

# Flexible Furniture for Uncertain Times

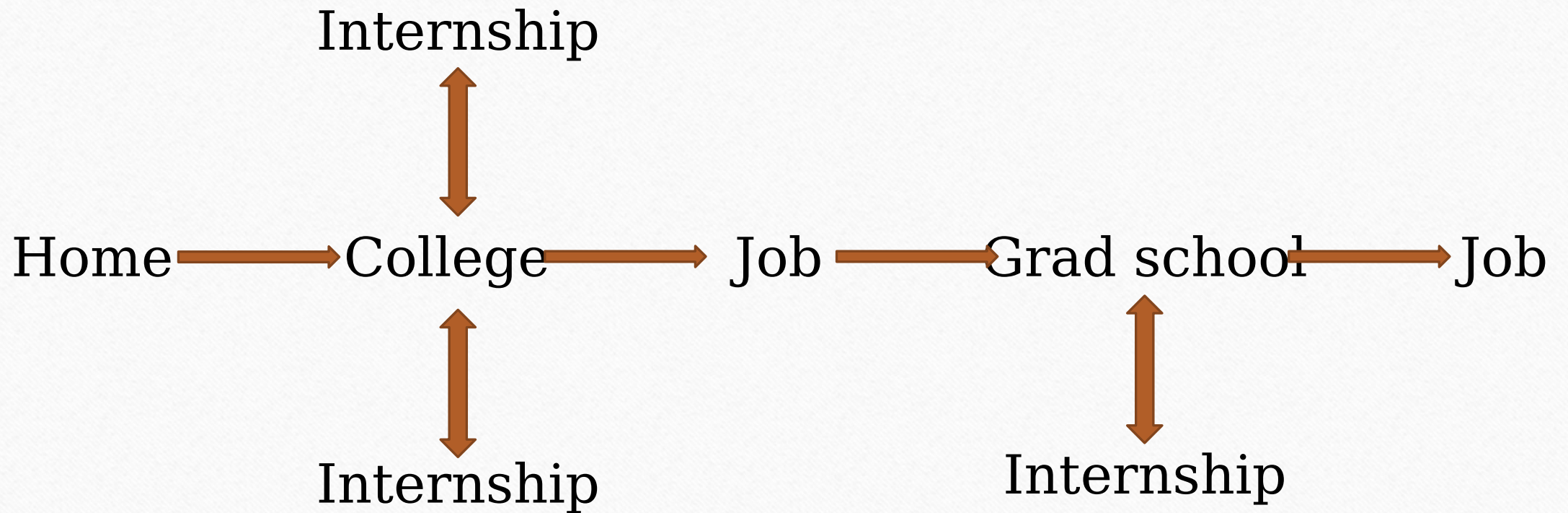
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Ahmed Ebeid, Chris Korabik, Qiuyang Tao, Mark  
Wheeler



# Young People Move a Lot

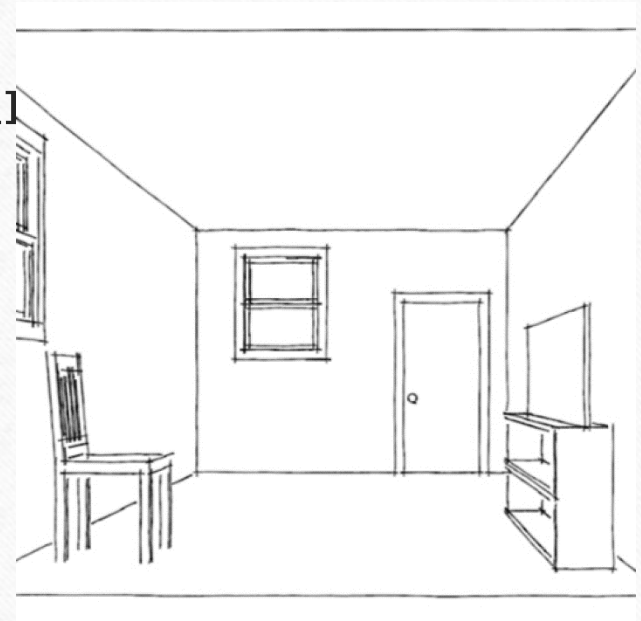
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# Cost Reduction Strategies

- If moving for intentionally short time period, rent furniture instead
- Use second-hand or otherwise cheap furniture
- Just don't buy very much



