Economic Evaluations 102:
Building a Stronger Case for Implementation

TURA Virtual Conference Session D

November 5, 2020
3:00 – 4:30 pm

Welcome!

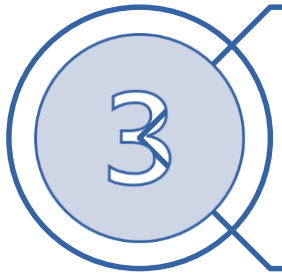
Slides and handouts are available at turi.org/ContinuingEducationConferenceFall2020

Webinar will be recorded – recording available at same location of TURI's website

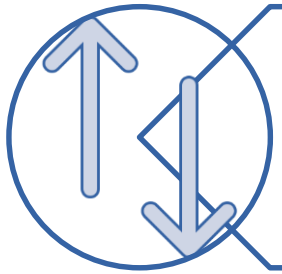
Use chat box for questions at any time – we will answer Qs immediately when possible, and we'll find time at the end to answer the rest

- If you are experiencing technical challenges during this session, you can send a chat directly to the moderator (noted as such in the participant list) or email Brenda@turi.org

TUR Continuing Education Credits

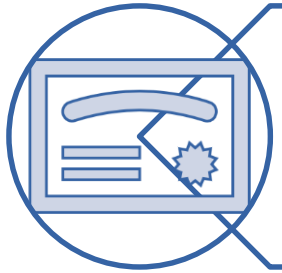


This session has been approved for 3 credits



To be awarded credits from MassDEP you must:

- Register and pay for this session
- Participate in polls and/or breakout room discussions
- Complete and submit the post-conference survey for this session



You will receive a certificate of completion once you have met these requirements

Session Agenda

Introduction

Think Innovation First

Why should you care

Tools you need to be aware of

Financial Planning 101

Interactive Group Works

Q&A

INTRODUCTION

Rob Sarnie

Professor of Practice
at the Foisie Business School

- Education
  - ✓ BS - Accounting and Finance (Bridgewater State)
  - ✓ MBA – Concentration in Computer Information Systems (Suffolk)
- Work Experience
  - ✓ Non Profit –Group Purchasing Association – 2 years
  - ✓ Manufacturing – Ionics – 6 years
  - ✓ Financial – Fidelity Investments – 23 years
  - ✓ Currently at WPI – Since Aug 2019
- Personal Life
  - ✓ I am 54 years old
  - ✓ Married 29 years to my wife Marilyn
  - ✓ 2 Children – Rachel (24), Jared (21)
- Passions
  - ✓ Coaching and Mentoring the leaders of the future
  - ✓ Boston Sports
- FinTech groups I am collaborating with currently
  - ✓ WPI Wall Street FinTech Project Center
  - ✓ WPI FinTech Collaborative
  - ✓ Mass Insights
  - ✓ Mass Tech
  - ✓ FinTech Sandbox

Think Innovation First

Think Outside The Box First

- Do not think costs first
  - It will hinder your thinking
  - It will impact your creative ideas
- THINK INNOVATION FIRST
- Ask yourself all the costs questions near the end
  - But not at the end

Everything in Life is an Investment

- **Understand Your Costs Directionally:**
  - **Materials**
  - **Support**
  - **Services**
  - **Your Time/labor**
  - **Implementation**
  - **Risk**

- **Know Where Your Costs Come From:**
  - **Variable costs**
  - **Fixed Costs**
  - **Overhead Costs**

Know Your Stakeholders

- Who are your stakeholders?
- What do they value?
- What is their risk level/tolerance?

Cost of Risk

- What are the Risks?
- Who is impacted?
- How are they impacted?
- What are the costs of those impacts?
- Is there a ripple effect of these impacts?

Sustainability Model

- Who benefits?
- Who pays?
- How do they benefit?
- How do they pay?
- What are the benefits?
- What are the incentives?
- Will this work forever?

What is Risk Management ?

- Risk Management is everywhere. It is in:
  - Finance (Risk vs Return?)
  - Business (Do I delivery X or Y?)
  - Life (Do I where a mask or not?)
  - TUR (Do I invest in reducing Toxic X?)

- Risk Management is a Process

- Risk Management is Leadership

50.46A: Economic Evaluation of Potential TUR Techniques

1. Toxics users shall evaluate the economic feasibility of each TUR option identified as technically feasible ***as compared to the current operations involving the toxic***. The following items must be considered if relevant:
   a) indirect and direct **labor and materials costs**;
   b) purchase or manufacturing **cost of the toxic and its alternative** chemical;
   c) capital and equipment costs;
   d) storage, accumulation, treatment, disposal, and handling costs associated with toxics and byproducts;
   e) costs associated with **activities required to comply with local, state, or federal laws or regulations,** (e.g., fees, taxes, and costs associated with treatment, disposal, reporting and labeling);
   f) worker health or safety costs associated with the toxic and its alternative chemical (e.g., protective equipment, and lost employee time due to accidents or routine exposure to the toxic);
   g) insurance;
   h) potential liability costs; and
   i) loss of community goodwill and product sales lost to competing non-toxic products.

