Delft University of Technology 3mE Mechanical Engineering Track High Tech Engineering Raw data of scores on Synthesis Methods for Frame Design by Stan van Egmond

Method: Tare Cause Case: 30 acres	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	•
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
nnovation			number of fundamentally new concepts:		number of relevant new combinations: 2	2
					Applicability multiplier	x0.5/ x1.0
						9.5
					Total:	95

Comments: The TORIZ Laws do not seen very approach to the chassis aspect builde apply well to the system keel. So the applicability goes to 05% in nost cases. Also, often the solutions per section den't recess necessarily combine well. giving to technically new solution but not relevant ones.

time to execute60mins+30-59mins10-30mins5-10minsless than 5minsinsight gainedsubstantial and directly applicable insightsubstantial insightmoderate insightminimal insightnonefeasibilityready for next phaseminor adjustmentslimited by typical resourcesneeds currently unavailable technologyonly works in fantasy phase30-59minsease of usein mindsimple medium for some informationsimple medium for lots of informationmultiple media or peoplemultiple media or people and meticulous bookkeepingInnovationInInnumber of fundamentally new concepts:number of relevant new come concepts:number of fundamentally new combinations:	Method:	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
anive to execute outmins+ 30-59mins 10-30mins 5-10mins tess train prints insight gained substantial and directly applicable insight substantial insight moderate insight minimal insight none feasibility ready for next phase minor adjustments limited by typical resources needs currently unavailable technology only works in fantasy ease of use in mind simple medium for some information simple medium for lots of information multiple media or people multiple media or people and meticulous bookkeeping Innovation Intervention number of fundamentally new concepts: number of relevant new combinations: Applicability x0.5	number of concepts	10+	7-9	5-6	3-4	0-2	5
directly applicable insightinsightinsightinsightfeasibilityready for next phaseminor adjustmentslimited by typical resourcesneeds currently unavailable technologyonly works in fantasy and works in fantasyease of usein mindsimple medium for some informationsimple medium for lots of informationmultiple media or peoplemultiple media or people and meticulous bookkeepingInnovationInterventionnumber of fundamentally new concepts:number of fundamentally new concepts:number of relevant new combinations	time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
phase adjustments resources unavailable technology ease of use in mind simple medium for some information simple medium for lots of information multiple media or people multiple media or people and meticulous bookkeeping Innovation number of fundamentally new concepts: number of fundamentally new concepts: number of relevant new combinations x0.5	insight gained	directly applicable		moderate insight	minimal insight	none	3
for some information lots of information people people and meticulous bookkeeping Innovation number of fundamentally new concepts: number of relevant new combinations Applicability x0.5	feasibility			/	unavailable	only works in fantasy	3
fundamentally new combinations:	ease of use	in mind	for some			people and meticulous	3
	Innovation			fundamentally new			-
						1	x0.5 / x1.0
Total.							17
Comments: In this case it was difficult to arrive at new concepts but still achieved Crob and conc	Comments: In	this case it a	was difficul	to arrive at new	concepts but s	fill reducent Crist new) concept o

Method:	5 points	4 points	3 points	2 points	1 point	1
Case:					1 point	Awarded Point(s)
number of concepts	10+	7-9	(5-6)			
time to execute	60mins+	30-59mins		3-4	0-2	3
insight gained		SU-Semins	10-30mins	5-10mins	less than 5mins	
morgini gamed	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	8
					Applicability multiplier	x0.5 / x1.0
					Total:	R

comments: Proble is too complex to anne ad standard concepts through brainstorning alone

Method: MA	5 points	4 points	3 points	2 points	1 point	Awarded
Case: Actoronous Can				- points	1 point	Point(s)
number of concepts	(0+)	7-9	5-6	3-4		1
time to execute	60mins+	30-59mins	10-30mins		0-2	5
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	5-10mins minimal insight	less than 5mins none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	2
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous	4
Innovation			number of fundamentally new concepts:		bookkeeping number of relevant new combinations: 3	3
					Applicability multiplier	x0.5 / x1.0
Comments:					Total:	20

