

HBSP Global Supply Chain Simulation Debrief

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Materials adapted from debrief slides created by
Enspire Learning and Harvard Business Publishing

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Debrief Questions

Design & Forecasting

- How did you decide which options to choose?
- How did you arrive at your forecasts?

Production

- How did you decide which supplier(s) to use?
- How did you determine the order quantities and timing?
- Was it worth the extra \$1 million for 3 month instead of 4 month lead time for the far supplier?
- Was it worth the extra \$1 million for extra capacity (40 vs. 35) for the close supplier?
- How often did you use \$2M change orders? Why?
- Did you buy \$2M market information? Why or why not?

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Strategies...in your own words

Options

- look at the consensus plus but we have also observed the large discrepancies in estimates between people (worrying!)
- go for profit
- no options, cheap devices
- We focus on combined A and B sales growth [\$] and improving margin [%].
- Why would our phone not have speakers!? Just kidding - margin and volume are improved
- Agree with marketing

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Strategies...in your own words

Forecast

- The average without the two extremes (several)
- is there any reason to NOT repeat the consensus?
- an average between the consensus and average number
- We used the average and added half of the standard deviation to it; later: we used the average and subtracted half of the std dev
- Don't trust Joe's outlier
- Follow Joe

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Strategies...in your own words

Production

- CHEAP PRODUCTION AND MARKET MONITORING OF DEMAND
- try not to accumulate too much stock
- we calculated cumulative effect till end of year and saw that it covers 2M cost of change the order
- waited to get 3 months worth of data points prior to making a change order
- oops
- rats
- WE RETIRE AND GO TO THE GOLF COURSE WITH OUR BONUS

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The Board



Betty

Doug

Yvonne

Meryl

Paul

- How did you perform?
- What was each Board member looking for?

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Board Votes Results

Team	Year 1	Year 2	Year 3	Year 4	Total	Rank
KAZIMIR CZ	5	4	3	2	14	1
ADRIAN COPPIANO	2	4	4	4	14	1
BRIAN KOSINA	3	3	4	3	13	3
USCHL JORIS	3	4	5	1	13	3
EM.ANTWERP	2	3	3	5	13	3
MARTIJN VANDENBRANDE	1	4	4	3	12	6
VPALMANS	2	1	4	4	11	7
NAVIGATOR320	1	3	3	4	11	7
KAZAN_MM	4	3	1	3	11	7
PAVELIVANOV75	3	1	2	4	10	10
PIETER1982	3	2	2	3	10	10
FESPIEKER25	1	2	5	2	10	10
DPANEA1971	0	2	4	4	10	10
PIEROCASARA	1	3	3	3	10	10
EDWARD.GLADKOV	2	3	2	3	10	10
SUZUKI IT	3	2	2	3	10	10
MEGAFAZER@BK.RU	2	2	4	2	10	10
SACHA@ATOMIDEAS.COM	3	2	2	3	10	10
KLEFRANCOIS	0	3	4	2	9	19
HOLGERJUNG	2	1	2	4	9	19
ANDREY LUNEV	3	2	2	2	9	19
VADIM.ZAITSEV@YAHOO.COM	3	2	2	2	9	19
JANKENNIS	2	3	2	1	8	23
EDWIN MAES@TELENET.BE	2	2	3	1	8	23
DIGISSEL	0	2	4	2	8	23
ROSAMONGE	2	2	2	2	8	23
FUCHS.TINAB3@GMAIL.COM	2	1	1	4	8	23
SIREDIANA	2	2	1	3	8	23
SRVABOV0001	2	2	2	2	8	23
M9409520	2	3	2	0	7	30
TWUSTENBERGHS	3	1	1	2	7	30
MELISAMOORE	0	2	2	3	7	30
OLEGNEE123	1	2	2	2	7	30
AOSADYKOV@GMAIL.COM	1	2	2	2	7	30
PETER.BRANDERS	0	0	2	4	6	35
O.SARMIN	0	3	2	1	6	35
BEN.STEFFES	0	2	2	2	6	35
TFAMILIARE	2	1	2	1	6	35
SIM.KL@PG.COM	0	3	3	0	6	35
NIKOLAS_ROSSEEL	0	1	3	2	6	35
MAXIM YUDIN	1	0	2	2	5	41
SMAYENCO	3	0	1	1	5	41
AARON BAKER	0	1	0	2	3	43
ARNO.ROOK@GMAIL.COM	2	1	0	0	3	43
Avg	1.7	2.1	2.5	2.4	8.7	
Min	0	0	0	0	3	
Max	5	4	5	5	14	

