The Art and Science of Project Management

David Jennings, iDigBio Project Manager
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https://idigbio.adobeconnect.com/pmw/
What is a project?

“A project is a temporary endeavor undertaken to create a unique product, service, or result.”

*PMBOK® Guide, 4th Edition*

• This is code for:
  – Specific and desired outcome
  – Defined start and end date
  – Budget that limits resources
What is project management?

“Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.”


• This is code for:
  – Provides structure that promotes success
  – Focuses on goals and outcomes
  – Balances time, money, resources, and scope
  – Promotes effective communication
What is a project manager?

“The project manager is the person assigned by the performing organization to achieve the project objectives.”


• This is code for:
  – Responsible for meeting/exceeding stakeholder needs and expectations
  – Responsible for planning, execution, and closing
  – Responsible for making things happen
Some common myths…

• Project management is unnecessary overhead

• Project management doesn’t add any value

• Project management is just “fluff” that detracts from the “real work”

• Project managers are simply experts in producing project documentation
First dose of reality…

• Project management provides value when applied in the manner and dosage appropriate to your specific team

• Too much or too little…
  
  *Then the myths are probably true...*
Second dose of reality…

- Project management is about making things happen by balancing the "science" (what the books say) with the "art" (what the team needs)
Successful project managers must be...

• **Visionary**
  - See the big picture
  - See both the forest and the trees
  - But, don’t attempt to be omniscient

• **Reliable**
  - Get things done
  - Say what you mean; mean what you say

• **Organized**
  - Be pragmatic – what is essential vs. not?
  - Seek alternatives
  - Keep the ball rolling

• **Flexible**
  - Adapt, overcome, improvise
  - Wear the right hat at the right time
Project managers have many roles...
The Project Management Cycle

**Plan**
- What do we want to do?
- Hypothesis
- Plan what we want to do.

**Do**
- Carry out the plan!
- Experiments
- Do

**Check or Study**
- Analyze the data, observations, and outcomes.
- Act

**Act**
- What did we learn? What next?
- Conclusions

*Old School – W. Edwards Deming*
The Project Management Cycle

**Why**

Initiating

Planning

Monitoring & Controlling

Executing

Do it

**What & How**

Analyze, Learn, Adapt

**Closing**

Did it

*New School – Project Management Institute (PMI)*
The Project Management Cycle

**Initiating**
- Why

**Leadership**
- Aligning
- Envisioning
- Planning
- Executing
- Deploying & Learning
- Monitor & Control
- Analyze, Learn, Adapt

**Management**

**Closing**
- Did it

MY SCHOOL – Hybrid of PMI and CH2M HILL
Project Delivery System
### Example Process Outputs

#### Leadership

<table>
<thead>
<tr>
<th>Initiating</th>
<th>Envisioning</th>
<th>Aligning</th>
<th>Deploying</th>
<th>Learning</th>
<th>Closing</th>
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</thead>
<tbody>
<tr>
<td>Customer focus, Team building</td>
<td>Vision, Mission, Strategy</td>
<td>Politics, Communication, Endorsement</td>
<td>Implement, Enforce</td>
<td>Assess, Incorporate</td>
<td>Satisfaction</td>
</tr>
</tbody>
</table>

#### Management

<table>
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<tr>
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<tbody>
<tr>
<td>Feasibility, Scope of Work</td>
<td>Workplan, WBS, Schedule, Budget</td>
<td>Task lists, Deliverables</td>
<td>Trending, Evaluation</td>
<td>Corrective action</td>
<td>Delivery</td>
</tr>
</tbody>
</table>

- **Initiating**
- **Envisioning**
- **Aligning**
- **Deploying**
- **Learning**
- **Closing**
So, what’s most important?

• For project managers, *everything* is important!
  – *Every part of the project management cycle will become important at some time*
  – The “art” is choosing the right thing to do at the particular time for *your* project and team

• The *leadership cycle* is key...
  – Leadership affects *everything*
  – Ingredients for success:
    • Relationships
    • Teamwork
    • Endorsement
Relationships

• Relationships are a fundamental part of leadership

• Relationships build long-term trust and confidence

• Ingredients for success:
  – Understand needs, expectations, strengths, weaknesses
  – Regular communication: Shoemail >> phone >> email
  – Relationship maintenance during difficult times is vital
Teamwork

• A strong team is essential to project success

• Teaming builds flexibility & creativity into the work

• Ingredients for success:
  – Support and defend your team – fix problems instead of blaming people
  – Establish regular, effective meetings
  – Make extra effort to include virtual team members
Endorsement

• The endorsement process ensures mutual understanding and commitment to project success

• Endorsement is more than simple approval!
  – it implies *ongoing commitment*

• Ingredients for success:
  – Foster mutual understanding; affirm the common vision
  – Give all parties a stake in the outcome
  – Identify and discuss risks
OK, but really, what’s most important?

