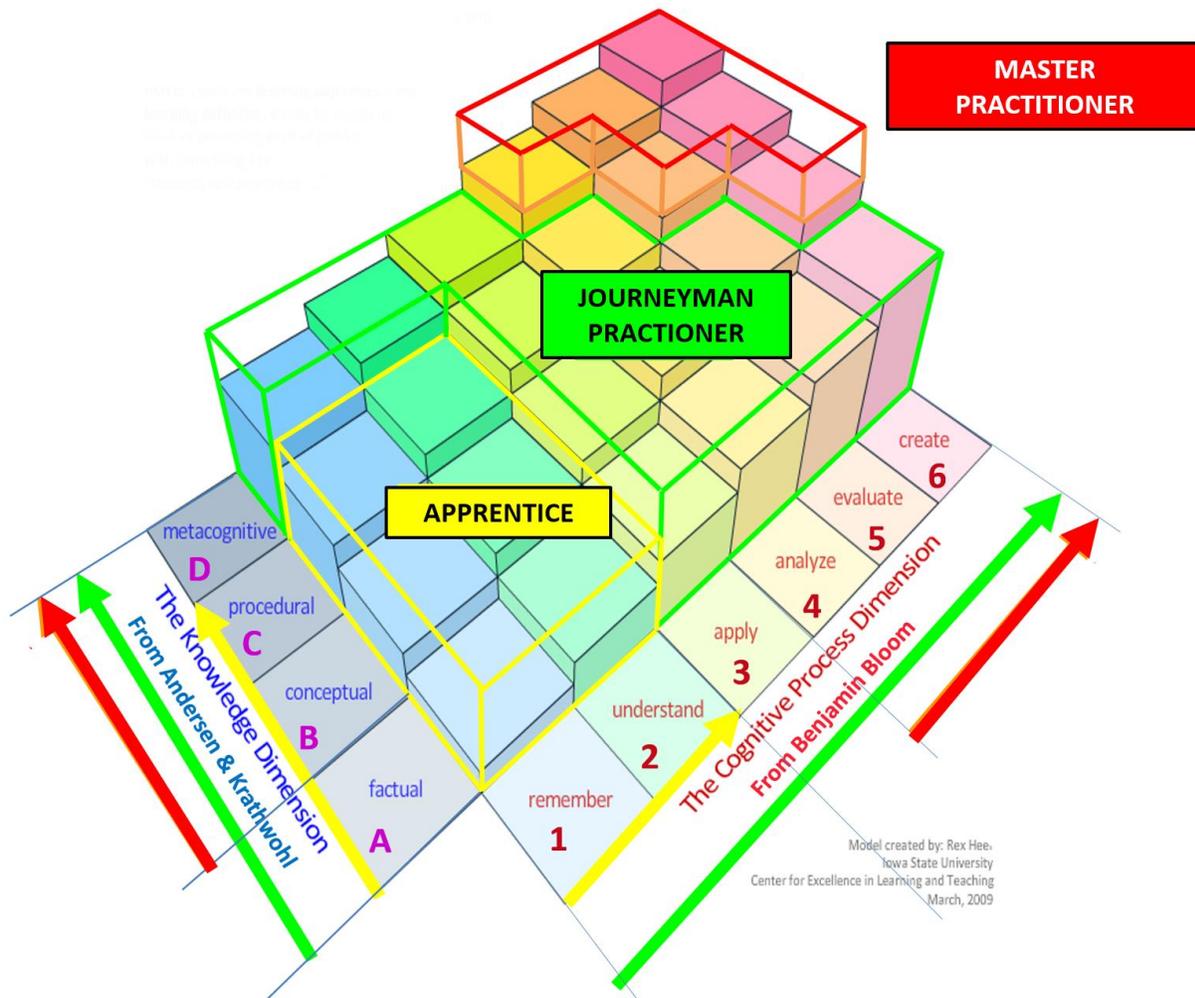


Figure 1 Levels are determined by TYPES of KNOWLEDGE and HOW THAT KNOWLEDGE IS USED (Blooms)
Source Heer, Rex (2009) Iowa State University Center of Excellence in Teaching <http://www.celt.iastate.edu/teaching/effective-teaching-practices/revised-blooms-taxonomy>

Taking this approach, the KEY WORDS from the JOB ADVERTISEMENTS determine the TASKS or ELEMENTS which are required to be done while the Knowledge Dimensions and Blooms Cognitive Process Dimensions determine the LEVEL of the job.