Why should you care

The End Game

Be a Trusted Advisor, Consultant, and Leader by
Turning Financial Data into Knowledge, into Action, into Results

Many Audiences
Many Needs

CEO

CIO

CFO

Business Partner

Product/ Project Managers

Workers

Finance Support

Customers

Your Team

Manager

Income Statement

Revenues - **Expenses** = Net Income

- Sales
- Investment Income

Gains

Interest Received

Dividends Received

- COGS
- Salaries
- Depreciation Exp.
- Taxes
- Other Expenses
- Interest Paid

Revenues - **Expenses** = **Net Income**

Dividends

Δ Retained Earnings

Balance Sheet

Assets = Liabilities + Owners' Equity

Current Assets

- Cash
- Inventory
- A/R

Fixed Assets

- Land
- Plant
- Equipment
  - Less:
    - Depreciation

Current Liabilities

- A/P
- Accruals
- S-T Debt

Long-term Liabilities

- Bonds
- L-T Bank Debt
- Mortgages
- Preferred Stock

Owners' Equity

- Common Stock
- Capital in Excess of Par
- Retained Earnings

Statement of Cash Flows

Cash Inflow	-	Cash Outflow	=	Change in Cash

From Operations:

+Cash Sales
+Depreciation Exp.
+Collection of A/R
+Decrease inventory

-Payments to Suppliers
-Salaries
-Increase A/R
-Decrease Payables
-Decrease Accruals

From Investing:

+Sale of fixed assets

-Purchase of fixed assets
-Purchase of other firms

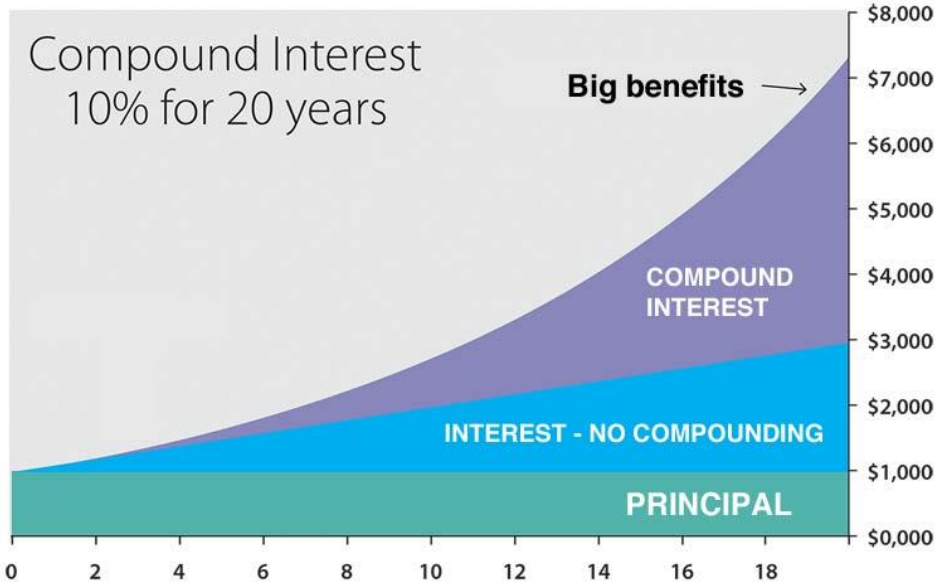
From Financing:

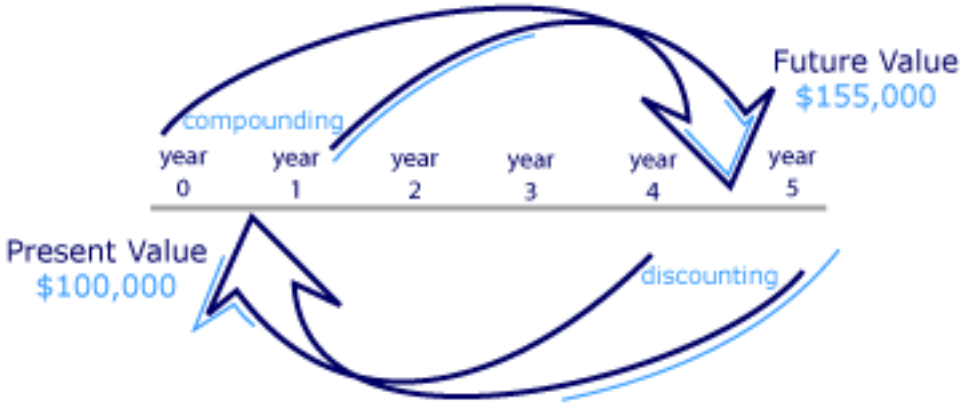
+Sale of stock
+Issue of LT debt
or notes payable

