Cybersecurity Technology to Practice

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Technology

Governance and Management	Marketing and Sales	Execution and Fulfillment	Intellectual Property and Special Sauce	Financial Situation and Path	Legal Situation

Adoption

It's a long way
It takes a long time
It takes a lot of effort
You likely cannot do it alone

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How do I know this (cybersecurity)?

Started Early

Child's Play
Project Solo and hacking as a kid
High school computer admin
ARPA-net node 8? – DISN – AutoVON/AutoDIN
DATPOL / Project Hearsay Librarian
PDP 11-4e Microcoded vision instructions

BS to MS

Automatic lights out
Robotic dead dog
Radon detector image processing
Legal Software Incorporated

MS to Ph.D.

A car or an apartment
Consultant and Teaching then Research Assistant
Distributed Parallel Processing
Computer Viruses – Defenses – A-Life
Management Analytics

Professor
CEO – TRP 8-250 employees in ~3 mo
All Things Incorporated → all.net
1st remote Internet vulnerability scanner
1 company per year
Sandia – Patent Licensing
Cyber Defenders
Critical infrastructure assessments
Digital forensics and investigations
Expert witness litigation support
Started a University
Deception patents and more
Burton Group
Management Analytics Again
Influence and Decider
Insider Defenses R&D
Keiretsu Forum
A2E → 100 comp / year 6th largest
GWiz™ and JDM and ...
~40 Companies in portfolio
The Cyber Show™
Soon adding ~10/year

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We Help Grow Companies

The old fashioned way… we earn it

- I cannot teach you what I learned since the 1970s in a few years
- Neither can each of the people orthe team you will need
- And we cannot mentor you to get it all done on your own

Startup → Emerging → Growth → Market Leading
To be successful you need to mature a company

Or you could have someone else do it for you
But that almost never works until mid-"Growth" stage

And cybersecurity is NOT like food or vacations

- Nobody really "wants it" – they get it because they have to

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What does it take to succeed?

What is success?

To achieve your goal, clarify it to yourself
Then explain it to me

If it's not business success

Enjoy yourself
At your own expense of time and money

If it's business success

It's not about you
It's about the business

What do you expect for success in your field?

- Do your students know as much as you?
- Are they as good at what you do as you are?
- How long did it take you to get there?
- What did you have to do to get there?

Your specialty is X (Chief Scientist?)

To succeed you will need as good an expert in:

- Governance and management (CEO)
- Sales and marketing (CBDO)
- IP and special sauce (CTO)
- Financial engineering (CFO)
- Legal and juridical issues (CLO)

And the team and technology to support them

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Each specialty is at least as hard as yours

Some big mistakes / How hard can it be?

Build a better mouse trap?

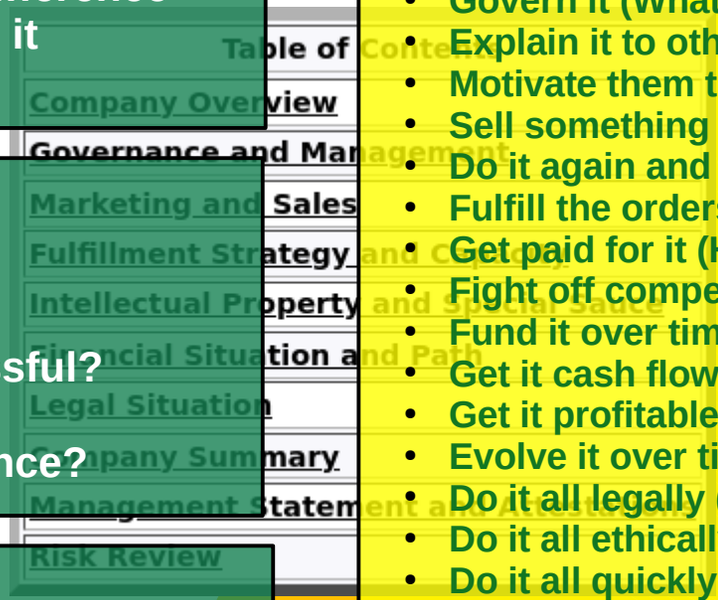
The second best technology usually wins
It's usually about differential benefits
You have to make enough of a difference
Or it's not worth changing it

Quality is the key?

To what door?
Why is McDonalds so successful?
It's a competitive world
How can they tell the difference?

Engineers/Scientists can sell?

Telling the "whole truth" is a disease
(and impossible to do)
There is such a thing as too much information



What do you need to do?

