



Connect & Collaborate: Engaging Institutional Investors & Students

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The STAR Team brings a wealth of experience to the project



Jon Nichols (PL)
Full-time MBA
Strategy Intern, Duke Energy



Mike Lorberg
Full-time MBA
Supply Chain Intern, Boeing



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Full-time MBA
Investment Intern, Bell Partners



Henry Camp
Full-time MBA
Consulting Intern, ZS



Mako Witcher
Undergraduate
MMB Intern, Wells Fargo



Jake Sackstein
Undergraduate
Consulting Associate, PwC



Tracy Laughlin
Undergraduate
Consulting Intern, EY



Nicholas Didow
Faculty Advisor
Grandfather

The STAR Team is thankful for the opportunity to work with the Center for Sustainable Enterprise



Jeff Mittelstadt
Executive Director



Tracy Triggs-Matthews
Associate Director

Agenda

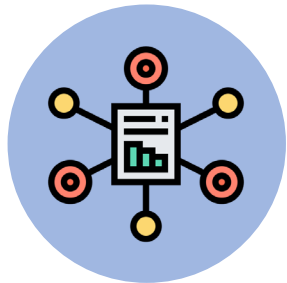
- Executive Summary
- Board Engagement
- Climate Finance Course
- STAR: Business of Climate
- Conclusion
- Appendix

CSE presented a key question for the team to work on for over three months

*How can the Center for Sustainable Enterprise **engage** with and **provide value** to institutional investors dealing with climate risks and opportunities in domestic and emerging markets?*



We conducted extensive primary and secondary research



11 Rating Providers And Frameworks



53 Articles



21 University Programs



14 Trade Associations, Non-Profits, and Research Initiatives



28 Investors



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Executive Summary



Board Engagement



Climate Course



STAR: Business of Climate



Conclusion

CSE should leverage its advisory board and develop two climate finance academic programs to benefit students and investors

Key Question: How can the Center for Sustainable Enterprise **engage** with and **provide value** to institutional investors dealing with climate risks and opportunities in domestic and emerging markets?

Engage the Board

Add advisory board members with expertise in climate finance including institutional investors, asset managers, and climate advisory service providers

Develop Climate Finance Course

Develop a climate finance course with a pitch competition final project to educate students and engage investors

Connect with STAR

Launch a STAR: Business of Climate program to allow students to work with investors on real-world problems involving climate finance

Impact

CSE will establish itself as a leading climate finance center, while meeting the growing demand from students and investors for knowledge and skills needed to analyze climate risks and opportunities

Executive Summary



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STAR: Business of Climate



Conclusion

Investors need to address the risks and opportunities posed by climate change

\$7.9 trillion

Potential global economic loss by 2050 from direct exposure to climate change

Source: EIU Climate Change Resilience Index

\$26 trillion

Potential economic gains that bold climate action could yield through 2030

Source: New Climate Economy

Issues for Investors:



Physical vs. transitional risks

Source: Brookings Institute; Forbes



Limited transparency from financial institutions

Source: Financial Standards Board



Turning climate risks into financial outcomes

Source: Ethisphere; CDP



Greenwashing

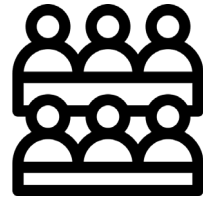
Source: TerraChoice

Students recognize the growing importance of business sustainability

77%

of seats in MBA sustainability courses are filled

45



Average students enrolled in sustainability MBA courses

Source: UNC Enrollment Data

Average applicant interest over the past five years

12%

of undergraduates mentioned the CSE in their B-School applications

16%

of MBA applicants chose the sustainability concentration

Source: UNC Admissions Data

“If I had any of these skills, [I] would be busy for a very long time”

– EY Partner, US Financial Services

Undergrads can take Sustainable Finance, **but there is currently no MBA equivalent course**



CSE is looking for an opportunity to grow its program in a manner consistent with its mission



Insights

Create a formal channel to have industry experts provide input into CSE research and program objectives



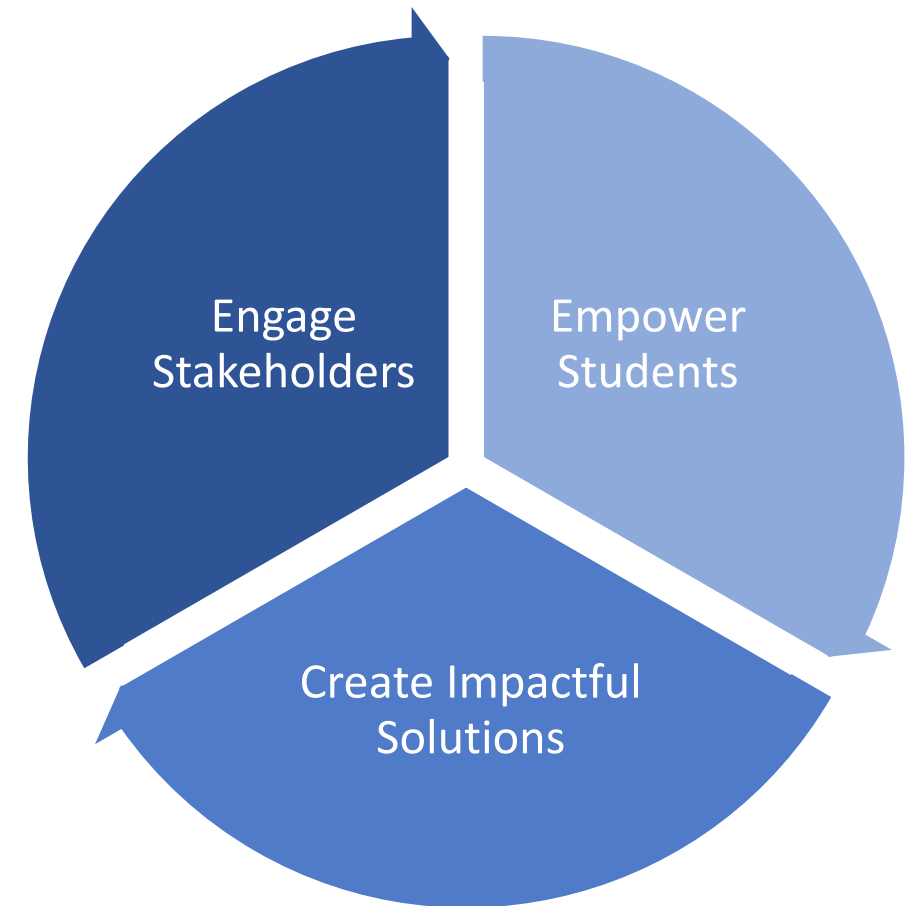
Administrative Capabilities

Expand administrative capabilities to support the development of climate finance initiatives

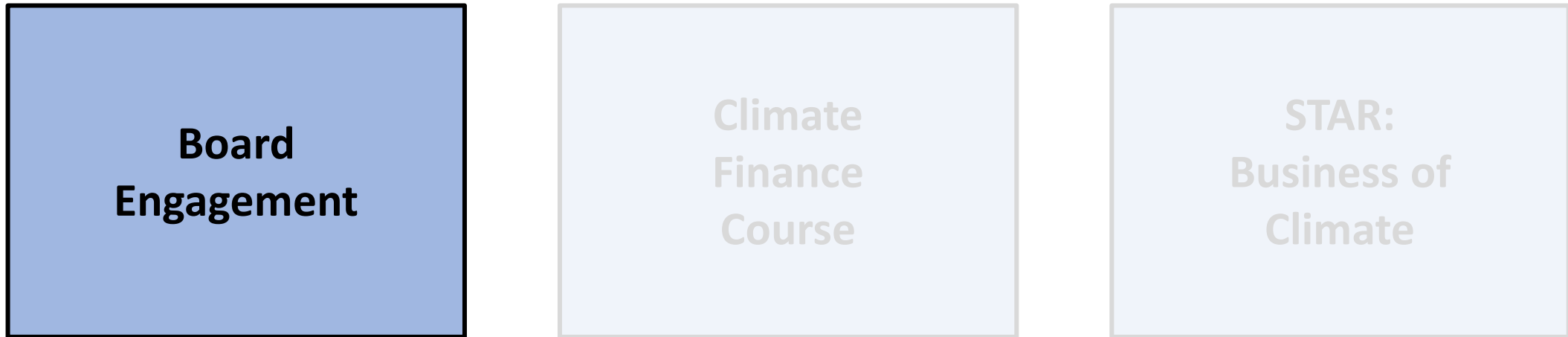


Funding

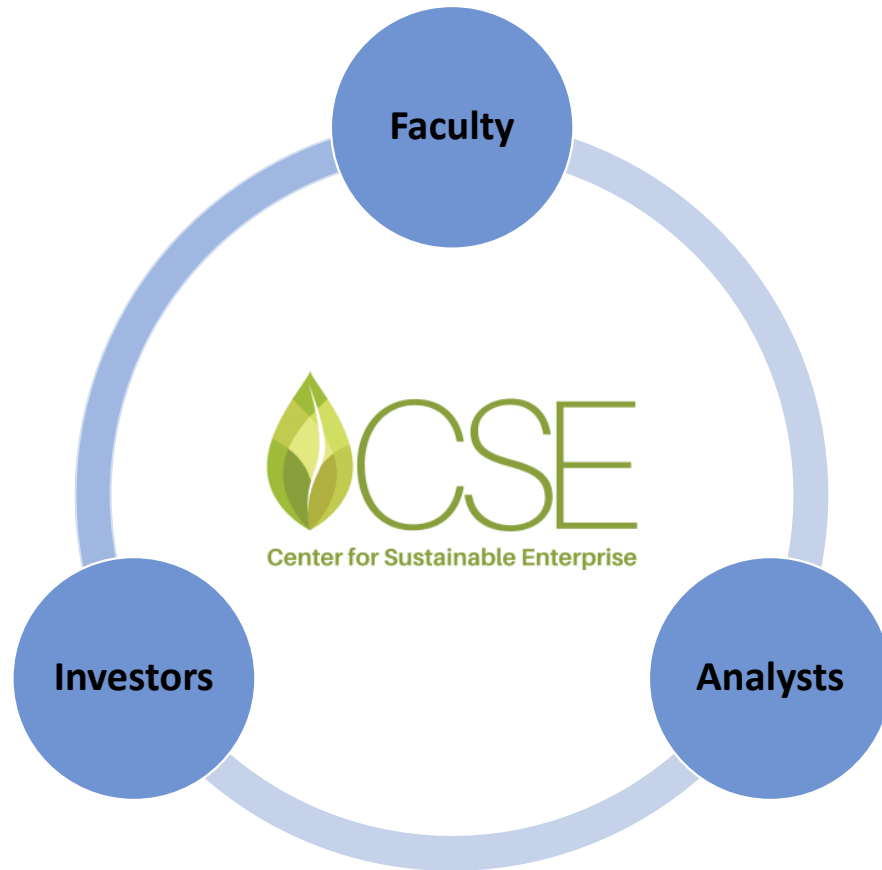
Provide CSE with grants and funds to support its operations



Source: UNC Kenan-Flagler Corporate Partners Page; Kenan Institute:



CSE should engage investors on its board to understand and solve industry pain points as they develop and shift



“Consider a multi-institutional partnership... UNC is an honest broker.”

*-Greg Brown
Executive Director, Kenan Institute*



Many sustainability centers utilize boards for advisory relationships, engagement, and problem solving



DUKE
FUQUA
SCHOOL OF BUSINESS

*“EDGE’s most **comprehensive partnerships** come through our relationships with the senior leaders who make up the EDGE Advisory Board.”*



NYU STERN

*CSB is guided by three advisory groups whose members have relevant and **deep industry, NGO, and academic expertise.***



M | ERB INSTITUTE

*The Michigan Business Sustainability Roundtable... includes senior business leaders who are committed to **working toward transformational change in the social and environmental performance of their companies...***

Executive Summary



Board Engagement



Climate Course



STAR: Business of Climate



Conclusion

Investors are eager to join the board because they can network and shape CSE activities

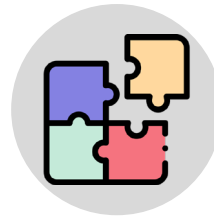
As board members, investors can...

Network



... with faculty, allies, and competitors

Shape



... CSE's activities to fit their business needs

Give Back



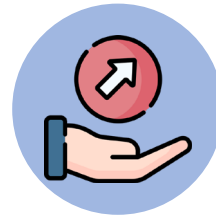
... to a mission-based organization

Connect



... with students for recruiting & mentorship

Enhance



... personal and company reputation

Design



... STAR projects



CSE should leverage board connections to deepen their understanding of climate issues in capital markets

Board members can answer critical questions such as:

Who should we engage with to enable collaboration and thought leadership?

What skills and knowledge do students need to invest for the future?

Where are investments vulnerable to transitional and physical climate risks?



Why is climate change important for managing investments?

How can the CSE address industry pain points and accelerate transformation?



Investors with long-term holdings need a seat at the table

“If we’re going to own an asset for 20 to 40 years, we have to take into account these considerations.”

-Paul Ebner

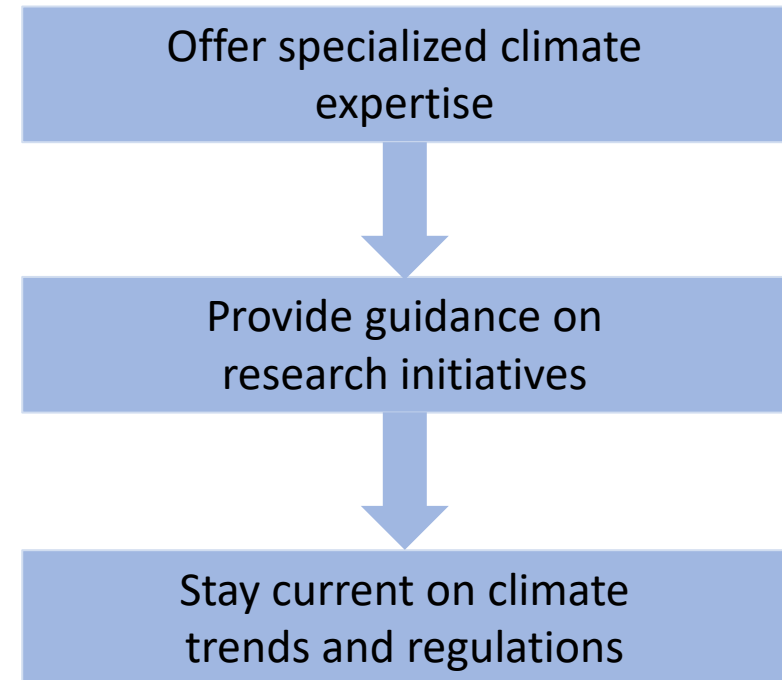
Canadian Pension Plan Investments

Target Investors:



- Pension Funds   
- Commercial Banks  
- Investment Banks  
- Insurance Companies  

Analysts and advisors will add to the discussion on the latest industry pain points