-Buyback stock
-Repay long-term debt
-Pay dividends
-Pay interest

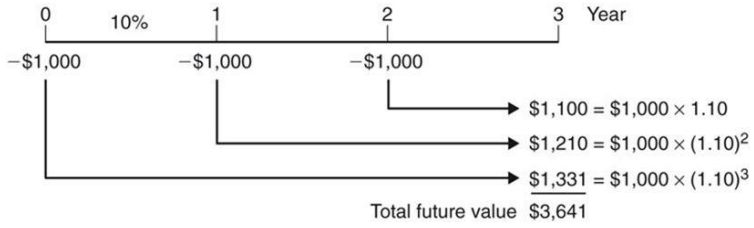
Tools you need to be Aware of

Time Value of Money





Future Value of Three Cash Flows



Determination of Risk/Rates

$$k = k^* + IRP + DRP + MRP + IRP + SSP$$

k	=	the nominal, or observed rate on security
k*	=	real rate of interest
IRP	=	Inflation Risk Premium
DRP	=	Default Risk Premium
MRP	=	Maturity Risk Premium
IRP	=	Illiquidity Risk Premium
SSP	=	Safe Storage Premium

Additional Potential Risk Premiums for your company

- ❑ Reputation Risks
- ❑ Operation Risks
- ❑ Implementation Risks
- ❑ Culture Risks
- ❑ Strategy Risks
- ❑ Innovation Risks
- ❑ Other Risks

What is WACC - Weighted Average Cost of Capital

$$WACC = \frac{E}{D+E}(r_e) + \frac{D}{D+E}(r_d)(1-t)$$

Where:

