

# More Fun With Product Metrics

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# Congratulations! Well Done Team BERNZ!

#	Software Requirement	Module	Ext. Inputs	Ext. Outputs	Ext. Inquiries	Internal Logical Files	External Interface Files	CT	1. Reliable backup or recovery	2. specialized data communications	3. Distributed processing functions	4. performance critical	5. run in an existing, heavily utilized operational environment?	6. online data entry	transaction built over multiple screens/operations?	8. ILFs updated online?	9. complex IO, files, inquiries ?	10. complex internal processing	11. reusable code	conversion and installation included in design?	13. multiple installations in different organizations?	14. facilitates change and ease of use?	Sum(FI)	FP
1	registration link for new users	Settings	1	2	0	2	1	6	0	1	0	0	0	1	0	0	1	0	1	0	0	1	5	12.6
2	donations	Analytics	1	1	0	1	1	4	0	1	0	0	0	1	0	0	0	0	1	0	0	1	4	8.28
3	applied to raw data	Analytics	2	1	0	1	1	5	0	1	0	0	0	1	0	0	0	0	1	0	0	1	4	10.35
4	donation item categories and their quantities	Analytics	2	1	0	1	1	5	0	1	0	0	0	1	0	0	1	0	1	0	0	1	5	10.5
5	donar information	Input	5	0	0	1	0	6	0	1	0	0	0	1	1	0	0	0	1	0	0	1	5	12.6
6	donar info fields blank	Input	1	1	0	1	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	6.12
7	each category of donations.	Input	4	0	0	1	0	5	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	10.2
8	address (which is their username) and	Login	2	0	0	0	1	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	6.03
9	password was entered for the correct email	Login	2	1	2	1	1	7	1	1	0	0	0	1	0	0	0	0	1	0	0	1	5	14.7
10	multiplue donation items at the same time per	Input	9	1	0	1	0	11	0	1	0	0	0	1	1	0	0	0	1	0	0	1	5	23.1
11	search the database.	Audit	3	3	0	1	1	8	1	0	0	1	0	1	0	1	0	0	1	0	0	1	6	17.04
12	expire time on settings view	Settings	1	0	0	1	1	3	0	0	0	0	0	1	0	0	0	0	1	0	0	1	3	6.12
13	roles from other users	Settings	3	2	0	1	1	7	1	0	0	0	0	1	1	1	1	0	1	0	0	1	7	15.12
14	dates and amounts for a specific donor	Analytics	3	1	0	1	1	6	0	1	0	0	0	1	0	0	1	0	1	0	0	1	5	12.6
15	dates and amounts for all donors	Analytics	2	1	0	1	1	5	0	1	0	0	0	1	0	0	1	0	1	0	0	1	5	10.5
16	menu on preset feilds	Input	1	1	0	1	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	6.12
17	invalid when used	Registration	2	0	0	1	1	4	1	1	0	0	0	1	0	1	0	0	0	0	0	1	5	8.4
18	for users who have used a valid registration	Registration	2	1	2	1	1	7	1	1	0	0	0	1	0	1	0	0	0	0	0	1	5	14.7
19	one account per email address	Registration	2	1	1	2	1	7	1	0	0	0	0	1	0	1	0	0	0	0	0	1	4	14.49
20	change the data in the pop-up	Audit	3	0	0	1	1	5	1	0	0	0	0	1	0	1	0	0	1	0	0	1	5	10.5
21	click on an icon(edit) button	Audit	1	1	0	1	1	4	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	8.04
22	click yes or no to save the changes	Audit	1	1	0	1	1	4	0	0	0	0	0	1	0	0	0	0	1	0	0	1	3	8.16
23	permissions they have	Settings	0	0	1	1	0	2	1	1	0	0	0	0	0	0	1	1	0	1	0	1	6	4.26
24	Admin should be able to edit posts	Posts	1	1	0	1	1	4	1	0	0	0	0	1	0	1	0	0	0	0	0	1	4	8.28
25	Admin should be able to read post	Posts	0	1	0	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6.03
26	Admin should be able to remove posts	Posts	1	1	0	1	1	4	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	8.04
27	scrolls for user to see (infinite scroll)	Posts	0	1	0	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6.03
28	"clear" button is pressed	Input	1	2	0	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	6.12
29	"success" indication upon user enter data	Input	1	2	0	1	0	4	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	8.16
30	when filling out fields	Input	1	1	0	1	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	6.12
31	password complexity to register an account	Registration	1	1	0	1	1	4	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	8.04
32	currently have	Settings	0	1	0	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6.03
33	message (with Discord/slack integration)	Chat	1	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	4.08
34	User/Admin should be able to post a post	Posts	1	1	0	0	1	3	0	0	0	0	0	1	0	1	0	0	0	0	0	1	3	6.12

