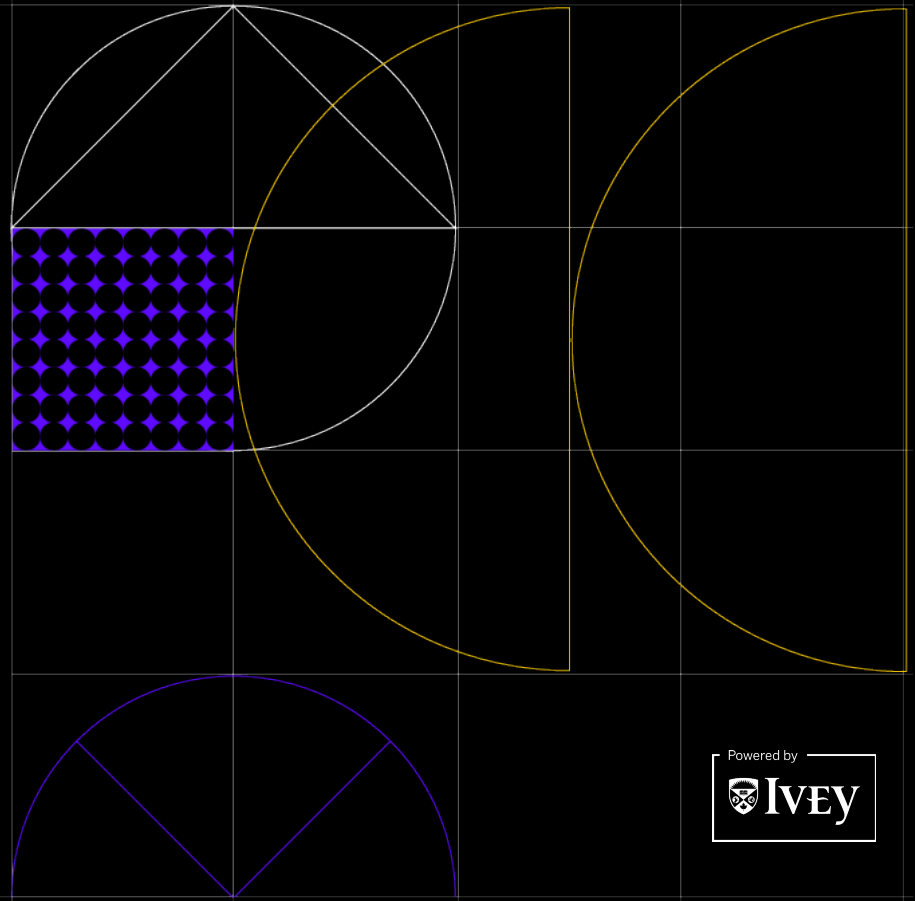


**INNOVATION
NORTH**

SESSION 9 SLIDES

**MEASURING AND
ASSESSING
INNOVATIONS**





TEXAS TECH UNIVERSITY
Rawls College of Business™

Measuring and Assessing Innovation Impact: Expanding our Lens

Andrea M. Romi

Associate Accounting Professor
Director of Diversity, Equity, and Inclusion
School of Accounting
Rawls College of Business
Texas Tech University

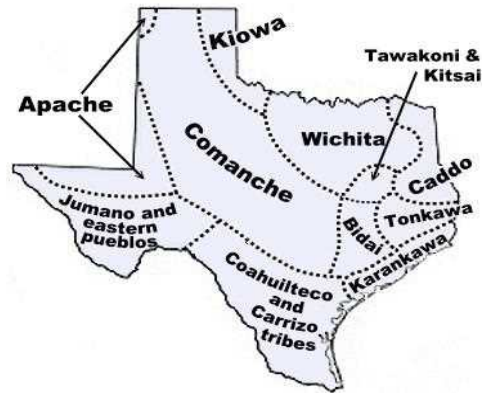
**INNOVATION
NORTH**





Thank you...

- Recognize that the Texas Tech University, Rockwall, Texas, location sits on lands obtained, in unconscionable ways, from the Wichita (Kitikiti'sh) indigenous peoples.





