GALORATH

Automatic Layout of Hardware Effort/Duration Estimates Into Microsoft Project®

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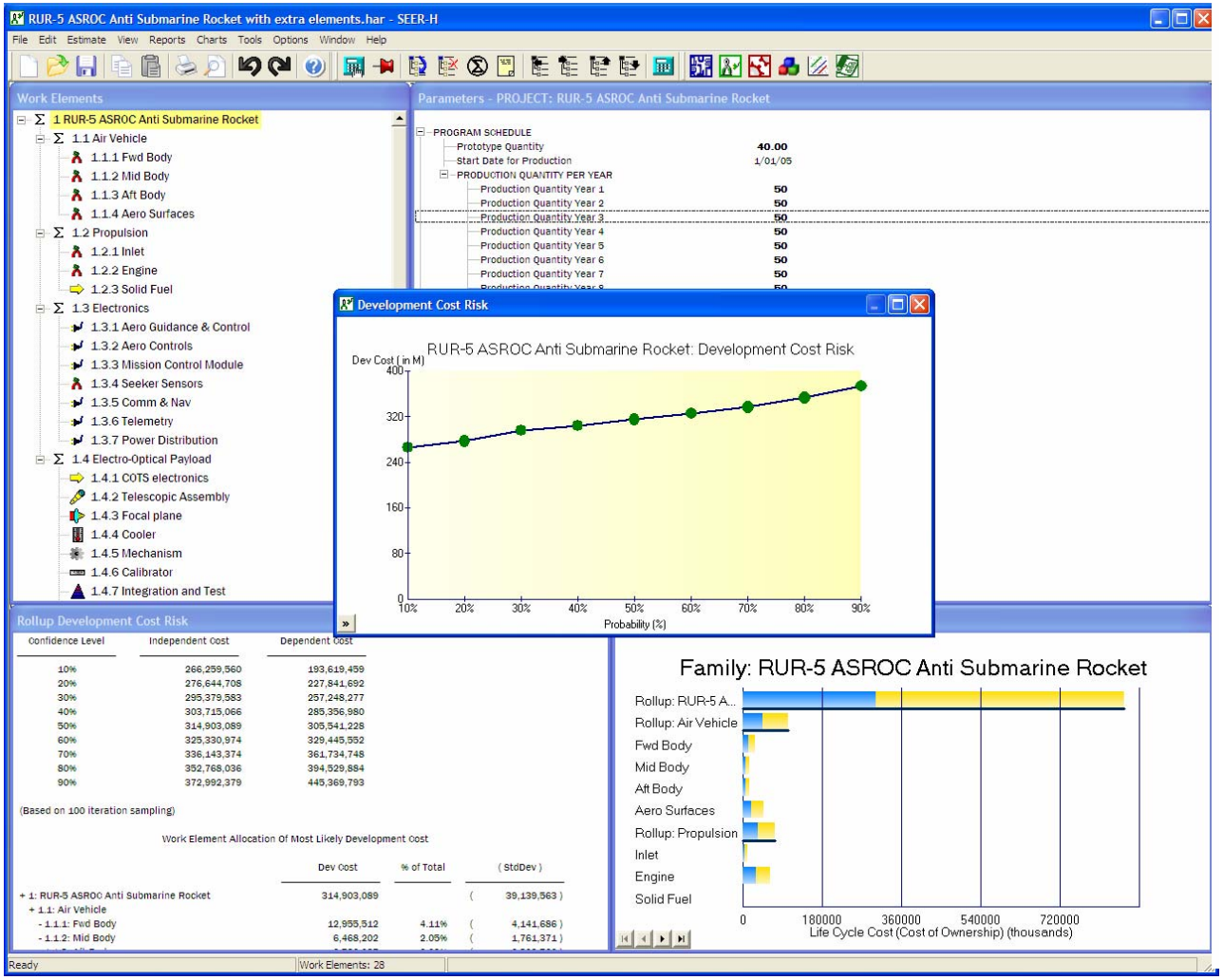
SEER by GALORATH