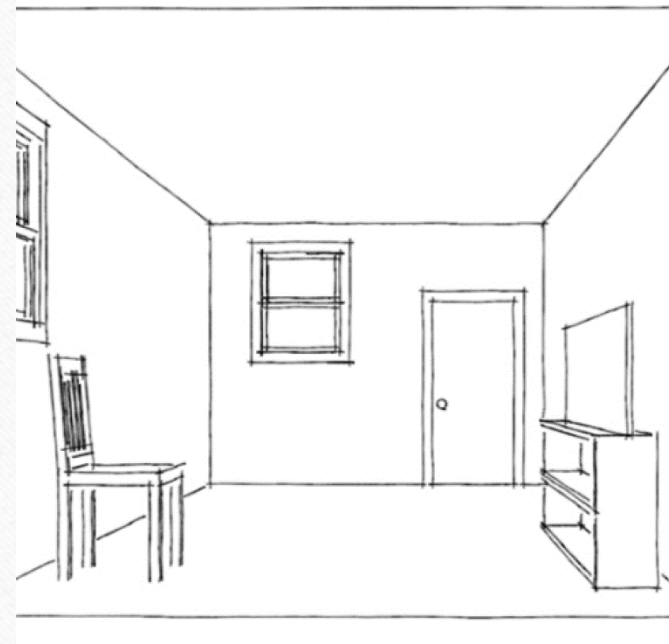


# Space Reduction Strategies

- Use transformable furniture



- Just don't buy very much



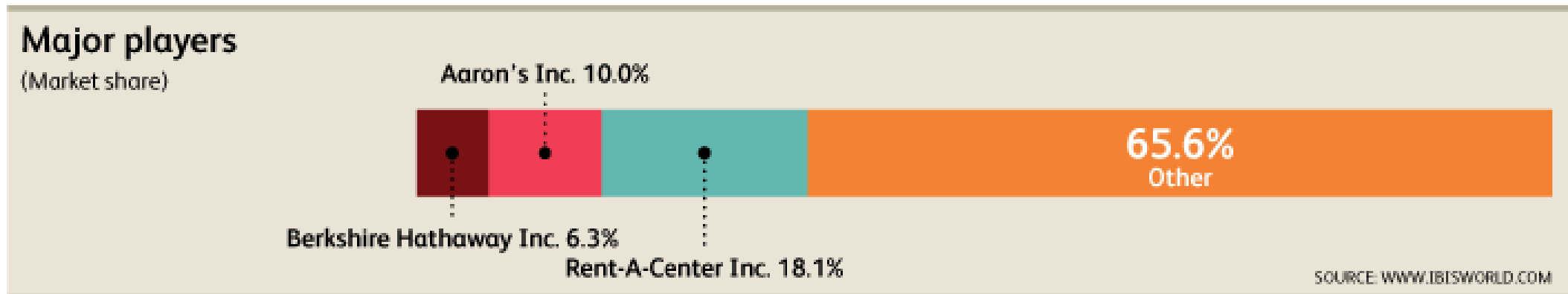
# Opportunity Data

\$740 Million

Home Furniture Rental Revenues in  
2018

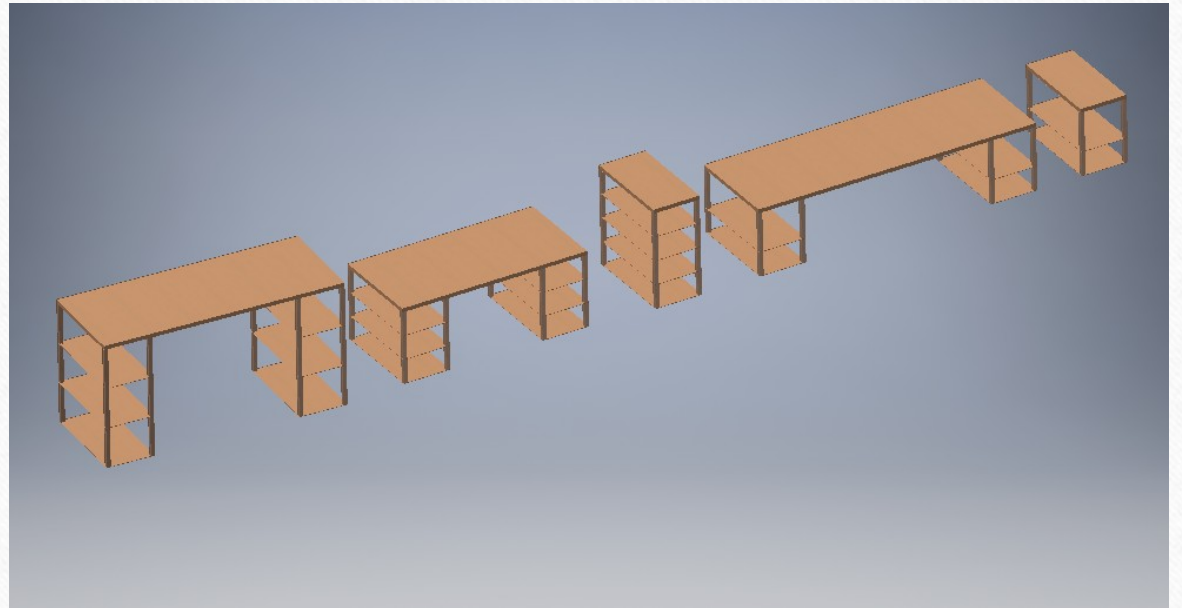
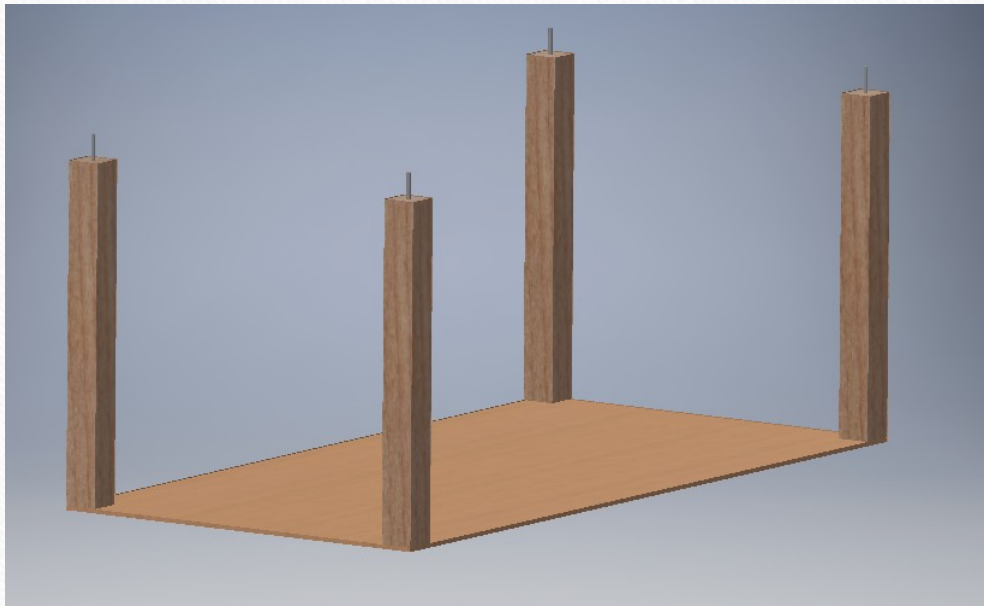
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Ratio of Personal Space in Median  
Residence Hall to Personal Space  
in Median US Home





