

COST IDEAS AUTHORITY

Report
September 2021
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Design Process Checklist & Roadmap

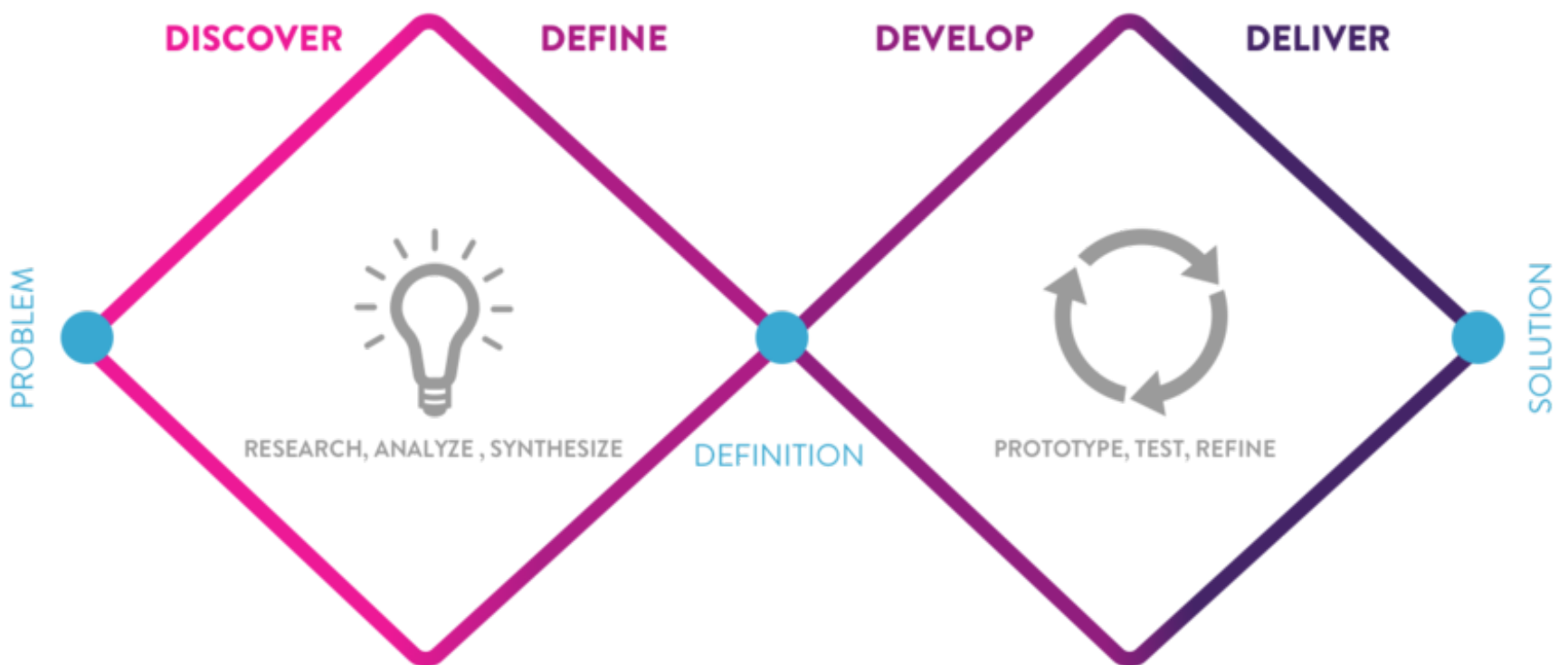
Design The Right Thing

Research

Analyze

Synthesize

- Experience Canvas - (All Hands - Team/Stakeholders/Customer Discussion)
- User Interview Discussion Guide
- User Interviews
- Synthesize Findings
- Personas
- User Journey
- Design Studio - Ideate - PENCIL TO PAPER
- Feature Prioritization
- User Scenarios & Tasks
- Mid Fidelity Wireframes
- Discussion with Stakeholders & Customers



Design Things Right

Prototype

Test

Refine

- High Fidelity Prototype (Discussion with development and data teams)
- User Testing
- Refine & Iterate - Develop
- Test Again
- Refine & Iterate
- Launch

Executive Summary

METHODOLOGY

Business Experience Canvas: Create a business experience canvas to give insight into what product is set to accomplish. While this is a product in its truest form it is also a vessel into modified process with the cost saving ideas space. We are creating a modification in behavior through product design. The business experience canvas helps us get idea to paper and is a visual representation of goals we want to accomplish, customers we want to reach and above all else helps us at a high level best understand the problem we are intending to solve.

User Interview Discussion Guide: The discussion guide is the road map and script for conducting interviews, by having a set narrative we are best able to utilize and compare the data we collect. The questions are target specific and help us truly understand the needs of our user.

User Interviews: We conducted 21 user interviews and 2 product interviews with individuals who are involved in the cost savings idea space. We were able to gather information and insight into the problem areas of the space so that we are best able to address the needs and frustrations of the user base and help create an enjoyable user experience. The intent is that by creating an amount of user ownership and allowing the user to inform the product they will actually utilize the completed product.

Research Synthesis/Affinity Mapping: To synthesis research we use the methodology affinity mapping, which is a visual way to pull out themes and patterns from our interviews. This helps us to determine the key takeaways from our interviews, to best address the goals of the user and eventually informs the features for the product in development.

Personas: Using the research from interviews we create personas, this is a representation of our ideal user bases, it humanizes our user and helps us as designers to keep empathy at the forefront of design. By consistently referring to our personas throughout the design process we keep in mind who will actually use the product versus building a product for ourselves and our goals.

User Journey Map: To create a visual display of the sequence of events that a user must go through in order to accomplish the tasks that our product helps to streamline we utilize a journey map. This is a great way for designers to really see areas of friction that the user experiences and to solve for those issues. The user journey map exhibits the users' emotions during a process while noting their highlights and pinpoints, the goal is to alleviate any areas of friction that a user has.

Feature Prioritization Map: This is a visual representation of the features we feel are most necessary for the product in the first iteration to accomplish the tasks given. We base these features off of the research we have gathered from user interviews as well as organization goals and metrics; this map shows us the features that are considered paramount.

Executive Summary

METHODOLOGY CONT.

Design Studio: We use a mechanism we refer to as “Design Studio” during this process each team member quickly sketches their initial ideas for the product interface as far as layout and features. We share our sketches with each other, toss out the bad, steal from each other the good and repeat the process until we create a design sketch that everybody feels good about and that also benefits the users

Mid-Fidelity Wireframes: We create grey scale drawings which are first glances of the design; they help us sort out the layout and content for the product. This methodology is quick, we get these simple wireframes in front of users to ensure the product is inherently easy to navigate and is solving the user needs.

Usability Testing: To ensure our product is intuitive for our target audience we conduct user testing. We run rounds of testing on different iterations of the product to push the design forward. When users take pause we fix the issue for the next iteration. User testing is scripted with scenarios and tasks, giving us appropriate and measurable data to ensure we are moving in the right direction with the product.

High-Fidelity Prototypes: The first step in the final design iteration of the product. These designs have color, branding, fulfilled content and data that will be used in the final product. They are the most comprehensive design format and which get tested by the user until they are considered product launch ready.

Executive Summary

EXPERIENCE CANVAS

Hypothesis

A centralized system/platform for cost savings ideas which is standardized, persistent, accessible and visible will improve application of cost ideas across the company, increase savings and reduce the amount of time and effort to implement an idea.

Problem Space/Scope of Work

Currently, ideas are tracked in multiple places using multiple technologies and not consistently. The process is not well defined and lacks efficiency and consistent communication lines.

Why are we not able to do this today?

Never spent time to develop the process and there is no clear data infrastructure. New tools have developed their own ideas tracking systems.

User Groups

TVM Team, Cost Coaches, ACT, Target Delivery/ Cost Creep, Core Engineering, Architecture Teams, Modules Team, EPLM (sign off or stakeholder), Program Teams

Value Add

1. Time Savings
2. Better throughput of ideas
3. More ideas implemented
4. Proving better accessibility of ideas and associated information
5. Value : Better use of time; shows care for employees by making their job easier and valuing ideas submitted

Stakeholders

1. GMC Leadership - need to meet targets and to do so cost effectively
2. GDIA & IT - creating product (could also block)
3. Digital Thread Framework - early deployment (could also block due to compliance or architecture and strategic direction)
4. Corporate Senior Management - need to save money and meet EBIT targets and please investors

(This group has different reporting needs: about the cost of generating and implementing ideas)

Metrics

1. Ability to identify “yield” - where ideas come from and how much it costs
2. Ability to identify replication of an idea

Executive Summary

User Groups

TVM Team – Consume ideas from all sources to maximize application against TVM target; Also need to advance and disposition ideas through the TVM process. This team is using ideas for current model products and are primarily engineers.

Cost coaches – Ideas from past TVM actions and current/new actions need to flow through to deliver forward model efficiency. Work on forward model programs to develop targets. Work with engineers, finance, buyers and suppliers (To4) and cost estimating to manage Best Cost Efficiency Tool.

ACT - Needs cost ideas from all sources to validate planning targets - in order to get on an affordable path without massive rework! Part of GMC team who work with EPLM and other early program planners, PMTs, flexible vehicle architects, functional architects.

Target Delivery/ Cost Creep – Delivery to Target (D2T) and Cost Creep. Monitors ongoing costs to be sure they stay on target and uses cost save ideas (derived from D2T workshops and from others) to deliver sourced parts to target as set. Works with the engineering design team, including suppliers, to assure design stays on target.

Core Engineering (SDS/Requirements) – Engineers who are responsible for modular catalog definition and maintaining engineering requirements and design guidelines (both company performance and quality requirements and best practices). Use cost save ideas to ensure that modular catalog designs and requirements are efficient.

Architecture Teams – There are both functional architects (by PMT) who work on vehicle hardware modules and flexible vehicle architects (FVA) part of vehicle architecture. Vehicle engineering who set up hard points and dimensions that establish the broader configurations of a vehicle. Need to take into account all cost effective strategies to assure they are built into the architecture. Have more of a strategic view. (Participate in ACT workshops)

Modules Team – These are engineers, buyers and finance people and possibly Cost Estimating. Creating catalog parts. All cost-effective strategies and changes should be built into the module designs.

EPLM (sign-off or stakeholder) – Early developers of a product design, budget and direction.

Program Teams – Consist of design engineers, integration engineers and program management and marketing. Responsible for the delivery of a profitable vehicle.

User Interview Candidates

CDSID	Last Name	First Name	Email	Role	Department	Interview
				Large/Medium SUV Life Cycle Cost Leader	Core Program Chief Program Manager	
				Functional Cost Coach	Benchmarking	
				Senior Consultant	Director, Global Core Electric	
				TVM Leader - Chassis	EESE/Chassis Design TVM Delivery	
				BoB Leader	Benchmarking	
				PD Engineer	Body Design TVM Delivery	
				GMC TVM Process	SA Cost & Tooling	
				TVM Engineer - Exterior	Body Design TVM Delivery	
					Benchmarking	
				Interior Pre-PSC	Core Exterior Trim & Lighting	
				TVM Manager, EESE/Chassis	EESE/Chassis Design TVM Delivery	
				Electrical CRID Progression	EESE/Chassis Design TVM Delivery	
				TVM Process Supervisor	Benchmarking	
				Program Mgmt. Central VCAT Supervisor	Core Program Chief Program Manager	
				Advanced Cost Manager	Benchmarking	
				BCJ1 Cost Coach	Benchmarking	
				Truck Cost Manager	Core Program Chief Program Manager	
				FNA T6 CPE	Core Program Chief Program Manager	
				AV/V713 Program Supervisor	Product Development Leadership Program	
				Product Design Engineer	Seat Integration Manager	
				P702 PMT Engineer	EPLM	
				Engineering Supervisor	Core Exterior Trim & Lighting	
				GCBP Process Engineer	Benchmarking	
				BoF Cockpit Supervisor	Chief, Global Core Cockpit	

User Interview Discussion Guide

OPENING

(Introductions) Hi, I'm Leslie Black, I'm a product designer from GDI&A...

Thank you for your valuable time. This interview should take about thirty minutes. We are interested in learning more about the cost idea lifecycle and replication and the processes and tools currently in use. We appreciate any information and insights that you share related to these areas of focus. There are no right or wrong answers here we are simply exploring these areas and looking for ways to improve them.

Participation in this interview is voluntary. Feel free to ask questions at any point during the interview process. Also, you are free to stop this interview for any reason, at any time. Finally, this interview is completely confidential, we value your honest feedback and insights.

Do we have your consent to continue?

Do you have any questions before we begin?

GENERAL QUESTIONS

1. What is your role within the organization? What team are you on?
2. How long have you been working in this space?
3. At what point in a vehicle program are you involved?

PROCESS QUESTIONS

1. Tell me about how you use cost savings ideas now. What does that process look like for you?
2. Do you feel that the cost savings idea process is well defined?
 1. How do you feel about your role within the cost savings idea process? Do you feel that others have a clear understanding of their role within the process as well?
3. What tools do you currently use? How would you rate their effectiveness?
4. What information do you need to disposition/implement ideas?
5. Where do you get your data/information? Is there any additional information you collect?
6. Where do you store your recommendations and findings?
7. Does one source present/display data better than another? And why?
8. Are you having discussions along the way? What teams or who are you speaking to?
9. What kind of reporting are you doing? Who sees these reports? What is the frequency of your reports?
10. What approval forums and formats do you utilize?

PAIN PAIN QUESTIONS

1. Are there redundancies in your workflow? What are they?
2. What gaps or problems do you feel are in the current cost ideas workflow?
3. Finally, if you could change anything about the current process, what would it be? (If you could build a unicorn product, what would it be?)

CLOSING

1. Is there anything else you'd like to mention regarding the cost ideas lifecycle that you feel would be valuable for us to know?
2. Do you have any questions for us?

(End of Interview)

Thanks again for your time participating in this session. We sincerely appreciate it. Please feel free reach out to us if you have any questions or if you think of something else that you feel may be valuable for us to know.

User Interview Notes

TVM Leader/Commodity Business Leader Review Attached Pages

Key Observations

- Suspension for all programs
- Moves idea through every status 1 to 6
- Typically works with supervisors once idea is in CRID - they feed her input on ideas, if its feasible, good business case, etc. They tell them to move to status code 2

Process/Behaviors/People

- Holds workshops for idea generation
- Side by side vehicle reviews; teardown reviews
- Works with engineers, supervisors, managers to push ideas from inception to incorporation
- Involved in all 6 status codes
- Pulls reports from CRID into Excel then hides and adds columns based on preference/need
- Quarterly reports for finance
- Forecasting done monthly
- Contacts 'originator' of idea to discuss what their ideas mean
- Weekly reports published (by supervisor and their engineers, this is what you have in the 'hopper')

Tools/Data Used

- CRID (daily use)
- Excel - PIVOT TABLES
- TVM dashboard (for reports)
- CareSoft Data "almost their yellow card"
- Benchmark Center
- Yellow Cards (both analog and digital)
- Suppliers (top 7 frozen turnover buyers provide roadmaps)
- WERS

Quotes

- "I don't use the CRID audit tool, it doesn't pull the right data"
- "I religiously use remarks in CRID, not everyone does" (to alleviate people bugging them "have you looked at the remarks in CRID" organizes them newest at the top, not enough characters allowed)

Wants, Needs, Pain Points

- Some people keep a separate set of "books"
- Disconnect between required fields in CRID and yellow card, CareSoft
- Tracking the tracker, very very very annoying.
- Replication can be very tedious - has to go into each program to access it, not useful in any way - basically verbally does replication in workshops by commodity
- Pulls global report from CRID by commodity for replication discussion in workshop
- Gap - auditing process at the end to get to status code 6, piece missing - verifying price in WIPS - can't see what purchasing does AT ALL - between change control and audit no visibility; find out things haven't been done until its too late; prices are ALWAYS changing

Ideas Dashboard

Filter Settings [Modify Filter Settings](#)

Commodity Code: ENGINE/TRANS DRESS ASSY (...) See More	Incorporation From Date: Jan-01-2021	Incorporation To Date: Dec-31-2021	Matched Pair: CHASSIS (CH)
Production Region: Ford North America (FAONA...) See More	Rejected Vehicle Programs: Exclude	TVM Cluster: SUSPENSION & FRAME (59)	

[Show Criteria: Partial](#)

The following are the metrics displayed based on the selected filter settings. Click on linked value to view the list of matching ideas.

Vehicle Status	No. of Vehicle Programs	Sum of Annual Savings (USD)	No. of Vehicle Programs Scheduled (To complete in the next 30 days)	No. of Vehicle Programs Past Due	No. of New Vehicle Programs (New within last 7 days in all regions)
Status 6 - Incorporated	34	12,386,563	-	-	2
Status 5 - Released	45	8,734,758	13	3	2
Status 4 - Authorized	1	8,478	1	-	1
Status 3 - Active investigate	4	49,802	2	2	-
Status 2 - Screened potential	15	801,322	-	15	-
Status 1 - Incoming potential	2	499,076	-	2	-
Total	101	22,479,999	16	22	5

File **Home** **Insert** **Draw** **Page Layout** **Formulas** **Data** **Review** **View** **Add-ins** **Help** **FEDE Reports** **Teamcenter**

Clipboard | Font | Alignment | Number | Styles | Insert

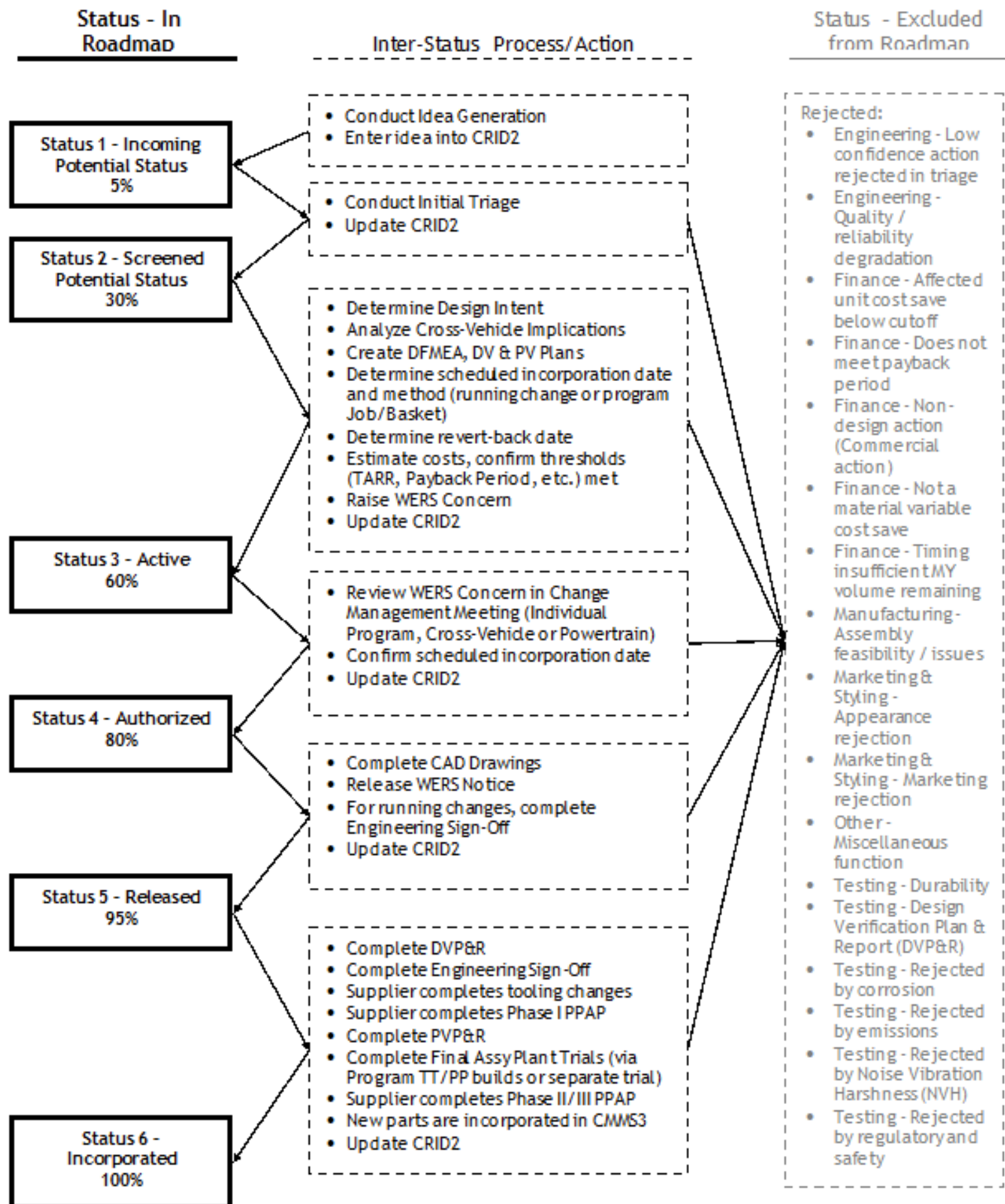
N35

CRID2 Workshop Number (Origination Source):	CRID2 Idea Number:
Idea Description (Title):	
Idea Comments (Description): <i>Include information about tooling estimates, testing needs, supplier, weight savings, other applications, quality impact, etc ...)</i>	
Vehicle Programs	Idea Origination
<input type="checkbox"/> J1 <input type="checkbox"/> J2 <input type="checkbox"/> J3 Model Year _____ Vehicle Name (Model Code) _____	Name/ CDSID _____
Scheduled Incorporation Date _____	Email/ Phone # _____
Estimated Material Cost Savings per Vehicle _____	CPSC II Code (##.##.##) _____
Vehicle Mix (default 100%) _____	Commodity Code _____
Powertrain (default VEHL) _____	Part Number (at least Base P/N) _____
Other Vehicles Idea Applies To _____	Send to Team/Supv _____