- Form a company (What kind and where?)
- Structure it (Organized how?)
- Hire leadership (Who and why?)
- Govern it (What's the feedback system?)
- Explain it to others (To whom, how, and where?)
- Motivate them to pay you (What do you promise?)
- Sell something to them (What and how?)
- Do it again and again (How is it systematized?)
- Fulfill the orders (How do you fulfill your promises?)
- Get paid for it (How, how much, and when?)
- Fight off competition (What barriers and stickiness?)
- Fund it over time (Why invest in this?)
- Get it cash flow positive (How to sustain it for now?)
- Get it profitable enough (How to sustain it longer?)
- Evolve it over time (How to adapt and how fast?)
- Do it all legally (What laws and how they bend?)
- Do it all ethically (How to resist temptation?)
- Do it all quickly enough (How long do you have?)
- Get to an exit (Who will buy it all from you?)

What could go wrong with all of this?
How do you make sure it goes right?

You are betting our good name on it!

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Everything will go wrong – how do you make it right?

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All I need is the money to do it

Wrong answer

My first questions:

Who sells what to whom and how?
Who does what to fulfill and how?
What does it cost and what's left?

IF these answers are OK

I will have more questions

OTHERWISE

We are done

What makes answers OK?

You are able to answer them
Clearly and simply
Your answers make sense
To me / your audience
What it costs is worth what's left
As an investment under my model

These are technical questions

For business development
Your technology is not the issue
Not in your technology area
No matter what your technology is
Not in your technical language
You need to know business language

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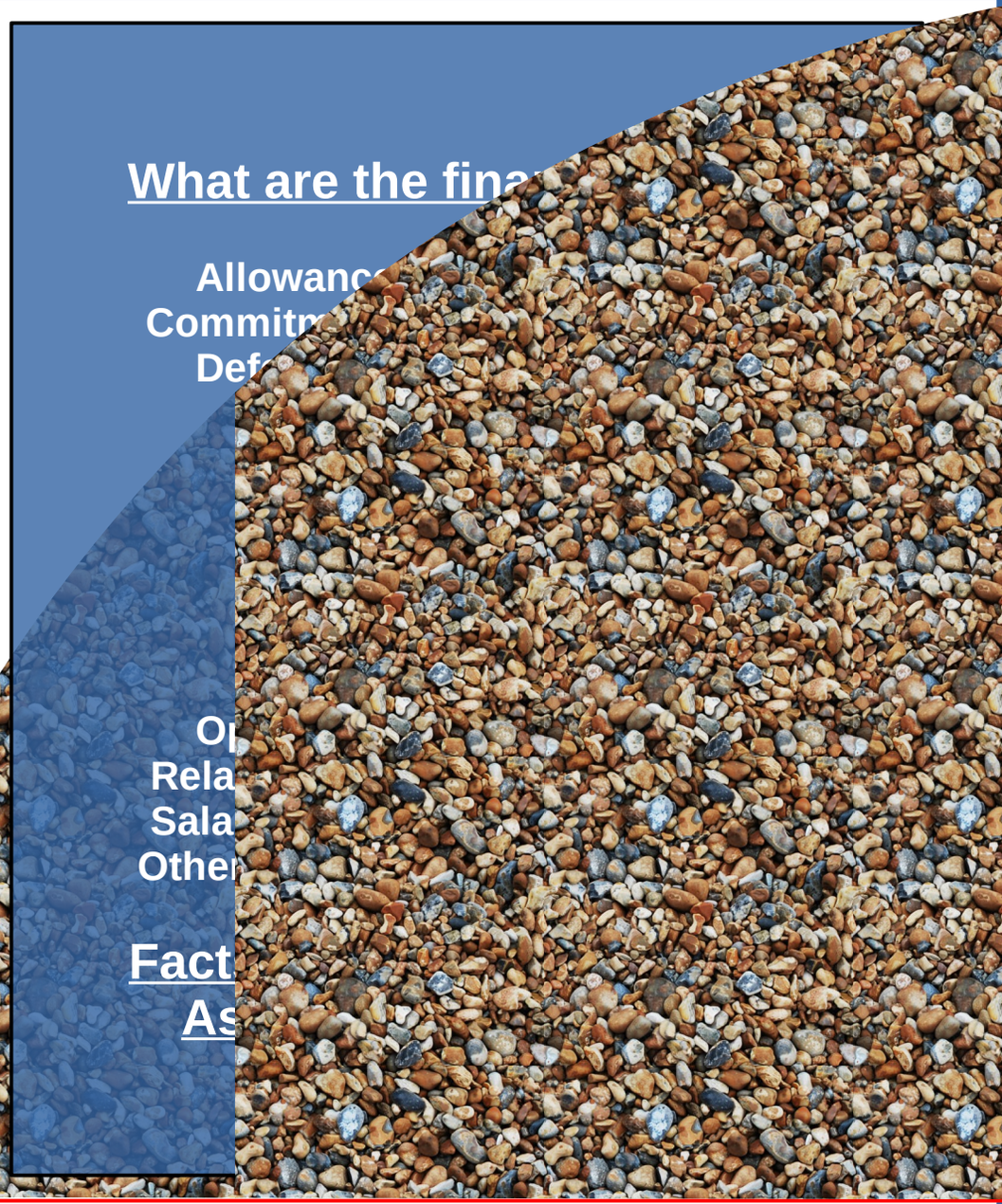
Something you don't know – that we do

How will you finance what?

