

10 Steps to Starting a Successful FPA Program

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Learning Objectives:

1. How to start your own FPA program?
2. What will be the benefits from utilizing FPA?
3. How much time/cost will be involved?
4. What industry resources are available?
5. How will this impact my current project methodology?



Software Development Industry Problem:

“The average software project is late and expensive. Software projects estimated at 1 yr & \$1M will be delivered in 2.2 yr & cost \$1.9M. After all of that, it will only have 61% of the originally specified functionality.” (Standish Group Survey)

Experience Before FPA

- Feb 2007:**
- Started Order Fulfillment Project
 - Estimated 6 people for 6 months
 - Waterfall Methodology
- May 2007:**
- Scope Increased by 260%
 - Our Change Order was for +50%
- July 2007:**
- SH doubled the team & worked OT
- Oct 2007:**
- Delivered all functionality within 150% of the original schedule
- End Results:**
- Client Never Implemented
 - We lost money



Lessons Learned

1. Establish Project Metrics Upfront.
2. Develop Code in Iterations.
3. Establish a baseline FPA.
4. Add Data Model & UI Definitions to Use Cases.
5. Add a Scope Manager to the project team.



FPA is the Tool we use to avoid Project Risk:

Top 6 Project Risks:

1. Lack of User Input
2. Incomplete Requirements
3. Changing Requirements
4. Lack of Executive Support
5. Technology Incompetence
6. Unrealistic Expectations



The Standish Group

10 Steps to Starting a Successful FPA Program

▶ #1: Identify an Internal Sponsor

- Executive Management Team Member
- Believes in measurement

▶ #2: Find a Mentor (Industry Expert)

- Gaining Management team support
- Facilitate training
- Implementation Guide
- Join IFPUG!



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▶ #3: Conduct Initial FPA Training

- **Conduct FPA101 Training**
- **Follow up with a general orientation session**

▶ #4: Select Internal FPA Process Owners

- **Look for someone with a passion to learn it.**
- **Select a FPA Champion**
- **Select backup/additional FPA counters as required**



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- ▶ #5: Invest in On-going FPA Training
 - Champion 33%+ dedicated to FPA
 - Additional Counters 10%+ dedicated to FPA
 - Certify/Qualify your Counters



Sample FPA Annual Budget:

- FPA Personnel..\$44,720
 - Train/Orient.....\$25,360
 - Reference Mtl....\$2,500
 - Join IFPUG.....\$700
- Total=\$73,280**

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▶ #6: Create your FPA Toolkit