# Final Design Concept





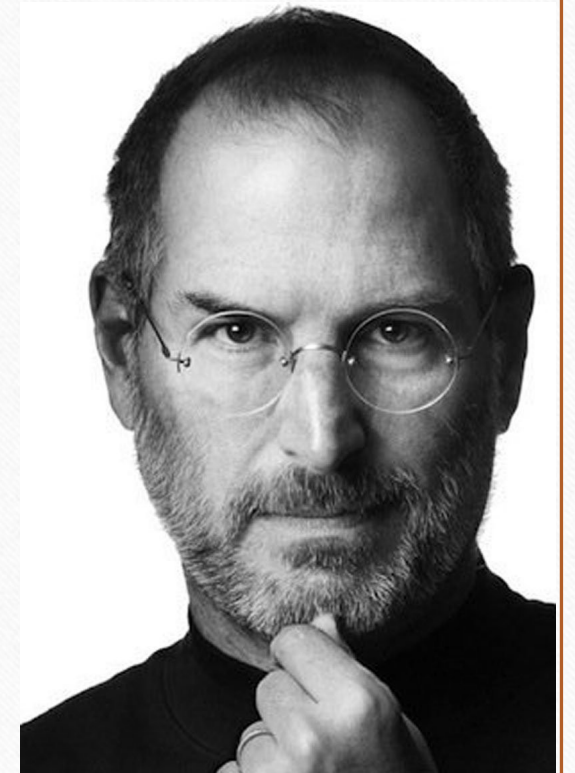
# Customer Needs Analysis

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“You’ve got to start with the customer experience and work backwards to the technology.”

You cannot start with the technology and try to figure out where you are going to sell it.”