Owner
Employees
Loans
Notes
Factoring
Equity
Trade
Credit
Customer
Grants
Donations
Crowd
Public
Other

Likely it's a mix

How have you engineered it?
Why did you do it this way?



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The fuel that keeps the engine going

Who will invest, why, when, what?

They are all different*

They range from individuals to Enterprises
They each have their own approach
They each want it their way

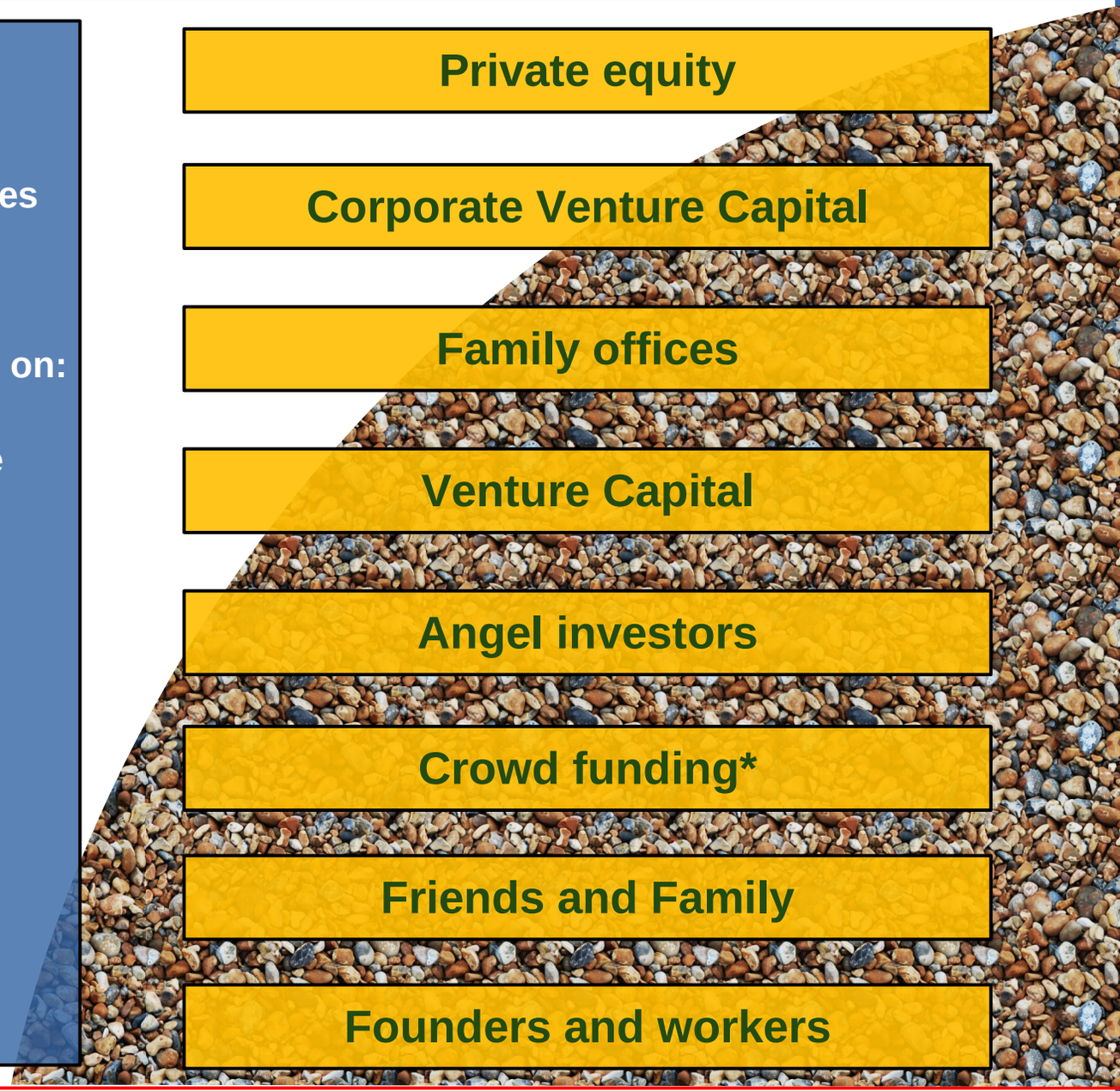
We tend to divide them into classes based on:
- How much they invest and how often
- The processes they tend to use to decide
- The rules they put in place for deal terms
- The way they make decisions
- The things they invest in

Each has to be sold individually

*Except crowd funding...

The Golden Rule:

Who Has the Gold Makes the Rules



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You can't get $10M from a pauper

What do they look for?

