

Forecasting Software Development Timelines & On-Time Delivery

Solving Software Development's Most Intractable Problem

Bart Palmer, PhD @ cardagraph.com



Me, driving home

Best 20 hr 4... 2 days 19 days 5 days

Austin, Texas

Salt Lake City, Utah

Add destination

Leave now Options

Send directions to your phone Copy link

via US-87 N **20 hr 43 min**
Fastest route now due to traffic 1,307 miles
Your destination is in a different time zone.
Details

via US-84 W **20 hr 52 min**
1,289 miles

via I-40 W **21 hr 45 min**
1,363 miles

Explore Salt Lake City

Restaurants Hotels Gas stations Parking Lots More



Every Salesman, Marketer, Revenue Analyst,
Product Manager, C-suite, ever...

When will it be done?



It's Tricky

So many things have to
happen...

Discovery

Decisions

Design

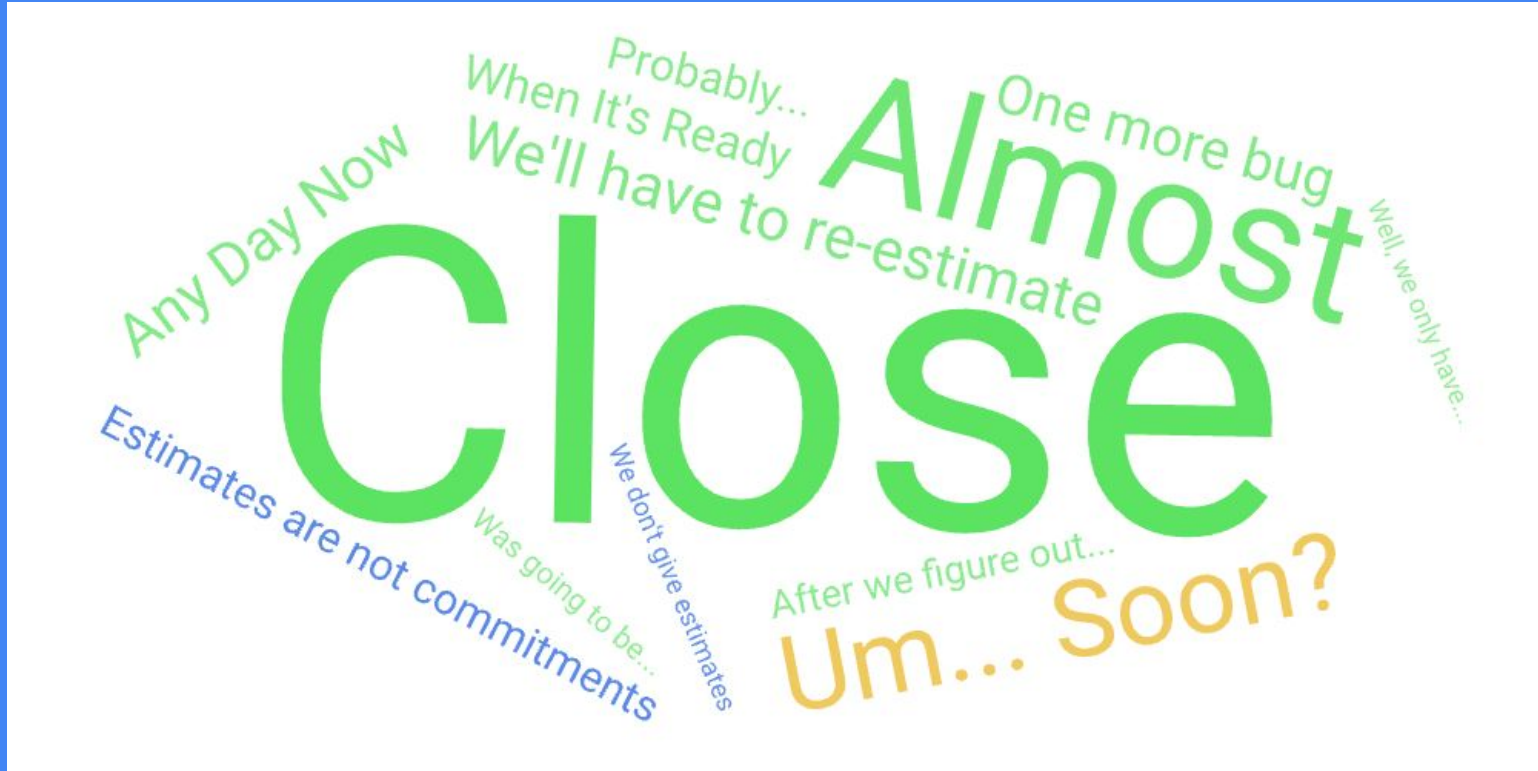
Architecture

Development

Testing

Delivery

Every Engineer, ever...