- Steve Jobs





# Customer Needs Analysis

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## Cold Emails

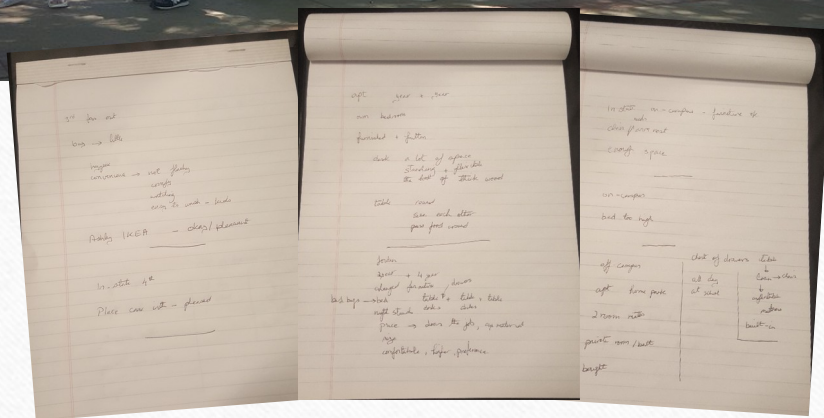


## In-person Interviews





# Customer Needs Analysis





# Customer Needs Analysis

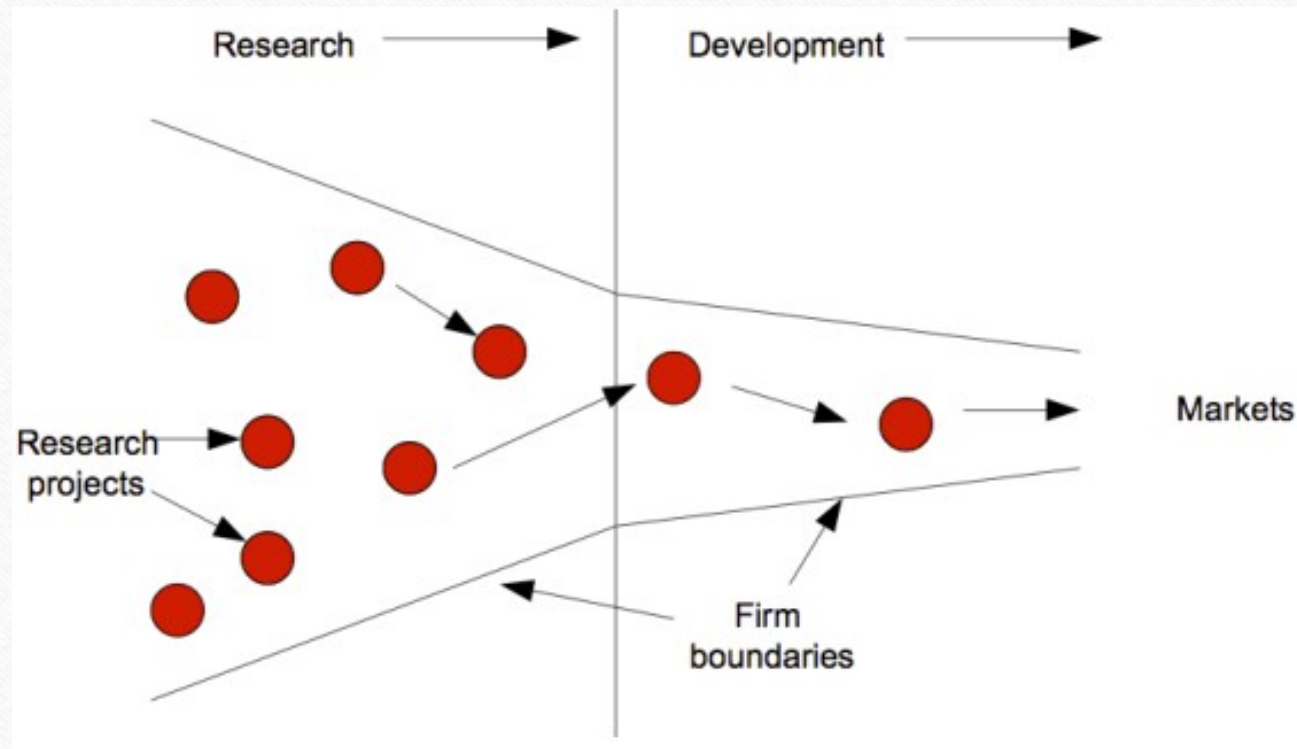
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A list of customer needs are identified from interviews:

- Affordable price (basic dorm-room set <\$100)
- Can be assembled and adjusted with ease (<30min without special tools)
- Nice and customizable appearance
- Lightweight and small size when folded
- Durability for repeated use
- Easy to clean surface
- Made from high-quality, non-recycled, health-safe material



