

## On the Subject of Project Life Cycles<sup>1</sup>

In Response to July Letter to Editor by Piney and June Article by Smith

LETTER TO THE EDITOR

21 July 2023

Ref Piney, C. (2023). *On the Subject of Project Life Cycle Terminology, Letter to the Editor, PM World Journal, Vol. XII, Issue VII, July* <https://peworldjournal.com/article/on-project-life-cycle-terminology>

Ref: Smith, K. F. (2023). *Project Life Cycle \* Sophie's Choice: What's in a Word? Commentary, PM World Journal, Vol. XII, Issue VI, June. Available online at* <https://peworldlibrary.net/wp-content/uploads/2023/06/pmwj130-Jun2023-Smith-project-life-cycle-sophies-choice-2.pdf>

Dear David, Kik, Dr. Ken, and Interested Subscribers:

I would go on the record and challenge the definitions of “life cycle” and “life span” terminology Kik Piney and Dr. Ken Smith used in their respective articles AND to clarify the confusion between the names of the Asset Life Span PHASES and the PROCESS GROUPINGS, which unfortunately, share similar names and are frequently confused.

According to Merriam-Webster, life **SPAN** refers to **the average duration of an individual's existence or the period during which something exists, lasts, or is in progress**, while Merriam-Webster defines life **CYCLE** to be:

1. The course of developmental changes through which an organism passes from its inception through the stage at which it reproduces.
2. A progression through a series of differing stages of development.
3. The span of a product's existence from its initial development through the period of marketing and active use to eventual obsolescence.

Referencing PMI's PMBOK Guide, 6<sup>th</sup> Edition, they define a “Project” as “a temporary endeavor undertaken to create a unique product, service, or result with a definite beginning and end.”

And Max Wideman, in his [Comparative Dictionary of Project Management Terms](#), offers us 30+ definitions of “Project” against which to test my hypothesis and analysis.

Despite PMI and many people treating these two terms as being synonymous, referencing the definitions above, which graphic shown in Figure 1 below most completely or accurately describes the life span of a “PROJECT”? Or the life span of an “ASSET?”

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<sup>1</sup> How to cite this work: Giammalvo, P.D. (2023). On the Subject of Project Life Cycles, In Response to July Letter to Editor by Piney and June Article by Smith, *PM World Journal*, Vol. XII, Issue VIII, August.

(FWIW, Max Wideman supports my research and professional opinion on this topic)

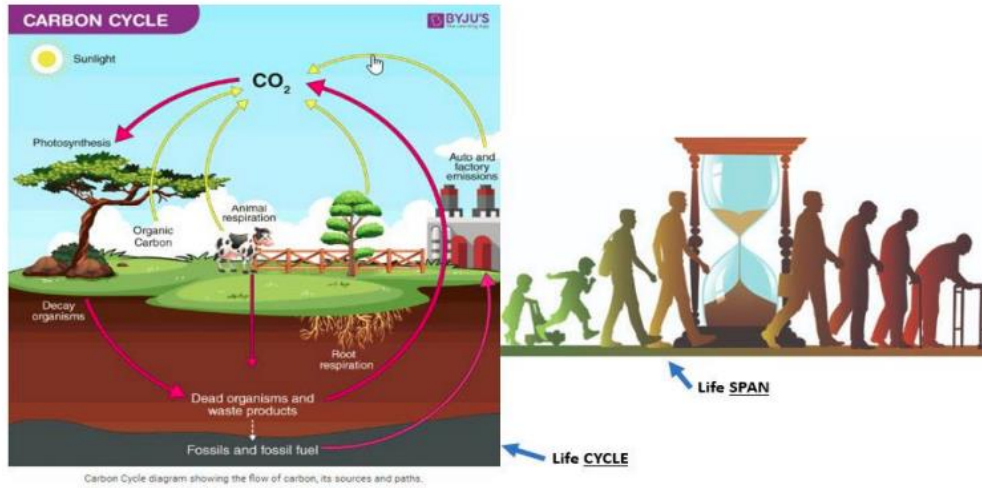


Figure 1- Examples of Life CYCLES vs. Life SPANS<sup>2</sup>

Not to complicate the issue, but if we reference any decent Engineering Economics textbook, we find that in the context of applied Asset Management, there are 4 different “lives” we have to consider:<sup>3</sup>