CSE will attract investors to UNC with expert faculty members

 | KENAN-FLAGLER
BUSINESS SCHOOL



Yasser Boualam, PhD

- Assistant Professor of Finance
- Crisis Theory and Macro-Finance

 | KENAN-FLAGLER
BUSINESS SCHOOL



Ric Colacito, PhD

- Professor of Finance
- Temperature Risk in Capital Markets

 | GILLINGS SCHOOL OF
GLOBAL PUBLIC HEALTH

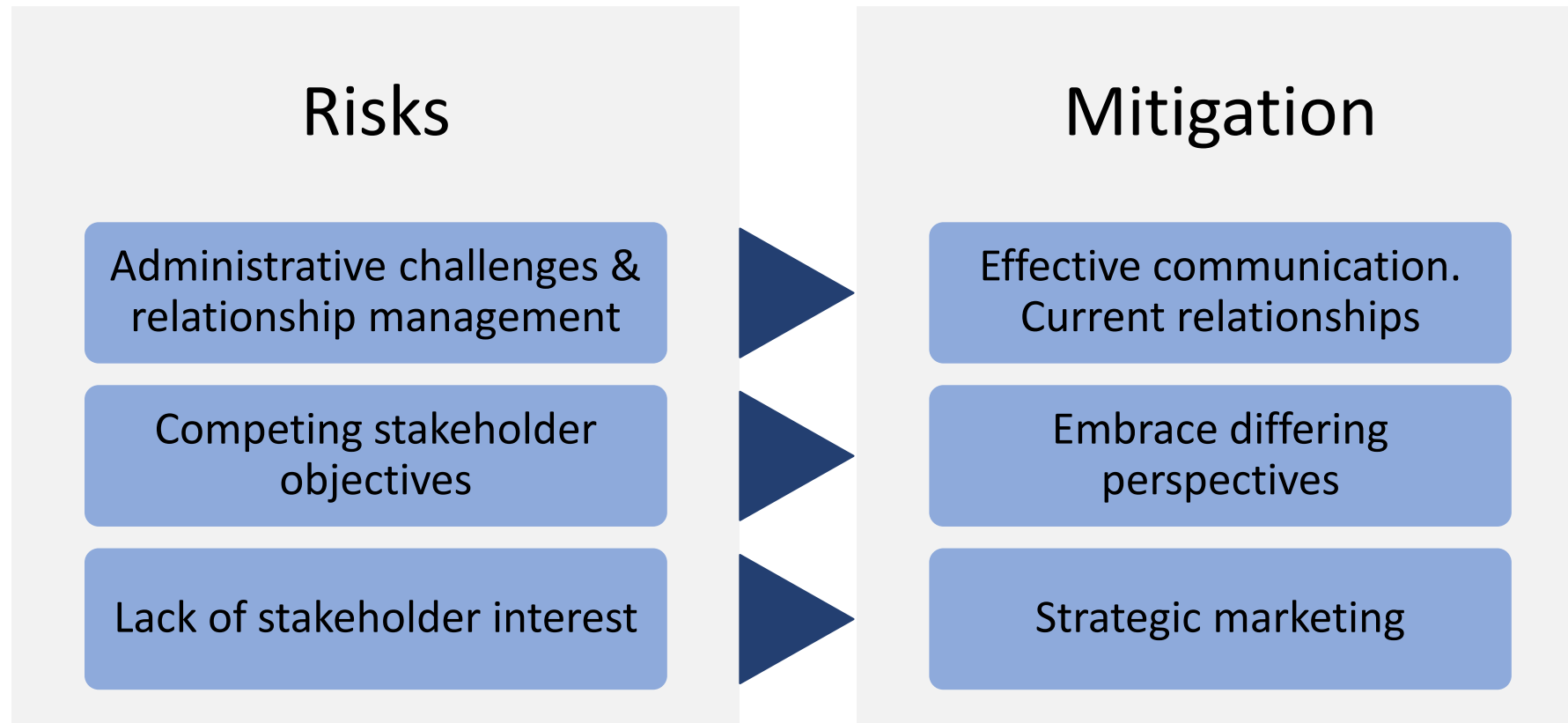


Greg Characklis, PhD

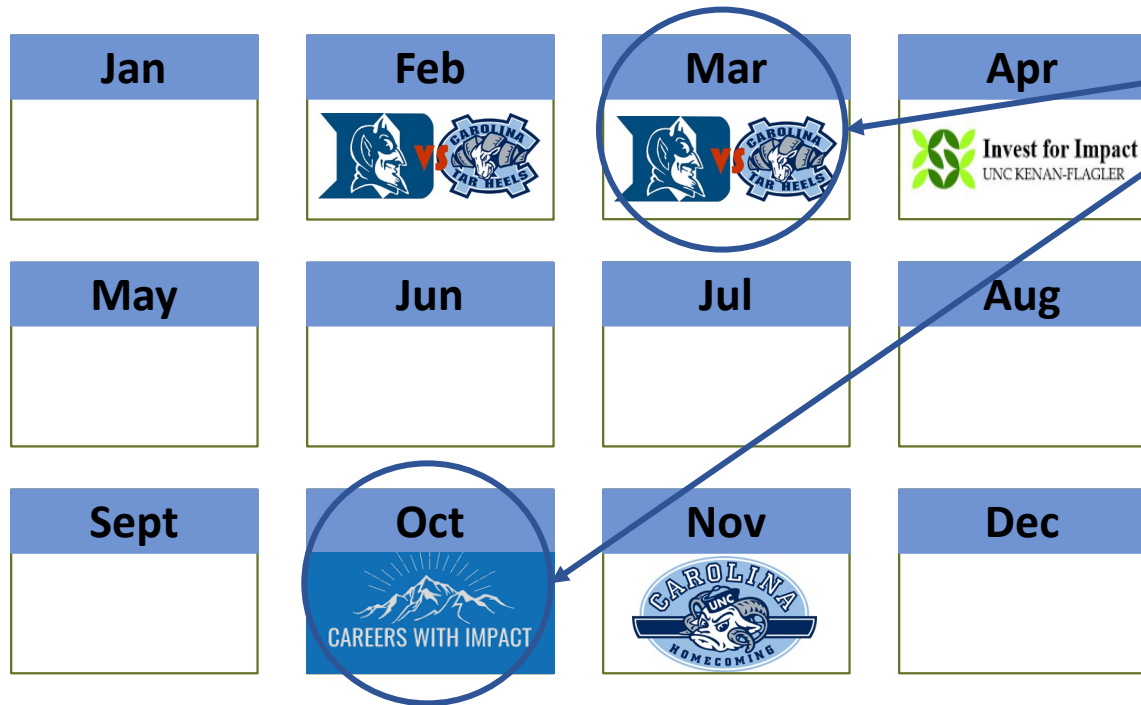
- Director of CoFiRES
- W.R. Kenan Jr. Distinguished Professor
- Water Impacts on Financial Risk



CSE must proactively manage relationships to ensure effective board engagement



Next Steps: The board should meet twice a year, with additional engagement highly encouraged



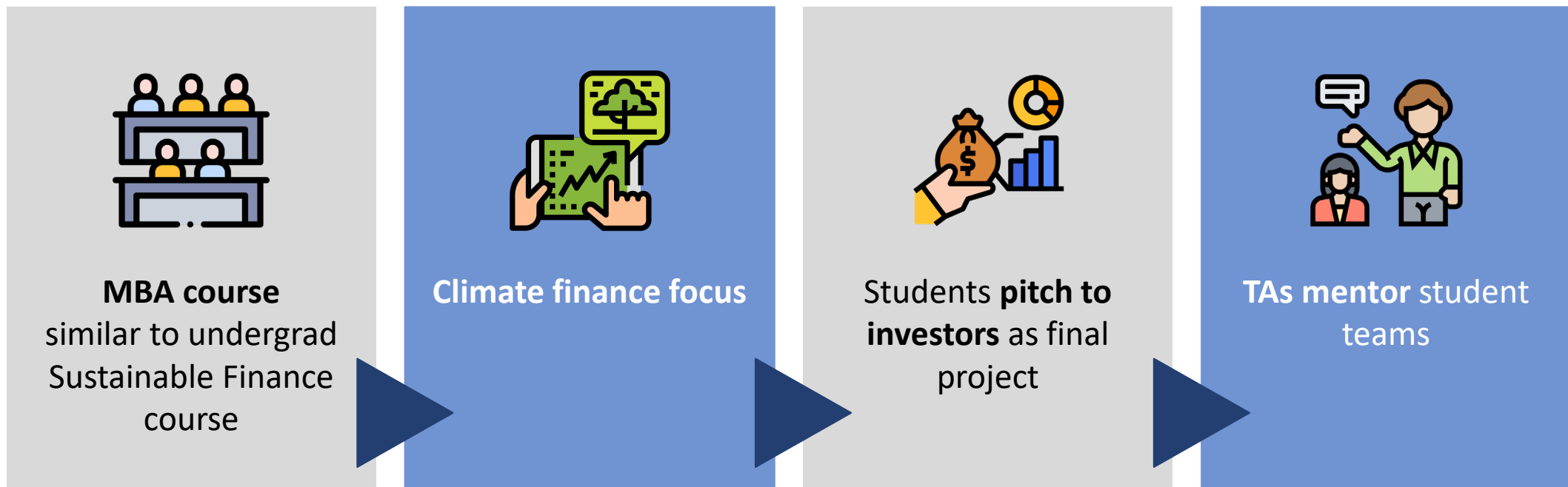
Schedule board meetings around other major UNC and Kenan-Flagler events

“ You have to plan the timing right. Align dates with other important events so that people are compelled to come. ”

– VP Portfolio Strategist at Merrill Lynch



CSE should develop a climate finance MBA course culminating in a final team pitch competition



The course will feature lectures on climate finance to prepare students for the final project pitch competition

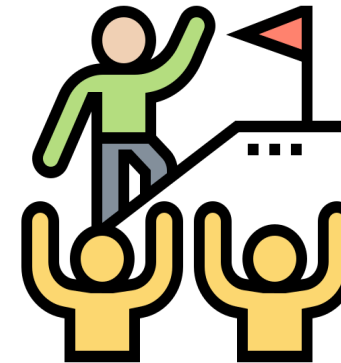
**Course Lectures, Case Studies,
and Guest Speakers**



8-week course with lecture content on:

- Climate investing
- Financing of sustainable projects
- Implications of climate risk

**Final Project Pitch Competition &
Networking Reception**



**Teams of 3-4 students identify
investments to hedge investor's climate
risk and meet certain climate-related goals**



The course's learning objectives will prepare students for careers in climate finance



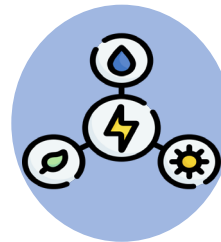
Real and financial implications of climate risk



Interpret ESG reporting frameworks and ratings



Keep current on global climate trends and regulations



Assess how climate risks affect financial metrics



Identify material climate risks for a given investment or industry

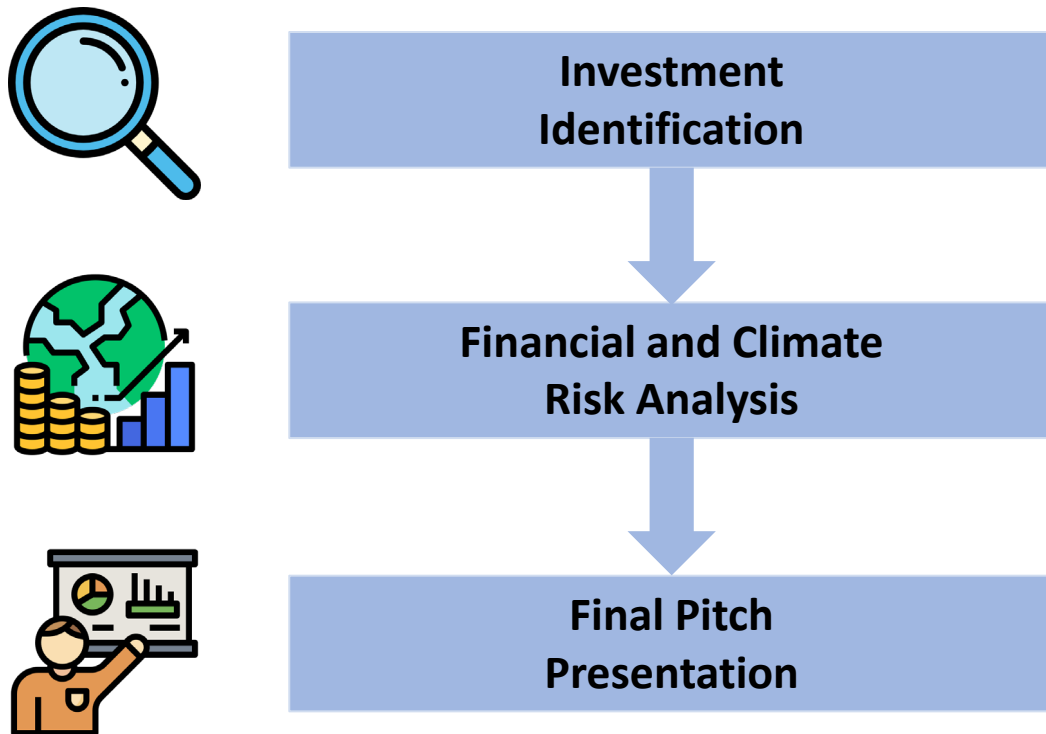


Understand carbon pricing mechanisms and the effect of GHGs on global climate finance



Students will identify and analyze assets that fit the investor's climate-related goals as the final project

Competition Process



“It’s fantastic to have people with a finance and business background to be thinking about [climate risks and opportunities].”

– Director of CoFiRES



Students will need to consider climate metrics when evaluating investments

Examples of Recognized Climate Metrics



Climate Value-at-Risk



Low Carbon
Transition Score



Emissions



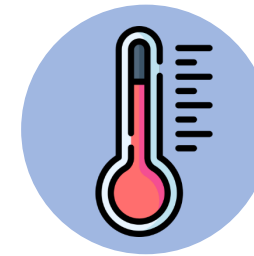
Fossil Fuel Screens



Climate Risk
Management



Current Green
Revenues



Warming Potential

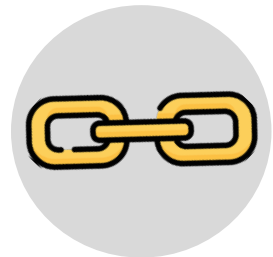
Source: MSCI



Each project will follow a sector-specific theme to streamline the student and investor experience



Narrows competition scope



Helps relate to client's goals

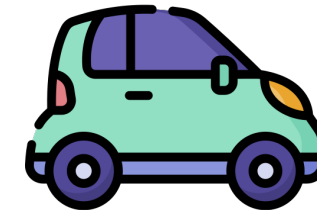


Similar climate risks and trends across students' investments

Agriculture



Automotive



Energy



Investors benefit from student perspectives and access to a pipeline of qualified potential hires



Investors gain insight into sustainable investment opportunities in the climate investing space



Investors save time by receiving analysis and research conducted by UNC students in a consolidated timeframe

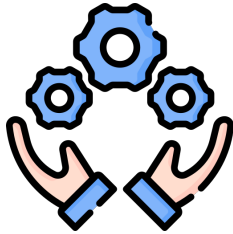


Access to a pipeline of qualified, experienced students with an interest in and knowledge of climate finance

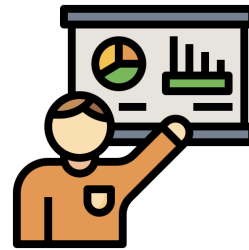
*“There is a need for **free-minded people** to go after investments. The greatest investment opportunities are where new and exciting things are happening.”*

-Assistant Professor at the Indian Institute of Technology Kanpur

Students benefit by gaining hands-on investment experience, exposure to industry professionals, and course credit



Students gain hands-on experience through applying the skills they learn in the classroom



Students learn a variety of **climate-related investment strategies** through lecture content



Students develop their professional network by working with professional clients in the industry



CSE should recruit investors, students, and faculty through different marketing and outreach strategies

Outreach and Marketing

Students

Market course as necessary to pursue careers at intersection of business and sustainability

Investors

Promote course as an opportunity to network with talented students and hear unique perspectives tailored to their vision

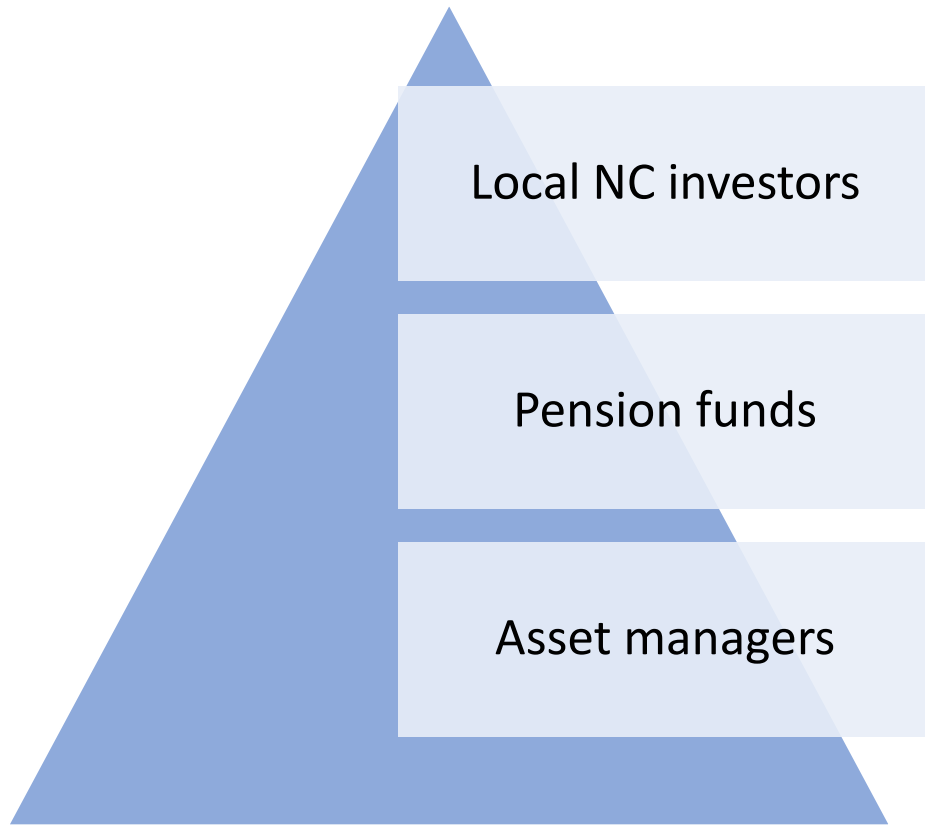
Human Capital

Identify 1-2 professors to teach and help develop curriculum, as well as TAs with a background in sustainable finance



CSE's program should engage with an investor whose needs and processes align with what the course offers