Method: Brainstorming Case: Antonomous Cae	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	1
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	2
					Applicability multiplier	x0.5 / x1.
					Total:	16

Open design - No staning wheel - social setting Better engenomics - Shell chassis - 3 on 5 Wheels nouje possible - more complex steering and momentuous possible Better engenomics - Shell chassis - 3 on 5 Wheels nouje possible - more complex steering and momentuous possible Petitives environment enited for work on kisure - train forming possible for effectiency Lenge live may use drigh grade materials -

Method: Design Palage	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Autonorous Car						
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	2
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	1
					Applicability multiplier	x0.5 / x1.0
					Total:	14

Decent performance of the redhed. It is a bit of a hit and miss per case.

Method: ACREE	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
case: Grabage Br				24	0-2	5
number of concepts	20+	7-9	5-6	3-4		3
ime to execute	60mins+	30-59mins (10-30mins)	5-10mins	less than 5mins	
nsight gained	substantial and directly applicable insight	substantial (moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts: 2		number of relevant new combinations:	36
					Applicability multiplier	x0.5 / x1.
					Total:	208 2-

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Method: Concept Moymen Case: Roboleagen	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0.5)1 x1.0
					Total:	6,5

comments: Un fantundely, this maked does not wark for concept generation. It is cheanly nove helphel fex management, ougonization and preparation.

Method: Brainstonning Case: Garbage Bin	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	(10+	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind (simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	20
					Applicability multiplier	x0.5 / x1.0
					Total:	18

comments: Naturety it does generate feesible ideas, but handly structured and well argumented.

Method: 40 Phinipus	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Audonorous Car						
number of concepts	10+	7-9	5-6	3-4	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	J
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	2
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	I
					Applicability multiplier	x0.5 / x1.0
					Total:	7

design solutions but not don the initial design problem ODG 0

Method: OPI Case: 3D pender	5 points	4 points	3 points	2 points	1 point	Awarded
number of concepts	10+	7.0				Point(s)
time to execute		7-9	5-6	3-4	0-2	
insight gained	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	1
aned	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3 5
feasibility ease of use	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
novation	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
			number of fundamentally new concepts:		number of relevant new combinations:	6
					Applicability multiplier	x0.5 / x1.0
mments:					Total:	15

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Again, this method does not generate real concepts but does provide considerable insight into the preblem

Perhaps & this method is more help ful when someone is stuck rather than starting a design

Method: Josight Contractor	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Laren Zebro						(oniqo)
number of concepts	10+	7-9	5-6	3-4	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	1
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	5
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	1
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0.5 / x1.0
					Total:	12
Comments: T	tailes a lot	of time and is	basically a structu	red way of exp	loring the existion a	all cons
	I all a con	Id ben be de	one - a group cor	text.	d'ine carsting o	rowner space
I think	this rection cer		J'			
Also,	, this welled w	and rarely	device new concep-	its but will littely	Total: locky the existing s quide you to a geo	1 vet aleea
desi	00	/		10		- moen
desi	97.					

design.

Method: Reflaning	5 points	4 points	3 points	2 points	1 point	Awarded
Case: A conomais.						Point(s)
number of concepts	10+	7-9	5-6	(3-4)	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	2
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
nnovation			number of fundamentally new concepts: 🛓		number of relevant new combinations:	4
					Applicability multiplier	x0.5 ~ x10
					Total:	KI Z HA

Not really clear concept generation, but note a general direction.

Method: M.A. Case: Garbage Bin	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	(10+)	7.0				r om(s)
	IUT	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	14
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	3
					Applicability multiplier	x0.5 / x1.0
					Total:	22

Comments: Applies well and enough concepts generated, even some new ones.