METHODOLOGY

Trying to define what a Planner/Scheduler does is akin to asking the 7 blind men of Hindustan to describe an elephant- if you ask 50 people you will get 50 different answers, depending on whether they are owners or contractors, not to mention which industry sector or area of the world they are coming from.

To try to eliminate the effects of individual, sector or regional bias, the research approach was to apply James Surowiecki's the "Wisdom of Crowds" philosophy and look at what the job advertisements are seeking or requiring, conduct a "key word" search on those job advertisements, validate those key words against an independent source, and then map those key words to accepted and recognized standards to see if the content contained in the job advertisements is consistent with and support the standards or if there is a disconnect between what the job advertisements are asking for and what the standards are measuring.

Explained another way, following Covey's advice to "begin with the end in mind" the author used job advertisement's as the starting point and working backwards, used what the marketplace is looking for as the basis to benchmark and validate the certification program structure and weighting factors.

This pilot research was done by:

- 1) Randomly selecting a total of 30 job advertisements for the position of "Planner" or "Scheduler" as they appeared rank ordered by the Google search engine;
- 2) 5 job advertisements from each of the following countries were randomly chosen by selecting the top 5 which showed up on a Google search for "Planner" or "Scheduler" and [Country]:
 - a. Australia (5)
 - b. Canada (5)
 - c. Middle East (5)
 - d. United Kingdom (5)
 - e. United States (5)
 - f. Singapore/Malaysia (5)

These countries were chosen as being a geographically dispersed sample of countries doing large, complex and challenging projects AND who most likely are seeking globally qualified professional level talent to staff those projects.

- 3) The 30 results from Google searches were copied and pasted into a single word document, then referring to the US Government Accountability Offices (GAO) "GAO Schedule Assessment Guide

Best Practices for project schedules” (<http://www.gao.gov/assets/600/591240.pdf>), 100 key words were selected appropriate to the position of “Planner” or “Scheduler” and using the “Find” feature, the number of times each word appeared in the job advertisements appeared was recorded in an Excel spreadsheet. The US Government Accountability Offices (GAO) “GAO Schedule Assessment Guide Best Practices for project schedules” was selected as it is the only document which is totally independent of any single professional organization (i.e. PMI, AACE, GPC, CIOB etc) that document was selected as the source of the 100 key words used as the basis against which to compare the job descriptions.

- 4) The next step was to identify “tags” which when entered into the different fields, tied each word to both the PMI SP Exam Content and the Guild of Project Controls Compendium and Reference, then turning the Excel spreadsheet into a Pivot Table the author could sort and filter the results, enabling a comparison and analysis of the results.
- 5) After the key word analysis was completed the results were benchmarked against PMI’s PMI-SP Exam Content Outline followed by the GPC Exam and Competency Assessment Scoring Model to see if there were any discrepancies.

While there are many professional organizations such as PMI, AACE GPC and CIOB who offer planning and scheduling certification program’s the two organizations with the large global footprint are the US based Project Management Institute (PMI) and the UK based Guild of Project Controls. Based on the fact these two organizations have the most globally diversified membership, their credentials were used to compare the findings to test the hypothesis, however this research is being published with the hopes that other organizations will also consider using the job descriptions from the marketplace as the basis upon which to develop their scoring and competency assessment models.

FINDINGS 1- Job Descriptions vs PMI’s Exam Content Outline “Domains”

The first finding is that in the job postings there were NO key words which appeared in the job advertisements which were NOT covered in the GAO’s Best Practice in Scheduling” (<http://www.gao.gov/assets/600/591240.pdf>), PMI’s Scheduling Professional Exam Content Outline (<http://www.pmi.org/~media/PDF/Certifications/exam-outline/scheduling-professional-exam-outline.ashx>); the Guild of Project Controls Competency based credentialing program (<http://www.planningplanet.com/guild/certification>) which is based on the Guild’s “Compendium and Reference” standard, (<http://www.planningplanet.com/guild/GPCCAR-modules>). This cross validates and provides some level of confidence that:

- 1) The job postings contained all the relevant and appropriate “key words” and that none were missing from the job advertisements that were in the GAO “Best Practices” document AND;
- 2) Conversely, it validated that neither the GAO, PMI nor GPC has missed anything that the market needs or expects from planners/schedulers that has failed to be covered in any of the three reference documents.

However, when looking at the percentage weightings , there are some differences which bear further research and analysis as it appears there is a disconnect between what the market is saying they need and want and what is being tested for.