- 1) **Economic life** is the period of time (years) that results in the minimum equivalent uniform annual cost (EUAC) of owning and operating an asset. If we assume good asset management, economic life should coincide with the period of time extending from the date of acquisition to the date of abandonment, demotion in use, or replacement from the primary intended service.
- 2) **Ownership life** is the period between the date of acquisition and the date of disposal by a specific owner. A given asset may have different use categories by the owner during this period. For example, a car may serve as the primary family car for several years and then serve only for local commuting for several more years.
- 3) **Physical life** is the period between an asset's original acquisition and final disposal over its succession of owners. For example, the car just described may have several owners over its existence.
- 4) **Useful life** is the time period (years) that an asset is kept in productive service (either primary or backup). It estimates how long an asset is expected to be used in a trade or business to produce income.

<sup>2</sup> Giammalvo, P.D. (2021). The Bigger Picture: Project Life Cycles from a Broader, Real-World Perspective; Commentary, PM World Journal, Vol. X, Issue VI, June. <https://pmworldlibrary.net/wp-content/uploads/2021/06/pmwj106-Jun2021-Giammalvo-the-bigger-picture-commentary.pdf>

<sup>3</sup> Engineering Economy, 17 Edition Sullivan, Wickes and Koelling Chapter 9, page 424 <https://www.textbooks.com/Engineering-Economy-17th-Edition/9780134870069/William-G-Sullivan-Elin-M-Wicks-and-C-Patrick-Koelling.php>

Figure 2 below is a graphic that originated around 1955 with either Esso or Diamond Shamrock Oil that shows the relationship between the ASSET lifespan and the PROJECT lifespan.