Wethod:	5 points	4 points	3 points	2 points	4 00101	Awarded Point(s)
Method: Rehaming Case: 30 pentie				3-4)	0-2	2
number of concepts	10+	7-9	5-6		less than 5mins	3
time to execute	60mins+	30-59mins	10-30mins	5-10mins		3
insight gained	substantial and directly applicable	substantial insight	moderate insight	minimal insight	none	
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation		Information	number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
					Total:	15

Comments: Does not necessarily generate concepts, shows what the locus should be. Apples well because the 3D printer case is an system level.

Method: Insight Carb	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Gallege Ba	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	4
					Applicability multiplier	x0.5 x1.0
					Total:	85

0

comments: No real new concepts for the syster, but now for the supersyster. Also, it generates ideas rather than concepts.

Method: Acadas	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: 30 perm	10					
number of concepts	tet	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	2
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts: 2		number of relevant new combinations:	9
					Applicability multiplier	x0.5 / x1.0
					Total:	26

Comments: Obviously, ACRREr is none suited for systems but also at subsystem level it can be easy to drive a it into "subsubsyster". Those can the also be provided with solutions.

Method: MA	5 points	4 points	3 points	2 points	1 point	Awarded
Case: Roboleaque						Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	4
					Applicability multiplier	x0.5 / x1.0
					Total:	10

on the subsyster level itself

and De Deile	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Method: Desg. Acaipto	o ponice					2
Case: Garling Bin	10+	7-9	5-6	3-4	0-2	4
number of concepts	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	
time to execute insight gained	substantial and directly applicable	substantial insight	moderate insight	minimal insight	none	3
feasibility	insight ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts: 2		number of relevant new combinations:	6
					Applicability multiplier	x0.5 / x1.0
					Total:	23

Supprisingly applicable and generated two need new ide concepts. Unexpedied!

Method: Deanstraning Case: Robileague	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	92 3
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	1
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0.5 / x1.0
					Total:	15

Mano chassis - Layered Chassis - integrate parts in structure. Wheels - Steering-IOnni-Sheels] - multiple whetstoneen direction hovereneff-line shoot balt - codegent - Scheroid - spring mechanism - blonks Shape carled be anything - multiple roles.

Sandhings care up, but a lot of expense is reeded to to something feasible.

Method: Design Principles Case: 3D printer	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	84
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0.5 / x1.0
					Total:	16

Comments: The design paintiples land then schees very well for the 3D painter case because of the dynamics molived. I do not expect scores this high when applied to other design cases.

Method: Longo Contradia	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: 30 printer						
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	5
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	2
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	3
					Applicability multiplier	x0.5 / x1.0
					Total:	8.5

Comments: It is hand to arrive al "insights" and cauple then to solution patterns. Even hander still to combine Solution patterns with aller insights. Also, roting seperate insights on individual papers does not now for a structured overview of the paoble.

Method: ACREX	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Lunan Zebro						
number of concepts	10+	7-9	(5-6)	3-4	0-2	3
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial < insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	Z
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	C
					Applicability multiplier	x0.5 / x1.0
					Total:	14

Proble is very complex and building on accrex there then becomes increasingly difficult.

Method: OPI	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Roboleague					Ta	
number of concepts	10+	7-9	5-6	3-4	0-2	
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	64 3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	4
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
					Total:	14

comments: Especially the paionities and problems become dear

Method: OPI Case: Garbey Bin	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	(5-6)	3-4	0-2	3
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	2
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	4
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
nnovation			number of fundamentally new concepts:		number of relevant new combinations:	(
					Applicability multiplier	x0.5 / x1.0
					Total:	17

comments: Applies well, gives insight and indiredly also concepts, nothing too innovative though

Method: Reframing	5 points	4 points	3 points	2 points	1 point	Awarded
Case: Garbage Bin						Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	2
					Applicability multiplier	x0.5 / x1.0
					Total:	16

Comments: The creative input reeded shifts to the Francing.