In Figure 1 below, taken from PMI’s Scheduling Professional Exam Content Outline illustrates the 5 domains and the percentage each domain is worth on the exam.

Domain	Percentage of Items on Test
Schedule Strategy	14%
Schedule Planning and Development	31%
Schedule Monitoring and Controlling	35%
Schedule Closeout	6%
Stakeholder Communications Management	14%
Total	100%

Figure 2- Domain and Weighting Factor for the PMI SP Exam (from PMI’s Scheduling Professional Exam Content Outline <http://www.pmi.org/~media/PDF/Certifications/exam-outline/scheduling-professional-exam-outline.ashx>)

When the author compared the percentages derived from the key word analysis from the job postings and using the same domains the analysis produced different percentages:

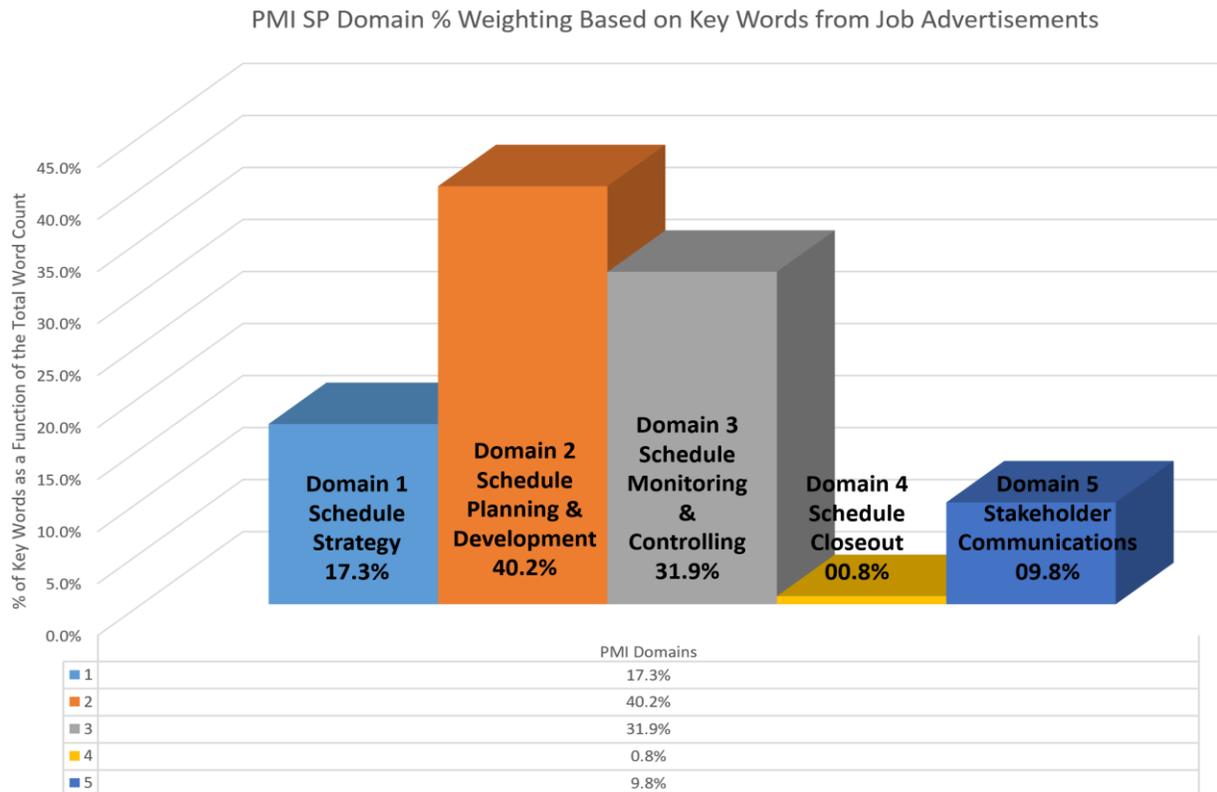


Figure 2- Percentages of Key Words from Job Postings Allocated to the PMI SP Domains (by Author)

By comparing the results of the key word analysis from the job advertisements vs the weightings used by PMI we can see the differences:

Domains	Key Word Analysis	PMI Exam Content	Difference
Domain 1- Schedule Strategy	17.3%	14%	-3.3%
Domain 2- Schedule Planning & Development	40.2%	31%	-9.2%
Domain 3- Schedule Monitoring & Controlling	31.9%	35%	3.1%
Domain 4- Schedule Closeout	0.8%	6%	5.2%
Domain 5- Stakeholder Communications	9.8%	14%	4.2%
Totals	100%	100%	