# Design Concepts Considered





# Design Concepts Considered

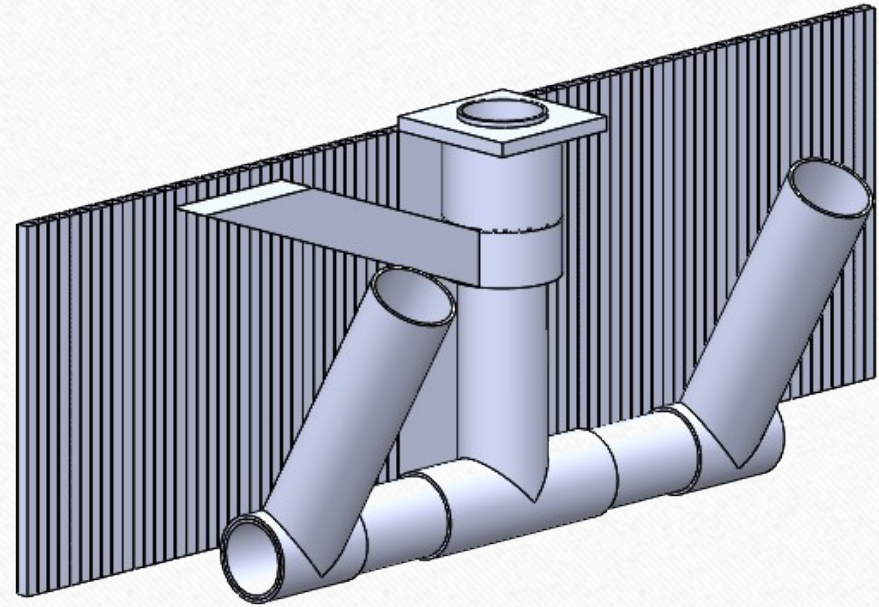
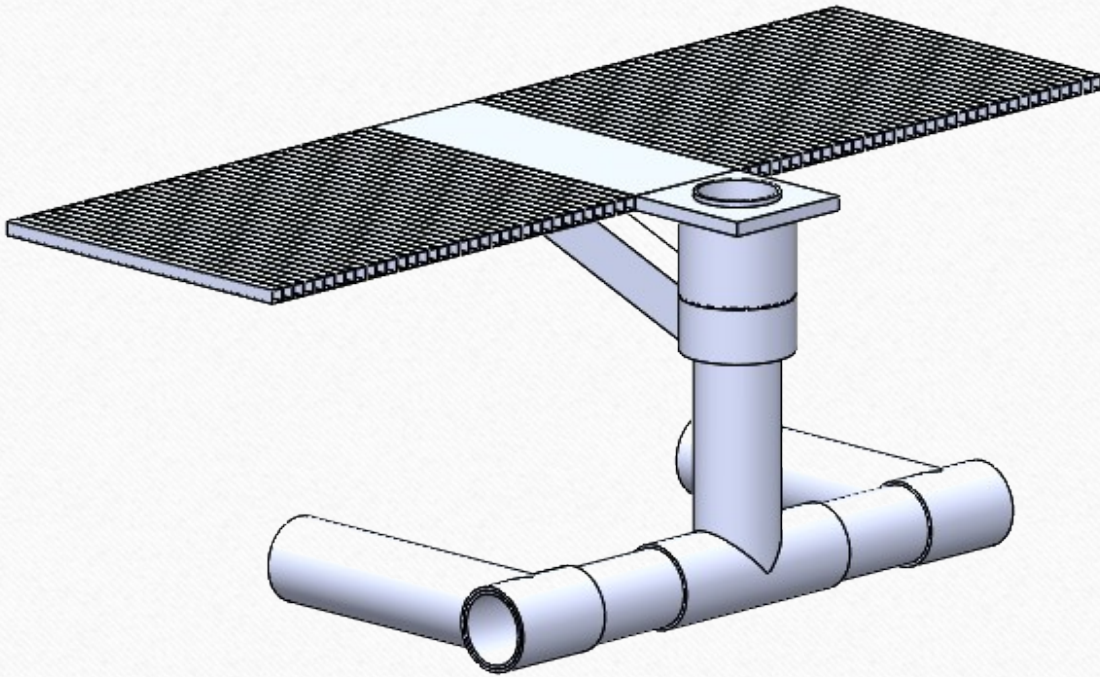
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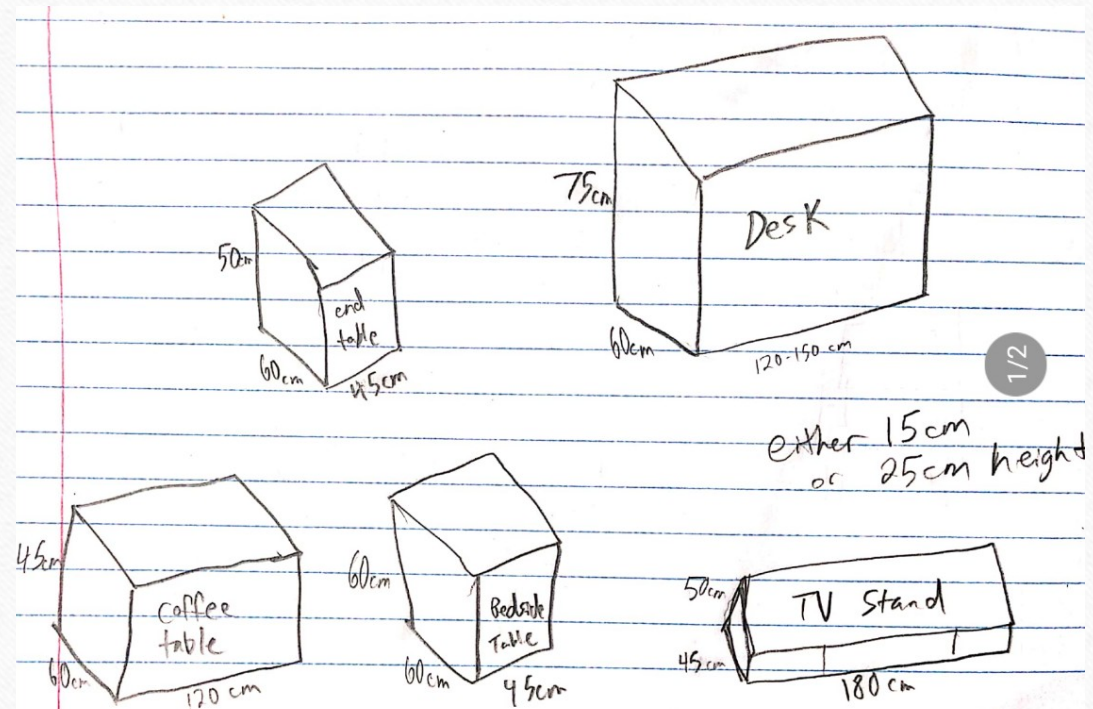
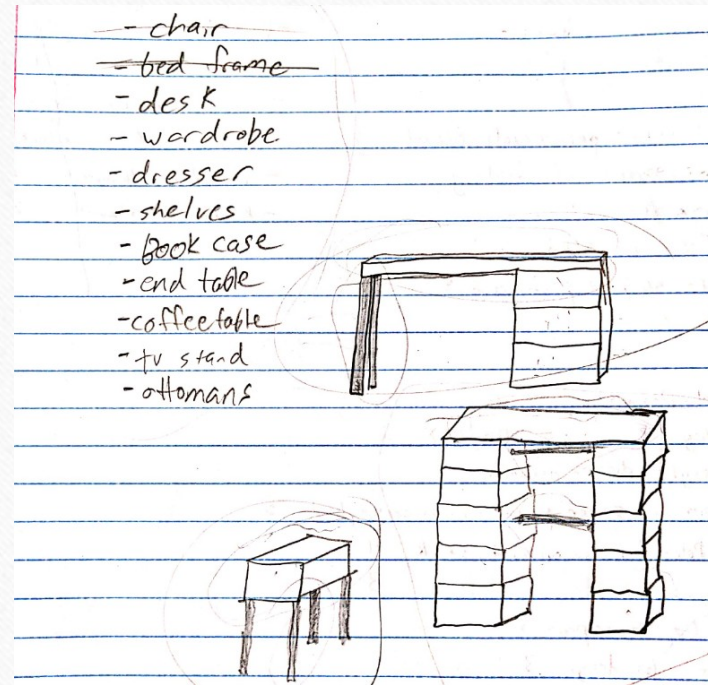
# Design Concepts Considered