# Congratulations! Well Done Team BANG!

Acceptance Criteria	Module	Module Function Point (FP Score)	Requirement Score (FP)	Priority	Lead	Time
Given a club officer, when they want to create a program, then the club officer will enter the program information to begin it.	User ID	24.48	8	H	Jason	0.175
Given a user has not created their profile, when it is the time period to apply, then club officers can invite users to create a profile	Global Data	16.8	6	H	Jason	0.17
Given it is before the time period to apply, when a club officer edits questions, then the questionnaire will reflect the questions edited	User ID	24.48	6	H	Matt	0.1
Given it is before the time period to apply, when a club officer edits in interests and hobbies, then the questionnaire will reflect those edits	Front-end	20.59	6	M	Matt	0.1
Given a user has created their profile, when they finish their questionnaire, a club officer will be able to view the user's answers	Front-end	20.59	5	M	Matt	0.1
Given a user has created their profile, when they send a message to a club officer, then the club officer will be able to view the message in their inbox.	Global Data	16.8	4	M	Matt	0.2
Given a user has created their profile, when a user want to be added or removed, then a club officer should be able to do so.	Back-End Database / Server Module	15.62	9	M	Jason	0.175
Given a user is a big or little, when the user views applicants, then they can only see bigs or littles	Frontend	20.59	6	H	Jerry	0.1
Given a user, when they have forgotten their account information, then they should be able to reset it with a password reset through email.	Global Data	16.8	7	L	Jason	0.1
Given a user has applied, when they withdraw their application, then they will be taken out of list of candidates	Back-End Database / Server Module	15.62	5	M	Jason	0.2
Given a user who is a big or little, when they want to prefer a certain person, then they will select who they want by clicking a button on their user profile.	Front-end	20.59	7	M	Jerry	0.1
Given a user has applied once, when they try to apply again, then the system will reject their second application	Target System	35.77	6	L	Jason	0.1
Given a user, when they have filled out an application, then the system will do algorithms to generate the highest matching pair.	Target System	35.77	5	H	Jerry	0.5
Given a user removes a candidate from their top 3 list, when the list has less than 3 candidates, then the system will fill those spaces with the next best candidates	Target System	35.77	5	L	Jerry	0.1
Given the time period to apply is over, when a user tries to create a profile, then the system won't allow them to	Target System	35.77	7	L	Alejandro	0.1
Given the time period to apply is not over, when a user tries to create a profile, then they will be added to the list of candidates	User ID	24.48	13	H	Alejandro	0.5
Given a user has created a profile, when they edit new information for their profile, then the system will reflect those changes	Back-End Database / Server Module	15.62	7	H	Alejandro	0.1
Given a user is signing up to be a big or little, when they create their profile, then they will have to answer a questionnaire.	Front-end	20.59	5	H	Matt	0.05
Given a user has completed their questionnaire, when they try to edit their answers, the system will not allow them to	Target System	35.77	7	H	Alejandro	0.1
Given a user has created their profile, when they click on a user's profile, then a chat window will pop up	Global Data	16.8	7	M	Matt	0.2
Given a user has created their profile, when they click block on another user, then the system will prevent them viewing profiles and chatting	Target System	35.77	8	L	Matt	0.1
Given a user has created their profile, when they click private on their profile, then others can't view their profile	User ID	24.48	7	M	Alejandro	0.1
Given all users have applied, when the time period to apply is over, then the system will generate a report with all the user's information.	Target System	35.77	6	H	Matt	0.15
Given all users have applied, when the time period to apply is over, then the system will forward a summary report to the club officers	Target System	35.77	6	H	Jerry	0.2