Table 1- Percentage Analysis Key Words from Job Advertisements vs PMI Exam Content Outline (by Author)

The fact that PMI puts more emphasis on Domain 3- Monitoring and Controlling and Domain 4- Schedule Closeout and LESS on Domain 1- Schedule Strategy and Domain 2- Schedule Planning certainly doesn't make sense given it is generally accepted that the emphasis should be on what the oil and gas sector calls "Front End Loading". This emphasis on more strategic thinking and early planning also is

consistent with the old adage “plan the work then work the plan”, which may help explain why our projects continue to run late with such alarming frequency?

We can interpret these differences two ways:

- 1) Assuming those writing the job descriptions know what they really need and want in a planner/scheduler then it appears as though PMI’s weightings need adjustment, OR;
- 2) Those writing the job descriptions are not referencing the PMI weightings when writing job descriptions for planner/schedulers.

One has to assume or at least hope that those writing the job descriptions actually do know what they need and want, leading one to question how PMI arrived at their weightings.

FINDINGS 2- Job Descriptions vs GPC’s GPCCAR

The Guild of Project Controls has taken a different approach from that of PMI.

- 1) The GPC model has developed a MATRIX approach which looks at the Planner and Scheduler either as a functional position (PS Track) or as Planning and Scheduling as being one part of a career path as a Project Control professional.

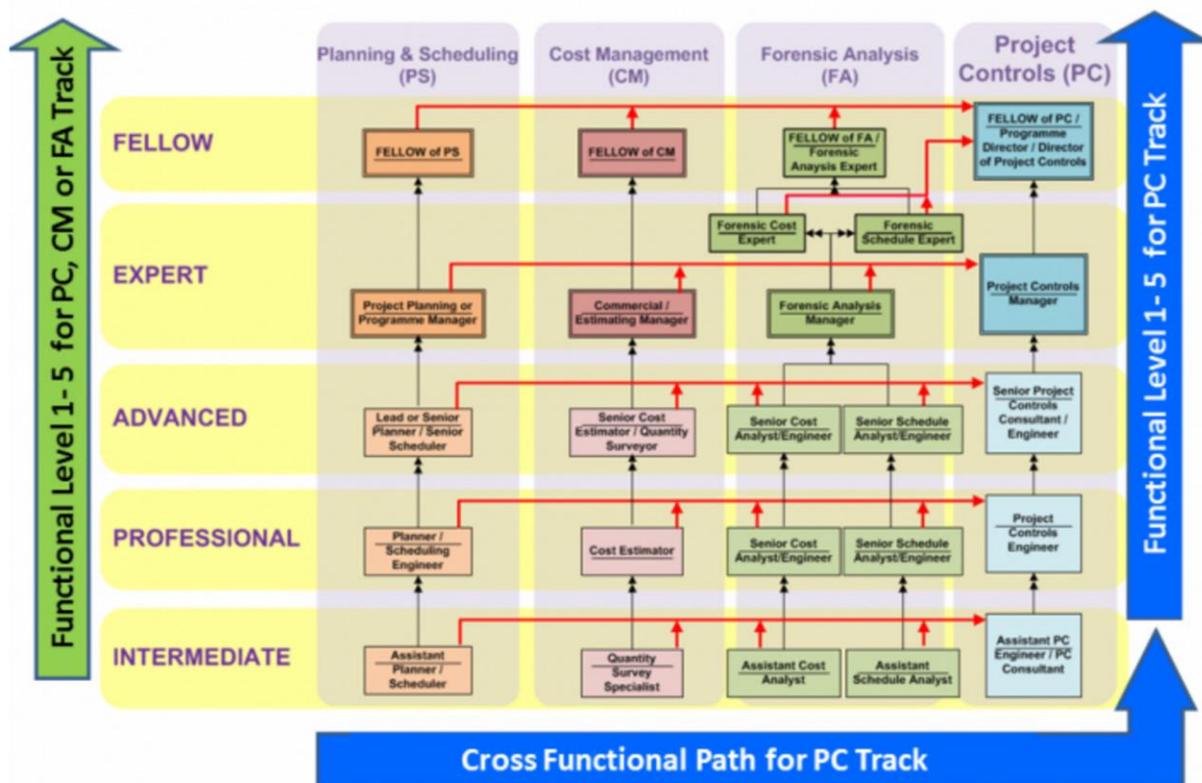


Figure 4- Guild of Project Controls Career Path (See Guild of Project Controls Career Path Progression Figure 2 <http://www.planningplanet.com/guild/gpccar/develop-project-controls-career-path-development-plan>)