Example Investors



*Financial planning firm
which offers sustainable
investing*

NORTH CAROLINA INNOVATION FUNDS

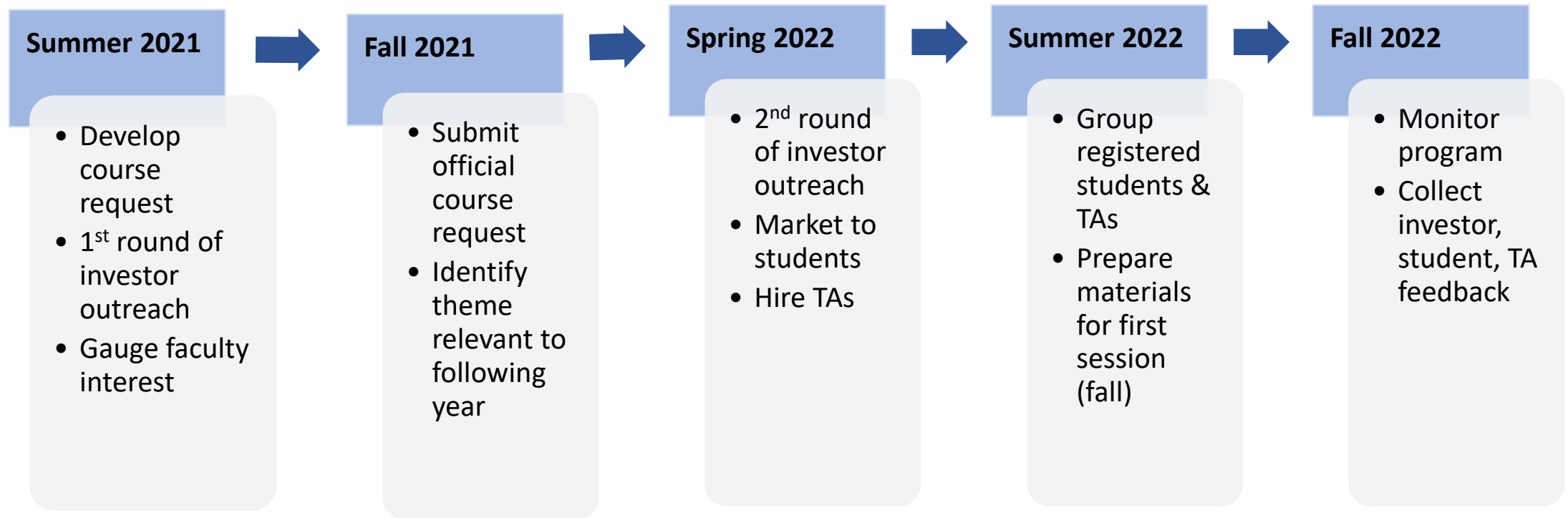


*Innovation Funds branch
of NC Pension Fund*

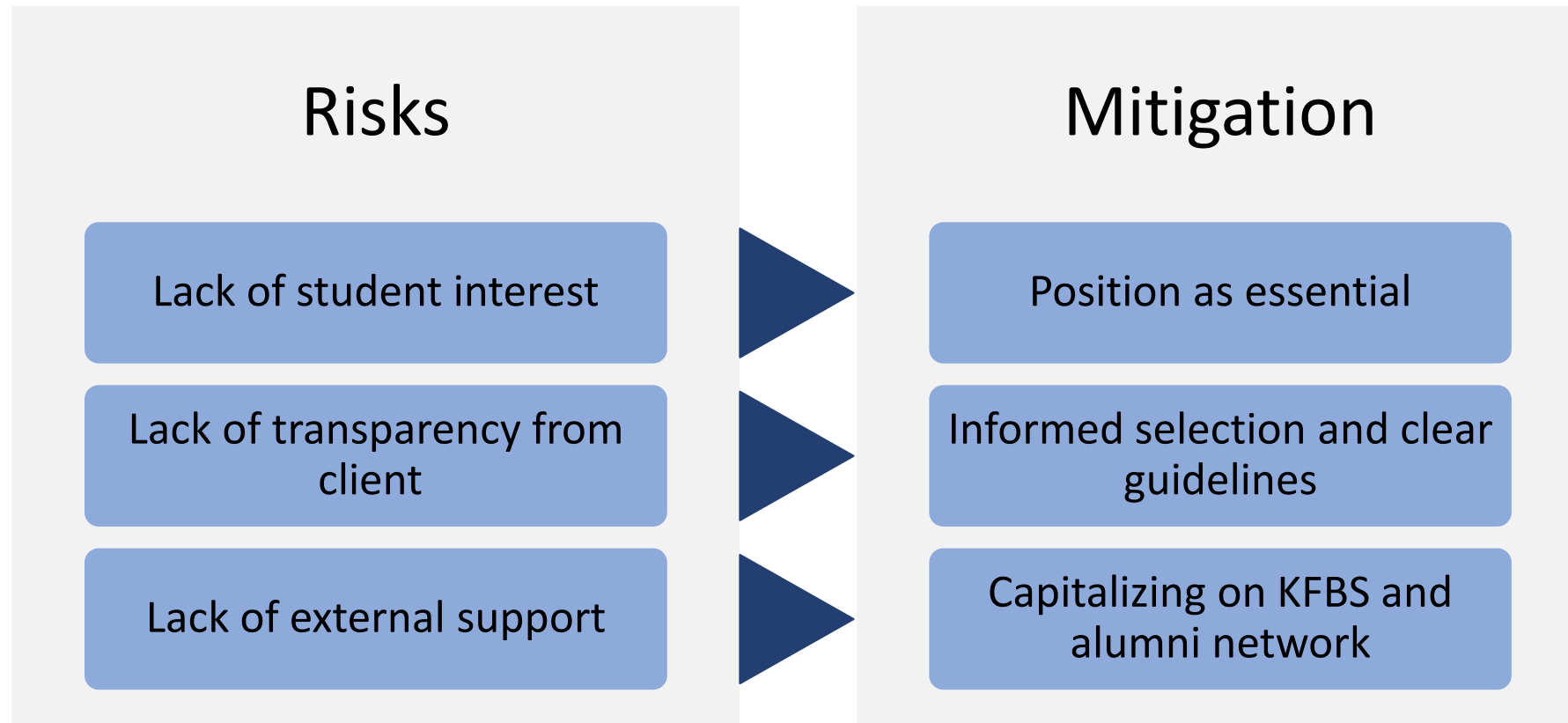


Current partner of CSE

CSE will be able to develop this course over a 16-month time horizon



Major risks include managing stakeholder participation, but proper positioning and oversight can reduce likelihood

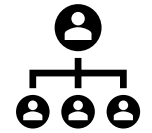


Next Steps: Conceptualize content and stakeholders

Investor Outreach



Prioritize investor categories



Gauge interest by reaching out in rounds



Re-evaluate as key players respond



Listen for stakeholders' most pressing needs

Administration



Identify faculty and develop any necessary partnerships

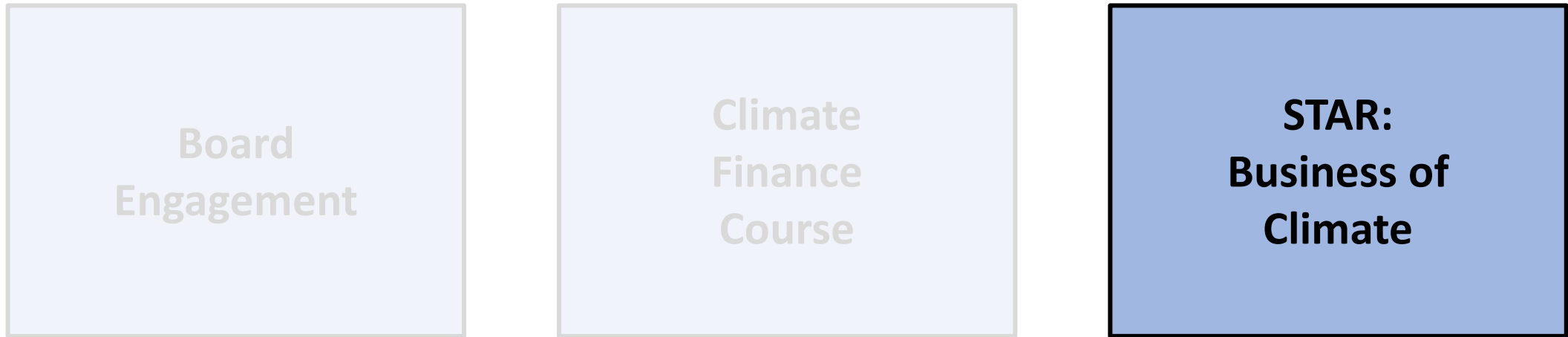


Develop syllabus, logistics, and prerequisites

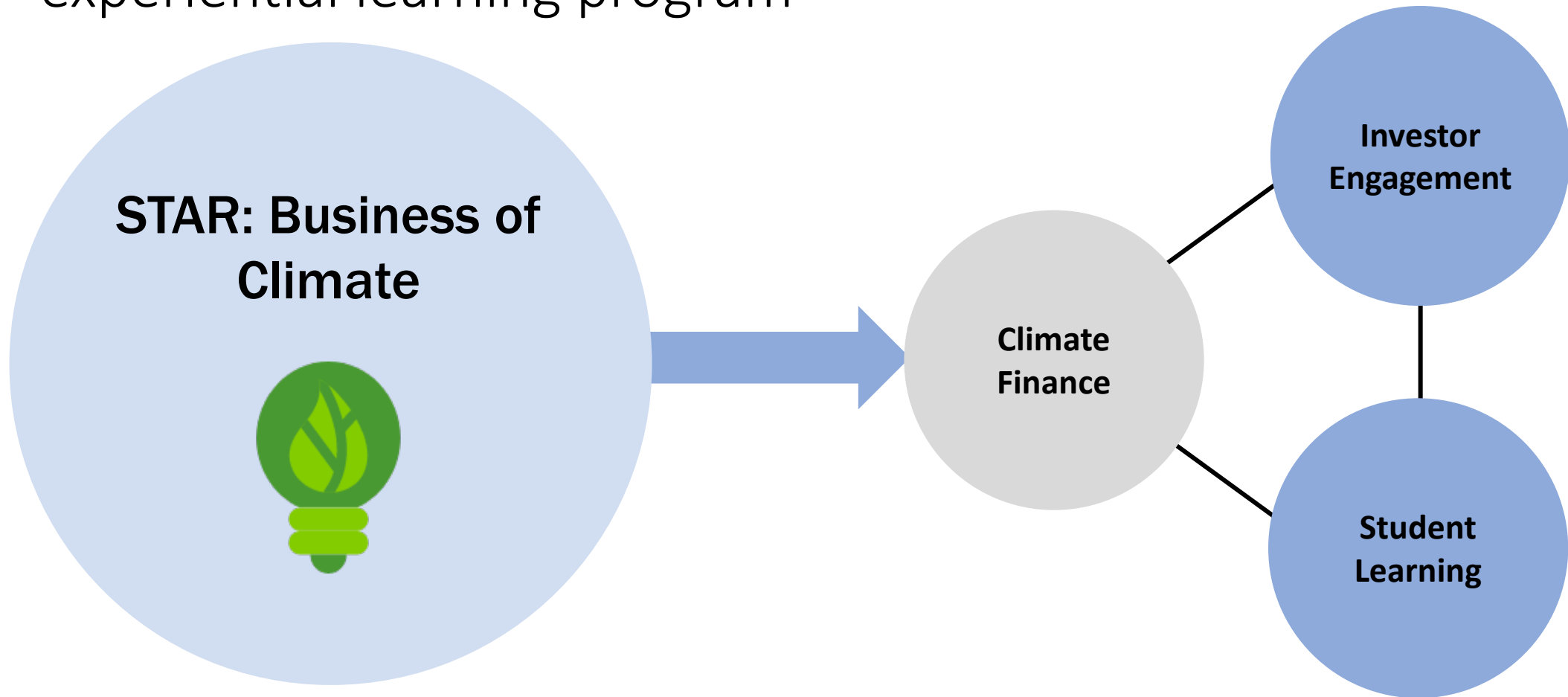


Prepare course request for submission





CSE should partner with STAR to offer a climate finance experiential learning program



The STAR program will act as a connector for students, CSE, and the advisory board



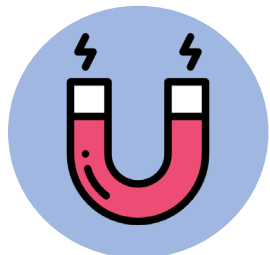
CSE's partnership with STAR would be similar to STAR's partnership with the Center for the Business of Health



Makes implementing the program more feasible



STAR's track record can be used to recruit investors as clients

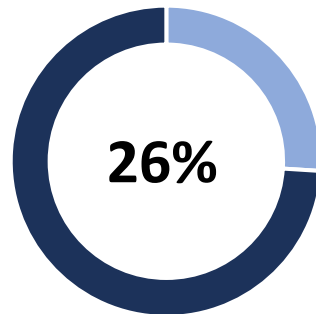


Students are already familiar with and interested in STAR



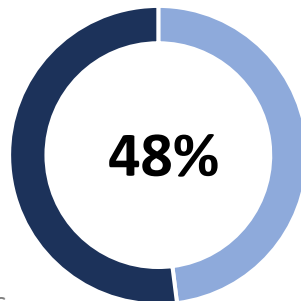
Investors benefit from the diverse backgrounds of student teams who can devote time to climate finance problems

Percent of investors that claim to have the skills needed to address climate risks



Source: KPMG

Percent of investors that said they needed more advice on environmental risks/problems



Source: HSBC Sustainable Financing and Investing Survey 2020

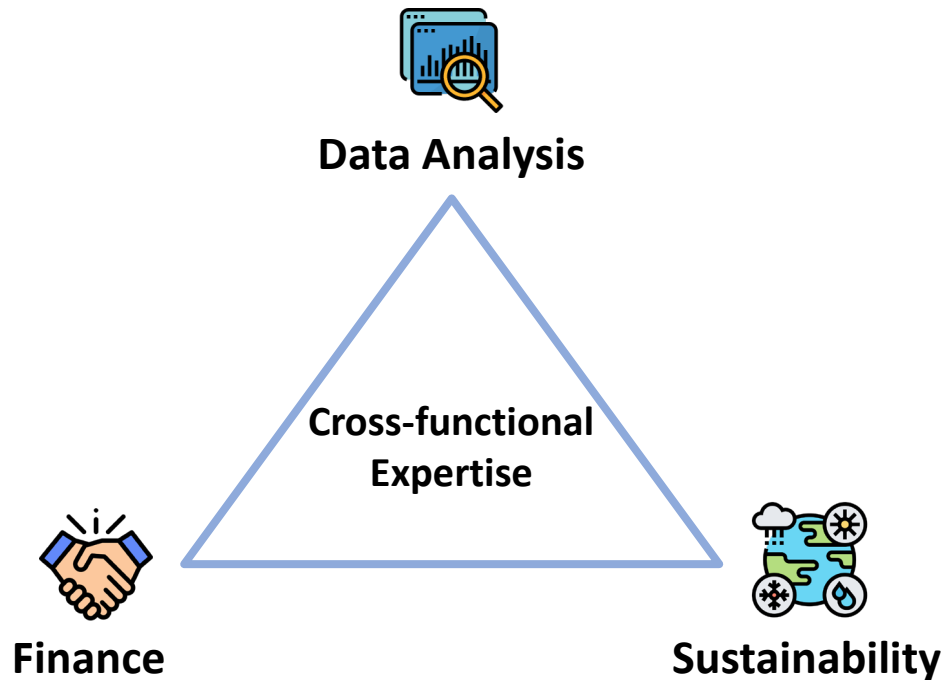
“There is a movement towards trying to identify the materiality of climate impacts”

CIO of Middle Eastern Investment Company

“This is a no-brainer for investors. You will have a ton of interest.”

President of Boardwalk Capital Management

Students will gain climate-related financial analysis skills while solving a real-world problem for a client



Measuring and analyzing physical asset risk



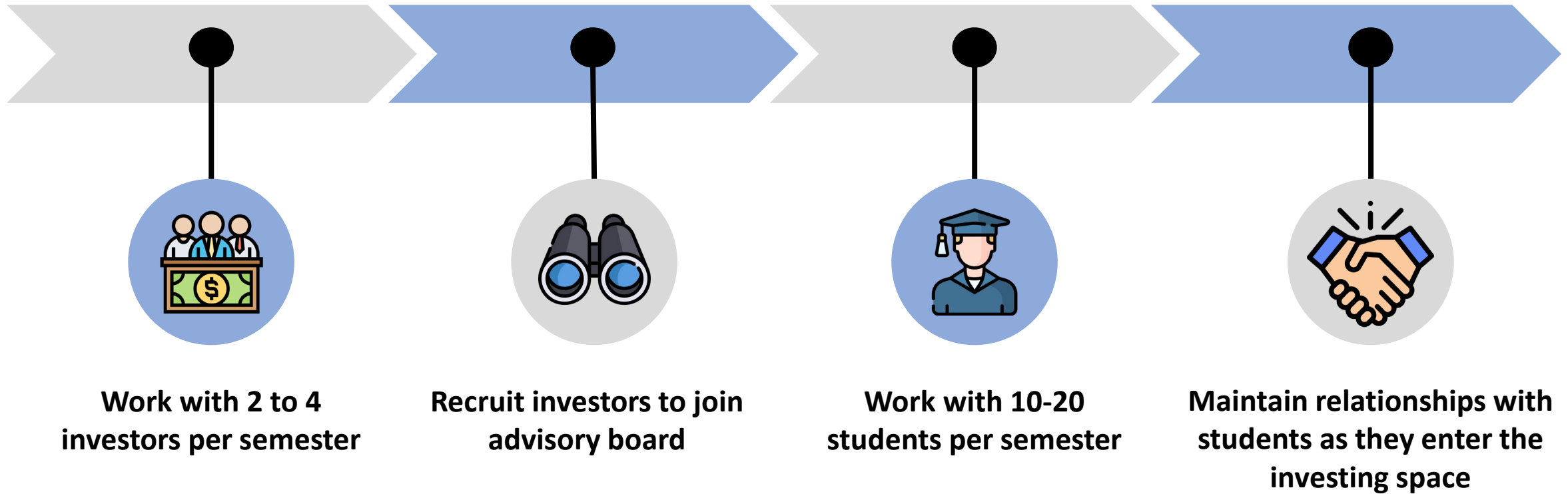
Risk and opportunity analysis for climate disclosure



Analyze portfolio decarbonization opportunities



The STAR program will allow CSE to engage with students and investors while further developing its climate finance reputation



STAR: Business of Climate will be structured like most STAR projects, but with a finance prerequisite and CSE involvement