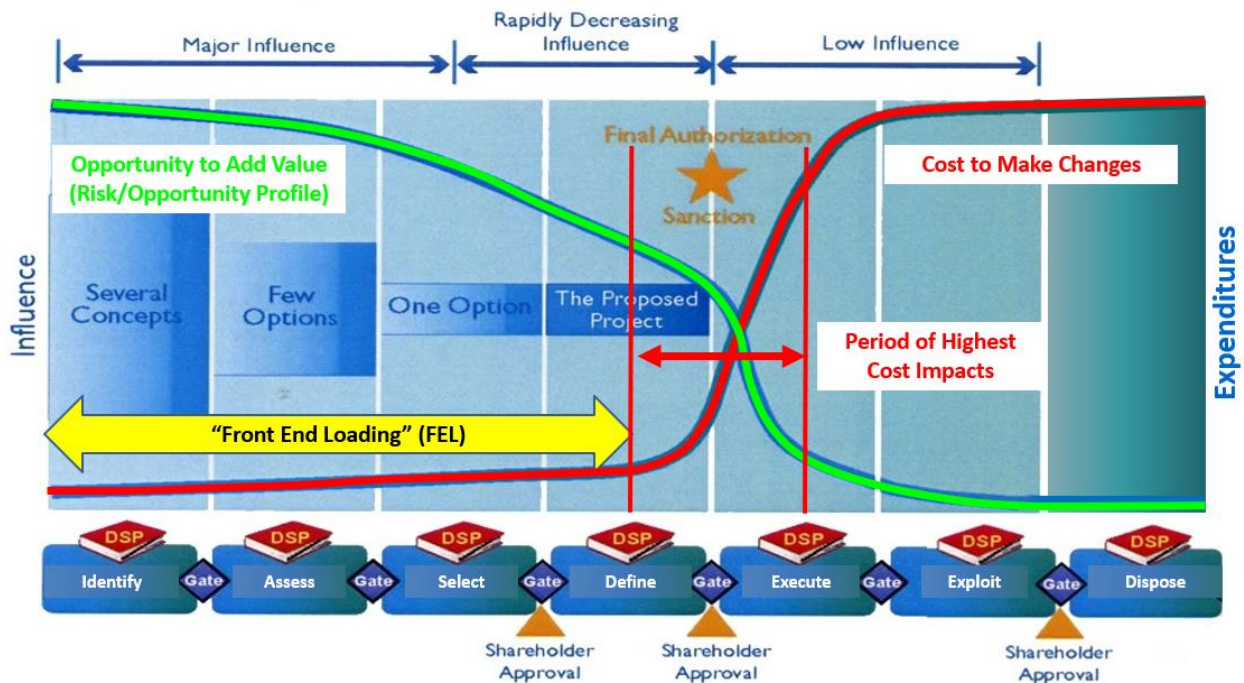


Figure 2- The INTEGRATED Asset and Project Lifespan Model from Oil, Gas and Mining.<sup>4</sup>

Note that UNTIL or UNLESS we successfully pass through the Phase 3 (“Select”) “Go/No go decision Gate,” there is NO PROJECT. There are only OPTIONS or POTENTIAL projects. There cannot be a project until the shareholders or other relevant stakeholders (i.e., Asset (CAPEX) or Operations (OPEX) managers) approve the project’s FUNDING. And the project ends when the ASSET created by the PROJECT has been tested and commissioned, placed into operations, starts generating revenues or savings, and begins to be depreciated by finance.

Important that we understand that from the perspective of OWNER organizations, projects are nothing more than “Asset Delivery Systems.” In an OWNER’S organization, projects are COST or INVESTMENT centers, undertaken to “create, acquire, update, expand, repair, maintain and eventually dispose of ORGANIZATIONAL ASSETS. It is only for CONTRACTORS, where projects are PROFIT centers where the core competencies as project managers become essential for business survival. This is why we only find “accidental” project managers in owner organizations. For contractors, effective project management is a matter of business survival and is where we find the “professional” or “career path” of project managers.

<sup>4</sup> AUTHOR’S NOTE: This specific graphic came from the Zadco Oil website <http://zadco.ae/en/aboutus/Missionvisionvalues/Assetmanagement/Pages/Assetmanagement.aspx> which is no longer accessible but is typical of the Integrated Asset and Project Life Span used by nearly all the major and most national oil companies today including BP, Shell, Chevron, Conoco Philips, Total et al.

Kik Piney stated:

*“There is one key feature of every project life cycle that is often overlooked: the transition from one phase to the next. This transition is not automatic. A phase cannot start itself any more than a living organism can arise directly from nothing, nor should a phase end without effective verification and controls. A phase should only be authorized once all of the prerequisites are in place for its effective execution and the associated risks have been evaluated and accepted.”<sup>5</sup>*

His statement indicates a less than full and complete familiarity with the various Integrated Asset and Project Management Life SPANS. Not only are the Phase Gates generally well documented, (although the names of the phases is not consistent) but what is or should be included in each “Decision Support Package” (DSP) to transition out of one phase and into the next phase are also well documented in both linear and spiral models.

What is not exactly clear how the conflation between the ASSET life span and the PROJECT life span happened when the 1996 PMBOK Guide got written, but we SUSPECT it was the result of a MISINTERPRETATION of the 1976 “Paulson Curve”<sup>6</sup> by our IT colleagues who were referencing the 1976 research by Barry Boehm who created an amazingly similar graph and applied it to IT projects.

In neither model was it sufficiently clear that the intent was to cover the entire lifespan, not of the project but of the asset that the project was being designed to create, which is what the 1955 model created by either Esso or Diamond Shamrock oil circa 1955 established? Paulson covered the Design Phase Gates and referenced “Utilization.” However, the model did not specifically reference ASSET utilization.