- 2) As readers can see from Figure 3 above, the GPC Career Path not only integrates 4 different job titles or job functions but unlike PMI's approach which only offers a single level certification for Planners and Schedulers, the GPC model offers 5 levels, roughly corresponding to a normal career path progression from being a fresh graduate getting the first job to becoming a senior practitioner. (For more on these levels and the requirements for each track and level, go HERE <http://www.planningplanet.com/guild/certification>)
- 3) In addition, the GPC Model, much like PMI's model, is also built around the PROCESS GROUPINGS, however because the GPC takes an INTEGRATIVE approach, combining the roles and responsibilities of not only Planners and Schedulers but also Cost Estimators and Cost Engineers, Forensic/Claims Analysts and Project Control professionals, the Guild has broken the process groupings down one level deeper into MODULES.

And these MODULES apply not only to Planners & Schedulers but also to Cost Estimators and Cost Engineers but also to Forensic Analysts/Claims Analysts and Project Control practitioners, the GPC approach is a more realistic model of how project controls works in most organizations. Explained another way, while the PROCESS GROUPINGS apply to all of the above job descriptions the focus (weighting) changes based not only on the TRACK (PS, CM, FA or PC) but also depending on the LEVEL of the credentialing process.

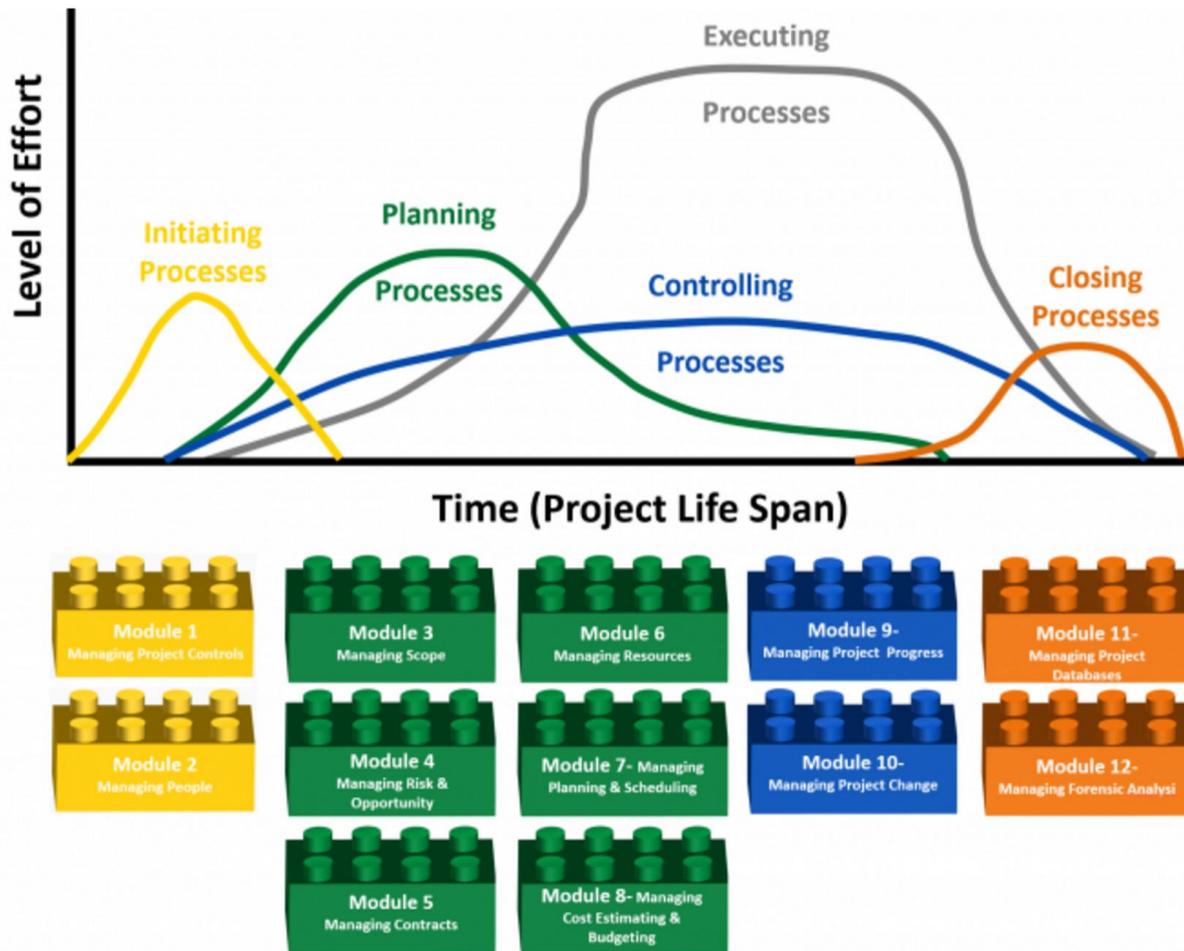