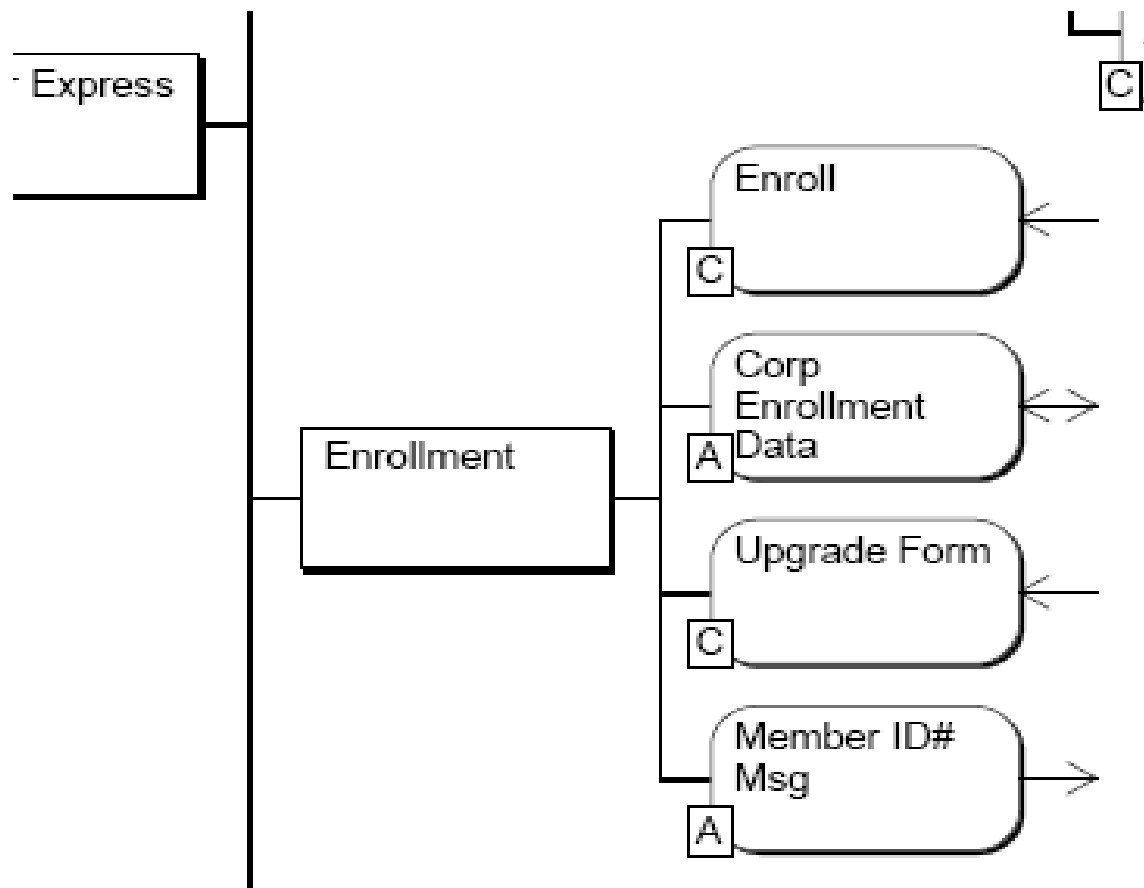
- Purchase a FP counting software package
- Create a FPA Knowledge Repository
- Conduct online research
- Purchase reference materials



FPA Ref. Materials/Sources:

- “Function Point Analysis”, Garmus & Herron
- “Applied Software Measurement”, Jones
- www.IFPUG.org
- www.ISBSG.org
- www.TotalMetrics.com
- www.DavidConsultingGroup.com

Functional Component Hierarchy Diagram per Software Estimating Tool



10 Steps to Starting a Successful FPA Program

- ▶ **#7: Identify a Proof of Concept Project**
 - **Solidify internal support**
 - **Applies to new or existing projects**
 - **Gain experience**

- ▶ **#8: Measure your Project Delivery Rate**
 - **Measure your Hrs/FP by Phase by Role**
 - **Update Time Reporting Process**
 - **Measure your Defects/FP**
 - **Compare to Industry Data**



Order Fulfillment Proof of Concept Project:

<u>Iteration#</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>Total</u>
<u># of Use Cases</u>	6	5	5	5	21
<u>FP Count</u>	143	154	131	101	529
<u>Est. Dev. Hrs</u>	758	818	698	539	2,813
<u>Actual Dev. Hrs</u>	691	519	559	909	2,678
<u>Est. Defects</u>	75	81	69	53	278
<u>Actual Defects</u>	78	71	67	91	307

Actual vs. Estimated Development Hrs = 95%

Actual vs. Estimated Defects = 110%



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▶ #9: Incorporate FPA into your Project Approach