The cost of not knowing?



Enter Jettstart



Enter Tactical Operations Center (Toc)

A Place to see everything happening at once



Toc Business

Biz Dev

1 tasks left to complete.



Work Load

Bentley Spencer Kille



Completed Tasks

Bentley Spencer Kille



Skips/Task

1.98

Users

Add User



Task

Status

Skips

Assigned To

Add Task

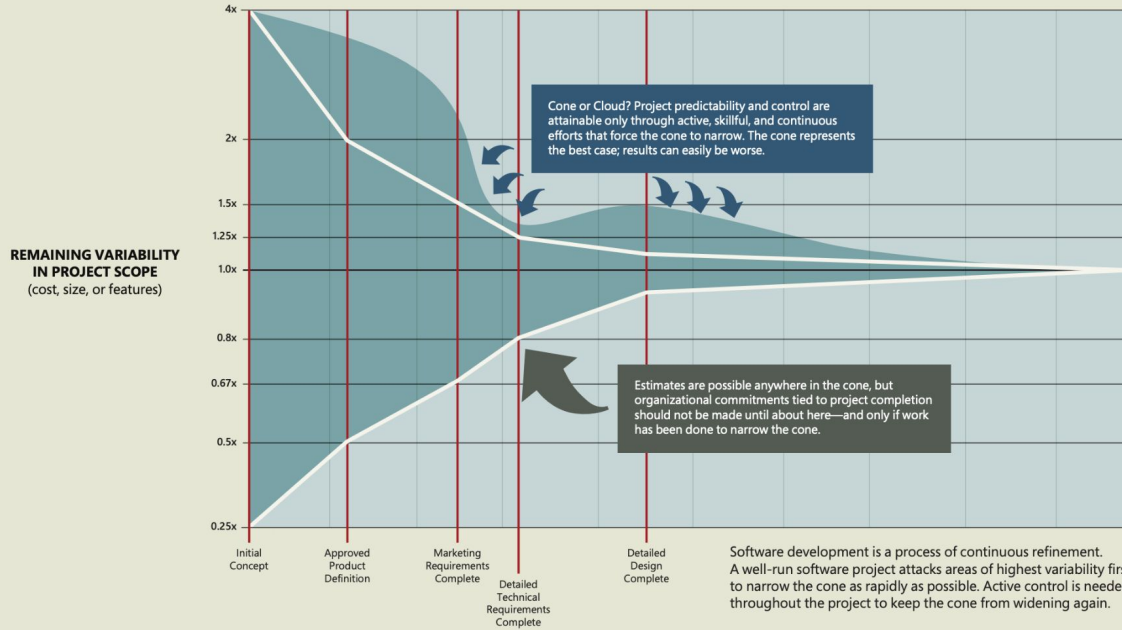


The Product Predicament.



Cone of Uncertainty

All software projects are subject to inherent errors in early estimates. The Cone of Uncertainty represents the best-case reduction in estimation error and improvement in predictability over the course of the project. Skillful project leaders treat the cone as a fact of life and plan accordingly.



<https://www.construx.com/books/the-cone-of-uncertainty/>

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Steve McConnell is the award-winning author of *Code Complete*, *Software Estimation*, and other titles.
Construx Software provides training and consulting in software development best practices to leading companies worldwide.

