



## PMI Conference on the Future of Project Management in the Year 2022

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*Marty Wartenberg was selected to discuss specific issues related to the status of PM Training in the year 2022. This includes the expected curriculum and the methods of training delivery. In this role he is representing the University of California, Irvine Extension and the ZB Global Design Center.*

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**“It's tough to make predictions, especially about the future.”**

*Yogi Berra – Former Catcher and Coach for the New York Yankees Baseball team*

The only thing you can be reasonably sure about the future is that it will be very different than the past and even more different than the present. A lot of the predictions made in various PMI studies and documented in their research findings are based on small incremental changes over the next ten years. Much of these predictions are documented in “Project

Management CIRCA 2025” edited by David McClelland and published by PMI Press in 2009. I will refer to some of it interesting observations later in this article. I have personally been involved in various high technology projects for over 50 years. These roles included, SME, team member, leader, sponsor, etc. Just about all roles that can be played. During that time, I’ve seen major changes based on the evolving needs and goals of various organizations, including Aerospace, Product Development, Oil Field Instrumentation, Life Sciences, and probably a few others that I’ve forgotten about. I personally believe that the next 10 years will have more changes than I’ve seen in 50 years. So here goes with the future.

It is assumed that the future is just like the present with a few small changes. However the reality is that little things like disruptive technologies, major shifts in societal attitudes, work force changes, nature and complexity of future projects, and many other things we have not thought of yet. I’m willing to bet on the future, so let’s put all these predictions into the PMI Vault and take another look at them in five and ten years. Before getting into the details of my

predictions, let us look at a few definitions so that we are all on the same page. The definitions for what is a project, a portfolio, a Program and a Project Management are more than adequately defined in the PMBOK, so there is no need to repeat or change these. However some definitions are not universally accepted so I’ll give you a point of view. I take the definition of Education from Plato and his writing in the “Republic”

Plato sees education as “... to ensure that the habit and aspirations of the old generation are transmitted to the younger- and then presumably to the next one after that. Means of transmitting knowledge according to Plato are: father-and-son and teacher- and- pupil; but beyond these, there are others, such as mother-



and- child, Officer- and –soldier, court, priest- and –layman, speaker-and- audience, Lawyer-and- Law”<sup>1</sup>

The modern definition is... the delivery of knowledge, skills and information from teachers to students.”

**How about Training?** "The systematic analytical based designing of methods and media so as to enable an individual or group to learn predetermined knowledge and/or processes against predetermined objectives and apply it to a required standard." Link: <http://ow.ly/lOxpG>



I submit that providing the combination of knowledge, skills, techniques, tools, methods and approaches are a combination of both of the above. Project Management is difficult to teach, but can be learned in the right atmosphere and learning environment. I will therefore use the term training to encompass both definitions.

I'll discuss the following specific areas related to the education and training of leaders of project managers, project managers and members of the extended project team.

- Who should be trained and when?
  - Who should do the training?
  - Curriculum – both basic and advanced
  - Methods of delivery of the training
1. Who should be trained and When? Everyone on the team will be at some point the project manager.
- In a major departure from conventional wisdom, I predict that with the exception of Heavy Construction and large Aerospace projects, the current primary role of Project Manager will gradually disappear. Based on the complexity of projects, where a certain amount of subject matter expertise will be necessary, I believe that we will see the role of the project manager rotated during the life of the project, based on elements including the phase of the project. In the beginning of a new product development project, a Marketing or Business

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1. Plonchmann, G., Plato, New York: Dell Publishing Co Inc., 1973

Development person may run the project, when it moves to Design; an Engineer may take over, and so on through the life cycle. This is similar to the phase over in use in the Life Science field. The good news for training organizations is that the pool of people to be trained as Project Managers grows. PM skills will be required for everyone in the organization just like computer skills are required to be an effective knowledge worker. The basic skills are not that complicated and the learning can be acquired through a combination of education and on the job observation and training.

Based on observations of our students, it is not that effective to provide in-depth training of the various project management knowledge areas unless the people being trained will utilize those skills and knowledge almost immediately. I've had students in our final practicum course, who do not remember the basic skills they learned about risk or scheduling and we have to do some reviewing. The answer is Just in Time (JIT) training. The training should be made available to members of the project team right before they have to jump into a project. Too many skills and knowledge are forgotten if they are not put to immediate use.

## 2. Who should do the training?

Project Management is a very practical topic. The theory is pretty simple and can be learned very quickly by anyone of average intelligence. Concepts related to Earned Value, Critical Chain, Qualitative Risk Analysis can be learned by self-study through any type of course or reading. I recommend "programmed learning" as the ideal way to learn and grasp the basic concepts. The actual instructors or facilitators should be people with extensive experience in all phases of the project and from more than one area of specialization. Having someone who just works on IT projects teach a general course is not the best approach. The instructor or facilitator should understand the application and usage of the knowledge and tools to various types of projects. The facilitation role is what is critical. Helping the students understand how to apply the various tools, techniques, and methods to different types of projects, including Aerospace, Construction or New Product Development. It may even be necessary to have a cadre of instructors with different industry backgrounds to act as the group facilitators. This can be done both in person and on-line.



### 3. Curriculum in 2022



I predict that the basic knowledge in the 2022 version of the PMBOK will be much more extensive than is the 2008 and even the expected 2012 editions. Based on just a linear extrapolation, assuming a four year increment of revisions, we will have two more versions and it will grow by about 1/3 in terms of total content. I predict that the additions over the next 10 years will include much more on Critical Chain Project Management, Use of Earned Value with both Critical Chain and Agile and the integration of several agile

methods into the standard Project methodologies. Another area that is sure to grow is more on the soft skills. The current content regarding Human Resources is woefully inadequate regarding the importance of the various leadership topics to truly successful project management. I will not attempt in this report to go through the Nine Knowledge areas and predict changes, but will state that someone needs to do a major revision to the Quality Section. As it stands, being just TQM revisited it doesn't really reflect the importance of quality metrics, testing, etc. and should go through a major revision over the next two editions of the PMBOK.

