



IRI

May 22–25
Philadelphia, PA

2023
**ANNUAL
CONFERENCE**



IRI2038 Futures Study Revisited

Leading Innovation on the Way to 2038







Hollywood



IRI**2038** Futures Study

AGENDA

- Review of the Process
- Major Results
- Looking Ahead

Celebrating 75 Years...By Looking Ahead to the Next 25

- Establish a Vision for the Future of R&D
- Help members stay competitive
- Assist members in making the best strategic decisions for the future of their organizations and their careers



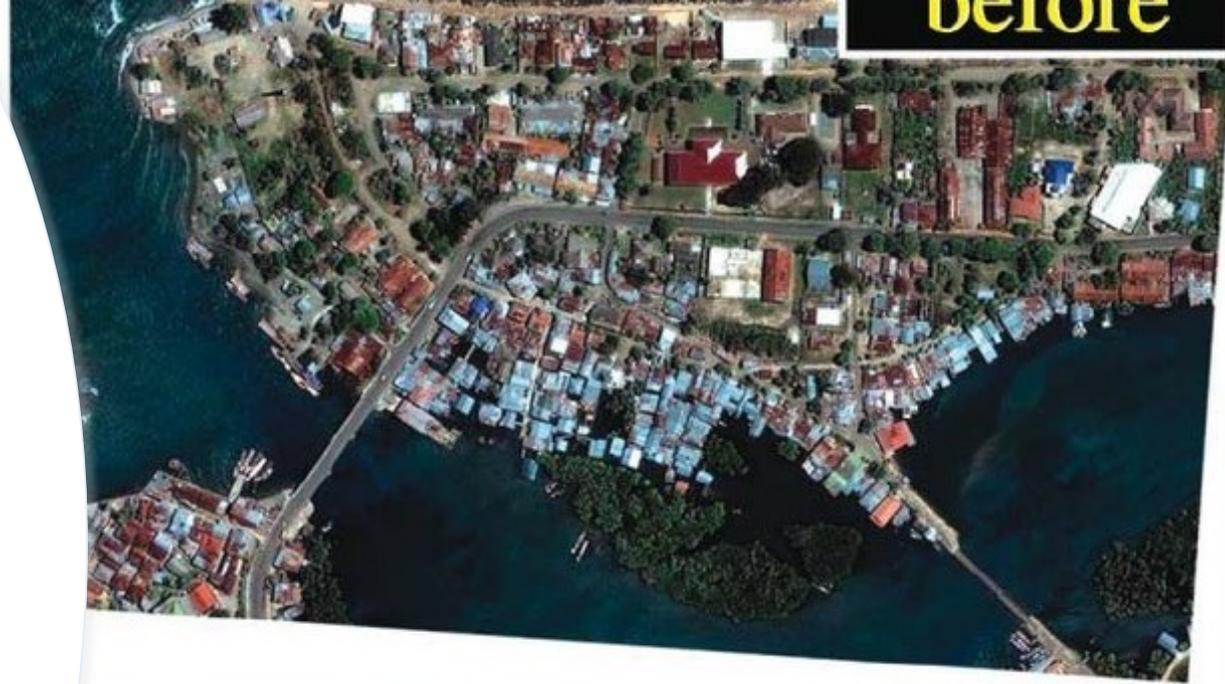


The Dream Team

The Curse of Cassandra: Prediction and Belief



**There are no
facts about
the future**



before

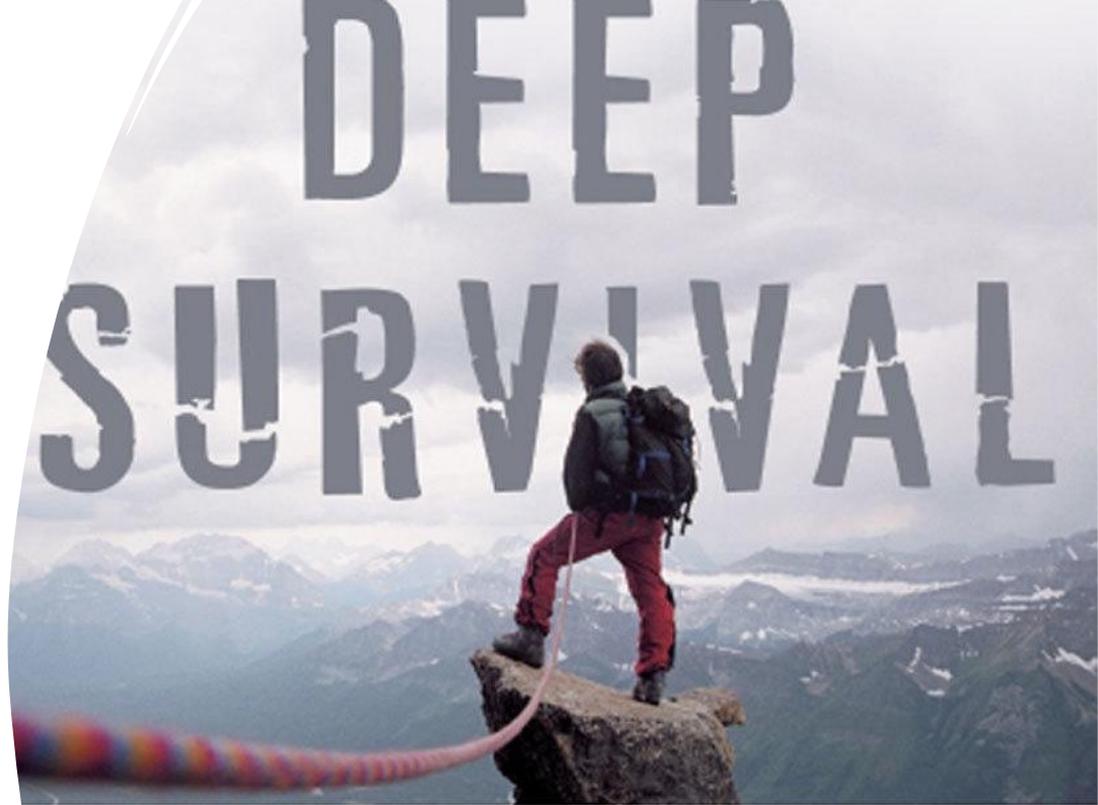


after



Your assumptions about the future are **OUTDATED, SINGULAR, & WRONG**

*Making decisions based on assumptions about a future that no longer exists is **DEADLY***



