Overview Overview How-to-use "Map" DB "Map" findings How-to-use "Time" DB "Time" findings How-to-use "Customers/products" Recommendations "Customers/products" findings

# What is Causing Returns?

Samplestore dataset analysis by Arina Zakharova 22/01/2025

Overview	Overview	How-to-use "Map" DB	"Map" findings	How-to-use "Time" DB	"Time" findings	How-to-use	"Customers/products"	Recommendations
						"Customers/products"	findings	

# **Analysis Overview**

### The analysis focuses on three key metrics for measuring returns:

- Return rates as a percentage of sales (for identifying patterns)
- Absolute cost of returns (for financial impact assessment)
- Total number of returns (for operational planning, though this metric requires context due to varying product values)

#### The dashboard consists of three main visualizations:

- 1. Interactive map showing return rates by state, as well as Return rates broken down by categories and subcategories with an ability to filter the year or the order date in order to stick to up-to-date measures.
- 2. A temporal analysis showing return rates trends over time, with Category-specific breakdown option, also showing the returns' impact on profit over time.
- 3. A detailed product and customer analysis showing return rates versus profit margin, helping us identify high-risk products that need immediate attention as well as unsatisfied customers that cause the decrease of profits.



Labels

Sales: 423

Returns: 80

Tables

Sales: 405

Returns: 116







Phones

Sales: 1,121

