PURDUE 2021 POWERSHIFT CAST COMPETITION

RETUNRSHIP PROGRAM RECOMMENDATION

FOR SEMICONDUCTOR WORKFORCE

TEAM “POWERANGER”

STORY OF NIA

I previously worked for Texas Instrument R&D for 8 years but got laid off in 2020 in covid-19 pandemic.

I have two kids, 6 and 8 years old, and my husband is working as a supervisor in auto-mobile industry.

“I want to get back to work, but it is tough in reality”

Nia Robinson
(32, STEM background)

TEAM BRIEF

Team Name
POWERANGER

Team Recommendation
We propose three action plans for networking, education, and mental care as a key to solve the problems in the semiconductor industry.

Data Analyst

Paul Chen
[paul chen]

MS in Business Analytics and Information Management

Senior Consultant

Soyeon Baik
[so-yuhn bek]

MS in Business Analytics and Information Management

Business Analyst

Yen Tsz Huang
[yen tzee huang]

MS in Business Analytics and Information Management

Analytical Consultant

Jonna Wei
[jo-na wei]

MS in Business Analytics and Information Management

Financial Analyst

Emily Cassanmagnago
[emy-lee casa-ma-gnya-go]

Undergraduate in Economics and Finances with certificate in Entrepreneurship and Innovation

AGENDA

Strategy

Training Program

Financial Analysis

Conclusion

STRATEGY

COMPETITIVITY

Semiconductor industry changes fast. Keeping up with up-to-date technology trends and knowledge is important to be a competent talent in the semi-conductor job market.

WELLBEING

A healthy work environment matters. It encourages employees to be more competent and content with their jobs, which results in a higher retention rate.

RETURN-CHIP PROGRAM

Mentorship Platform

- Mentor Matching
- WORK-KIT Podcast

Return-Chip Lab

- Choose the Tracks
- Learn & Connect
- Get Certified

Women Retention Pipeline

- Family Counseling
- BYOB: Childcare Center

RETURN-CHIP PROGRAM

Mentor Matching

- Matching with mentors from the semiconductor industry
- Workplace knowledge transfer
- Monthly mentor meeting

WORK-KIT Podcast

- Podcast for women in engineering
- Network/connect with people/role-model in the semiconductor industry

RETURN-CHIP PROGRAM

Mentorship Platform | **Return Chip Lab** | Women Retention Pipeline

Choose the track

- Research & Design
- Mechanical Engineer
- Product Engineer
- Industrial Engineer

Learn & Connect

- Specialized Online Courses
- Women Conference

Get certified

- Specialized Certification

SPECIALIZED ONLINE COURSE

Specially catered courses for each specialization for

Research & Design

C++
CAD
Java
MATLAB
Metrology
Lean Methods
Design Thinking
Design of Principle

Mechanical Engineer

C++
CAD
Java
Python
MATLAB
Product Testing
Design of Principle

Product Engineer

C++
Agile
Excel VBA
Process Control
Product Testing
Launch Planning

Industrial Engineer

Six Sigma
Excel VBA
Lean Methods
Quality Control
Operation Research

RETURN-CHIP PROGRAM

Family Counseling

Women spend 75% more time on the housework compared to men.

BYOB: Bring Your Own Baby

Get government-company sponsored childcare service in the workplace.