Student Teams



5 to 6 Undergrads
and MBAs

Corporate Partners



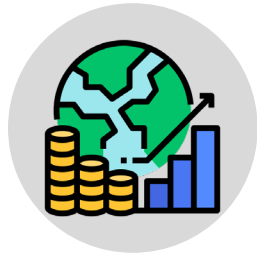
Institutional Investors

Support



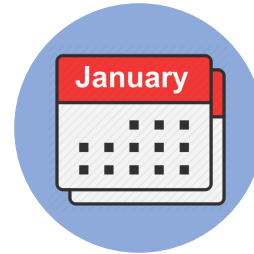
CSE and Faculty
Advisor

Prerequisites



Finance/
Sustainable Finance

Timeline



Mid-January to
May

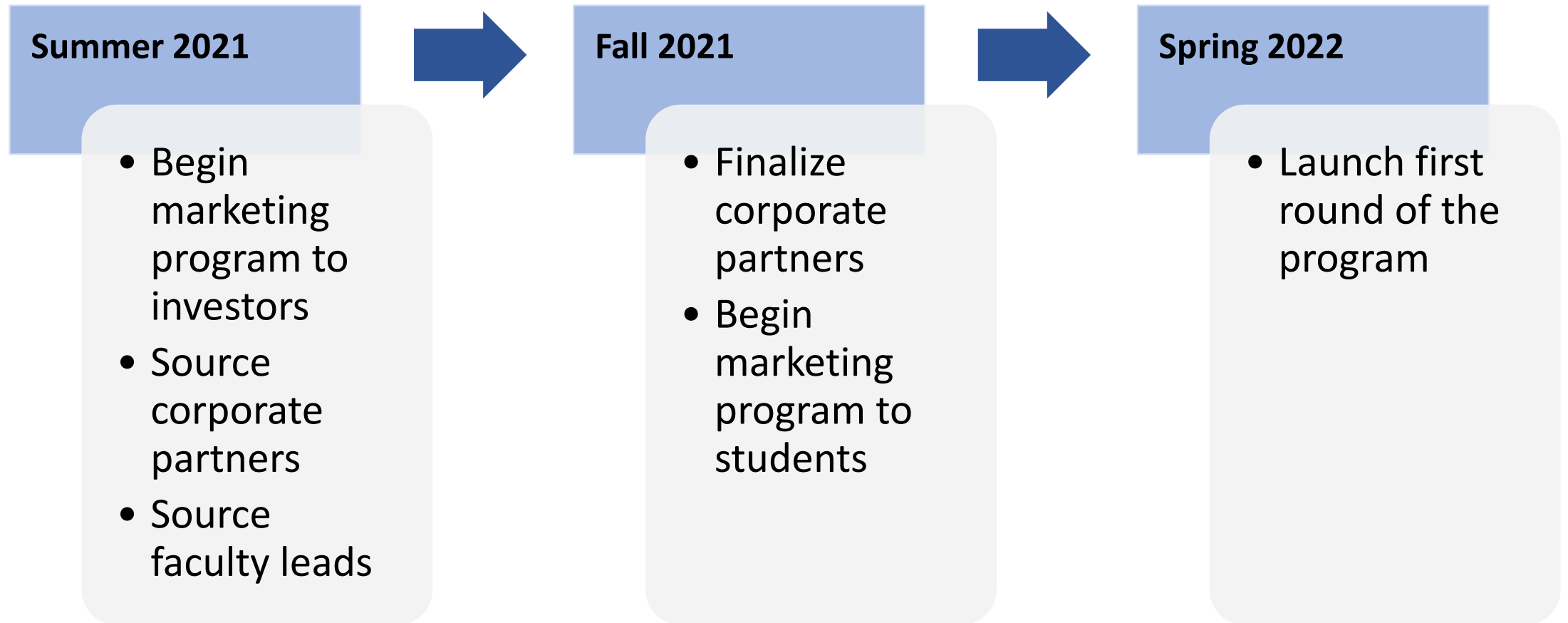
Course Credit



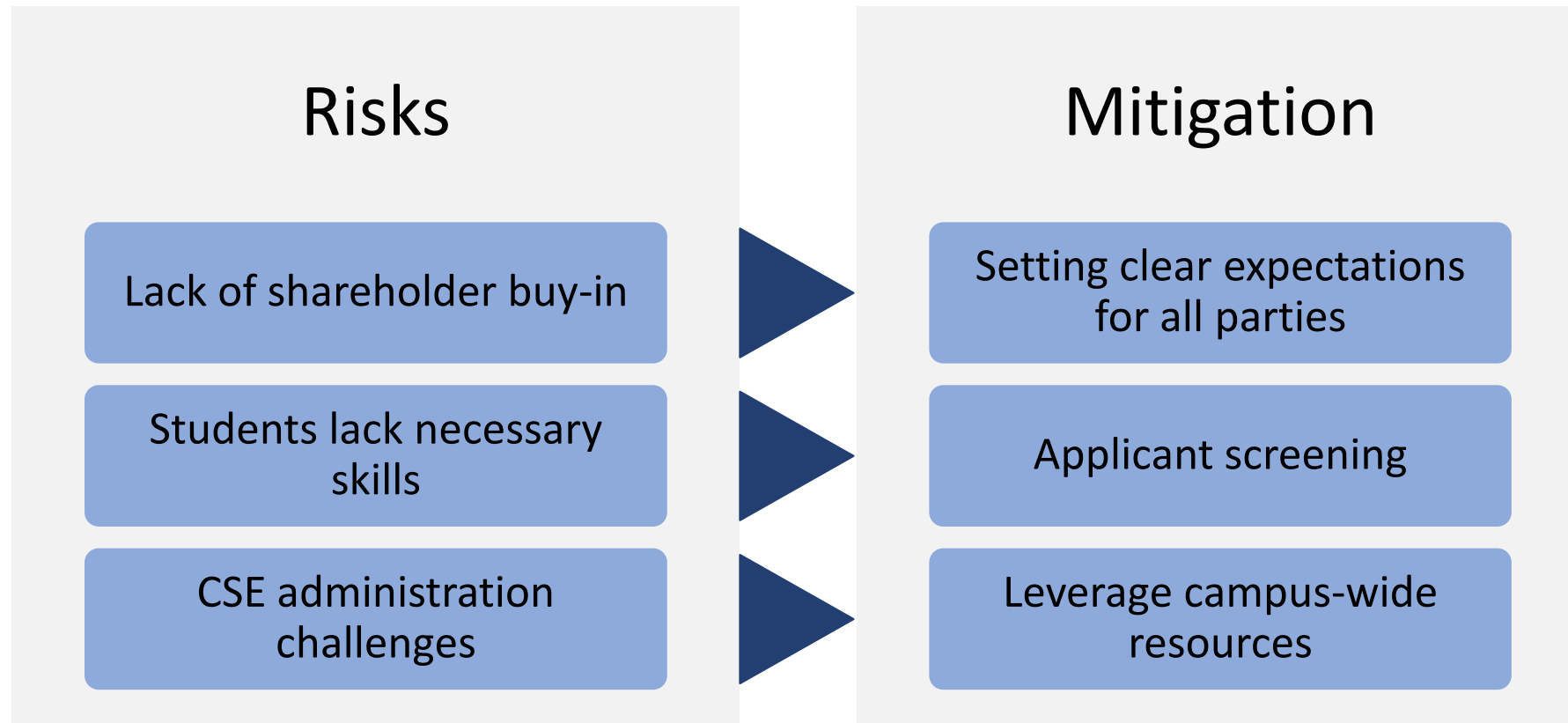
4.5 Credit
Hours



The program needs 6-8 months of development for a launch in Spring 2022



Major risks include achieving buy-in from all parties and a skills gap faced by students



Next Steps: Begin marketing the program to students and investors

Marketing Plans:

Students



Create webpage highlighting program focus and potential corporate partners

Publish reports of finished projects to attract interest

Host informational events for students explaining details of the program

Investors



Leverage the CSE's existing investor network to source clients

Highlight previous STAR projects and climate finance focus of the new program

Point to past success of STAR and STAR Health



CSE should leverage its advisory board and develop two climate finance academic programs to benefit students and investors

Key Question: How can the Center for Sustainable Enterprise **engage** with and **provide value** to institutional investors dealing with climate risks and opportunities in domestic and emerging markets?

Engage the Board

Add advisory board members with expertise in climate finance including institutional investors, asset managers, and climate advisory service providers

Develop Climate Finance Course

Develop a climate finance course with a pitch competition final project to educate students and engage investors

Connect with STAR

Launch a STAR: Business of Climate program to allow students to work with investors on real-world problems involving climate finance

Impact

CSE will establish itself as a leading climate finance center, while meeting the growing demand from students and investors for knowledge and skills needed to analyze climate risks and opportunities



Appendix

Appendix Table of Contents

1. [Primary and Secondary Research Sources](#)
2. [Advisory Board Supplementary Slides](#)
3. [Climate Finance Course Supplementary Slides](#)
4. [STAR: Business of Climate Supplementary Slides](#)
5. [Supporting Information](#)

Primary and Secondary Research Sources

Secondary Research (Articles/Reports)

- Carbon Risk and Impact Assessment, Tirthank Shah
- Are Asia's Pension Funds Ready for Climate Change? Manulife Asset Magazine
- Climate Finance and Disclosure, Nadia Ameli et. al
- Disclosure of Climate Risk Information by Largest Companies, Daniel Kouloukoui et. al
- Emerging Markets ESG Shine in Pandemic, Now to Find More, Bloomberg
- 2017 TCFD Report, TCFD website
- Getting Serious about ESG Risks, Russ Banhum
- Mexico's ESG Bond Has Skeptics Questioning Do-Good Bona Fides, Bloomberg
- New India Fund Flags ESG Focus in Emerging Markets, Bloomberg
- Pandemic Resilience Gives ESG Investing a Boost in India, Ronojoy Mazumdar
- Institutional Investors' Views and Preferences on Climate Risk Disclosure, Ilhan et. al
- Better Business Better World, Business and Sustainable Development Commission
- Core Characteristics of ESG Investing, Global Impact Investing Network
- ESG from A to Z, Bank of America Merrill Lynch
- GIIN Annual Impact Investor Survey 2020, GIIN
- Aggregate Confusion: The Divergence of ESG Ratings, Florian Berg et. al
- ESG and Responsible Institutional Investing around the World, Pedro Matos
- Unpacking Green Targets: A Framework for Interpreting Private-Sector Banks' Sustainable Finance Commitments
- A Signaling Theory of Institutional Activism: How Norway's Sovereign Wealth Fund Investments Affect Firms' Foreign Acquisitions, Gurneeta Vasudeva et. al
- Creating Social Impact Through Responsible Investing, David Hernandez et. al
- Does Doing Good Lead to Doing Better in Emerging Markets? Stock Market Responses to the SRI Index Announcements in Brazil, China and South Africa, Peng Zou et al
- ESG Integration in Investment Management Myths and Realities, Journal of Applied Corporate Finance
- Retirement Pension Plans in the US Industry Report, IBIS World
- Socially Responsible Investment Returns and News: Evidence from Asia, Meng-Feng Yen et. Al
- State Pension Funds and Corporate Social Responsibility: Do Beneficiaries Political Values Influence Funds' Investment Decisions, Hoepner et. al
- Sustainable Financing in Emerging Markets: A Venture Capital Investment Decision Dilemma, Aggarwal et. al



Secondary Research (Articles/Reports)

- Is India ESG-ready? Firms seem to be getting serious about it, The Economic Times
- Shifting the focus of sustainability accounting from impact to risks and dependencies, Alliance Manchester Business School and University of Amsterdam Business School
- India's energy demands to grow more than those of other countries, says IEA chief, The Financial Times
- Climate Risk Mainstreaming Approaches for Indian Financial Institutions, Intellectap
- Sustainable financing and investing survey 2020, HSBC
- The Landscape for Impact Investing in South Asia, GIIN
- US business schools realise ESG is no fad but part of long-term trend, The Financial Times
- Pension Fund ESG Risk Disclosures: Developing Global Practice, IAACAAI
- Portfolio Climate Risk Management Case Studies on Evolving Best Practices, Ceres
- The Importance of Climate Risks for Institutional Investors. ECGI
- Virus spurs emerging market investors to seek returns in ESG, Bloomberg
- Climate change emerges as a compliance focus for SEC, WSJ
- What Investors Want from Sustainability Data, WRI
- Companies are Rushing to Pinpoint Climate Risks, but it's Often Impossible, Bloomberg
- How Environmental and Climate Risks and Opportunities Factor into Global Corporate Ratings, S&P Global
- GARI Investor Guide 2017
- GARI Investor Briefing 2019
- Climate Change Analysis in the Investment Process, CFA
- The State of Climate Risk Disclosure, DFIN Solutions
- Clear, Present, and Underpriced, Rhodium Group
- Global Investor-Director Survey on Climate Risk Management, Columbia Law School
- Muni Market climate risk, Wellington Management
- Flying Blind, Hutchins Center Working Paper
- All Finance is Climate Finance, GTM
- Big Employers of Business-School Grads are Customizing the Degrees, WSJ
- US Corporate Boards Suffer from Inadequate Expertise in ESG, NYU



Secondary Research (Data Vendors and Standards Boards)

- Rating Providers
 - MSCI
 - Sustainalytics
 - Moody's
 - S&P Global
 - Refinitiv
- Frameworks:
 - The Task Force for Financial Disclosures (TCFD)
 - Sustainability Accounting Standards Board (SASB)
 - Global Reporting Initiative (GRI)
 - United Nations Sustainable Development Goals
 - Climate Disclosure Standards Board
 - UNPRI



Secondary Research (Comparables pt. 1)

- University Sustainability Programs
 - NC State Poole Business sustainability Collaborative
 - Columbia Tamer Center for Social Enterprise
 - Duke Fuqua EDGE and CASE
 - Georgia Tech Anderson Center for Sustainable Business
 - UT-Austin McCombs Social Innovation Initiative
 - University of Florida Warrington Social Impact and Sustainability Initiative
 - Carnegie Mellon Tepper Sustainability Research Initiative
 - University of Virginia Business Innovation and Climate Change Initiative
 - NYU Stern Center for Sustainable Business
 - Cornell SC Johnson Center for Sustainable Global Enterprise
 - Dartmouth Tuck Center for Business Government and Society
 - Michigan Ross Business & Sustainability Concentration
 - Vanderbilt Owen Turner Family Center for Social Initiatives
 - Georgetown McDonough Business for Impact
 - UC-Berkeley Haas Center for Responsible Business
 - Stanford Center for Social Innovation
 - Penn Wharton Initiative for Global Environmental Leadership
 - Harvard Business and Environment Initiative
 - MIT Sustainability Initiative
 - Yale Center for Business and the Environment
 - U Chicago Booth Rustandy Center for Social Sector Innovation



Secondary Research (Comparables pt. 2)

- Trade Associations, Non-Profits, and Research Initiatives
 - Ceres
 - International Finance Corporation (IFC) Sustainable Banking Network
 - American Council on Renewable Energy (ACORE)
 - Sustainable Purchasing Leadership Council's Supplier Assessment Project
 - MIT Aggregate Confusion Project
 - Business and Sustainable Development Commission
 - World Resources Institute (WRI)
 - GreenBiz
 - Global Research Alliance for Sustainable Finance and Investment
 - Center for International Climate Research (CICERO)
 - US SIF Forum for Sustainable and Responsible Investment
 - Global Impact Investing Network (GIIN)
 - Carbon Disclosure Project
 - United States Agency for International Development



We interviewed UNC faculty and PhD students with financial backgrounds

- Chris Wedding
- Christian Lundblad
- Greg Brown
- Jeanne Bonds
- Ric Colacito
- Sarah Franks
- Yasser Boulam (2)
- Lee Coker
- Pat Hartley
- Angie Fairchild
- Paul Yoo
- Karin Cochran
- Greg Characklis
- Erin Riggs
- Dave Hartzell (2)



Next, we turned our attention to investors (1/2)

- RD Gauss (2) – Principal at Global Infrastructure Partners
- Brandon Hass – VP of Portfolio Strategist at Merrill Lynch
- Brendan McCarthy (2) – ESG Research Analyst at Calvert
- Chanty De Blois – VP of Impact Investing at Total Impact Capital
- Kent McClanahan (2) – VP of Responsible Investing at RBC
- Lisa Veliz Waweru – Customer Success Lead, The Climate Service
- Marc Shiman – Freelance International Development Professional
- Mark Corigliano – Private Capital Team Head at Duke University
- Rick Larson – Senior VP of Strategic Initiatives at NCIF
- Robert Broadwell – Executive Director at MSCI
- Scott Sadler (2) – Founder and President at Boardwalk Capital Management
- Vipul Arora – Director of Engagement Services at Sustainalytics



Next, we turned our attention to investors (2/2)

- Graham Sinclair – Strategic Advisor, SinCo
- Pete Krull – CEO, Earth Equity Advisors
- Libby Bernick – CEO, Impact Cubed
- Paul Ebner – Managing Director, CPP Investment Board
- Lori Collins (2) – CEO, Collins Consulting
- Steve Toole – VP, Prudential
- Val Cook – VP, Citi
- Pete Krull – Founder, Earth Equity Advisors
- CIO, Middle Eastern Investment Company
- David Vanderweide – Policy Director, NC Retirement Systems



Sample of Interview Quotes (1/2)

Quote	Who	Support for
There is a movement towards trying to identify the materiality of climate impacts	CIO of Middle Eastern Investment Company	Investor interest in climate risk
Water risks are something we should be thinking about now	CIO of Middle Eastern Investment Company	Water-related climate risk research
I think both of these programs could work	CIO of Middle Eastern Investment Company	Experiential ed recommendations
When you see President Biden asking major financial institutions to incorporate climate risk, it is going to impact companies and access to capital	Lori Collins, CEO Climate Consulting	Investor interest in climate risk
[Students] could research and identify physical assets in the portfolio then overlay with climate risk data (IPCC) for the regions where the assets are.	Lori Collins, CEO Climate Consulting	Experiential ed recommendations
Big investors are on it, but you get beyond that and people have no idea what you are talking about	Lori Collins, CEO Climate Consulting	Targeting smaller investors
Pension funds are your best shot	Lori Collins, CEO Climate Consulting	Targeting pension funds
It would be great to eventually do both [programs]	Lori Collins, CEO Climate Consulting	Experiential ed recommendations
I think it's fantastic to have people with a finance and business background to be thinking about [climate risks and opportunities]	Greg Characklis, Director of CoFiRES	Collaborating with CoFiRES
I like the connections with the business school	Greg Characklis, Director of CoFiRES	Collaborating with CoFiRES
Student and industry involvement is low-hanging fruit... Engaging with employers and students puts you on the right track	Scott Sadler, President Boardwalk Capital Management	Experiential ed recommendations
Engagement could be created to evaluate the real impact of some investments	Scott Sadler, President Boardwalk Capital Management	Experiential ed recommendations
[Working with student consulting teams] would be a no-brainer for investors	Scott Sadler, President Boardwalk Capital Management	Experiential ed recommendations
Make it very easy to terminate relationship with no hard feelings	Scott Sadler, President Boardwalk Capital Management	Designing a successful engagement program

