The IT6423 Story So Far...

**In LM0/A0**, we aligned the IT6423 course objectives with Van Grembergen’s [1] three main IT governance principles which loosely stated are: 1) Provide value; 2) Do no harm; 3) Control IT. **In LM1/A1**, we saw the technology base of IT is continually advancing, which means IT professionals need to be able to discuss and apply: a) how IT is related to business and organizational strategy; b) how IT is critical to the success of most business models today; c) how the critical role of IT in the Value Chain [2] is less understood and recognized than the Value Chain itself; and d) there is a wide and diverse range of options for sourcing IT today with each option having its own advantages, disadvantages, risks, constraints, etc. **In LM2/A2**, we saw that IT systems and their development, acquisition and life cycles are in a succession of more general systems development, acquisition and life cycles. We covered best-practice models for systems engineering, acquisition, life cycles, etc. at both the macro- and micro-level. We covered business-process models, where the details of how the IT systems and assets support specific and detailed business processes; we learned of the central role of the business process owner in ensuring IT delivers value to the business. These models and concepts help us understand IT systems and how they contribute to an organization’s value-chain and business value. Furthermore, we can use these models to guide our actions in acquisition and integration of IT systems into our organization’s business. **In LM3/A3** we introduced another best-practice SALC framework macro-model: The CMMI Model [3]. In the original version of this course, the CMMI V1.3 Model was the exclusive reference model for the SALC. Since then, other models have been adopted and the CMMI Model [3] has also matured in that earlier this year CMMI V2.0 was announced. We will focus on CMMI-ACQ V1.3 as it is still widely adopted and well suited for this course. The remainder of the course will use CMMI-ACQ V1.3 as its default SALC Reference Model. We will do this because the CMMI Model CMMI emphasizes the importance of process improvement, and provides a systematic way to improve software related organizational processes. It is based on the premise that is common in the quality improvement literature that, if an organization improves its processes, it will automatically improve the products or services it produces. It also provides two important ordinal scales for software and systems development: capability and maturity. These two scales allow buyer (acquiring) organizations to evaluate the selling organization’s capability and maturity for developing or configuring IT systems; they also provide a rationale foundation for measuring and guiding organizational improvement and development. A good perspective to take in the IT6423 course is that CMMI-ACQ is a hybrid SALC framework, based on best-practice process areas and the capability and maturity scales that will help us understand and implement for IT systems acquisition and integration, Van Grembergen’s [1] three principles of IT Governance: 1) Provide value; 2) Do no harm; 3) Control IT. **In LM4/A4** we dove more deeply into the SALC and CMMI models we have covered to both deepen our understanding and also prepare to help our teams develop the RFP Package for an IT system acquisition and integration project done in assignment A7; in that respect, we started to do our work in IT6423 to benefit both our education and your teams’ capability to complete A7. We adopted the terminology and flow as our short SALC the System Development Life Cycle from the April 2009 NIST-CSRC ITL Bulletin, page 3 retrieved 10/7/18 from [https://csrc.nist.gov/CSRC/media/Publications/Shared/documents/itl-bulletin/itlbul2009-04.pdf](https://csrc.nist.gov/CSRC/media/Publications/Shared/documents/itl-bulletin/itlbul2009-04.pdf)
as the phases in that model align well with current best practices in a SALC for IT systems. We also asked everyone to search for and read resources to help the teams develop the A7 RFP Package.

In LM5/A5 we will complete the total path of IT systems procurement by looking at implementation and integration of a newly acquired IT system or application; in general, implementation and integration are covered by two NIST SALC phases:

a. NIST SDLC’s [1] Implementation and Assessment Phase
b. NIST SDLC’s [1] Operations and Maintenance Phase

Since this is the last learning module and assignment leading up to your team RFP project and individual concept paper research, it is best to consider it your “wrap up” module and exercise where you need to build, adopt or adapt for your own IT professional practice appropriate models, methods, and approaches to IT system acquisition and integration or “IT procurement.” Thus, you can best utilize LM5/A5 to come to a summary conclusion of your readings into IT procurement.

Although you should complete LM4/A4 and LM5/A5 independently, when it comes to some choices, e.g., which specific RFP you should review, or specific aspects to investigate of implementing and integrating a newly acquired IT system, you can do so more wisely by consulting with your team on that choice; you can also contribute to your team’s efficiency by using these choices to “divide the labor” of creating an effective RFP package for IT procurement. That way you can become a trusted supplier of information and assets to your RFP Package Team.