Figure 5- Guild of Project Controls Compendium and Reference Modules Mapped Against the Process Groupings (See Figure 10 <http://www.planningplanet.com/guild/gpccar/introduction-to-managing-project-controls>)

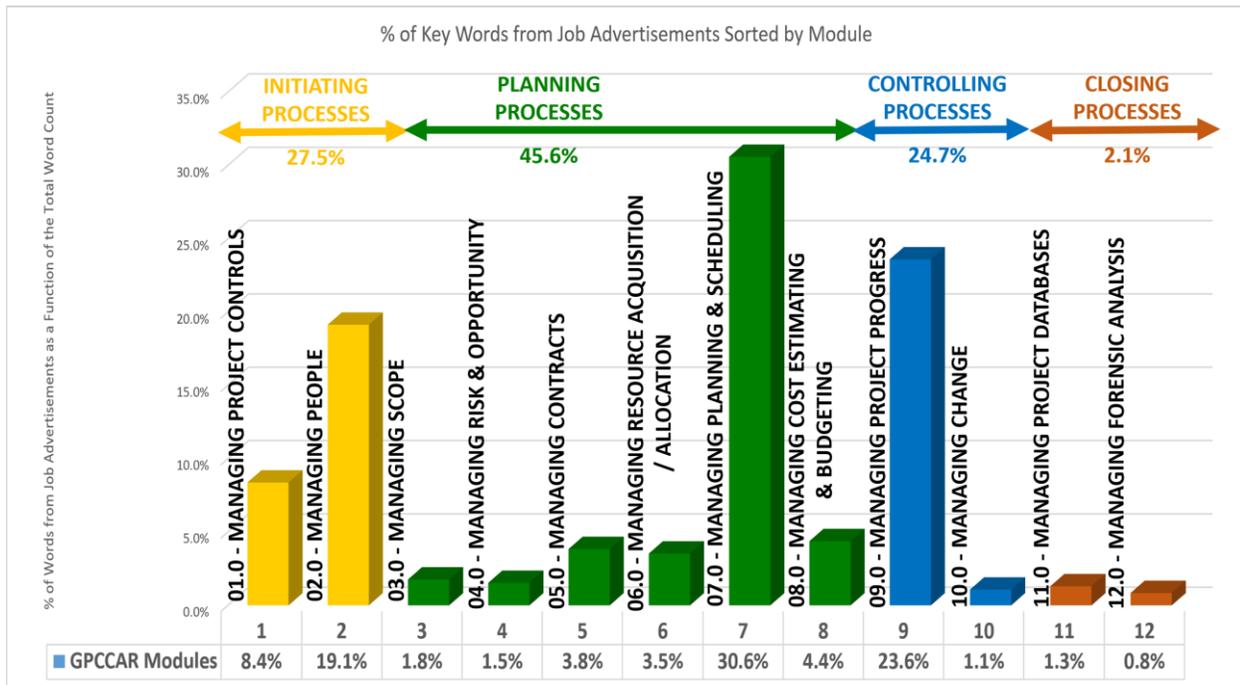


Figure 6- GPC Modules Showing Total Percentages for Each Process Grouping Based on Key Words from Job Postings (Adapted by Author from Guild of Project Controls Modules- <http://www.planningplanet.com/guild/gpcar/introduction-to-managing-project-controls>)

As can be seen from Figure 5, because the Guild has gone to a greater level of detail, when they “roll up” the modules to the Process Grouping level, here are the totals:

- Initiating Processes = 27.5%
- Planning Processes = 45.6%
- Controlling Processes = 24.7%
- Closing Processes = 2.1%

(NOTE: As this is project CONTROLS, there are no EXECUTING processes as it is the project manager/project team who are responsible to EXECUTE THE PLAN created by Project Controls for and on their behalf and use)

But what is most important is these weightings are based not on an arbitrary allocation but based on what is contained in the job postings found on the internet. What makes this “market driven” approach highly desirable is that as the job descriptions change due to technological advances or any other changes in the marketplace, it is a relatively quick and easy way to modify the exam and competency scoring model to match changing markets. It also offers a sound and rational approach for any sector to CUSTOMIZE the scoring and assessment model to match their unique requirements.