LAURENCE
GONZALES

Who Lives,
Who Dies,
and Why

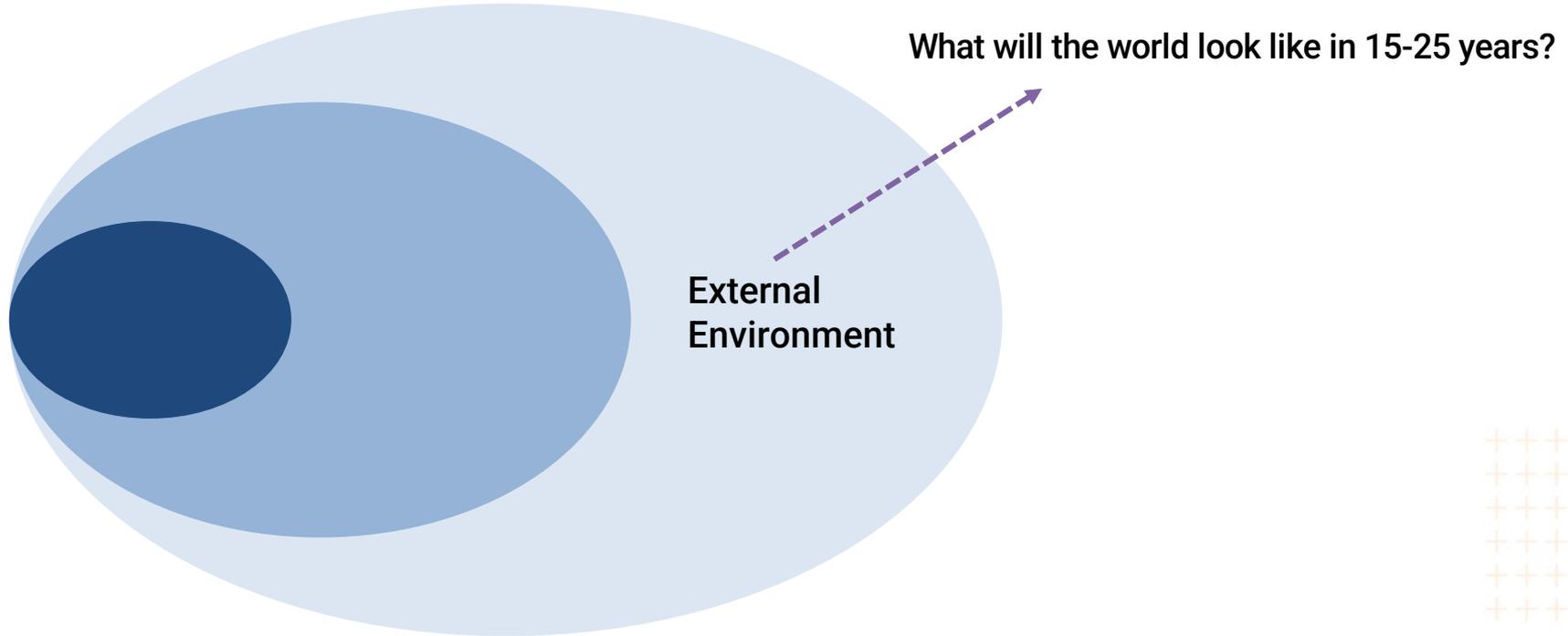
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**Your assumptions about