Sample of Interview Quotes (2/2)

Quote	Who	Support for
Work hard to get people to trust you	Scott Sadler, President Boardwalk Capital Management	Designing a successful engagement program
[An investor will want to see a] clearly laid out schedule with types of deliverables at each stage	Scott Sadler, President Boardwalk Capital Management	Designing a successful engagement program
Clearly define what the engagement will look like	Scott Sadler, President Boardwalk Capital Management	Designing a successful engagement program
Data science person involved would be great – “holy mackerel!”	Scott Sadler, President Boardwalk Capital Management	Designing a successful engagement program
Many [pension funds] are in the early stages of taking ESG into account... Most use backwards-looking data	Lisa Veliz Waweru, The Climate Service	Targeting pension funds
Investors need to build up and hire people who can understand complex climate data	Lisa Veliz Waweru, The Climate Service	Experiential ed recommendations
[Investors find it] difficult to understand forward-looking climate data	Lisa Veliz Waweru, The Climate Service	Experiential ed recommendations
[Students interested in climate investing] need to understand finance, science, macroeconomics, and statistics	Lisa Veliz Waweru, The Climate Service	Designing a successful engagement program
The banks in Europe are light years ahead of the United States in terms of this space. Their funnels and frameworks are amazing and could be used more broadly.	Chanty de Blois, VP Total Impact Capital	Targeting US investors
Forge better alumni connections	Chanty de Blois, VP Total Impact Capital	CSE Board recommendation
If we’re going to own an asset for 20 to 40 years, we have to take into account these considerations. Also, we are seen as a public good despite being a private fund, so we have to appeal to the people who want their pensions to be responsibly invested.	Paul Ebner, Managing Director Canadian Pension Plan Investments	Targeting pension funds
We would be engaging in the student but expecting influence from faculty. We don’t know the student, but we have seen the professor’s research and they would be a “known entity.”	Paul Ebner, Managing Director Canadian Pension Plan Investments	Designing a successful engagement program
The key is to have direct interaction with the end-users. One or two meetings with the client doesn't cut it [and makes] it hard to figure out what the client is trying to solve. [The program] needs to be interactive	CIO of Middle Eastern Investment Company	General program structure
Working with insurers could have a big impact. If they raise their standards to force others to account for climate change, they can push the agenda	Pete Krull, CEO Earth Equity Advisors	Defining target market
If you did one project on ESG, you would be considered an expert	Eric Livingston, Americas Financial Services Partner EY	Experiential ed recommendations
If I had [ESG] skills, I would be very busy for a long time	Eric Livingston, Americas Financial Services Partner EY	Experiential ed recommendations



Advisory Board Supplementary Slides

Board activities will be self-funded by board membership fees

Membership Fee Structure (Annual Fees)

Distinguished Board Member - \$10,000

- Recognition on website and major CSE publications
- Priority invitation to all CSE-affiliated events
- Collaborate with faculty on STAR project design

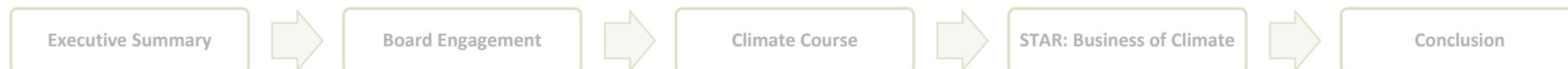
Board Member - \$5,000

- Access to board meetings
- Invitation to CSE-affiliated events when space allows

Item	Estimated Value (\$)	Assumptions
Fees collected	75,000	9 Board Members and 3 Distinguished Board Members
Events	25,000	Includes facility rental, catering, speaking fees
Compensation	40,000	Salary for admin support specialist
Other expenses	10,000	Applied to competition prizes, other gifts
Total expenses	75,000	
Net Income	0	

UNC Faculty with deep knowledge on climate change and/or finance

- Greg Brown, Kenan-Flagler
- Greg Gangi, Institute for the Environment
- Jason West, Environmental Sciences and Engineering
- Jonas Monast, School of Law
- Paige Weber, Economics
- Miyuki Hino, City and Regional Planning



Climate Finance Course Supplementary Slides

The program would be a mod-long class for course credit to generate student engagement

Credits

- Allowing students to receive course credit will be **most effective in generating student interest**
- Course would count for **1.5 credits**

Prerequisites

- **Students would take Finance (MBA 772)** in order to be eligible for this course



A pitch competition provides value on all sides

Investors



Gain insight into sustainable investment opportunities tailored to their specific needs

Students



Acquire skills to integrate climate risk and opportunities into financial analysis

Businesses



Overlooked or undervalued green investments gain exposure



CSE should form long-standing relationship with NC State Pension Fund to bring on as investor



Innovation Funds Background

- Diversified investment partnerships sponsored by North Carolina Retirement Systems
- Partnerships invest in companies and funds with significant operations in/connections to NC
- Connected to UNC's through Technology Licensing office

Some Guidelines for Investment

- Will invest at various stages of funding (Multi-Stage Venture Capital, Growth Equity, Buyout, etc.)
- Seeking to invest in opportunities primarily in North Carolina



Pros and Cons Class Model

Pros

- Having a grade tied to the project will lead to more commitment to give good recommendations
- Allows students to explore interest in sustainable finance while earning course credit
- Longer-horizon, more opportunity for learning sustainable finance foundations

Cons

- More commitment may deter students
- Administrative hurdles (still figuring out)
- Greater exclusivity – may prevent interested students with non-business majors from joining



Pros and Cons Standalone Competition Model

Pros

- Less administrative barriers (still figuring out)
- May reach a broader audience of interested students due to less commitment and exclusivity

Cons

- Less commitment, students may be more likely to drop out
- Less red-tape, students may not be as prepared/qualified to provide valuable recommendations to investors (may still need application process)
- Less opportunity to ensure students have the background knowledge on climate finance



Structure #1: Students research individual assets on their own.

Students will be given a sector-specific theme. They will then look for an investment, evaluate its climate risk, and present it to the investor client.

Pros

- Lends itself more toward identifying and promoting undervalued/obscure investments
- Clients get a wide array of investments to choose from (maximizes potential value)

Cons

- Students may struggle to find investments with good climate-metrics that also fit their client's needs
- Wide scope. Returns and ESG-ratings are diverse across industries (having themes limits scope)



Structure #2: Students pitch an investment from a pre-selected set

Students will be given a set of investments from a preselected set that fit the investor's goals (decarbonization, long-term growth, etc.). They will then evaluate the assets' climate related risk and pitch one to the investor client.

Pros

- Clear directive for students
- Clients get more control over the scope of possible investments

Cons

- Puts the burden on investors to identify investments
- Limits the scope and the value that different perspectives that students can provide investors
- May lead to generic answers if the set is not broad enough
- May be overwhelming if the set is too broad



Structure #3: Students look at investor's current portfolio to see how they can hedge climate risks

Students receive a the client's portfolio and evaluate its climate risk. They then give recommendations to hedge current climate risk, either by investing in assets with good environmental ratings or divesting assets with poor ratings.

Pros

- Clear directive for students
- Helps solve a client's current climate risk management challenges by evaluating its actual portfolio
- Portfolio focus would be a more holistic investment approach

Cons

- Investor's may not want to reveal actual portfolio
- If investors DO want to share actual portfolios, there may be restrictive NDA's for students to follow (and other red tape?)
- Emphasizes both investment and divestment which may be too much of a burden on students



General Considerations for Pitch Competition

- What investments will students pitch?
 - Fixed income, publicly-traded stocks, private equity
- What investment strategies should students use?
 - Will depend on the investment strategies that clients use (positive, negative, ESG-integration, impact investing, etc.)
- What will students' presentations feature?
 - Company background
 - Financial and Climate-risk Analysis
 - Future Outlook
 - Investor Fit



Comparables (U Oregon)

U Oregon Impact Investing Pitch Competition

- Students construct and deliver socially and environmentally responsible investment pitches to the University of Oregon Foundation
- UO Foundation gives feedback to teams. No guarantee that the foundation will invest in any of the presented ideas and investments.
- 8-week horizon
- Entries judged on 4 Categories
 - Relevancy – how does idea help combat climate change
 - Thoughtfulness
 - Feasibility
 - Impact – how much social and environmental good can be generated from your investment idea



Comparables (University of Kentucky)

The University of Kentucky Stock Pitch Competition

- Sponsored by the Institute of Free Enterprise (ISFE) and Truist Bank
- Students encouraged to seek info from SEC filings and investor information websites. Teams perform valuations using several methodologies
- Optional mentor provided to teams
- 8-week horizon



Comparables (Hartley's Alternative Investments Course)

- Exposes students to the benefits, opportunities, and risks of incorporating alternative investments into managed institutional investment portfolios (e.g. pensions, endowments, foundations)
- Seniors only with instructor permission



CSE's program should engage with active, public investors with readily available data



Asset management arm of Prudential Financial

Relevant Funds

- PGIM Jennison Emerging Markets Equity Opportunities Fund
 - *16.4% of assets in India*
- PGIM QMA Emerging Markets Equity Fund
- PGIM Jennison Natural Resources Fund
- PGIM Jennison Utility Fund
- PGIM Jennison Diversified Growth Fund



Leading real estate investment management firm

Large focus on internal ESG goals with a variety of investment vehicles, commingled funds, and separate accounts



Score = A+



\$14.75B AUM (2019)



Support for Recommendation

- Value on all sides
 - Investors learn about sustainable investments that are aligned with their sustainability goals, risk-appetites, and core values.
 - Green investments that may have been overlooked gain exposure
 - Students acquire relevant skills about evaluating climate risks in investments



Annual Budget for the Climate Finance Course

Item	Estimated Value (\$)	Assumptions
Revenue from Enrollment	12,000	
Professor & TA Expenses	10,000	\$10,000 for professor compensation. TA stipends are covered by a separate department.
Networking Reception	2,000	Cost of local venue + food & drink + service
Total expenses	12,000	
Net Income	0	



STAR: Business of Climate Supplementary Slides

A climate-finance experiential learning program would uniquely differentiate CSE from its competitors

Experiential Learning



Stern Sustainability for Competitive Advantage



Sloan S-Lab



Steers Advisory Services

Climate Finance Research



Center for Business and the Environment



Climate Risk Management Undergraduate Fellows Program



Business and Environment Initiative

Climate Finance Courses



Climate Change and Business Program



Business and Sustainability Concentration



Sustainable Business and Innovation Concentration




Students and CSE staff can make public-facing reports to promote the program

MBA Students Address Subway’s Climate Risk in Foundational Course on Sustainable Business

— Monday, February 1, 2021

NYU Stern



Connecting ESG and Corporate Bond Performance

Erik Landry, Mariana Lazaro, Anna Lee

Objective: Evaluate relationship between ESG metrics and corporate bond performance

Breckinridge Capital Advisors
 Boston-based registered investment advisor
 Manages investment-grade fixed-income portfolios
Environmental, Social, and Governance (ESG)
 ESG impact on performance of public equities has been well studied
 ESG impact on performance in credit market offers an opportunity
Credit Default Swap (CDS) Spread

- CDSs are like insurance policies against the default of a bond issuer
- Investors use these securities as a proxy of bond performance

Environmental	Social	Governance
<ul style="list-style-type: none"> • Climate Change • Renewable Energy • Air/Water Pollution 	<ul style="list-style-type: none"> • Health and Safety • Human Rights • Diversity 	<ul style="list-style-type: none"> • Transparency/ Disclosure • Incentives Structure • Financial Policy

Breckinridge Collaborates with MIT S-Lab on ESG Research

August 9, 2016 - As sustainability continues to gain momentum in the investment industry, we are excited to see more business schools integrating curriculum on ESG and impact investing. MIT Sloan School of Management’s S-Lab provides students with a unique opportunity to explore the connection between business, the environment and society. The S-Lab’s latest student-led research project leveraged Breckinridge insights to investigate the relationship between ESG disclosure scores and corporate fixed income performance.

MIT S-Lab & Breckinridge Capital Advisors

UNC students have shown support for sustainability-related courses

Average interest over the past five years

12% of undergraduates mentioned the CSE in their B-School applications

16% of MBA applicants chose the sustainability concentration

Source: UNC Admissions Data

Student demand presents an opportunity for the CSE to scale up



Market to B-School students



Expand and refine course offering



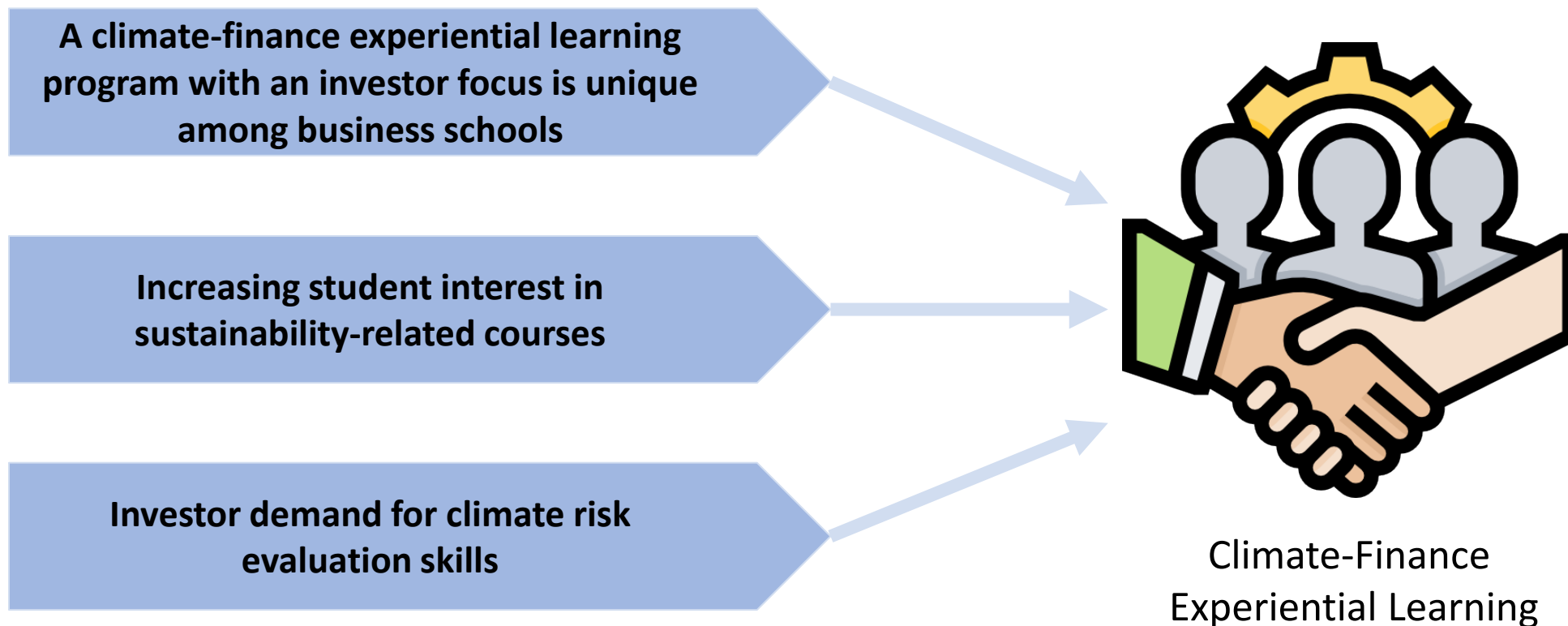
Define a climate finance focus



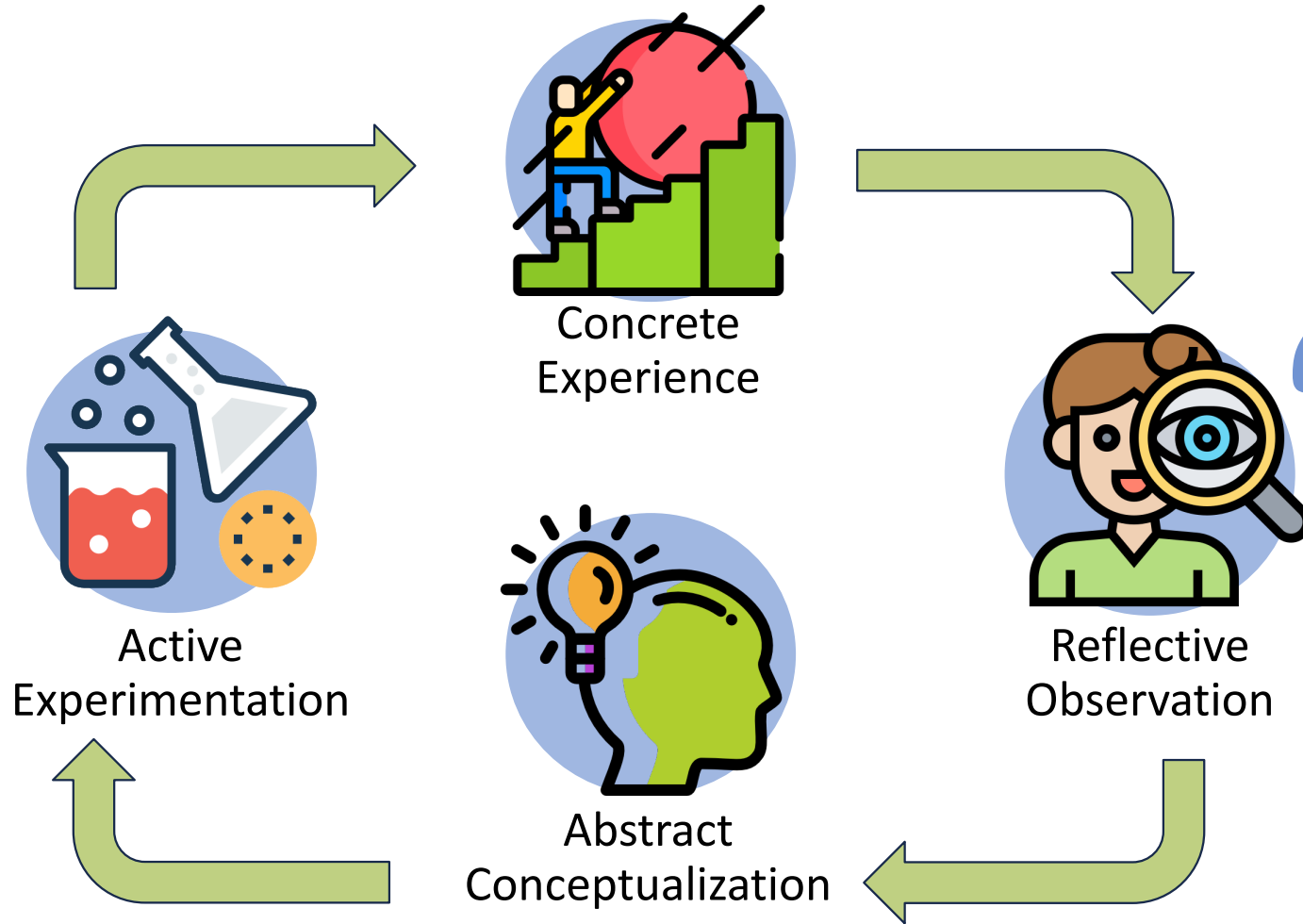
Increased demand for climate finance knowledge and skills creates an opportunity for CSE