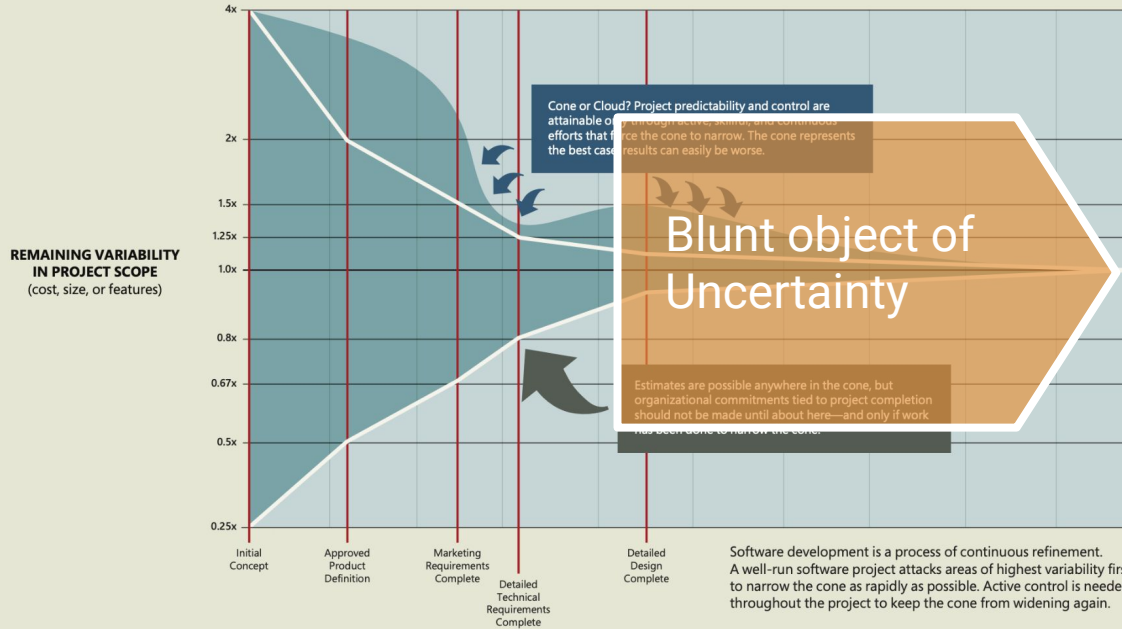
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Enter Cardagraph

Like a map-app through the jungle

cardagraph.com



Early Cardagraph

Predictability

Project Name

30 Mar 2022

Planned Completion Date

17 Sep 2022

Projected Completion Date

Project Member

Workload Share

Current Pace

**Bentley
Wilson**

85%

Slow

Task	Group	Weight	Due Date	Status	Control
Process project data			17 Mar 2022	Late	DROP
Global people data processing			17 Mar 2022	Late	DROP
Change random number generator to actual data for modeling projected completion page			17 Mar 2022	Late	DROP
Switch org bool status when creating and make sure there's no weird security			17 Mar 2022	Late	DROP
Clean up take-over issues			17 Mar 2022	Late	DROP

SAVE MODEL

X CLOSE



Use the past to
predict the future...

Novel idea, eh?



Next Cardagraph

Not for public distribution. cardagraph

People

Name	Capacity	Avg Pace
Ashley Mills	84%	3.1 p/d
Bentley Wilson	84%	2.7 p/d
Jordan Hale	84%	1.9 p/d
Kyra Menzel	84%	5.5 p/d
Spencer Jack	84%	2.9 p/d

Timeline

Start Date: 1 Sep 2022

Projected Completion: 10 Oct 2022

Projects

Legend: ASDASO (red), NEW FEATURE (green)