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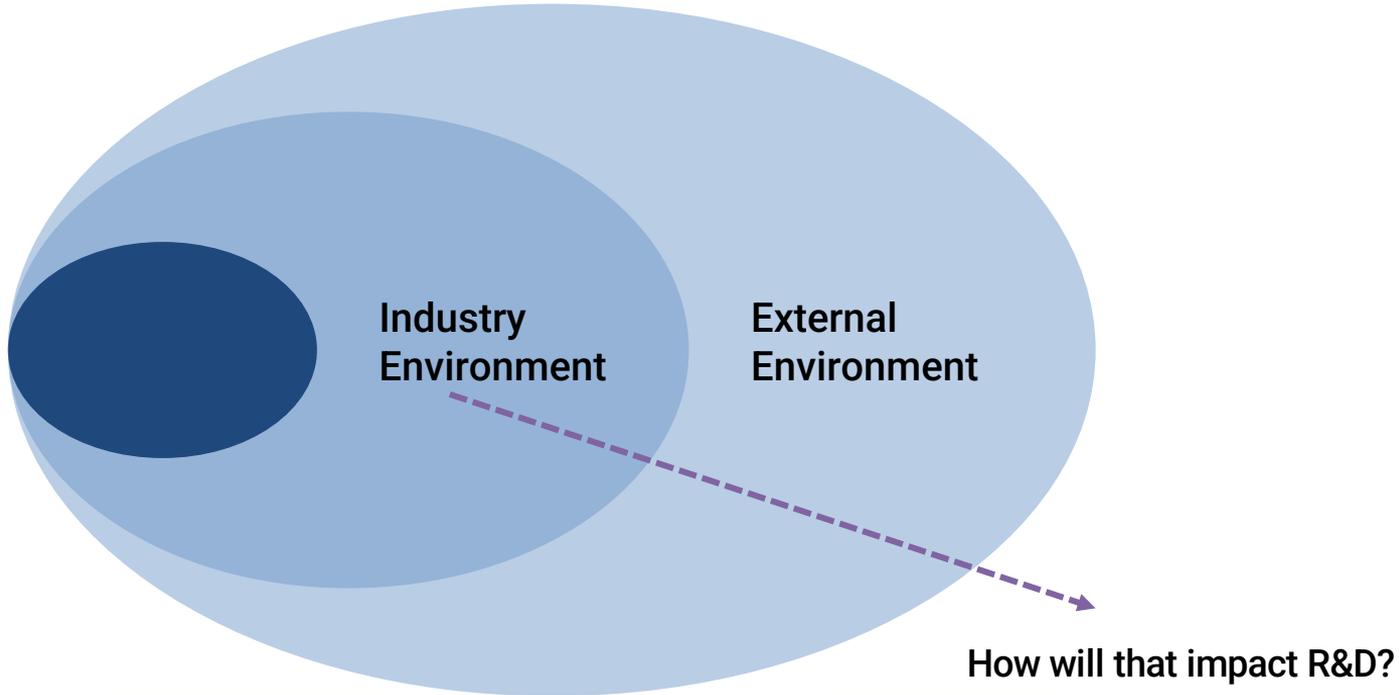
*Our biases prevent us
from seeing the
transformational future in
front of us*