They buy for a reason

They want more money out
Than they put in

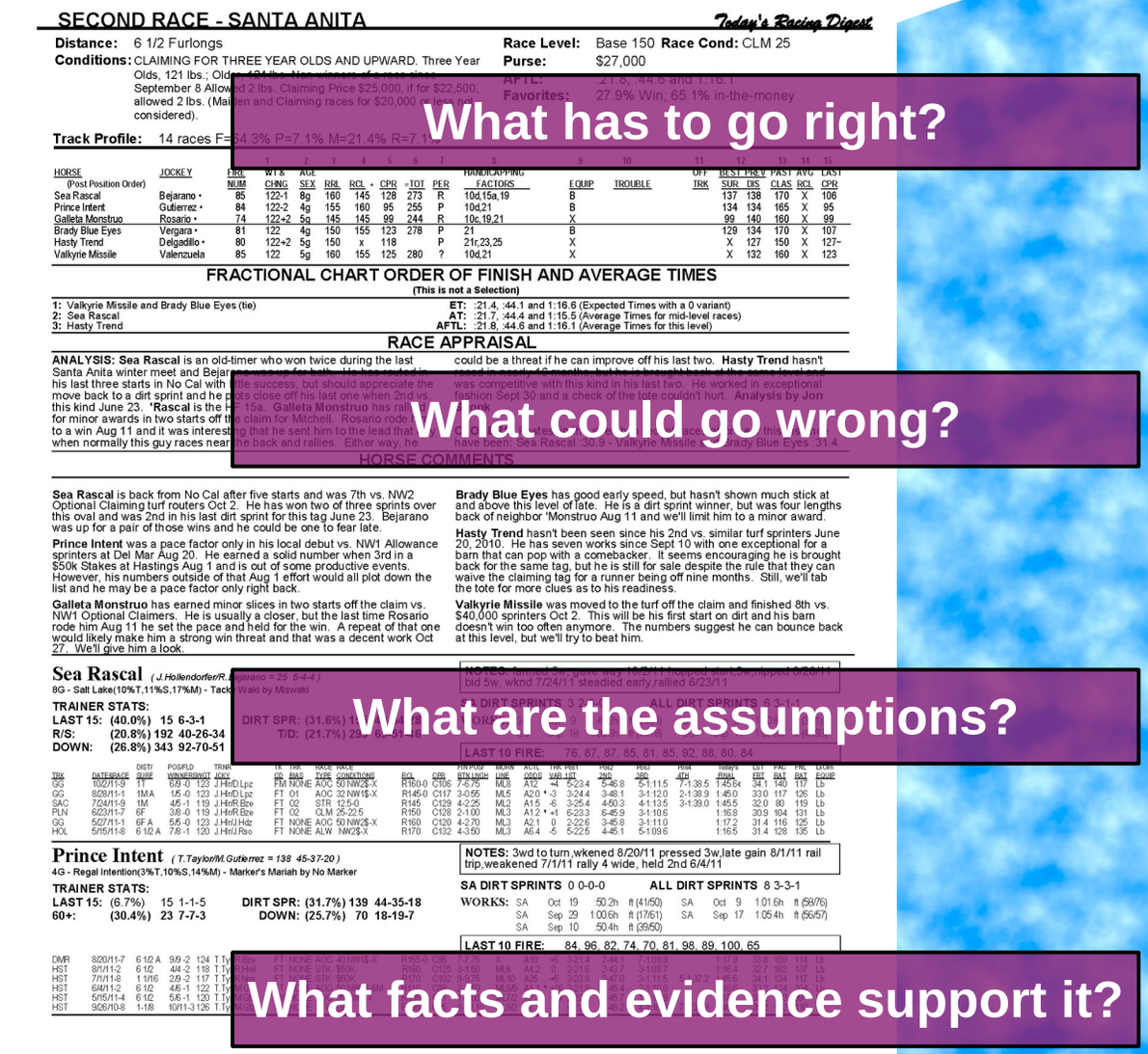
Emotion and Reason
Balance differently for different investors

The investor is usually investing in:

- The jockey and the team (trust)
- The risk and reward (deal)
- The ability to reach a big market
- The ability to fulfill the promises
- The barriers to entry and exit
- The financial plan and engineering
- The legal issues (risk management)
- The match between them and you

They are making a bet

The bet has to make sense to them



SECOND RACE - SANTA ANITA

Today's Racing Digest

Distance: 6 1/2 Furlongs
Conditions: CLAIMING FOR THREE YEAR OLDS AND UPWARD. Three Year Olds, 121 lbs.; Olds [illegible] September 8 Allowed 2 lbs. Claiming Price $25,000, if for $22,500, allowed 2 lbs. (Maiden and Claiming races for $20,000 or less not considered).

