

2021 FIRST California Workshop Series:
PRODUCT DEVELOPMENT +
DESIGN THINKING

Session 3: Filtering & Evaluation

January 23, 2021



Theresa Bateman

FIRST Regional Director,
Greater San Francisco Bay Area



2021 FIRST California Workshop Series: PRODUCT DEVELOPMENT + DESIGN THINKING



Identify the Opportunity	Generate Ideas	Evaluate Ideas & Filter	Determine Business Strategies	Develop the Idea	Product Trial
<ul style="list-style-type: none"> Evaluate the Innovation Challenge Criteria Design Thinking - Empathy & Define Problem Statement Intellectual Property intro 	<ul style="list-style-type: none"> Design Thinking - Ideate Brainstorming Diversity & Inclusion of Ideas 	<ul style="list-style-type: none"> Product Design Specification Concept Sketches Pugh Analysis Matrix SWOT Analysis Market Analysis 	<ul style="list-style-type: none"> Strategy for Startups Product-Market Fit Value Proposition Innovation S-curve Prepare the Pitch 	<ul style="list-style-type: none"> Design Thinking - Prototype Design Engineering Manufacturability & Reliability Ergonomics & User Experience Patents 	<ul style="list-style-type: none"> Design Thinking - Test Test/Experiment Design A/B Testing Qualitative Testing Quantitative Testing
Jan 9 th , 1-3pm	Jan 16 th , 10am-Noon	Jan 23 rd , 10am-Noon	Jan 30 th , 10am-Noon	Feb 6 th , 10am-Noon	Feb 20 th , 10am-Noon

Teams are also invited to join a *Pitch Party* planned in March. [FIRST Regional Directors](#) will reach out to teams directly with details.

FIRST California Regional Directors

<https://cafirst.org/california-leadership/>



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*DIRECTLY SUPPORTING: San Diego
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Session 3 Filtering & Evaluation

Time	Agenda Item	Presenter
10:00 - 10:10am	Intro and Session 2 Recap	Theresa Bateman, FIRST
10:10 – 11:00am	Product Design Specification, Concept Sketches and Pugh Analysis Matrix	Hrushu Athreya, Tesseract Initiative
11:00 – 11:45am	Market Analysis and SWOT Analysis	Jim Xu PricewaterhouseCoopers (PwC)
11:45 - 12:00pm	Wrap up & Prep for Session 4	Theresa Bateman, FIRST

Session 2 Fun & Feedback



Please continue to tag us: [#FIRSTinCA](https://twitter.com/FIRSTinCA)

 **San Francisco Regional FIRST Robotics Competition**
2 hrs · 🌐

Thank you Avidesh and Amelia of Stanford D.school for joining our Ideation Session last Saturday to give our teams tips on brainstorming!

FRC and FTC TEAMS: There's still time to sign up for the FIRST California Workshop Series: Product Development + Design Thinking at <https://cafirst.org/product-development-design-thinking!>

 Institute of Design at Stanford


THANK YOU
AVIDESH MARAJH
and
AMELIA TRAYLOR
from the
STANFORD
D.SCHOOL





Tip: Brainstorming

- Lots of ideas, all at once
- Leverage collective thinking
- Generate as many ideas as possible, without judgment
- Try to stay high energy!







 **FRC Team 668: the Apes of Wrath**
3 hrs · 🌐


Our team has been getting a lot out of the Innovation Challenge workshops, and last weekend we were excited to see our very own Mechanical Design Captain helping out as a student facilitator!



POWERED BY


Thank you

Qingyuan from FRC 668
Isabella from FRC 1868
Jo from FRC 5700
Alden from FRC 7413






 **spyder1622**
San Diego, California

Session 2: Ideation

Agenda Item	Presenter
Intro and Session 1 Recap	Theresa Bateman, FIRST
Ideation Techniques, Diversity & Inclusion	James Cooper, Raytheon Fazlul Zubair, Raytheon
Design Thinking – Ideation, How-Might-We Exercise	Amelia Traylor, Stanford Avidesh Marajh, Stanford
Wrap up & Prep for Session 3	Theresa Bateman, FIRST

Liked by  mechanical_advantage_ftc and others

spyder1622 Thank you @firstroboticscalifornia & @sfregional for another awesome Innovation Challenge workshop!