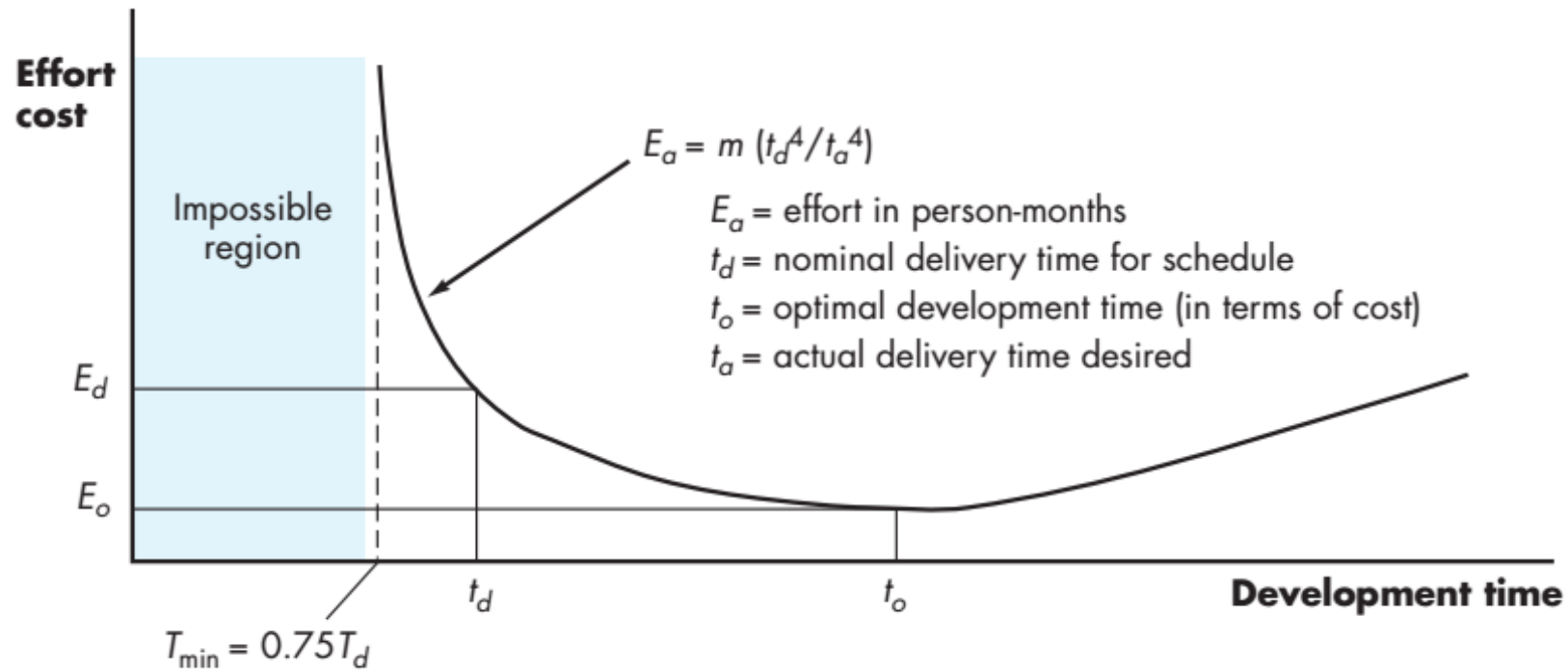
SR #	External Inputs	External Outputs	External Inquiries	Internal Logical Files	External Interface Files	Question "Yes" Count	Total
Target System	8	14	11	16	0	8	35.77
Back End	4	8	3	6	1	6	15.62
Front End	4	7	8	10	0	6	20.59
Global Data	3	7	6	8	0	5	16.8
User ID	11	8	4	8	3	7	24.48

# Goal for This Week...

- Going from requirements -> tasks -> schedule
- How? Via “effort” calculation
- Start building!