FINANCIAL ANALYSIS

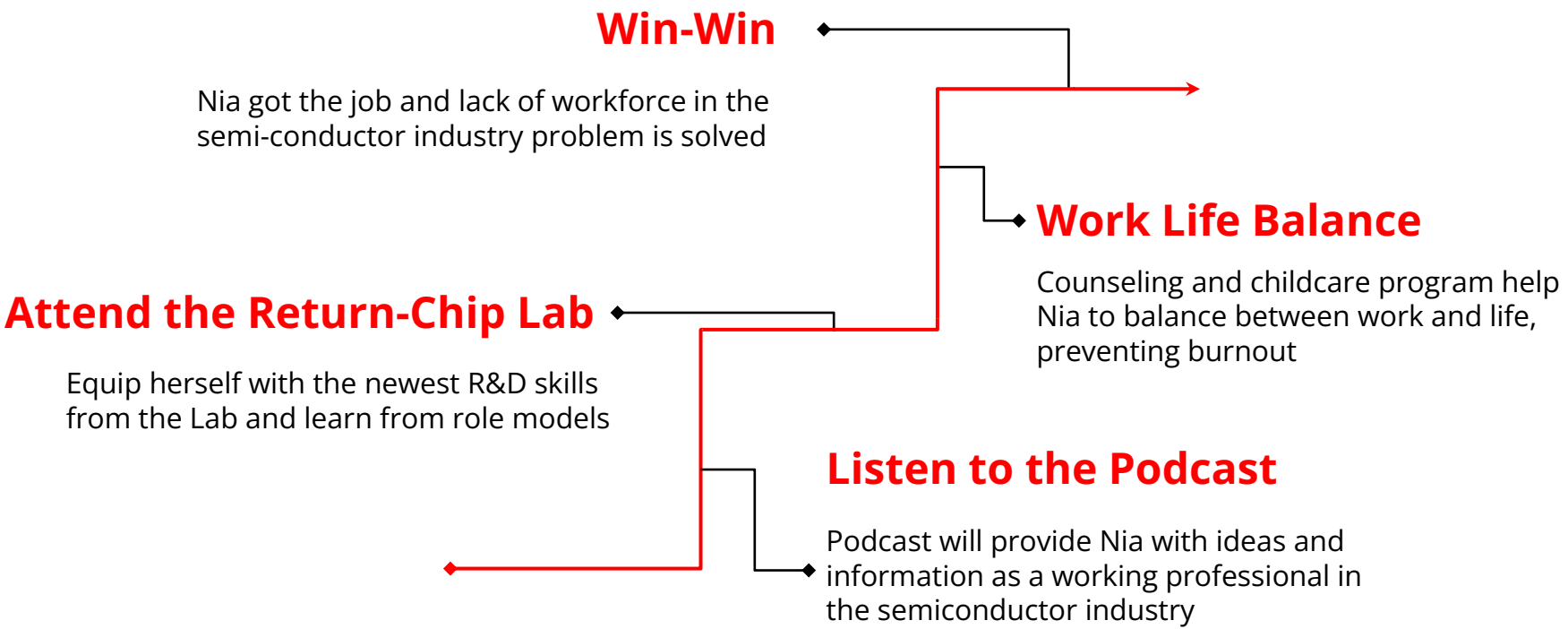
$ 600 billion

Total value

$ 2.2 million

Total expense

ROADMAP FOR NIA



CONCLUSION

COMPETITIVITY & WELLBEING

RETURN-CHIP PROGRAM

- Mentorship
- Return-chip Lab
- Retention Pipeline

Appendices

Have a question? We have an answer.

APPENDIX

Target Audience

16,620 (in thousand)

# of open Position for the semiconductor Engineer

20% (3,324)

% of women in semiconductor industry

39%

Goal for % of women in the semiconductor industry. (from 20% to 39%)