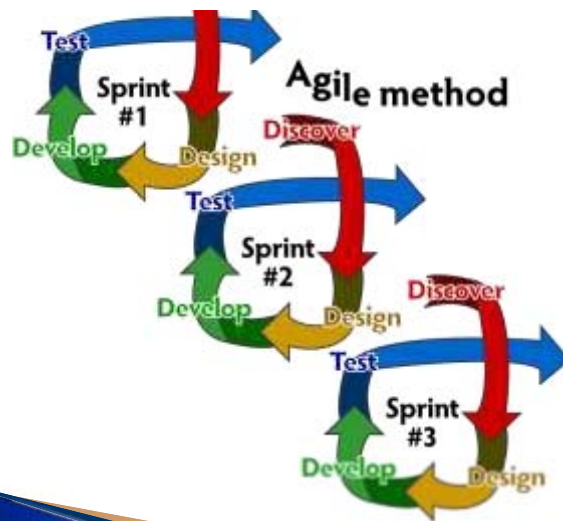
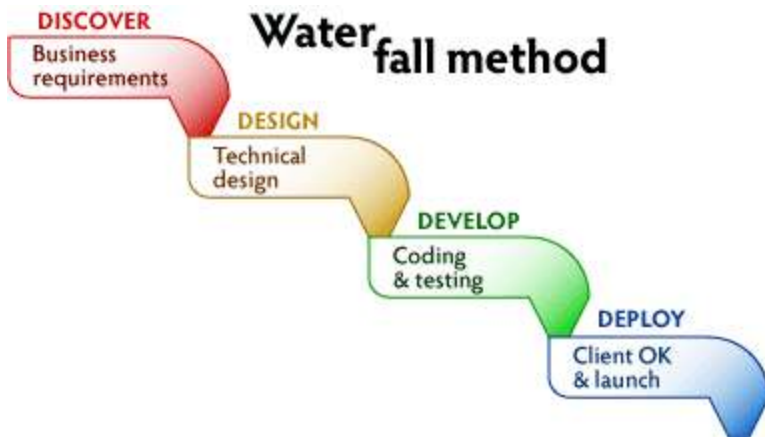
- Update your Project Methodology
- Track Scope Creep
- Track PDR Stats
- Add Scope Manager Role



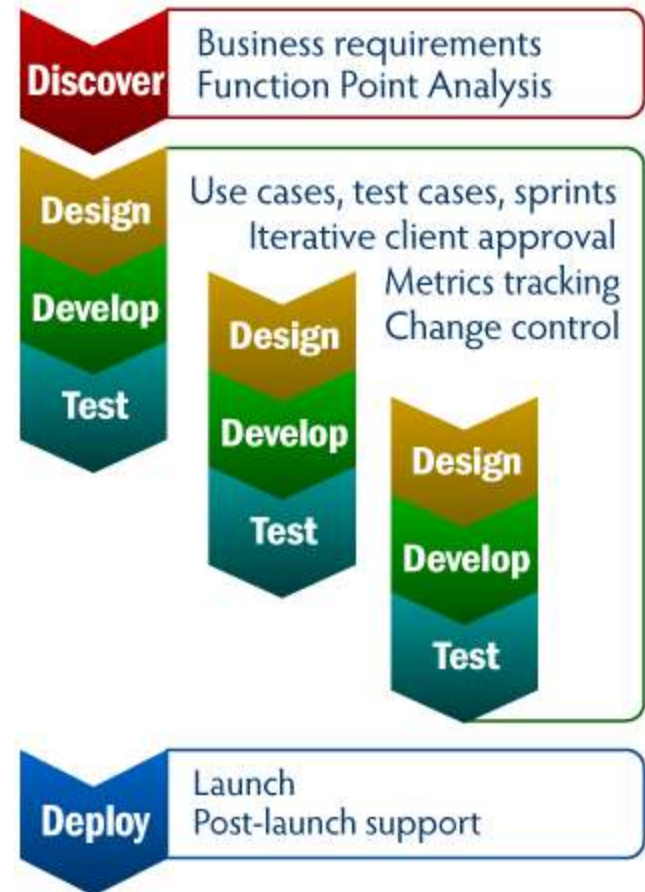
FPA's Methodology Impact:

- Sales & Marketing
- Estimating
- Pricing
- Proposals
- Requirements Documents
- Time Reporting
- Project Plan/Schedule
- Defect Tracking
- Performance Tracking

The NimbleSM Method was Created



THE NimbleSM Development METHODSM



Scope Traceability Matrix (Handout)



- ▶ **Measure size throughout the SDLC**
 - 1st Column Lists Functional Components
 - Add a Column for Each Additional Count
 - Highlight Functionality that changes
 - Summarize and explain changes