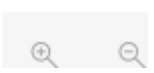
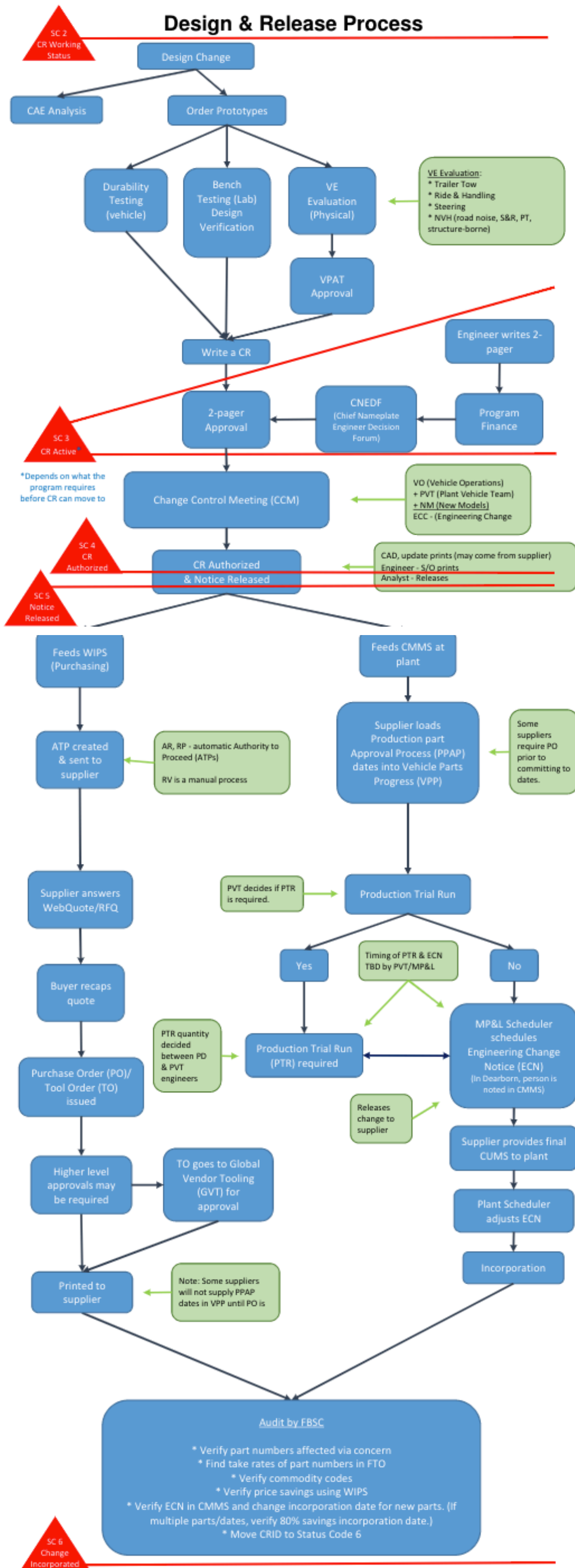
Item Number	Vehicle Description	Plant Name	Plant Code	Item Code	Item Name	Commodity Description	Item Number	Title	Idea Description	Sub Type Desc	Lead Engineering	Lead Engineer	Lead Supervisor	Supplier Name	Idea Mat Cost Save	Application Mix %	Idea Mat Cost Save	Incorporation Window	12 Month Savings from Incorp Date at 100% USD	Calendar Year Savings at 100% USD	Remarks	Scheduled Release Date	Scheduled Incorporation Date	Notes	
1089715	U540 Lincoln MKX / Nautilus (NA) - CD9	Oakville - (Canada) - AP20A	VEHL	S	SUSPENSION ARMS	SUSPENSION CONTROL ARMS - S780	C13883670	CD4.1 FLCA pt.3 bushing with aluminum outer can	FLCA pt.3 CMP bushing with Aluminum outer can without coating	Vehicle Engineering - Vehicle Dynamic - 8	NA	HITOLED06	ETLAPAMA	EMONSV1	ZF CHASSIS COMPON ENTS - LLC - F30V	0.84	100.00	0.84	Running Change	29,855.28	11,894.40	21Jul: ECN pushed to 16Aug from 13Aug due to BOH, plant shutdowns 9Jul: ECN0953001 pulled ahead from 16Aug to 13Aug	May-16-2021	Aug-18-2021	
1089715	CD539 Edge (NA) - CDQ	Oakville - (Canada) - AP20A	VEHL	S	SUSPENSION ARMS	SUSPENSION CONTROL ARMS - S780	C13883670	CD4.1 FLCA pt.3 bushing with aluminum outer can	FLCA pt.3 CMP bushing with Aluminum outer can without coating	Vehicle Engineering - Vehicle Dynamic - 8	NA	HITOLED06	ETLAPAMA	EMONSV1	ZF CHASSIS COMPON ENTS - LLC - F30V	0.84	100.00	0.84	Running Change	113,683.92	31,894.88	21Jul: ECN pushed to 16Sep from 9Sep due to BOH/plant shutdowns 9Jul: ECN0953001 pushed back from 16Aug to 9Sep due to plant closure	Jun-16-2021	Sep-16-2021	
1096488	P558 F-250-550 (NA) - TFE	Kentucky Truck - (United States) - AP10A	VEHL	S	SUSPENSION ARMS	SUSPENSION CONTROL ARMS - S780	C13945061	P558 Redesign the 4x4 Radius Arm bushing	Supplier to run design competition	Vehicle Engineering - Vehicle Dynamic - 8	NA	ARAVICH3	JFASTJE	ARAVICH3	MARTINR EA HOPKINS VILLE LLC - ABND	0.62	89.68	0.66	Running Change	165,310.68	40,530.23	23Jun: on track 19May: on track 29Jan: ECN rescheduled per supplier request due to balance out of material and new supplier from China 20Jan: OHAP trial successful, ECN sch for 24Feb at both plants	Jul-01-2021	Oct-01-2021	
1096488	P558 F-250-550 (NA) - TFE	Ohio Assembly - (United States) - AP04A	VEHL	S	SUSPENSION ARMS	SUSPENSION CONTROL ARMS - S780	C13945061	P558 Redesign the 4x4 Radius Arm bushing	Supplier to run design competition	Vehicle Engineering - Vehicle Dynamic - 8	NA	ARAVICH3	JFASTJE	ARAVICH3	MARTINR EA HOPKINS VILLE LLC - ABND	0.62	100.00	0.62	Running Change	8,414.02	1,283.58	23Jun: on track 19May: on track 29Jan: ECN rescheduled per supplier request due to balance out of material and new supplier from China 20Jan: OHAP trial successful, ECN sch for 24Feb at both plants	Jul-01-2021	Oct-01-2021	
13657	U811 Aviator (NA) -	Chicago - (United States) -	VEHL	S	SHOCK ABSORBERS	SHOCK ABSORBER	I3911801	U811: Use plastic unions instead of brass and remove abrasion sleeve from air line for	Weight save: 0.0297kg = brass, \$3.32 = 2 brass, 5 on U811, ~2.52 = plastic (11/21 supplier estimate) union, ~\$6.20 = plastic	Sign Change - 4	NA	WANG7	ORTON	WANG7	VOSS AUTOMO TIVE LTD.	0.62	0.62	0.62	Running Change			11Mar: ECN partially incorp, per 80% rule cannot incorp until 13Apr (ECN retimed), take rate updated from 10.79 to 21.62 per new FTO 04JAN: ECN0964641 resched from 07JAN to 19MAR, per 80%			

Concern Number	Title	Vehicle Description	Scheduled Release Date	Scheduled Incorporation Date	Idea Mat Cost Save	Application Mix %	Sum of Calendar Year Savings at 100% USD	Notes
C14179200	U553 Front Passive: Jounce Bumper Optimization	U553 Ex	Mar-30-2021	Jun-30-2021	0.36	48.00	\$ 6,403	
C14179200	U553 Rear Passive: Jounce Bumper Optimization	U553 Ex	Mar-30-2021	Jun-30-2021	0.10	48.00	\$ 1,779	
C14179200	U55x Front CCD: Jounce Bumper Optimization	U553 Ex	May-03-2021	Aug-03-2021	0.16	52.00	\$ 3,016	
C14179200	U55x Rear CCD: Jounce Bumper Optimization	U554 Lin	May-03-2021	Aug-03-2021	0.16	100.00	\$ 1,558	
C14179200	U55x Rear CCD: Jounce Bumper Optimization	U553 Ex	May-09-2021	Aug-09-2021	0.10	52.00	\$ 1,792	
C14179200	U55x Rear CCD: Jounce Bumper Optimization	U554 Lin	May-09-2021	Aug-09-2021	0.10	100.00	\$ 922	
C14242854	P702 FUCA Taper Tolerance Change	P702 F-1	Jul-11-2021	Oct-11-2021	0.08	100.00	\$ 15,470	
C14007981	P702 Tremor: replace 3+1 leaf spring with 2+1 de	P702 F-1	Sep-30-2020	Jul-19-2021	7.11	100.00	\$ 1,112,623	
C14166669	P702: Delete top plate liner D&E spring	P702 F-1	Apr-09-2021	Jul-10-2021	0.01	100.00	\$ 1,381	
C14158378	P702: C spring from 51CrV4 to 5160 and top liner	P702 F-1	Feb-02-2021	May-05-2021	0.01	100.00	\$ 2,190	
C14158378	P702: C spring from 51CrV4 to 5160 and top liner	P702 F-1	May-12-2021	Aug-12-2021	4.08	28.00	\$ 132,450	
C14158378	P702: C spring from 51CrV4 to 5160 and top liner	P702 F-1	Mar-24-2021	Jun-24-2021	4.08	21.80	\$ 155,457	
Grand Total							\$ 1,429,990	

Global TVM: CRID2 6-Step Process



Design & Release Process



User Interview Notes

Manager Design Target Process Review Excel Workbook

Key Observations

- Focus on cost reduction ideas + weight reduction ideas + quality improvement ideas - document these ideas into Excel workbook
-

Process/Behaviors/People

- Engages with Programs to conduct design target workshops - select commodities - engages team of five (design engineer, buyer, financial analyst, cost estimator, supplier — — tooling, manufacturing)
- Target workshops 2 to 4 hours - focus on design and engineering
- Weekly meetings
- Finds historical information in SharePoint
- Has such familiarity with commodities they just know which ones need to go to which program

Tools/Data Used

- Excel - main workbook - Patrick Lee's team runs report, load data into data warehouse
- SharePoint
- Excel gets copied to Powerpoint
- Two pager
- SWT "sourcing, workplace and timing"
- FEDEBOM data

Quotes

- "I want you to automate this excel sheet"
- "I don't think there's a summary of cost saving ideas and when to use them, I've seen attempts but I don't think that piece is clear"
- "The tools are optional - needs more focus and communication"
- "There seems to be 2 or 3 initiatives going on around this, and they all need to be aligned" — in reference to several platforms, they want ONE tool to use from inception to incorporation

Wants, Needs, Pain Points

- Wants to be able to go into the database and pull ALL ideas proposed for 'grills for trucks' and see if the next team doing a workshop can use any of those ideas
- Wants useful data that can be shared with other teams; currently has to go through multiple spreadsheets to get legitimate data
- Management wants to see what ideas were rejected AND why; want to see lessons learned and apply it moving forward
- Needs data combined with target info + support info to quickly see if target is greater than 10\$ - want to see which commodities are over target
- Wants to know engineer associated with commodity
- Date of idea and flow out the time required to complete the workshop; 5 wks to complete design workshop; key events over 5 wk period
- To disposition an idea NEED feasibility, cost & time
- Wants common language and standardization for headings/columns in reports; will make interpretation of data easier

User Interview Notes

Program Integration Lead Review Cost Design Review Template Powerpoint

Key Observations

- “The target is the target”
- “Failed” or “rejected” ideas important as well; they may fit in somewhere down the line
- Manages cost creep for all programs

Process/Behaviors/People

- Once all targets are set, ensure the programs and commodities are delivering, meeting targets
- Runs Cost reviews
- Identify offsets first looking at commodity then PMT, before going through vehicle level
-

Tools/Data Used

- Tigra
- SALT
- FEDEBOM
- Powerpoint for reports
- Excel - commodity parts lists
- Katia and Teamcenter - to show ‘here’s the old part, here’s the new’ will take screenshots

Quotes

- “Teams are struggling to come up with actions to meet their target”
- “There are 1000s of ideas in the warehouse, which apply to me - give me 5, 10 ideas to get me back in my box”
- “Engineers are too busy already to be triaging tons of ideas and figure out where to apply them”
- “What ideas relate to my commodity? That’s all I care about.”
- “I want to know what the idea is and how to apply it”
-

Wants, Needs, Pain Points

- Want good access to roadmaps; roadmap actions into status, to make trade off decisions earlier
- Teams need access to things other teams have done to get to target; need visibility to all of that
- Wants to eliminant the need for more TVM downstream, make sure we are meeting targets upfront
- Want graphical and historical view of cost idea deck
- Need to be able to explain, here’s my status to my target
- Data needs to be consumable, don’t have to be an expert to use it
- Some teams really don’t understand the process so hopefully if they’re given a good tool they will be able to get halfway

Additional User Interview Notes

Cost Creep manager

TSC and PSC - timing
Doing this for two years

Cost Design Review Process - Key changes

- Eliminates P2EC quotes
- Always done Design Reviews - difference is focus on Cost
- Interact with the To4
- Target is the Target

Minor Modified over \$10 per Avg Vehl - has to go to a VPD
Need to id actions to get back to target
Tied directly to change control

Reviews commodities with historically high cost creep
Reviews anything

Anything over 5% change or \$1.00 goes to CPE Def

"I know we have that database that Patrick Lee has"

Customers need actions to help get them back on target - Need access to ideas that other teams have done

I know "that database" has lots of things in there

What teams struggle with is finding the key ideas that apply to them; want help triaging ideas; How to pick the right ideas for this commodity/this program

Visibility to benchmarking data - need access to; FACTS is not easy to use

Leslie: "So what I'm hearing you say is we have all the data. How do we leverage it in a more elegant way?" Response: "Yes"

Tools:

Ppt - agreement on status

Excel for

Catia and TeamCenter for Design Reviews

Is the Cost Saving Idea Process well defined - TVM process is extremely well defined - We want to get out of it because we are overly reliant on it
That's my job now - making sure we stick to targets to need to reduce down

Team - not really hands on key boards users

FEDE SWT Ariba used by others

Uses a Cost Creep Dashboard - How anyone can see status to target for their program

Shows Target Roadmap % SWRM and Roadmap

Can see volatility

Can see CMFs ; Can see it by PMT to see who is driving out-of-box and even see at commodity level

Don't go lower than commodity

Provides a graphical and _____ view of a Cost PAT deck (where program gets cost info)

The dashboard provides a transparent view of what is happening - the teams tend to want to hide ups and downs

What I'm doing to meet target, what tradeoffs they've made

D2T is between PSC and PA -

Can request a workshop of their own

They may have had a D2T workshop

"Reach out to GMC Team for assistance - Don't have time to look at all the different places"

Need it to be more consumable that you don't need to be an expert to use

Want something we don't need training to use

Cost Design Review process designed to eliminate redundancies - Eliminate P2EC (quote mid-stream)

Eliminated ground up OCE from Cost Est. Now only do a design walk estimate on Changes

Identifying much earlier in the process areas where there might be cost creep

Look for offsets and trade-offs within commodity and then within program

Gaps or problems in the workflow?

- Cultural change - we need to become more cost focused
- "Target is the Target"
- Teams are struggling with that concept
- Material Cost + Tooling + ED& T are all looked at

CPE said this is nothing new; this is your job!

Cost Idea Analytics Dashboard - Email Alert - Shows 138 ideas - Do any of them apply to me?

When I get there, what do I do?

I just need to know what ideas apply to me

There are Exterior items in the Interior PMT

Not developed for the User Experience the team needs

Too many ideas - How should I know if I should look at it?

Use Home Depot Search as an example

DO NOT care where ideas come from (Source)

Most of the filters don't help D2T

Filters by PMT aren't working - Powertrain showing up in Interior

Base Part Number - May be helpful/pertinent to engineer

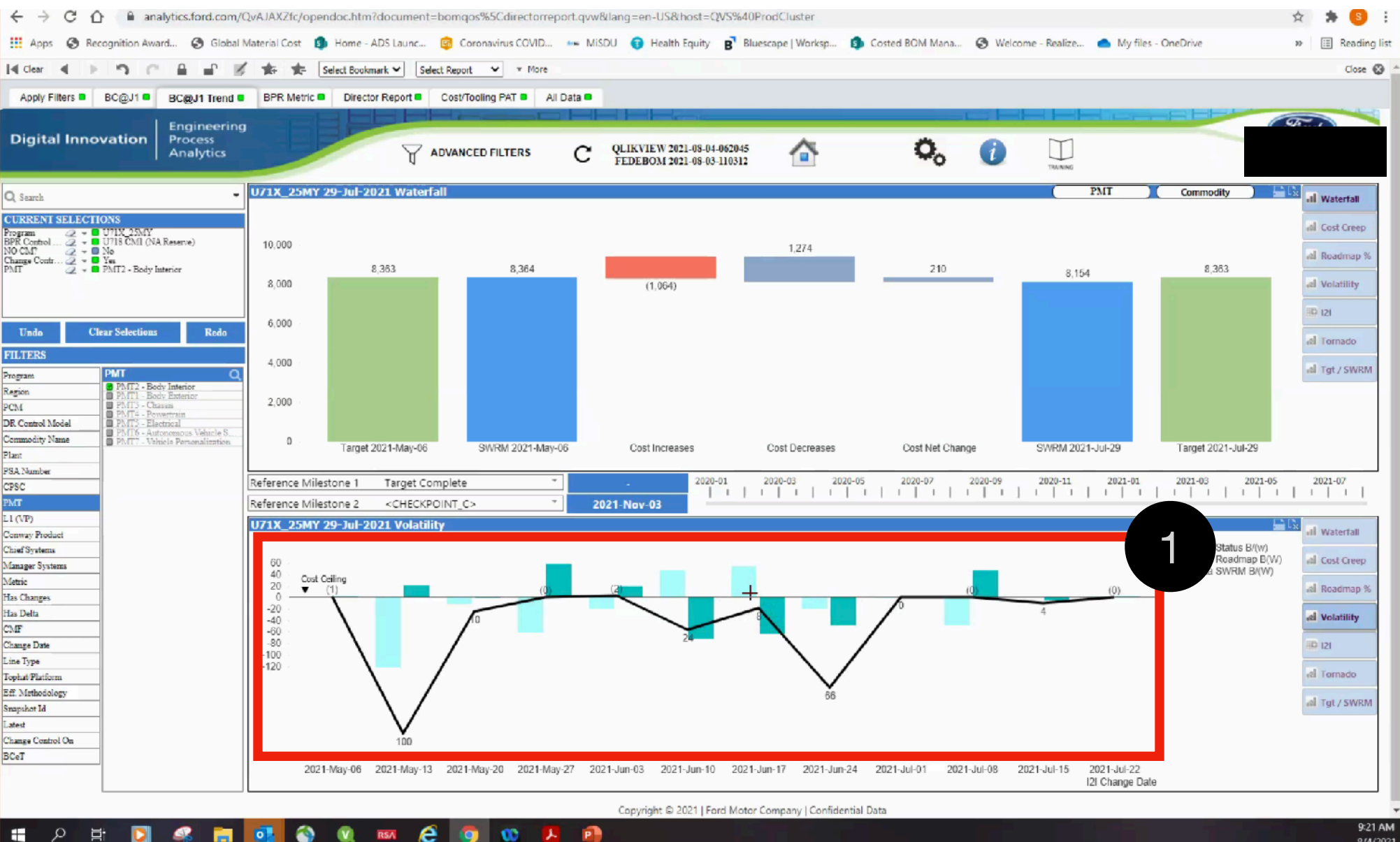
The email needs to be more focused

Failed ideas may of interest as well (If an idea was rejected - it may still apply to someone else down the line)

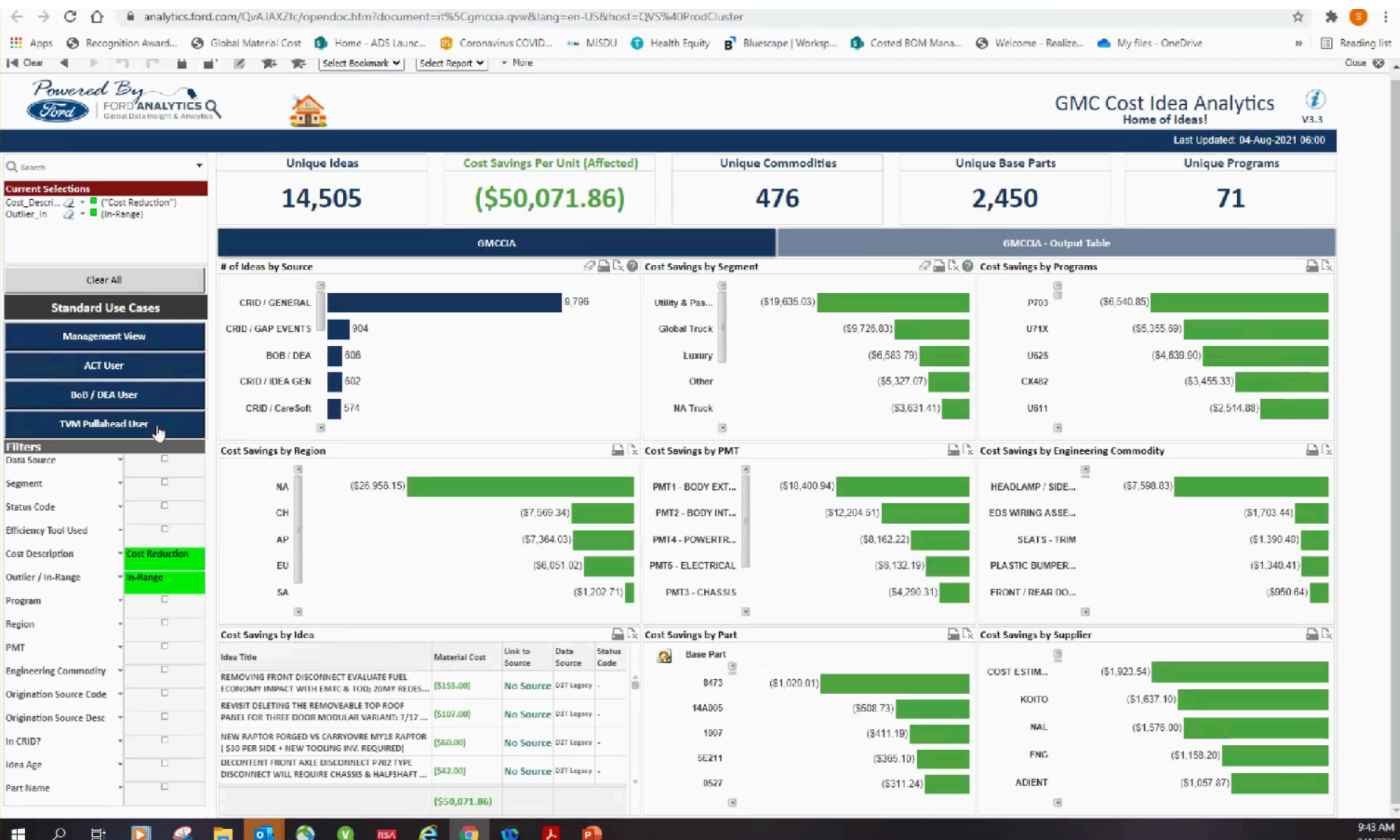
Would be good to get in front of To4 or D&R council

Role did not exist 2 years ago - All new - Changing the Culture one program at a time

Maybe the cost coach could review ideas ahead...? Or make it easier to get to what you need (a la Home Depot)



1. Users like this visualization of their cost savings ideas



The hierarchy of displayed data is not conducive to quick understanding, the cost savings by idea requires more screen prominence and real estate.

Subject: !! GMCCIA - NEW IDEAS ALERT !!



Global Material Cost Idea Analytics

This is an automated notification that the [Global Material Cost Idea Analytics Dashboard](#) has **93.00** new ideas.