Race Level: Base 150 **Race Cond:** CLM 25
Purse: $27,000
AFTE: :21.8, :44.6 and 1:16.1
Favorites: 27.9% Win; 65.1% in-the-money

Track Profile: 14 races F=64.3% P=7.1% M=21.4% R=7.1%

HORSE (Post Position Order)	JOCKEY	FIRE NUM	WT & CHNG	AGE SEX	RRL	RCL +	CPR	=TOT	PER	HANDICAPPING FACTORS	EQUIP	TROUBLE	OFF TRK	BEST SUR	BEST DIS	PREV CLAS	PAST RCL	AVG CPR	LAST CPR
Sea Rascal	Bejarano •	85	122-1	8g	160	145	128	273	R	10d,15a,19	B			137	138	170	X		106
Prince Intent	Gutierrez •	84	122-2	4g	155	160	95	255	P	10d,21	B			134	134	165	X		95
Galleta Monstruo	Rosario •	74	122+2	5g	145	145	99	244	R	10c,19,21	X			99	140	160	X		99
Brady Blue Eyes	Vergara •	81	122	4g	150	155	123	278	P	21	B			129	134	170	X		107
Hasty Trend	Delgadillo •	80	122+2	5g	150	x	118		P	21r,23,25	X			X	127	150	X		127~
Valkyrie Missile	Valenzuela	85	122	5g	160	155	125	280	?	10d,21	X			X	132	160	X		123

FRACTIONAL CHART ORDER OF FINISH AND AVERAGE TIMES
(This is not a Selection)

1: Valkyrie Missile and Brady Blue Eyes (tie)
2: Sea Rascal
3: Hasty Trend

ET: :21.4, :44.1 and 1:16.6 (Expected Times with a 0 variant)
AT: :21.7, :44.4 and 1:15.5 (Average Times for mid-level races)
AFTL: :21.8, :44.6 and 1:16.1 (Average Times for this level)

RACE APPRAISAL

ANALYSIS: Sea Rascal is an old-timer who won twice during the last Santa Anita winter meet and Bejar[illegible] his last three starts in No Cal with [illegible] his last one when 2nd vs this kind June 23. **'Rascal** is the H[illegible] for minor awards in two starts off t[illegible] to a win Aug 11 and it was interesti[illegible] when normally this guy races near[illegible] could be a threat if he can improve off his last two. **Hasty Trend** hasn't raced [illegible] was competitive with this kind in his last two. He worked in exceptional fashion Sept 30 and a check of the tote couldn't hurt. **Analysis by Jon [illegible]**

HORSE COMMENTS

Sea Rascal is back from No Cal after five starts and was 7th vs. NW2 Optional Claiming turf routers Oct 2. He has won two of three sprints over this oval and was 2nd in his last dirt sprint for this tag June 23. Bejarano was up for a pair of those wins and he could be one to fear late.

Prince Intent was a pace factor only in his local debut vs. NW1 Allowance sprinters at Del Mar Aug 20. He earned a solid number when 3rd in a $50k Stakes at Hastings Aug 1 and is out of some productive events. However, his numbers outside of that Aug 1 effort would all plot down the list and he may be a pace factor only right back.

Galleta Monstruo has earned minor slices in two starts off the claim vs. NW1 Optional Claimers. He is usually a closer, but the last time Rosario rode him Aug 11 he set the pace and held for the win. A repeat of that one would likely make him a strong win threat and that was a decent work Oct 27. We'll give him a look.

Brady Blue Eyes has good early speed, but hasn't shown much stick at and above this level of late. He is a dirt sprint winner, but was four lengths back of neighbor 'Monstruo Aug 11 and we'll limit him to a minor award.

Hasty Trend hasn't been seen since his 2nd vs. similar turf sprinters June 20, 2010. He has seven works since Sept 10 with one exceptional for a barn that can pop with a comebacker. It seems encouraging he is brought back for the same tag, but he is still for sale despite the rule that they can waive the claiming tag for a runner being off nine months. Still, we'll tab the tote for more clues as to his readiness.

Valkyrie Missile was moved to the turf off the claim and finished 8th vs. $40,000 sprinters Oct 2. This will be his first start on dirt and his barn doesn't win too often anymore. The numbers suggest he can bounce back at this level, but we'll try to beat him.