Functionality Description	Type	# of DET	FT
Agent Password	EIF	3	
Content Management System	EIF	21	
Corporate Discounts	EIF	11	
Email Service Profile	EIF	21	
Reservation Data	ILF	<51	
Profile Audit Log	EIF	<51	
URL Corp Data			
Verify CD# Not Expired	EQ	4	
Reservation Inquiry	EQ	<20	
Confirmation Email	EQ	<20	
Return New Member ID #	EQ	4	
Member Search	EO	<20	
ID Search	EQ	4	
Update Profile/PWD			
Enroll Member			
Reset PWD			
Get Pending RES			
On Screen Help Links	EQ	<20	
Member Log In	EQ	4	
Select Lost ID Page	EQ	6	

			Count #:	1				Count #:	2				
			Date:	11/9/2007				Date:	12/4/2007				
Component			Reason:	Proposal	Estimate				Reason:	Requirements	Spec	Recount	
Traceability			Function	# of	# of	# of				Function	# of	# of	# of
Number	Component Diagram Desc.	Functionality Description	Type	DET	FTR/RET	FP%	Type	DET	FTR/RET	FP%			
1.1.00	View Our Cars	Select Cars Page	EQ	>5	4	6	EQ	21	4	6			
1.2.01	View Our Cars	Sitecore DB	EIF	>50	1	7	EIF	46	9	10			
1.3.00	View Our Cars	Fleet	EIF	<51	1	5	EIF	7	1	5			
1.4.01	View Our Cars	Rate	EIF	<51	1	5	EIF	4	1	5			
1.5.01	View Our Cars	Secondary Nav Links	EIF	<51	1	5					0		
2.1.00	View Location Map Page	Select Map Page	EQ	>5	4	6	EQ	20	3	6			
2.2.00	View Location Map Page	Locations	EIF	<51	1	5	EIF	7	1	5			
2.3.00	View Location Map Page	Map (Live Earth)	EIF	<51	1	5	EIF	4	1	5			
3.1.00	Location Things To Do	Select Things To Do Page	EQ	>19	3	6	EQ	40	5	6			
3.2.01	Location Things To Do	Woltes Primary	EIF	>19	>5	10	EIF	29	2	7			
3.3.00	Location Things To Do	Woltes Secondary					EIF	12	1	5			
3.4.00	Location Things To Do	Woltes Events					EIF	<51	1	5			
4.1.00	View Location Weather	Select Weather Page	EQ	>19	3	6	EQ	28	3	6			
4.2.00	View Location Weather	Weather	EIF	<20	2	5	EIF	18	2	5			
5.1.00	View SEO/Location Home Pg	Select SEO Page					EQ	19	3	4			
5.2.00	View SEO/Location Home Pg	Select Location					EQ	31	3	6			
5.3.00	View SEO/Location Home Pg	Deals					EIF	8	2	5			
6.1.00	View Other Page	Select Other Page					EQ	9	2	4			
						TOTAL =	71				TOTAL =	95	
											FP Change =	24	
											% Change =	33.80%	
Component Change Comments		TBR - To be Reviewed											
		UR - Under Review by Steering Committee											
		APR - Approved/Change Order Signed											
Traceability													
Number	Date of Count	Change Approval Status	Comment Explaining the Reason for the Change										
1.2.01	12/3/2007	CO-01 Approved	SCOPE CHANGE - Sitecore DB complexity increased due to the actual number of RETs to a										
1.5.01	12/3/2007	CO-01 Approved	DELETED - Didn't realize that the Secondary Nav Link is created by referencing the Sitecore!										