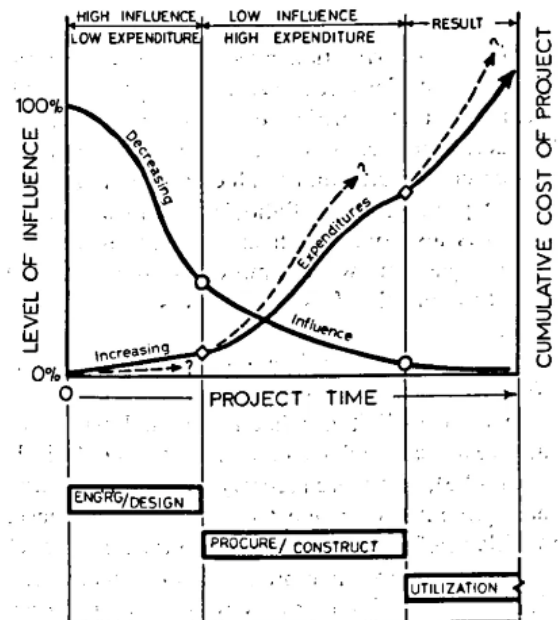


FIG. 1.—Level of Influence on Project Costs

Figure 3- Paulson Curve 1976<sup>7</sup>

<sup>5</sup> Piney, C. (2023). On the Subject of Project Life Cycle Terminology, Letter to the Editor, PM World Journal, Vol. XII, Issue VII, July.

<sup>6</sup> Davis, Daniel (2011) “The MacLeamy Curve” <https://www.danieldavis.com/macleamy/>

<sup>7</sup> Paulson, Boyd C. 1976. “Designing to Reduce Construction Costs.” Journal of the Construction Division 102 (4): 587-592.



Likewise, Barry Boehm (IT) covered the requirements phases but only took us to production, not the utilization of the Asset. (From an accounting perspective, software is usually treated as an intangible asset, like goodwill.<sup>8</sup>)