Originating Tool: SEER-H



Galorath's hardware lifecycle cost estimation tool

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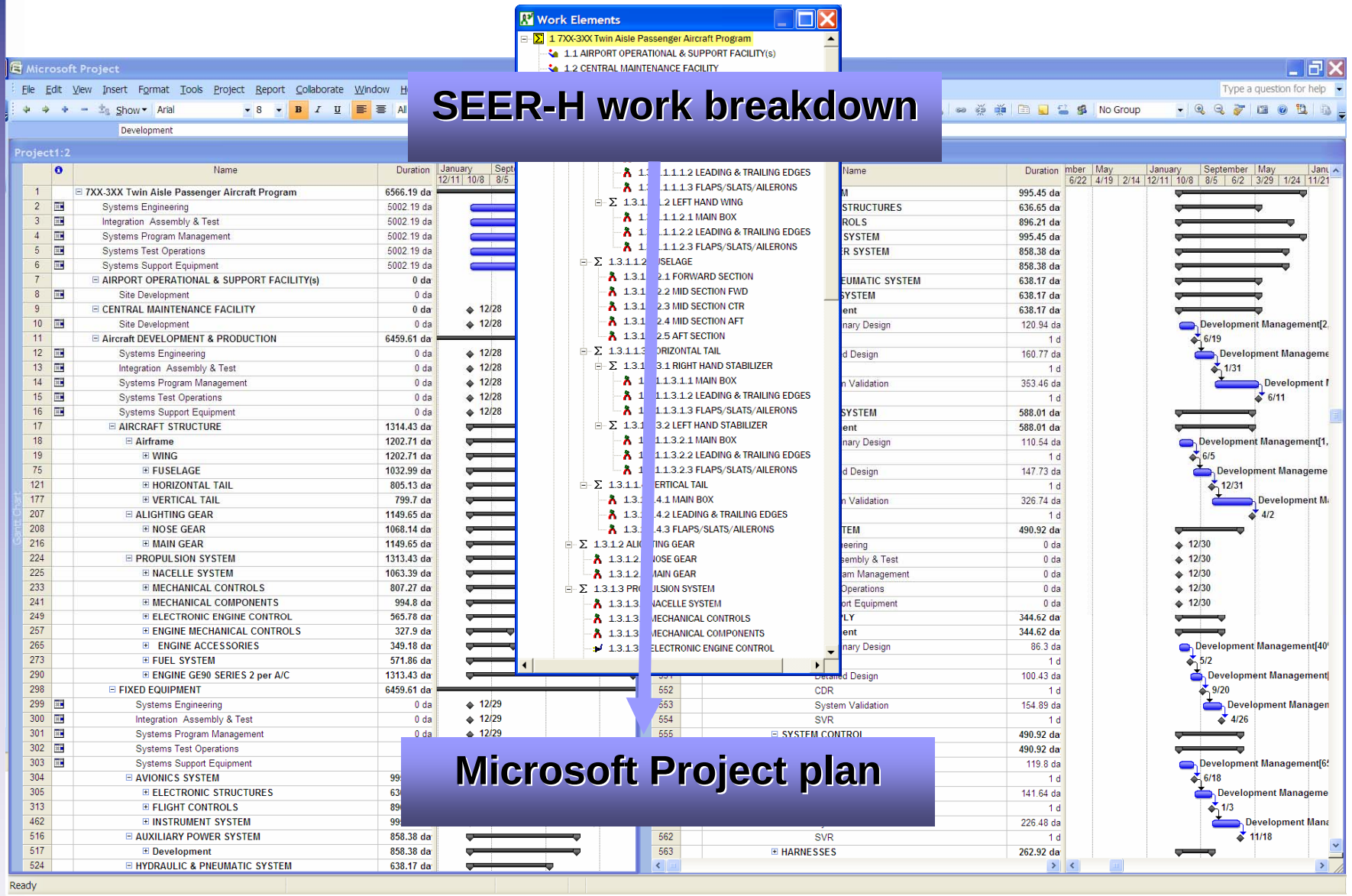
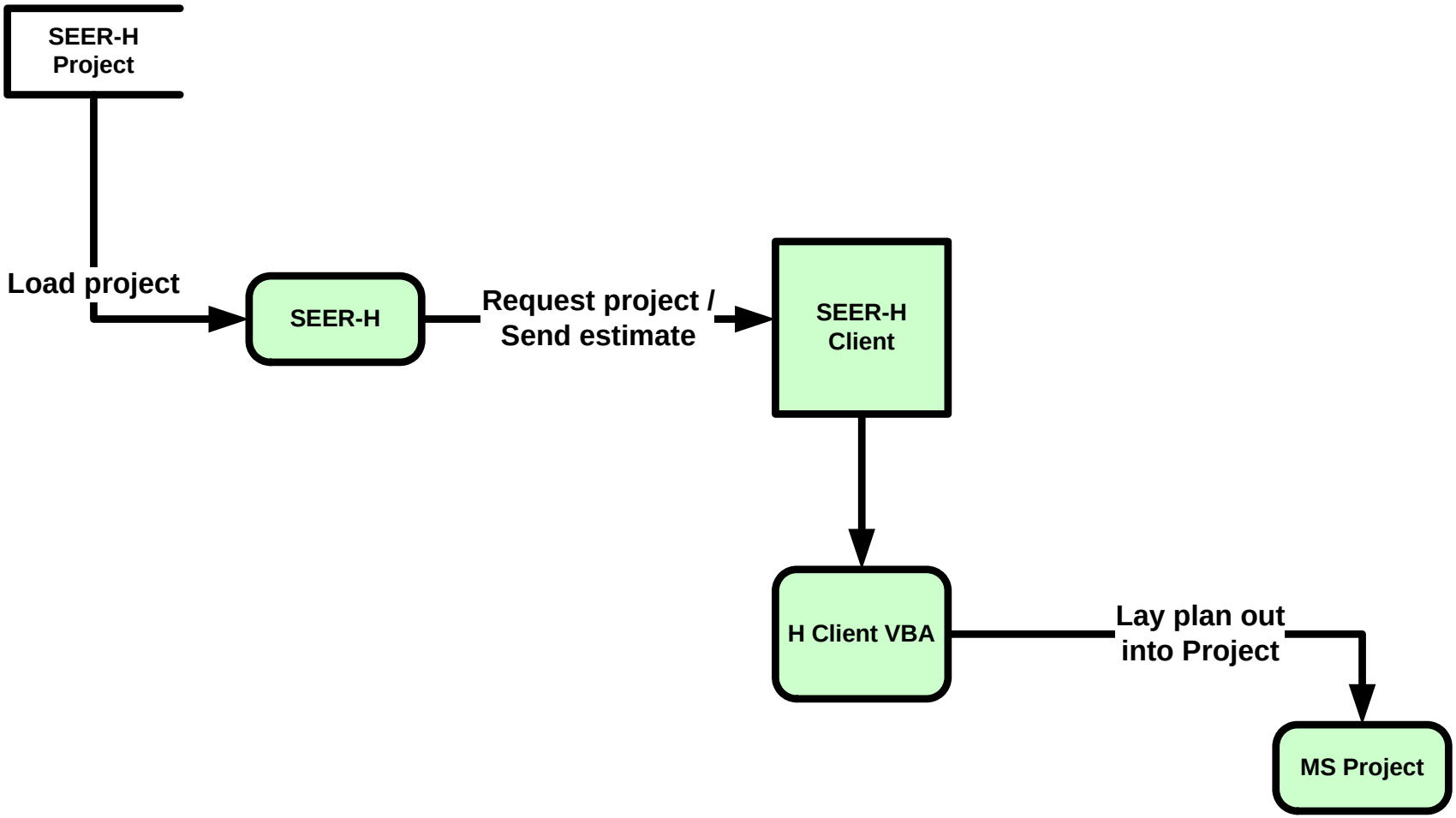
Destination Tool: MS Project