- Most people think **Executing & Controlling** provide the most value...
  - Executing is where the “work” gets done
  - Controlling is where we make minor course corrections
  - HOWEVER, people (especially scientists and engineers) resist being told what to do or how to do things because they already have their own ways of being productive
  - To make matters worse, management often doesn’t understand the “work”
Here’s the secret…

• The most valuable phases of a project are **Initiating**, **Planning**, and **Closing**: 
  
  – **Initiating** is where you establish your scope of work. Lack of agreement or understanding will cause **scope creep**.
  
  – **Planning** is where you gain a better understanding of what needs to get done and then communicate it. “**Plans are nothing; planning is everything.**”  -Eisenhower
  
  – **Closing** is when you have agreement from all of your stakeholders that the project is finished. **Launch or go-live is not the end of a project!**
Initiation

• A simple statement of the Project Objective can be your most powerful tool:
  – **What** are you going to do?
  – **How** are you going to do it?
  – **Why** are you doing it?

• Achieve stakeholder endorsement before starting work

• The **Project Objective** is your baseline for measuring **scope creep**
Planning

• Create a **workplan** as guide and map for your team:
  – **What** needs to be done?
  – **Who** is doing the work?
  – How much will the work cost (**budget**)?
  – When will the work be done (**schedule/milestones**)?
  – **How** the work will be done?
  – How will you manage **communications**?
  – How will you manage **risk**?
  – How will you manage **change**?
  – What **metrics** will you use to track **progress**, **quality**, and **scope**?
  – What are the internal and external **dependencies**?
Closing

• If you’ve done your job well, then closing is easy:
  – Customer/stakeholder needs and expectations have been met or exceeded
  – Customer/stakeholders know exactly what was delivered
  – Customer/stakeholders are satisfied

• Closing is simply a matter of acknowledging that everything was delivered as agreed... *but write it down!*

• What if the customer/stakeholders still want more?
  – Aren’t you glad you created that *Project Objective* statement?
Where the rubber meets the road…

- **Monitoring** is where progress is measured
- **Executing** is where the “work” gets done
- **Controlling** is where we course correct
Monitoring

• Avoid using “percent complete”...
  – People guess (or lie)
  – People are overly optimistic
  – 80/20 rule: the last 20% takes 80% of the time
  – Work (and meetings) expand to fill available time

• *Binary completion* is a more accurate progress measure
  – Is it done? Yes or No

• The key is to plan *milestones*...
  – Milestones must be *measureable*
  – *Granularity* is critical – make them just fine enough to measure progress, but no finer
Executing & Controlling

• Change is *inevitable*. Period. *Accept it* because you cannot stop it.
  – Stakeholders will always change their minds
  – Requirements will always change after a “freeze”

• **How you deal with change is what matters!**
  – Evaluate changes based on their ability to advance the project objectives
    • *Glad we have that* **Project Objective** **statement**...
  – Quantify the *impact* of changes in terms of *scope, schedule, resources, & quality*

• *Prioritize* changes based on overall impact
  – Let the *customer* prioritize major changes
Knowledge is Power...

- The most valuable and least said word in a project manager’s vocabulary is “No”
- The most valuable and least said phrase in a project manager’s vocabulary is “I don't know”
In summary…

• **Project management** is valuable when applied in the manner and dosage appropriate to your team

• **Leadership** is always important

• The secret is *flexibility*

• **Plan**, plan, plan

• **Knowledge** is power – seek *balance*
Project Management Lessons from *Star Trek*

- Non-interference is the Prime Directive
- Keep your phaser set on stun
- Humans are highly illogical
- Live long and prosper
- Infinite Diversity in Infinite Combinations
- Having is not so pleasing a thing as wanting
- Tribbles hate Klingons and Klingons hate Tribbles
- Enemies, like Romulans, can be cloaked
- Don’t put all your senior officers in one shuttlecraft
- Insufficient data does not compute
- When logic fails, trust a hunch
Resources

• Project Management Institute: [www.pmi.org](http://www.pmi.org)

• DoIT Project Management Advisor: [www.pma.doit.wisc.edu](http://www.pma.doit.wisc.edu)

• Improving the User Experience: [www.usability.gov](http://www.usability.gov)

• Project Science: [www.projectscience.org](http://www.projectscience.org)
Thank you!

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