Returns: 309

Total sums \$

Total numbers

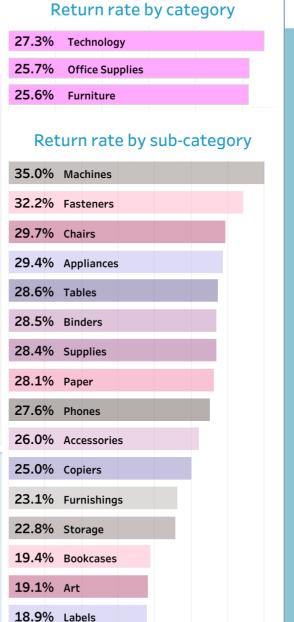
17.2% Envelopes

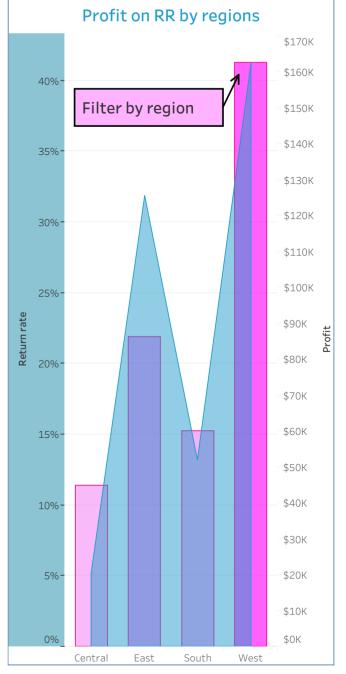
Accessories

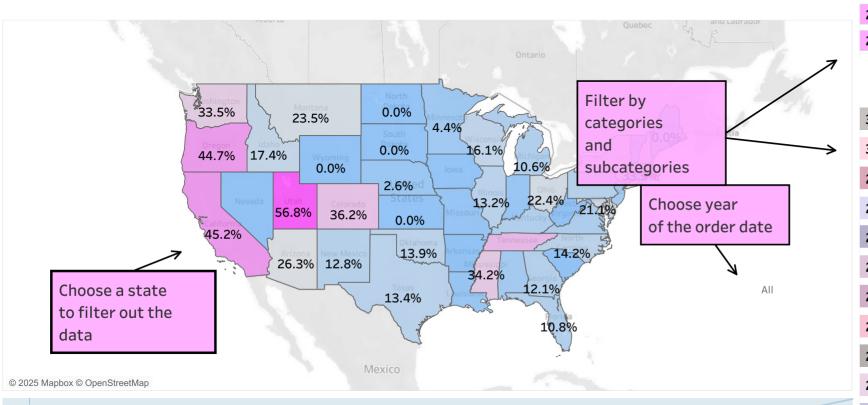
Sales: 965

Returns: 251

Switch the views







Storage

Sales: 1,022

Returns: 233

**Appliances** 

Sales: 603

Returns: 177

Returns





© 2025 Mapbox © OpenStreetMap



23.5%

0.0%

56.8% 36.2%

26.3% 12.8%

0.0%

33.5%

44.7%

45.2%



16.1%

13.9% 0.0% 38.1% 14.2%

Storage

Sales: 1,022

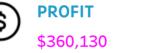
13.2% 22.4% 12.69

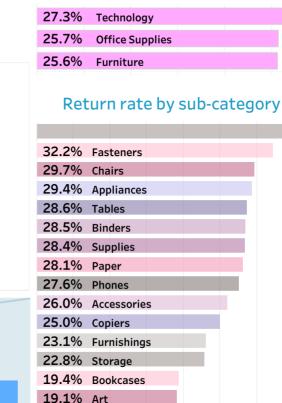
RETURN RATE

**Furnishings** 

Sales: 1,151

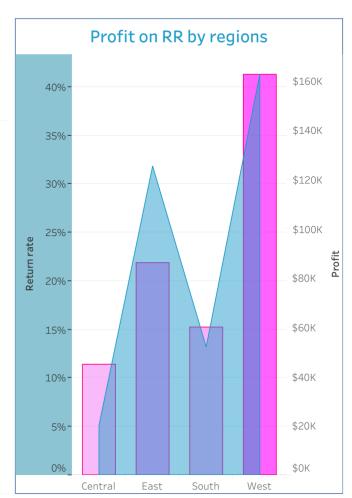






17.2% Envelopes

Return rate by category



Utah, California, and Oregon show highest return rates, with California having the most significant impact on total profit due to sales volume.

Returns

The sales on returns scatterplot shows which subcategories fall out of the trendline - although it is clear that with the rise of sales there is a rise in returns, machines, fasteners and chairs, for example, have higher return rate than other categories. Which is proved by a barchart with return rates on subcategories.

Total sums \$

Total numbers

Phones

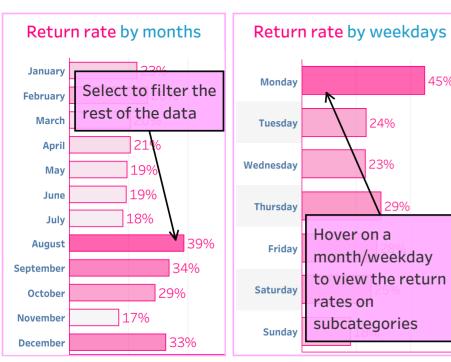
Sales: 1.121

Returns: 309

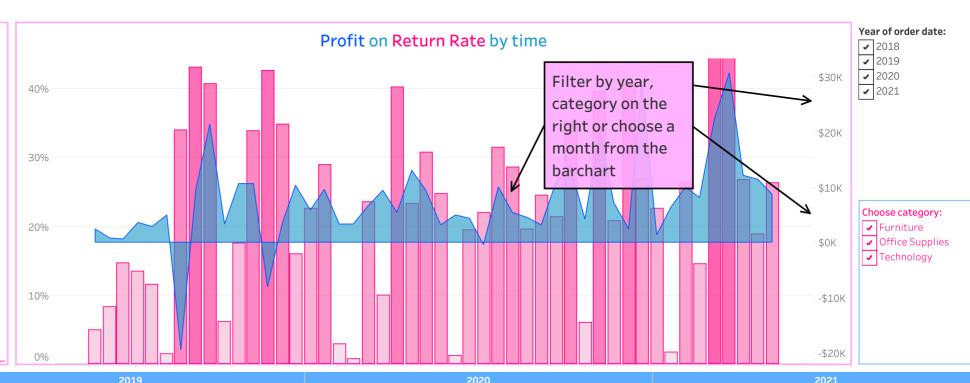
Furniture shows lowest profit despite higher sales compared to technology and office supplies.

The central region demonstrates significantly lower profit-to-return ratios.