Situation

Recommendation



An experiential learning program allows students to sharpen their skillset through hands-on engagement



“ Learning is the process whereby knowledge is created through the transformation of experience. ”
-David A. Kolb

Program for Climate Risks and Opportunities

Program Structure

- Students will be placed in teams of 4-5 and paired with a client
- Overall size of the program would be around 4 teams but could be expanded depending on demand
- Each team would be paired with a faculty advisor from UNC to provide guidance and support as needed
- The project would last for one semester and would count for course credit

Student Demographics

- Accepting MBAs and undergrads will give broadest applicant pool
- Students interested in sustainable finance
- Students coming from different backgrounds would give the program a multi-disciplinary and collaborative nature



Other leading sustainable business centers have best practice examples for the Clean Initiative

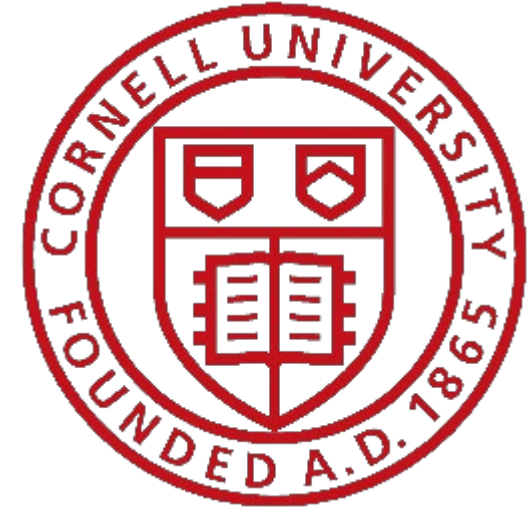


**Impact Investing Fund
Signature Project
Consulting in Costa Rica**



**Massachusetts
Institute of
Technology**

**S-Lab
Sustainable Lunch Series**



**Impact Investing Fellowship
STAMP
Japanese Sustainability**



The program can leverage the expertise at CoFiRES to work on highly specialized research

What financial tools can water utilities use to combat the risk of water scarcity?

How does climate change pose a financial risk for growers and barge operators on the Mississippi?

What level of financial risk are Catawba Basin dam owners exposed to?

How are revenues for inland shipping affected by water levels on the Great Lakes?



With the proper set of skills, students can also work on projects outside of the scope of CoFiRES

What would it take to decarbonize an investor's portfolio, and how might returns be impacted?

How does physical climate risk impact the long-term value of an investor's infrastructure holdings?

Which Fortune 500 firms are best prepared for adaptation to policy transformation related to climate change?

How can portfolio companies improve disclosure and climate risk mitigation?



CoFiRES will provide skills-oriented lessons and mentorship

Key Areas of Support:

Mentoring

CoFiRES will provide support and mentorship to guide students over the course of the project

Data

CoFiRES can help provide students with data on climate-related issues that would be useful for the corporate partners

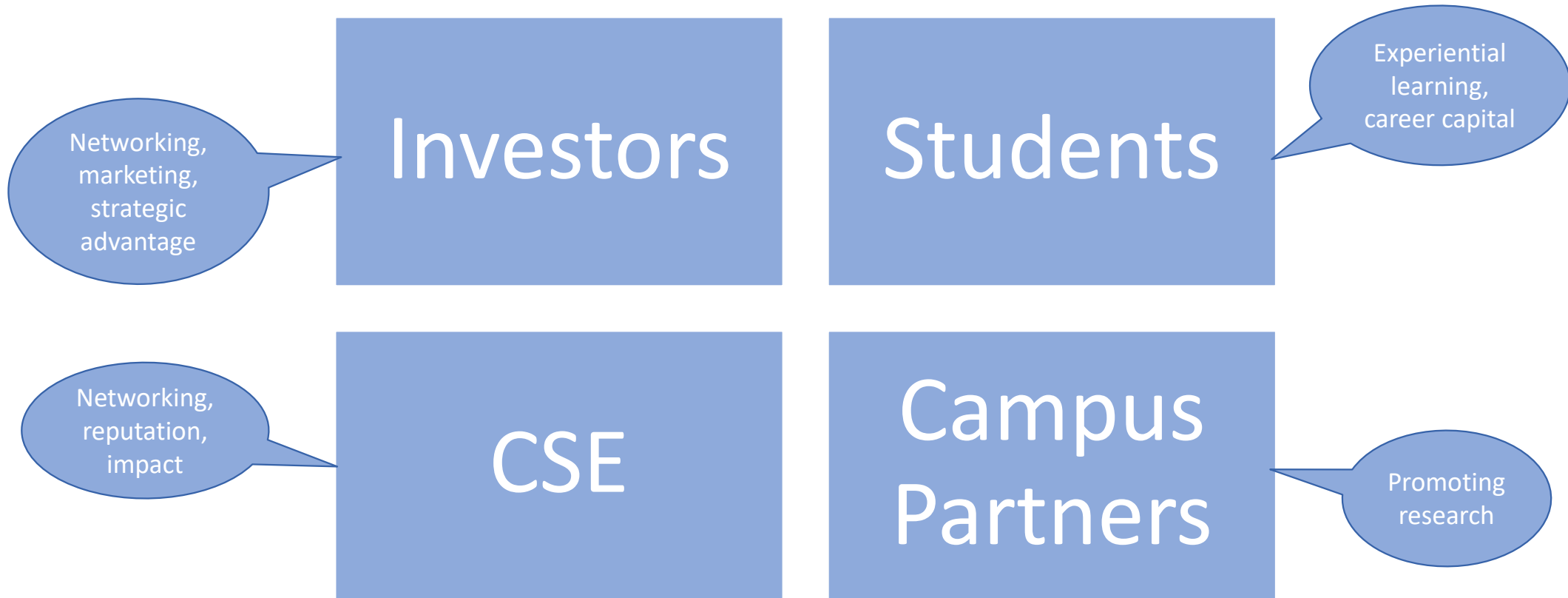
Connections

CoFiRES can facilitate connection to data and other resources when needed



Keys to success include setting clear expectations for all stakeholders

What is expected of me? Why is my commitment important?



The program will take place within STAR, but with more focused prerequisites

Credits

4.5 credit hour, one semester course

Prerequisites

Undergrad:
Corporate Finance
Sustainable Finance

MBA:
Financial Management



The structure and logistics of the STAR program will be identical for STAR: Business of Climate

Team Size	Students	Support	Timeline
<p>Teams of 4-5</p> <p>Paired with an investor from CSE's advisory board or broader network</p>	<p>MBA's and undergrads in Kenan-Flagler</p>	<p>STAR administration</p> <p>Faculty advisor</p> <p>CSE</p> <p>Advisory board experts</p>	<p>Mid-January to early May</p>



The STAR: Business of Climate program Will Mirror the Financials of the Broader STAR program

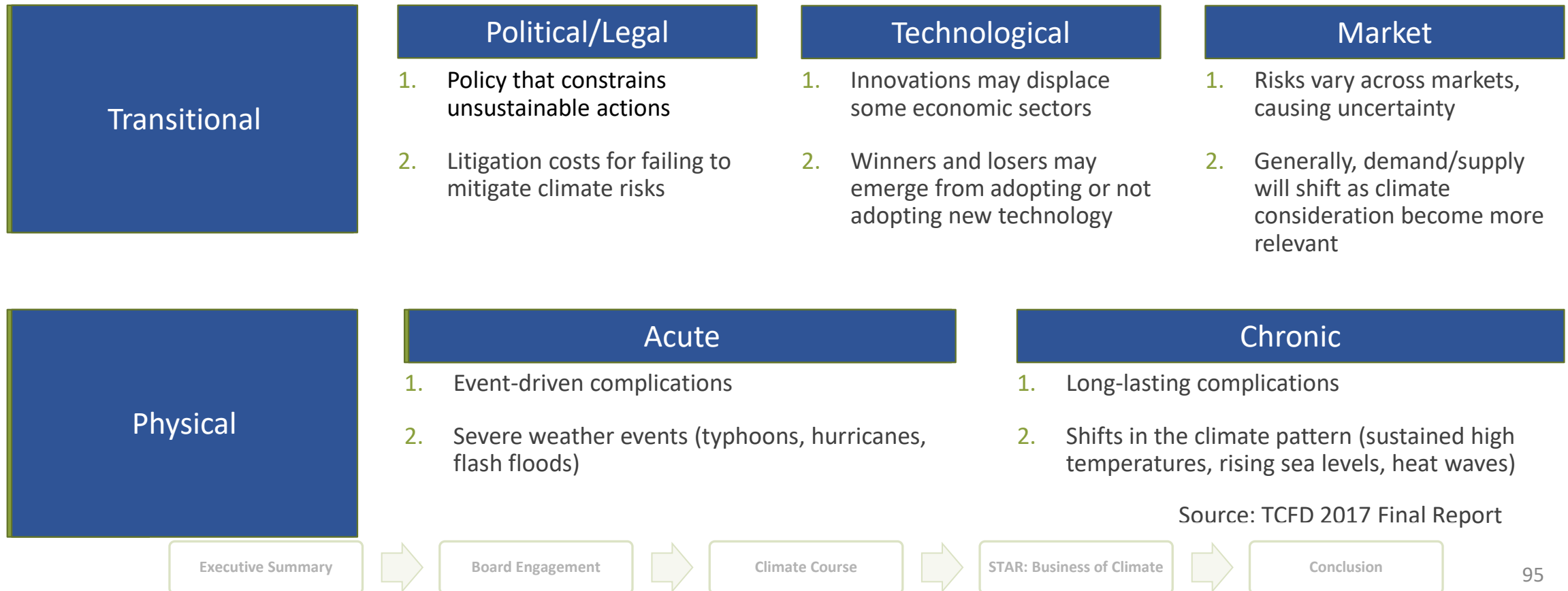
Item	Estimated Value (\$)	Assumptions
Project Fee	30,000	Average corporate partner fee charged by STAR
FA Expense	7,000	Standard STAR FA cost
Administrative and Marketing Expenses	23,000	Excess STAR revenue is used to fund its operations, not for profit
Total expenses	30,000	
Net Income	0	



Supporting Information

Transitional vs Physical Risk

In the wake of growing concerns over climate change, companies face several risks for failing to adapt. TCFD outlines climate-related risks in two broad categories:



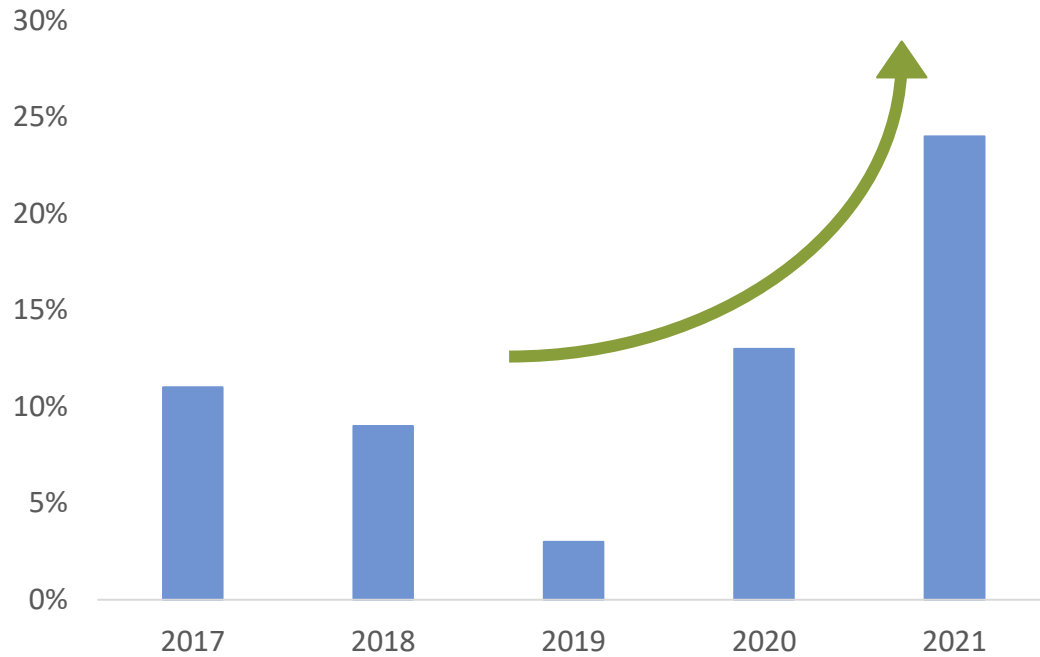
Investor Challenges: Data/Further Explanation

- Lack of standardized reporting:
 - Correlation between ESG ratings is on 0.54 on average, and ranges between 0.38 and 0.71 (MIT Sloan)
- Greenwashing:
 - In 2010, 95% of “green” products committed greenwashing in their advertising according to TerraChoice’s “Sins of Greenwashing” (including the sins of hidden trade-offs, vagueness, no proof, irrelevance, false labels, lesser of two evils, and fibbing)
- Physical vs. Transitional Risks:
 - Transitional risk dominates climate risk discussion in companies’ 10-k filings. In 2019, there was an average of 10 transitional risk mentions, whereas there was only an average of 4 physical risk mentions (Brookings).
 - Physical: The estimated global loss from natural catastrophe events has risen from around \$1,226bn to \$1771 bn from the decades 2000-09 to 2010-19. In the same period, uninsured losses from these events rose from 636 bn to 1017bn – showing that companies are still unprepared for physical climate risks (Forbes)
- Turning climate data into financial solutions:
 - 46% of US companies in the large-cap S&P 500 index publicly disclose climate change policies that specifically address climate-related risks, but only 28% clearly describe the impact of these risks on the company’s business, strategy, and financial planning. (Ethisphere)
 - The US has the lowest proportion of businesses using (15%) and preparing to use (9%) carbon pricing. (CDP)
- Lack of awareness (?):
 - The vast majority of companies acknowledge climate related financial risks but have a hard time turning awareness into action. 8 in 10 businesses oversee climate change at the board level, but only 1 in 10 businesses offer incentives for the management of climate change issues. (CDP)
- Limited transparency:
 - Only 42% of companies with a market cap over \$10 bn disclosed some type of climate related financial information in line with the TCFD (FSB)
- Data quality issues:
 - Third-party estimates of emissions are at least 2.4 times more diluted than company self-reports (Research Affiliates)



UNC students have shown support for sustainability-related courses

Undergraduate applicant interest in the CSE has grown significantly



■ % of applications that mentioned the CSE

Source: UNC Admissions Data

Undergrads that mentioned the CSE in the past 5 years				
Year	Interest	App Total	% Interest	
2017	86	813	11%	
2018	68	782	9%	
2019	25	840	3%	
2020	97	766	13%	
2021	204	840	24%	
Average interest			12%	
MBAs that chose the sustainability concentration over the past 5 years				
Year	Interest	App Total	% Interest	
2017	449	2151	21%	
2018	392	1758	22%	
2019	142	1323	11%	
2020	203	1903	11%	
2021	178	1324	13%	
Average interest			16%	

75%

of top undergraduate business schools have sustainability programming in their curriculum

16

of the top 30 business schools offer supplemental areas of study for sustainability (minors, concentrations, dual degrees)