Please visit the [Global Material Cost Idea Analytics Dashboard](#) to browse through ideas.

Additional Supporting Links:

[Videocast: Testimonials](#)

[Videocast: Demo](#)

[Videocast: Access](#)

[Videocast: Notification](#)

For any questions/concerns, please send an email to gmccia@ford.com

Users have commented that this email isn't helpful. They don't even open it because they assume the 93 ideas are more than likely not applicable to them. If we are able we may want to consider a more pointed email for each user.

User Interview Notes

TVM Analyst Body Exterior

Key Observations

- Cost reduction for programs that are launched; also works forward on ideas that may get into a job one
- Status Code 1 to Implementation
- Engineering resources so thin; TVM engineers get “tapped”

Process/Behaviors/People

- Cost reduction idea comes in, it's assigned to TVM engineer, works with engineering team to help them progress the idea; identifies where lagging behind
- Ensures purchase orders are issued
- Once change is incorporated, works with audit team in India to actually move into production; then actually claims the cost savings
- Has own columns in Excel they track “red, yellow, green” (red being a risk)
- Tracks down the buyer to ensure they have POs out, *supplier important

Tools/Data Used

- CMMS
- CRID
- Excel - for their own tracking logs
- SharePoint - pretty much a ‘dump from CRID’
- ENC dashboard
- FEDEBOM - if really stuck on a specific part
- WERS

Quotes

- “I track all of my comments, the history is massive, I can't do it in CRID b/c of character limits”
- “It would be great to have one stop shopping, I have to go to multiple databases to do my job”

Wants, Needs, Pain Points

- Painpoint - keeps notes on entire history of idea **CRID has character limits
- Wishes CRID had enhancements, uploading 70 ideas is not quick!
- Caresoft provides inaccurate data - not enough detail - wrong commodity code, so then it goes to the wrong team
- Engineering reference # - would like this attached to idea in CRID
- Some ideas have multiple CRs - CRID will only accept one at a time

User Interview Notes

B-set Best Cost Job One

Key Observations

- Holds workshops for idea generation (design to target workshops)
- Reporting is project mgmt type reporting; track phase completion
- Tries to get commodity to target
- Workbook is developed - scrubbed for 3 wks, accepted or not - by program through Change Control
- Score card = list of commodities they're studying and where they're at in their lifecycle

Process/Behaviors/People

- Design to target - data mining from data warehouse for workshops; supplier input - "what kind of ideas do you have for Ford that you want to share?"
- 4 hour workshop - team of Five
- Supplier workshops - capture suppliers suggestions to lower cost
- Triage events - teardown
- Design walk to discover, add any functional attributes, Ford specific
- Design Competition - attributes around a specific commodity

Tools/Data Used

- Excel
- Caresoft
- Scorecard for director level reporting
- OneNote
- Arriba
- Arrow - is repository
- Alteryx
- CRID
- PowerPoint - match pair presentation - for target setting

Quotes

- "CRID is archaic it doesn't talk to the other systems"
- "I think I could put the word CareSoft in front of anything we do and get immediate attention"
- "Alteryx is a huge help"
- "We have to go to four or five different spots to do our work"
- "Good discussion between engineer, cost coach and estimator, idea doesn't always get captured and preserved"
- "During discussion - good idea - 'no, there's a Ford spec, we can't do that' then the idea never gets recorded"
- "We always seem to settle back into our own parameters versus challenging our little bubble" - quicker way to get approval
- "I just band-aided something instead of fixing it b/c that was all the time I had"

Wants, Needs, Pain Points

- Process is too often relationship dependent - good relationship, talking all the time, if not, constantly have to plug people in
- All Ford's databases should be relational and communicate including WERS
- Because every tool varies, things get messy immediately
- CareSoft - Incomplete data - just because CareSoft says it costs less, how do we know?
- Want an automated pull of data
- Want to know what has already been done on this commodity
- Engineers have ideas they want to do but can't do
- What to know why an idea was rejected? Was it just timing?
- Cost Coaches always need their commodity work plan filled in correctly otherwise people are chasing down data and validating

Additional User Interview Notes

How do you use cost saving ideas now?

Design to Target (D2T) - After all BCET tools are applied (BCET – Best Cost Efficiency Tools)

What's out there I can bring into the workshop to use?

Go out to suppliers to get their input

4 hour idea generation session with CE, Supplier, (To4)

Ideas are reviewed through Change Control and then put ideas in the Idea Warehouse

Best of Benchmarking Process (BoB)

Select competitive designs and tear them down

Load to FACTS (Benchmarking)

Suggestions that come out of teardown - ideas should go into Arrow but they don't always get captured and preserved

Tendency for engineers to reject due to SDS etc. (50% of the time the Ford Design is thought to be best)

Send some designs out to suppliers for quotes (4 to 5 suppliers)

First have a supplier workshop to walk around the torn down parts to generate ideas and get ideas for optimal design (changes to Ford design) - "bottom of the V design"

Before supplier workshops we have a triage event where we pull in Chiefs and higher level people to review the ideas generated so far to get their input. (Matched Pair Presentation)

Then do a Design Review to check on how it affects attributes; also include other ideas that would need special approval.

DEA - Design Efficiency Analysis

- All Ford internal
- Cost estimating estimates and recommends
- Then Market Test

Design Competition

- Given these attributes what design and cost can you provide

Arrow is the repository for all of these ideas generated above

All of these we are supposed to look to see what has already been generated and done:

- Out of CIW
- Out of Cost Estimators - FACTON
- Ariba - Has supplier quotes
- Out of Teardowns
- Out of Engineer's drawer
- Attribute and _____ reviews
- Benchmarking Internal and External

Go to all sorts of systems to our work!

CRID

Caresoft

Bryan Tews data

A2Mac1 data

Data needed about: What I'm going to do; why I want to do it; how we would do it; and cost to do it - Ideas are often incomplete

Need to be able to evaluate "Why was this rejected?"

What kind of reporting are you doing?

Tracking phase completion

Score card - all commodities and their stage goes to Tom Single and to all Conway Directors

OneNote - (used a lot but not much info about how)

Working on a tracking tool to pull data out of Ariba and Arrow - How are we getting through stage gates and identify why we are falling behind schedule

What are the redundancies in your workflow?

Who are you talking to, to get things done; As a project mgr I have no authority; I have influence; the Cost Coaches are supposed to provide a commodity workplan and the data isn't always good in the workplan so we end up chasing data instead of doing my job as program analyst.

Where are the Gaps?

It's too often relationship driven

Who is supposed to know the answers - I chase answers the LL6 (Supervisor) is supposed to know

Purchasing changed Ariba versions and didn't let us know and didn't consider how it affected other users of the Ariba data

(Need to get quotes out between MR and____)

Fires we need to put out for requests for special data from the GMC chiefs.

Unicorn product - DB s/b relational and communicate with each other; get us into the 21st Century

Where do all the ideas that come out of Labs, prototyping and special advanced thinking go? Can we pull them in?

User Interview Notes

TVM

Key Observations

- Market alignment projects - a project that compares us against competitor, TVM projects - a cost reduction project
- Performance based on in flight programs, so hard to care about future projects unless its TVM mega project

Process/Behaviors/People

- Review and identify ideas being generated, see if they fit into current production models; if they do they get a CRID number, it gets logged, then pushed down the pipeline

Tools/Data Used

- TVM click view dashboard
- CRID
- Excel; Sharepoint Vacuum
- One pager PowerPoint has good information for what an idea needs to be populated with : cost savings, tooling requirements, timeline
- Caresoft
- Internal benchmarking

Quotes

- “You only care about things when you get credit, no time to deal with other things’
- “Not fixing issues within CRID doesn’t make any sense”
- “The data is only as good as what the user enters, you must force the user to enter certain things” - makes things unsearchable
- “Why not have one database with dedicated dashboards for whoever needs it?”
- “It needs to be simple and minimalist, I shouldn’t have to click 8 different filters, and highlight different colors; I don’t know what I’m looking at”
- “A dropdown with various...TVM, best cost job one, to bring up template”
- “Happy to know people are seriously looking into this”
- What happens to the ideas that are generated but not in current production model? Where do they go?

Wants, Needs, Pain Points

- Rejected idea versus deferred idea and why
- How do we prop up the ideas that are deferred and get them in front of people for future models?
- NEED to know who originated the idea
- Wants automated KPI reports
- Wants to know what has changed week over week; all out in the open, people hide bad news
- Upload docs, attach them to idea
- Audit process is straightforward, no way to generate a report, all done manually
- Sometimes people will step away from something for three months and come back to it, they need a track record; it should be a package of info
- For reports we need to figure out what people need to present
- Character limits not acceptable

Calendar Year: 2018, 2019, 2020, **2021**, 2022

Quarter: 1, 2, 3, 4

Clear All Filters Selections / Reset Fields

Current Selections

- CARRVOVER_F: 2021
- CARRVOVER_R: 11-May-2021
- Filteryear: 2021
- ReportDate: 25-May-2021
- DATA: Only Weekly
- FROM_DATE: 18-May-2021
- Report Name: NORTH AMERICA

Filter Selection

Report Name: **NORTH AMERICA**

Financial Bin:

BU Level 1:

Booking Region Desc:

Subtotal:

Matched Pair Name:

Matched Pair Name (Prior):

TVM Cluster Name:

TVM Team Name:

Idea VE Sub Type:

Idea Sub Type Desc:

Origination Source group:

Origination Source Code:

Origination Source Desc:

Platform Code:

Plant Name:

App Manager Cdsid:

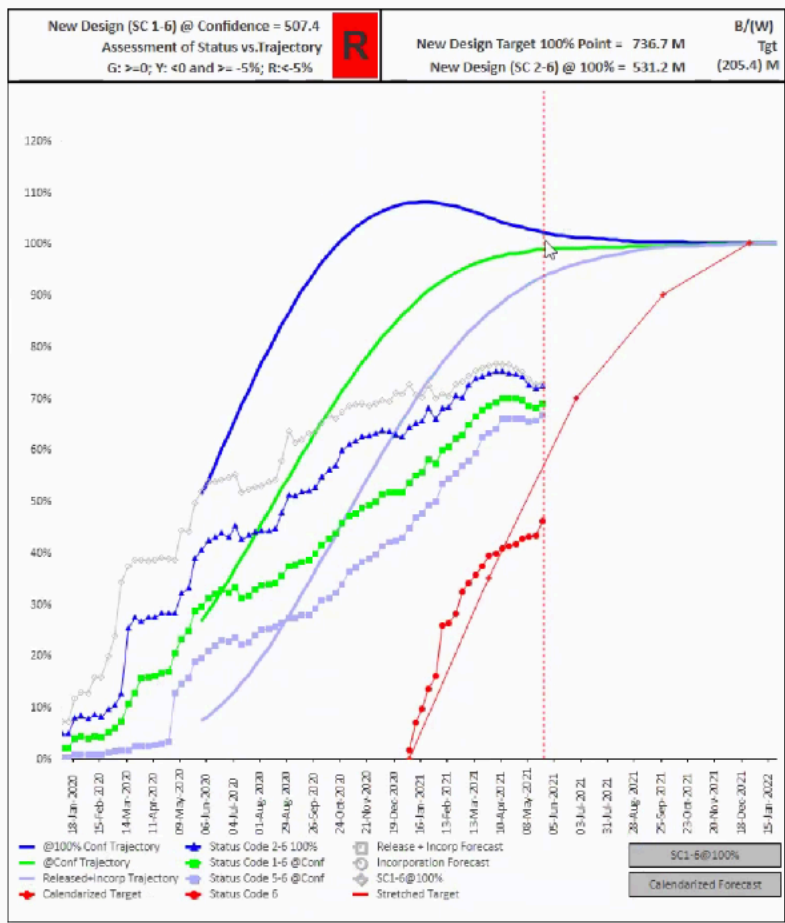
Vehicle Line Code:

Vehicle Line Name:

Model Description:

Select Filters:

Selected Filters:



Hummingbird graph used through TVM to depict data.

User Interview Notes

SUV Segment Lifecycle Cost Management Supervisor

Key Observations

- Helps segment chiefs with lifecycle cost
- Works with VCAT (vehicle costs attribute team) and functional team to make sure ideas are moving through CRID

Process/Behaviors/People

- “Up to functional team to disposition idea”
- S1 - pre-vet ideas, no historical reference
- S2 - prove out idea stage - stays here a long time, this is the place where CRID work gets done
- S3 - teams don't want to update CRID movement
- Often goes from S2 to S5
- ECN auditors only look at S5 - it takes too long to update weekly, don't want to degrade their roadmap (nobody wants to lose traction on their roadmap)

Tools/Data Used

- CRID
- TVM dashboard
- Excel - reports - based off Katherine Johnson's report —-excel to track uses Red, Yellow, Green for age of ideas in stages
- Hummingbird
- PowerPoint
- Chief Program Decision Forum - “The DF”

Quotes

- “Its obvious we are all using our own tools to report to our directors”
- “Seeing teams sandbag, hedge their bets, put less cost into CRID than the idea is potentially worth”
- Quoting somebody else “if you don't have time to put timing around it, just reject it”
- “Why is an idea stuck?”
- “Ultimately it goes back to the same data, the hummingbird, TVM dashboard, and CRID”
- “I can't show technical feasibility of an idea” — maybe this is where attachments come in??
- “My proposal is to set up the milestones to also query CRID”
- “We meet and talk over and over again, we spend 40 hours on rejected ideas, it is just painful because I know those ideas will never make Ford any money”
-

Wants, Needs, Pain Points

- Clearly communicate why an idea was rejected at Status Code One; management wants ideas “unrejected” about every 3 months, which leads to a full review again because it was never communicated well in the first place; we need historical reference
- Has six programs open at once
- Wants to know which ideas have moved week over week
- Dec. 31st one cent ideas, they act as a placeholder - so much buried in there, we don't know how much things are worth
- Issues with character limits
- WANTS “Ideas stuck” “Ideas rejected” “Ideas deferred” LABELS
- How do we introduce ideas that are happening on current **OPV??** Products to a Ford model program?
- No way to introduce CRID to ford model engineers
- Teams not always aware of vehicle configurations so try to push an idea that won't work for a certain model; flag this

Additional User Interview Notes

SUV Cost Leader - serving as manager but is a supervisor

Works closely with VCAT teams and functional teams to make sure ideas are progressing through CRID
Working with Rob Mince on Dashboard.

Status code 1 - Pre-vetting over and over again and don't keep early rejections in CRID or any history. Keep it and say why it's rejected.

If the idea was never in CRID then you can't un-reject it...so it needs to go into CRID -If something changes - new evidence we can then review.

Status Code 2 - Functional team's work path to prove out an idea. Stays here a long time because there is a lot of work to vet an idea. Only place this is working.

Status Code 3 - People don't want to progress until everything is completely done and then flip it to a Status Code 5 idea.

We have ideas that are currently incorporated but the ECN guys don't see it because it wasn't updated to status code 4 or 5. Don't update because it takes too long and they don't want to inflate their roadmap.
Also see a number of teams "sandbag" as they put their ideas in at a lower cost and a later incorporation date because they haven't done research yet. As a program lead, I'd rather have it rejected as it is just spinning there.

CRID

Issues with character length? - Yes; Difference between "deferred" and rejected - two columns in CRID comments and remarks - Remarks is used as status; Comments are Rejected ideas.

Ideas not moving then they need help - How do you know if they need help? Dashboard shows how long an idea has been in a certain status - and the avg it should be. It doesn't tell me how many ideas have moved/progressed.

We appreciate the new ideas but we really need to work on progressing the ones we have. We get 1000 but can really only work on 100. Reasons: forgotten, sandbagging, coordinated change so needs multiple team input-more work, ...

What tools do you currently use?

CRID - a lot!

TVM Dashboard - Excel based (Ana)

QlikView version - hummingbird chart (Makes her own report with her 6 programs)

Catherine Johnson - Overview spreadsheet that shows status to target

Rob Mince dashboard for ECNs - also Qlikview

Then creates a ppt.

Also has an Excel file from Catherine's file. - Month to month or week to week progress (Leslie took a screen shot)

Pointed out that her PPT was different from what others in a similar position but it's basically all the same data.

Caresoft/A2MAC1

As a program team I can speak to the technical feasibility of an idea - Functions need to vet them but they don't always know about the ideas. Could be because Brazil is doing it>>> We are working on 10 cent saves when there are other higher save ideas that are new - how do we make sure the "best" ideas are being worked on.

Where do you store recommendations and findings?

CPE DF (Decision Forum) - Two pagers (CRF - Change Request Form in Excel) that explain changes for approval; Financial form; assess actual take rate which feeds back to CRID.

Customer facing ideas have a whole different level of approvals - appearance reviews; marketing approvals; PDL updates

CRID is a tool for tracking - move us from being tracker to being reporters

CIRD does not help us introduce what is happening on new model programs to on-going programs.

(After program approval (PA) we want to keep Launch sacred and stable) but we need to be able to incorporate changes at some point.

Vehicles get launched with OLD design.

Can we just pull ideas on part number and incorporate any TVM ideas or other ideas?

No communication happening.

Redundancies, Pain Points

Meet and talk over and over again - These ideas won't work; let's talk about them again; they won't work; let's talk about them again. Maybe set up a process to review every six months but not every three weeks.

Real numbers on ideas we think that are good.

Meetings before meetings but kind of understand.

Functional teams want to just work on fixing and not come in on status review meetings. We have chosen to represent them at Directors meetings. Trying to protect functional teams but then they are mad when they are not included.

No institutionalized systemic ways to introduce TVM ideas to forward Model.

Ideas didn't get replicated completely - e.g., ACTiV X on 3rd row seat; only changed on second row.

Consider Soft Tools for programs going out of production.

No one covers ED&T for TVM - Program doesn't have the funds. Checkbook is closed at PS. (Engineering Design and Tooling cost to make a change)
Mega project won't fund b/c not at right milestone. Can we have a slush fund?

Emailed Notes from User

TVM Improvements:

- Include TVM “checkpoints” in forward model delivery (see details below)
- Consider soft tools for short life vehicles (low volume tools vs high volume tooling costs)
 - Legacy vehicles with build out scheduled do not have the volume equation to TARR on hard tools
 - Consider soft tools (low volume tooling) for cost saves on this
 - Additionally – with compressed launch windows, Forward Model programs going directly to Hard tools (no prototype funding) and this drives higher costs for part improvements (AIMS issues, build issues, etc.)
- Need to have a clarity on who covers ED&T for TVM. OPD does not have the funding, small programs don’t have the authorization based on approved content/estimated costs approved between <PS> to <PA>.
 - May need to provide a “blanket” ED&T purse for new programs to incorporate cost saving ideas from <PS> to J1.
 - Warranty costs are incorporated in the program costs up front: We expect \$x for warranty, therefore that money is set aside for the program to be used post launch.
 - Could we do the same thing with
- Need a disciplined approach that if a part is revised for a quality problem (especially at Launch), that CRID is queried for any ideas to that same part number.
 - If we’re opening the tool for **any** reason – there should be a look at same vehicle BOM in CRID to confirm if there were any ideas waiting for an opportunity to improve the cost on those parts.
- Integrity of CRID.
 - SC1: The CRID Database is difficult to update – slow, time consuming (per comments from the functional teams)
 - Also, functional teams are unwilling to put ideas into CRID until “vetted” – too much emphasis on @100% confidence with management teams, and they don’t want to inflate their roadmaps.
 - Pre-vetting: We are seeing the same ideas over and over again – if they had been input in CRID and rejected with documented reasons, teams could disposition differently
 - In the meantime – management frequently asks us to “re-open” rejected ideas. If there is a clear understanding of “Why?” i.e. “Marketing rejected as part of tech package” –then Marketing can then be contacted to do “this moment in time analysis”
 - à given Connectivity data, may have an opportunity to re-open many old ideas and support reconsideration with actual customer data - but if an idea was never put in CRID – there is no way to see the history.
 - SC2-5 “Sandbagging” and not moving ideas to next status until basically ready to release – seeing ideas go from SC1 directly to SC5, but not to 2, 3, 4.
 - Again – functional teams worry that an idea that falls through at the last minute will impact their roadmap, so team would rather keep at low confidence until fully incorporated into production.
 - SC6 – dependent on auditor – but if ideas have not progressed from SC4 in CRID – even though ECN scheduled, the ECN audit has not been conducted and full credit not given for the ideas
- TVM Dashboard utility: Make us (program/cost teams) reporters, not trackers. But this requires integrity in the data from the functional teams.
 - See above – ideas have to be in CRID for us to confirm status
 - Dashboard also needs to be able to “deep dive down” to specific ideas which may be stuck in a status: these are the true help needed (Working with Rob Mince on this one).
 - Critical that we as program teams can assess MOVEMENT– ideas need to flow from SC1 à SC2 à SC3 à SC4 à SC5 à SC6 and report on ideas that require assistance.
-

Microsoft Excel interface showing a spreadsheet with multiple data tables. The ribbon includes options for Clipboard, Font, Alignment, Number, Styles, Cells, and Editing. The spreadsheet displays data for various dates in July 2021, comparing actual performance against targets and business plan targets.