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# Design Concepts Considered





# Benchmarking

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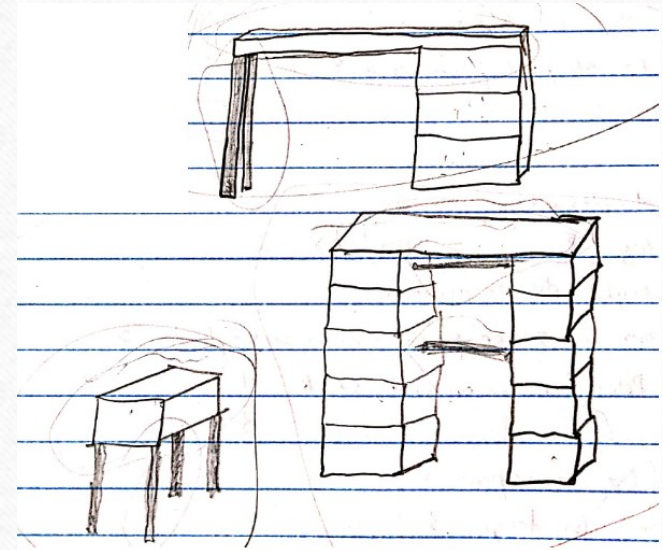
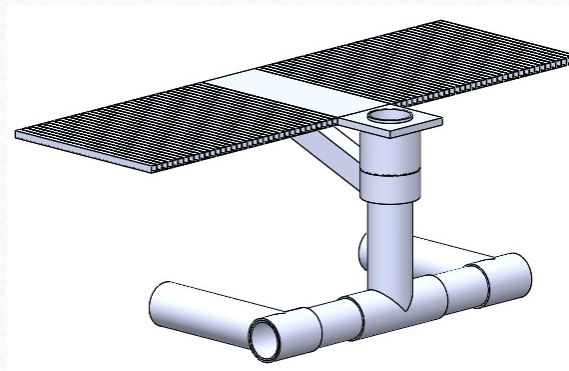
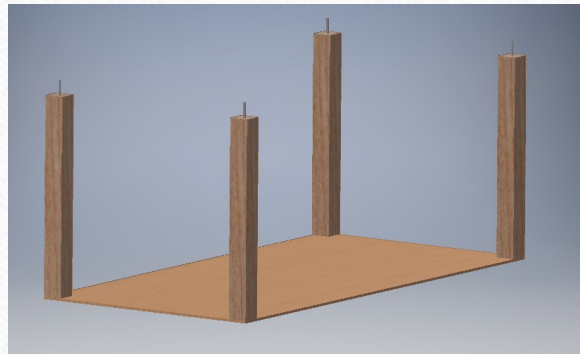