45%

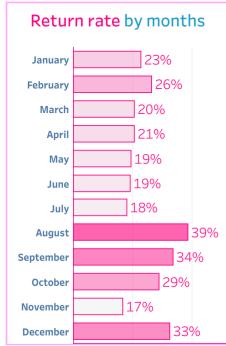


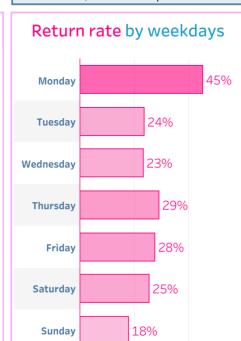
	2015								2020							2021												
	Monday	Tuesday	Wednes Th	nursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednes	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednes T	hursday	Friday	Saturday	Sunday	Monday	Tuesday \	Wednes	Thursday	Friday	Saturday	Sunday
January	0%	0%	0%	0%	0%	10%	0%	0%		74%	8%	0%	7%	33%		40%	0%	0%	46%	47%	0%		0%	0%	45%	0%	21%	0%
February	0%	0%	0%	0%	44%	0%	0%	0%		22%	<b>~</b> 0%	79%	0%	0%	0%	20%	0%	0%	0%	0%	0%		0%	54%	29%	79%	0%	0%
March	0%		0%	0%	0%	40%	4%		0%	0%	59%	28%	0%	0%	0%	32%	0%	0%	33%	6%	13%	0%	21%	17%	14%	0%	12%	74%
April	0%	0%	0%	14%	47%	0%	0%	0%	12%	29%	20%	) oli	ivestig	ate ho	w fileri	ng chai	nges the	16%	0%	0%	13%	0%	15%	0%	0%	21%	56%	5%
May	6%	80%	0%	0%	5%	36%	0%	0%	0%	48%	25%	3 d	istribu	tion of	return	rates b	y time	48%	0%	53%	0%	0%	2%	2%	0%	0%	3%	4%
June	10%		0%	0%	0%	0%	8%		0%	0%	0%	2004	0%	Ω%.	0%	29%	72%	25%	8%	0%	0%	0%	50%	0%	40%	12%	0%	0%
July	0%		17%	50%	48%	17%	28%	0%	0%	0%	0%	0%	4%	0%	0%	2%	32%	0%	11%	43%	0%	0%	0%	2%	8%	4%	42%	16%
August	72%		52%	0%	22%	71%	0%	0%	0%	42%	41%	27%	0%	0%	0%	39%	23%	63%	0%	0%	0%	0%	61%	0%	0%	71%	56%	41%
September	47%	0%	0%	73%	52%	2%	30%	0%	0%	0%	25%	2%	22%	11%	0%	0%	68%	18%	0%	11%	0%	99%	14%	24%	51%	3%	14%	37%
October	0%	0%	10%	15%	7%	0%	0%	0%	32%	16%	78%	0%	0%	0%		70%	31%	0%	10%	6%	0%	0%	54%	0%	0%	12%	34%	0%
November	0%	0%	9%	0%	9%	39%	25%	80%	63%	7%	13%	19%	27%	0%	9%	5%	2%	12%	4%	2%	16%	0%	17%	7%	25%	1%	22%	49%
December	3%	0%	39%	43%	31%	55%	0%	89%	35%	13%	27%	25%	44%	3%	0%	3%	17%	2%	79%	0%	0%	0%	23%	31%	24%	1%	32%	54%

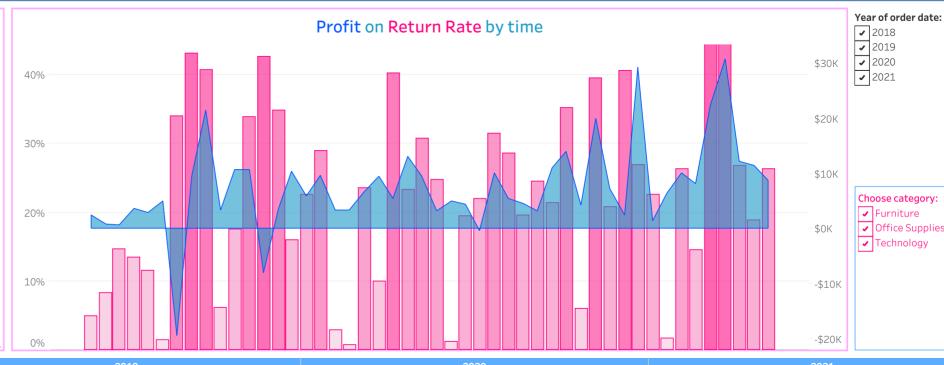


Returns show higher frequency on Mondays and peak in August, though patterns vary monthly when filtered.

Machines, which top the list of return rate, are mostly returned in January, March and September.