Sea Rascal *(J.Hollendorfer/R.Bejarano = 25 5-4-4)*
8G - Salt Lake(10%T,11%S,17%M) - Tack[illegible] Waki by Miswaki

TRAINER STATS:
LAST 15: (40.0%) 15 6-3-1
R/S: (20.8%) 192 40-26-34
DOWN: (26.8%) 343 92-70-51

NOTES: [illegible] bid 5w, wknd 7/24/11 steadied early,rallied 6/23/11

DIRT SPR: (31.6%) [illegible] ALL DIRT SPRINTS 3 2-0-1

T/D: (21.7%) 23[illegible] ALL DIRT 6 3-1-1

LAST 10 FIRE: 76, 87, 87, 85, 81, 85, 92, 88, 80, 84

TRK	DATE/RACE	DIST/ SURF	POS/FLD WIN/PLC/SHO/T	TRNR JOK+	TR CD	TR BIAS	RACE TYPE	RACE CONDITIONS	BCL	CPR	FIN POS	MGN BTN	MGN LNR	ACTL ODD	TRK PRM VAR	TRK PRM SPD	RR2 2ND	RR2 SPD	RR4 4TH	RR4 SPD	TODAY'S FINAL	LST ERT	PAC PAT	PAC PAT	LOWN EQUIP
GS	10/27/11-9	1T	6/8-0 123 J.Hrn/D.Lpz		FM	NONE	AOC	50 NW2$-X	R160-0	C106	7-6.75		ML9	A12	+4	5-23.4	5-46.8	5-1 11.5	7-1 38.5	1:45.6x	34.1	140	117	Lb
GG	8/28/11-1	1MA	1/5-0 123 J.Hrn/D.Lpz		FT	01	AOC	32 NW1$-X	R145-0	C117	3-0.55		ML5	A2.0	-3	3-24.4	3-48.1	3-1 12.0	2-1 38.9	1:45.0	33.0	117	126	Lb
SAC	7/24/11-9	1M	4/5-1 119 J.Hrn/R.Bze		FT	02	STR	12.5-0	R145	C129	4-2.25		ML2	A1.5	-6	3-25.4	4-50.3	4-1 13.5	3-1 39.0	1:45.5	32.0	80	119	Lb
PLN	6/23/11-7	6F	3/6-0 119 J.Hrn/R.Bze		FT	02	CLM	25-22.5	R160	C129	2-1.00		ML3	A1.2	+1	6-23.3	6-45.9	3-1 10.6		1:16.8	30.9	104	131	Lb
GG	5/27/11-1	6F A	5/5-0 123 J.Hrn/J.Hdz		FT	NONE	AOC	50 NW2$-X	R160	C120	4-2.70		ML3	A2.1	0	2-22.6	3-45.8	3-1 11.0		1:17.2	31.4	116	125	Lb
HOL	5/15/11-8	6 1/2 A	7/8-1 120 J.Hrn/J.Rso		FT	NONE	ALW	NW2$-X	R170	C132	4-3.60		ML3	A6.4	-5	5-22.5	4-45.1	5-1 09.6		1:16.5	31.4	128	135	Lb

Prince Intent *(T.Taylor/M.Gutierrez = 138 45-37-20)*
4G - Regal Intention(3%T,10%S,14%M) - Marker's Mariah by No Marker

TRAINER STATS:
LAST 15: (6.7%) 15 1-1-5
60+: (30.4%) 23 7-7-3

DIRT SPR: (31.7%) 139 44-35-18
DOWN: (25.7%) 70 18-19-7

NOTES: 3wd to turn,wkened 8/20/11 pressed 3w,late gain 8/1/11 rail trip,weakened 7/1/11 rally 4 wide, held 2nd 6/4/11

SA DIRT SPRINTS 0 0-0-0 ALL DIRT SPRINTS 8 3-3-1

WORKS: SA Oct 19 :50.2h ft (41/50) SA Oct 9 1:01.6h ft (58/76)
SA Sep 29 1:00.6h ft (17/61) SA Sep 17 1:05.4h ft (56/57)
SA Sep 10 :50.4h ft (39/50)

LAST 10 FIRE: 84, 96, 82, 74, 70, 81, 98, 89, 100, 65

TRK	DATE/RACE	DIST/ SURF	POS/FLD WIN/PLC/SHO/T	TRNR JOK+	TR CD	TR BIAS	RACE TYPE	RACE CONDITIONS	BCL	CPR	FIN POS	MGN BTN	MGN LNR	ACTL ODD	TRK PRM VAR	TRK PRM SPD	RR2 2ND	RR2 SPD	RR4 4TH	RR4 SPD	TODAY'S FINAL	LST ERT	PAC PAT	PAC PAT	LOWN EQUIP
DMR	8/20/11-7	6 1/2 A	9/9-2 124 T.Tyl	R.Bze	FT	NONE	AOC	40 NW1$-X	R155-0	C95	7-7.75	X		A10	+5	3-21.4	2-44.1	7-1 09.3			1:17.9	33.6	159	114	Lb
HST	8/1/11-2	6 1/2	4/4-2 118 T.Tyl	R.Hml	FT	NONE	STK	$50K	R160	C125	3-1.50		ML6	A4.2	0	2-21.6	2-43.7	3-1 08.7			1:16.4	32.7	162	137	Lb
HST	7/1/11-8	1 1/16	2/8-2 117 T.Tyl	R.Hml	FT	NONE	STK	$50K	R150	C103	9-9.75		ML10	A25	-5	3-23.0	4-47.0	3-1 11.5	5-4 37.1	1:46.5	34.1	134	117	Lb
HST	6/4/11-2	6 1/2	4/6-1 122 T.Tyl	R.Hml	FT	NONE	STK	$50K	R170	C125	3-2.25		ML6	A6	-5	3-22.9	3-46.4	3-1 10.4			1:16.2	32.4	137	117	Lb
HST	5/15/11-4	6 1/2	5/6-1 120 T.Tyl	R.Hml	FT	NONE	STK	$50K	R160	C125	3-1.50		ML6	A4.2	0	2-21.6	2-43.7	3-1 08.7			1:16.4	32.7	162	137	Lb
HST	9/26/10-8	1-1/8	10/11-3 126 T.Tyl	R.Hml	FT	NONE	STK	$50K	R170	C125	3-1.50		ML6	A4.2	0	2-21.6	2-43.7	3-1 08.7			1:16.4	32.7	162	137	Lb