Date	Item	Status (C/O + New SC2-6 @ Confidence%)	Survival Target	% to Target	Business Plan Target	% to Target
6-Jul-21	U554	17.9	13.6	132%		
	Total:	289.3	278.3	104%		
	CD539	45.7	40.8	112%		
	U540	14.9	12.9	116%		
	U625	124.9	141.7	88%		
13-Jul-21	U611	12.9	13.2	98%		
	U553	72.2	56.1	129%		
	U554	17.9	13.6	132%		
	Total:	288.6	278.3	104%		
	CD539	45.5	40.8	112%		
13-Jul-21	U540	14.8	12.9	115%		
	U625	120.4	141.7	85%		
	U611	12.9	13.2	98%		
	U553	72.3	56.1	129%		
	U554	17.9	13.6	132%		
Total:	283.8	278.3	102%			
20-Jul-21	CD539	45.5	40.8	112%		
	U540	14.9	12.9	116%		
	U625	118.4	141.7	84%		
	U611	12.8	13.2	97%		
	U553	72.2	56.1	129%		
U554	17.9	13.6	132%			
Total:	281.7	278.3	101%			
20-Jul-21	CD539	45.5	40.8	112%	35.1	130%
	U540	14.9	12.9	116%	12	123%
	U625	118.4	141.7	84%	93.8	126%
	U611	12.8	13.2	97%	10.7	120%
	U553	72.2	56.1	129%	55.5	130%
U554	17.9	13.6	132%	11.5	156%	
Total:	281.7	278.3	101%	218.6	129%	
27-Jul-21	CD539	45.5	40.8	112%		
	U540	15.0	12.9	116%		
	U625	118.5	141.7	84%		
	U611	12.8	13.2	97%		
	U553	72.2	56.1	129%		

File Home Insert Design Transitions Animations Slide Show Review View Add-ins Help Teamcenter Share Comments

Clipboard Slides Font Paragraph Drawing Voice Sensitivity Designer

1 2021 Q3 Material Cost Status SUV Segment

2 SUV TIME OVERVIEW

3 SUV SUPPLY... MONTHLY COST CONNECTION RESULTS

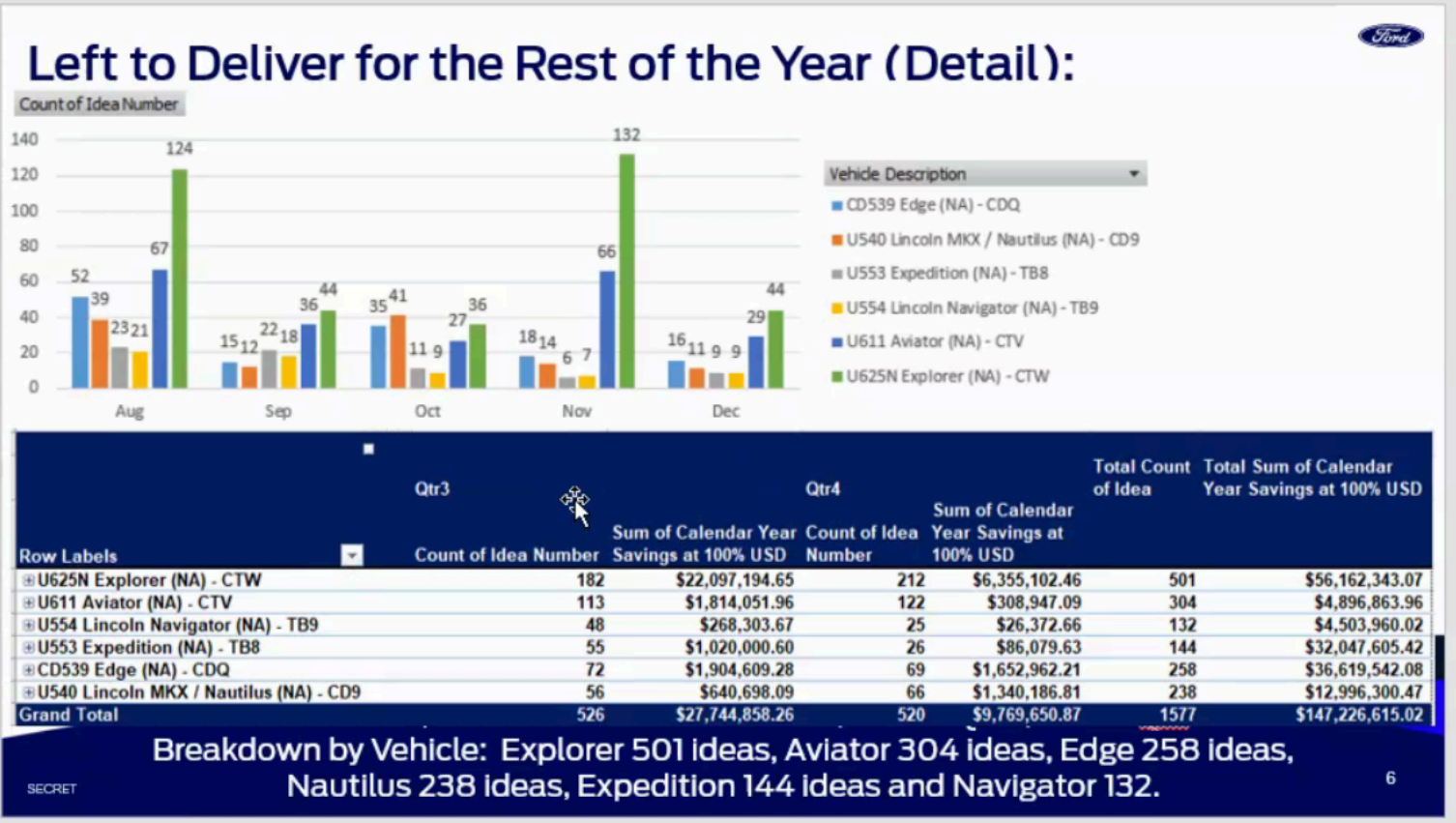
4 SUV TIME OVERVIEW

5 SUV TIME OVERVIEW

6 Left to Deliver for the Rest of the Year (Detail)

7 JEDDY... FOR LMS... CHANGES

8



User Interview Notes

TVM Analyst

Key Observations

- Programs that have already launched, not new program content; outside of new design process

Process/Behaviors/People

- Hand deliver the work stream from when an engineering action has been released into WERS system until it incorporates in the plant
- Idea comes from either CRID, a cost savings event or WORD OF MONTH; check to see if its even viable: vets idea, determines how long change will take
- Works with engineering and purchasing
- Engages with supplier to get the quote; if there are MULTIPLE ideas will either bundle it or not based on timing - a real look into savings

Tools/Data Used

- WERS system
- CRID
- Excel - 2 pager for program finance approval
- TMVer - only uses for certain things, report doesn't have access to everything
- Data sources - engineering, finance and supplier
- CMMS
- TVM dashboard - "parts of it I like, parts of it I hate, I like that it gives me a full year visual, have things been moving?"

Quotes

- "A lot of it is just having experience"
- "You always want to go in with good or neutral news so if you have bad news, you want to know what changed, it could be volume change, savings change, job one day removed, or it was rejected because it didn't work out"
- "Excel sheet is CRID report I added columns to"
- "I want a number and a date" - for historical reference
- "I like going line by line, I get to know my ideas, it drives a deeper understanding of what each change is about and what the restriction are, or the opportunities"

Wants, Needs, Pain Points

- Process is LITTERED with redundancies; the whole job, all of the data is already there, just not in one spot, give the same report to multiple people and the numbers get reviewed every time - everything is done in triplicate
- Sometimes when things get automated, things get taken out of context - you don't know what's going on behind the scenes
- No paper trail of nuances of it
- Two page report - has tab with all the part numbers that are affected in the change, and financial details
- It's frustrating to explain the same thing over and over again to different groups of people; isn't much trust there
- Cannot access WIPS and needs to know if POs have been sent out and to get most accurate pricing information

User Interview Notes
Review TVM Status Excel Sheet & Global TVM Bulletin

TVM Workstream — Manages Systems - Review Global TVM Bulletin if needed

Key Observations

- TVM guide - all of the steps and activities that must be done before proceed to next status code
- Used to work on TVM dashboard with somebody who left the company, they were driving the project, since they left, “we don’t update the dashboard anymore”

Process/Behaviors/People

- After program launch, 90 day implementation period
- Global TVM bulletin- very straight forward plan for TVM
- Confidence level based on Status Code
- Teardown and line walk data goes into TVM dashboard

Tools/Data Used

- CRID
- WIPS - to see if pricing is correct
- Hummingbird - for data
- TVM Dashboard
- CIRIS - helps to find opportunities for replication
- Excel - for consolidating data from N. And S. America
- TVM cost ideas app

Quotes

- “TVM dashboard rich with information but still room from improvement”
- “TVM click view looks old, its all so antiquated”
- “Just because something is rejected in CRID doesn’t mean it can’t be used in a forward model, could be feasible for future programs”

Wants, Needs, Pain Points

- Feels there are improvements for CRID
- Data entry and data mining so manual
- Data from CRID only updated on Tuesdays
- Updates in CRID should automatically update the TVM dashboard - biggest complaint from people using TVM dashboard
- EVERYONE wants origination source
- Want to see future years, not just current year
- Consolidate all of the ideas and data in one place and want to track their ideas
- Want to filter by specific events
- “Accepted, rejected, under analysis” for ideas



INTEGRATED TVM DASHBOARD

#Ideas 5237	New Design Annual Saving@100% \$ 1018 M	New Design CY Sav. \$ 510 M	New Design CY Sav. @Conf \$ 502 M	VL Avg Sav. PU** \$6,741.63	% Release x Roadmap 98.4%	C/O (SC5-SC6) \$ 444 M
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* Please refer to TVM Bulletin 11 (page 5) recommendation to evolve SC1 in 10 weeks
** PU Analysis must be consider only for Vehicle Line

Filter: CDS: All, CY: 2021, 2022, CDS: All, Source: All

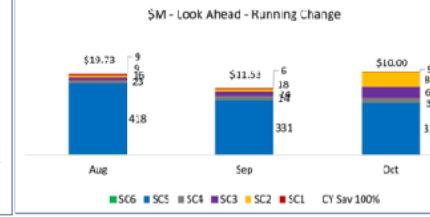
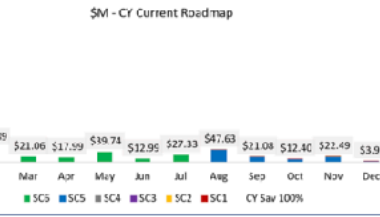
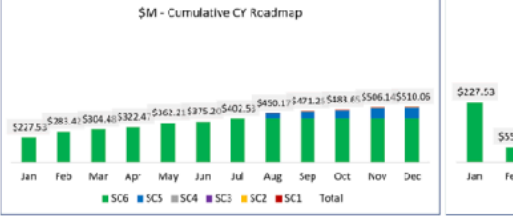
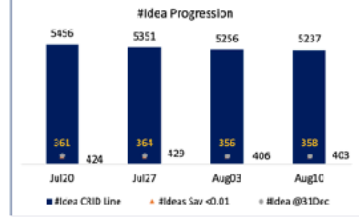
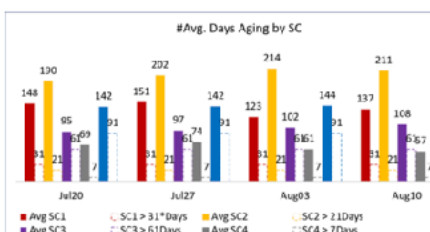
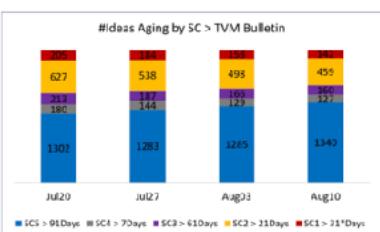
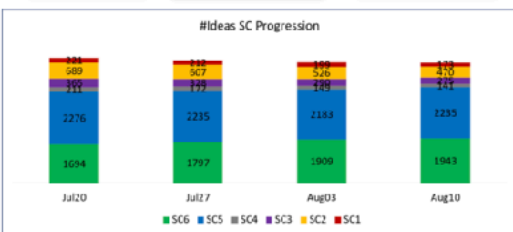
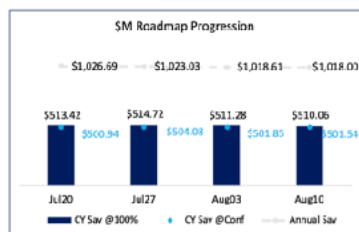
CM30 2nd C...	CX432N Escape	CM481 Corsair
F53 F53 Motor...	H507 F-650-720	OTHER
P658 F-250-550	P702 F-150	P702 F-150 BEV
S650 Mustang	U640 F-150	U655 Expedition
U611 Aviator	U625N Explorer	U725N Bronco
V363N Transit	VN127 E-Series	

Name (Dept Name)

SCOUT INTERIOR	CHASSIS	ELECTRICAL
EPTD	OTHER	VEHICLE OTHER

BRAKES & PE... CLIMATE CLOSURES
CONTROL R & FTR & CCMN FANINP
FASTENERS GREENHOUSE HEV
RES/INSULN F5 SEATS SHAMINGS...
SUSPENSION TRANSCASTL TRANSMGSL...
UNDERBODY UPPERBODY... WHEELS & TI...

MO... Please Read the tab <HOW TO USE>



Idea Title	SC Inc. Date	\$M - Sav @100%	\$M - Sav @Conf	Annual Sav	Sav PU
1150304 BODY EXTERIOR P702/P558/P708 Delete Front camera washer	2 6Dec	\$ 0.20	\$ 0.26	\$ 1.95	\$ 1.60
1153837 BODY INTERIOR Back panel - Increase bico from 450gsm to 625gsm & delete two air extractor pla pi	2 15Nov	\$ 3.10	\$ 0.36	\$ 1.64	\$ 1.25
1166468 BODY EXTERIOR 816x coil cover	2 6Dec	\$ 3.16	\$ 0.30	\$ 1.76	\$ 1.30
1123706 BODY EXTERIOR Remove Paint from condenser	3 30Aug	\$ 3.16	\$ 0.10	\$ 0.46	\$ 0.39
1155662 BODY EXTERIOR Modify Material of the Cab-in-Rim Vertical Side Sills to minimize cost	2 26Nov	\$ 3.12	\$ 0.34	\$ 1.63	\$ 1.47
1149227 CHASSIS U655 IWE delete on 4x4 - bearing change (on hold at SC1, MCA J1 change, pull ahead	1 27Sep	\$ 0.11	\$ 0.01	\$ 0.50	\$ 5.23
1165696 BODY INTERIOR U725 - IP - LOWER CENTER FINISH PANEL REDUCE PAINT COMPLEXITY	3 30Sep	\$ 3.10	\$ 0.26	\$ 0.36	\$ 2.24
1163622 BODY EXTERIOR P702 - Delete the front-most NVH pad on front WAL(XLT PLUS VERSION)	3 17Sep	\$ 3.10	\$ 0.36	\$ 0.37	\$ 0.29
1162125 BODY INTERIOR Remove Gorm from Speaker Drills	2 30Nov	\$ 3.10	\$ 0.20	\$ 1.20	\$ 0.90

Idea Title	SC	Inc. Date	\$M - Sav @100%	\$M - Sav @Conf	Annual Sav	Sav PU	Month
1123706 BODY INTERIOR Remove Paint from condenser	3	30Aug	\$ 3.10	\$ 0.13	\$ 0.48	\$ 0.39	(01) Jan
1147927 CHASSIS U655 IWE delete on 4x4 - bearing change (on hold at SC1, MCA J1 change, pull ahead	1	27Sep	\$ 0.11	\$ 0.01	\$ 0.50	\$ 5.23	(02) Feb
1166468 BODY INTERIOR U725 - IP - LOWER CENTER FINISH PANEL REDUCE PAINT COMPLEXITY	3	30Sep	\$ 3.10	\$ 0.05	\$ 0.39	\$ 2.24	(03) Mar
1163622 BODY EXTERIOR P702 - Delete the front-most NVH pad on front WAL(XLT PLUS VERSION)	3	17Sep	\$ 3.10	\$ 0.05	\$ 0.37	\$ 0.29	(04) Apr
1158453 BODY EXTERIOR P702 Optimize stiffening patterns on S & R box rails	3	17Oct	\$ 3.10	\$ 0.05	\$ 0.34	\$ 0.31	(05) May
1164398 BODY INTERIOR Reduce A-side Gorm to from 70gsm AFR scrim to 50gsm non-AFR scrim	2	15Oct	\$ 0.07	\$ 0.02	\$ 0.36	\$ 0.30	(06) Jun
1149696 BODY INTERIOR U725 - IP - LOWER CENTER FINISH PANEL REDUCE PAINT COMPLEXITY	3	30Sep	\$ 3.10	\$ 0.02	\$ 0.22	\$ 1.28	(07) Jul
1153837 BODY EXTERIOR P702 - Delete the front-most NVH pad on front WAL(XLT PLUS VERSION)	3	17Sep	\$ 3.10	\$ 0.02	\$ 0.22	\$ 0.17	(08) Aug
1167962 BODY INTERIOR Dispel coil side insulators - remove 3.25lb EVA and increase PET gsm or add acoustic	2	17Oct	\$ 3.10	\$ 0.02	\$ 0.22	\$ 0.17	(09) Sep
1167962 BODY INTERIOR Dispel coil side insulators - remove 3.25lb EVA and increase PET gsm or add acoustic	2	15Oct	\$ 3.10	\$ 0.02	\$ 0.24	\$ 0.30	(10) Oct
1167962 BODY INTERIOR Dispel coil side insulators - remove 3.25lb EVA and increase PET gsm or add acoustic	2	15Oct	\$ 3.10	\$ 0.02	\$ 0.24	\$ 0.30	(11) Nov
1167962 BODY INTERIOR Dispel coil side insulators - remove 3.25lb EVA and increase PET gsm or add acoustic	2	15Oct	\$ 3.10	\$ 0.02	\$ 0.24	\$ 0.30	(12) Dec

Dashboard CRID CRID Roadmap ChangeLog HOW TO USE <READ ME>

Filter: CY: 2021, 2022

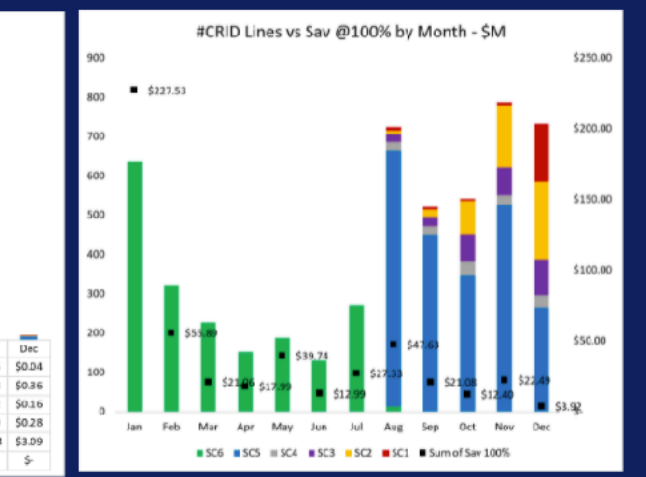
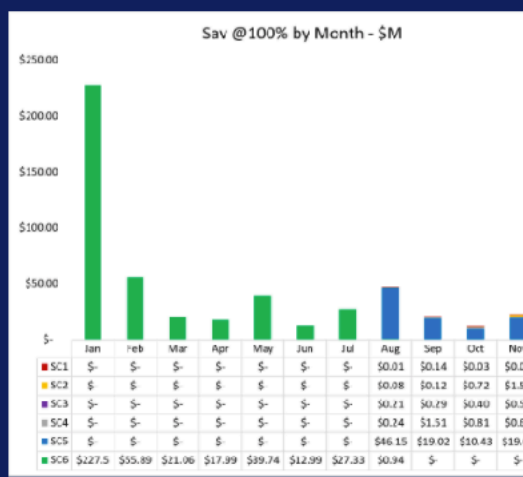
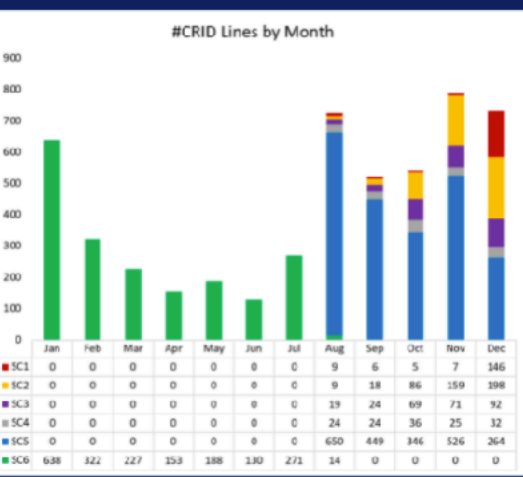
CD539 Edge	CX430 2nd C-SLV
CX432N Escape	CX483 Corsair
CX727 CEV BEV	F53 F53 Motorhome
H567 F-650-750	OTHER
P375N Ranger	P658 F-250-550
P702 F-150	P702 F-150 BEV
P758 C2 Truck - C	S650 Mustang
U540 Lincoln MKX...	U555 Expedition
U554 Lincoln Navi...	U611 Aviator
U625N Explorer	U725N Bronco
V363N Transit	V363N Transit BEV
VN127 F-Series V...	CX706 Edge
P703 Ranger	P708 Super Duty
S650N Mustang	V713 Transit Corn...

Matched Pair Name (Dept Name)

BODY EXTERIOR	BODY INTERIOR
CHASSIS	ELECTRICAL
EPI	EPTD
OTHER	VEHICLE OTHER

Tip: Double click in a specific table value to open a new sheet with CRID idea details.