How A SEER-H Project Is Passed Into Microsoft Project



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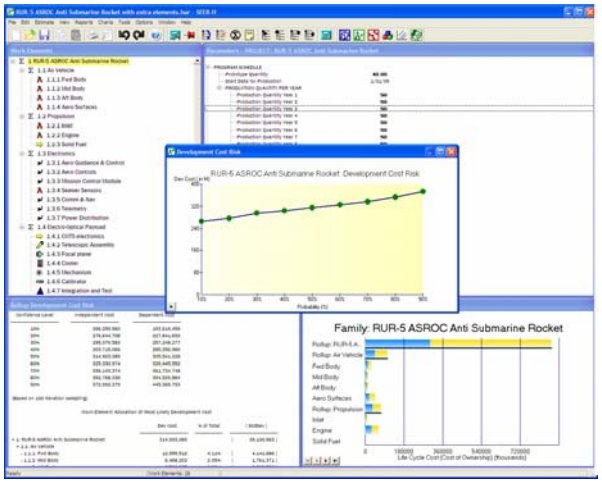
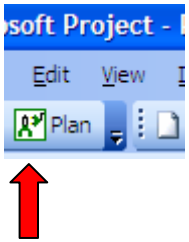
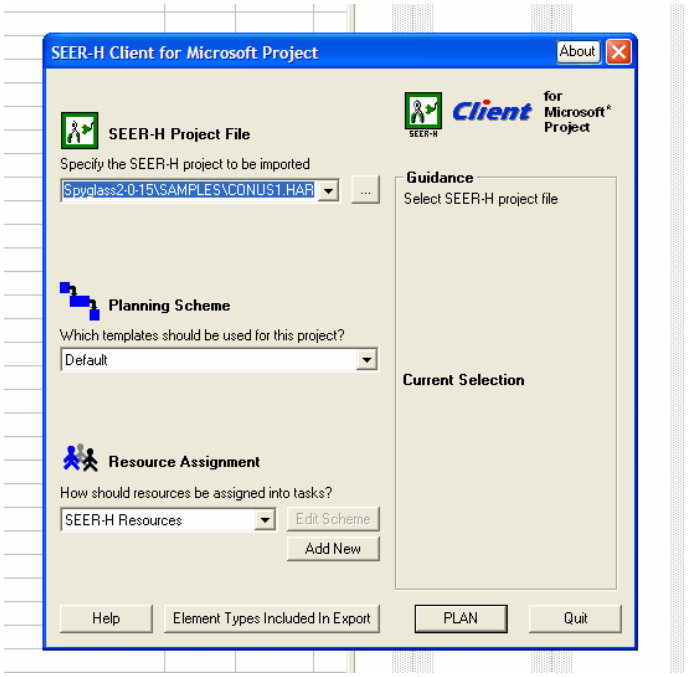
The SEER-H Client Process