What has to go right?

What could go wrong?

What are the assumptions?

What facts and evidence support it?

How do they see the bet?

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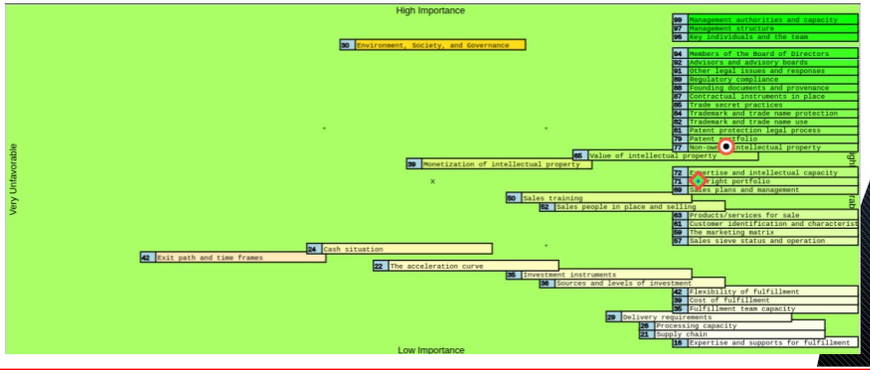
Diligence is required

A great team playing well together

- Very experienced CEO at running companies
- Engaging solid team members known for years
- Great idea and huge market opportunity
- Added expertise along the way to get more funding
- Team helped with friends & family funding
- Product prototypes got built and tested
- Investors attracted more and outside investors
- Now ending possibly last equity round and executing

Overarching Summary	Performance				Stage			Maturity		
Subject Area	Score	Performance	Weighted	Diff	Score	Stage	Weighted	Score	Maturity	Weighted
Governance and Management	92.86%	Running	9.29	2.50	93.33%	Growth	9.33	90.77%	Managed	9.08
Marketing and Sales	93.57%	Running	9.36	5.25	92.86%	Growth	9.29	93.57%	Managed	9.36
Execution and Fulfillment	97.14%	Sprinting	9.71	3.00	91.43%	Growth	9.14	93.57%	Managed	9.36
Intellectual Property and Special Sauce	95.00%	Sprinting	9.50	2.00	93.33%	Growth	9.33	92.73%	Managed	9.27
Financial Situation and Path	55.00%	Jogging	5.50	21.00	52.52%	Emerging	5.25	55.00%	Defined	5.50
Legal Situation	100.00%	Sprinting	10.00	N/A	100.00%	Exit	10.00	100.00%	Optimized	10.00
Average and weighted scores and totals	88.93%	[Running] 88.93		4.42	87.25%	[Growth] 87.25		87.61%	[Managed] 87.61	



Fantastic opportunity

- With a compelling story CEO
- With a great idea
- With great connections
- Until the drill-down into diligence
  - The “team” were real people
    - Most not as good as portrayed
    - None actually engaged
  - The CEO “exaggerated”
    - Almost everything almost always
  - Many people made commitments
    - One after another disappointed
  - Never the CEO’s fault

Fake it till you make it?

NO!!!

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Systematic diligence processes are rare

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From here to where?