Month	SC1			SC2			SC3			SC4			SC5			SC6			Total #Idea	Total \$M - Sav @100%	Total Avg PU USD
	#Idea	\$M - Sav @100%	Avg PU USD	#Idea	\$M - Sav @100%	Avg PU USD	#Idea	\$M - Sav @100%	Avg PU USD	#Idea	\$M - Sav @100%	Avg PU USD	#Idea	\$M - Sav @100%	Avg PU USD	#Idea	\$M - Sav @100%	Avg PU USD			
Jan																					
Feb																					
Mar																					
Apr																					
May																					
Jun																					
Jul																					
Aug	9	\$ 0.01	\$ 0.37	9	\$ 0.08	\$ 0.90	19	\$ 0.21	\$ 1.41	24	\$ 0.24	\$ 5.53	650	\$ 46.15	\$ 852.41	14	\$ 0.94	\$ 770	725	\$ 47.63	\$ 868.33
Sep	6	\$ 0.14	\$ 9.67	18	\$ 0.12	\$ 2.07	24	\$ 0.29	\$ 5.86	24	\$ 1.51	\$ 36.23	449	\$ 18.02	\$ 275.01				521	\$ 21.08	\$ 331.91
Oct	5	\$ 0.03	\$ 1.71	66	\$ 0.72	\$ 16.71	89	\$ 0.40	\$ 14.73	36	\$ 0.81	\$ 25.94	346	\$ 10.43	\$ 660.72				542	\$ 17.40	\$ 719.80
Nov	7	\$ 0.05	\$ 4.49	159	\$ 1.58	\$ 51.39	71	\$ 0.52	\$ 28.08	25	\$ 0.65	\$ 18.45	576	\$ 19.64	\$ 932.98				788	\$ 29.49	\$ 1,035.41
Dec	146	\$ 0.04	\$ 29.12	198	\$ 0.38	\$ 113.78	92	\$ 0.16	\$ 21.44	32	\$ 0.28	\$ 25.72	264	\$ 3.09	\$ 225.51				732	\$ 3.82	\$ 415.57
Grand Total	173	\$ 0.28	\$ 45.36	470	\$ 2.86	\$ 184.85	275	\$ 1.37	\$ 71.55	141	\$ 3.54	\$ 114.92	2235	\$ 98.32	\$ 2,946.64	1943	\$ 403.48	\$ 3,378.31	5237	\$ 510.06	\$ 6,741.63



Dashboard CRID CRID Roadmap ChangeLog HOW TO USE <READ ME>

User Interview Notes

Electrical TVM Auditor

Key Observations

- Done this for a long time, very familiar with TVM process
- Audits ideas, confirm them and/or adjust them accordingly
- Status Code 5 and moves to it Status Code 6 - need to verify that all of the other steps actually took place

Process/Behaviors/People

- Has twice weekly meeting, ask team members to come in, they discuss specific questions about status of idea in CRID
- Audits Status code 5's all day
- Only Mary audits ideas that are in process, so they highlight these because they know they can pay less attention to it because they trust Mary
- Color codes the spreadsheet - like if going to be rejected its marked red - green means everything is lined up - yellow means waiting on the buyer to do something
- ECN (engineering change notice) numbers change all the time
- Shares an excel sheet back and forth everyday with counterpart in India

Tools/Data Used

- WERS
- CMMS
- Frozen turnover report
- CRID
- Excel
- Sharepoint

Quotes

- “Very often there is incorrect information that needs to be corrected”
- “It’s pretty manual and I’ve just adapted this process to make it work best for me”
- “When I audit a CRID, I always put in my notes with my initials - I think that should be authoritative enough but people will move the date anyway”
- “Can there be a lock in CRID once something has been audited?”****

Wants, Needs, Pain Points

- Specifics columns they add in excel to CRID report : Correct data for incorporation - Notes (next steps), Checked date (the last time looked at)
- People email them daily “can you move my CRID to 6”?
- Should have a concern number with every CRID; often design concern not in there, has to go back to idea creator and figure things out
- Very tedious, especially low value ideas
- People will change things in CRID even after idea has been audit and it explicitly says it has been audited in the notes
- Lack of paper trail in CRID
- More automatic calculations, pretty manual now

User Interview Notes

TVM process supervisor/ Global Design TVM

Key Observations

- Owns all global processes associated with delivery of design TVM
- Over the last two years the team has had to grey the lines a bit beyond traditional TVM into other current model material cost reduction
- Financial rules about what counts/doesn't, how things go into the system, are measured against frozen turnover
- TVM = annual cost reductions
- Objective to reduce cost associated with parts

Process/Behaviors/People

- Works with finance twice annually to develop targets for functional teams with respect to design TVM
- Team responsible for performance measurement
- Have 5000 ideas in the system; drive and determine which need to be focused on and progress those
- New model programs look at from target to launch; once a current model, its measured differently

Tools/Data Used

- CRID
 - TVM dashboard
- (Both of these drive what's in the system and how they measure performance, they feed the financial system)
- Excel - many excel books - when needs a small subset of data or something for a presentation
 -

Quotes

- "Given the focus is on lifecycle cost, the big disconnect in Ford is that we don't have anything that measures it from start to finish - we only look at certain points in time"
- "We don't look at something that is in the cycle plan but not being launched for another three years"

Wants, Needs, Pain Points

- Things that get lost in translation with CRID and TVM is supporting processes like benchmarking
- A triage event will occur, ideas are identified, determining implementation is critical; so it could go in a current model or new model but that handoff gets disrupted, there is a disconnect.
- Something that addresses these handoffs after an event; we need the right stakeholder to disposition things actions, is it relevant for anything in current portfolio YES OR NO; it is upcoming YES OR NO
- We waste resources because we keep going in circles
- Between teams there are gaps
- If you've taken something out of a current model how do we ensure it doesn't go into the future model (the "map pocket" example)
- TVM only looks a couple years out

User Interview Notes

TVM Manager

Key Observations

- Focus on short term ideas to affect cost savings in the current and subsequent years
- Wants to see growth throughout the year

Process/Behaviors/People

- Generating idea events, capture ideas, facilitate using CRID, ideation to incorporation
- 3rd quarter you want to see a lot of growth of Status Code 1 ideas
- Whats languishing? Why are releases delayed?
- Sits down with TVM analysts

Tools/Data Used

- TVM clickview dashboard
- CRID
- PowerPoint - a lot of PowerPoint reports
- Hummingbird is in report but difficult to understand

Quotes

- “Whats important is the progress through CRID”
- “TVM dashboard - I use it as a tool to ask right questions at the right time”
- “I spend 4 hrs a week determining, how did we lose or gain 200k this week? Could be six big things or 30 small things”
- “Problem with generating status code reports; we are only as good as our data”
- “People don’t want to expose their dirty laundry”
- “Where are we - value versus target?”
- “We are all being tracked by trackers, its like a big daisy chain of trackers”
-

Wants, Needs, Pain Points

- What’s going on with the 1 cent, dec 31st ideas?
- Want to pinpoint creator of idea so you know who to ask about it - uses CRID to get a name
- Likes that the dashboard gives patterns and trends
- A mashup of CRID and the dashboard would be amazing
- Wants to see calendar year value, annual value, programs applied to, volume, take rate of programs
- Spends most of the week preparing weekly reports to show week over week movement for directors; lots of forensics to understand what caused numbers to go up or down
- Wants to see highest to lowest impact
- Automated reports
- Everybody manages their own list
- Notes are just fodder for trackers to ask more questions, it can be helpful but dangerous at the same time
- Breakdown performance by manager in report
- Reporting on the same topic in different forums, very redundant

User Interview Notes

Best Cost Job One

Key Observations

- In the upfront phase, how do we get ahead of this stuff? How do we get these ideas upfront?
- Looks at TVM and mega projects as 'rework'
- Sets up programs for body interior, ensures we are meeting cost targets and functional performance

Process/Behaviors/People

- Supports Best cost job one
- Target setting
- Advanced feasibility with the Design studio
- Make sure our design is aligned to our cost
- Sets up architecture, cost structure, feasibility, works with the studio to box the cost and get to a single thing
- Best of benchmarking process, suppliers come in, quote the competition
- Team of Four ; Match pair
- Waterfall shows start point and then what we are taking out or adding back in - this is where they are putting ideas

Tools/Data Used

- CRID
- CareSoft ideas
- Tigra - pulls in a program then BCJ1 efficiency tools applied

Quotes

- "Every time we do a TVM it basically means we didn't do something right up front when we set up the program, whether its marketing, engineer"
- "I'd like a list of high leverage stuff that we should be doing right now"
- "Everything is very manual in terms of getting the data"
- "I don't think we are as smart as we should be about where we're putting cost IN"

Wants, Needs, Pain Points

- CareSoft data not always accurate; isn't always at a system level, more of a component level; they tend to over-inflate their savings
- Glaring disconnect, plannings desire to add content and the affordable cost ceiling
- What are the top TVM ideas? Top mega project ideas from last 12 months? With actual cost

User Interview Notes

VCAT Team

Key Observations

- Manages central VCAT team
- TVM targets so high this year they added resources to different segments to help them deliver
- Everybody likes to see their ideas move through status codes

Process/Behaviors/People

- Lots of weekly reports that go out
- Doesn't disposition any ideas cause not on a program team
- Tough Choices are ideas that are high value that we just can't get alignment on - there's no defined process or ownership

Tools/Data Used

- CRID incorporation dashboard - what does it take to move ideas for 5 to 6?
- TVM dashboard - likes visualization of this data
- CRID
- PowerPoint
- TVM roadmap - a report
- Excel

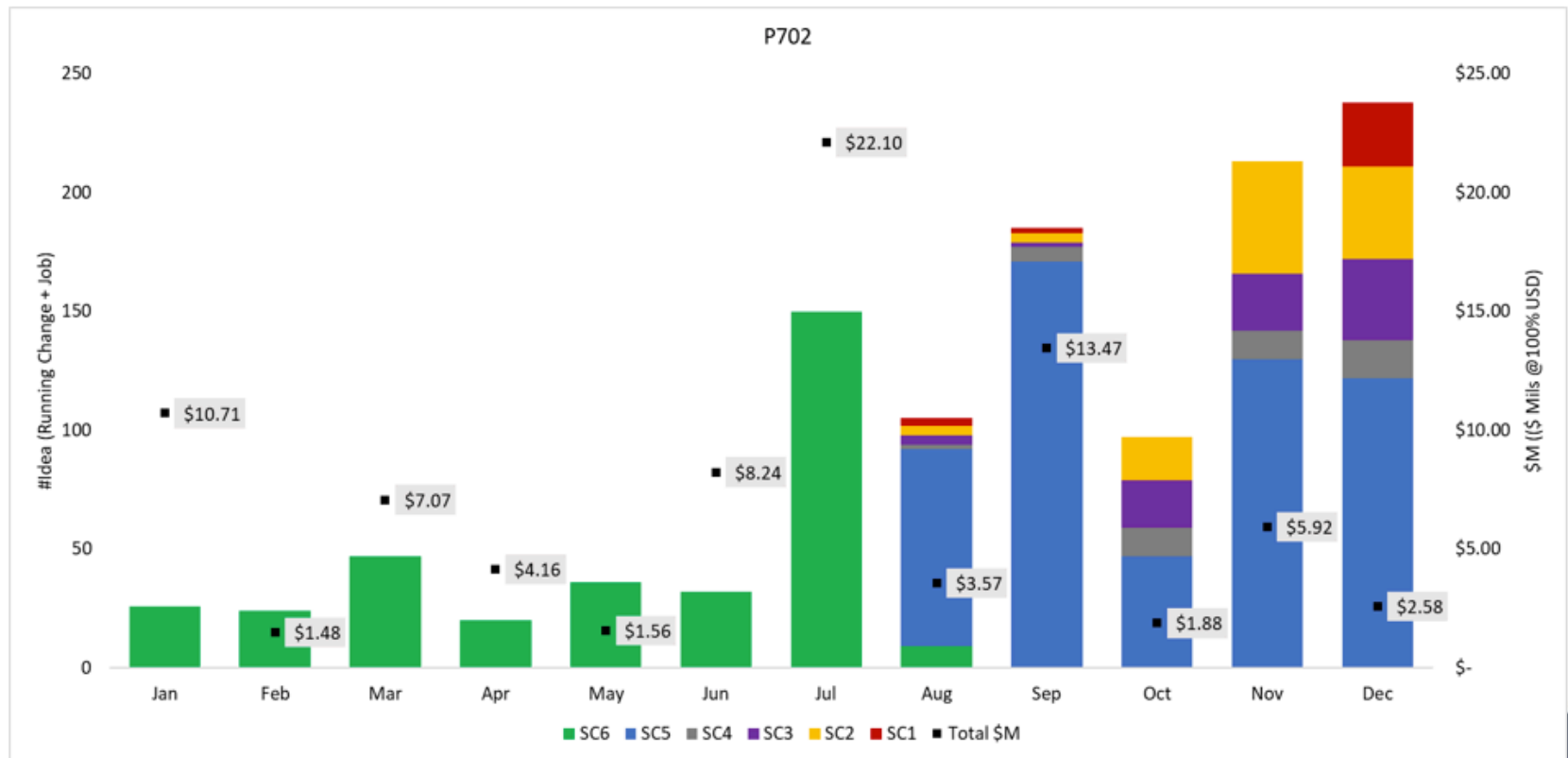
Quotes

- "The data needs to be cut in different ways to drive business so that you're being as efficient and logical as possible"
- "Why do we have separate tools if all the data is the same"
- "CIW is a holding place for things and if nobody knows what's in that holding place, then what good is it?"
- "We are in this constant mode of TVM and there will always be a need for TVM but the scale is not manageable long term"

Wants, Needs, Pain Points

- Wants automated reporting from the tool - currently creating manual report for each program
- Teams will implement an save idea in a current model; for future models nobody is aware of the change - no lifecycle process
- Engineers don't have time to create efficient designs

P702 – CRID Progression (Running Change + Job)



Key Message Goes Here; All Words Are Capitalized
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P702 – CRID SC5-SC6 Progression

# CRID IDEA APPLICATIONS	# UNIQUE CRID IDEAS	High Risk Ideas
541	332	ECN Not Scheduled
		24

Status Code 5 CRID Idea ECN Status															
ECN Category	Risk	# Ideas	Past Due		Current Month		Next Three Months				Future Months		2021 Calendar Year Total		
			Jul 2021 And Before	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021 till Dec 2021	# Ideas	Savings (100%)	# Ideas	Savings (100%)			
No ECN (Not Requir...	Low	3	\$ 253,693	29	\$ 515,202	17	\$ 559,859	6	\$ 216,380	17	\$ 1,074,135	13	\$ 223,448	85	\$ 2,842,718
No ECN (Tied to S4P)	Low	7	\$ 223,990	9	\$ 247,377	96	\$ 9,985,592	11	\$ 389,758	98	\$ 3,314,543	95	\$ 1,531,198	316	\$ 15,692,459
ECN Partially Incorp'd	Low	0	\$ 0	15	\$ 515,944	9	\$ 187,455	0	\$ 0	0	\$ 0	0	\$ 0	24	\$ 703,399
ECN Fully Incorp'd	Low	0	\$ 0	2	\$ 29,329	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	2	\$ 29,329
ECN Scheduled	Low	4	\$ 28,529	8	\$ 440,259	46	\$ 1,865,562	20	\$ 571,619	4	\$ 6,374	8	\$ 3,990	90	\$ 2,916,335
ECN Not Scheduled	High	0	\$ 0	2	\$ 343,565	2	\$ 107,805	8	\$ 259,709	10	\$ 82,254	2	\$ 6,889	24	\$ 800,223
	-	14	\$ 506,212	65	\$ 2,091,676	170	\$ 12,706,273	45	\$ 1,437,467	129	\$ 4,477,307	118	\$ 1,765,526	541	\$ 22,984,462

Key Message Goes Here; All Words Are Capitalized
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Idea Number / Title	SC	Aging	\$M - Sav	100% \$M	\$M - Sav @Conf	\$M - Annual Sav	Material Cost	PU
0000 BODY EXTERIOR								
E 1002529	3	363	\$	0.00	\$	0.00	0.00	3.02
E 1090188	2	435	\$	0.03	\$	0.01	0.12	0.8
F 1090605	2	424	\$	0.00	\$	0.00	0.03	0.4
E 1083761	2	319	\$	0.01	\$	0.00	2.43	20
E 1106077	2	1013	\$	0.00	\$	0.00	0.06	0.88
E 1106208	2	123	\$	0.01	\$	0.01	0.06	1.12
E 1106224	3	621	\$	0.01	\$	0.00	0.01	0.08
E 1106455	3	100	\$	0.02	\$	0.01	0.03	0.65
E 1111304	2	1302	\$	0.00	\$	0.00	0.03	0.52
E 1121966	4	85	\$	0.35	\$	0.28	0.35	2.52
F 1122072	2	1089	\$	0.01	\$	0.00	0.01	0.12
E 1122073	2	1099	\$	0.01	\$	0.00	0.01	0.12
E 1122139	2	1097	\$	0.00	\$	0.00	0.16	2.48
E 1122152	3	477	\$	0.16	\$	0.10	0.27	1.44
E 1122199	2	985	\$	0.00	\$	0.00	0.02	0.16
E 1122295	2	418	\$	0.00	\$	0.00	0.00	0.1
E 1122304	2	406	\$	0.00	\$	0.00	0.06	0.3
E 1124505	2	551	\$	0.05	\$	0.02	0.06	0.2
F 1127965	5	691	\$	0.14	\$	0.13	0.24	18.48
F 1128313	2	295	\$	0.59	\$	0.18	0.96	3.96
E 1129572	2	588	\$	0.00	\$	0.00	0.00	0.31
E 1129582	3	673	\$	0.01	\$	0.01	0.01	0.39
E 1129587	3	673	\$	0.00	\$	0.00	0.01	0.1
E 1129591	2	574	\$	0.02	\$	0.01	0.02	0.26
E 1129597	2	574	\$	0.02	\$	0.01	0.02	0.25
E 1129740	2	922	\$	0.00	\$	0.00	0.00	0.5
F 1130082	3	323	\$	0.06	\$	0.03	0.11	1.748
F 1130383	2	645	\$	0.00	\$	0.00	0.02	0.5
E 1131720	2	868	\$	0.00	\$	0.00	0.04	1
E 1131781	2	868	\$	0.00	\$	0.00	0.04	1
E 1132103	2	732	\$	0.00	\$	0.00	0.03	0.6
E 1132887	2	424	\$	0.00	\$	0.00	0.00	2
E 1134356	2	564	\$	0.05	\$	0.03	0.16	1
E 1135590	2	721	\$	0.01	\$	0.00	0.05	1.22
E 1135747	2	260	\$	0.19	\$	0.06	0.66	4
F 1136552	5	40	\$	0.28	\$	0.25	0.30	4.08
E 1136907	3	363	\$	0.01	\$	0.00	0.01	5.72
E 1136922	2	585	\$	0.06	\$	0.02	0.15	0.7
E 1137082	2	556	\$	0.02	\$	0.01	0.02	0.15
E 1137222	2	740	\$	0.01	\$	0.00	0.02	5.06
E 1137347	5	216	\$	0.66	\$	0.63	1.68	9.34
E 1137865	2	552	\$	0.05	\$	0.01	0.09	5
F 1138617	4	64	\$	0.16	\$	0.13	0.16	1.64

Month: (01) Jan (02) Feb (03) Mar (04) Apr (05) May (06) Jun (07) Jul (08) Aug (09) Sep (10) Oct (11) Nov (12) Dec

Calendar Year: 2021 2022 Aging: High Aging Not High... Status Code: 1 2 3 4 5

VL

CD539 Edge	CX430 2nd C-SUV	CX482N Escape	CX483 Corsair	CX727 CEV BEV	F53 F53 Motorhome	H567 F-650-750
OTHER	P376N Ranger	P668 F-250-550	F702 F-150	P702 F-150 BEV	F703 Ranger	P708 Super Duty
P758 C2 Truck - C...	S550 Mustang	U540 Lincoln MKX...	U553 Expedition	U554 Lincoln Nav...	U611 Aviator	U625N Explorer
U725N Bronco	V363N Transit	V363N Transit BEV	VN127 E-Series V...			

Matched Pair Name (Dept Name) Cluster Name

BODY EXTERIOR	BODY INTERIOR	AIS-COOL-EXHA...	BRAKES & PEDALS	CLIMATE	CLOSURES
CHASSIS	ELECTRICAL	COCKPIT	CONTROLS & CA...	EDS & CONNECT...	ENGINE
EPI	EPTD	EXTERIOR	FASTENERS	GREENHOUSE	HEV
OTHER	VEHICLE OTHER	OTHER	RESTRAINTS	SEATS	STAMPINGS & R...
		STEERING	SUSPENSION & ...	TRANS CASTINGS	TRANSMISSION ...
		TRIM	UNDERBODY EL...	UPPERBODY EL...	WHEELS & TIRES

Incorporation Window Desc

2022 J1 CX430 Nov 01, 2021	2022 J1 CX727 Nov 29, 2021	2022 J1 S550 Jan 03, 2022	2022 J1 U553 Jan 18, 2022
2022 J1 U554 Jan 18, 2022	2022 J2 P702 BEV Mar 14, 2022	2022.5 J2 P758 May 2, 2022	2022.5 J2 U625 Jan 03, 2022
2022.5 J2 CD539 Feb 14, 2022	2022.5 J2 CX430 Feb 07, 2022	2022.5 J2 P375 March 14, 2022	2022.5 J2 L725 May 02, 2022
2022.5 J2 U540 Feb 14, 2022	2022.75 J3 U611 Jan 03, 2022	2023 J1 CD539 July 18, 2022	2023 J1 CX430 July 25, 2022
2023 J1 CX482 Aug 1, 2022	2023 J1 CX483 Aug 01, 2022	2023 J1 CX727 Oct 31, 2022	2023 J1 P375 Oct 10, 2022
2023 J1 P702 Oct 17, 2022	2023 J1 P702 Oct 31, 2022	2023 J1 P708 October 31, 2022	2023 J1 P758 Oct 21, 2022
2023 J1 U540 July 18, 2022	2023 J1 U554 Sep 12, 2022	2023 J1 U611 May 30, 2022	2023 J1 U625 May 30, 2022
2023 J1 U725 Nov 14, 2022	2023 J1 V363 Aug 22, 2022	Running Change	

User Interview Notes

Cost Coach

Key Observations

- Beginning of vehicle program; works alongside ACT
- Job is more program management for team of Four/Team of Five
- Makes sure processes are in place
- When things aren't working, feeds that information back; if there is training that needs to happen
- Uses a work plan of steps you need to do
- A generator of ideas from workshops and supplier data

Process/Behaviors/People

- BoB process; new commodity, work through B-set tool to come up with cost saving idea for target setting
- Leverage ideas from the past, relies on engineering during teardown process
- Gets suppliers quotes; cause it has real supplier numbers
- Has daily process team meeting
- Mega suppliers have so much leverage over us
- Does scoping with managers match pair and match pair for approvals

Tools/Data Used

- Excel
- Arrow - thinks its getting more advanced
- PowerPoint

Quotes

- "Excel is so difficult; especially in complex things"
- "Our workplaces are excel based, if you could get us out of that, its a nightmare - we shouldn't be using excel for timing"
- "There is a process but process tells you what to do not HOW to do it"
- "I'll be honest with you, I never have any downtime to learn a new tool, its heavy lifting from the beginning"

Wants, Needs, Pain Points

- Needs to be generic enough where you have flexibility to accommodate multiple commodities but specific enough to tell you how to do it
- Inefficiencies are process related
- Wants to look at old ideas so that "we get the full circle"
- So much paperwork in engineering, its unbelievable
- So many random announcements and no compiled process document; it should be rolled out in a solid program
- Rejected ideas, deferred ideas and why?
- If you don't have an engaged engineer, they're not going to look at it, it lays in their hands

User Interview Notes

Engineer

Key Observations

- Somebody will just email them about an idea, sometimes they'll have a powerpoint about it
- Who is the release engineer on this idea?
- TVM contacts them about programs that have already launched
- Does design reviews

Process/Behaviors/People

- TVM does majority of cost savings implementation, engineering helps with technical side
- Makes sure there are no end effects to the customer
- Sends over laundry list of parts that are affected by the change so they can write notice
- Every decision they make is basically a business case

Tools/Data Used

- WERS

Quotes

- “A lot of cost savings ideas aren't necessarily practical”
- “My complaints are wrapped around the never ending metrics that we get hit with”

Wants, Needs, Pain Points

- TVM push week or gap week will happen, a bunch of ideas generated, engineering get inundated with a lot of ideas that will never work
- Seems like there's pressure to just come up with a certain number of ideas even if they aren't actionable
- We are less competitive because we are overly conservative with SDS

User Interview Notes

EPLM

Key Observations

- Owns modules, the module process and creating and updating a module catalog - lead for module cost process
- Develops strategies for specific parts to utilize multiple car lines to reduce complexity

Process/Behaviors/People

- Doesn't want to hinder or completely constrain studio
- Looks at previous generation vehicles that were high value ideas and generate a list
- Launch engineers stayed on from job one to job two, if they couldn't implement an idea cause of lead time

Tools/Data Used

Quotes

- "When somebody says 'cost savings' I think of TVM"
- "ideas that were approved and executed, how can we integrate that into the next headlamp to make it cheaper for everybody"

Wants, Needs, Pain Points

- They put felt tape here - something goes to launch - they'll just deal with it later. Always an issue of tooling and timing
- Would be a consumer of cost savings ideas but when they are setting up new module families
- We don't use cost savings ideas really because our content is not yet designed
- Wants to know why ideas failed
- Wants searchable reasons why something is rejected; helpful to everybody
- Wants to know what was good/bad from previous products/models
- Instead of doing design ideas at part level, do them at a system level
- Wants access to ideas currently in production

Now/Near Families Consolidate from 8 to 5

NOW

8 Families – close technology gap¹

Catalog	Technology	Reasoning	Features
Ultra Low Halogen	Standard Halogen bulbs	Low cost, fleet	ALB/HB
L1 Reflectors	LED pcb, ht sink reflectors	Value – entry for LED	ALB/HB
L2 Reflectors	LED pcb, ht sink reflectors	Add signature LED DTRL	LED DTRL signature
L3 Projectors	LED Projectors/Ref	DBLm at lower \$	DBLm
H1 Matrix	IA LED segmt columns	Close tech gap w/ competitors ¹	GFHB, SBL
H1T Matrix	IA LED segmt columns	Add DBLm for NA IIHS	GFHB, DBLm, SBL
H2 Pixel	Micro IA LED rows/columns	High fidelity LB & HB	Beam config, bending, GFHB, SBL
Innovation	DMD, Laser	Fast follow tech leaders	New potential

Status

- Global standard, lowest cost headlamp architecture
- L2 families introduce LED at lowest cost
- Introduced May 2020 IIHS aide - lower cost Hx
- GFHB - not legal in US
- Dynamic Bending to aide IIHS
- GFHB + sign based feats. LB virtual bending
- Not implemented to date. High \$, not democratized

IA = Individually Addressable
 ALB/HB = Auto Low Beam, auto High Beam
 DBLm = Dynamic Bending Light, mechanical
 DBLv = Dynamic Bending Light, virtual
¹Global, Based on European markets



NEAR

5 Families – performance & key feature delivery

Catalog	Technology	Reasoning	Features
L1 Halogen	Standard Halogen bulbs	Low cost, fleet	ALB/HB
L2 Reflectors	LED module/pcb	Value – entry for LED	LED DTRL
L3 Projectors	LED Projectors/Ref	DBLm at lower \$	DBLm
H1 Matrix	IA LED segmt columns	Competitive in CCC/ECE	GFHB, DBLm
H2 Pixel/HD	Micro IA LED rows/columns	High fidelity LB & HB	Beam config, DBLv, GFHB

Plan

- Limit to fleet, commercial
- Introduce LED modules
- Add Bi-Functional use, DBLm
- GFHB Continue for CCC/ECE, Not yet legal US
- Ensure DBLv, grow ADB features

Strategy

- Consolidate families/synergies and provide flexibility to deliver studio vision
- Leverage off-shelf LED projectors and reflector modules (Reduction of \$ EDT/invest)
- L1 & L2 combined +/- separate LED DTRL managed as configuration
- H1 & H1T combined – ensure Dynamic Bending avail. for NA IIHS
- H2 Pixel/HD – LB virtual bending of hot spot (DBLv), GFHB HB, ADB w/ spread.
- Static Bending Light (SBL) optional for H1 and H2 families

User Interview Notes

DNR supervisor
Manages TVM for several programs

Key Observations

- Inflight programs, owns quality for interior
- DNR engineers most familiar with product
- TVM ideas, 3 basic categories : market realignment, launch to deliver on time (take bandaids off later), TVM ideas that shouldn't even be TVM ideas

Process/Behaviors/People

- TVM looks great but super inefficient
- 3 parties - TVM - Core - Application

Tools/Data Used

- CRID
- Supplier reviews
- GAP week (cost strategy week)
- CareSoft reviews big driver

Quotes

- “If an idea is just a recommendation it can very easily get lost in the mix”
- “CRID is the Bible
- “How many times are we going to re-tool cup holders? Before we are like ‘do it at the beginning”
- “Engineering will have an idea but there’s no time to implement it”
- “Have to fix problems in a fast and robust way and fix it later”
- “CRID system and how we calculate metrics out of it completely a game”
- “Need wider angled lens, what is best long term for the company?”