	Dimensions, LxWxH (cm)	Load Capacity (kg)	Price (USD)	Source
Item	Market Avg	Market Avg	Market Avg	
Desk	120-150x60-75x73-74	50-70	\$120-450	IKEA/GT
Bedside table	47x39x60	25	\$15-150	IKEA/AMAZON
Coffee table	118x60x45	30	\$30-250	IKEA/AMAZON
End table	40x33x45 - 55x55x60	25	\$30-150	IKEA/AMAZON
TV stand	180x41x53	30	\$100	IKEA
Wardrobe/ dresser	45x40x72 - 160x50x125		\$40+	IKEA/GT
Book case	24x60x100-180	13/shelf	\$30+	AMAZON
Ottoman	36x36x36 - 54x54x38 - 82x62x44 - 98x73x45	-	\$50 - \$150	IKEA
Bed frame	199x144x32(92)	>100	\$100	IKEA



# Concept Selection

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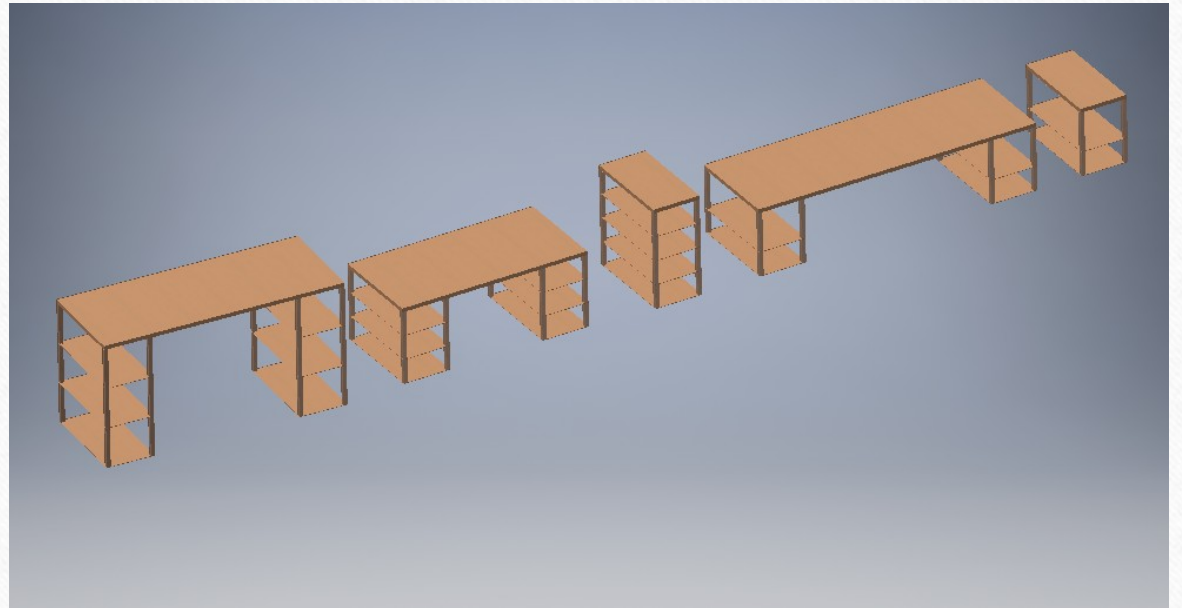
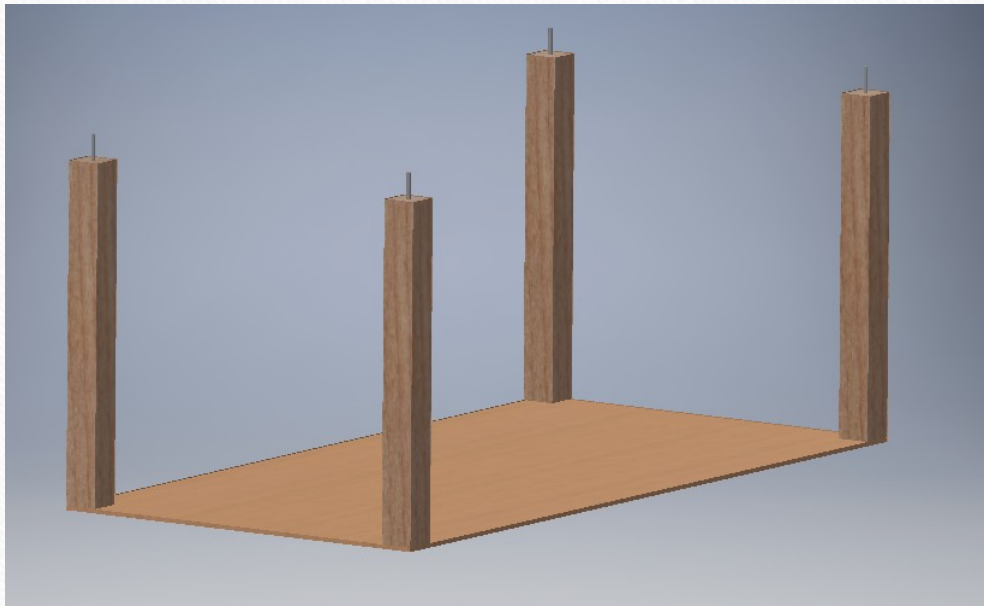