E = market value of equity

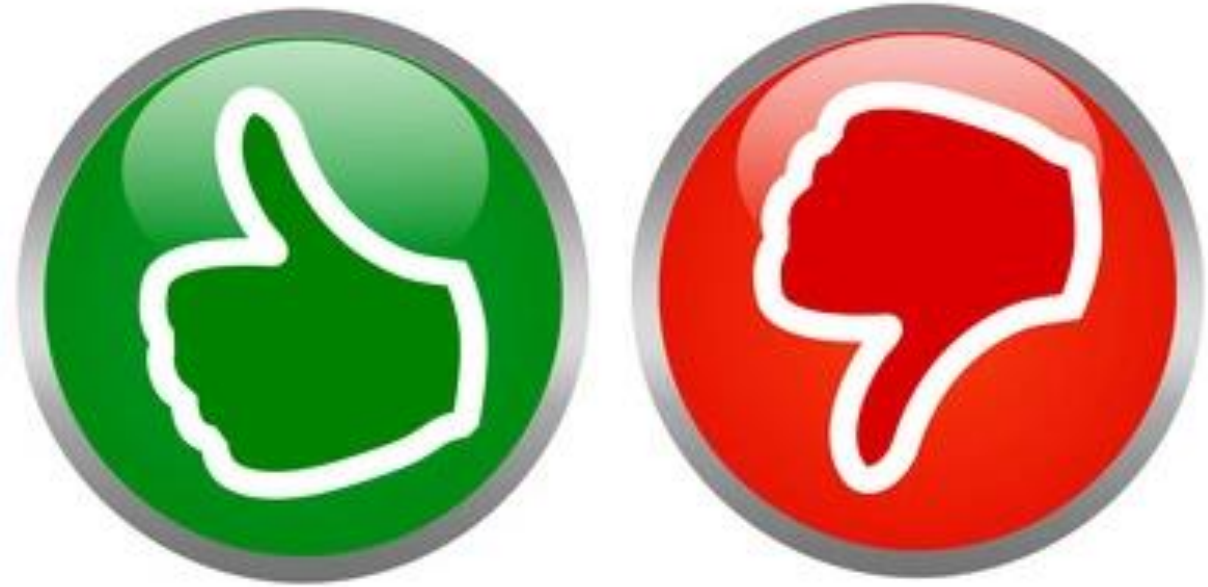
D = market value of debt

r_e = cost of equity

r_d = cost of debt

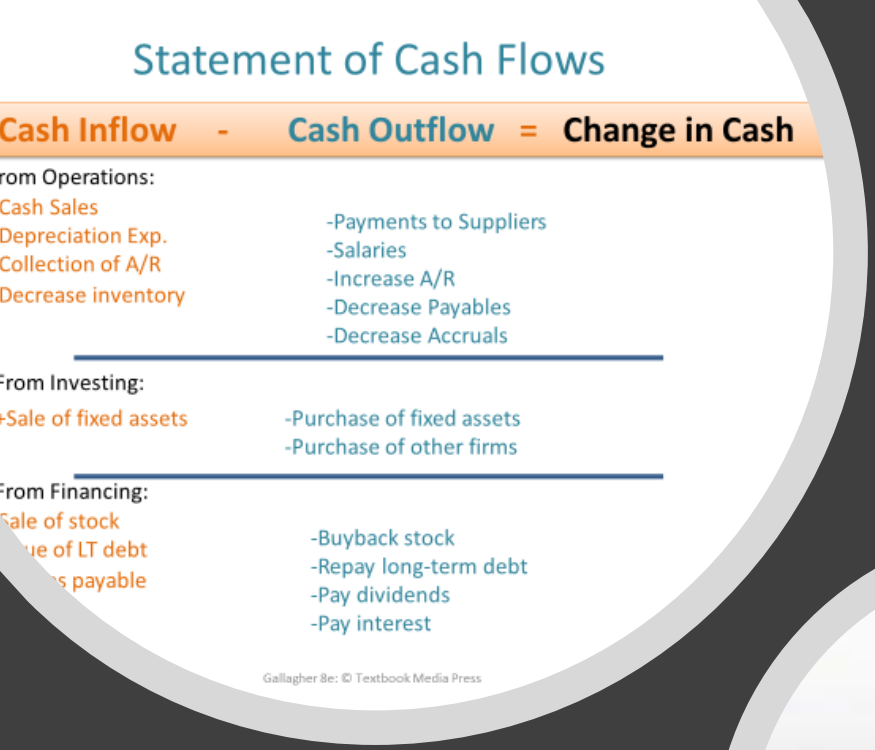
t = corporate tax rate

Weighted Average Cost of Capital



Capital Budgeting

- Capital budgeting is the process of evaluating proposed investment projects for a firm.
- Managers must determine which projects are acceptable and must rank mutually exclusive projects by order of desirability to the firm.
- 4 ways to Accept or Reject a Project Funding Decision
  1. Payback Period
     - years to recoup the initial investment
  2. Net Present Value (NPV)
     - change in value of firm if project is undertaken
  3. Internal Rate of Return (IRR)
     - projected percent rate of return project will earn
  4. Modified Internal Rate of Return (MIRR)

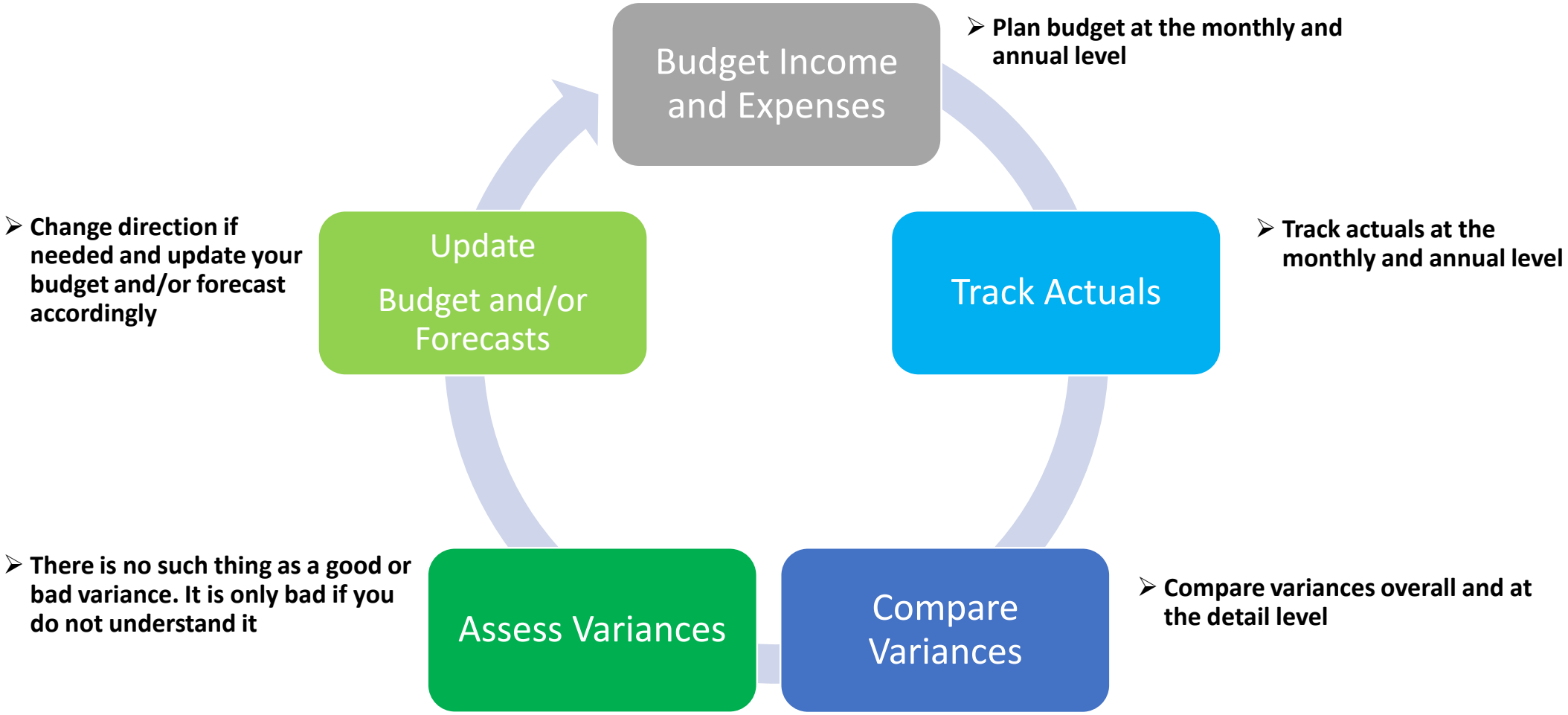


Estimating Incremental Cash Flows

- Same fundamental approaches we learned when doing time value of money and NPV of a project
- When a project is complete, you need to estimate/calculate what cash flows will it generate during its life ?
  - Generate more revenue
  - Generate cost reductions
  - Maybe create more costs
  - Account for taxes and Depreciation
- Then discount those cashflows to present value.