Wants, Needs, Pain Points

- Best thing would be to have a strategy to release that TVM action upfront
- TVM and Core Teams need a strong relationship; so we can implement upfront applications better
- Communication between TVM, Core and upfront all completely manual
- Create an idea cascade; take CRID idea from TVM world and enter it into system so core team has a flag to disposition idea to forward model programs or if its cross car applicable; this handoff manual, we need a process
- Make sure ideas aren't financially ridiculous; no hope of business case, don't show it to me
- Aging - everybody wants their ideas to move for yearly performance
- Harvest CRID and have field so TVM team can have preliminary filter - Should this go to core for evaluation? Yes or No? CRID idea shoots straight to core -
- Strategic opportunity — make these ideas foundational - lion's share of opportunity here - is an idea going to be strategic or program specific
- A pick list to cascade to forward model programs based on program
- Want to know if idea has been implemented in current programs
- Wants to know who originated the idea
- Ideas rejected and why? Deferred and why?
- People should be writing notes into CRID

Additional User Interview Notes

Interior IP engineer - current Interior Supervisor

Launched P702 interior last year

Managing TVM for P702 and H567, P558, VN127

Quality Role for Cockpit and Trim - in-flight programs

D&R engineers from launched stayed on the team and continued into TVM

3 categories of TVM

Market Re-alignment (Looks at competitor market entries - trim series to trim series)

Launch "band-aids" that are inefficient due to timing and can be reworked after launch

TVM ideas that shouldn't be TVM ideas - things we've done - Launch with content and then take it out later

e.g., on front center console; cup holder in back for second row occupants; Cup holders have fingers to adjust to sizes of cups; Idea is to take out the fingers - did this on P558, P702; etc. P708 is doing it from the beginning.

Strategy is to build a strong relationship with Core Team and talk to them (the people who are writing the strategies) and get them to build these ideas in to up front applications. Completely manual operation now.

Varying degree of engagement between the Core Team and the OPD.

Is it a design rule or a recommendation? Should it be built into GPDS milestones.

Support that would be most value added - Take an idea cascade that takes the CRiD idea and flags it to Core Team to cascade it to other forward models; Facilitate the hand-off - TVM populates and Core Team dispositions. System could manage those hand-offs.

Manage ideas and track our process in CRiD

Many different sources - GAP Week; Caresoft Reviews; Get some stuff from Fwd Model sometimes but usually comes through the Core Team as a - by the way we are doing this on a fwd model; does it apply to you?

Tracking the value of ideas up-front - FC4 FC3 or K-loop - accuracy of those actions will go down significantly because the designs are changing so much - Cost Roll-up will be fluid.

User Interview Notes

***Interview with participant focused solely on “dispositioning” — what it means and how & when it fits into the work flow

ACT Management Team

Key Observations

- Construct bill of materials - kick off initial cost efficiency assumption and tools
- Dispositioning - “To put it on a path” - “basically gives you a preset, where am I going to use this idea? Now, in a later vehicle or not at all?” - “its really just a plan, putting a map in place” - “it’s a roadmap - it’s an initial decision point”

Process/Behaviors/People

- Look at commodities that are in production today - is there a better surrogate out there from a different program internally? - if thats the case, they may replace it
- Apply an efficiency percentage without any design idea behind it
- Not really a lot of idea implementation more defining the work streams that are kicking off

Tools/Data Used

- Vision - gives potential design surrogate - gives opportunity to select new start point - main problem, not mutually exclusive with target setting

Quotes

- “This is not a 30 minute conversation, this is nothing that can be handled quickly”
- “I’m envisioning an automated email that says ‘there is an idea that has been entered for ____’ which would be applicable to you”

Wants, Needs, Pain Points

- If we trusted everyone to go into the systems and databases that exist, it could all be automated
- In workshop, pull up data warehouse, have dedicated people in room and we go through one by one and put the individual on a path to look at that idea
- Approvals always slow down the process

Using a self-generated tool
 Does provide a link to look at other ideas
 Have to be very careful because the ideas are not mutually exclusive to the Target Setting tools we use

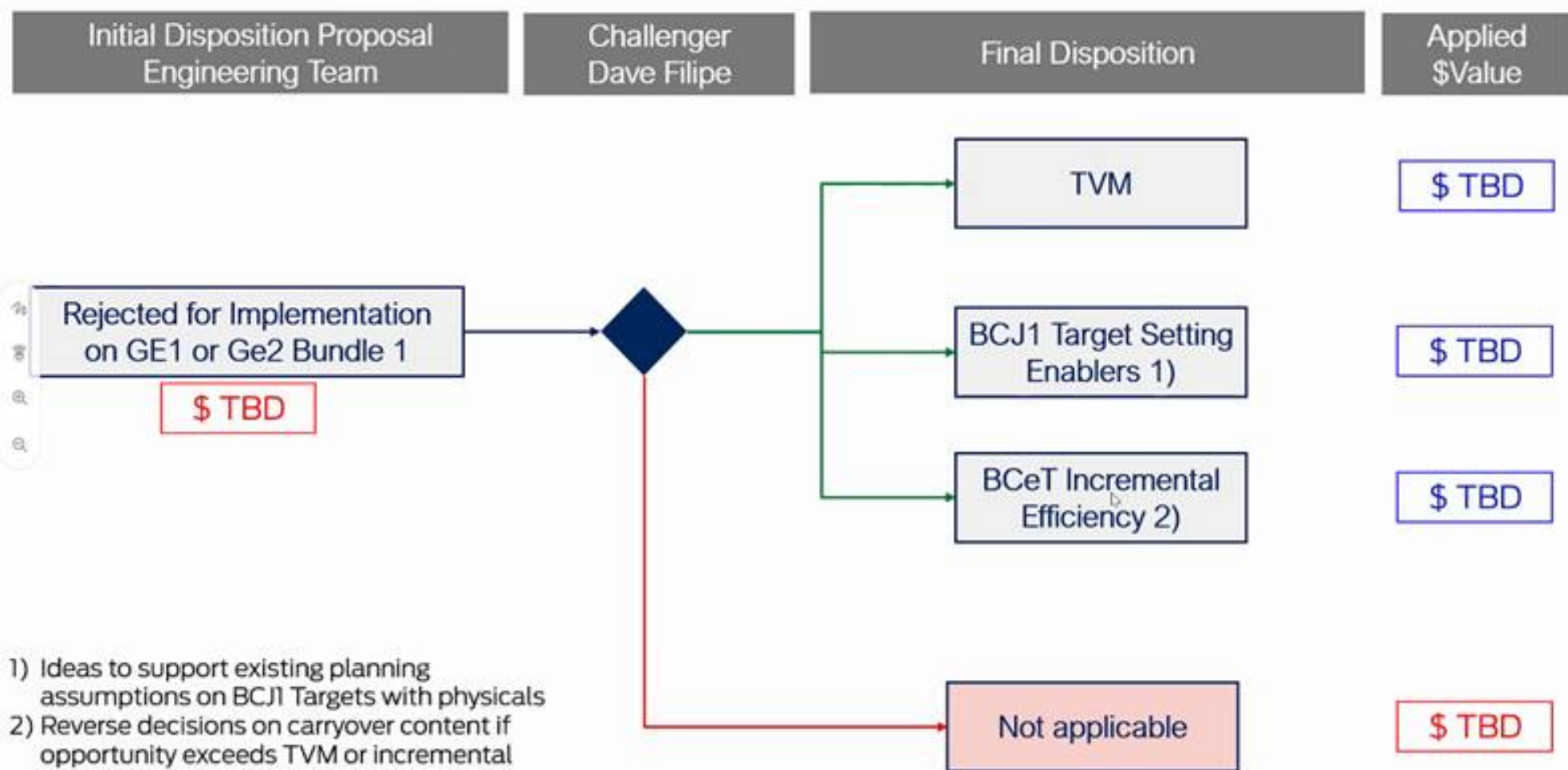
Apply efficiency percentage for certain workshops without ideas to back them up. i.e., if you do a BoB you get 25% cost reduction, If you do a Line Walk...

We do not generate ideas; we just set percentages and then turn it over to the BoB team or whomever to run workshops and generate the ideas.

Incremental is very rare.

User Definition of Disposition - Where am I going to use this idea?

Caresoft Disposition Review Process



1) Ideas to support existing planning assumptions on BCJ1 Targets with physicals
 2) Reverse decisions on carryover content if opportunity exceeds TVM or incremental opportunities on BCeT

User Interview Notes

Group Discussion

Key Observations

- CareSoft - 50 ideas out of 600 are GREAT ideas
- Everything is scope dependent
- Curate ideas for them
- Want the idea and its ability to deliver
- If idea doesn't hit 12 month window its got to be rejected because it becomes garbage in their world (TVM)

Quotes

- “Money now is worth more than money later”
- “Always struggling with the last \$100 dollars, I'd go through CRID and try to mine for ideas”
- “I want every single penny picked up”
- “We'd love to have a place of data with business intelligence — where it tells you ‘oh, you're working on a model, here is cost ideas people are working on' based on program code or commodity”
- “TVM is an error state, if we knew how to get to efficient costs, we wouldn't be doing this”
- “Do we make it part of their deliverables?”
- “You want linkage between teams”
- “Do we make it relationship based? Have the match pairs communicate”

Wants, Needs, Pain Points

- Wants “future” CRID (idea) - relieves the burden from TVM having a metric hanging over their head
- CRID (idea) event code
- Deferred Ideas
- Forward model ideas- back of rejected ideas that may be useable in future
- Our machine is not good at making adjustments on the fly
- Automate all of this
- Each idea has a one-pager, store it with the idea, attach it to the idea
- Wants to know how an idea progresses through its life?
- Deemed Forward model - can we cross reference new and used ideas?
- What are the natural points of time to introduce ideas?
- What are the triggering events?
- What are the points along the journey that the tool will be used?
- Wants notifications or emails on status
- This should be used during cost workshops

Galaxy is material cost

Additional User Interview Notes

Design Material cost

Very Unique usage of data like CRID

Rob Mince said we are talking about pulling CRID, CARESOFT, etc into one place

We benchmarked/researched ideas from Caresoft - 32% duplicates; 200 flat out rejected because they didn't make any sense

Of the remaining 200, 50 are accepted into CRID; Remaining 150 were good ideas, but they weren't doable for that TVM year (12 month delivery period)

Eric told him they were tracked in CRID; User wanted to label them as "future" - found they weren't going anywhere
Went to Fwd model and to planners/basic arch folks - and they found a use for some ideas.

What database was Eric referring to? A data set that is labeled for forward model use. (ask Eric)

Someone from the TVM team would tell us there are two kinds of rejects

1. Doesn't TARR, Isn't doable
2. Can't complete in the 12 month period (rejected to get them out of their status) -s/b Deferred to future

Needs to become the responsibility of the Chief for fwd model to review deferred to future; How do we get these to the right people at the right time. s/b be pre PA but we did squeeze them in post PA. (Program Manager - Steve Hebert)

Pre-PS (John Polasek/Eric Levine) cost enablers for Planners

ACT would miss programs; BCJ1 isn't universal

WE are a cookbook engineering company so we don't do well.

How long it took - 2 months with User leading and GSRs

Security of future programs - we don't want people to know our cycle plan so programs aren't entered into CRID.

Can we capture the one pagers associated with the idea? A SharePoint or attach to idea

New tooled End Items (NTEI) by program to cross reference the ideas that were created (trigger point) and maybe major modified parts

This should be available in Tygra but the cost basis doesn't use these cost save ideas

Don't want timing volume and Program code all together in one place from a Cycle Plan security standpoint

600 - 700 TVM engineers would be thirsty for pull ahead ideas from Forward model

Love to have data with business intelligence that looks at commodity/part number and see what everyone is doing /changing/cost action.

Repository of cost ideas per commodity use base part number connection...

Major issue with D&R engineers being so busy and "sig" issues for not meeting GI deliverables that they can't care about/don't have time to use available tools like FACTS - Could add a "DPA red for cost"

There are already requirements in GPDS for Cost Process

Linkage between a Cost Leader and a PMT leader - assure current model and future model are talking - push notification saying make sure you contact cost leaders for your commodity

Push notifications need to be more targeted

Was a 15% yield from Caresoft initially (may have included dups); trying to get to 30% this year on F-150 (included future models) - User reported different numbers showing almost \$0 and 11% of ideas.

Hypothesis - you have a lot of good ideas from one teardown - we don't need to do them all but we may need to do each OEM.

(User is a Lifecycle Cost Manager for Truck)

Truck Teardown Analysis --- Total Idea Generation



Standard Teardowns Deliver More Forward Model Ideas vs. TVM Ideas

Event	Total Idea Generation						
	Total Ideas	TVM Ideas	Future Ideas	Accepted %	Rejected Ideas	Rejected %	
P552 vs. Silverado - CareSoft - Early '19	131	82	0	63%	49	37%	Learning Event
P558 vs. Ram HD - CareSoft - Late '19 - Early '20	252	36	164	79%	52	21%	Standard Process
P375 vs. Hilux vs. D-Max - CareSoft - Early '20	230	41	119	70%	70	30%	
P702 vs. Ram vs. Silverado - CareSoft - Early '21	408	128	75	50%	204	50%	

Existing Gap to 21CY Target Resulted in More TVM Ideas for P702

Lower Accepted % Due to High Number of Duplicates (Strong Hopper of Existing Ideas) and Better Triage

P702 Teardown Delivered Significantly More TVM Ideas Than Previous CareSoft Events, While P558 and P375 Events Drove More Forward Model Opportunities

SECRET

3

Unmute, or press and hold the

Caresoft Forward Model Ideas – P702




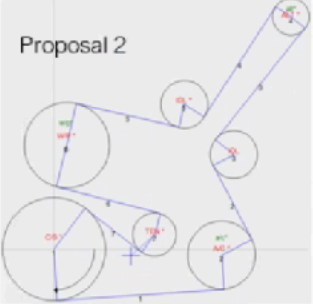
Cluster Name	Caresoft ID	Est. Affected Cost Saving	Status	PMT	TVM Leader	Idea Title	Idea Description
Cooling and Climate System	FOF1L21C61	\$8.00	Forward Model - 24MY P702 MCA	Powertrain	Mark Murphy / Suzanne Robinson	Tensioner & Idler Pulley – Compressor	Eliminate additional content on accessory drive and use single belt drive
Powertrain	FOF1C21K47	\$3.20	Unrejected --> Forward Model - P702 MCA	B. Interior	Ken Harvey / Roger Pline / Sam Gines / Nikunj Syngal	Mechanical Shifter Cable (failed power)	Eliminate the 2 masses
Body System	FOF1C21G09E	\$3.00	Forward Model - 24MY P702 MCA	EESE	Roberto Costa	Telematics Module & Amplifier Routing	Integrate telematics module with IP to reduce cable length
Body System	FOF1C21G07E	\$3.00	Forward Model - 24MY P702 MCA	EESE	Celso Varin	Integrate Tailgate Harness	Integrate 2 harnesses into 1, eliminate 2 connectors.
Cooling and Climate System	FOF1L21F10	\$2.75	Pursuing --> Rejected --> Fwd Model P702 MCA	B. Exterior	Mike Sims / Carlos Frige	Air Guide Closeout Panels – Front End	Integrate function into existing parts
Body System	FOF1H21G04E	\$2.50	Forward Model - 24MY P702 MCA	EESE	Roberto Costa	Power Inverter : Long Term	Relocate inverter to IP, DC wire and AC wires savings. Integrate directly on IP avoiding an additional bracket.
System	FOF1H21G03E	\$2.25	Pursuing --> Rejected --> Forward Model 24MY P702 MCA	EESE	Rafael Brasil / Roberto Costa	Power Inverter : Short Term	Mount it on rear BIW frame like Silverado. To eliminate the bracket and cover. 2 bolts and plastic clip.
Dash	FOF1C21C22 FOF1C21C17 FOF1C21C16	\$2.25	Forward Model - 24MY P702 MCA	Chassis	Nick Mazzocchi	Glove Compartment Complete Bezel Glove Compartment Driver Side IP Cover Lower Steering Column Cover	Change material from TPO-(PP+EPM)-T20 to PP/PE-M15 (Glove Compartment). Material: PP – Change material from TPO-(PP+EPM)-td20 TO PP (Bezel Glove Compartment / Driver Side IP Cover / Lower Steering Column Cover).
Dash	FOF1C21C21	\$2.00	Forward Model - 24MY P702 MCA	Chassis	Nick Mazzocchi	Upper Storage Bin Compartment	Change material from PA6-GF15 to PP/PE-M15
Dash	FOF1C21C35	\$2.00	Forward Model - 23MY P702	Chassis	Steve Jacobsen	Center Console Arm Rest Bracket	Mold hinge attachments into armrest top plate eliminating fasteners
System	FOF1C21H49	\$2.00	Pursuing --> Rejected --> Forward Model - 24MY P702 MCA	B. Interior	Linh Doan / Laurie Skinner	Zipper – Seat Back – Rear Seats	Ford F-150 - Proposal : Eliminate 4 vertical zippers
System	B-33	\$1.40	Forward Model - 24MY P702 MCA	B. Interior	Nicholas Roussey	Dead Pedal PP Molded Part-Front Foot	Remove dead pedal and fasteners.
Powertrain	FOF1C21K26	\$1.30	Forward Model - 25MY P702	Powertrain	Raj Makim	Coating – Transfer Case Motor Housing	Replace E-coating with Phosphate coating
Powertrain	FOF1C21K26	\$1.30	Forward Model - 25MY P702	Powertrain	Raj Makim	Fasteners – Transfer Case	Replace E-coating with Phosphate coating
IP-Dash	FOF1C21C57	\$0.90	Forward Model - 24MY P702 MCA	Chassis	Nick Mazzocchi / Bhavani Thota	Passenger Airbag	Ford F150 (Proposed): Proposed: Eliminate brackets. Evaluate performance requirements & eliminate brackets

41 Ideas Triaged to P702 Forward Model Programs
Total Estimate Affected Cost Saving per unit - \$46.59

CONFIDENTIAL

2

5.0L P702 Caresoft Idea Number FOFIL21C61 – Fwd Model

Idea Description		Attribute / Other Impact			
Single Sheave FEAD Main Drive Belt		VE	Marketing	Assembly	Weight
		YES	NO	YES	YES
Change		Benefits & Competitive Set			
<ul style="list-style-type: none"> Revise FEAD Layout for single sheave 6K Belt Drive Eliminate A/C Compressor 4K Belt Drive System 		<p>Delete (Total Costs): 4K 1348mm FEAD Belt - \$1.12 A/C Compressor Drive Tensioner - \$9.49 4K FEAD Idler - \$4.46</p> <p>Revised Parts (Total Costs): Current Alt Drive Belt 1629mm - \$3.12 Proposal 1 FEAD Belt 6K 1845mm - ~\$3.53 Proposal 2 FEAD Belt 6K 2319mm - ~\$4.44 High Load Idler - ~\$6.00 Backside Idlers (2) - ~\$7.00</p> <p>FEAD SAVE ONLY Proposal 1 - \$8.66 (FEAD only) Proposal 2 - \$8.75 (FEAD only) Tensioner (\$300K Tooling / \$100K ED&T) Impact to Front Cover/Cylinder Block & A/C Compressor - TBD Cost and Investment (SYSTEMS organizing reviews - Due 3/22/21)</p>			
<p>Proposal 1</p>  <p>Proposal 2</p> 		Constraints / Other Factors			
TVM Metrics		<ul style="list-style-type: none"> Potential High Hub Load Risks on Alternator, FEAD Idler, A/C Compressor, & Water Pump. Full FEAD analysis required - 4 Weeks Coordinated change with a Program Job #1 (24MY) Dual Alt option not feasible. New CCW Tensioner required (ED&T and Investment Required) Modifications required to Front Cover, Cylinder Block, A/C Compressor. Packaging A/C Compressor on LH side (proposal 2). NVH Evaluation. 			
Aff Veh Save	Avg Veh Save	22CY Save	Annual Save	Investment	Timing
\$8.00	TBC	NA	TBD	TBD	24MY
DV/Proveout		Next Steps / Help Needed			
Bench	GSS/GEDL	Vehicle	SAFETY/Crash		
Y	N	Y	N		<ul style="list-style-type: none"> Reviewed Single Belt Layouts at 5.0L Design Review - FEAD - 3/15/21 Complete Developing Business Case Estimates - SYSTEMS - 4/13/21 Alternate Option to implement Stretch Belt on 5.0L P702 A/C Sheave (5.0L Mustang System) \$12-\$13 Cost Save. (see next slide)

Truck Teardown Analysis --- TVM Financial Impact

Event	Accepted \$	TVM Impact Incorp \$	Yield %
P552 vs. Silverado - CareSoft - Early '19	\$ 133.95	\$ -	0%
P558 vs. Ram HD - CareSoft - Late '19 - Early '20	\$ 75.00	\$ 0.92	1%
P375 vs. Hilux vs. D-Max - CareSoft - Early '20	\$ 41.21	\$ -	0%
P702 vs. Ram vs. Silverado - CareSoft - Early '21	\$ 45.82	Early '22CY	TBD

Enablers:

- Engineering provided through Response to Dave Filipe (TVM 1 Pagers)
- "UnRejected" Ideas drove deeper discussion on "How Else"

Potential Extra Actions:

- 10% Incorp Target by PMT at 12 months
- Segment Chief is Champion future Rejected Ideas (Escalation in Segment Chief meeting)
- VCAT to Measure and Drive CRID Progression from SCI-6

Low % --- No Champion from SCI-6

Learning Event

Standard Process

Should We Expect ~1% of Initial Estimates to Incorp?