Session Outline:

- ❑ System focus and relationship to stakeholders
- ❑ Consensus around the current trends and path forward
- ❑ The focus on and limitations of financialization of impact

- ❑ Objectives:
 - Understanding the reason for, risks to, and benefits from expanding innovation impact focus.
 - Gaining broader knowledge about the current trends and future direction of innovation impact assessment.
 - Developing a foundation for expanded innovation impact assessment to carry forward into practice.



Example...

- Drone robotic bees for crop pollination
 - Colony collapse disorder
 - Natural pollination vitally important process
 - More than 75 percent of the world's food crops rely at least in part on pollination by insects
 - Business risk from pollinator decline is industry specific (Stathers, 2014; KPMG, 2011a; KPMG, 2011b; Romi et al, 2021).
 - Agrochemical firms, whose products are implicated in contributing to PD (e.g., Goulson et al., 2015).
 - Food producers who rely completely on pollinated agricultural crops.
 - Indirect:
 - ✓ Perfume manufacturers - aromatic properties of pollinated plants and flowers
 - ✓ Pharmaceutical companies - medicinal pollinated natural ingredients (KPMG, 2011a; Stathers, 2014)
 - ✓ Banks - default risks from loans to firms in pollinator-risky industries (Romi et al., 2021)
 - ✓ Biofuels (e.g., oils), fibers (e.g., cotton), forage for livestock, construction materials, beeswax for candles and musical instruments, etc.



Example continued...

- Non-business risks
 - Nutritional security
 - Crops represent important source of income in developing countries (e.g., coffee and cocoa).
- Innovation – synthetically fabricated remote bees (i.e., drones)
 - Many competing companies – Walmart filed for patent in 2018
 - Tiny drones mimic bees, pollinating crops autonomously
 - ✓ Can detect and spot the locations of the crops that need pollinating
 - ✓ Sensitive sensors on the drones will assure that successful pollination occurs



How would you approach impact assessment?



Section 1 – Recognizing Stakeholders



System focus and relationship to stakeholders...

“If you can’t measure it, you can’t improve [control] it” ~ Peter Drucker

- ❑ Exceedingly common business mistake – measuring the wrong thing. Focusing on specific metric(s) disconnected from the overall objectives.
 - Drives poor decisions
 - Environmental damage, growing income inequality, stress, depression within developed economies, etc. - evidence of how our **current system of assessing, creating, and distributing value is broken.**
 - Warning: performing toward metrics, measure for measurement's sake.
 - Moneyball – Michael Lewis – Oakland Athletics refocused to build a winning team cheaply.



System focus and relationship to stakeholders...

- ❑ Increasing stakeholder demands – more information, broader impact lens
 - Investors, employees, customers, community members, NGOs, etc. - Verizon CEO Hans Vestberg, “society” a main stakeholder
 - Narrow lens ignores aspects of risk and return, decreases resilience to shocks and stresses, obscures impacts of decisions and unintended consequences (e.g., KPMG, EY, Deloitte, PWC)

- ❑ Assessment beyond financial metrics
 - Expanded set of inflows and outflows, paying particular attention to unintended consequences for yourself or others
 - Shifts in thinking to relationships, connectedness, and context
 - Innovations become networks of overlapping relationships in a system

- ❑ Building partnerships
 - “Leading companies have begun to recognize that they can only address the complex [issues] by scaling up their efforts through collaboration with peers, industry and sector organizations, customers, governments, nonprofit organizations, and society” (EY)
 - Spurs networks of expertise, knowledge and practice into action