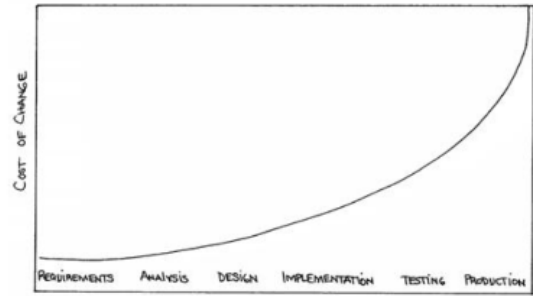


Figure 4- Boehm Curve 1976<sup>9</sup>

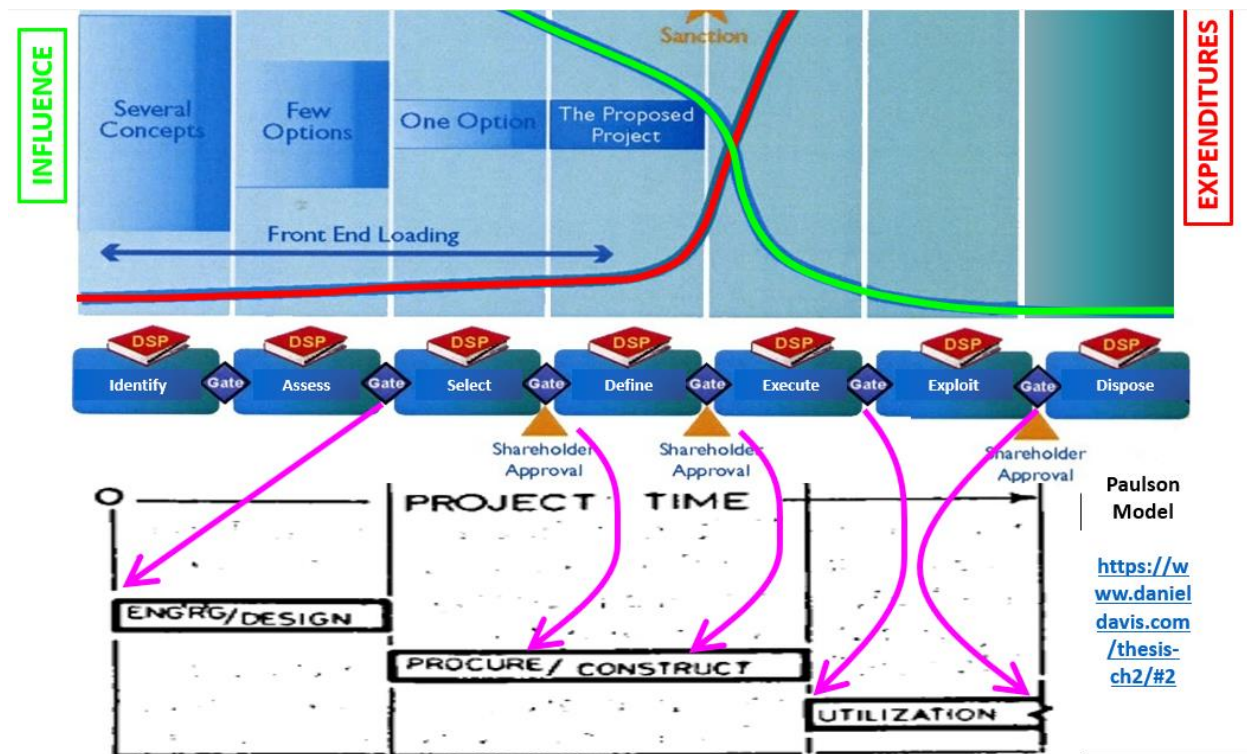


Figure 5- Paulson Curve Mapped to the Integrated Asset & Project Life Span

Compare the model that [Nader K. Rad](#) is proposing for PMI against the model developed by Esso/Diamond Shamrock that has been delivering positive results for 65+ years now?

<sup>8</sup> Investopedia (2022) Goodwill vs. Other Intangible Assets: What's the Difference?  
<https://www.investopedia.com/articles/investing/100614/goodwill-vs-other-intangible-assets-whats-difference.asp>

<sup>9</sup> Boehm, Barry. 1976. "Software Engineering." IEEE Transactions on Computers 25 (12): 1226-1241.