Confirm in Early '22

P558 Teardown Yielded \$0.92 Average Unit Save Or \$0.3M Annually --- Will The Extra Efforts Deployed For P702 Increase The Yield Percentage?

SECRET

Cost Ideas Warehouse Generation One Product Interview Notes

Product Interviews: After reviewing the user data from Cost Ideas Warehouse Generation One we found that 296 individuals out of a conservative estimate of 600 individuals within the TVM space requested access to the product. Out of the 296 users who were granted access less than twenty users logged into the platform more than once, half of those being the engineers and stakeholders who created/drove the platform. From the remaining ten users we found that less than five were in any way regularly utilizing the product, leading to a less than .01% adoption rate. This drove us to conduct interviews that were centered completely around the existing product to find out what is working and where improvements can be made.

Discussion Guide for Product Interviews

- What do you like/dislike about the product?
- When in the process are you utilizing the tool?
- Why does it/doesn't it meet the mark?
- How can it be improved?
 - What filters are most important?
 - What features are more important?
 - What would you like to see in a future product?

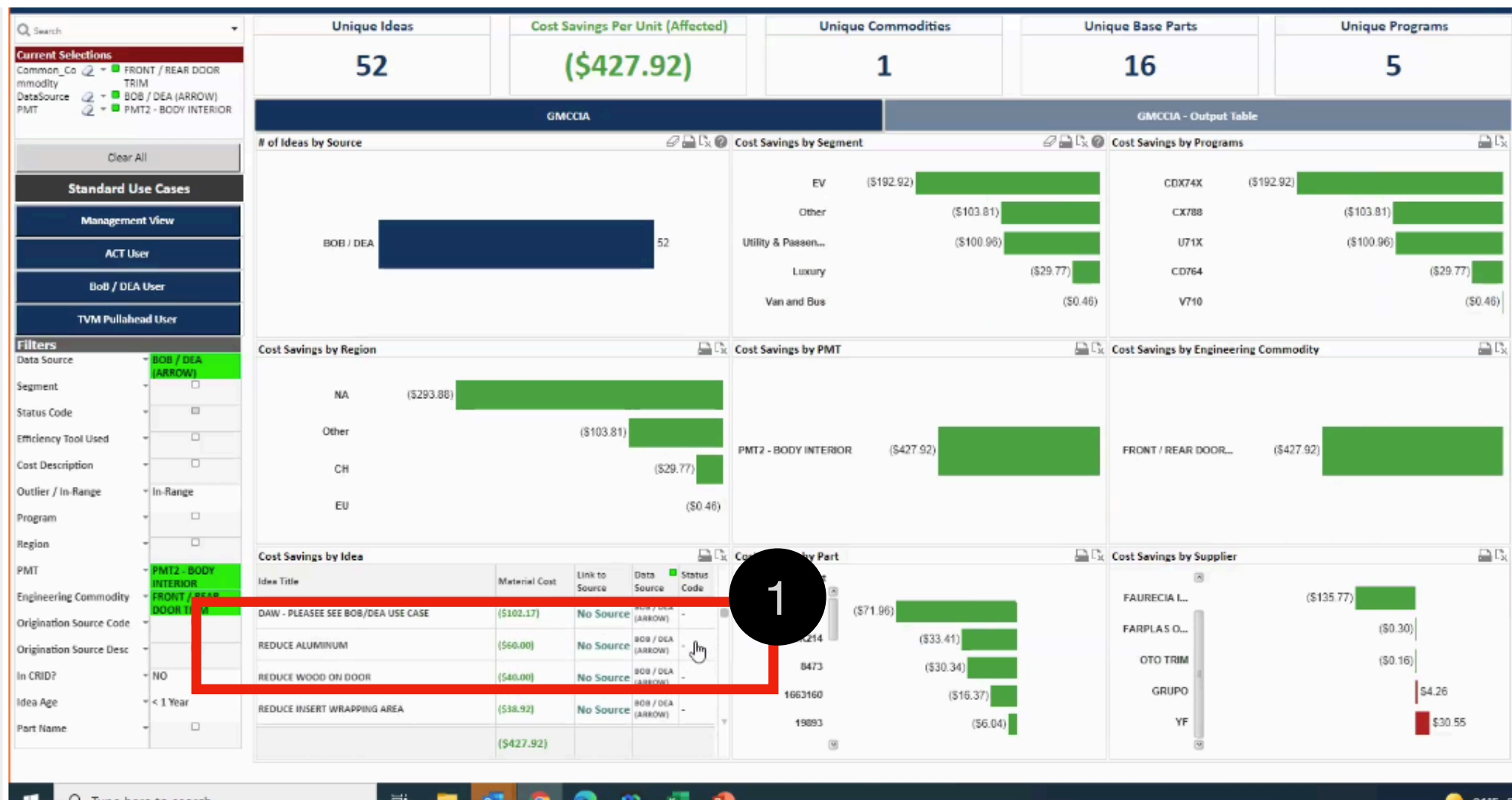
Cost Ideas Warehouse Product Interview One

Key Observations/Quotes

- Architecture team - BoB & Arrow they create those ideas - very front end
- Need to have a “crash course” to teach people how the product works and what the tool will do

Wants, Needs, Pain Points

- “We have no quick access to central database”
- Clickview system - is familiar with this already and likes the interface
- Good to have exposure to CRID
- Want to see what is being used in the current model
- Feels engineers will ultimately use the platform as well
- Where did the idea come from? “A link to the source could be very powerful”
- Wants to click a link and see:
 - Person who created idea
 - Concern #
 - Supplier (important)
 - Photos
 - Part #
 - What did they do to implement idea?
 - Want a next level understanding of what it is
 - BoB SharePoint and presentation link
- CareSoft provides a lot of clutter - “Number that comes from CareSoft is not always accurate, they add ‘swag’ to it”
- Want to export list of ideas, then see if any of them will fit
- Apprehensive about ‘management view’
- “If it turns into a tracking tool, I want nothing to do with it”
- Finding the list, compiling the list, the biggest time suck
- Wants summarized data in a high level way



1. Scenario - looking for a cost savings idea for a new model and “reduce aluminum” is presented as an option; however, the new model doesn’t use aluminum in the design, how can we ensure the the ideas presented are viable?

Cost Ideas Warehouse Product Interview Two

Key Observations/Quotes

- “I should be able to generate a list of ideas, with graphics, hand it to a team and say ‘this is what’s at stake’”

Wants, Needs, Pain Points

- All of the ideas that go through this tool, how can we get these to work streams?
- Where are we now? Where are we going?
- Ideas that go into dashboard, are they there for TVM, BoB, ACT?
- Ford SDS requirements are more stringent than anybody else’s, can we note that SDS was the reason for a ‘rejected’ idea? Can we see how much money Ford would save if we loosened the reigns a bit? Nowhere is it being spelled out that TONS of ideas are not being used because of SDS
- Ideas that were deferred, why? Can we get these ideas in front of people easier? Especially if it was an issue of timing.
- “More and more people are just dumping crap into that warehouse”
- Want people to visualize possibilities
- We are all so busy, we need to be talking more but we don’t
- Teams upload their idea; then is there a way for somebody to access the idea by team?
- “We are having a good discussion, good idea, where do we document the notes?”
- Why is an idea rejected?
- “If I have your attention for a half hour, I need to make it count” - in reference to getting a good list of ideas, not a bunch of clutter that won’t actually work
- “Let’s really make sure we can replicate an idea”
- “We are tripping over dollars to chase pennies”

Tools & Data

CRID
CareSoft reviews big driver
Supplier reviews

WERS

CRID
TVM dashboard
Excel - reports - based off of Katherine Johnson's report - tracks age of ideas with red, yellow, green
PowerPoint
Hummingbird chart
Chief Program Decision Forum - "The DF"

Excel - many excel books - when needs a small subset of data or something for a presentation
TVM dashboard (along with CRID drive whats in the system and how they measure performance, they feed the financial system)
CRID

Excel
CRID
CareSoft
The SharePoint "vacuum"
TVM clickview dashboard
Internal Benchmarking

CRID
Excel
SharePoint
CMMS
WERS
Frozen turnover report

TVM roadmap - a report
Excel
TVM dashboard - likes visualization of this data
CRID
PowerPoint
CRID incorporate dashboard - what does it take to move ideas from 5 to 6?

WERS system
CMMS
CRID
Excel - 2 pager for program finance approval
TVMer - only uses for certain things, report doesn't have access to everything
Data sources - engineering, finance, and supplier
TVM dashboard - "parts of it I like, parts of it I hate, I like that it gives me a full year visual, have things been moving?"

Tigra
SALT
FEDEBOM
PowerPoint for reports
Katia and teamcenter - to show 'here's the old part, here's the new' will take screenshots
Excel - commodity parts lists

CRID
WERS
Excel - for own tracking logs
SharePoint - pretty much a "dump from CRID"
FEDEBOM - if really stuck on a specific part
ENC dashboard
CMMS

CRID
WIPS - to see if pricing is correct
Hummingbird - for data
TVM dashboard
TVM cost ideas app
Excel - for consolidating data from N. and S. America
CIRIS - helps to find opportunities for replication

TVM dashboard (for reports)
WERS
Excel Pivot Tables
Suppliers (top 7 frozen turnover buyers provide roadmaps)
CareSoft Data - almost their 'yellow card'
CRID (daily use)
Yellow Cards (both analog and digital)
Benchmark Center

Excel
Arrow - thinks its getting more advanced
PowerPoint

CRID
CareSoft Ideas
Tigra - pulls in a program then BCJ efficiency tools are applied

CRID
PowerPoint - a lot of PowerPoint reports
TVM clickview dashboard
Hummingbird is in report but difficult to understand

OneNote
CRID
CareSoft data
Alteryx
Arriba
Arrow - is repository
PowerPoint - for match pair presentation - for target setting
Excel

PowerPoint
SharePoint
Excel - main workbook - PL's team runs report, loads data into data warehouse
FEDEBOM data
Finds historical information in SharePoint

Painpoints

TVM looks great but super inefficient	Communication between TVM, Core and upfront all completely manual	People should be writing notes into CRID					
So many random announcements and no compiled process document; it should be rolled out in a solid program	Mega suppliers have so much leverage over us	Inefficiencies are process related	If you don't have an engaged engineer, they're not going to look at it, it lays in their hands	So much paperwork in engineering; its unbelievable			
They put felt tape here - something goes to launch - they'll just deal with it later - always an issue of timing and timing	Launch engineers stay on from job one to job two, if they couldn't implement an idea cause of lead time						
Hand deliver the work stream from when an engineering action has been released into WERS system until it incorporates in the plant	Sometimes when things get automated, things get taken out of context - you don't know what's going on behind the scenes	Cannot access WIPs and needs to know if PCs have been sent out and to get the most accurate pricing information	Process is LIT TERED w redundancies; data is already there, not in one spot, give same report to multiple people, numbers get reviewed every time - everything is done in triplicate	its frustrating to explain the same thing over and over again to different groups of people; isn't much trust there			
Some teams really don't understand the process so hopefully if they're given a good tool they will be able to get halfway							
Have 5000 ideas in the system; drive and determine which need to be focused on and progress those	TVM only looks a couple years out	Between teams there are gaps	A triage event occurs, ideas are identified, determining the implementation is critical; it could go current or new model but handoff gets disrupted, there's a disconnect	Things that get lost in translation with CRID & TVM is supporting processes like benchmarking	"We waste resources because we keep going in circles"		
Teams will implement a save idea in a current model; for future models nobody is aware of the change - no lifecycle process	Engineers don't have time to create efficient designs	Lots of weekly reports that go out					
Tracking the tracker, very very annoying	Replication can be very tedious - has to go into various programs to access ideas - basically will verbally do replication in workshops by commodity	Disconnect between required fields in CRID and yellow cards/ CareSoft data	Some people keep a separate set of "books"	Gap - auditing process at Status 6 - can't verify price in WIPS - can't see purchasing at all - between change control and audit no visibility - sometimes too late - prices change A LOT	"Irreligiously use remarks in CRID, not everyone does" (not enough characters but can say to people. Have you looked at the remarks in CRID, instead of having a meeting)	"I don't use the CRID audit tool, it doesn't pull the right data"	
CareSoft provides inaccurate data - not enough detail - wrong commodity code, so then it goes to the wrong team	Some ideas have multiple CRIS - CRID will only accept one at a time	Engineering resources so thin; TVM engineers get "tapped"					
We are less competitive because we are overly conservative with SDS	Seems like there is pressure to just come up with a certain number of ideas even if they aren't actionable	TVM push week or gap week will happen, a bunch of ideas are generated, engineering will get inundated with a lot of ideas that will never work					
Feels there are improvements for CRID	Used to work on TVM dashboard regularly, but person spearheading project left company, "we don't update the dashboard anymore"	Updates in CRID should automatically update the TVM dashboard - biggest complaint from people using TVM dashboard	Data from CRID only updated on Tuesdays				
Because every tool varies, things get messy immediately	Process too often relationship dependent - good relationship, talking all the time, if not constantly have to plug people in	CareSoft - incomplete data - just because CareSoft says it costs less, how do we know?	Engineers have ideas they want to do but can't do				
Dec 31st, one cent ideas, they act as a placeholder - so much buried in there, we don't know how much things are worth	Has six programs open at once	issues with character limits	No way to introduce CRID to Ford model engineers				
ENC (engineering change notice) numbers change all the time	Very tedious, especially low value ideas	People email them daily, "can you move my CRID to 0?" -check the notes!	Lack of paper trail in CRID	Should have a concern number with every CRID, often design concern not in there, has to go back to creator and figure things out			
Performance based on in flight programs, so hard to care about future projects unless its a TVM mega project	Character limits not acceptable						
Glaring disconnect - planning's desire to add content and the affordable cost ceiling	Looks at TVM and mega projects as "rework"	CareSoft data not always accurate; isn't always at a system level, more of a component level; they tend to over inflate their savings					
Painpoint - everybody manages their own list;	What's going on with the 1cent, Dec 31st ideas?	Notes are just fodder for trackers to ask more questions, it can be helpful but dangerous at the same time	Reporting on the same topic in different forums, very redundant	Spend most of week preparing weekly reports to show wk over wk movement for directors; Lots of forensics to understand what caused numbers to go up or down			

Quotes

"Where are we - value versus target?"	"I spend 4 hrs a week determining, how did we lose or gain 200k this week? Could be six big things or 30 small things"	"What's important is the progress through CRID"	"TVM dashboard - I use it as a tool to ask the right questions at the right time"	"Problem with generating status code reports: we are only as good as our data"	"We are all being tracked by trackers, its like a big daisy chain of trackers"	"People don't want to expose their dirty laundry"			
"CIW is a holding place for things and if nobody knows what's in that holding place, then what good is it?"	"Why do we have separate tools if the data is all the same?"	"The data needs to be cut in different way to drive business so that you're being as efficient and logical as possible"	"We are in this constant mode of TVM and there will always be a need for TVM but the scale is not manageable long term"						
"Excel is so difficult, especially in complex things"	"Our workplaces are excel based, if you could get us out of that, its a nightmare - we shouldn't be using excel for timing"	"There is a process but process tells you WHAT to do not HOW to do it"	"I'll be honest with you, I never have any downtime to learn a new tool, it's heavy lifting from the beginning"						
"Every time we do a TVM it basically means we didn't do something right up front when we set up the program, whether its marketing, engineering..."	"I'd like a list of high leverage stuff that we should be doing right now"	"Everything is very manual in terms of getting the data"	"I don't think we are as smart as we should be able where we're putting cost IN"						
"Seeing teams sandbag, hedge their bets, put less cost into CRID than the idea is potentially worth"	"We need historical reference"	"Up to functional team to disposition an idea"	"We meet and talk over & over again, we spend 40 hours on rejected ideas, it is just painful b/c I know those ideas will never make Ford any money"	"It is obvious we are all using our own tools to report to our directors"	"My proposal is to set up the milestones to also query CRID"	"Why is an idea stuck?"	"Ultimately it goes back to the same data, the hummingbird, TVM dashboard and CRID - why isn't it all in one place?"	"I can't show technical feasibility of an idea" - maybe this is where attachments come in??	Quoting somebody else - "If you don't have time to put timing around it, just reject it"
"A lot of cost saving ideas aren't necessarily practical"	"My complaints are wrapped around the never ending metrics we get hit with"								
"Ideas that were approved & executed, how can we integrate that into the next headlamp to make it cheaper for everybody?"	"When somebody says 'cost savings' I think of TVM"								
"Given the focus is on lifecycle cost, the big disconnect in Ford is that we don't have anything that measures it from start to finish - we only look at certain points in time"	"We don't look at something that is in the cycle plan but not being launched for another three years"								
"A dropdown with various...TVM, best cost job one, to bring up template"	"You only care about things when you get credit, no time to deal with other things"	"Not fixing issues within CRID doesn't make any sense"	"Why not have one database with dedicated dashboards for whoever needs it?"	"It needs to be simple and minimalist, I should have to click 8 different filters & highlight different colors; I don't know what I'm looking at"	"The data is only as good as what the user enters, you must force the user to enter certain things" - otherwise unsearchable	"What happens to the ideas that are generated but not in current production model? Where do they go?"	"Happy to know people are seriously looking into this"		
"I track all of my comments, the history is massive, I can't do it in CRID b/c of character limits"	"It would be great to have one stop shopping, I have to go to multiple databases to do my job"								
"It's pretty manual and I've just adapted this process to make it work best for me"	"Can there be a lock in CRID once something has been audited? People will change things in CRID after an idea has been audited, even when it explicitly says it has been audited in notes"	"Very often there is incorrect information that needs to be corrected"	"When I audit a CRID, I always put in my notes with my initials - I think that should be authoritative enough but people will move the date anyway"						
"I like going line by line, I get to know my ideas, it drives a deeper understanding of what each change is about, what the restrictions or opportunities are"	"I want a number and a date" - for historical reference	"You always want to go in with good or neutral news, if bad news, want to know what changed, could be volume change, savings change, job one day removed, why didn't it work out?"	"A lot of it is just having experience"	"Excel sheet is CRID report I added columns to"					
"There seems to be 2 or 3 initiatives going on around this, they all need to be aligned" -in reference to several platforms, they want ONE tool to use from inception to incorporation	"The tools are optional - need more focus and communication"	"I don't think there's a summary of cost saving ideas & when to use them, I've seen attempts but I don't think that piece is clear"	"I want you to automate this excel sheet"						
"TVM dashboard rich with information but still room for improvement"	"Just because something is rejected in CRID doesn't mean it can't be used in a forward model, could be feasible for future programs"	"TVM click view looks old, its all so antiquated"							
"Teams are struggling to come up with actions to meet their target"	"There are 1000s of ideas in the warehouse, which apply to me? Give me 5, 10 ideas to get me back in box"	"What ideas relate to my commodity? That's all I care about"	"I want to know what the idea is and how to apply it"	"Engineers are too busy already to be triaging tons of ideas and figure out where to apply them"	"The Target is the Target"				
"CRID is archaic it doesn't talk to the other systems"	"We always seem to settle back into our own parameters versus challenging our little bubble" - quicker way to get approval though	"I just band-aided something instead of fixing it because that was all the time I had"	"Good discussion between engineer, cost coach & estimator will take place, idea doesn't always get captured and preserved"	"During discussion - good idea - no, there's a Ford spec, we can't do that" then the idea never gets recorded"	"I think I could put the word CareSoft in front of anything and get immediate attention"	"Alteryx is a huge help"	"We have to go to four or five different spots to do our work"		
"Have to fix problems in a fast and robust way and fix it later"	"Engineering will have an idea but there's no time to implement it"	"How many times are we go to re-tool cup holders, before we are like "do it at the beginning"	"CRID is the Bible"	"If an idea is just a recommendation it can very easily get lost in the mix"	"Need wider angled lens, what is best long term for the company?"	"CRID system and how we calculate metrics out of it completely a game"			

User Recommendations for Product

A pick list cascade to forward model programs based on program	Harvest CRID - preliminary filter - should this go to Core for evaluation? Yes or No? If yes, shoot it straight to Core	Strategic opportunity - are these ideas foundational - is an idea going to be strategic or program specific???	Make sure ideas aren't financially ridiculous; no hope of business case, don't show it to me
Wants access to ideas currently in production	Instead of doing design ideas at part level, do them at a system level.	Would be a consumer of cost saving ideas but when they are setting up new module families	
Wants to know what has already been done on a commodity			
Wants to see highest to lowest impact			
Want to filter by specific events			
Needs to be generic enough where you have flexibility to accommodate multiple commodities but specific enough to tell you how to do it			
What are the top TVM ideas? Top mega project ideas from last 12 months? With actual cost	"I'd like a list of high leverage stuff that we should be doing right now"		
Wants to upload docs, attach them to an idea	Sometimes people will step away from something for 3 months & come back to it, they need a track record; it should be a package of info	"A dropdown with various...TVM, best cost job one, to bring up template"	"It needs to be simple and minimalist, I should have to click 8 different filters & highlight different colors; I don't know what I'm looking at"
Wants to go into database - pull ALL ideas proposed for "gillies for trucks" see if team doing workshop can use any of those ideas	"I don't think there's a summary of cost saving ideas & when to use them, I've seen attempts but I don't think that piece is clear"		
"There are 1000s of ideas in the warehouse, which apply to me? Give me 5, 10 ideas to get me back in box"	"What ideas relate to my commodity? That's all I care about"	"I want to know what the idea is and how to apply it"	Data needs to be consumable, don't have to be an expert to use it and understand it
Have 5000 ideas in the system; drive and determine which need to be focused on and progress those			
Seems like there is pressure to just come up with a certain number of ideas even if they aren't actionable	"A lot of cost saving ideas aren't necessarily practical"		
"I can't show technical feasibility of an idea" - maybe this is where attachments come in??			
"The data needs to be cut in different ways to drive business so that you're being as efficient and logical as possible"			

Key Takeaways:

- Users want specific filters for ideas
- Users want to see ideas that actually work for their commodity or program; stop presenting the user ideas that don't/won't work
- Want to see impact highest to lowest
- Want ability to attach/upload documents to an idea
- Specific view(s) based on user set
- Highly and efficiently searchable
- Ability to 'cut' data to paint a picture
- Want a 'package' of information about an idea

Rejected, Deferred & Why?