	2018
-\$30K	✓ 2019 ✓ 2020 ✓ 2021
\$20K	
-\$10K	
-\$0K	Choose category:  Furniture  Office Supplies  Technology

		2018						2019					2020					2021										
	Monday T	uesday	Wednes T	hursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednes	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednes	Thursday	Friday	Saturday	Sunday	Monday	Tuesday \	Wednes	Thursday	Friday	Saturday S	Sunday
January	0%	0%	0%	0%	0%	10%	0%	0%		74%	8%	0%	7%	33%		40%	0%	0%	46%	47%	0%		0%	0%	45%	0%	21%	0%
February	0%	0%	0%	0%	44%	0%	0%	0%		22%	0%	79%	0%	0%	0%	20%	0%	0%	0%	0%	0%		0%	54%	29%	79%	0%	0%
March	0%		0%	0%	0%	40%	4%		0%	0%	59%	23%	0%	0%	0%	32%	0%	0%	33%	6%	13%	0%	21%	17%	14%	0%	12%	74%
April	0%	0%	0%	14%	47%	0%	0%	0%	12%	29%	20%	0%	24%	59%	0%	9%	43%	16%	0%	0%	13%	0%	15%	0%	0%	21%	56%	5%
May	6%	80%	0%	0%	5%	36%	0%	0%	0%	48%	25%	31%	45%	0%	75%	2%	19%	48%	0%	53%	0%	0%	2%	2%	0%	0%	3%	4%
June	10%		0%	0%	0%	0%	8%		0%	0%	0%	29%	0%	0%	0%	29%	72%	25%	8%	0%	0%	0%	50%	0%	40%	12%	0%	0%
July	0%		17%	50%	48%	17%	28%	0%	0%	0%	0%	0%	4%	0%	0%	2%	32%	0%	11%	43%	0%	0%	0%	2%	8%	4%	42%	16%
August	72%		52%	0%	22%	71%	0%	0%	0%	42%	41%	27%	0%	0%	0%	39%	23%	63%	0%	0%	0%	0%	61%	0%	0%	71%	56%	41%
September	47%	0%	0%	73%	52%	2%	30%	0%	0%	0%	25%	2%	22%	11%	0%	0%	68%	18%	0%	11%	0%	99%	14%	24%	51%	3%	14%	37%
October	0%	0%	10%	15%	7%	0%	0%	0%	32%	16%	78%	0%	0%	0%		70%	31%	0%	10%	6%	0%	0%	54%	0%	0%	12%	34%	0%
November	0%	0%	9%	0%	9%	39%	25%	80%	63%	7%	13%	19%	27%	0%	9%	5%	2%	12%	4%	2%	16%	0%	17%	7%	25%	1%	22%	49%
December	3%	0%	39%	43%	31%	55%	0%	89%	35%	13%	27%	25%	44%	3%	0%	3%	17%	2%	79%	0%	0%	0%	23%	31%	24%	1%	32%	54%



Use category/subcategory filters as well as return rate filters to show all of the customers/products or tho..

Category:

Sub-category

		20	01	8 2	2019	2020		2021
Adrian Barton	Aastra 6757i CT Wireless VoIP phone						\$	344.70
	LG G3						\$	470.38
	Polycom VoiceStation 500 Conference phone						<b>\$</b> 1,	887.68
Adrian Hane	Macally Suction Cup Mount					\$200.76	7	
Alan Schoenbe	Avaya IP Phone 1140E VoIP phone	\$1,394	1.95	5				
Alejandro Ball	Cush Cases Heavy Duty Rugged Cover Case for Samsung							\$2.97
Alejandro Sav	Anker Astro Mini 3000mAh Ultra-Compact Portable Char		Γ.			\$23.99		
Amy Cox	Plantronics HL10 Handset Lifter	\$742	J	lover or	i the	sum to v	riew t	he
Amy Hunt	Google Nexus 5		r	roduct	info	on the ri	ght §	539.97
Andrew	Panasonic KX-TG6844B Expandable Digital Cordless Tele			\$10	5 58		<b>J</b>	
Gjertsen	Plantronics MX500i Earset			\$6	8.72			
Andy Yotov	I Need's 3d Hello Kitty Hybrid Silicone Case Cover for HT					\$66.98		
Anna Andreadi	Cisco IP Phone 7961G VoIP phone - Dark gray	\$271	L.90	0				
	Panasonic Kx-TS550	\$82	2.78	8				
Anna Gayman	Samsung Replacement EH64AVFWE Premium Headset							\$22.00
Anna Häberlin	Polycom SoundPoint IP 450 VoIP phone					\$361.38		
	Samsung HM1900 Bluetooth Headset					\$52.68		
	ShoreTel ShorePhone IP 230 VoIP phone			\$94	6.34			
	VTech DS6151			\$60	4.75			
Anthony	Logitech B530 USB Headset - headset - Full size, Binaural					\$59.18		
Johnson	Mophie Juice Pack Helium for iPhone	\$1,343	3.83	3				
Arthur Prichep	Cisco SPA525G2 IP Phone - Wireless	\$143	3.64	4				
Barry Franz	Cisco Small Business SPA 502G VoIP phone					\$246.17		
	Mitel MiVoice 5330e IP Phone						\$3,	299.88
Bart Watters	RCA ViSYS 25825 Wireless digital phone			\$31	1.98			
Ben Wallace	BlackBerry Q10	\$806	5.34	4				
Benjamin Patt	Cisco Unified IP Phone 7945G VoIP phone			\$1,02	2.97			
Benjamin	AT&T 841000 Phone						\$	207.00
Venier	iOttie HLCRIO102 Car Mount					\$39.98		
Berenike Kam	Shocksock Galaxy S4 Armband	\$210	).24	4				
Bill Donatelli	AT&T 841000 Phone					\$165.60		
	Logitech B530 USB Headset - headset - Full size, Binaural							\$88.78
	Macally Suction Cup Mount					\$38.24		
	Palycom CX300 Daskton Phone LISR ValP phone					\$220.00		