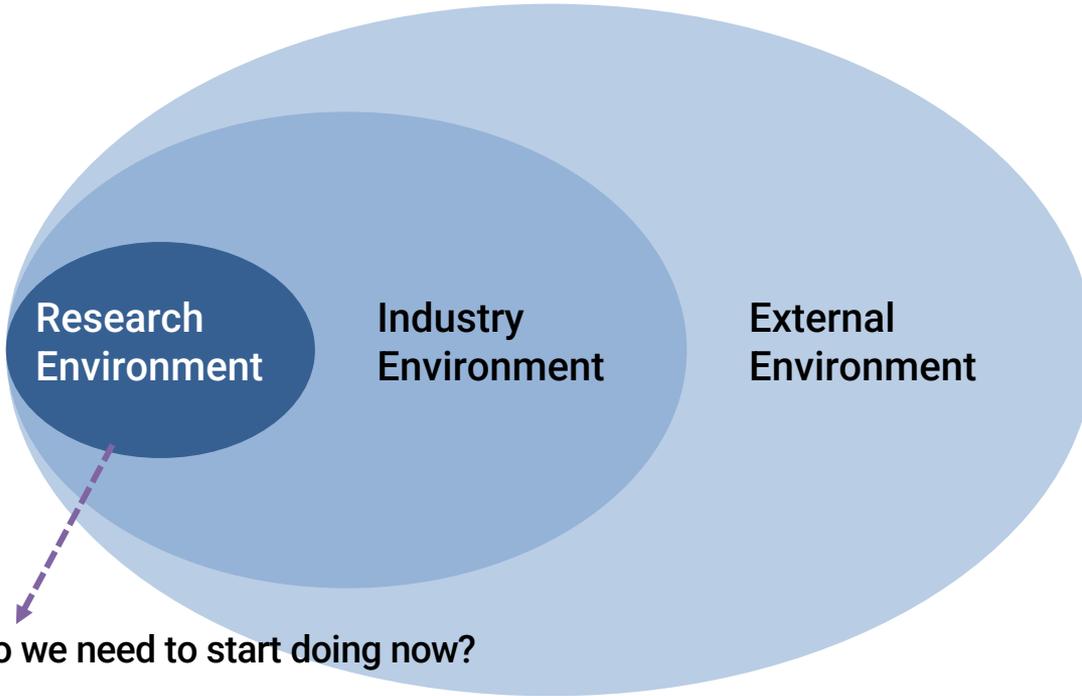
Outside-in & Future-back



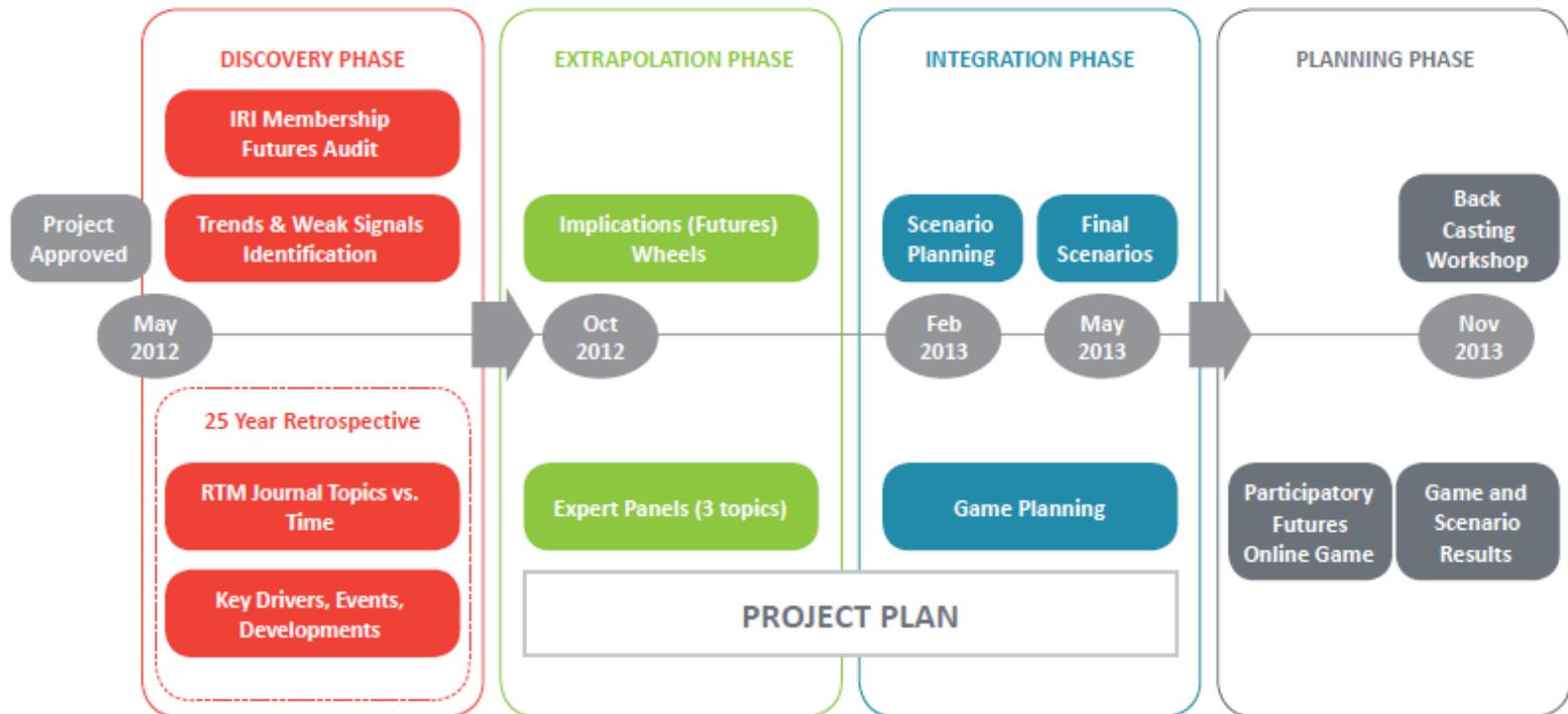
Outside-in & Future-back