To summarize here is the difference between the PMI and GPC exam (and for the GPC also the competency assessment) scoring:

Domains	PMI Exam Content	Difference	GPC Processes	GPC Process Groupings from GPCCAR
PMI Domain 1- Schedule Strategy	14%	13.5%	27.5%	GPC INITIATE Process
PMI Domain 2- Schedule Planning &	31%	14.6%	45.6%	GPC PLANNING Process
PMI Domain 3- Schedule Monitoring &	35%	10.3%	24.7%	GPC CONTROLLING
PMI Domain 4- Schedule Closeout	6%	3.9%	2.1%	GPC CLOSING Process
PMI Domain 5- Stakeholder Communications	14%		N/A	For GPC Stakeholders are Included in Module 02-6 - Identifying And Engaging Stakeholders and Module 03-3 - Validating Stakeholder Expectations and Module 03-6 - Accepting Completed Deliverables
Totals	100%		100%	Totals

Table 2- Comparison between PMI SP Scoring Model and the GPC Scoring/Assessment Model (by Author)

As readers can see, the GPC, by basing the weighting using the key words taken from the job descriptions has resulted in almost twice as much weighting being placed on the Initiating processes (14% vs 27.5%) and an additional 14.6% being placed on the Planning Processes. (31% vs 45.6%) Likewise PMI put almost 3 times the emphasis on closing out the schedule (6% vs 2.1%) than what the GPC has calculated, based on the was learned from the job advertisements.

As the GPC model has split PMI's Stakeholder Communications Domain between GPC Modules 02-6 - Identifying And Engaging Stakeholders and Module 03-3 - Validating Stakeholder Expectations and Module 03-6 - Accepting Completed Deliverables, by allocating that 14% from PMI's Domain 5 and put 5% into Domain 1 and 9% into Domain 2 as shown in Table 3 it makes the comparison between the two more equitable.

Domains	PMI Exam Content	Difference	GPC Processes	GPC Process Groupings from GPCCAR
PMI Domain 1- Schedule Strategy	19%	8.5%	27.5%	GPC INITIATE Process
PMI Domain 2- Schedule Planning &	40%	5.6%	45.6%	GPC PLANNING Process
PMI Domain 3- Schedule Monitoring &	35%	10.3%	24.7%	GPC CONTROLLING
PMI Domain 4- Schedule Closeout	6%	3.9%	2.1%	GPC CLOSING Process
PMI Domain 5- Stakeholder Communications	0%		N/A	For GPC Stakeholders are Included in Module 02-6 - Identifying And Engaging Stakeholders and Module 03-3 - Validating Stakeholder Expectations and Module 03-6 - Accepting Completed Deliverables
Totals	100%		100%	Totals

Table 3- Allocating PMI Domain 5 (14%) to Domain 1 (5%) and Domain 2 (9%)

While reallocating the Stakeholder communications to make the PMI and GPC model more comparable, the gap has closed somewhat but the GPC still puts more weight on the Initiating, Planning and Controlling Process grouping and less on the Closing Processes.

CONCLUSIONS

When the Guild of Project Controls designed the weightings for each module within the process groupings, it was done based not on some arbitrary weighting but based on what the job advertisements were asking for. Explained another way, the Guild first looked at what employers were looking for based on what key words were found in their help wanted advertisements and the weightings were developed, consistent with Covey’s “Begin with the End in Mind”, by working backwards from that input.

As readers can see in the comparison shown in Table 3, by using the key word analysis from the job postings as the basis for establishing the weighting of the different domains or process groupings, using the GPC approach, there is more emphasis on the “front end” processes, (PMI’s Domains 1 and 2 or GPC’s Initiating and Planning) which is consistent with the recommendations being made by the AIA with their “Integrated Project Delivery” (IPD) approach

<http://www.aia.org/groups/aia/documents/pdf/aiab083423.pdf>

and those of IPA’s Ed Merrow’s Industrial Megaprojects <http://www2.ipaglobal.com/megaprojects-book/index.aspx?campaign=MBCampaign-2011-04-26-HomeAd>.