# Putnam – Norden – Rayleigh (RNC) Curve



$$E = \frac{L^3}{P^3 t^4}$$

E = Effort

L = Heuristic (i.e., FP or LOC)

P = Productivity Parameter

t = Project Duration

# Our Equation For Each Requirement

L : LOC or FP

$$E = \frac{L^3}{P^3 t^4}$$

P (for LOC) : 1200 = Expert in Tool/Language of Requirement, 700 = Proficient, 200 = Beginner (*i.e., Learning Curve*)

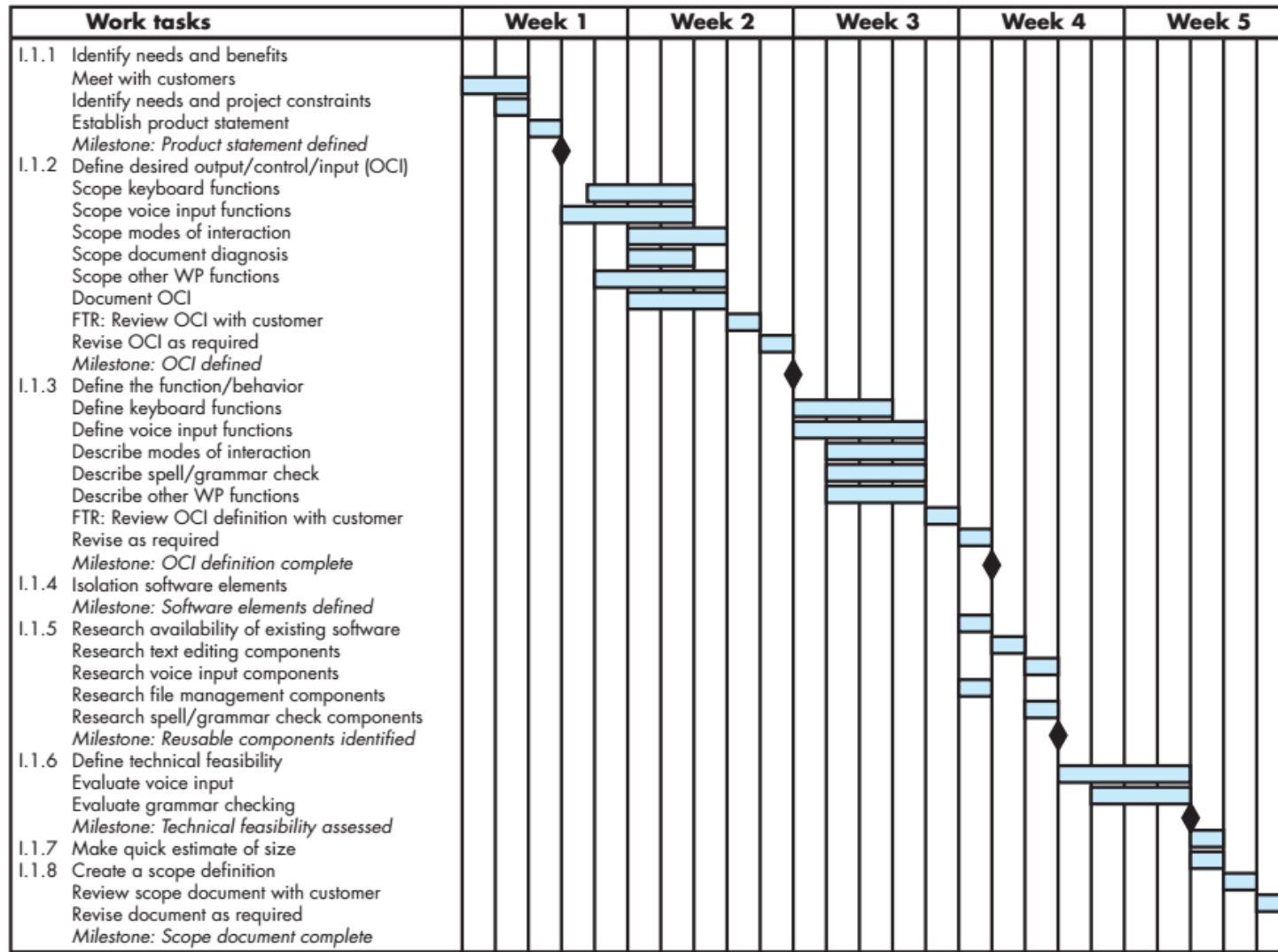
P (for FP) : 30 = Expert in Tool/Language of Requirement, 20 = Proficient, 10 = Beginner (*i.e., Learning Curve*)