Source: Curme & Hardison

Executive Summary



Board Engagement



Climate Course



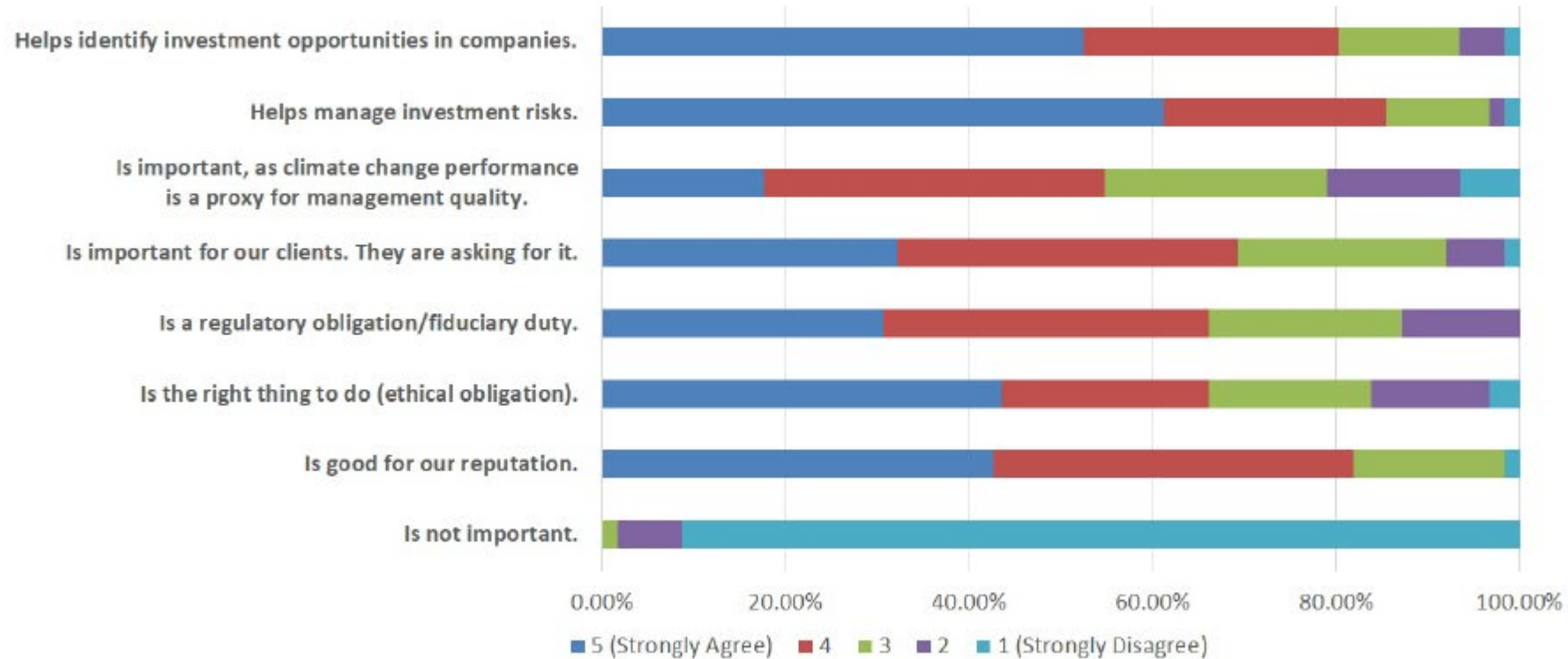
STAR: Business of Climate



Conclusion

Survey Question to Investors: Relevance of Climate Risk Management

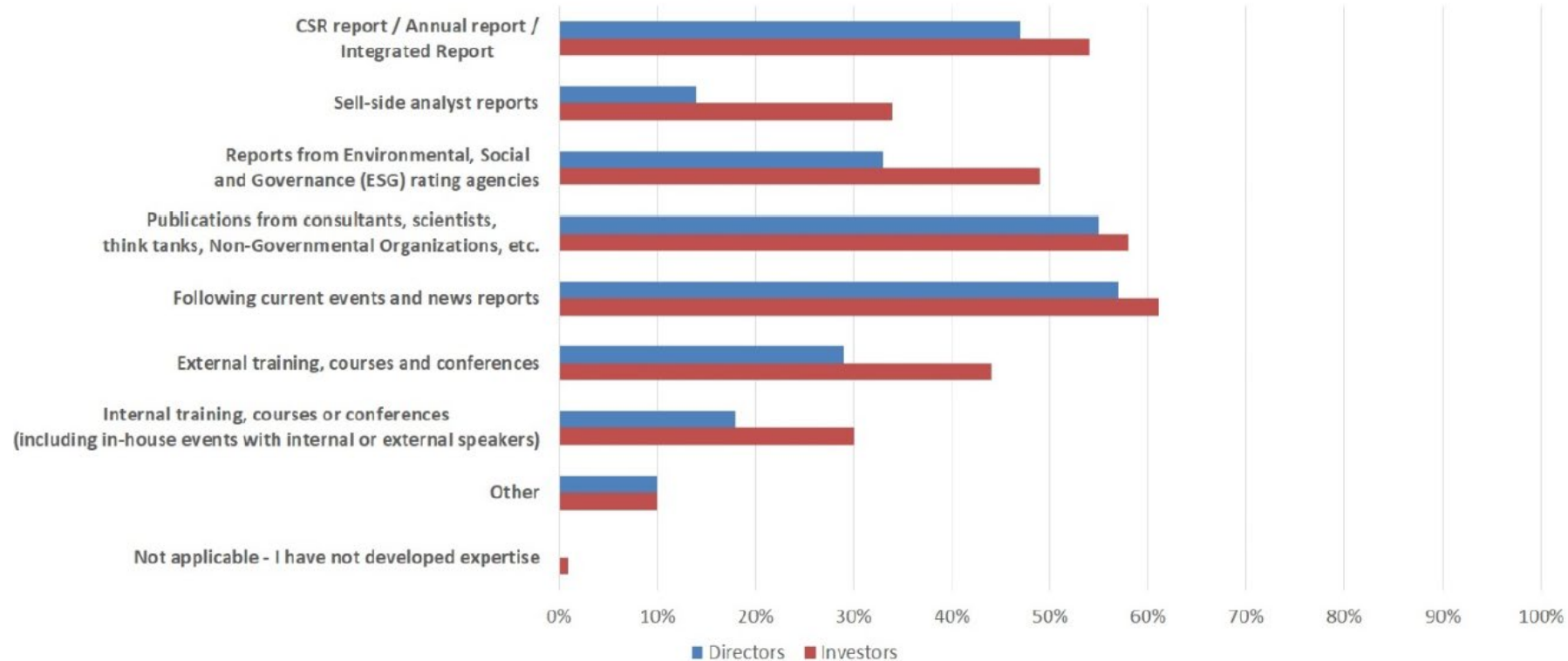
Survey Question to Investors: Incorporating climate risk into investment analysis and decision making..



Source: Climate Risk Management Survey, Columbia Law School

Survey Question to Investors: Sources of Info

Survey Question: How did you develop your expertise/knowledge of climate change to assess the companies' risk and opportunity profile?



Source: Climate Risk Management Survey, Columbia Law School

Investors are also facing a skills-gap in evaluating climate opportunities and risks

- According to KPMG, 78% of executives think climate risk poses a threat to their job, while only 26% claim to have the skillset to deal with the risk.
 - Senior-level business leaders will be looking toward new talent to fill climate knowledge gaps
- Only 30% of TCFD members have a specialized cross-functional team dedicated to climate-risk disclosure. 70% either have not assigned a lead or use unspecialized departments to address climate change.
- Opportunity for the CSE to fill in this knowledge gap through UNC students



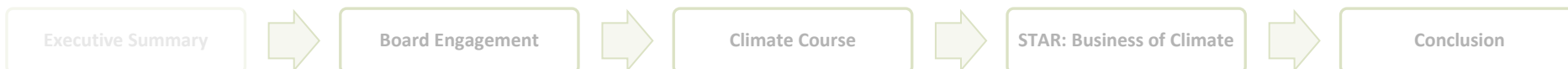
The risks and opportunities of climate change is placing increased pressure on investors



Regulatory and Stakeholder Pressures



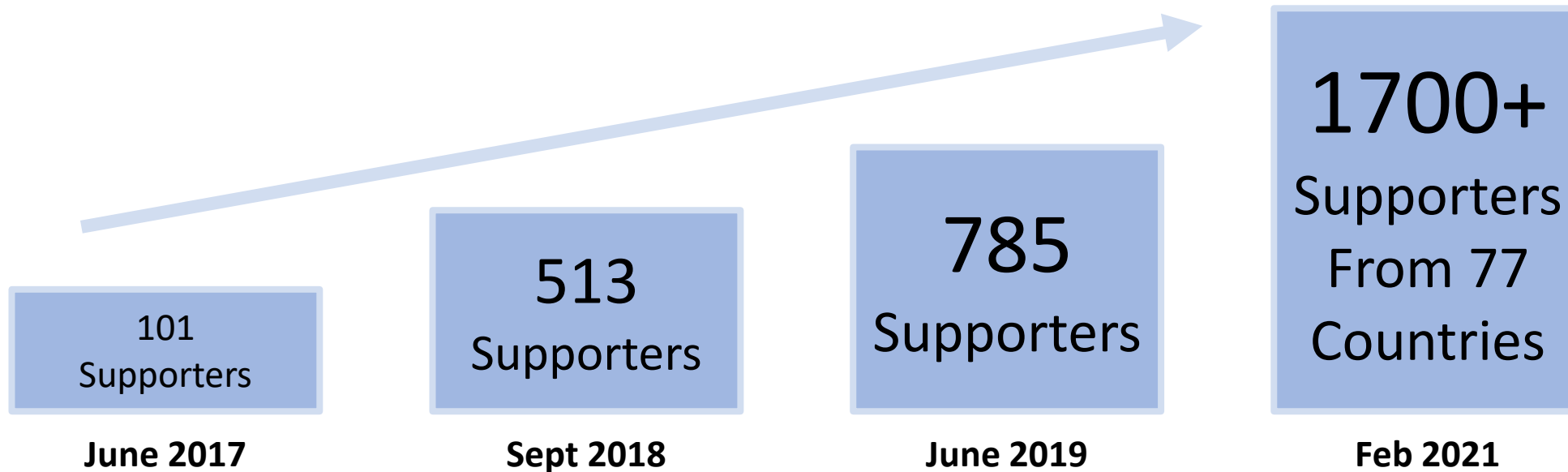
Financial Pressures



Support of the Task Force on Climate-related Financial Disclosures (TCFD) shows growing interest in climate risk reporting

Many private companies have pledged to abide by the TCFD standards, and several countries, such as New Zealand and the UK, have made TCFD reporting mandatory.

Source: CDSB; TCFD Status Reports; ESG Today



Consumer spending and sustainable investing trends are also supporting the need the climate-related financial analysis



77% of consumers say that sustainability is important to them

6 in 10 say they would change habits to decrease their negative impact on the environment

Source: IBM

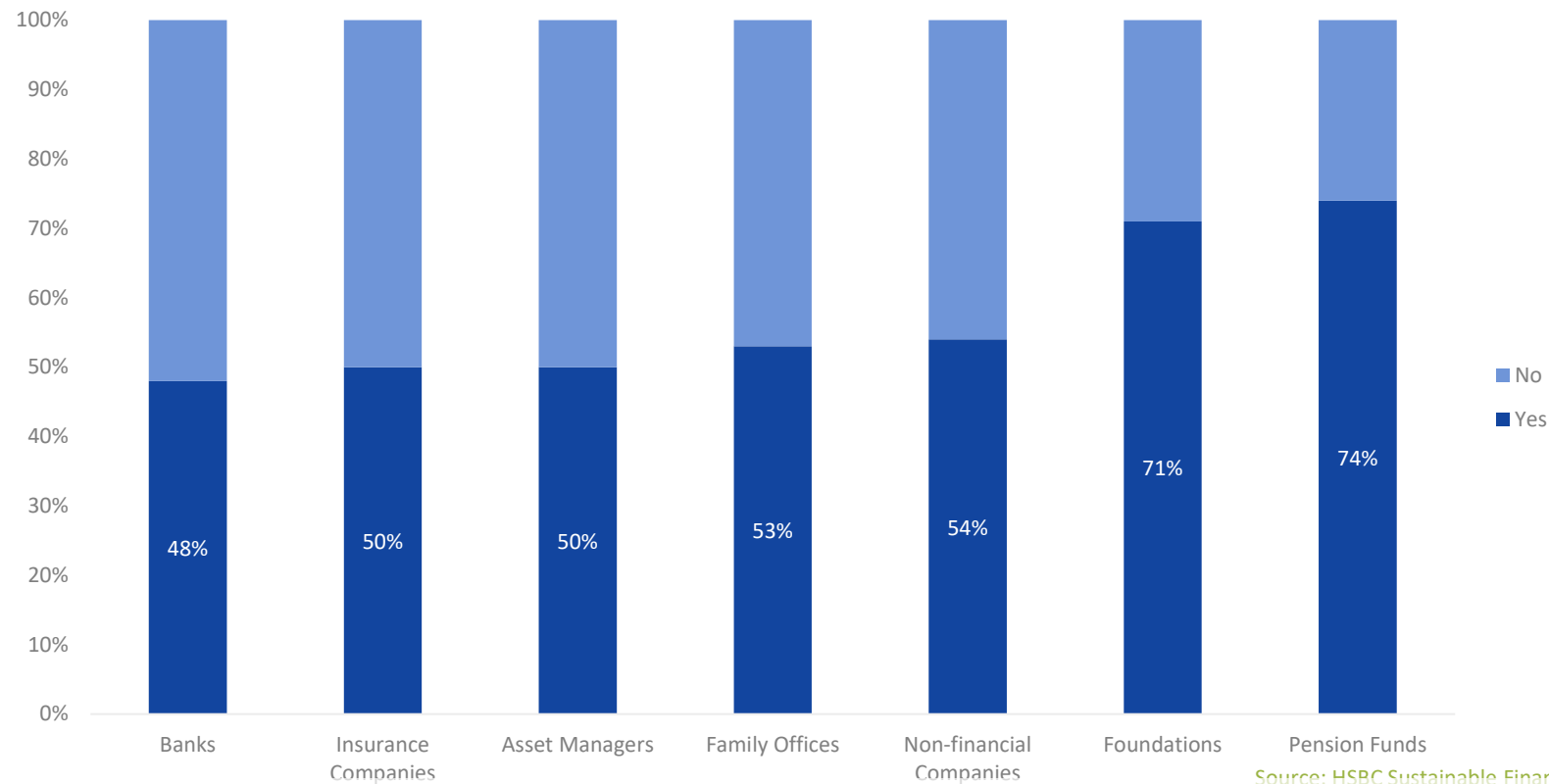


86% of Millennials are interested in sustainable investing - that means almost all Millennials, a group that is set to inherit \$30 Trillion in assets

Source: Open Invest

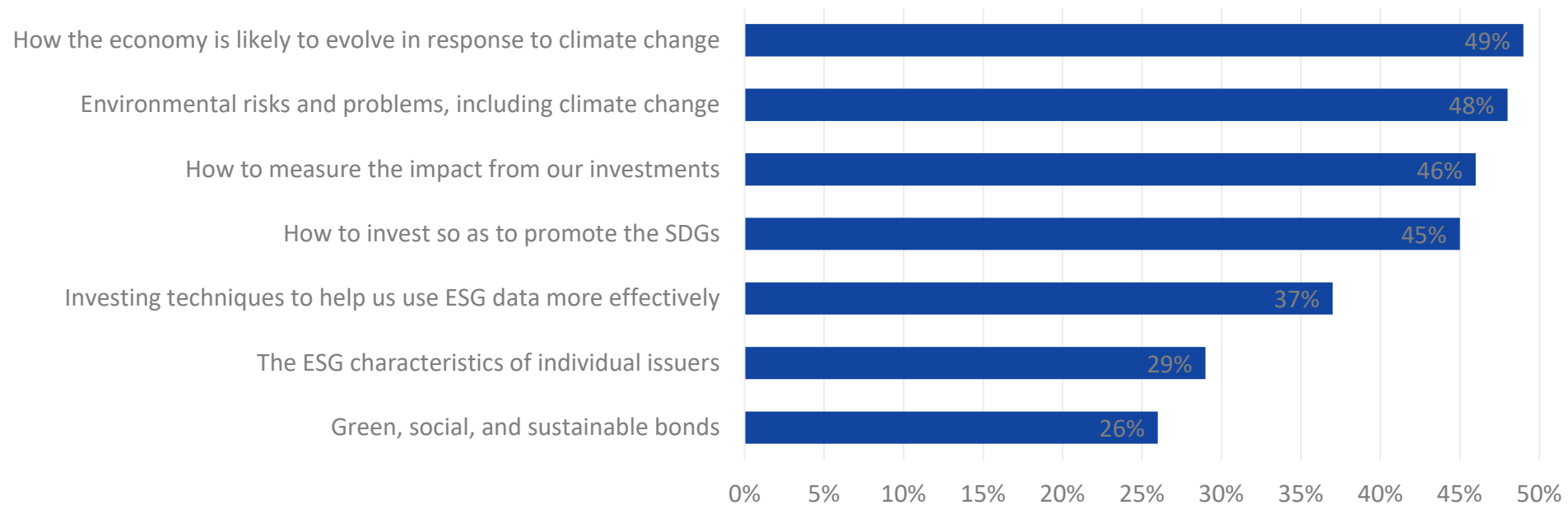
Given the barriers facing investors, many are seeking advice and training

As a firm, do you need more advice and information on aspects of ESG investing?



ESG investors need help understanding climate change risks and opportunities

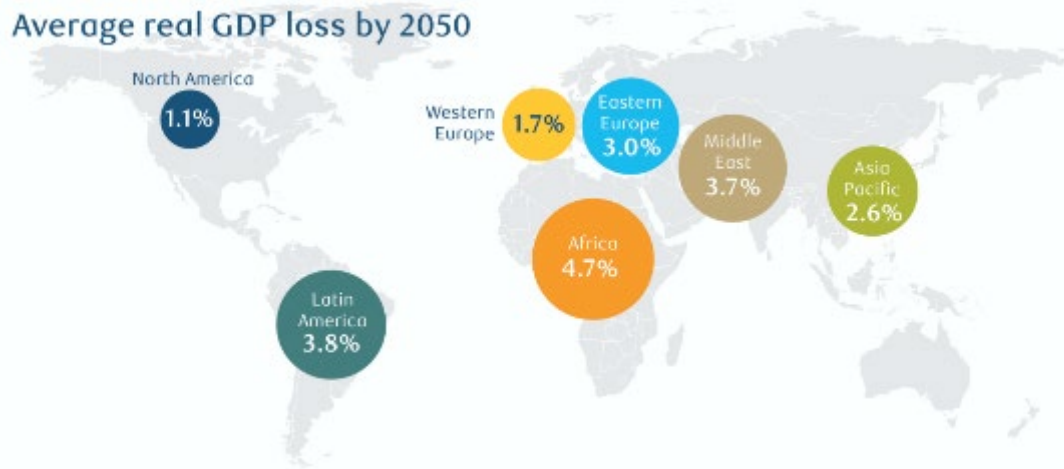
If you need more advice and information on ESG investing, which aspects do you need it on?