Method: ACRREX Case: Roboleague	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Roboleague						
number of concepts	(10+)	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	9
					Applicability multiplier	x0.5 / x1.0
					Total:	B

Method: Beanstering	5 points	4 points	3 points	2 points	1 point	Awarded
Case: 3D print -						Point(s)
number of concepts	10+	7-9	(5-6)	3-4	0-2	3
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	/
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	C
					Applicability multiplier	x0.5 / x1.0
					Total:	15

Comments: Doesn't give any new solutions. Only puts on paper what I abudy know

Method: 40 Painciples Case: 3D Printer	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: SD Printer						4
number of concepts	10+	(7-9)	5-6	3-4	0-2	
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	1
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	2
					Applicability multiplier	x0.5 / x1.0
					Total:	17

Comments: No insight, gained.

Method: Congr Mapping	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Garbay bin	10+	7-9	5-6	3-4	0-2	
number of concepts time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	4
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	2
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
					Total:	6,5

Comments: Gives insight into supersystem

Method: Des Prepo	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	(3-4)	0-2	2
time to execute	60mins+	30-59mins	10-30mins	(5-10mins)	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:)		number of relevant new combinations	4
					Applicability multiplier	x0.5 x1.0
					Total:	20

Comments: Again, Surprisingly Applicall

Method: OPI Case: Autonomous Ga	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
case: Autonomous Car				3-4	0-2	2
number of concepts	10+	7-9	5-6	3-4		3
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	
insight gained	substantial and directly applicable insight	substantial (moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	4
					Applicability multiplier	x0.5 / x1.0
					Total:	10

Solid performance, not much concept generation but delimitely a few.

Method: Concept Mapping	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: 3D prote						
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	1
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0.5 / x1.0
					Total:	5,5

comments: No new insight on concepts.

Method: 40 Park ples	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Larra Telto						romas)
number of concepts	10+	7-9	5-6	3-4	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mips	less than 5mins	2
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	1
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable	only works in fantasy	-
ease of use	in mind	simple medium	simple medium (technology		2
Innoust		for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous	4
Innovation			number of		bookkeeping	-
			fundamentally new concepts:		number of relevant new combinations:	
					Applicability	x0.5 / x1.0
					multiplier	x1.0
Comments:						
N	ld particularly	guerable			Total:	14
)	1				1

Method: Insight Consister Case: Robole Aym	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	2
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0,5 / x1.0
					Total:	6

Comments: Just closs not work well

Method: Refraning Case: Lunan Zebro	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5.10mins	less than 5mins	4
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
					Total:	7

denands.

This method does not work with design cases that are very rigid with their goal and

Method: TRIZ Lous	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Lunar Zebro	-	2		3-4	0-2	4
number of concepts	18-2	(-9)	5-6		less than 5mins	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than omino	
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
					Total:	15

comments: As it's a vehich, it's easy to generate concepts

Method: Jasight Continut	5 points	4 points	3 points	2 points	1 point	Awarded
Case: Autonimous Can						Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2)	1
time to execute	60mins+	30-59mins	to-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	Imited by typical resources	needs currently unavailable	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	technology multiple media or people	multiple media or people and meticulous	0
Innovation			Dumba		bookkeeping	2
			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
Comments:					Total:	
					Total:	55

Method Concep Mayny	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Linaa Zebeo				3-4	0-2	1
number of concepts	10+	7-9	5-6		less than 5mins	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins		
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	2
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 x1.0
					Total:	5,5

Method: Concept Mapping	5 points	4 points	3 points	2 points	1 point	Awarded
Case: Autonomous Cor						Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	0
					Applicability multiplier	x0.5) x1.0
					Total:	65

Method: TOTA Laws Case: Amon provis Car	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	107	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	2
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	
					Applicability multiplier	x0.5 / x1.0
					Total:	K