t : Lead Programmer Hours = (3 \* Lead Programmer Hours Per Month Dedicated to CECS 445) / 100

Information domain value	Opt.	Likely	Pess.	Est. count	Weight	FP count
Number of external inputs	20	24	30	24	4	97
Number of external outputs	12	15	22	16	5	78
Number of external inquiries	16	22	28	22	5	88
Number of internal logical files	4	4	5	4	10	42
Number of external interface files	2	2	3	2	7	15
Count total						320

Function	Estimated LOC
User interface and control facilities (UICF)	2,300
Two-dimensional geometric analysis (2DGA)	5,300
Three-dimensional geometric analysis (3DGA)	6,800
Database management (DBM)	3,350
Computer graphics display facilities (CGDF)	4,950
Peripheral control function (PCF)	2,100
Design analysis modules (DAM)	8,400
Estimated lines of code	33,200

# Mapping Requirements to Schedule



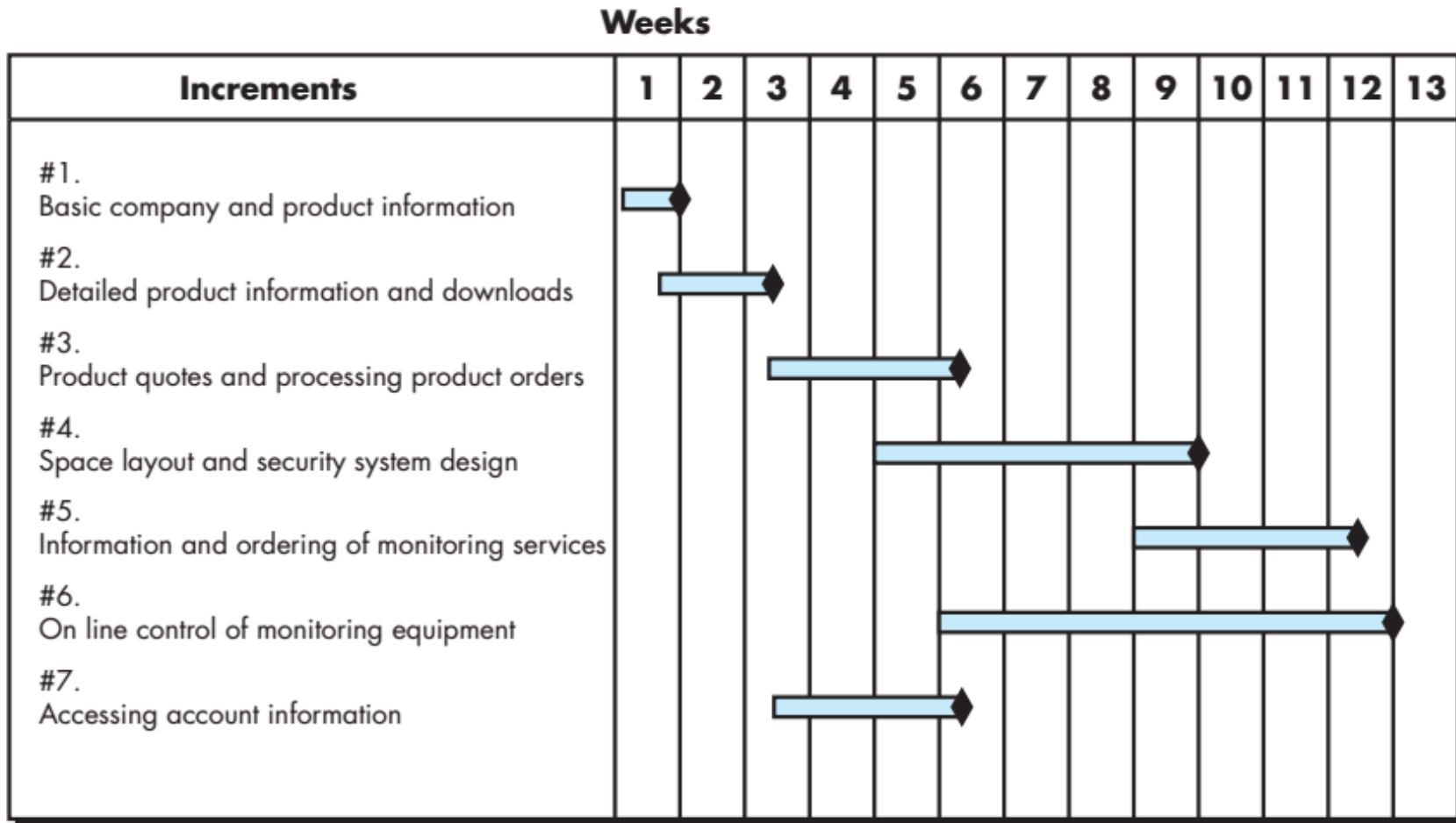
- Tasks at Requirement Level or Module Level
- Map each programmer to his/her tasks (i.e., first column should be names)
- Weeks should be allocated by Scrum Cycles (i.e., Cycle 1, 2, 3, etc.)
- Dependencies (i.e., 40 – 20 – 40 Rule)
- Integration Buffer

# Project Table

Work tasks	Planned start	Actual start	Planned complete	Actual complete	Assigned person	Effort allocated	Notes