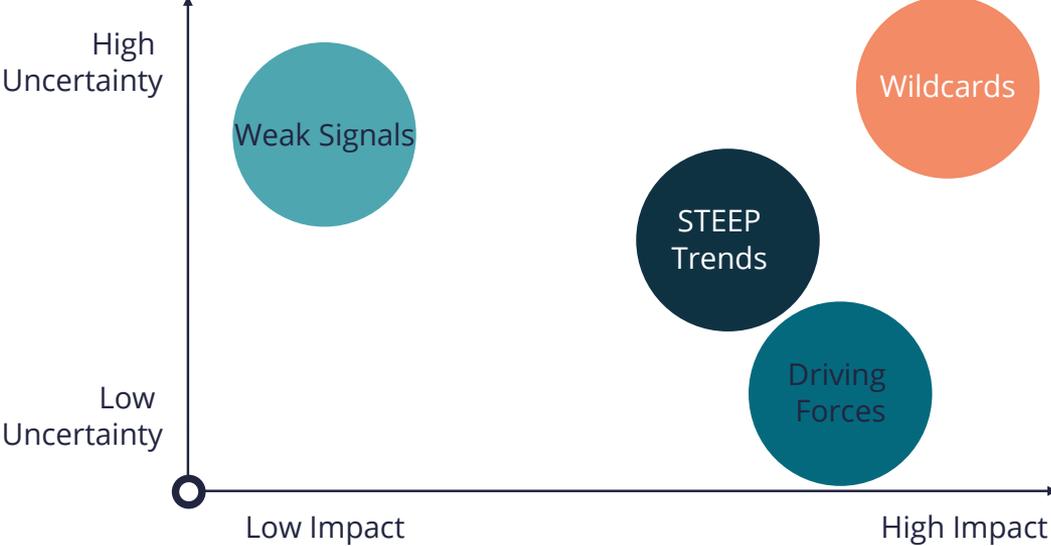
Outside-in & Future-back



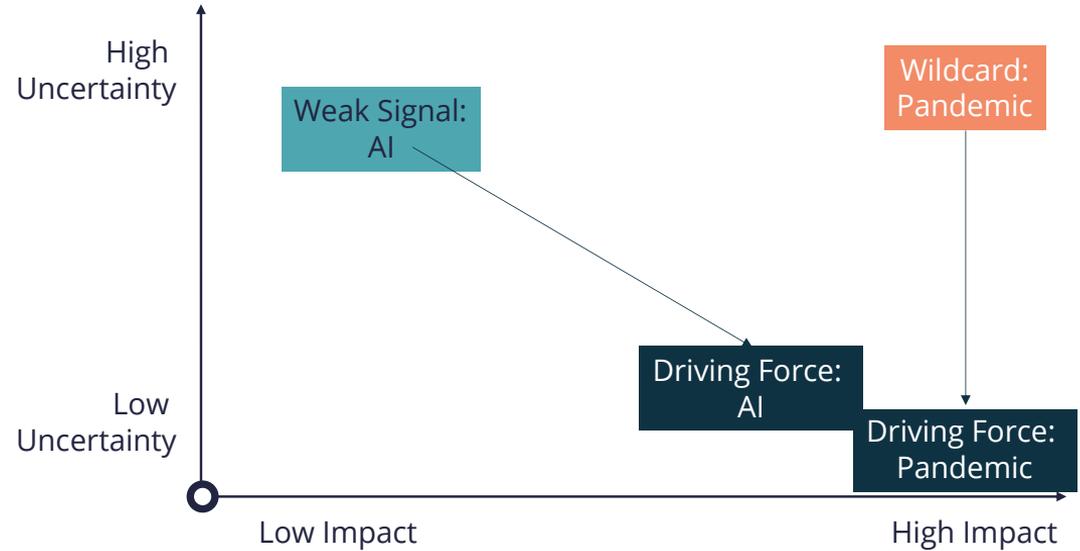