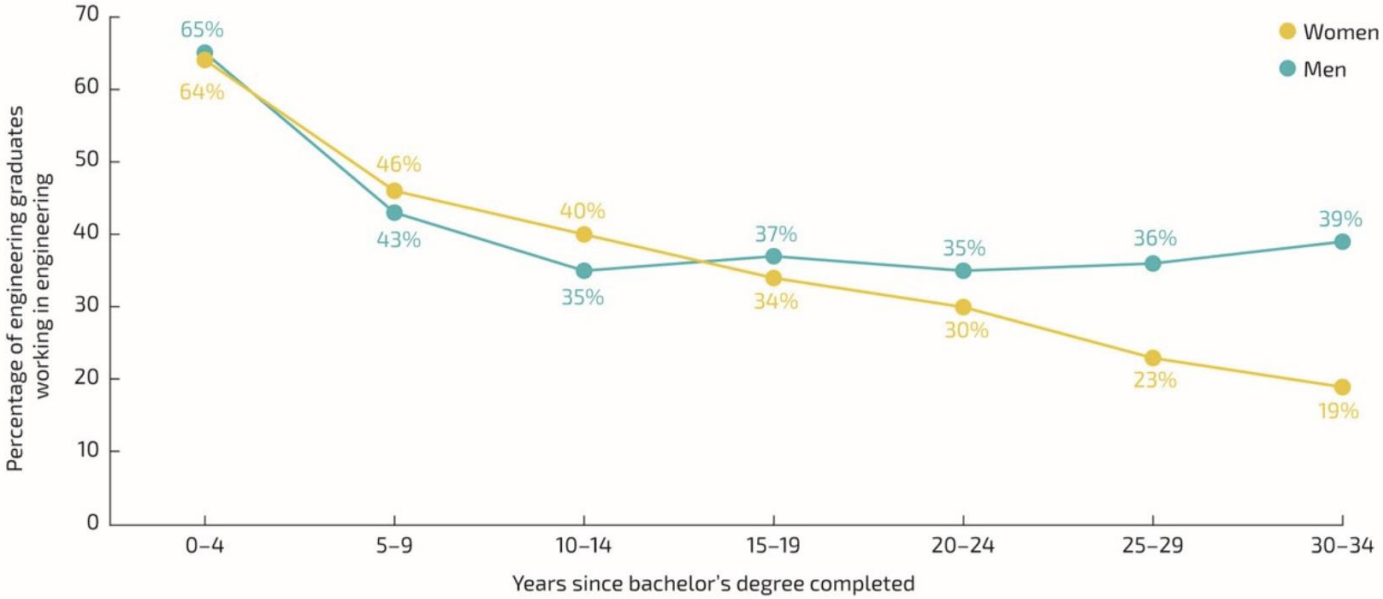
80%

Expected % of women who are unemployed but willing to join RETURN-CHIP program

https://www.bls.gov/oes/current/oes172112.htm

APPENDIX

FIGURE 11. RETENTION IN ENGINEERING, BY GENDER, 2010



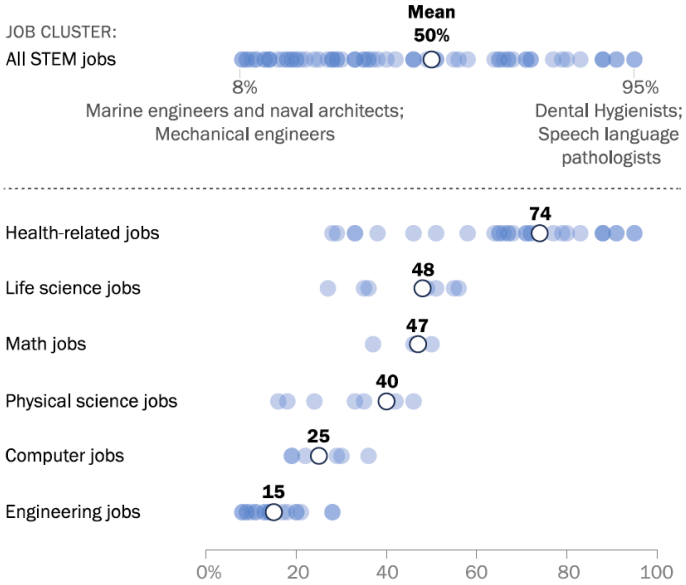
Notes: Includes only individuals who reported a bachelor's degree in engineering and no additional educational credential as of 2010. Includes women and men who reported earning a bachelor's degree in engineering as well as working in an engineering occupation in either the National Survey of College Graduates or the National Survey of Recent College Graduates administered in October 2010.
Source: L. M. Frehill analysis of National Science Foundation, National Center for Science and Engineering Statistics (2010a, 2010b).