Concept Selection Matrix	Concept Variants					
Selection Criteria	Roll-Top	Boxes	Telescope Legs	Skeleton Parts	Extendable Table	Reference
Ease of Assembly	+	+	+	0	0	0
Ease of Manufacturing	0	+	0	0	+	0
Affordability	0	+	0	0	0	0
Load Handling	0	0	+	+	+	0
Storage Space	-	+	-	+	-	0
Modularity	+	+	0	0	0	0
Portability	+	-	0	-	0	0
Pluses	3	5	2	2	2	
Sames	3	1	4	4	4	
Minuses	1	1	1	1	1	
Net	2	4	1	1	1	
Rank	2	1	3	4	5	
Continue?	Yes	Yes	No	No	No	



# Final Design Concept





# Economic Analysis

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## Fixed Costs – \$66,500

- Development
- Advertising
- Marketing
- Overhead
- Transportation

## Variable Costs

- Parts – 58%
- Labor – 25%
- Inventory – 12%
- Packaging – 3%
- Warranty – 2%



- Plan to start with a 200% markup
- Break even at 5,300 annual module sales
- Profit of \$240,000 at 24,000 annual module sales

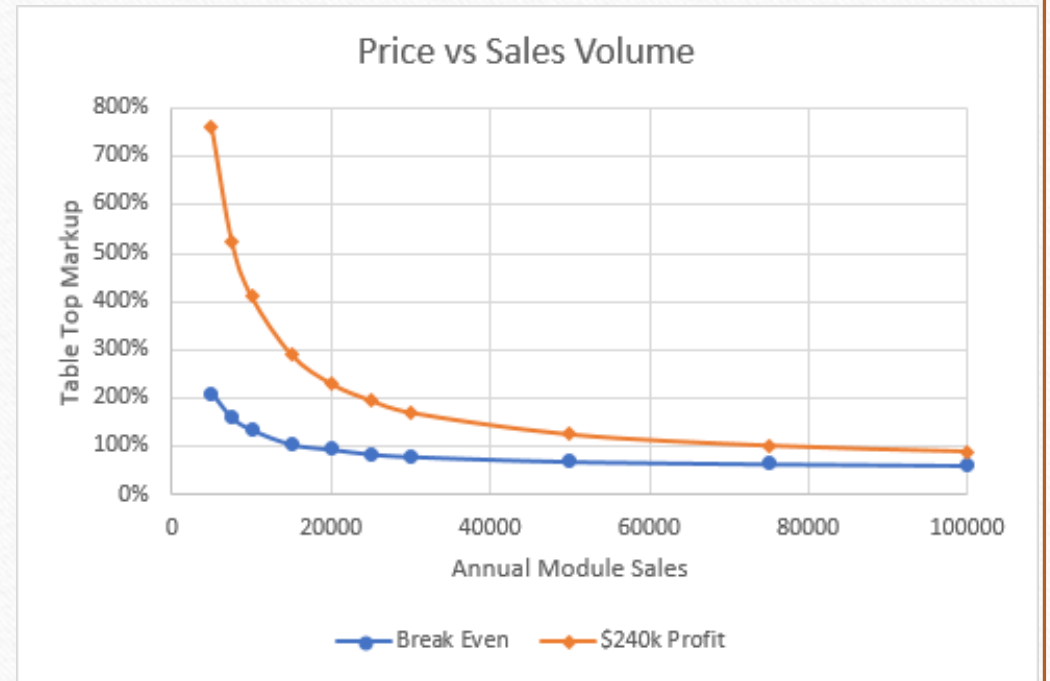


	Table Top Markup (%)	0	25	50	75	100	125	150	175	200	225	250
Price (\$)	6-in Module	4	5	6	8	9	10	11	12	13	14	15
	10-in Module	6	8	10	11	13	15	16	18	19	21	23
	Desk Top	15	19	23	26	30	34	38	42	45	49	53
	Bedside/End Table Top	3	4	5	5	6	7	8	8	9	10	11
	Coffee Table Top	12	15	18	21	24	27	30	33	36	39	42
	TV Stand Top	18	23	27	32	36	41	45	50	54	59	64



# Future Work

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- Identify the business model of this project.  
(Value propositions, key resources, key partners and channels, revenue stream, etc)
- Form a startup company and seek investments.
- IP protection, scale up, and logistics for the new startup.





# Questions?

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