Profits Results

Team	Year 1	Year 2	Year 3	Year 4	Total	Rank
USCHL JORIS	\$ 50,322	\$ 48,535	\$ 41,778	\$ 55,582	\$ 196,217	1
SRVABOV0001	\$ 41,159	\$ 38,867	\$ 27,587	\$ 84,864	\$ 192,477	2
MEGAFAZER@BK.RU	\$ 42,449	\$ 45,506	\$ 40,054	\$ 53,139	\$ 181,148	3
BRIAN KOSINA	\$ 39,826	\$ 45,669	\$ 38,911	\$ 54,120	\$ 178,526	4
VPALMANS	\$ 44,592	\$ 35,240	\$ 45,083	\$ 52,613	\$ 177,528	5
EDWARD.GLADKOV	\$ 47,691	\$ 40,665	\$ 31,321	\$ 54,571	\$ 174,248	6
MELISAMOORE	\$ 35,146	\$ 44,069	\$ 41,808	\$ 50,028	\$ 171,051	7
DPANEA1971	\$ 44,777	\$ 43,664	\$ 34,405	\$ 47,188	\$ 170,034	8
KAZIMIR CZ	\$ 48,540	\$ 36,438	\$ 34,582	\$ 47,132	\$ 166,692	9
ADRIAN COPPIANO	\$ 25,943	\$ 46,424	\$ 44,761	\$ 46,812	\$ 163,940	10
NAVIGATOR320	\$ 26,539	\$ 47,172	\$ 46,086	\$ 43,795	\$ 163,592	11
VADIM.ZAITSEV@YAHOO.COM	\$ 37,320	\$ 41,291	\$ 24,939	\$ 58,635	\$ 162,185	12
KAZAN_MM	\$ 47,156	\$ 44,475	\$ 17,169	\$ 52,477	\$ 161,277	13
KLEFRANCOIS	\$ 35,499	\$ 38,349	\$ 39,602	\$ 44,545	\$ 157,995	14
DIGISSEL	\$ 33,562	\$ 43,249	\$ 35,691	\$ 44,991	\$ 157,493	15
NIKOLAS_ROSSEEL	\$ 45,931	\$ 30,992	\$ 31,309	\$ 48,008	\$ 156,240	16
FESPIEKER25	\$ 33,453	\$ 30,264	\$ 42,007	\$ 48,555	\$ 154,279	17
ANDREY LUNEV	\$ 43,899	\$ 37,666	\$ 22,040	\$ 45,469	\$ 149,074	18
ROSAMONGE	\$ 46,272	\$ 33,862	\$ 14,344	\$ 54,017	\$ 148,495	19
EM.ANTWERP	\$ 38,727	\$ 38,728	\$ 35,737	\$ 34,728	\$ 147,920	20
PIEROCASARA	\$ 44,235	\$ 32,520	\$ 12,491	\$ 57,184	\$ 146,430	21
FUCHS.TINAB3@GMAIL.COM	\$ 42,339	\$ 38,138	\$ 13,377	\$ 50,765	\$ 144,619	22
MARTIJN VANDENBRANDE	\$ 39,298	\$ 29,897	\$ 33,204	\$ 41,713	\$ 144,112	23