Financial Planning 101

Financial Plans: Budgets -> Forecasts -> Actuals



1

Understand the strategic business goals and needs

- ✓ "Seek to understand before you can be understood" - Covey
- ✓ These goals will be your NorthStar
- ✓ Know why these goals are important
- ✓ Know the priorities

2

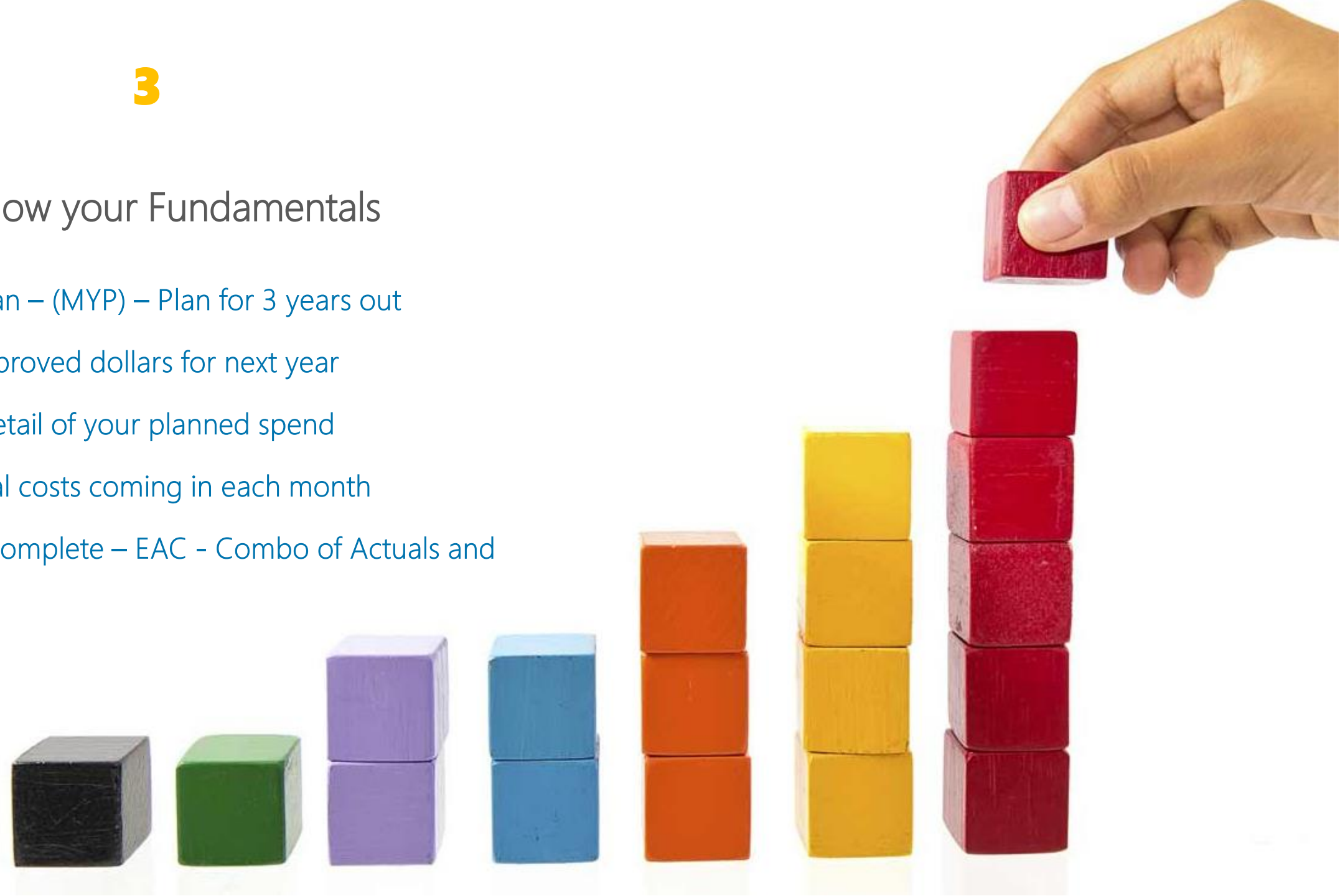
Understand your data, systems, and the processes

- ✓ There will be multiple costs from different systems
- ✓ Know timing/flow of data into your project/business reporting
- ✓ Know the IT and business processes behind the data
- ✓ Know the rigor of the teams providing the data