Plan Button Within Project

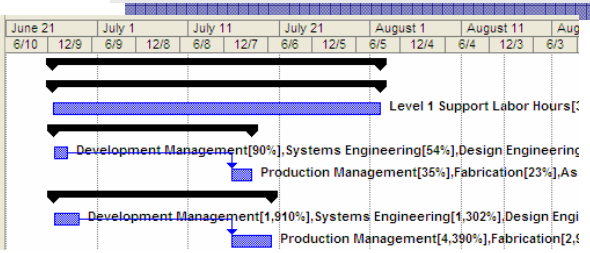


- **First,** Create a SEER-H project

- **Next,** Within Project, invoke the H Client

- **Finally,** A plan is laid out in Project

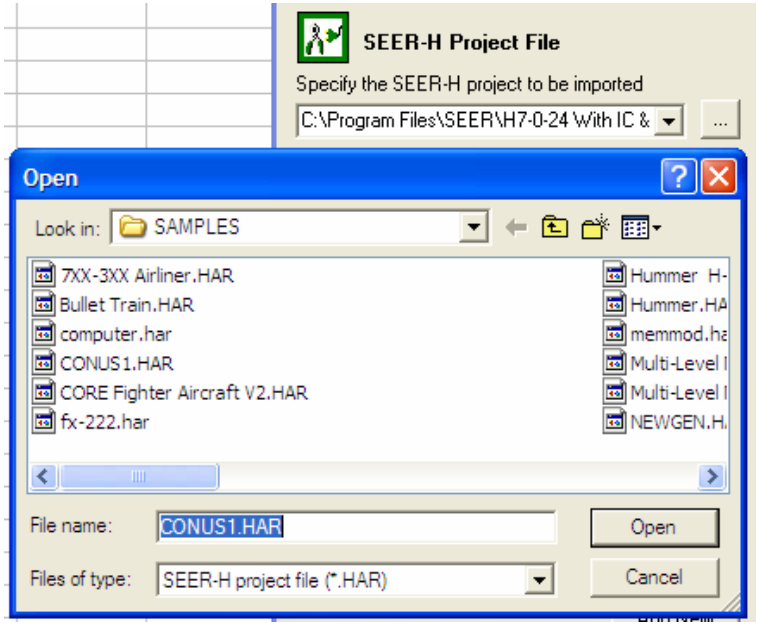
Task Name	Duration	Work	Start
Radar Site	965.92 days?	314,914.05 hrs	Sat 12/29/0
Radar	965.92 days?	314,914.05 hrs	Sat 12/29/0
SLC and OAS	965.92 days?	99,216.38 hrs	Sat 12/29/0
Computer	585.97 days?	1,770.4 hrs	Tue 1/1/0
Development	40.07 days?	1,078.87 hrs	Tue 1/1/0
Production	62.97 days?	691.53 hrs	Fri 1/2/0
Antenna	642.27 days?	213,927.27 hrs	Tue 1/1/0
Development	75.89 days?	46,347 hrs	Tue 1/1/0
Production	119.27 days?	167,580.27 hrs	Fri 1/2/0



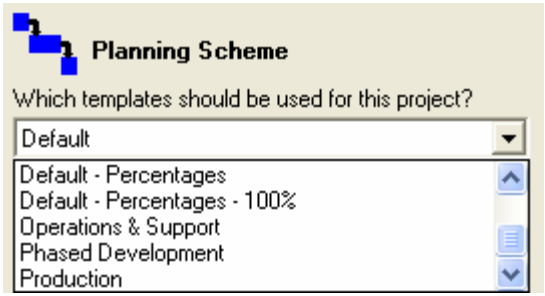
SEER-H Client Step-by-Step…

Within the SEER-H Client…

- **Step 1: Select a SEER-H Project**
  - SEER-H project files may be directly imported with no additional steps required.

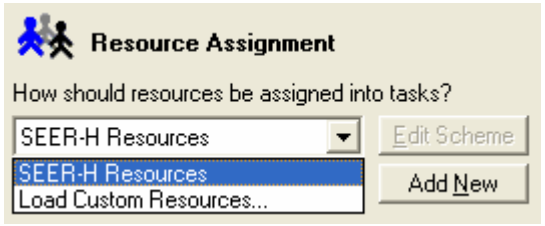


- **Step 2: Select a planning scheme**
  - A scheme represents a collection of processes, each specific to the type of SEER-H element being exported.

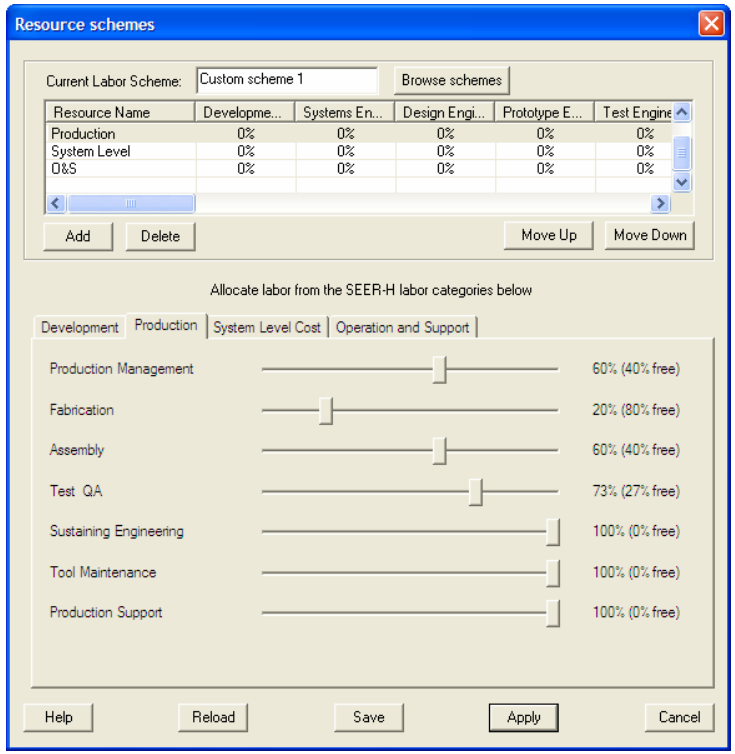


SEER-H Client Step-by-Step…

- **Step 3: Choose a resource assignment**
  - This determines the labor categories into which SEER-H effort estimates will be placed.



- **…Or create a custom resource assignment**
  - Finely detailed custom labor assignments may be created within the H Client and saved for future use.