Specific areas of new topics and subjects are as follows:

- Complex Scheduling and Network Analysis – Go to Dr. Dave Hulett's web site and get an idea of the areas of complexity that should be taught to help make complex project schedules more realistic and achievable.
- Critical Chain Project Management – Even though it's now mentioned in PMBOK 4, very few training programs, both private and public even touch on the major concepts related to the Critical Chain, Multi-Tasking and Schedule Buffering.
- Agile methods that can be used for any type of project, not just software. This includes the concept of the Kanban for pull rather than push, Burn Down Charts for status and estimate to complete the role of the Product Owner and the concept of daily stand up meetings for status and pushing for completions.
- Situational Awareness – The concept of SA is well understood and used in the Military and for Police Agencies. This is the ability to sense and feel what is going

on around you based on a combination of data, facts, feelings, etc. This skill is absolutely essential for project managers in a fast paced, multi-site environment. You can think of SA as the opposite of being clueless.

- Much more needs to be added to the PMBOK and curriculum regarding the management of multi-site or virtual projects. This includes both the supposed soft skills related to working at a distance, with different cultures and languages and the other variables for a global project. In addition there are technology issues related to a global project that needs to be taught including the various distance tools, (Virtual Meetings, use of Project Web Sites, Electronic White Boards etc.)
- Executive and Management Training related to the leadership of a project based organization including both Program and Portfolio Management.
- Expansion of the Certification of Additional Qualifications similar to the currently PMI published works on Government and Construction Extension to the PMBOK. We should develop extensions for IT, Life Sciences, New Product Development, Process Improvement, etc.

In Chapter 29 of the PMI Book Project Management CIRCA 2025, Jang Ra refers to the direction that the University of Alaska, Anchorage is taking with regard to advanced Degrees in Project Management, including a Doctorate. Their emphasis is heavily on Strategic and Global issues. This is an area that is hardly addressed by current training organizations. An exception, beside UAA would be the Stamford Advance program in Project Management, which is a highly strategic program that assumes participants are well versed with the basic tactics of project management.

#### 4. Methods of Delivery of Education and Training

A major change over the next 10 years will be the methods used to deliver skill based training. That is subjects that need to be mastered so that you can actually perform in a job function. This is very different than just knowing what to do. The current approach of 20 or more students sitting in a class room for hours or days is a pretty wasteful use of time. Since people learn at different rates, no matter how well paced the instructor is, some students will be bored as they already get it, while others will be lagging and need more time to comprehend. The best solution is some form of self-paced learning, whether it is an on-line delivery or Programmed Learning. Allowing students to assimilate and understand content delivery at their own pace will greatly increase the value of the lessons themselves. It is wasteful to bring students to class rooms just to hear content. All content should be pre-delivered via some form of Distance Learning technologies or methods.





Students should come together, either on-line or in person to actually practice and demonstrate the various skills and techniques learned in a realistic environment. There always has been a major trend for realistic simulations for the Military, Flight Training and others where they need to practice and demonstrate performance in a realistic situation. Many simulations come out of the game software industry and many heavy construction firms used customized versions of things like SIM City to demonstrate competency in Construction project management.

I predict that the certification process for skills like project management will evolve from memorization type testing to active live simulations, either individually or in a group setting. It is difficult to believe that passing a memory based test actually demonstrates a level of competency for practical skills. I believe that project management organizations like PMI and IAPM will move towards a realistic simulation based testing model over the next ten years. Why shouldn't we be doing this in the class rooms of our Universities today? While we are on the subject of Certification I'd like to make another prediction. I believe that the various certifications for Risk, Scheduling, etc. promulgated by PMI will wither and die over the next few years. And what will replace them? Based on the differences between the various industries that use project management, I believe that PMI will move towards the Concept of Certification of Additional Qualifications started several years ago by several PMI Specific Interest Groups, notably the Construction, Governmental and several others. Some of these publications still exist. I can foresee a time when the Certification Exam is in two parts. First you take the General Examination and if you pass, you are eligible to sit for the specific certification in your field of interest.

Some other areas that PMI may learn from are the methodology for the State Professional Licensing and the CPA exams. You get to take the general examination and work in your specific field of study for some number of years before eligibility to take the specific certification. For PMI, taking the CAPM early in your career and then after achieving several years of actual experience take an experiential type examination in your specific industry.

The final area that I will probably write on as a separate approach is to utilize dynamic system models and create realistic scenario based project simulations. This is the area I plan to devote a lot of energy to, as it has proven worthwhile for Commercial Airline Pilot Training, Military and Police Training and would better demonstrate a candidates ability to apply project management knowledge than a tough but silly memorization based examination. Who in the world needs to memorize ITTO's for 42 or the new PMBOK 5 47 Process Groups. Think about the value of forcing our students and prospective PMP's to memorize 39 to 47 equations (depending on what the various authors consider equations).

With APP's, the Internet, we don't need to memorize the Earned Value Formulas. I have a perfectly good APP on my I Phone that lets me do all the calculations quickly and accurately. I admit that we need to teach our students which EAC or ETC equation to use, based on the

situation, but not memorize the equations themselves. I expect to receive a lot of push back on this particular one, but as of now, I've never seen any valid research that shows that people with experience plus a PMP outperform those with just experience.

I welcome any feedback, and alternative scenarios from all who will read these predictions.

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