Method: TRIL Laws Case: Autonomous Care	5 points	4 points	3 points	2 points	1 point	Awarded
number of concepts	107	7-9				Point(s)
time to execute	60mins+		5-6	3-4	0-2	5
insight gained		30-59mins	10-30mins	5-10mins	less than 5mins	
	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next	minor				2
	phase	adjustments	limited by typical resources	needs currently unavailable	only works in fantasy	
ease of use	in mind	simple medium		technology		3
Innovation		for some	simple medium for lots of information number of	multiple media or people	multiple media or people and meticulous bookkeeping	4
			fundamentally new concepts:		number of relevant new combinations:	1
					Applicability multiplier	x0.5 / x1.0
Comments:						
					Total:	
						6

Method: THE Laws Case: Rob lage	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	64
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	1
					Applicability multiplier	x0.5/ x1.0
					Total:	9,5

Again, TRIZ Lows only weeks well at syster level (Robot) and not at Subsyster level Chassis)

Method: Case:	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	(3-4)	0-2	2
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial C insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	3
					Applicability multiplier	x0.5 / x1.0
						9
					Total:	

Comments: As the conditions and acres for the Robol cagive are nother extensive, there is ad much seen to "Reference". This means very little input and theirs little output. "Rehaps this method workes best for problems that have very tille demands.

Method: 40 Parague Case: Robeleague	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	2
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	3
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	6
					Applicability multiplier	x0.5 / x1.0
						12
					Total:	

Comments: Inprote features 1 15 3 19 7 1 9 12 2019 22 36

w

Open't generate concepts but provides sure parters, innaces in ing It takes quite some to go over everything but that may be because of inexperime and unfamilianty with the method.

Method: Magaly al huly o Case: 30 perka france	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	(10+)	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	2
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	4
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	3
					Applicability multiplier	x0.5 / x1.0
					Total:	20

Even a single MA provides some new solutions that are very well leasible. As for the chassis part, it depends heavily on the input of the subproblems.

Method: O.P.I Case: Luna Zebee	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+	7-9	5-6	3-4	(0-2))
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	5
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	3
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	U
					Applicability multiplier	x0.5 / x1.0
					Total:	15

Comments: With the zebro it hasn't generated any concepts. This could be because of the already existing solution and overall complexity of the problem. It creates a bit insight as it fonces you to think about a lot of possible seen arios.

Method: TRIZ Laws	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Grebage Bin						
number of concepts	10+	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	5
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	5
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts: ()		number of relevant new combinations:	1
					Applicability multiplier	x0.5 x1.0
					Total:	11

comments: A dapted into actual synthesis method. Only works with existing solutions as input. Applicability limited for chassis because of law 4, requiring a control element

Method: 40 hours long	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
Case: Gealoge Br						1 0111(0)
number of concepts	10+	7-9	5-6	3-4	0-2	1
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	3
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	J
					Applicability multiplier	x0.5 / x1.0
					Total:	65

Comments: Doesn't work at all fer concept generation

Method: MA Case: Lunca Zebro	5 points	4 points	3 points	2 points	1 point	Awarded Point(s)
number of concepts	10+)	7-9	5-6	3-4	0-2	5
time to execute	60mins+	30-59mins	10-30mins	5-10mins	less than 5mins	53
insight gained	substantial and directly applicable insight	substantial insight	moderate insight	minimal insight	none	2
feasibility	ready for next phase	minor adjustments	limited by typical resources	needs currently unavailable technology	only works in fantasy	3
ease of use	in mind	simple medium for some information	simple medium for lots of information	multiple media or people	multiple media or people and meticulous bookkeeping	4
Innovation			number of fundamentally new concepts:		number of relevant new combinations:	Ð
					Applicability multiplier	x0.5 / x1.0
					Total:	17

Comments: Perhaps because the Zebro's chassis demands more complex solutions, it was easier to apply this rethod. Shill, the generated concepts tend to be generic and needs quite some to become feasible.