3

Know your Fundamentals

- ✓ Multi Year Plan – (MYP) – Plan for 3 years out
- ✓ Budget – Approved dollars for next year
- ✓ Forecast – Detail of your planned spend
- ✓ Actuals – Real costs coming in each month
- ✓ Estimate at Complete – EAC - Combo of Actuals and Forecast



4

Set up a strong Foundation

- ✓ Make sure MYP, Budget, Actuals, Forecast, and EAC are connected
- ✓ Proper Project Business Strategic attribution
- ✓ Labor/Resources
- ✓ Non Labor – Servers, software, training, vendor spend
- ✓ Fixed Costs – Building and Equipment
- ✓ Variable Costs – Production Costs, Materials

5

Know your Timelines

- ✓May to July - MYP
- ✓Aug to Sep - Budget
- ✓Oct to Dec – Project set up for forecast and actuals
- ✓Monthly tracking of project progress
- ✓Quarterly – Reporting to senior management
- ✓Ongoing – Changes to all the above

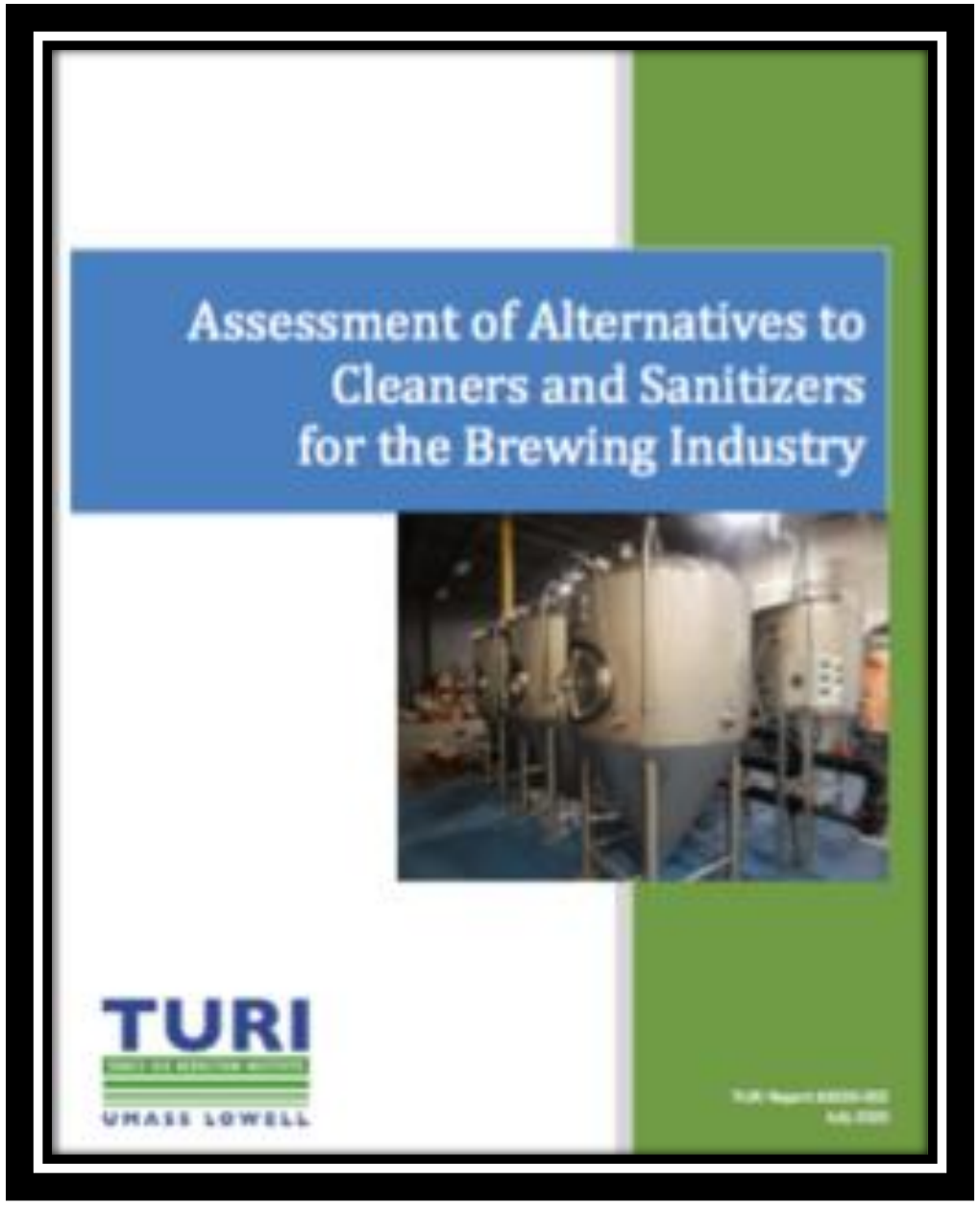
6

Know your Details

- ✓ Consistency is critical
- ✓ Know your labor rates
- ✓ Know the scope of the Project or Business
- ✓ Know when deliveries are planned
- ✓ You will be questioned on every cost detail