https://www.semi.org/en/blogs/technology-trends/Women-Chip-Industry

APPENDIX

Representation of women in STEM varies across job clusters

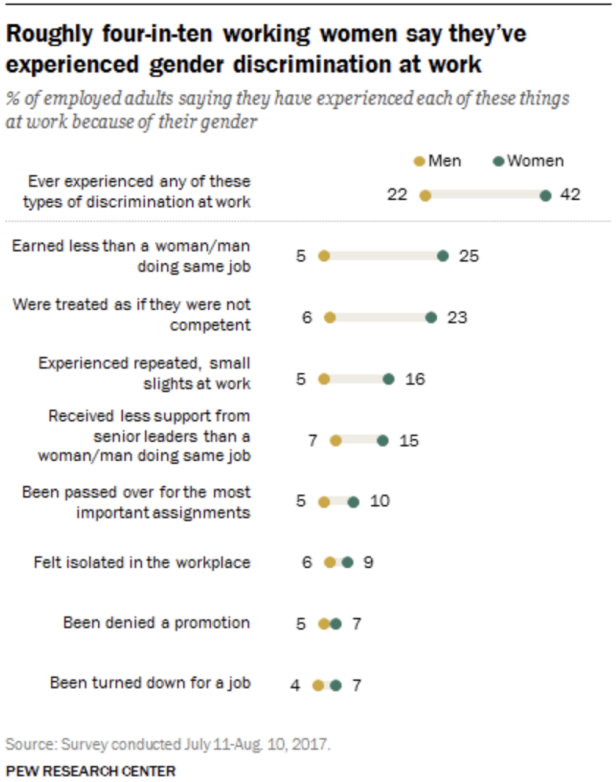
Share of women in each of the following job clusters



Note: Based on employed adults ages 25 and older. Each circle represents a single occupation (e.g., mechanical engineer, registered nurse). STEM stands for science, technology, engineering and math. Engineering includes architects.
Source: Pew Research Center analysis of 2017-19 American Community Survey (IPUMS) "STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity".

PEW RESEARCH CENTER

Roughly four-in-ten working women say they've experienced gender discrimination at work



Source: Survey conducted July 11-Aug. 10, 2017.

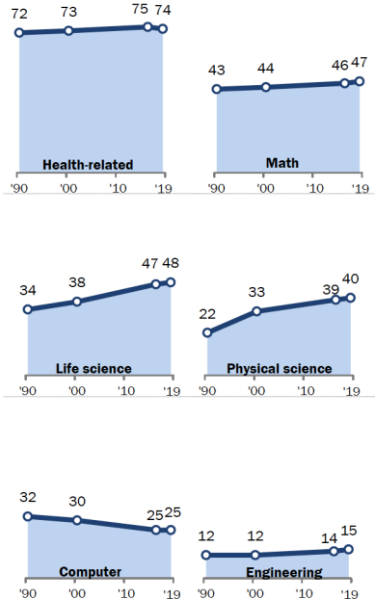
PEW RESEARCH CENTER

https://www.pewresearch.org/fact-tank/2017/12/14/gender-discrimination-comes-in-many-forms-for-todays-working-women/

APPENDIX

Women remain underrepresented in physical sciences, computing and engineering jobs

Share of employed in each occupational group who are women (%)

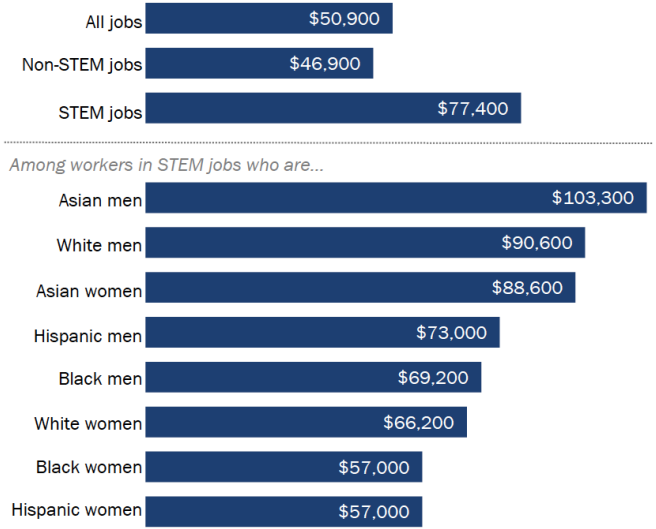


Note: Based on employed adults ages 25 and older. Engineering includes architects.
Source: Pew Research Center analysis of 2017-19 American Community Survey (IPUMS).
"STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity"