1.1.1 Identify needs and benefits							
Meet with customers	wk1, d1	wk1, d1	wk1, d2	wk1, d2	BLS	2 p-d	Scoping will require more effort/time
Identify needs and project constraints	wk1, d2	wk1, d2	wk1, d2	wk1, d2	JPP	1 p-d	
Establish product statement	wk1, d3	wk1, d3	wk1, d3	wk1, d3	BLS/JPP	1 p-d	
<i>Milestone: Product statement defined</i>	wk1, d3	wk1, d3	wk1, d3	wk1, d3			
1.1.2 Define desired output/control/input (OCI)							
Scope keyboard functions	wk1, d4	wk1, d4	wk2, d2		BLS	1.5 p-d	
Scope voice input functions	wk1, d3	wk1, d3	wk2, d2		JPP	2 p-d	
Scope modes of interaction	wk2, d1		wk2, d3		MLL	1 p-d	
Scope document diagnostics	wk2, d1		wk2, d2		BLS	1.5 p-d	
Scope other WP functions	wk1, d4	wk1, d4	wk2, d3		JPP	2 p-d	
Document OCI	wk2, d1		wk2, d3		MLL	3 p-d	
FTR: Review OCI with customer	wk2, d3		wk2, d3		all	3 p-d	
Revise OCI as required	wk2, d4		wk2, d4		all	3 p-d	
<i>Milestone: OCI defined</i>	wk2, d5		wk2, d5				
1.1.3 Define the function/behavior							



# Start with “Macro” Project Schedule



# Steps For This Week...

- Calculate Effort for Each Requirement
- Build Schedule (use Project Tables and/or Macro Schedules on the way)
- Start Coding & Be Ready to Share with Your Customer in One Week