"Failed" or "Rejected" ideas important as well; they may fit somewhere down the line

"Accepted, rejected, under analysis" for ideas

"Just because something is rejected in CRID doesn't mean it can't be used in a forward model, could be feasible for future programs"

Wants labels, rejected ideas, deferred ideas and WHY

Wants to look at old ideas so that "we get the full circle"

"We waste resources because we keep going in circles"

Wants "Idea stuck", "Idea rejected", "Idea deferred" labels

Wants - clearly communicate why an idea was rejected at SI; mgmt wants to go through rejected ideas every 3 months, leads to full review again, never communicated well in the first place

"We meet and talk over & over again, we spend 40 hours on rejected ideas, it is just painful b/c I know those ideas will never make Ford any money"

Wants searchable reasons why something is rejected; helpful to everybody

Wants to know why ideas failed

Want to know what was good/bad from previous products/modules

Mgmt. wants to see what ideas were rejected AND why; want to see lessons learned and apply it moving forward

Rejected idea versus deferred idea and why?

How do we prop up the ideas that are deferred and get them in front of people for future models?

What to know why an idea was rejected? Was it just timing?

Ideas rejected and why? Or deferred and why?

Key Takeaways:

- Overwhelmingly users want ideas to be marked as rejected or deferred and want to know why; based on tooling, timing, feasibility? Tell them.

Idea Originator

Who is the release engineer on this idea?

Should have a concern number with every CRID; often design concern not in there, has to go back to creator and figure things out

Wants to pinpoint creator of idea so you know who to ask about it

NEED to know who originated the idea

EVERYONE wants origination source

Contacts "originator" of idea to discuss what their ideas mean

Wants to know who originated the idea

Wants to know engineer associated with commodity

Key Takeaways:

- Overwhelmingly users want to know who the originator of an idea is
- Users want to know which engineer an idea has been assigned to
- Facilitates ability to quickly reach out to source of information

Reporting

Two page report - has tab with all the part numbers that are affected in the change and financial details

"Excel sheet is CRID report I added columns to"

"You always want to go in with good or neutral news, if bad news, want to know what changed, could be volume change, savings change, job one day removed, why didn't it work out?"

Somebody will just email them an idea to review/discussion; sometimes they'll have a PowerPoint about it

Specific columns added in excel to CRID report : correct date of incorporation, notes (next steps), Checked date (the last time an idea was looked at)

Shares an excel sheet back and forth everyday with counterpart in India

Color codes spreadsheet - RED = going to be rejected, YELLOW = waiting for buyer to do something, GREEN = everything is lined up

Twice weekly meetings, asks teams members to come, they discuss specific questions about status of idea in CRID

Has own columns in Excel they track "red, yellow, green" (red being a risk)

Weekly meetings

Wants common language + standardization for headings/columns in reports; will make interpretation of data easier

Pulls reports from CRID into Excel; hides and/or adds columns based on preference/need

Quarterly reports for finance

Weekly reports published (by supervisor and engineers, this is what you have in the "hopper")

Pulls global report in CRID by commodity for replication discussion in workshop

Wants automated reporting from the tool - currently creating manual report for each program

Lots of weekly reports that go out

Wants automated reporting from the tool - currently creating manual report for each program

For reports we need to figure out what people need to present

One pager PowerPoint has good info for what an idea needs to be populated with : Cost savings, tooling requirements; timeline

Wants automated KPI reports

Project Mgmt type reporting; track phase completion

Score Card = list of commodities they're studying and where they're at in their lifecycle; scorecard for director level reporting

Reporting on the same topic in different forums, very redundant

Spend most of week preparing weekly reports to show wk over wk movement for directors; Lots of forensics to understand what caused numbers to go up or down

Wants breakdown performance by manager in report

Wants automated reports

"I spend 4 hrs a week determining, how did we lose or gain 200k this week? Could be six big things or 30 small things"

Key Takeaways:

- No formal reporting process, users have different operating procedures for reporting
- Users want automated reports generated from the product
- "Red" "Yellow" "Green" utilized in Excel by several users to depict either age or status of idea
- Users are spending hours of time a week creating reports
- Analog reporting allows for individuals to boost their numbers, hide 'bad' news
- Would be nice if product could automatically send reports to those who need to see them; users report on the same topics redundantly
- Automated reports will create common language

Automation

Wants an automated pull of data

More automatic calculations; pretty manual now

"It's pretty manual and I've just adapted this process to make it work best for me"

"I want you to automate this excel sheet"

Key Takeaways:

- Users want automation of data
- Concern about lack of knowledge around idea if not manually entering data

Sometimes when things get automated, things get taken out of context - you don't know what's going on behind the scenes

"I like going line by line, I get to know my ideas, it drives a deeper understanding of what each change is about, what the restrictions or opportunities are"

Data entry and data mining are so manual

Inaccurate Data

CareSoft - incomplete data - just because CareSoft says it costs less, how do we know?

"I think I could put the word CareSoft in front of anything and get immediate attention"

Cost Coaches always need their commodity work plan filled in correctly otherwise people are chasing down data and validating

CareSoft data not always accurate; isn't always at a system level, more of a component level; they tend to over inflate their savings

CareSoft provides inaccurate data - not enough detail - wrong commodity code, so then it goes to the wrong team

"The data is only as good as what the user enters, you must force the user to enter certain things" - otherwise unsearchable

"Very often there is incorrect information that needs to be corrected"

"Problem with generating status code reports; we are only as good as our data"

What's going on with the 1 cent, Dec 31st ideas?

Dec 31st, one cent ideas, they act as a placeholder - so much buried in there, we don't know how much things are worth

Wants useful data that can be shared with other teams; currently has to go through multiple spreadsheets to get legitimate data

Key Takeaways:

- Issues with CareSoft data being incomplete or inaccurate
- How can we ensure data is accurate for the user?

One Platform

Process is LITTERED w redundancies; data is already there, not in one spot, give same report to multiple people, numbers get reviewed every time - everything is done in triplicate

Because every tool varies, things get messy immediately

All of Ford's databases should be relational & communicate including WERS

"We have to go to four or five different spots to do our work"

Has six programs open at once

"Ultimately it goes back to the same data, the hummingbird, TVM dashboard and CRID" - why isn't it all in one place?

"It is obvious we are all using our own tools to report to our directors"

A mashup of CRID and the TVM dashboard would be amazing

Painpoint - everybody manages their own list

"Why do we have separate tools if the data is all the same?"

"Everything is very manual in terms of getting the data"

"It would be great to have one stop shopping, I have to go to multiple databases to do my job"

Consolidate all of the ideas and data in one place and want to track their ideas

"Why not have one database with dedicated dashboards for whoever needs it?"

"There seems to be 2 or 3 initiatives going on around this, they all need to be aligned" -in reference to several platforms, they want ONE tool to use from inception to incorporation

Replication can be very tedious - has to go into various programs to access ideas - basically will verbally do replication in workshops by commodity

Key Takeaways:

- Users want ability to complete their workflow with a single product
- Users want products that communicate with one another
- Repeatedly, "if all of the data is the same, why not have it in one place for me?"

Product Mentions

"I'll be honest with you, I never have any downtime to learn a new tool, it's heavy lifting from the beginning"

"Our workplaces are excel based, if you could get us out of that, its a nightmare - we shouldn't be using excel for timing"

"Excel is so difficult; especially in complex things"

"CIW is a holding place for things and if nobody knows what's in that holding place, then what good is it?"

TVM roadmap - a report

TVM dashboard - likes visualization of this data

CRID Incorporate dashboard - what does it take to move ideas from 5 to 6?

Katia and teamcenter - to show 'here's the old part, here's the new' will take screenshots

Excel - commodity parts lists

PowerPoint for reports

"TVM dashboard - I use it as a tool to ask the right questions at the right time"

Like that the TVM dashboard shows patterns and trends

Excel - reports - based off of Katherine Johnson's report - tracks age of ideas with red, yellow, green

Excel - many excel books - when needs a small subset of data or something for a presentation

TVM dashboard (along with CRID drive whats in the system and how they measure performance, they feed the financial system)

Excel - for consolidating data from N. and S. America

CIRIS - helps to find opportunities for replication

"TVM dashboard rich with information but still room for improvement"

"TVM click view looks old, its all so antiquated"

Used to work on TVM dashboard regularly, but person spearheading project left company, "we don't update the dashboard anymore"

PowerPoint - for match pair presentation - for target setting

Excel - main workbook - PL's team runs report, loads data into data warehouse

Finds historical information in SharePoint

"The tools are optional - need more focus and communication"

TVMer - only uses for certain things, report doesn't have access to everything

TVM dashboard - "parts of it I like, parts of it I hate, I like that it gives me a full year visual, have things been moving?"

Excel - 2 pager for program finance approval

SharePoint - pretty much a "dump from CRID"

FEDEBOM - if really stuck on a specific part

Excel - for own tracking logs

Tigra - pulls in a program then BCJ1 efficiency tools are applied

Key Takeaways:

- Everyone using Excel out of necessity but doesn't not want to do their work in Excel
- Users want to learn how to utilize products
- Users like the data visualization in the TVM dashboard
- Users go to Sharepoint for historical information but do not like it

CRID Enhancements

Character limits not acceptable

"Not fixing issues within CRID doesn't make any sense"



Wants to know what has changed week over week; all out in the open, people hide bad news

Data from CRID only updated on Tuesdays

Updates in CRID should automatically update the TVM dashboard - biggest complaint from people using TVM dashboard

Feels there are improvements for CRID

Wants to see future years, not just current year

Lack of paper trail in CRID

People email them daily, "can you move my CRID to 5?" -check the notes!

ENC (engineering change notice) numbers change all the time - need papertrail of it

"I don't use the CRID audit tool, it doesn't pull the right data"

"I religiously use remarks in CRID, not everyone does" (not enough characters but can say to people, Have you looked at the remarks in CRID, instead of having a meeting)

Disconnect between required fields in CRID and yellow cards/ CareSoft data

Issues with character limits

No way to introduce CRID to Ford model engineers

"We need historical reference"

"My proposal is to set up the milestones to also query CRID"

Wishes CRID had enhancements, uploading 70 ideas is not quick!

"I track all of my comments, the history is massive, I can't do it in CRID b/c of character limits"

Some ideas have multiple CRs - CRID will only accept one at a time

Engineering reference # - would like this attached to idea in CRID

"CRID is archaic it doesn't talk to the other systems"

"CRID system and how we calculate metrics out of it completely a game"

People should be writing notes into CRID

"CRID is the Bible"

Notes are just fodder for trackers to ask more questions, it can be helpful but dangerous at the same time

Wants to see growth throughout the year

Wants to see calendar year value, annual value, programs applied to, volume, take rate of programs

"I want a number and a date" - for historical reference - wants to be able to see the date it was put into CRID, papertrail

Needs data combined with target info + support info to see if target is greater than \$10 - want to see which commodities are over target

Wants date of idea and flow out the time required to complete the workshop; 5 wks to complete design workshop; key events over 5 wk period

Key Takeaways:

- Every user who interacts with CRID felt it deserves enhancements
- Users do not like character limits in CRID - inhibits a 'paper trail' of information
- Wants changes in CRID to automatically update TVM dashboard

Status Code Movement

Wants to know which ideas have moved week over week

S3 - teams don't want to update CRID movement - often ideas go from S2 to S5

Works with VCAT + functional team to make sure ideas are moving through CRID

S1 - pre-vet ideas, historical reference

S2 - prove out idea stage - stays here a long time, this is the place where CRIS work gets done

Everybody likes to see their ideas move through status codes

"What's important is the progress through CRID"

Q3 want to see a lot of growth in Status Code 1 ideas

What's languishing? Why are releases delayed?

Aging - everybody wants to see their ideas move for yearly performance

Key Takeaways:

- Users in the TVM space have extreme focus on their ideas moving through Status Codes in CRID; it's what their performance is based on

Want graphical and historical view of cost idea deck - status code movement

Status Code 5 moves it to 6 - needs to verify all the other steps actually took place

Moves idea through every status code 1 to 6; involved in all six status codes

Works with supervisors once idea in CRID, input on ideas, it is feasible, good business case, etc. then move to status code 2

TVM

TVM looks great but super inefficient


“Need wider angled lens, what is best long term for the company?”

Best thing would be to have a strategy to release that TVM action upfront

TVM ideas, 3 basic categories : market alignment, launch to deliver on time (take band -aid off later), TVM ideas that shouldn't even be TVM ideas

TVM only looks a couple years out

Looks at TVM and mega projects as “rework”

“Every time we do a TVM it basically means we didn't do something right up front when we set up the program, whether its marketing, engineering....” 

“I don't think we are as smart as we should be able where we're putting cost IN”

“We are in this constant mode of TVM and there will always be a need for TVM but the scale is not manageable long term”

TVM targets so high this year they added resources to different segments to help them deliver

“When somebody says ‘cost savings’ I think of TVM”

Wants to eliminant the need for more TVM downstream, make sure we are meeting targets upfront

Key Takeaways:

- TVM is an overarching issue that should be discussed and reconsidered

Where Do Ideas Come From?

GAP week (cost strategy week)

Leverage ideas from the past, relies on engineering during teardown process

Gets supplier quotes; cause it has real supplier (cost) numbers

A generator of ideas from workshops and supplier data

Design competition - attributes around a specific commodity

Holds workshops for idea generation (design to target workshops)

Triage events - teardown

Supplier workshops - Supplier input - "what kind of ideas do you for Ford that you want to share?" - capture suggestions to lower cost

Design walk to discover, add any functional attributes, Ford specific

Engages with supplier to get the quote; if there are multiple ideas will either bundle it or not based on timing - a real look into savings

Best of Benchmarking process, suppliers come in, quote the competition

Generating idea events, capture ideas, facilitate using CRID, ideation to incorporation

Market alignment projects - compares us against competitor, TVM projects - a cost reduction project

Side by side vehicle reviews; teardown reviews

Holds workshops for idea generation

Looks at previous generation vehicles that had high value ideas and generates a list

Key Takeaways:

- Ideas come from various places; want them all to be logged in a central database

Targets

Need to be able to explain, here's my status to my target

"Teams are struggling to come up with actions to meet their target"

"The Target is the Target"

Once targets are set, ensure the programs + commodities are delivering, meeting targets

"Where are we - value versus target?"

Design to Target - data mining from data warehouse for workshops

Tries to get commodity to target

Target Setting

Sets up programs for body interior, ensures we are meeting cost targets and functional performance

Works with finance twice annually to develop targets for functional teams for TVM

BoB process; new commodity, work through B-set tool to come up with cost saving ideas for target setting

Key Takeaways:

- Need to get the user to their target by leveraging data and getting ideas in front of them in an efficient and elegant way

Communication & Teams

Communication between TVM, Core and upfront all completely manual

TVM and Core teams need a strong relationship; so we can implement upfront applications better

"If an idea is just a recommendation it can very easily get lost in the mix"

Hand deliver the work stream from when an engineering action has been released into WERS system until it incorporates in the plant

Its frustrating to explain the same thing over and over again to different groups of people; isn't much trust there

Idea comes from either CRID, a cost savings event or WORD OF MOUTH; checks to see if its even viable, vets idea, determines how long change will take

Between teams there are gaps

Things that get lost in translation with CRID & TVM is supporting processes like benchmarking

Process too often relationship dependent - good relationship, talking all the time, if not, constantly have to plug people in

"Good discussion between engineer, cost coach & estimator will take place, idea doesn't always get captured and preserved"

"During discussion - good idea - 'no, there's a Ford spec, we can't do that' then the idea never gets recorded"

Teams need access to things other teams have done to get to target; need visibility to all of that

Glaring disconnect — planning's desire to add content and the affordable cost ceiling

Doesn't want to hinder or completely constrain studio

Key Takeaways:

- Need to build stronger relationships between teams, they are exclusively dependent on each other but often don't have the discussions necessary to put ideas forward and create efficiencies
- If a good discussion takes place between teams; concern about where idea that's been generated is getting stored
- Need visibility into what other teams are doing and how actions effect one another

Current & Future Models

Teams will implement a save idea in a current model; for future models nobody is aware of the change - no lifecycle process



Performance based on in flight programs, so hard to care about future projects unless its a TVM mega project

“What happens to the ideas that are generated but not in current production model? Where do they go?”

“How many times are we go to re-tool cup holders, before we are like “do it at the beginning”

Want to know if idea has been implemented into current programs

“Ideas that were approved & executed, how can we integrate that into the next headlamp to make it cheaper for everybody?”

“We don't look at something that is in the cycle plan but not being launched for another three years”

If you've taken something out of a current model how do we ensure it doesn't go into the future model (the 'map pocket' example)



In the upfront phase, how do we get ahead of this? How do we get these ideas upfront?

Want good access to roadmaps; roadmap actions into status, to make trade off decisions earlier

How do we introduce ideas that are happening in current OPV? Products to a Ford model program?

Teams not always aware of vehicle configurations so try to push an idea that won't work for a certain model; flag this

Key Takeaways:

- Need to communicate that an idea has been implemented in a previous model
- Flag ideas that are foundational across programs

Engineering & Design

If you don't have an engaged engineer, they're not going to look at it, it lays in their hands

So much paperwork in engineering; its unbelievable

Engineering resources so thin; TVM engineers get "tapped"

Engineers don't have time to create efficient designs

Engineers have ideas they want to do but can't do

"Engineering will have an idea but there's no time to implement it"



"Engineers are too busy already to be triaging tons of ideas and figure out where to apply them"

Launch engineers stay on from job one to job two, if they couldn't implement an idea cause of lead time

TVM push week or gap week will happen, a bunch of ideas are generated, engineering will get inundated with a lot of ideas that will never work

We are less competitive because we are overly conservative with SDS

"We always seem to settle back into our own parameters versus challenging our little bubble" - quicker way to get approval though

Key Takeaways:

- Users recognize that engineering often does not have the time required to implement effective ideas; how do we correct this on the front end?

Timing

“Have to fix problems in a fast and robust way now and fix it again later”

“I just band-aided something instead of fixing it because that was all the time I had”

Quoting somebody else - “if you don’t have time to put timing around it, just reject it”

They put felt tape here - something goes to launch - they’ll just deal with it later - always an issue of tooling and timing

Key Takeaways:

- How do we stop things like this from happening?

Process Issues

So many random announcements and no compiled process document; it should be rolled out in a solid program

Inefficiencies are process related

“There is a process but process tells you WHAT to do not HOW to do it”

Some teams really don't understand the process so hopefully if they're given a good tool they will be able to get halfway

Key Takeaways:

- Need a defined process for cost ideas

Tough Choices are ideas that are high value that we just can't get alignment on - there's no actual defined process or ownership for these

Lifecycle Cost

Helps segment chiefs with lifecycle cost

New model programs look at from target to launch; once a current model, its measured differently

“Given the focus is on lifecycle cost, the big disconnect in Ford is that we don't have anything that measures it from start to finish - we only look at certain points in time”



Key Takeaways:

- Disconnect that idea isn't measured from start to finish; what is the Lifecycle Cost of an idea?

Dispositioning

“Up to functional team to disposition an idea”



To disposition an idea
NEED feasibility, cost
& time



Doesn't disposition
any ideas b/c not on a
program team



Key Takeaways:

- How do we define dispositioning and make actionable?

Handoffs

A triage event occurs, ideas are identified, determining the implementation is critical; it could go current or new model but handoff gets disrupted, there's a disconnect

Need something that addresses these handoffs after an event; need the right stakeholder to disposition actions; is it relevant for current portfolio yes/no; is it upcoming yes/no



Create an idea cascade; take CRID idea from TVM world, enter it into system so core team has a flag to disposition idea to forward model programs or cross car applicable; handoff manual, need process



Key Takeaways:

- Communication/handoff is concern for users

Auditing

ECN auditors only look at S5 - it takes too long to update weekly, don't want to degrade their roadmaps (Nobody wants to lose traction on their roadmap)

Audit process is straightforward, no way to generate a report, all done manually

Once change is incorporated, works with audit team in India to actually move into production; then actually claims the cost savings

Only Mary audits ideas that are in process, so they highlight these, they don't have to pay as much attention to them cause they trust Mary

Audits status code 5's all day

Audits ideas, confirms them or adjusts them accordingly

"When I audit a CRID, I always put in my notes with my initials - I think that should be authoritative enough but people will move the date anyway"



"Can there be a lock in CRID once something has been audited?"
People will change things in CRID after an idea has been audited, even when it explicitly says it has been audited in notes

Audit process - Very tedious, especially low value ideas

Gap - auditing process at Status 6 - can't verify price in WIPS - can't see purchasing at all - between change control and audit no visibility - sometimes too late - prices change A LOT

Key Takeaways:

- Once an idea has been audited in CRID; can we stop it from being changed?

Recommendations

- Greater focus on holistic products and design, we need to think in both near and far term keeping doors open to integrate new features into products and grow with the expectations of the user
- Once product is deployed, create opportunities for continued communication with the user to help aid in adoption
- Marry the process to the product and the product to the process
- Hone in on the filters each user set *must* have; consider interface
- Automate reporting with data driven metrics; export reports
- Create formal reporting process
- Consider the name Cost Ideas Warehouse; already has a bad connotation, warehouse implies storage, things to not be interacted with
- Focus on hierarchy of data/needs for user interface
- Give user the idea and information on how to deliver
- Must have: originator of idea & rejected/deferred and why
- Create 'one-pager' for each idea; what goes into this one pager; attach it to idea, create a package of information; a 'paper trail'
- To disposition an idea means simply to place an idea on a path
 - Per Oxford "the way in which something is placed or arranged, especially in relation to other things"
- If product becomes tracking tool, users won't use it, they are already being tracked enough
- What information do we provide the individual user/manager/director/super user/admin? Start granular and move to a macro/metric driven view
- Email/notifications need to be more specific to the user

Next Steps

- User Journey Maps
- User Flows
- Personas
- Feature Prioritization/MoSCoW Mapping
- Continued Engagement with the User
- Wireframes
- User Testing
- High Fidelity Prototypes