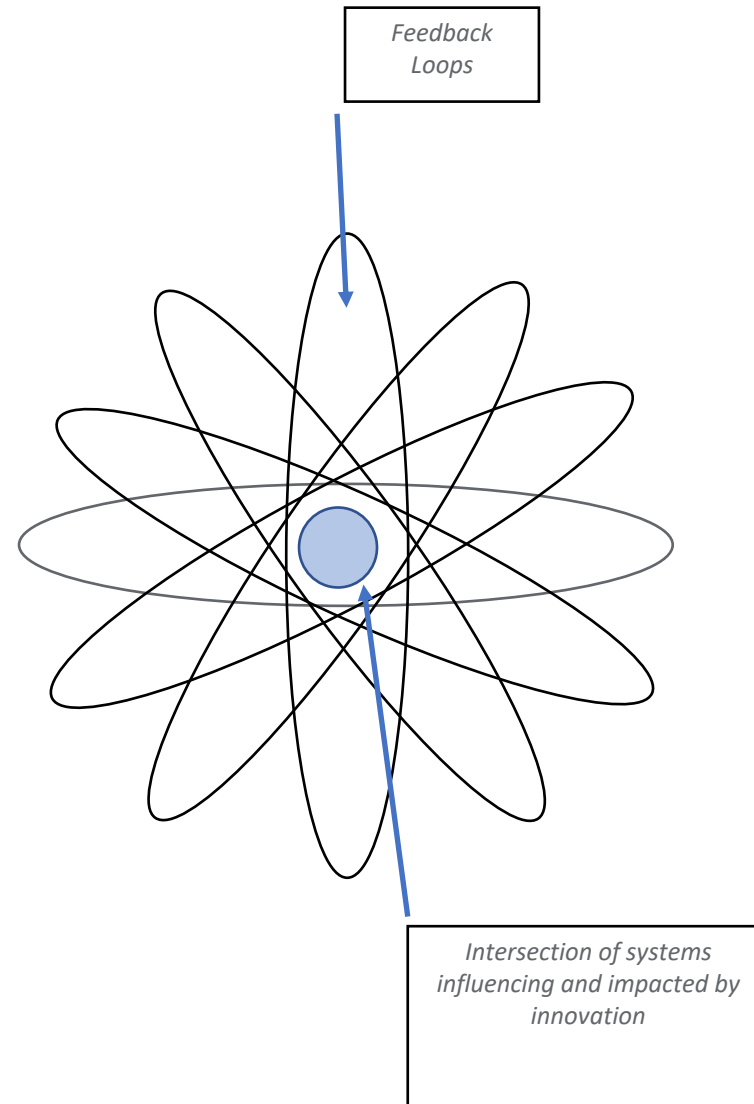
System focus and relationship to stakeholders...

□ Moral case versus business case:

Everything in the world is interconnected – “When we try to pick out anything by itself, we find it hitched to everything else in the universe” ~ John Muir

- Moral Case – benefit from and impact the global system (i.e., expanded accountability)
- Business Case: narrow economic impact limits growth (EY) – e.g., scarce natural resources, weak financial markets, limited local buying power, lack of qualified talent, etc.
 - **Drive Growth:** identify ways to contribute to meeting expanded goals in a way that drives financial performance (e.g., beverage companies improve watersheds)
 - ✓ By creating shared value, companies can help to secure their ability to generate capital and shareholder value over the long-term.

System focus and relationship to stakeholders...





System focus and relationship to stakeholders...

- Business Case continued...
 - *Address Risk:* cannot continue creating capital if natural, social, financial, and manufactured capital is being eroded elsewhere.
 - ✓ Supply chain, geopolitical instability, inequality, etc. limit the potential of emerging markets
 - ✓ Measure, communicate, and report - not only beneficial to evaluate impact, but allows managers to communicate the expanded value their organizations create (e.g., Arjaliès and Bansal, 2020)
 - ✓ Maintain social license (i.e., legitimacy) with stakeholders
 - *Attract Capital:* recent redirection of investment flows (both public and private) toward expanded impact focus.
 - *Focusing Purpose:* creates shared value for all stakeholders, increasing ability to drive profits and create stable value (i.e., organizational continuity and impact).