Source: HSBC Sustainable Financing and Investing Survey 2020

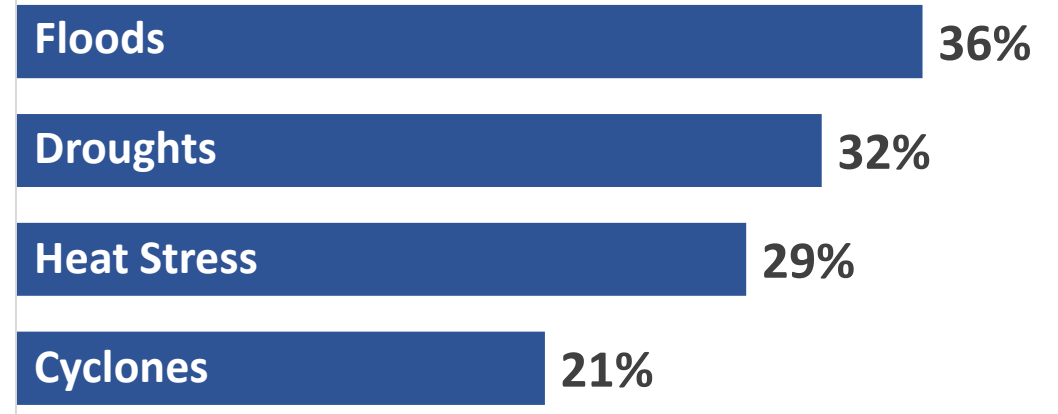
Capital exposed to emerging markets faces the greatest potential losses due to climate change

Estimated economic impact of climate change by 2050 in terms of real GDP loss



Source: RBC

Most Important Physical Risks Considered by Financial Institutions in India



Over the last 19 years the Indian economy has lost \$80B due to climate change, and that number is projected to increase significantly as climate change worsens

Source: Intelicap

We developed a framework to break down the key question

Key Question: How can the Center for Sustainable Enterprise engage with and provide value to institutional investors dealing with climate risks and opportunities in domestic and emerging markets?

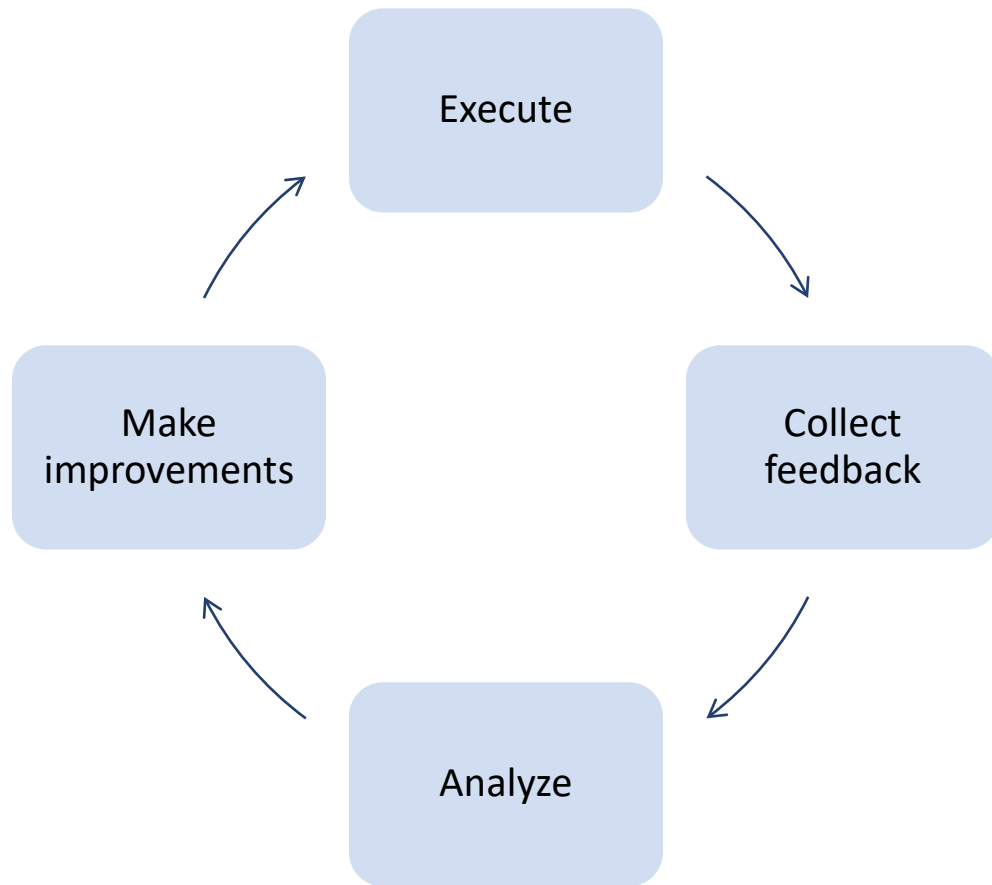
Understand market trends and challenges

What services could provide value to investors?

Is CSE capable of implementing the service?

How should the new service be implemented?

Collect ample feedback in the first year from students, clients, and faculty, and makes changes accordingly



- What were your expectations going into the program?
- Did the program meet or exceed expectations?
- What did you learn?
- What could make the program more valuable?
- Did the program foster an inclusive and collaborative environment?
- How much time did you spend working on your project?
- Do you think you project was successful?

CSE's program should engage with public investors and financial consultants with readily available data



JPMORGAN CHASE & CO.

LAZARD



Executive Summary



Board Engagement



Climate Course



STAR: Business of Climate



Conclusion

Key considerations and elements of developing the course



STUDENT LEARNING OUTCOMES

1. Climate investing
2. Financial implications of climate risks
3. Evaluating risk (w/ material info from ESG reports & data vendors)
4. Institutional background, economic concepts, & real-world applications



KEY QUESTION

"Identify and analyze an investment that aligns with goals of institutional investor while accounting for potential climate implications of the investment"



ASSESSMENT

1. Students submit "investor overview" to display understanding of client and the space in which they operate (asset class, risk appetite, history)
2. One mid-project checkpoint
3. Final reflection paper



PROGRAM FACILITATORS

1. CSE
2. Faculty lead
3. Teaching Assistants



CSE will source projects from institutional investors and receive support from STAR and CoFiRES



Use advisory board and broader network to source institutional investor clients



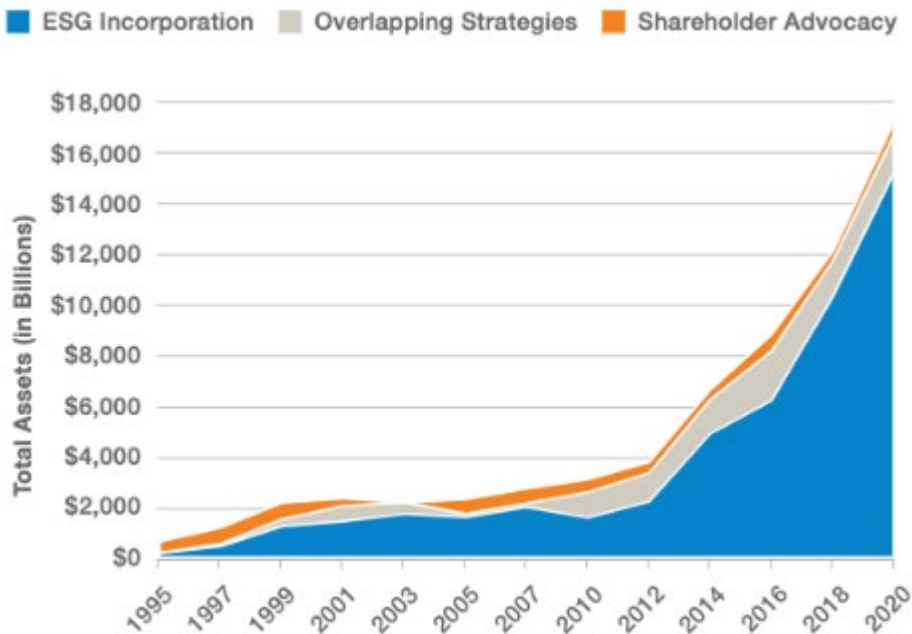
Provide technical expertise, data, and insight into climate finance analysis



Provide an organizational and academic framework for the project, as well as a FA

Growth in sustainable investing has put the spotlight on climate change

**ESG investing in the United States
1995-2020**

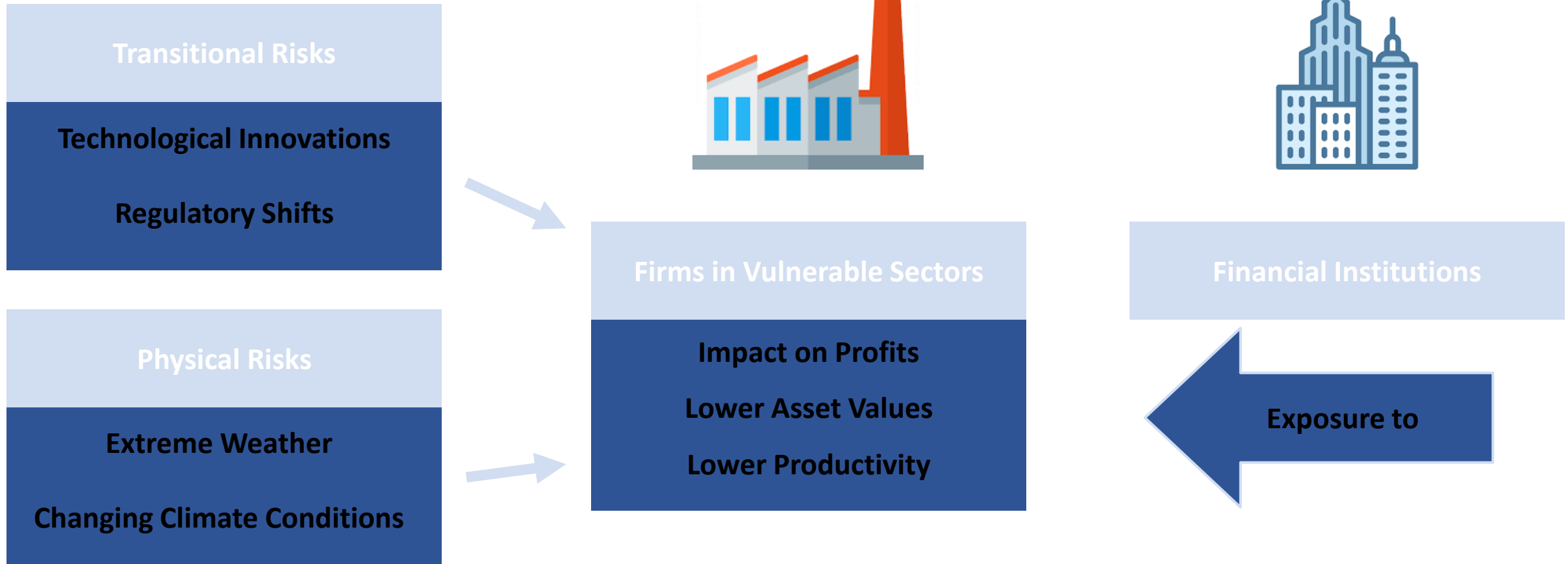


Two of the top five ESG priorities for institutional investors in 2020 were related to climate change



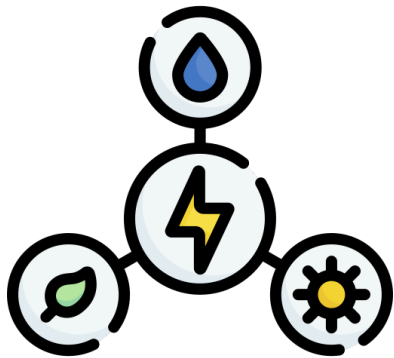
Source: US SIF

Climate change could cost the global economy \$7.9 trillion by 2050



Source: EIU Climate Change Resilience Index

Sustainable investments can help mitigate climate-related economic losses



Renewable Energy Infrastructure



Clean Transportation

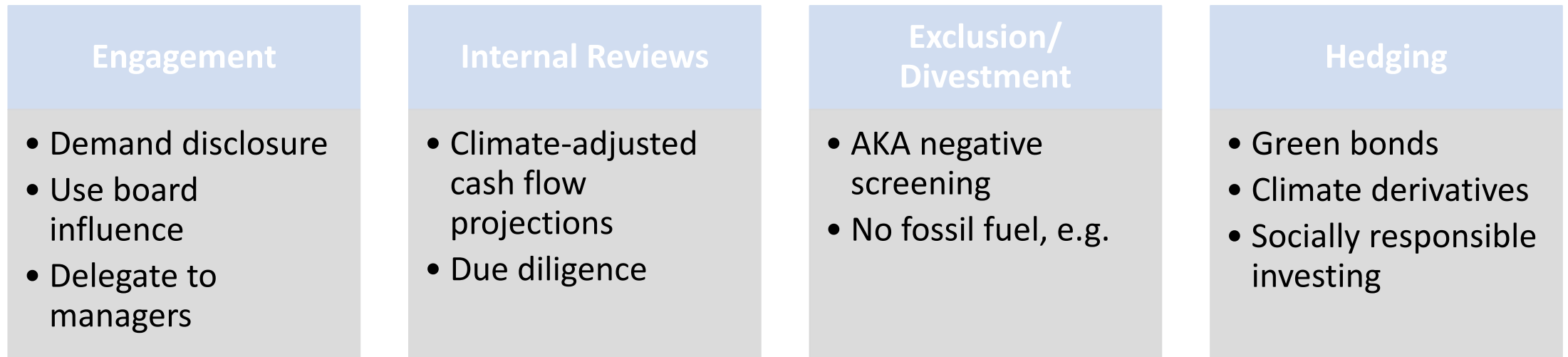


Water and Agriculture Efficiency

Investing in climate opportunities could yield a direct economic gain of \$26 trillion through 2030

Source: New Climate Economy

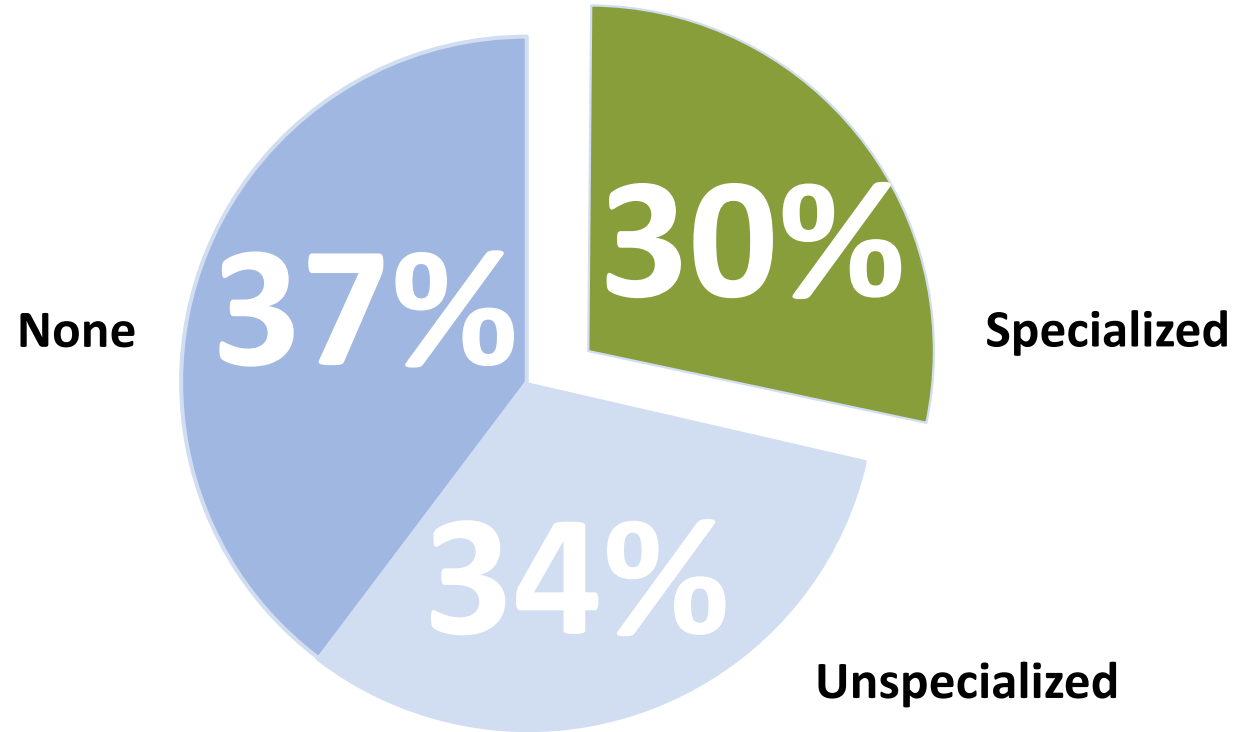
To mitigate climate risk and capitalize on opportunities, investors must pair “offense” with “defense”



Sources: Cambridge Associates; Importance of Climate Risk



Investors also face a skills-gap in evaluating climate-related opportunities and risks



Only 26% of investors claim to have the skills needed to address climate risks

Source: KPMG

Many companies do not have a specialized department for reporting climate risks

Source: DFIN