Session 2 Recap

Ideation

Generate Ideas

- Design Thinking - Ideate
- Brainstorming
- Diversity & Inclusion of Ideas

Jan 16th, 10am-Noon

- **Design Thinking – Ideation**

- **Stokes** (aka icebreakers) loosen up and energize the team
- **How Might We (HMW)** questions are short questions that launch brainstorming
- Impose **constraints** with intention to increase creative potential

- **More Ideation Techniques**

- **Identify needs** and understand the “job to be done” of users/customers
- Diversity is a key driver to innovation, so widen the aperture for **diverse users**
- **Divergent thinking** expands the pool of ideas and is inclusive of all ideas

- **Homework**

- Try a stoke/icebreaker activity with your team
- Develop HWM questions for the problem identified
- Brainstorm solutions by imposing constraints and considering diverse users



Hrushi Athreya

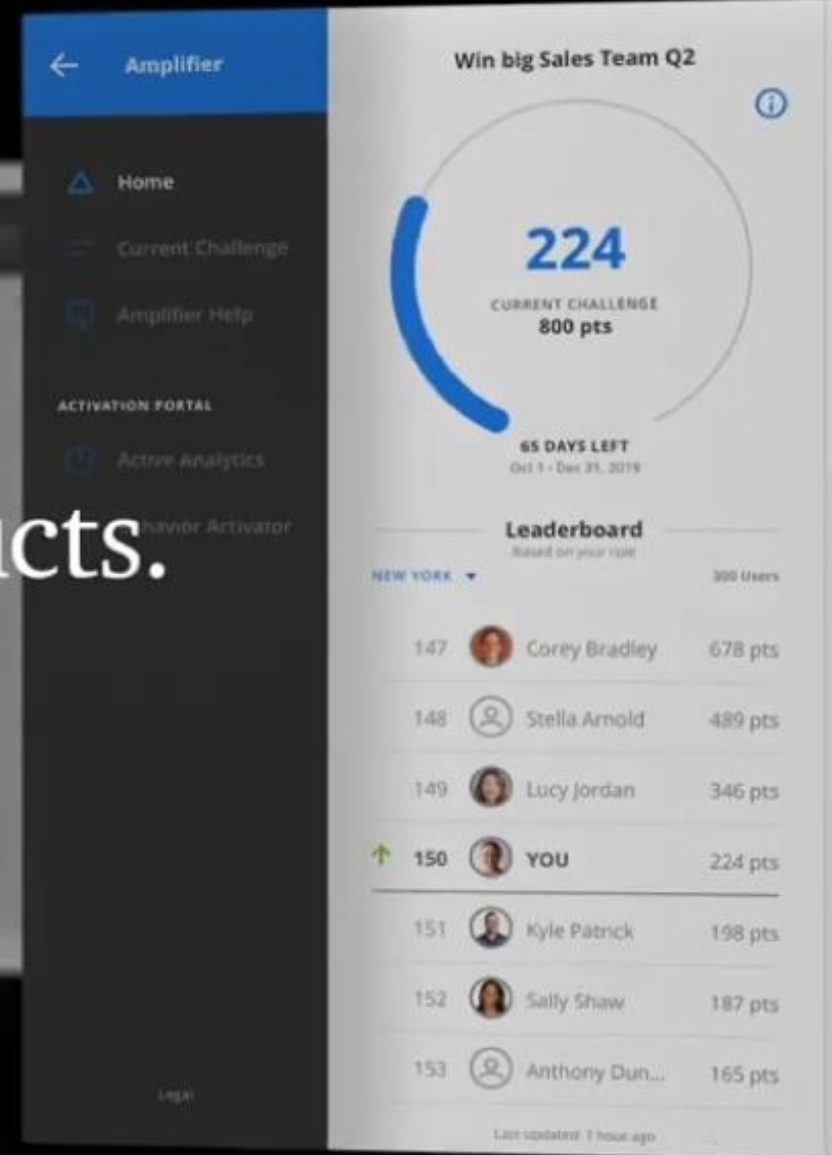
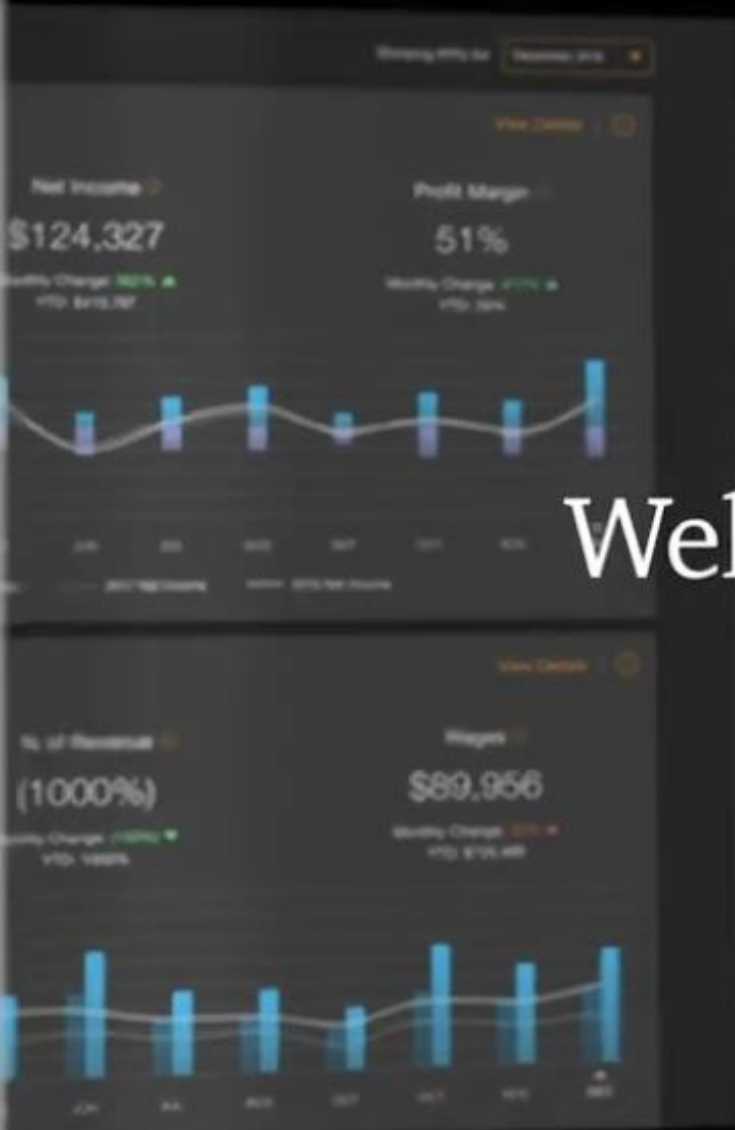
FRC Team 115 Alum and
University of Illinois student