PEW RESEARCH CENTER

Across all racial and ethnic groups, women in STEM earn less than their male counterparts

Median annual earnings of full-time, year-round workers ages 25 and older, in 2019 dollars



Note: Based on workers with positive earnings. Figures based on 2019 dollars and rounded to the nearest hundred. White, Black and Asian adults include those who report being only one race and are not Hispanic. Hispanics are of any race. STEM stands for science, technology, engineering and math.
Source: Pew Research Center analysis of 2017-19 American Community Survey (IPUMS).
"STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity"

PEW RESEARCH CENTER

https://www.pewresearch.org/fact-tank/2017/12/14/gender-discrimination-comes-in-many-forms-for-todays-working-women/

APPENDIX

The price for childcare service

Child's age	Formal Provider
< 5 years	Up to $240 per child per month
5 to 12 years (20 years or younger if incapable of self-care)	Up to $205 per child per month

https://www.bankofamerica.com/content/documents/employees/CCP_new.pdf

FINANCIAL ANALYSIS

	Tangible	Intangible	Government sponsored	Company sponsored
Mentor Matching		o		o
Work-kit Podcast		o	o	
Family Counseling		o	o	o
Online Courses		o	o	
Women Conferences		o	o	
Baby Daycare	o	o	o	

APPENDIX

Financial analysis – Income statement

	$/units	Units	Total
Podcast			
Total Podcast production expense			$2,260.00
Specialized Online course			
4 career track	$302,400	4	$1,209,600
Women conference			
2 conference	$16,629	2	$33,258
BYOB			
Total cost			$122,795
Revenues			
Under 5 years	$240	15,000	$3,600,000
5 to 12 years (20 years or younger)	$205	12,000	$2,460,000
			$6,060,000
Net income before Tax			$5,937,205
Net income after Tax			$4,962,316
Total expenses for Companies			$4,560
Total expenses for Government			$1,365,653
Revenues			$5,877,833
Net income			($2,221,892)

https://csimarket.com/Industry/industry_Profitability_Ratiosc.php?ind=1010

APPENDIX

FINANCIAL ANALYSIS - Income statement

Assumption per unit	$/unit	units	total
Podcast			
Host fees	$40.00	52	$2,080.00
Hosting Cost	$15.00	12	$180.00
Total Variable Cost			$2,260.00
Fixed Cost			
Equipment	1,000	1	$1,000.00
Editing	$25	52	$1,300.00
Total Fixed Cost			$2,300.00
Total Podcast production expense			$4,560.00
Family consultants			
Annual Budget	$45,000	1233.29	$54,000,000
Specialized Online course			
Fixed Cost			
1 hour video	$200	6	$1,200
	$40	15	$600
Total Fixed Cost			$1,800
Variable Cost			
1 career track	$1,800	168	$302,400
4 career track		4	$1,209,600

Women conference			
Event website	$1,500		
Paid advertising	$5,000		
organizers (payroll)	$1,105.92	15	$16,588.80
zoom subscription	$19.99	2	$39.98
Total cost for 1 conference			$16,628.78
		2	$33,257.56
BYOB			
Fixed cost			
Facility	$1,000/m	12	$12,000
Furnishings	$2,500		
Equipment	$2,500		
Water and Trash	$1,800		
Phone and Electric	$4,000		
Business licenses and fees	$1,200		
Food and beverages	$4,800		
Transportation	$3,600		
Part-time aides/substitutes	$10,000		
Advertising and marketing	$4,000.00		
Total fixed Cost			$46,400
Variable Cost			
Baby careers	$25,465	3	$76,395
			$122,795