BEN.STEFFES	\$ 27,795	\$ 25,305	\$ 37,438	\$ 52,319	\$ 142,857	24
EDWIN MAES@TELENET.BE	\$ 41,930	\$ 25,723	\$ 28,490	\$ 43,129	\$ 139,272	25
HOLGERJUNG	\$ 33,404	\$ 24,197	\$ 26,145	\$ 55,343	\$ 139,089	26
SIM.KL@PG.COM	\$ 35,410	\$ 43,702	\$ 12,175	\$ 45,487	\$ 136,774	27
PAVELIVANOV75	\$ 28,794	\$ 27,025	\$ 35,650	\$ 45,252	\$ 136,721	28
M9409520	\$ 44,271	\$ 46,418	\$ 30,396	\$ 9,749	\$ 130,834	29
SMAYENCO	\$ 40,171	\$ 24,110	\$ 21,246	\$ 44,784	\$ 130,311	30
O.SARMIN	\$ 36,615	\$ 37,083	\$ 31,854	\$ 24,707	\$ 130,259	31
JANKENNIS	\$ 30,760	\$ 29,960	\$ 22,560	\$ 44,373	\$ 127,653	32
OLEGNEE123	\$ 27,465	\$ 19,975	\$ 25,857	\$ 49,424	\$ 122,721	33
SUZUKI IT	\$ 31,413	\$ 38,285	\$ 15,544	\$ 32,271	\$ 117,513	34
TFAMILIARE	\$ 36,569	\$ 19,560	\$ 21,609	\$ 33,490	\$ 111,228	35
TWUSTENBERGHS	\$ 32,287	\$ 28,470	\$ 6,328	\$ 43,448	\$ 110,533	36
SACHA@ATOMIDEAS.COM	\$ 32,720	\$ 32,243	\$ (4,107)	\$ 45,796	\$ 106,652	37
PIETER1982	\$ 46,510	\$ 14,553	\$ 1,251	\$ 41,351	\$ 103,665	38
PETER.BRANDERS	\$ 30,809	\$ 665	\$ 21,850	\$ 44,680	\$ 97,998	39
MAXIM YUDIN	\$ 36,482	\$ 2,832	\$ 20,798	\$ 33,657	\$ 93,769	40
AOSADYKOV@GMAIL.COM	\$ 23,771	\$ 13,942	\$ 13,036	\$ 34,288	\$ 85,037	41
AARON BAKER	\$ 23,973	\$ 22,493	\$ (19,082)	\$ 48,289	\$ 75,673	42
SIREDIANA	\$ 39,293	\$ 23,721	\$ (21,163)	\$ 18,220	\$ 60,071	43
ARNO.ROOK@GMAIL.COM	\$ 39,344	\$ 32,223	\$ (38,012)		\$ 33,555	44
Avg	\$ 37,601	\$ 32,822	\$ 23,594	\$ 45,604	\$ 138,585	
Min	\$ 23,771	\$ 665	\$ (38,012)	\$ (9,749)		
Max	\$ 50,322	\$ 48,535	\$ 46,086	\$ 84,864		