Interactive Group Work


I'LL GIVE YOU A TOPIC
TALK AMONGST YOURSELVES.
makeameme.org



Now is the time to pull out your pre-work analysis

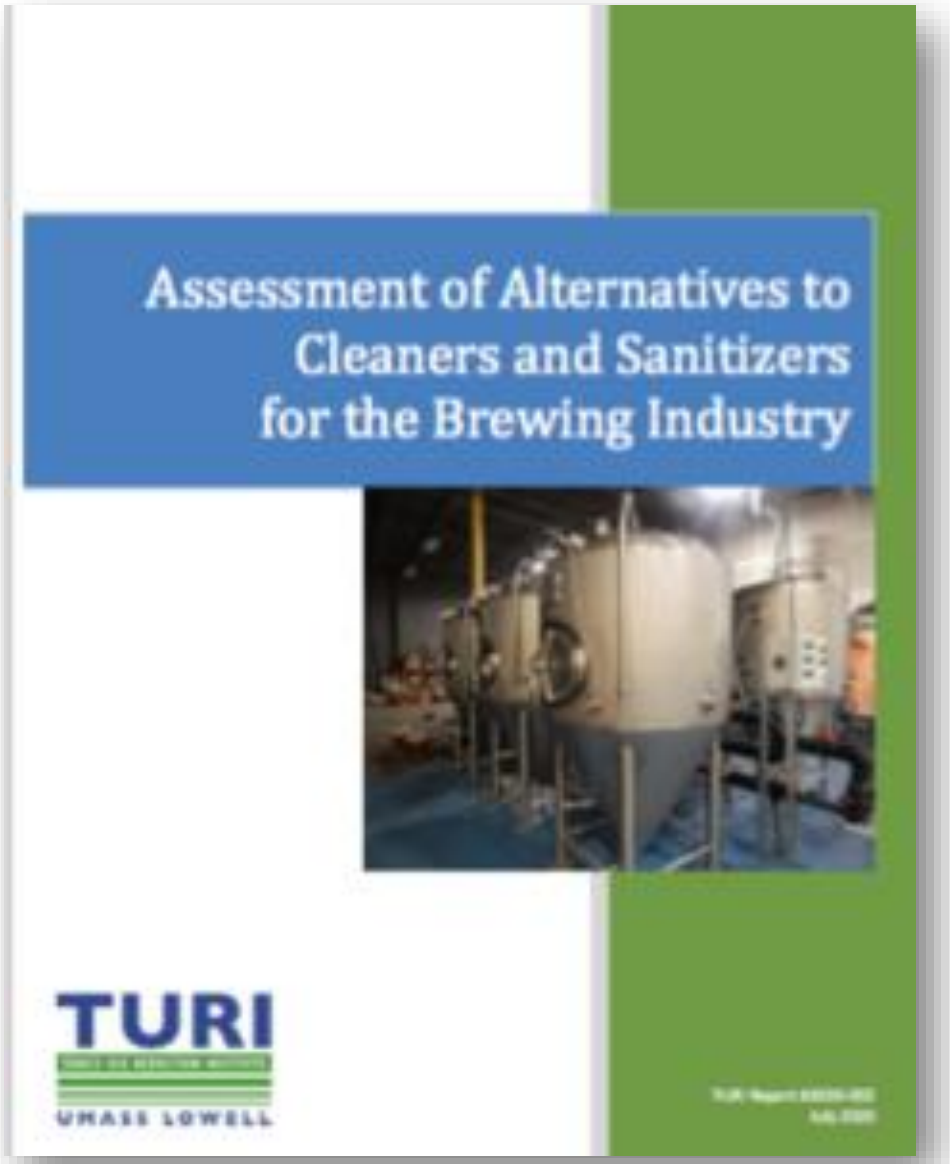
For our session you were asked the below

In our session we will break out into randomly selected executive leadership teams to evaluate the case study "Assessment of Alternatives to Cleaners and Sanitizers for the Brewing Industry". You should spend between 10-20 minutes on this pre-work case analysis, so you are familiar with the case.

The reason you are receiving this pre-work request is because you will only have 10 minutes as a team to evaluate this case study in our session. Any pre-work you do will help your team get right into discussing, collaborating, and formulating your executive recommendations. Plus the case study is on beer. Does not get any better than that ☺