Customers		Return rate: > 70 %	
Customer Name	Customer RR	Customer Profit Cus	tomer Sales
Tanja Norvell	78.1%	-\$4,121	\$9,484
Stefania Perrino	82.9%	- <b>∦x</b> ,671	\$22,672
Adrian Hane	84.5%	-\$1,795	\$5,398
Berenike Kampe	78.3%	-\$965	\$2,232
<b>Christine Kargatis</b>	78.1%	-\$248	\$8,741
Cynthia Voltz	70.7%	-\$116	\$6,679
Barry Franz	83.3%	-\$3	\$4,293
Michelle Tran	Colors sh	ow the custor	mers <sup>271</sup>
Andy Yotov	influence	on profit	
Maribeth Yedwab		\$451	\$5,752
Cari Sayre	Choose o	ne to filter his	\$ \$2,698
Deanra Eno	orders 4%		
Patrick Bzostek	83.3%	\$733	\$2,729
Lena Radford	78.3%	\$1,219	\$14,164
Juliana Krohn	76.2%	\$1,273	\$6,427
Carlos Daly	81.0%	\$1,459	\$6,713
Patrick Ryan	90.7%	\$1,471	\$10,961
Bradley Talbott	83.3%	\$1,606	\$11,127
Brosina Hoffman	70.0%	\$1,740	\$9,144
Ted Butterfield	94.4%	\$1,833	\$8,147
Dave Hallsten	75.4%	\$1,836	\$13,549
Lena Creighton	79.1%	\$1,894	\$9,845
Rick Reed	72.7%	\$2,352	\$10,215
Thomas Seio	80.3%	\$2,581	\$23,028
Joe Elijah	74.1%	\$2,755	\$20,415
Sandra Glassco	97.6%	\$3,369	\$23,904
William Brown	82.3%	\$3,438	\$25,539
Jamie Kunitz	83.7%	\$4,007	\$14,396
Valerie Domingu	78.3%	\$4,501	\$17,072
Clay Ludtke	73.5%	\$4,776	\$28,517
Anthony Johnson	86.7%	\$4,804	\$16,580
Rick Wilson	75.4%	\$6,999	\$27,784
Dan Reichenbach	82.9%	\$8,222	\$27,614
Darrin Martin	79.0%	\$11,275	\$32,048
	91.6%	\$21,633	\$107,150