Section 2 – Current Trends & Consensus

• Consensus is building

Standards

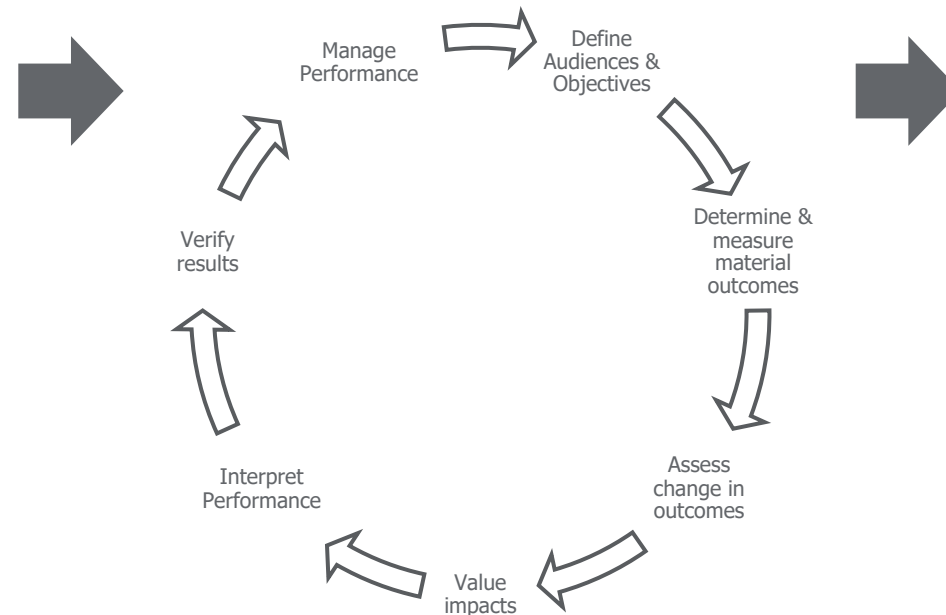
Many IM&M approaches are complimentary and additive to each other, and consensus is building around how to leverage a specific framework for a specific use case.

The IMP Structured Network is a coordinated collaboration focused on creating a complete set of standards and principles for IM&M.



Approaches

Standard approaches and processes are being defined to help organizations to develop use-case specific solutions to impact measurement.



Data

Companies are increasingly investing in the to collect, manage, and report on the non-financial impacts their organizations are creating and contributing to through how they operate and their products and services.

20% increase in ESG data spending, annually from 2020 to 2021¹

\$1B Estimated size of the ESG data space by the end of 2021¹

• Defining Impact

Impact

A change in outcome caused by an organization, directly or indirectly, wholly or partially, intended or unintended, positive or negative.

Impact measurement

The **process of trying to find out what effect** an intervention is having on people, organizations or their external physical, economic, political or social environment

Impact management

The **ongoing process** of measuring those outcomes, in context, to reduce the negative and increase the positive

Section 3 – Financialization



Work toward and limitations around financialization of impact...

- ❑ Complex, challenging, and often overwhelming
 - Meet individuals who will need convincing
 - Complex relationships
 - Metrics and methods need development
 - Allocation processes are not new
 - Public financial reporting, facilitating new capital markets processes are not new
- ❑ Often implied what can be measured and quantified is more important
 - Financialization versus non-financialization – continuous debate
 - Constrains advancement in systems approach
 - Different stakeholders view financialization differently

Impact Financialization

Impact of external factors on a business' financial performance

According to research by the CDP, 215 of the world's 500 biggest corporations faced roughly \$1 trillion in costs related to climate change over the coming decades¹.



Impact of negative impacts on enterprise value

Nestle's food products business was estimated to have had an environmental impact cost of \$1.6B in 2018, or ~5% of their 2018 EBITDA².



Impact of positive impacts on enterprise value

Intel's employment impact was estimated at approximately \$3.6 billion of positive impact in the U.S. through the wages it paid and the jobs it provided in areas of high unemployment².