This is also more consistent with the direction the professional practitioners of tomorrow are heading through the use of Building Information Modelling (BIM)

Using this model one does NOT have to do a key word search on the various levels of jobs as that is unlikely to provide any further insight. To determine the LEVEL, we need to look at each TASK or ELEMENT first, then determine what TYPES of knowledge are required for that position and HOW that knowledge is going to be applied. (Blooms) As that will change from organization to organization, doing a key word search on the different levels is unlikely to provide any further insight.

Lastly, assuming that those writing the job descriptions used in job postings truly do know what they want, this is a relatively fast, easy and accurate method to measure in real time exactly what the market is looking for at any given time and in any given location, and adopting this approach enables organizations to customize the scoring models developed by PMI or GPC or anyone else for their own in house competency assessment models

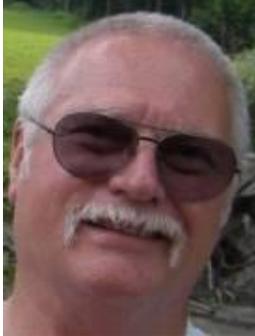
As the author conducts the same key word analysis using job postings for the other job titles the expectation is that the percentages for each module will change, depending on the focus for each specific job title. This will be covered in the coming weeks. (As PMI does not offer Cost, Forensic or Project Controls certifications, those developed by other professional organizations will be chosen for comparison purposes.)

FOLLOW ON RESEARCH

While the author has validated that the approach taken by the Guild of Project Controls is sound and valid and does represent a “best tested and proven practice”, with a sample size of only 30 job postings, the Author is going to further VALIDATE these initial findings by creating a follow on survey of the membership or other interested professionals.

At the same time, keeping in mind that the Guild is one of the very few global professional organizations who recognize those with advanced degrees as an integral part of the credentialing process, <http://www.planningplanet.com/guild/certification> the Guild would like to encourage practitioners who are looking for Masters or PhD thesis or dissertation topics to consider expanding this pilot study by adding more job postings, and a more robust demographic analysis to see if there are any significant differences between industrial sectors or between different parts of the world which were not evident looking at a relatively small sample size. The author has been advised that the Guild of Project Controls would welcome and actively support such works.

About the Author



Dr. Paul D. Giammalvo, CDT, CCE, MScPM, MRICS, GPM-M

Jakarta, Indonesia



Dr. Paul D. Giammalvo, CDT, CCE (#1240), MScPM, MRICS, GPM-M is Senior Technical Advisor (Project Management) to PT Mitratata Citragraha. (PTMC), Jakarta, Indonesia. www.build-project-management-competency.com.

For 20+ years, he has been providing Project Management training and consulting throughout South and Eastern Asia, the Middle East and Europe. He is also active in the Global Project Management Community, serving as an Advocate for and on behalf of the global practitioner. He does so by playing an active professional role in the Association for the Advancement of Cost Engineering International, (AACE); Construction Specifications Institute (CSI) and the Construction Management Association of America, (CMAA). He currently sits on the Board of Directors of the American Society for the Advancement of Project Management ([asapm](http://www.asapm.org/)) <http://www.asapm.org/> and is on the Certification Board of the Green Project Management Institute. <http://www.greenprojectmanagement.org/> He is active as a regional leader in the International Guild of Project Controls. <http://www.planningplanet.com/guild>

He has spent 18 of the last 35 years working on large, highly technical international projects, including such prestigious projects as the Alyeska Pipeline and the Distant Early Warning Site (DEW Line) upgrades in Alaska. Most recently, he worked as a Senior Project Cost and Scheduling Consultant for Caltex Minas Field in Sumatra and Project Manager for the Taman Rasuna Apartment Complex for Bakrie Brothers in Jakarta. His current client list includes AT&T, Ericsson, Nokia, Lucent, General Motors, Siemens, Chevron, Conoco-Philips, BP, Dames and Moore, SNC Lavalin, Freeport McMoran, Petronas, Pertamina, UN Projects Office, World Bank Institute and many other multi-national companies and NGO organizations.

Dr. Giammalvo holds an undergraduate degree in Construction Management, his Master of Science in Project Management through the George Washington University and was awarded his PhD in Project and Program Management through the Institute Superieur De Gestion Industrielle (ISGI) and Ecole Superieure De Commerce De Lille (ESC-Lille- now SKEMA School of Management) under the supervision of Dr. Christophe Bredillet, CCE, IPMA A Level. Paul can be contacted at pauldgphd@gmail.com.