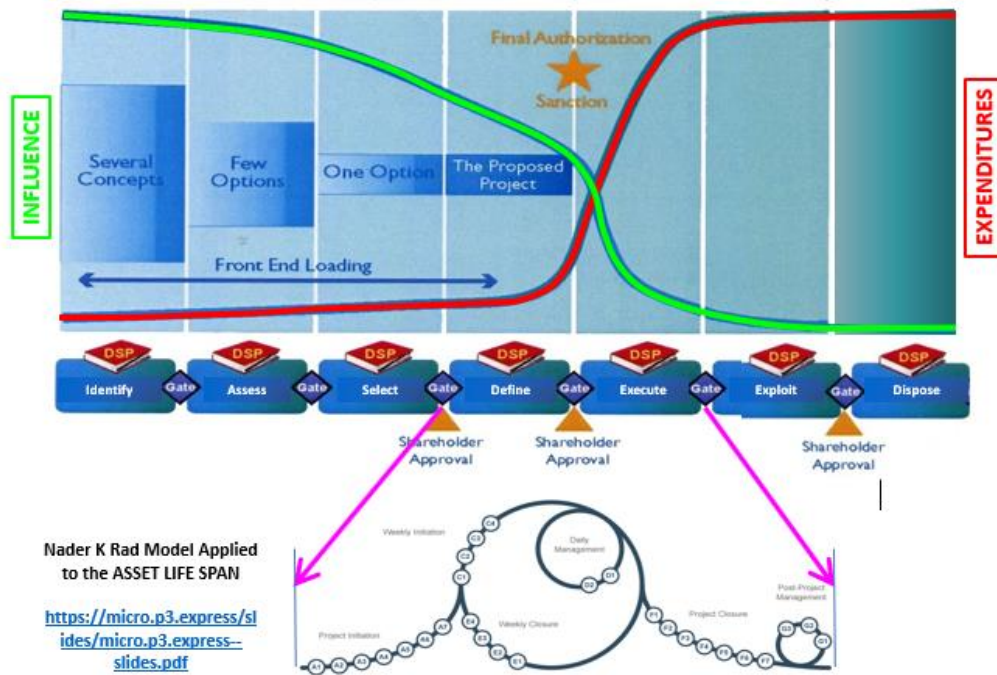


Figure 6- Nader Rad's New PMI Model Mapped to the Asset Life Span

Enterprise Organizational Strategies										
Asset Life Span										
Stakeholder Expectations Identified	PORTFOLIOS of ASSETS	Explore Several Concepts	Narrow To a Few Options	Select the Best Option	Initiate & Plan the Proposed Project	Create the Product Of the Project	Exploit the Product Of the Project	Dispose Of the Product of the Project	PORTFOLIOS of ASSETS	Stakeholder Expectations Realized +/-
	PORTFOLIOS of PROJECTS	Decision Support Package (DSP)	Decision Support Package (DSP)	Decision Support Package (DSP)	Decision Support Package (DSP)	Decision Support Package (DSP)	Decision Support Package (DSP)	Decision Support Package (DSP)		
		Go/No Go	Go/No Go	Go/No Go	Go/No Go	Go/No Go	Go/No Go	Go/No Go		
		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7		
Stakeholder Expectations Realized +/-	PORTFOLIOS of PROJECTS	Project Control SME as a Consultant		Project Life Span (Owner Perspective)			Project Control SME as a Consultant		PORTFOLIOS of PROJECTS	Stakeholder Expectations Realized +/-
	PORTFOLIOS of PROJECTS	Also: Cost Engineer/ Quantity Surveyor/ Systems Engineer/ Project Support Services/ Business Analyst/		Project Controls/PMO (Owner Perspective)			Also: Cost Engineer/ Quantity Surveyor/ Systems Engineer/ Project Support Services/ Business Analyst/			
				Project Life Span (EPCC Contractor)						
				Project Controls (EPCC Contractor)						
				Project Life Span (D>B>B Contractor)						
				Project Controls (D>B>B Contractor)						
Organizational Policies, Practices and Procedures										

Figure 7- Chevron's Model of the Integrated Asset and Project Management Methodology<sup>10</sup>

<sup>10</sup> Knoll, R, Mitchell T, Seabrook, E. (2011) "Building Owner's Cost Engineering Organizational Capability" AACE Transactions

As added proof that the integration of the Asset and Project Lifespans represents a “best tested and proven” practice, the graphic shown in Figure 7 is an amalgamation of Chevron’s Project Controls Workflow Process structure combined with the image from Zadco Oil shown in Figure 2.

Which model do you think we should we adopt if we want to improve project and asset success rates?

To our knowledge, the only two professional societies that have embraced this fully integrated Asset, Portfolio, Program, and Project Management Methodology is AACE with their [Total Cost Management Framework \(TCMF\)](#) and the [Institute of Asset Management \(IAM\) with their ISO 55000/PAS 55-1:2008](#).

### **FUTURE TRENDS IN WBS/CBS NAMING AND CODING STRUCTURE STANDARDS**

As the FUTURE indicates a strong trend towards STANDARDIZATION of the TERMINOLOGY, the Construction Specifications Institute (CSI) has published 15 different “Relational” or “Object Oriented” Tables<sup>11</sup>, amongst them, “Table 31- Phases<sup>12</sup>”

#### *Phases - Table 31*

*Life cycle phases are often represented by two terms used somewhat interchangeably in our industry. For the purposes of clarity and standardization, OmniClass™ defines these terms:*

*Stage: A categorization of the principal segments of a project. Stages usually are: Conception, Project Delivery Selection, Design, Construction Documents, Procurement, Execution, Utilization, and Closure.*

*Phase: A portion of work that arises from sequencing work in accordance with a predetermined portion of a Stage.*

*For purposes of usage in OmniClass™ classifications, a Stage is a higher-level of categorization and a Phase is a subordinate level of titling within a Stage.*

The changes being proposed by CSI will help END the confusion between the Integrated Asset and Life Span PHASES and the PROJECT MANAGEMENT PROCESS GROUPINGS, and along with the STANDARDIZED CODING STRUCTURES is the only way to enable Building Information Modelling (BIM) Apps to exchange data.