Products	Return rat >90 %	te:	
Product Name	Sales	RR	Profit
Cisco SPA 501G IP Phone	\$640	100%	\$48
Samsung Galaxy Note 2	\$18,032	89%	-\$2,834
Macally Suction Cup Mount	\$452	80%	-\$74
Apple iPhone 5	\$29,892	79%	\$6,173
Shocksock Galaxy S4 Armband	\$239	75%	-\$45
Polycom SoundStation2 EX Co	\$14,335	78%	\$1,685
Panasonic KX T7731-B Digital	\$2,660	75%	\$251
Plantronics Cordless Phone He.	Colors	show i	f \$588
iHome FM Clock Radio with Lig.	• \$1,708		\$80
Cyber Acoustics AC-202b Spee.	0.400		404
Lunatik TT5L-002 Taktik Strik	affect t	the pro	ofit 531
Vtech CS6719	Choose	a prod	duct
HTC One	ΨΖ,500	• 0 70	4200
Plantronics Voyager Pro Lege	to view		4440
i.Sound Portable Power - 8000.	info on	the le	ft <sup>-\$118</sup>
Spigen Samsung Galaxy S5 Ca	\$336	64%	\$/2
Plantronics Encore H101 Dual	1 / -	64%	\$209
Speck Products Candyshell Fli		63%	-\$77
VTech DS6151	\$3,654	60%	\$569
Square Credit Card Reader, 4	\$238	60%	\$68
PureGear Roll-On Screen Prot	\$872	60%	\$362
OtterBox Defender Series Cas	\$1,266	60%	\$195
GE 30522EE2	\$2,320	60%	\$673
Avaya 5420 Digital phone	\$2,079	60%	\$459
Samsung Galaxy S III - 16GB	\$20,579	58%	\$1,428
Mophie Juice Pack Helium for i.		58%	\$317
Cisco 8x8 Inc. 6753i IP Busines.	1 - 7	58%	\$310
LG G3	\$3,567	57%	\$923
Panasonic KX T7736-B Digital		56%	-\$45
Cisco SPA 502G IP Phone	\$3,215	56%	\$444
Cisco Unified IP Phone 7945G		55%	\$443
Samsung Galaxy S4 Mini	\$11,750	50%	\$1,739
Polycom VoiceStation 500 Con.		50%	\$428
LG Exalt	\$1,435	50%	-\$273
Jabra SPEAK 410	\$5,169	50%	\$1,109
Gear Head AU3700S Headset	\$262	50%	-\$27

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¢/ 501



Overview

Category:

Sub-category

		2018	2019	2020	2021
Adrian Barton	Aastra 6757i CT Wireless VoIP phone				\$344.70
	LG G3				\$470.38
	Polycom VoiceStation 500 Conference phone				\$1,887.68
Adrian Hane	Macally Suction Cup Mount			\$200.76	
Alan Schoenbe	Avaya IP Phone 1140E VoIP phone	\$1,394.95			
Alejandro Ball	Cush Cases Heavy Duty Rugged Cover Case for Samsung				\$2.97
Alejandro Sav	Anker Astro Mini 3000mAh Ultra-Compact Portable Char			\$23.99	
Amy Cox	Plantronics HL10 Handset Lifter	\$742.34			
Amy Hunt	Google Nexus 5				\$539.97
Andrew	Panasonic KX-TG6844B Expandable Digital Cordless Tele		\$105.58		
Gjertsen	Plantronics MX500i Earset		\$68.72		
Andy Yotov	I Need's 3d Hello Kitty Hybrid Silicone Case Cover for HT			\$66.98	
Anna Andreadi	Cisco IP Phone 7961G VoIP phone - Dark gray	\$271.90			
	Panasonic Kx-TS550	\$82.78			
Anna Gayman	Samsung Replacement EH64AVFWE Premium Headset				\$22.00
Anna Häberlin	Polycom SoundPoint IP 450 VoIP phone			\$361.38	
	Samsung HM1900 Bluetooth Headset			\$52.68	
	ShoreTel ShorePhone IP 230 VoIP phone		\$946.34		
	VTech DS6151		\$604.75		
Anthony	Logitech B530 USB Headset - headset - Full size, Binaural			\$59.18	
Johnson	Mophie Juice Pack Helium for iPhone	\$1,343.83			
Arthur Prichep	Cisco SPA525G2 IP Phone - Wireless	\$143.64			
Barry Franz	Cisco Small Business SPA 502G VoIP phone			\$246.17	
	Mitel MiVoice 5330e IP Phone				\$3,299.88
Bart Watters	RCA ViSYS 25825 Wireless digital phone		\$311.98		
Ben Wallace	BlackBerry Q10	\$806.34			