Technology

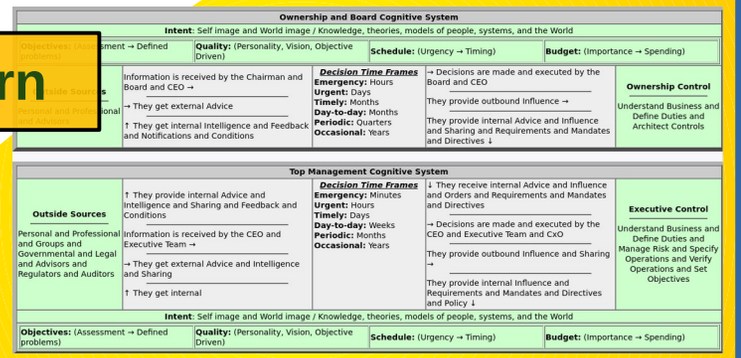
Adoption

Measure

Overarching Summary	Performance				Stage			Maturity		
Subject Area	Score	Performance	Weighted	Diff	Score	Stage	Weighted	Score	Maturity	Weighted
Governance and Management	42.86%	Walking	0.43	11.25	40.00%	Emerging	0.40	44.62%	Repeatable	0.45
Marketing and Sales	15.71%	Sitting	0.16	37.50	12.14%	Startup	0.12	14.29%	Initial	0.14
Execution and Fulfillment	82.14%	Running	0.82	12.75	71.43%	Emerging	0.71	73.57%	Defined	0.74
Intellectual Property and Special Sauce	58.18%	Jogging	0.58	10.75	41.67%	Emerging	0.42	48.18%	Repeatable	0.48
Financial Situation and Path	18.00%	Sitting	0.18	17.25	17.16%	Startup	0.17	20.00%	Initial	0.20
Legal Situation	55.42%	Jogging	0.55	13.25	33.75%	Startup	0.34	40.00%	Repeatable	0.40
Average and weighted scores and totals	45.38%	[Walking] 45.39		13.91	36.02%	[Emerging] 36.02		40.11%	[Repeatable] 40.11	

Performance 45.39%
Stage 36.02%
Maturity 40.11%

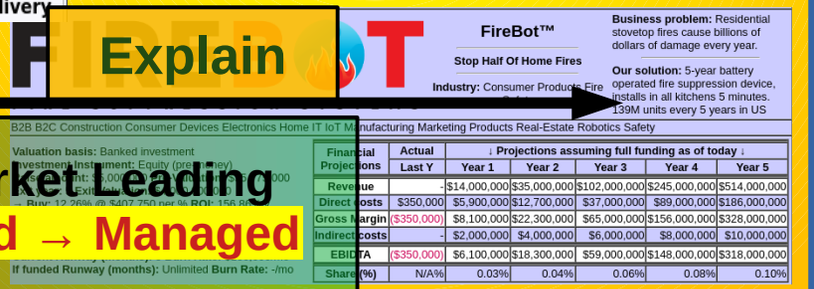
Govern



Manage

Internally facing			Externally facing		
Finance	Administration	Information Management	Technology	Business Development	Operations / Solution delivery

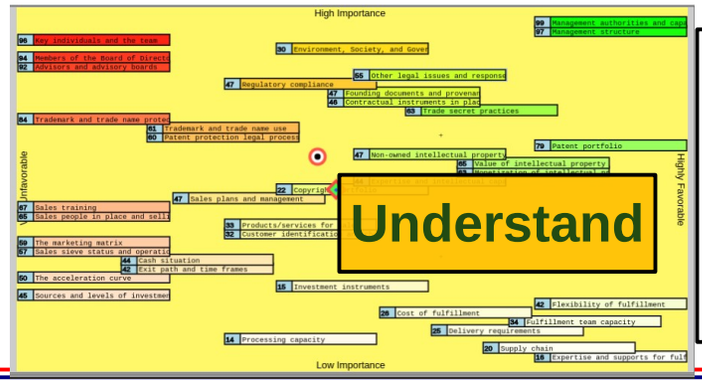
Explain

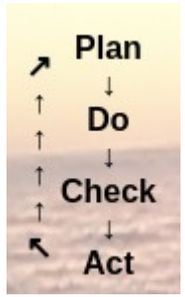


Mature

Startup → Emerging → Growth → Market Leading

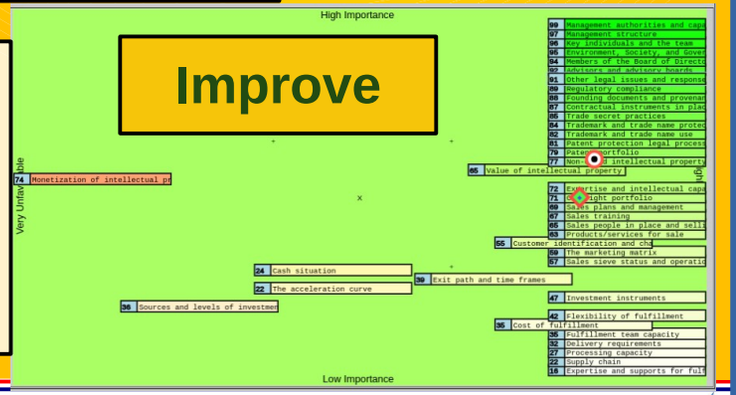
None → Initial → Repeatable → Defined → Managed





Getting from ← to →

Time
Money
Experts
Team
Luck



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There are a lot of things to do

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The opportunity in front of you

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ONLY IF
you are really serious about it

- The only thing any of us really have is time
  - We only have so much of it
  - We don't know how much that is
  - Don't waste yours or mine

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