Project Delivery Rate Report (Handout)

- ▶ Track Key Metrics Weekly
 - PM Status Comments
 - Effort vs. Plan
 - Component Delivery vs. Plan (Output based Metric)
 - Defects vs. Plan
- (Note-All Plan #'s based on FPA)



Actual Report Effort by Phase (As of 3/29/08)		
Actual*	Actual	Estimated
<u>Total Hrs</u>	<u>% of Est.</u>	<u>Hrs Remaining</u>
200	61.1%	127.2
447.25	115.1%	-58.8
131.5	91.9%	11.6
406.5	46.2%	472.7
194.75	63.5%	112.0
1380	67.5%	664.7

OVERALL ENROLLMENT STATUS COMMENTS:

Project Effort/Budget Review: **Summary Comment:** Verbal approval received on 12/27 to proceed with the Project. Requirements Definition started on January 7th. The SOW was signed on 2/15. The FPA was revised on 3/7/08 to include 3 IMT methods requested by Sarah. The Requirements Spec was signed by client on 3/4. Client's Test server & code became available for testing on 3/25. IT# 3 Dev. was completed on 4/19. IT #3 testing is complete with 4 issues remaining. Client agreed to accept Code Delivery on 5/6, while acknowledging the 4 remaining testing issues documented in the Quality section below.

Project Schedule Review: **Summary Comment:** Initial Development is completed. Testing is completed. Final code review is scheduled for 5/6. Pending results of Code Review & Client's response to Matt's request to address the four remaining quality issues during the Warranty period, Code was Delivered on 5/7 along with an invoice. The warranty will be extended to 180 days after Code Delivery so it will run until 11/6/08.

Project Quality Review: **Summary Comment:** All bugs have been fixed except the 12 open tickets related to one of the four issues listed in the Quality section below. We need to test some functionality after code delivery for us to complete our Testing (See Functionality Below marked as "TS" Code Status).

Project Effort/Budget Review:

FPA Summary:

Date of Count - 3/28/08	Unadj FP's	VAF	Adj FP's	Hrs/FP	Cont	Total Hrs
	127	1.15	146.1	14	0%	2044.7

Effort Estimate by Phase:

Phase/Activity Code	Effort %	Total Hrs	FPA		Actual Report Effort by Phase (As of 5/10/08):				
			Estimated	Phase Hrs	Actual Effort %	Actual Total Hrs	Actual % of Est.	Actual Hrs Remaining	
Planning (PM)	16%	2044.7	327.2		14%	280.5	85.7%	46.7	(*) - See Details Below
Requirements (RQ, UC)	19%	2044.7	388.5		23%	447.25	115.1%	-58.8	
Design (DS)	7%	2044.7	143.1		7%	141.5	98.9%	1.6	
Development (DV, FF)	43%	2044.7	879.2		32%	629.25	71.6%	250.0	
Test (TS)	15%	2044.7	306.7		23%	454.5	148.2%	-147.8	
	100%		2044.7		100%	1953	95.5%	91.7	

Project Schedule Review:				
Major Project Element	Planned Schedule	Actual Status		
Phase 1				
Initiation	12/27-2/15	Verbal approval Received from Client to start project. SOW presented to Client on 2/5 and signed on 2/15.		
Project Planning	12/27-/3/10	Project Plan updated on 3/10.		
Capture Requirements	1/7-2/27	Requirements Document was signed on 3/4/08.		
Produce UC's	1/21-3/10	All UC's have been approved as of 3/13/08.		
Phase 2 **DEVELOPMENT SCH TO STARTED 3/3/08**				
Component			Function	Status (Codes: NS-Not Started, IP-In Process, TS-Testing, Cmpl-Completed)
Number	Parent UC Description	Functionality Description	Type	Code Status Comment
	Enrollment	IMT-Update Profile/PWD	EQ	TS Iteration 1 (Dev Sch; 2/29 - 3/27)... Can't Test Email
	Enrollment	IMT-Enroll Member	EQ	TS Iteration 1 (Dev Sch; 2/29 - 3/27)... Can't Test Email
	Enrollment	IMT-Reset PWD	EQ	Cmpl Iteration 1 (Dev Sch; 2/29 - 3/27)
	Enrollment	Screen Level Help	EQ	Cmpl Iteration 1 (Dev Sch; 2/29 - 3/27)
	Enrollment	Modify Profile Form	EI	TS Iteration 1 (Dev Sch; 2/29 - 3/27)... Caching & CD File Issues

