Forecasting without Fear

How to keep the business informed and keep your cool

> NY SPIN December 15, 2015

Drivers, Challenges why you have to forecast, and why it's not easy Refinement what you forecast Cost of Delay for refinement Sprints and releases when you forecast Sprint forecasts **Release forecasts** capacity, velocity Delivery date forecasts Fixed cost forecasts scope, durations Forecasting in Kanban yesterday's weather, Little's Law Metrics updating the forecast

Drivers for forecasting

- budgeting initiatives
- cash flow and ROI
- trade shows
- investor relations
- regulatory compliance

Predictability

. . .



"What are we releasing next? when?"



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Challenges:

- Work disconnected from vision
- Team overloading
- Context switching
- Inadequate training
- Low engagement
- Organizational and cultural barriers
- Lead times excessive

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. . .

Not "Commitment"







Cost of Delay

Components

User (feature) value

Preferences, revenue impact

Time value

Decay of user value, upcoming deadlines, penalty for late delivery Learning value

Risk reduction, learning technology / domain), new opportunities

Reinertsen

Weighted Shortest Job First - WSJF





Lowest Weight First





When you forecast: Sprints and Releases



Forecasting Options:



- Capacity
- Velocity







- Little's Law
- Cost, Burn Rate
- Yesterday's weather

Sprint Forecast – capacity based



Test CAPACITY for SPRINT	
Charlie	48
Sue	54
Apala	36
Test Capacity	138

After Mike Cohn

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Sprint Forecast – capacity based



Estimating Real Capacity



Don't know Velocity? Back into Velocity

	Story		Story Points		Points	Est. Task Hours	Accept for Sprint	
	As an actuary As a plan participant As a plan manager		3	64				
			(13)	64	64			
			5	96	96			
	As a plan sponsor			8	20	20		
	As a plan sponsor As an actuary		8	60				
			8	104	104			
			\smile	408	284			
					Implie	d Velocity 34	 	
	C	APACITY						
dev team	usable hours/day	sprint	team				Mike	Coh
5	6	10	300	hrs				

Or : 8 s.p. per developer and tester: e.g. 5*8=40

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Sprint Forecast – velocity based



Ordered Stories

After Mike Cohn

Sprint Forecast – velocity based



Ordered Stories

After Mike Cohn

Theme: Sell Books



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Release Forecast – velocity based



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Release Forecast – velocity based



Sizing – points or cost



Affinity / Analogy

• Is this feature larger or smaller than one we built before?



Probably the least robust

"When can you deliver?"



Backlog size: 450-675 story points

	velocity	# sprints	start date	end date	end date
Forecast Basis: 600	30	20	12/15/2015	9/20/16	Sep-Oct '16
	40	15	12/15/2015	7/12/16	Jul-Aug '16
	45	13	12/15/2015	6/18/16	Jun-Jul '16
	45	15	12/13/2013	0/10/10	

Jun – Oct '16

"Can you deliver by 7/12/2016?"



start date	end date		Points		
12/15/2015	7/12/2016	Velocity Deliver			
# of oprints:	15	30	450		
# of sprints. 15		40	600		
		45	675		

Fixed Cost Forecast



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Fixed Cost Forecast



Forecasting based on burn rate

C= sum of all feature costs \$ Affinity estimation

B= burn rate \$/day

D= duration days

Standing team exists:

 C / B = D
 Result: duration in days

2 No team(s) formed:



Development Capacity

Fixed ship date S C / (S – NOW) = B

Result: burn rate you will need -> capacity

Forecasting in Kanban – yesterday's weather





Forecasting in Kanban – Little's Law

Little's Law Throughput Rate =
$$\frac{WIP}{Lead Time}$$
 $T = \frac{3 \ items}{2 \ hrs} = 1.5 \ item/h$
WIP and Lead Time: from history

Duration to Delivery = $\frac{Backlog}{Throughput Rate}$ $D = \frac{180 \ items}{1.5 \ item/hr} = 120 \ h$

 $D_r = \frac{120}{0.6} = 200$ real h

Delivery Date = Start Date + Duration to Delivery D_r 12/15/2015 + 200 = 7/2/2016

Work Items delivered = D * Throughput Rate 120 * 1.5 = 180 items

Assumptions:

- 1. Work items are uniform type and size
- 2. Constant flow of work items

Feature Progress



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Release Progress



So:

Refinement **Cost of Delay** Sprint forecasts **Release forecasts Delivery date forecasts Fixed cost forecasts Forecasting in Kanban Metrics**

Andrew Kazarinoff

Qualytic Consulting, New York



Andrew.Kazarinoff@Qualytic.com

917-608-0016