Customers		Return rate: > 70 %	
Customer Name	Customer RR Cu	ustomer Profit Cus	stomer Sales
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Barry Franz	83.3%	-\$3	\$4,293
Michelle Tran	78.3%	\$121	\$3,271
Andy Yotov	94.1%	\$390	\$1,763
Maribeth Yedwab	75.8%	\$451	\$5,752
Cari Sayre	81.3%	\$480	\$2,698
Deanra Eno	82.4%	\$534	\$3,749
Patrick Bzostek	83.3%	\$733	\$2,729
Lena Radford	78.3%	\$1,219	\$14,164
Juliana Krohn	76.2%	\$1,273	\$6,427
Carlos Daly	81.0%	\$1,459	\$6,713
Patrick Ryan	90.7%	\$1,471	\$10,961
Bradley Talbott	83.3%	\$1,606	\$11,127
Brosina Hoffman	70.0%	\$1,740	\$9,144
Ted Butterfield	94.4%	\$1,833	\$8,147
Dave Hallsten	75.4%	\$1,836	\$13,549
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Rick Reed	72.7%	\$2,352	\$10,215
Thomas Seio	80.3%	\$2,581	\$23,028
Joe Elijah	74.1%	\$2,755	\$20,415
Sandra Glassco	97.6%	\$3,369	\$23,904
William Brown	82.3%	\$3,438	\$25,539
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Product Name	Sales	RR	Profit					
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Shocksock Galaxy S4 Armband	\$239	75%	-\$45					
Polycom SoundStation2 EX Co	\$14,335	75%	\$1,685					
Panasonic KX T7731-B Digital	\$2,660	75%	\$251					
Plantronics Cordless Phone He	\$2,272	74%	\$588					
iHome FM Clock Radio with Lig	\$1,708	73%	\$80					
Cyber Acoustics AC-202b Spee	\$275	73%	-\$68					
Lunatik TT5L-002 Taktik Strik	\$429	71%	-\$31					
Vtech CS6719	\$4,588	71%	\$856					
HTC One	\$2,560	70%	\$288					
Plantronics Voyager Pro Lege	\$2,843	67%	\$321					
i.Sound Portable Power - 8000	\$774	67%	-\$118					
Spigen Samsung Galaxy S5 Ca	\$336	64%	\$72					
Plantronics Encore H101 Dual	\$1,115	64%	\$209					
Speck Products Candyshell Fli	\$441	63%	-\$77					
VTech DS6151	\$3,654	60%	\$569					
Square Credit Card Reader, 4	\$238	60%	\$68					
PureGear Roll-On Screen Prot	\$872	60%	\$362					
OtterBox Defender Series Cas	\$1,266	60%	\$195					
GE 30522EE2	\$2,320	60%	\$673					
Avaya 5420 Digital phone	\$2,079	60%	\$459					
Samsung Galaxy S III - 16GB	\$20,579	58%	\$1,428					
Mophie Juice Pack Helium for i	\$2,736	58%	\$317					
Cisco 8x8 Inc. 6753i IP Busines	\$5,238	58%	\$310					
LG G3	\$3,567	57%	\$923					
Panasonic KX T7736-B Digital	¢1 Q7Q	56%	_\$15					

Customer profitability doesn't directly correlate with return rates (e.g., Seth Vernon: 91.6% return rate but higher profit than Tanja Norwell with 78.1%)

The principal is also true for the products (e.g., Samsung Galaxy Note 2 caused higher losses despite lower return rate then other products)

Overview	Overview	How-to-use "Map" DB	"Map" findings	How-to-use "Time" DB	"Time" findings	How-to-use	"Customers/products"	Recommendations
						"Customers/products"	findings	

#### Recommendations

#### **Regional Focus**

- Investigate factors driving high returns in Utah, California, and Oregon
- Develop region-specific intervention strategies, particularly for California given its volume

#### **Product Strategy**

- Review quality control and user experience for machines, fasteners, and chairs
- Implement seasonal preparation for machine returns in peak months
- Consider discontinuing or modifying products with high loss impact regardless of return rate

## **Customer Management**

- Develop a nuanced approach to customer evaluation that considers both return rates and profit contribution
- Create targeted retention strategies for high-value customers despite high return rates

## **Operational Planning**

- Adjust staffing and resources for Monday returns processing
- Prepare for increased August return volume
- Implement region-specific strategies to address the central region's profit challenges

#### **Data Monitoring**

- Continue monitoring subcategory performance against overall sales-returns trendline
- Implement early warning systems for products showing unusual return patterns
- Regular review of customer profitability metrics alongside return behavior