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<sup>11</sup> Construction Specifications Institute (CSI) Table 31- Phases  
<https://www.csiresources.org/standards/omniclass/standards-omniclass-about>

<sup>12</sup> Construction Specifications Institute (CSI) Table 31- Phases  
<https://www.csiresources.org/standards/omniclass/standards-omniclass-about>

	A	B	C
1	<b>2012 DRAFT OmniClass Table 31 - Phases</b>		
2	<b>Number</b>	<b>Level 1 Title</b>	<b>Definition</b>
3	31-10 00 00	<b>Inception Phase</b>	Phase for establishing the project vision and means to satisfy the client's business or public service requirement, including site selection, planning considerations, establishment of timeline, method of delivery, budget and which identifies necessary resources (design, legal, financing, insurance, etc.).
4	31-20 00 00	<b>Conceptualization Phase</b>	Phase to identify the major design ideas in the context of programmatic objectives, facility performance, and activity parameters, to define spaces, and to initiate basic project element considerations.
5	31-30 00 00	<b>Criteria Definition Phase</b>	Phase to create and refine schematic diagrams of the basic project elements - substructure, shell, interiors, equipment, services, equipment and furnishings, special construction and demolition, and building sitework - that fully establish project spatial and element criteria as the Basis of Design.
6	31-40 00 00	<b>Design Phase</b>	Phase in which project team establishes means of satisfying project Basis of Design requirements with technical solutions, evaluates alternatives through value analysis or similar processes, and completes initial documentation - Drawings and specified Work Results - for the designed project.
7	31-50 00 00	<b>Coordination Phase</b>	Phase that bridges the design effort with implementation by integrating constructability and feasibility evaluations of the design in order to further develop spaces, elements, products, and materials necessary for the procurement and execution of the Work irrespective of the method of delivery.
8	31-60 00 00	<b>Implementation Phase</b>	Phase to implement the coordinated design through construction planning, prefabrication, and field execution characterized by constructor 'means and methods,' and Basis of Construction strategies, controlled by quality assurance and control protocols.
9	31-70 00 00	<b>Handover Phase</b>	Phase to evaluate the completed Work through testing, inspection, and commissioning activities, including for any Owner-furnished equipment, to ensure that design/performance criteria are met while conforming to applicable codes and standards, and transfer project knowledge from the design/construction team to the Owner/facility management team via demonstrations, training, and documentation.
10	31-80 00 00	<b>Operations Phase</b>	Phase in which owner or a designated agent occupies, uses, and manages and maintains a facility, which may also include partial or whole facility renovation, repair, reconditioning or remodeling activities as part of the project use lifecycle.
11	31-90 00 00	<b>Closure Phase</b>	Phase which includes facility closure, preparation for unknown future use, demolition in whole or part, foreclosure, sale, or similar dispensation initiated by the decision that the facility no longer meets the needs of the Owner and cannot be feasibly reconfigured for continued use by that Owner.

Figure 8- CSI Table 31 Phases (of the Asset Life Span)

CSI seems to be the most advanced in their attempts to STANDARDIZE the TERMINOLOGY, being driven by Building Information Modeling (BIM) and the need for STANDARDIZED CODING STRUCTURES to enable the various BIM Apps to exchange data. This is the FUTURE direction and why it is so important not only for construction but other applications of the project management PROCESS GROUPINGS as an effective ASSET DELIVERY SYSTEM.



**DIFFERENCES BETWEEN THE ASSET AND PROJECT MANAGEMENT LIFE CYCLE PHASES AND PROJECT MANAGEMENT PROCESS GROUPINGS**

Another area of confusion that I see almost every day is the conflation between the PROCESS GROUPING and the Phase Gates of the Integrated Asset & Project Management lifespan. Evidence of this was apparent in Dr. Ken’s paper with this statement:

*“The American-based international Project Management Institute (PMI) – of which I have been a long-time member -- defines project life cycles in the following five Phases: 1. Initiation 2. Planning 3. Execution 4. Monitoring & Control (which in addition to being a stand-alone 4th Phase, is also incorporated in each of the other Phases) 5. Closeout.”*

Dr. Ken, you are not alone in conflating the 5 Process Groupings from PMI with the names of the Integrated Asset and Project Management Life Span PHASES.