Combined Results

Team	Profit	Rank	Votes	Weights		Z Profit	Z Votes	Score	Rank
				70%	30%				
USCHI.IORIS	\$ 196,217	1	13	3	1.66	1.62	1.65	1	
BRIANKOSINA	\$ 178,526	4	13	3	1.15	1.62	1.29	2	
KAZIMIR CZ	\$ 166,692	9	14	1	0.81	2.00	1.17	3	
ADRIANCOPIANO	\$ 163,940	10	14	1	0.73	2.00	1.11	4	
VPALMANS	\$ 177,528	5	11	7	1.12	0.87	1.05	5	
SRVABOV001	\$ 192,477	2	8	23	1.55	-0.25	1.01	6	
MEGAFAZER@BK.RU	\$ 181,148	3	10	10	1.23	0.50	1.01	7	
EDWARD.GLADKOV	\$ 174,248	6	10	10	1.03	0.50	0.87	8	
DPANEA1971	\$ 170,034	8	10	10	0.91	0.50	0.78	9	
NAVIGATOR320	\$ 163,592	11	11	7	0.72	0.87	0.77	10	
KAZAN.MM	\$ 161,277	13	11	7	0.65	0.87	0.72	11	
EM.ANTWERP	\$ 147,920	20	13	3	0.27	1.62	0.67	12	
VADIM.ZAITSEV@YAHOO.CO	\$ 162,185	12	9	19	0.68	0.13	0.51	13	
MARTIJNVANDEBRANDE	\$ 144,112	23	12	6	0.16	1.25	0.49	14	
MELISAMOORE	\$ 171,051	7	7	30	0.94	-0.62	0.47	15	
FESPIEKER25	\$ 154,279	17	10	10	0.45	0.50	0.47	16	
KLEFRANCOIS	\$ 157,995	14	9	19	0.56	0.13	0.43	17	
PIEROCASARA	\$ 146,430	21	10	10	0.23	0.50	0.31	18	
DIGISSEL	\$ 157,493	15	8	23	0.54	-0.25	0.31	19	
ANDREY.LUNEV	\$ 149,074	18	9	19	0.30	0.13	0.25	20	
ROSAMONSE	\$ 148,495	19	8	23	0.29	-0.25	0.13	21	
PAVELIVANOV75	\$ 136,721	28	10	10	-0.05	0.50	0.11	22	
NIKOLAS.ROSSEEL	\$ 156,240	16	6	35	0.51	-0.99	0.06	23	
HOLGERJUNG	\$ 139,089	26	9	19	0.01	0.13	0.05	24	
FUCHS.TINA83@GMAIL.COM	\$ 144,619	22	8	23	0.17	-0.25	0.05	25	
EDWINMAES@TELENET.BE	\$ 139,272	25	8	23	0.02	-0.25	-0.06	26	
BEN.STEFFES	\$ 142,857	24	6	35	0.12	-0.99	-0.21	27	
SUZUKIIT	\$ 117,513	34	10	10	-0.61	0.50	-0.27	28	
JANKENNIS	\$ 127,653	32	8	23	-0.31	-0.25	-0.29	29	
SIM.KL@PG.COM	\$ 136,774	27	6	35	-0.05	-0.99	-0.33	30	
M9409520	\$ 130,834	29	7	30	-0.22	-0.62	-0.34	31	
O.SARMIN	\$ 130,259	31	6	35	-0.24	-0.99	-0.47	32	
SACHA@ATOMIDEAS.COM	\$ 106,652	37	10	10	-0.92	0.50	-0.49	33	
OLEGNEE123	\$ 122,721	33	7	30	-0.46	-0.62	-0.51	34	
PIETER1982	\$ 103,665	38	10	10	-1.01	0.50	-0.55	35	
SMAYENCO	\$ 130,311	30	5	41	-0.24	-1.37	-0.58	36	
TWUSTENBERGHS	\$ 110,533	36	7	30	-0.81	-0.62	-0.75	37	
TFAMILIARE	\$ 111,228	35	6	35	-0.79	-0.99	-0.85	38	
PETER.BRANDERS	\$ 97,998	39	6	35	-1.17	-0.99	-1.12	39	
AOSADYKOV@GMAIL.COM	\$ 85,037	41	7	30	-1.54	-0.62	-1.27	40	
MAXIMYUDIN	\$ 93,769	40	5	41	-1.29	-1.37	-1.31	41	
SIREDIANA	\$ 60,071	43	8	23	-2.26	-0.25	-1.66	42	
AARONBAKER	\$ 75,673	42	3	43	-1.81	-2.11	-1.90	43	
ARNO.ROOK@GMAIL.COM	\$ 33,555	44	3	43	-3.03	-2.11	-2.75	44	

Takeaways

- Accurate forecasts
 - Gather more data, especially individual forecasts
 - Capture the standard deviation of the individual forecasts
 - A small amount of pre-launch information or actual demand can really improve forecasts
- Responsive supply
 - Structurally aim to shorten lead times and increase reactive capacity
 - Consider which products to produce with speculative/reactive capacity
- Optimize inventory*
 - There are incentives to produce more or less than the forecast
 - Critical Ratio based on the cost of being under/over (e.g. margin/markdown cost) provides intuition for when to over/underproduce
 - Combine Critical Ratio and standard deviation of demand to determine how much to over/underproduce

*WARNING: These principles show the theory and are only a simplification of the full theory in the game because some assumptions are not realized: e.g. ability carry inventory and issue change orders throughout the year, capacity constraints, supplier lead times. The intuition from the newsvendor problem – that you should consider overage/underage costs when setting inventory targets – is what we are trying to teach. Email me if you would like to know more about the full theory.

Further Reading

Janice H. Hammond, Ananth Raman. "Sport Obermeyer Ltd." Harvard Business School Case (No. 9-695-022), August 15, 2006.

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