Sources:

¹*World's biggest companies face \$1 trillion in climate change risks*, CDP

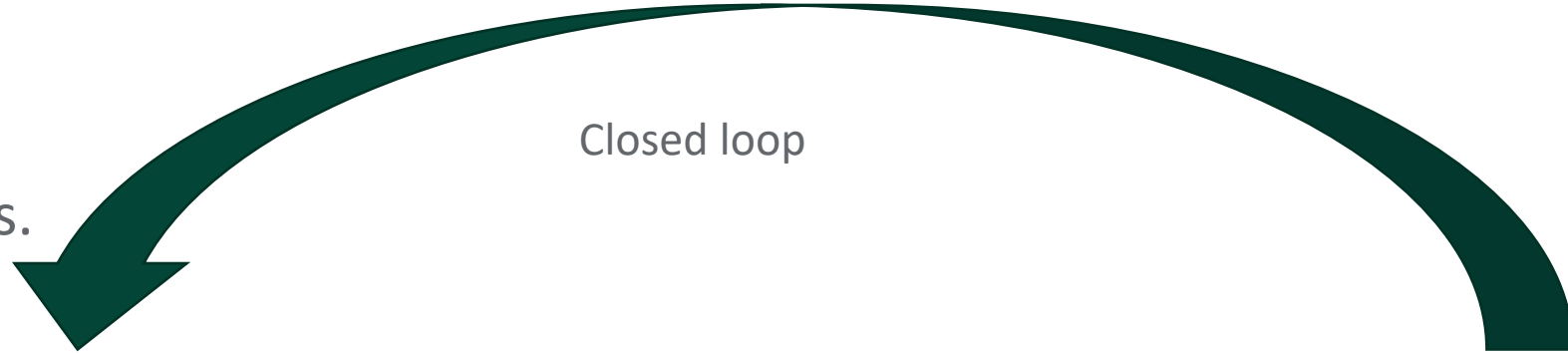
²*How to measure a company's real impact*, Harvard Business Review



Considerations for Innovation Assessment...

- How organizational goals relate to innovation goals/purpose.
- Boundary/scope of impact – upstream, downstream, closed-loop, circular economy.
- Data – availability and specificity of impacts metrics – public versus private.
- Method – allocation of impact particular to innovation.
- Time period – short-term, intermediate, long-term.
- Materiality – financial, non-financial.
- Assurance – internal and external.

Scope of Impact
...relates to
organizational goals.



Closed loop

Upstream



Downstream



Direct, Indirect, Both?

Short-term, Intermediate, Long-term?

Quantitative, Qualitative, Both?



Upstream:



Materials:

- Minerals/natural resource reliance, ethically-sourced, etc.
- Lithium, water, etc. – huge energy, carbon, water, and material's footprint to extract and transport materials (Potts et al, 2018)
 - Current exploitation is already growing in environmental and social concerns – would not align with low-carbon, energy-efficient future (e.g., legitimacy).
- Supply chain impacts – populations effected by extraction – government, violence, health, water supply, contingent litigation, etc.
- Other: contracts with underrepresented populations, etc.

Labor:

- Fair wages, healthcare, employee-friendly policies, etc.



Production:



- Huge energy, carbon, water, etc., to process the raw materials and to distribute globally the artificial pollinators necessary to pollinate the more than 350,000 species of flowering plants globally (Potts et al, 2018; Ollerton et al., 2011)
- Labor costs, materials, storage, personnel, patents, administrative costs, R&D, facility expansion, etc.

Downstream:

Usage/Disposal:

- Electricity (product and monitoring hub).
- Costs to operate, maintain and repair all the robot bees and their associated infrastructure, and to ultimately dispose of (including landfill) or recycle irreparable or broken robots (Potts et al., 2018). Costs both monetary and environmental.
- Scientists disagree whether they can mimic real bees – only pick up a fraction of available pollen grains (i.e., inefficiencies) (Potts et al., 2018).
- Even at an estimated \$10 per bee, the total cost would be many 100s of billions of dollars to pollinate the area of insect-pollinated crops that are currently grown around the world (Potts et al., 2018).