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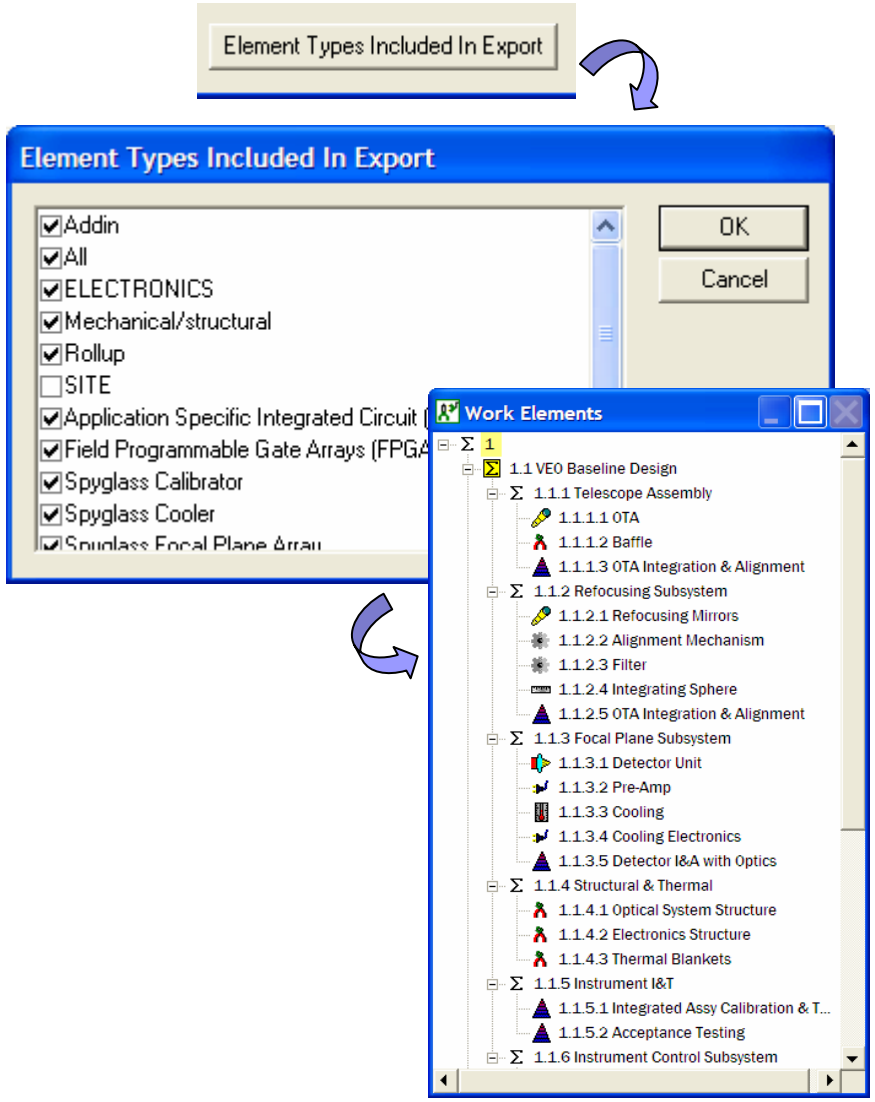
Customized Allocation of SEER-H Labor Types

	Thomas	James	Gordon	Emily	Edward
Development					
Development Management	100%				
Systems Engineering			100%		
Design Engineering		50%			50%
Prototype Engineering					
Test Engineering	50%		50%		
Tool Engineering					
Development Support				100%	
Production					
Production Management					
Fabrication	100%				
Assembly	100%				
Test & QA			100%		
Sustaining Engineering				100%	
Tool Maintenance					
Production Support		100%			100%

SEER-H Client Step-by-Step…

- **Step 4: Select SEER-H element types**
  - You may specify precisely which SEER-H elements are laid out.

Example: You may not need to include site elements if you are just laying out a development plan



- **Hit PLAN**
  - The H Client invokes SEER-H to obtain estimates and then begins laying out the plan in Project.

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Demo Time!

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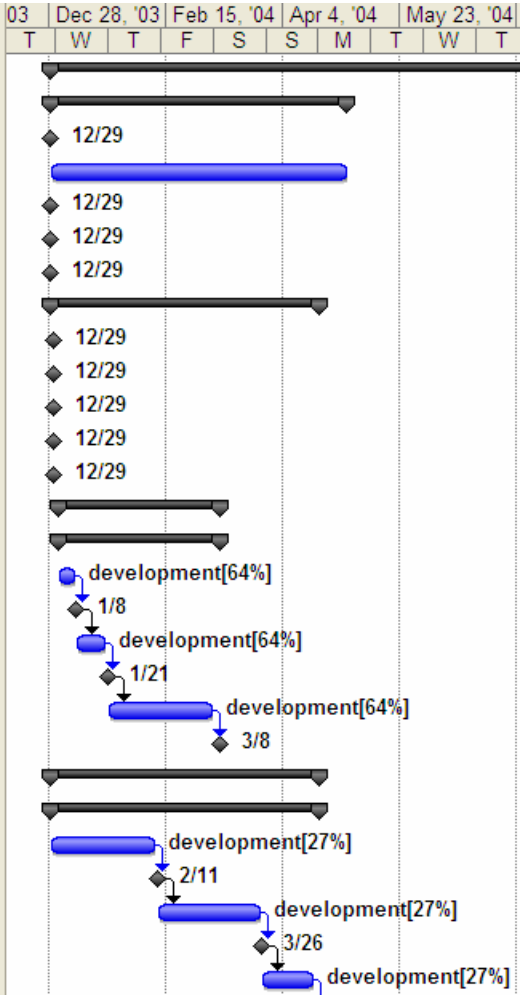
Detailed Look At A Plan