Figure 8 shows us that the PROCESS GROUPINGS- Initiate, Plan, Execute, Control, and Close apply not only HORIZONTALLY at each of the Phase Gates but also apply VERTICALLY at all levels of the WBS from the Project level down to the Individual Activity Level. And the best proof of this are the “toolbox safety meetings” we hold with the work crews before they start any activities, particularly those that involve working in enclosed spaces or requiring hot work permits before welding or cutting in places where there may be flammable gases or liquids.

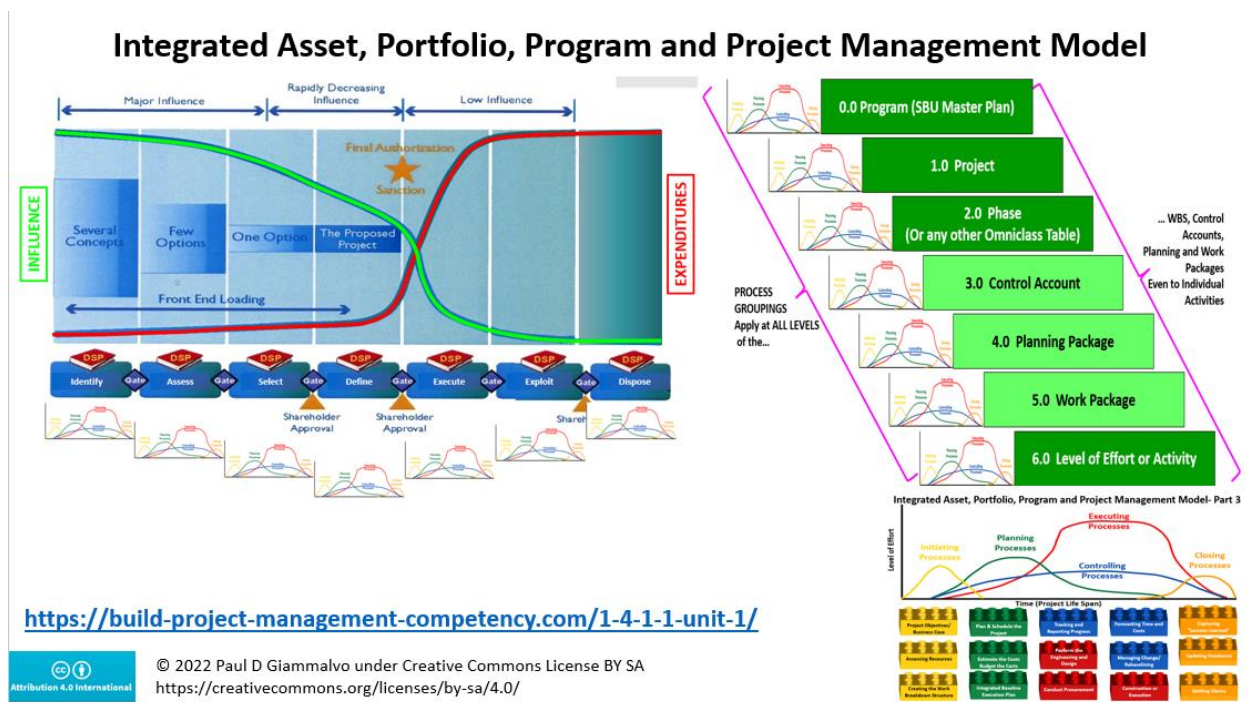


Figure 9- Process Groups Mapped to Asset & Project Lifespan Phase Gates and WBS

Given that the “project management processes” are embedded in all existing professions, the trades, and even into our day-to-day personal lives, I do not believe that it is practical, much less advantageous, to try to STANDARDIZE any application or context-specific terms. However,

in some cases, especially where translation into multiple languages may cause confusion (i.e., Life CYCLES vs. Life SPAN, and the PROCESS GROUPINGS vs. the Integrated Asset and Project Life Span Phase Gates), we should strive whenever possible to be as grammatically (pragmatically) and semantically clear and correct as possible.

Regards,

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