IT SDLCs and SALCs define multiple phases of the IT system’s life

First, review and refine your understanding that the lifecycle of an IT system comes in phases

As many things, IT systems have a beginning, middle and an end. The National Institute of Standards and Technology (NIST) in their SDLC has defined the five phases for an IT system as:
In this course we focus directly on the first three phases: Initiation, Acquisition/Development and Implementation/Assessment and then also must link significantly to the fourth phase to prepare for good outcomes during the Operations/Maintenance phase. To get a better understanding of all five phases, we recommend that you read the April 2009 NIST ITL Bulletin covering the SDLC. Many of you will recognize that the NIST takes a leadership role in IT security. There is a page linked from the Bulletin page covering Special Publication 800-64 on security considerations in the SDLC. This NIST special publication is probably of interest to many of you.


Spend some time reviewing what IT activities go into the NIST Implementation/Assessment and Operations/Maintenance phases, e.g., communications, security, training and support, testing, user experience, change management, configuration management, update and maintenance, monitoring and control, disaster recovery, and resilience. List five or six of these and then go through your list and evaluate whether these activities are of interest to you- you might use a three-point scale of low-medium-high interest.

Then, once again expand and deepen your understanding of SALC models

George Box, a famous statistician, put it well about models: “All models are wrong, but some are useful.” Although Box was talking about scientific and engineering models built from data that
we use to understand, explain and predict nature, this aphorism applies to IT procurement in that all SALC models are deficient (wrong in some ways), but some of them are useful in leading to effective outcomes in IT procurement.

Looking back to the beginning of the course we see that we have created another “soup,” this time for IT SALC models; we have covered many models including waterfall, agile, V, spiral, DAU, ISO, NIST, CMMI, etc. Many of these have variants and hybrid combinations. We have seen that at this time models based on being agile are most popular and ascendant. As an IT professional, one’s capability in IT procurement is increased with knowledge of this IT SALC soup; and, one’s effectiveness as an IT practitioner increases with the choice, adoption or adaptation of a specific SALC model.

Finally, adopt a SALC model as a foundation of your practice

So, use this opportunity to spend 30 to 60 minutes to review, research and refine your knowledge and choice of an IT SALC model to use in your foundation of practice. Again, if you do not know where to start, go with the flow in the technology culture and choose or adapt a model based on agile. As a hint, the DAU encyclopedia for acquisition (acquipedia) has begun this for “Agile Procurement and Project Management:”

https://www.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=6875fa43-196b-4674-aefd-16a93a2a0120

We humans like to see things unfold in time, which makes the NIST SDLC circle illustrated above so powerful by showing the IT SALC having beginning, middle and end time phases for IT systems. Furthermore, business demands flexibility and responsiveness to change, which is obtained through an agile approach. A good goal here is to have in mind an answer to a manager’s question such as “How should we approach this IT system procurement?” One can do well to adopt and adapt the NIST’s SDLC for timing phases with the DAU’s “Agile Procurement and Project Management” for the agile flexibility.

Apply your IT SALC to develop details for IT Procurement

In LM4/A4, we aligned details from CMMI-ACQ with the NIST SDLC beginning phases. In LM5/A5 it is now time to align details from CMMI-ACQ with the NIST SDLC middle phases (the Implementation and Assessment Phase and the Operations and Maintenance Phase). It would be good to spend 30 to 60 minutes reviewing the CMMI-ACQ process areas to identify those most important for the NIST SDLC Implementation and Assessment Phase and Operations and Maintenance Phase.

To deepen your understanding and capability, you might spend up to an hour exploring, e.g., EDUCAUSE resources covering aspects of the Implementation and Assessment and Operations and Maintenance Phases of IT procurement. For example, training and user support are critical aspects of the success of IT procurements. A good EDUCAUSE resource is at:

https://er.educause.edu/articles/2017/7/training-to-improve-university-computing-services

As mentioned above, other IT activities beyond training and support that go into the NIST Implementation/Assessment and Operations/Maintenance phases include: communications,
security, testing, user experience, change management, configuration management, update and maintenance, monitoring and control, disaster recovery, and resilience.

Note that you will utilize CMMI in this learning module

CMMI-ACQ V1.3


Understanding and Leveraging a Supplier CMMI Efforts: A Guidebook for Acquirers (download page):

https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=8315

CMMI-DEV V1.3


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