Rollup tasks

Development tasks

Production and support tasks…

Name	Duration	Work	
Computer	**525 days?**	**4,157.58 hrs**	###
Equipment Configuration	**89.71 days?**	**4,157.58 hrs**	###
Systems Engineering	0 days?	0 hrs	###
Integration Assembly & Test	89.71 days?	106.47 hrs	###
Systems Program Management	0 days?	0 hrs	###
Systems Test Operations	0 days?	0 hrs	###
Systems Support Equipment	0 days?	0 hrs	###
Internal Computer	**80.52 days?**	**1,414.42 hrs**	###
Systems Engineering	0 days?	0 hrs	###
Integration Assembly & Test	0 days?	0 hrs	###
Systems Program Management	0 days?	0 hrs	###
Systems Test Operations	0 days?	0 hrs	###
Systems Support Equipment	0 days?	0 hrs	###
CPU	**47.65 days?**	**229.72 hrs**	Th
Development	**47.65 days?**	**229.72 hrs**	Th
Preliminary Design	4.23 days?	21.78 hrs	Th
PDR	1 day?	0 hrs	We
Detailed Design	8.48 days?	43.62 hrs	Th
CDR	1 day?	0 hrs	Tue
System Validation	31.94 days?	164.32 hrs	###
SVR	1 day?	0 hrs	F
CPU BIOS Software	**80.52 days?**	**170.22 hrs**	###
Development	**80.52 days?**	**170.22 hrs**	###
Preliminary Design	31.01 days?	68.08 hrs	###
PDR	1 day?	0 hrs	Tue
Detailed Design	31.01 days?	68.08 hrs	###
CDR	1 day?	0 hrs	Thu
System Validation	15.5 days?	34.05 hrs	Fri



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Challenge: Exporting Detailed Hardware Costing Data

- Development: 7 labor types, 11 activities
- Production: 7 labor types, 7 activities
- Operations & Support (non-Site work elements): 4 “Support” labor types, no predefined activities
- Operations & Support (Site work elements): 1 “Operator” labor type, no predefined activities
- System level cost (Rollups only): 8 labor types, 5 associated with Development and 3 with Production.

And from many types of work breakdown elements:

- Hardware: Electronics, Mechanical/Structural or the SpyGlass plug-in
- Site
- Add-In: From SEER-SEM or SEER-DFM
- Rollups: actually contain information; while in the SEM Client, rollups did not contain any.

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…And Detailed Labor Categories

For development
- Development Management
- Systems Engineering
- Design Engineering
- Prototype Engineering
- Test Engineering
- Tool Engineering
- Development Support

For production
- Production Management
- Fabrication
- Assembly
- Test & QA
- Sustaining Engineering
- Tool Maintenance
- Production Support

System level cost
- SEI Development Cost
- SEI Production Cost
- IAT Development Cost
- IAT Production Cost
- SPM Development Cost
- SPM Production Cost
- STO Development Cost
- SSE Development Cost

Operations and support
- Operator Labor Hours
- Level 1 Support Labor Hours
- Level 2 Support Labor Hours
- Level 3 Support Labor Hours
- Sustaining Support Labor Hours

SEER-H's Allocations of Activities and Labor Categories

Phase/Category	Where is an estimate provided?	How many labor categories is <u>effort</u> divided into?	How many phase categories is <u>duration</u> divided into?
Development	Mechanical/Structural elements Electronics elements SpyGlass elements	7	11
Production		7	7
Operations & Support (O&S) **SUPPORT** LABOR HOURS	Mechanical/Structural elements Electronics elements SpyGlass elements AND Rollups	4	None, as there are no sub-categories for O&S
Operations & Support (O&S) **OPERATOR** LABOR HOURS	Site elements only	1	1
System Level Analysis	Rollups only	8	2 Effort is distributed evenly within either development or production, depending on the type of labor

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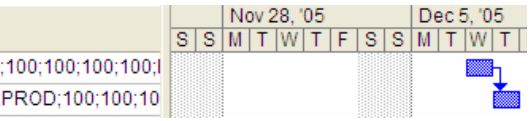
Key To Allocation Schemes: Embed Information in Templates

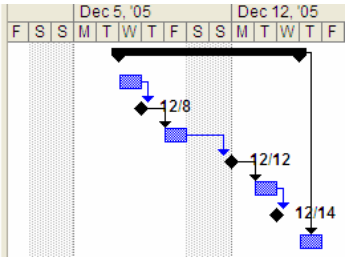
Custom templates can be defined to capture

- **A very wide variety of processes**
- **Specific phases and activities of interest**
- **Dependencies among tasks**

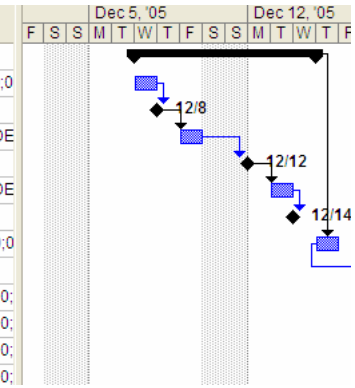
Task Name	Fields
Development	3;75;0;0;0;0;PROD;0;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DEV;100;100;100;100;100;100;100;100;100;100;100;100;I
Production	;0;0;PROD;100;100;100;100;100;100;100;100;SLC;0;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;100;100;10