Unintended Consequences often overlooked or ignored:

- Deterioration of Indigenous cultures and languages connected to pollinators and kinship relationships that protect specific pollinators.
- Species invasion of epic proportions – cause local/regional extinctions, disrupt species interaction, networks, and ecosystem services (Geslin et al, 2017).
- Disruption to the current ecosystem balance by displacing existing pollinators, removing pollen forage, while failing to pollinate all the wildflower plants reliant on natural insect pollinator (Ollerton et al. 2011).
- Multiple biodiversity values - intrinsic (e.g., inherent worth), social (e.g., beekeeping), and cultural (e.g., aesthetic and recreational) values (IPBES, 2016).
- Lead to additional food shortages – increase vulnerability through failure of complex technology or cyber-attack (Potts et al., 2018).
- Low-income farmers represent more than 2 billion people reliant on smallholder agriculture in developing nations who cannot afford robotic pollinator services (hand pollination?) (Garibaldi et al, 2016).

Alternative Investments/Innovations:

- Combatting pollinator decline (e.g., increase diversification of crops, increase pollinator habitat, wildlife-friendly farming, increasing landscape complexity [e.g., crop rotation]), alternative food sources not dependent upon agriculture, most cost-effective way to safeguard current pollinators is to sustainably manage landscapes (IPBES, 2016).



To wrap up...

- ❑ THIS IS NOT EASY, but it CAN BE DONE!
 - Start by focusing on a few areas to create the biggest leverage

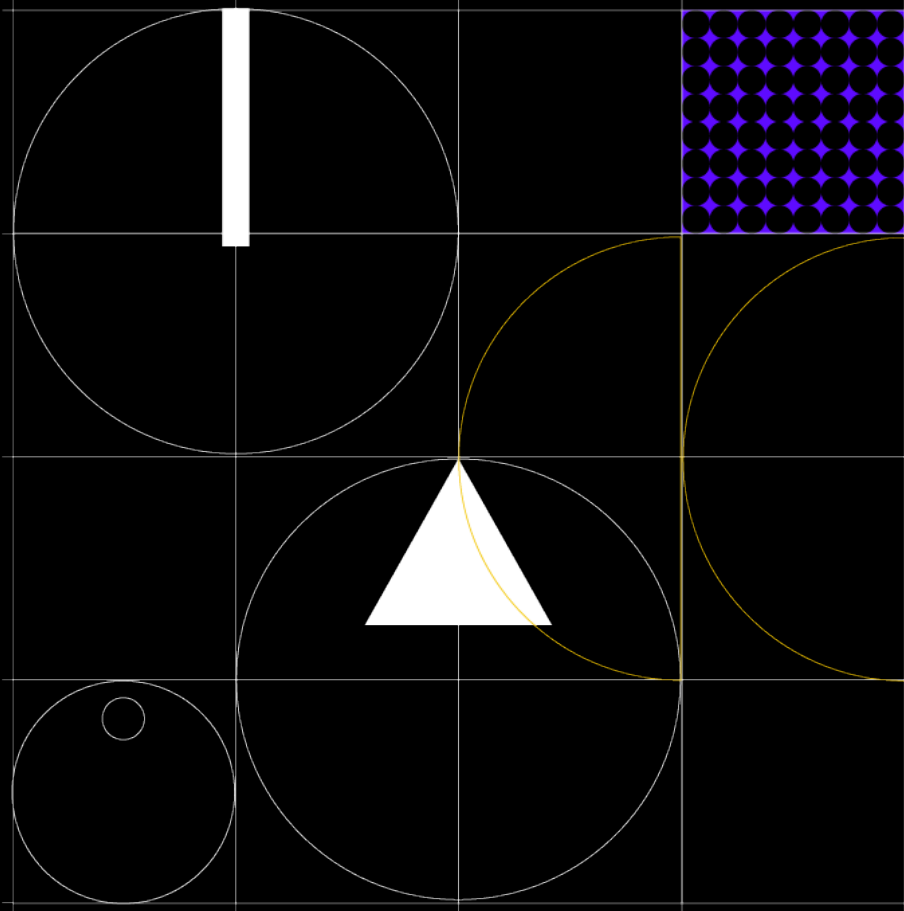
- ❑ Questions to consider for subsequent sessions...
 - What are your organization's innovation goals and how do you measure success?
 - What aren't you measuring that you wish you were? Why not?



TEXAS TECH UNIVERSITY
Rawls College of Business

Thank you!





**Innovating for a
better future.**

innovationnorth.ca

**INNOVATION
NORTH**