Project Quality Review:			Open Ticket Summary:			
	Est.	Actual	# Assigned = 5	# Feedback = 4	# New/Ack = 3	Total = 12
	# of Defects	# of Defects				
Quality Check Points:	Found	Found	Status Comment			
RTM Review & Sign-off	4.4	8.0	All Open Tickets Related to one of the following 4 Issues:			
UC Review & Sign-off	77.4	22.0	1. Caching - Handled different in different environments			
Design Review	61.3	5.0	2. Corp. Discount - client trying to find correct file.			
Unit Testing	163.6		3. Nightly Processing/Data Structure - Only tested once.			
Code Review	58.4	8.0	4. Email - Incompl awaiting client			
Component Testing	54.0	96.0	1 Defects added since last week			
Func. Tst/Doc. Review	40.9					
Total.....	460.1	139.0				

Hours Reported Summary (Incl Hrs Reported on Weekly Time Reports with Project # 100007 & Activity Codes)											
Employee	Week	PM	RQ	UC	DS	DV	FF	TS	Total	PR	(Non-billable)
	Total =	280.5	186.75	260.5	141.5	455	174.25	454.5	1953	184.75	Prep)
(Note: Project became billable on 12/27/07)											
Rachel	1/8-1/12	3.5									
Tom	1/8-1/12		16.5								
Matt	1/8-1/12		11								
Rachel	1/13-1/19	6.5									
Tom	1/13-1/19		8	1.5							

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▶ #10: Identify Prospects

- Anyone who has been disappointed by traditional approaches
- Promote ability to deliver on time and on budget
- Be prepared to educate your prospect regarding FPA



Effective FPA Analogy:

FPA is to a Software Development Project what **Square Footage** is to a Construction Project.

Marketing Experience After FPA

- ▶ Competitive Advantage
- ▶ Service Differentiation
- ▶ Prospects willing to try a new approach



Actual Market Results:

- Average 1 FP Project Estimation/Mo. for 2 yrs
- Win 50% of Project Bids
- Average Size Project 230 FPs
- Industries Served Include:
 - Investigative Services
 - Car Rental
 - Industrial Products Distr.
 - Airline
 - Food Distribution
 - Government

Experience After FPA

<u>Project Sequence</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
<u>Adj. FP Count</u>	<u>103</u>	<u>146</u>	<u>197</u>
<u>Planned Project Hrs.</u>	<u>1442</u>	<u>2045</u>	<u>3030</u>
<u>Actual Project Hrs.</u>	<u>1793</u>	<u>1953</u>	<u>3416</u>
<u>Actual/Planned Hrs.</u>	<u>118%</u>	<u>96%</u>	<u>113%</u>
<u>Code Delivery vs. Plan</u>	<u>-2 days</u>	<u>0 days</u>	<u>+6 days</u>
<u>Delivered Defects/FP</u>	<u>0</u>	<u>.014</u>	<u>TBD</u>
Ave. Actual/Planned Hrs. = <u>110%</u>			
Ave. Code Delivery vs. Plan = <u>+2.67 days</u>			



Comments regarding FPA

- ▶ Internal Executive Management

“I keep trying to pinch myself to see if I’m dreaming. In 30 years in the IT business I’ve never seen a tool with this level of accuracy.”

- ▶ Client Project Sponsor

“I can’t believe you delivered on time, on budget and with virtually no defects. That’s stunning!”



Benefits from utilizing FPA

1. Accurate project sizing for a wide range of environments
2. Effective project management metrics
3. Increases accuracy of requirements
4. Reduces project risk
5. Over 15 yrs worth of Industry Data is available
6. Satisfied Clients



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1. Identify an internal sponsor
2. Find a mentor (industry expert)
3. Conduct initial FPA training
4. Select internal FPA process owners
5. Invest in on-going FPA training
6. Create your FPA toolkit
7. Identify a proof of concept project
8. Measure your project delivery rate
9. Incorporate FPA into your project approach
10. Identify prospects



Questions & Answers Session

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