Task Name	Fields
Development	
Preliminary Design	DEV;A;EFFORT;PCT;0;DEV;40;0;0;0;34;34;40;34;34;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DEV;40;0;0;0;34
PDR	
Detailed Design	DEV;A;EFFORT;PCT;0;DEV;40;20;10;10;33;33;40;33;33;10;10;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DEV;40;2
CDR	
System Validation	DEV;A;EFFORT;PCT;0;DEV;20;80;90;90;33;33;20;33;33;90;90;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DEV;20;8
SVR	
Production	PROD;P;EFFORT;PCT;100;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;100;DEV;0;0;0;0;0;



Task Name	Fields
Development	
Preliminary Design	DEV;A;EFFORT;PCT;0;DEV;40;0;0;0;34;34;40;34;34;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DEV;40;0
PDR	
Detailed Design	DEV;A;EFFORT;PCT;0;DEV;40;20;10;10;33;33;40;33;33;10;10;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DE
CDR	
System Validation	DEV;A;EFFORT;PCT;0;DEV;20;80;90;90;33;33;20;33;33;90;90;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;0;DE
SVR	
Production	PROD;P;EFFORT;PCT;100;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;0;DURATION;PCT;100;DEV;0;0
Equipment Support	
Level 1 Support Labor	OAS;D;EFFORT;PCT;0;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;100;0;0;0;DURATION;PCT;0;DEV;0;0;0;0;0;
Level 2 Support Labor	OAS;D;EFFORT;PCT;0;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;100;0;0;DURATION;PCT;0;DEV;0;0;0;0;0;
Level 3 Support Labor	OAS;D;EFFORT;PCT;0;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;100;0;DURATION;PCT;0;DEV;0;0;0;0;0;
Sustaining Support Labor	OAS;D;EFFORT;PCT;0;DEV;0;0;0;0;0;0;0;0;0;0;0;0;PROD;0;0;0;0;0;0;0;SLC;0;0;0;0;0;0;0;0;0;OAS;0;0;0;0;100;DURATION;PCT;0;DEV;0;0;0;0;0;



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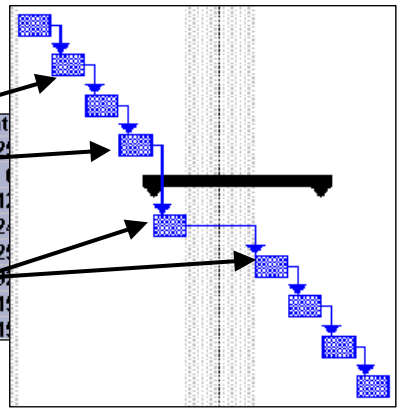
Templates allow you to control

- **What is included in your plan**
  - Development only
  - Acquisition (development & production)
  - Life cycle cost
  - System level costs
- **The level of detail**
  - High level phases
  - Detailed tasks
  - Milestones
- **You may include additional items, not estimated by SEER-H**
  - Travel expense
  - Special training
  - Pizza parties

	sys reqs	sw reqs	pre design	det design	code	component
Mgmt Hours for Sys Reqs	2	5.86	92.81	40.28	67.52	2
Sys Eng Hours for Sys Reqs	8.65	22.45	84.37	36.62	28.94	
Design Hours for Sys Reqs	2.33	6.83	345.93	150.12	57.87	1
Code Hours for Sys Reqs	0	2.93	101.25	43.94	530.51	12
Data Prep Hours for Sys Reqs	1	2.93	67.5	29.29	57.87	2
Test Hours for Sys Reqs	2	5.86	118.12	51.26	144.69	3
CM Hours for Sys Reqs	0.33	0.98	16.87	7.32	38.58	1
QA Hours for Sys Reqs	0.33	0.98	16.87	7.32	38.58	1