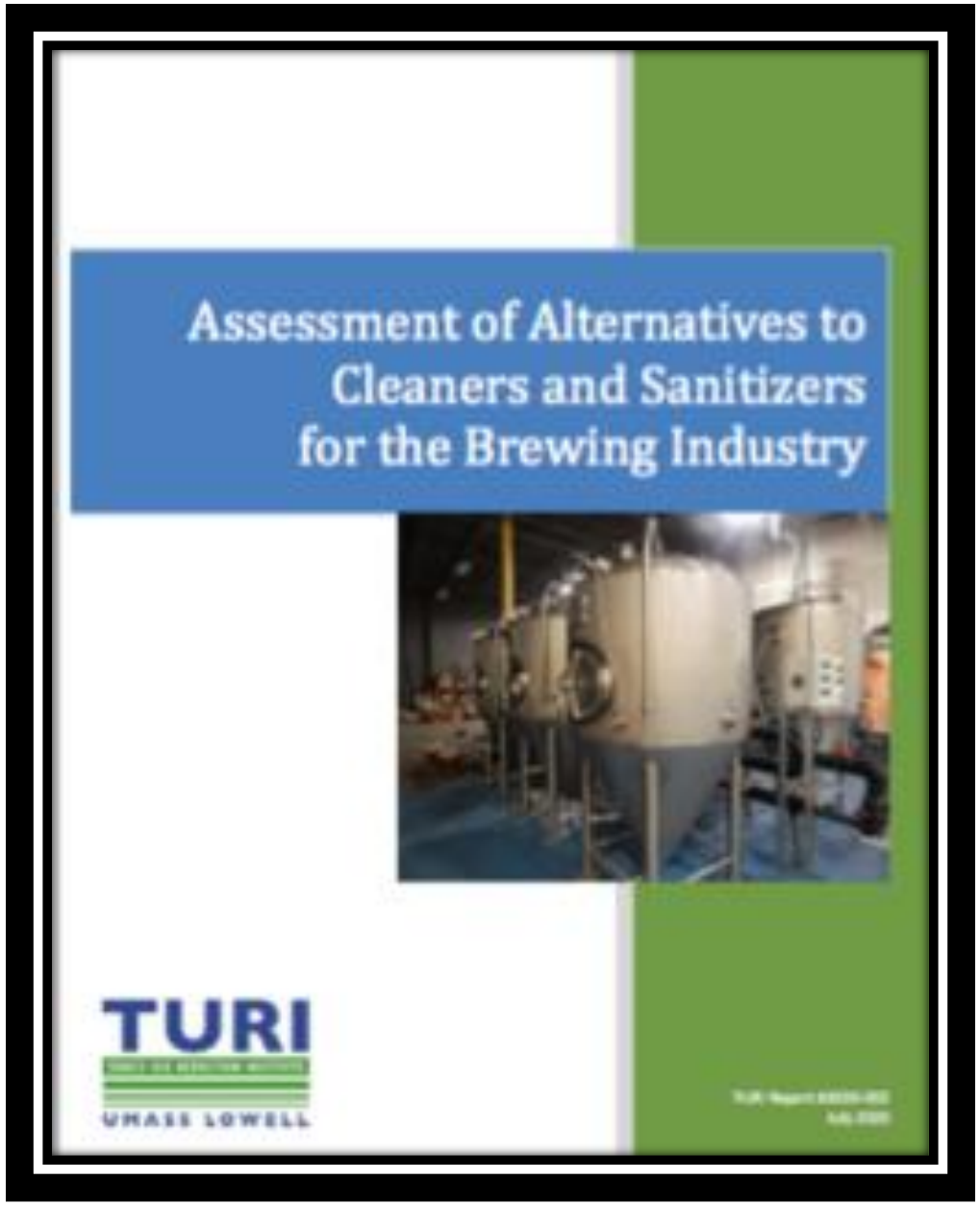
Tips:

- ✓ At the bottom of the link above, there are 3 important links to PDFs:
- ✓ Download the report (Most important one to review)
- ✓ 2 supplementals that will help you understand the risks and safety of each option. (Optional but helpful)
- ✓ Take notes if you want
- ✓ Highlight any costs you see and do not see
- ✓ Pick out risks and safety issues mentioned in the case.



The Process

- There will be 9 breakout groups
- 3 Topics (3 groups to one topic)
- Group discussion will be 10 minutes
- Download the instructions from the chat
- Pull out your Pre-work analysis of the case
- Pick who will be the leader, note taker, presenter(s), etc.
- Use the share screen option if you want in your breakout room
- With ~2 minutes left start planning your presentation
- 1 group from each topic will be chosen to present
- Your team presentation will be 5 mins.
- ➢ Tip: Be Brief, Be Brilliant, Be Gone
- The other groups for that same topic can raise one key point they had that the presenting group didn't share



Topics

Groups 1-3

- Assume the WACC/Hurdle rate for the brewing company in the case is 7%. If you were the CEO, would you approve switching to a different cleaning and sanitizer? Why or Why not?

Groups 4-6

- For the Brewing Industry, consider what you think are the top 10 risks they would focus on as an executive management team. Would those top 10 risks help or hurt the Project Funding Decision of the cleaner and sanitizers? Why do you think this way?

Groups 7-9

- When you look at the Brewing case study, what is missing to help you figure out the Project Funding Decision of the proposal? How would you go about figuring out those missing costs?

- **Rob Sarnie, Professor of Practice at the Foisie Business School**
- **Email: Rsarnie@wpi.edu**
- **LinkedIn: https://www.linkedin.com/in/rob-sarnie/**

Any Questions?


TO INFINITY AND
BEYOND!