Jim Xu

Data Consultant, Advisory

Welcome to PwC Products.



Session 3: Filtering & Evaluation

wrap-up and prepare for

Session 4: Business Analysis

Additional Resources

- **FIRST Innovation Challenge Content Series** webinars:
<https://info.firstinspires.org/innovation-content-series>
 - From Sketch to Model: Using the PTC Onshape – January 26
- **Tesseract Initiative** workshops:
<https://tesseractinitiative.org/programs/courses/product-development-design-thinking>
 - Complex Pugh Matrices – **Tomorrow**, January 24 from 1-2pm

Thanks for joining us & see you next Saturday!



Evaluate Ideas & Filter	Determine Business Strategies
<ul style="list-style-type: none">• Product Design Specification• Concept Sketches• Pugh Analysis Matrix• SWOT Analysis• Market Analysis	<ul style="list-style-type: none">• Strategy for Startups• Product-Market Fit• Value Proposition• Innovation S-curve• Prepare the Pitch
Jan 23 rd , 10am-Noon	Jan 30 th , 10am-Noon

- **Homework**

- Create concept sketches
- Use Product Development Specification (PDS), Pugh Matrix, Market Analysis and/or SWOT Analysis tools
- Converge to your most viable idea(s)

- **Session 4: Business Analysis**

- Saturday Jan 30th, 10am – 12pm
- Brought to you in partnership with

ARTIMAN
WHITE SPACE INVESTMENTS

 **tesseract**
INITIATIVE