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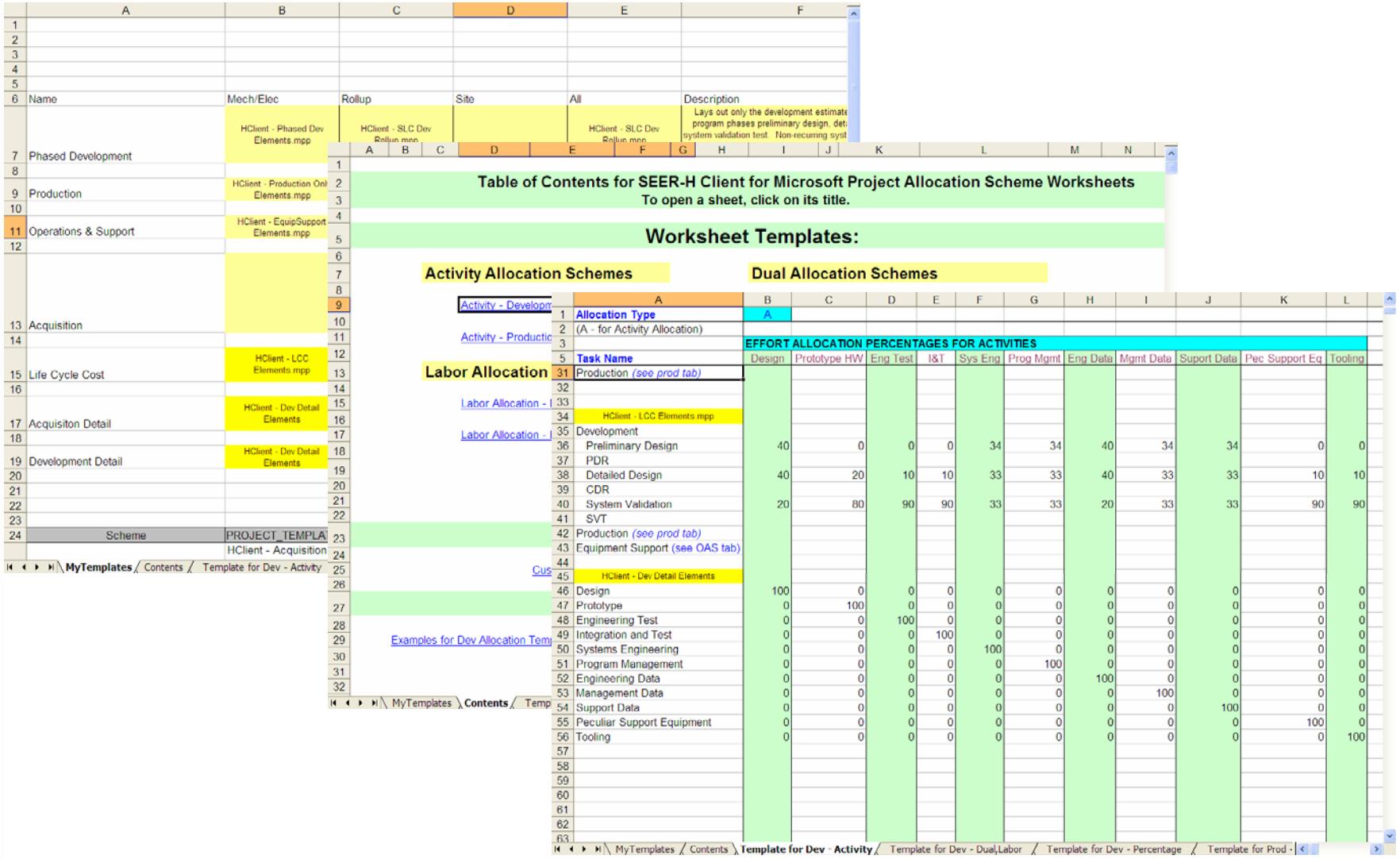
A Framework For Template Creation



	Name	Mech/Elec	Rollup	Site	All	Description
7	Phased Development	HClient - Phased Dev Elements.mpp	HClient - SLC Dev Rollup.mpp		HClient - SLC Dev Rollup.mpp	Lays out only the development estimate program phases preliminary design, det system validation test Non-recurring syst
9	Production	HClient - Production Onl Elements.mpp				
11	Operations & Support	HClient - EquipSupport Elements.mpp				
13	Acquisition					
15	Life Cycle Cost	HClient - LCC Elements.mpp				
17	Acquisiton Detail	HClient - Dev Detail Elements				
19	Development Detail	HClient - Dev Detail Elements				
24	Scheme	PROJECT_TEMPLA				
		HClient - Acquisition				

MyTemplates / Contents / Template for Dev - Activity

Table of Contents for SEER-H Client for Microsoft Project Allocation Scheme Worksheets
To open a sheet, click on its title.

Worksheet Templates:

Activity Allocation Schemes

Activity - Developr
Activity - Productic

Dual Allocation Schemes

Labor Allocation

Labor Allocation -
Labor Allocation -
Cus
Examples for Dev Allocation Tem

MyTemplates / Contents / Temp

	A	B	C	D	E	F	G	H	I	J	K	L
1	**Allocation Type**	A										
2	(A - for Activity Allocation)											
3		EFFORT ALLOCATION PERCENTAGES FOR ACTIVITIES										
5	**Task Name**	Design	Prototype HW	Eng Test	I&T	Sys Eng	Prog Mgmt	Eng Data	Mgmt Data	Suport Data	Pec Support Eq	Tooling
31	Production *(see prod tab)*											
32												
33												
34	HClient - LCC Elements.mpp											
35	Development											
36	Preliminary Design	40	0	0	0	34	34	40	34	34	0	0
37	PDR											
38	Detailed Design	40	20	10	10	33	33	40	33	33	10	10
39	CDR											
40	System Validation	20	80	90	90	33	33	20	33	33	90	90
41	SVT											
42	Production *(see prod tab)*											
43	Equipment Support (see OAS tab)											
44												
45	HClient - Dev Detail Elements											
46	Design	100	0	0	0	0	0	0	0	0	0	0
47	Prototype	0	100	0	0	0	0	0	0	0	0	0
48	Engineering Test	0	0	100	0	0	0	0	0	0	0	0
49	Integration and Test	0	0	0	100	0	0	0	0	0	0	0
50	Systems Engineering	0	0	0	0	100	0	0	0	0	0	0
51	Program Management	0	0	0	0	0	100	0	0	0	0	0
52	Engineering Data	0	0	0	0	0	0	100	0	0	0	0
53	Management Data	0	0	0	0	0	0	0	100	0	0	0
54	Support Data	0	0	0	0	0	0	0	0	100	0	0
55	Peculiar Support Equipment	0	0	0	0	0	0	0	0	0	100	0
56	Tooling	0	0	0	0	0	0	0	0	0	0	100

MyTemplates / Contents / **Template for Dev - Activity** / Template for Dev - Dual Labor / Template for Dev - Percentage / Template for Prod -

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