Jul 2022 Aug 2022 Sep 2022 Oct 2022 Nov 2022 Dec 2022

CREATE PLAN



Occam's Razor

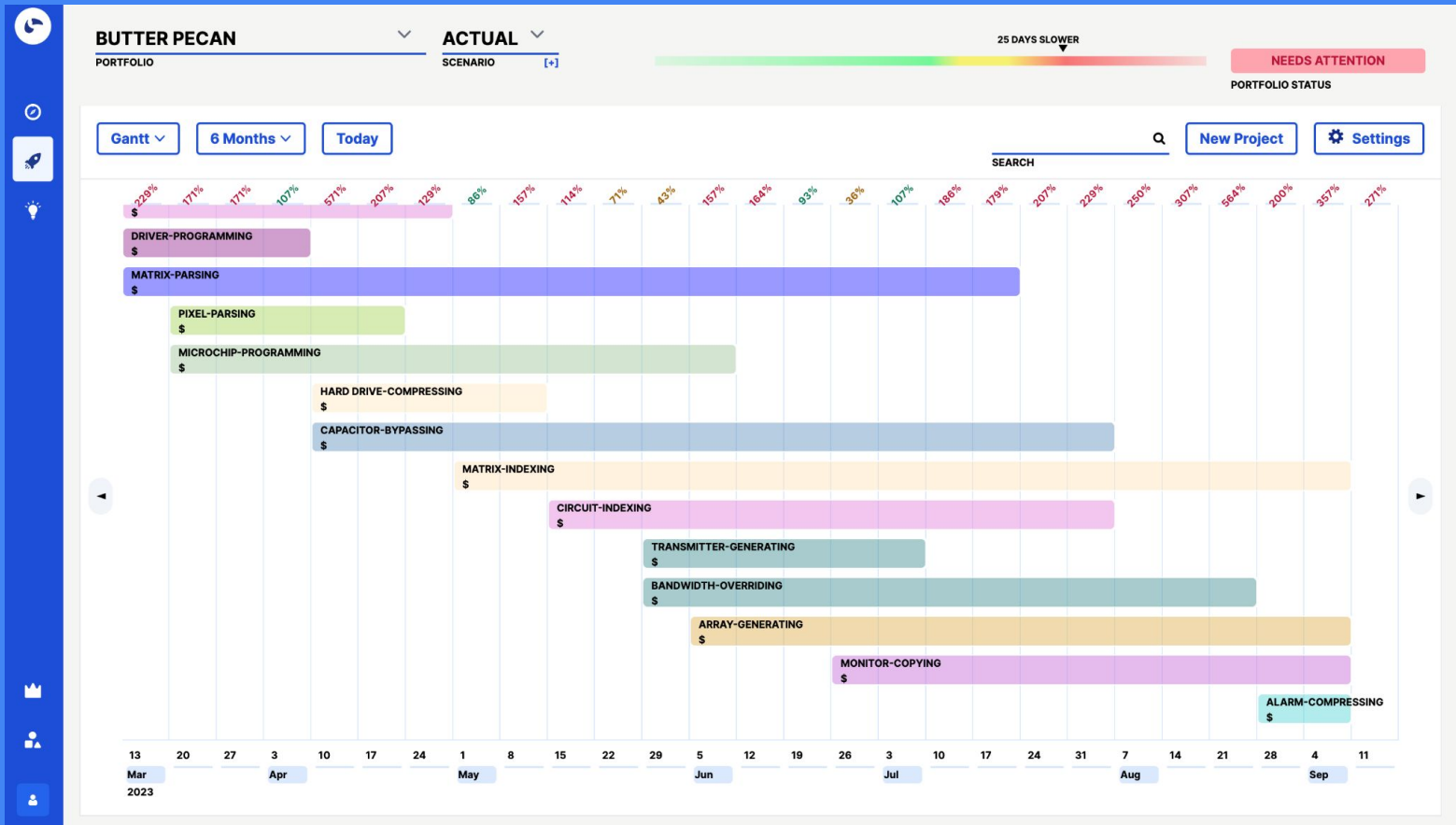
Only as complex as it has to be



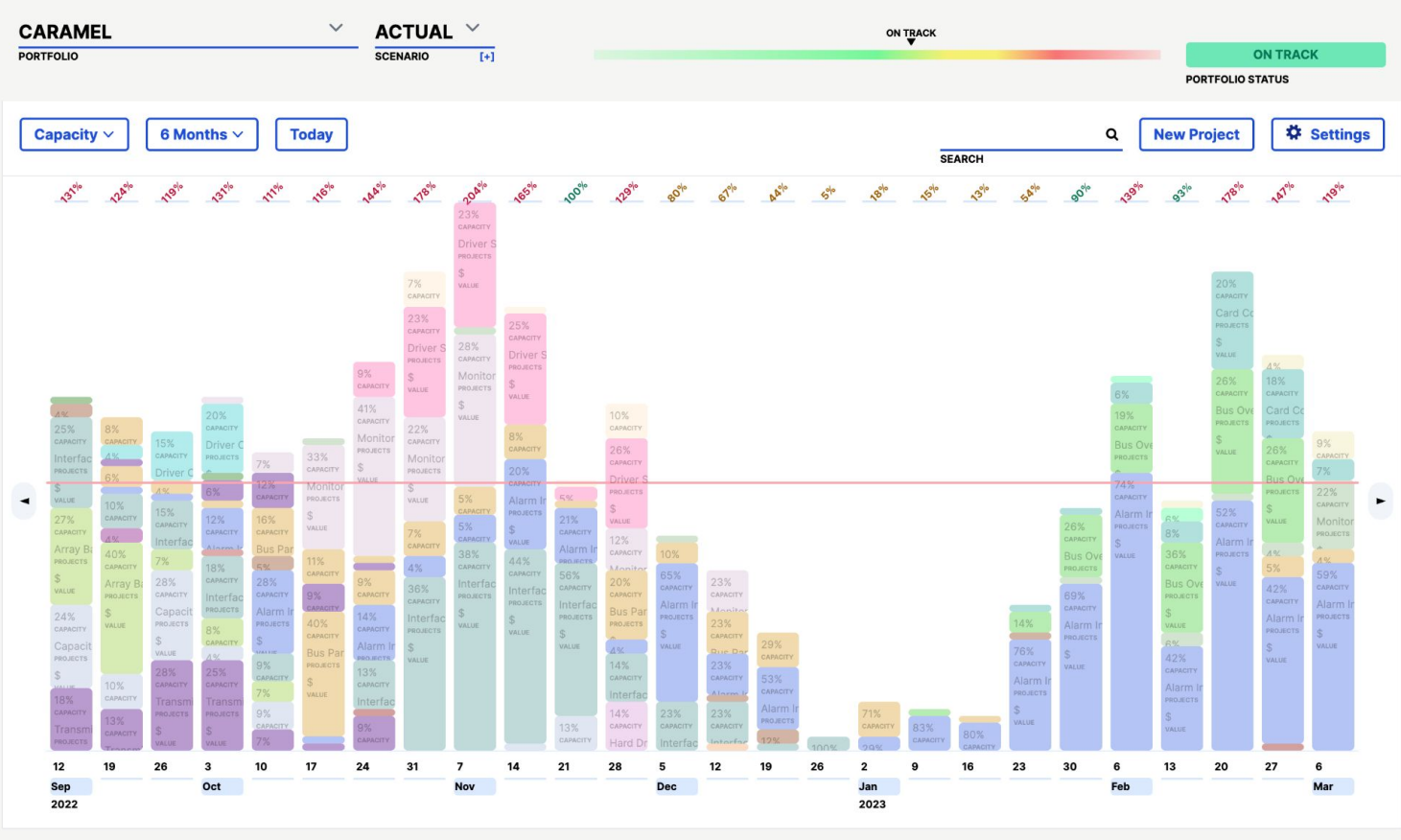
Workflow Transitions



Cardagraph Gantt



Cardagraph Capacity



Cardagraph status updates

BLONDIE PORTFOLIO ▼ **ACTUAL** SCENARIO ▼ ABOUT 2 MONTHS SLOWER ▼ NEEDS ATTENTION PORTFOLIO STATUS

Status ▼ active ▼ New Project Settings SEARCH

Project Name	Value / Cost	Progress %	Delivery Forecast	Status
driver-indexing	V: Click to set C: \$629 K	71	27 APR 2024	ON TRACK
port-calculating	V: \$32.3 K C: \$629 K	71	27 APR 2024	ON TRACK
circuit-copying	V: Click to set C: \$629 K	71	4 OCT 2023	NEEDS ATTENTION
panel-navigating	V: Click to set C: \$629 K	71	13 DEC 2023	NEEDS ATTENTION
hard drive-compressing	V: Click to set C: \$50.6 K	40	22 MAR 2024	ON TRACK



Cardagraph budget planning

IDEAS

- Strawberry
 - 1 monitor-parsing
- Almond
- Blondie
 - 1 monitor-programming
 - 2 microchip-quantifying
 - 3 array-navigating
 - 4 alarm-connecting
 - 5 feed-connecting
 - 6 capacitor-navigating

UPDATE IDEA

monitor-parsing \$ 99713

NAME VALUE (NUMBERS ONLY)

Deleni.

DESCRIPTION

PORTFOLIO 1 - monitor-parsing

Strawberry PRIORITY IN PORTFOLIO (OPTIONAL)

capacitor-generating **array-copying** bus-transmitting

CATEGORIES INITIATIVES

Idea Size	Tasks	Duration	Cost
Extra Small	2	1 weeks	\$869
Small	5	2 weeks	\$1.96 K
Medium	8	8 weeks	\$3.73 K
Large	11	12 weeks	\$4.58 K

SEARCH

Plan Idea



But what about... ?!?



Lessons Learned



Questions?