Project Plan



Discovery: Sources of Change



Sources of Change can move over time

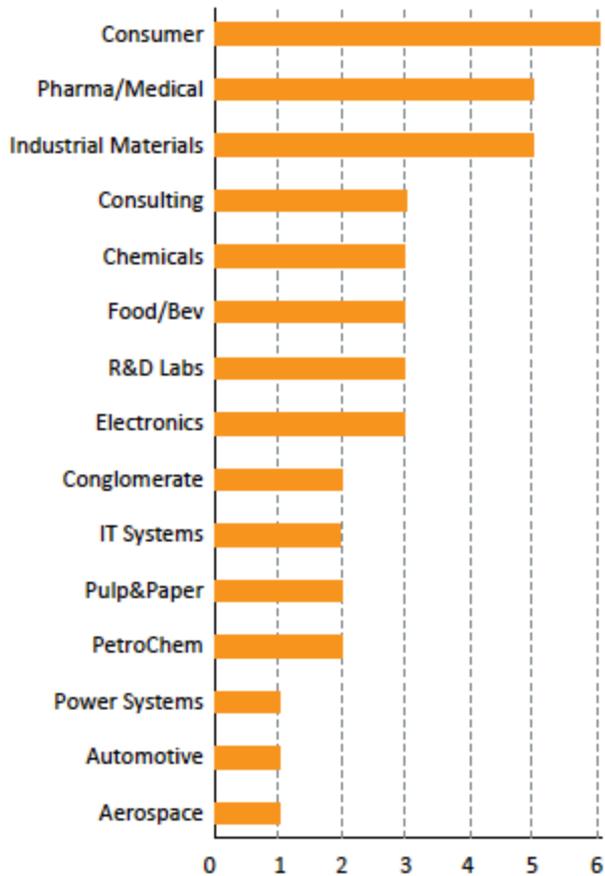




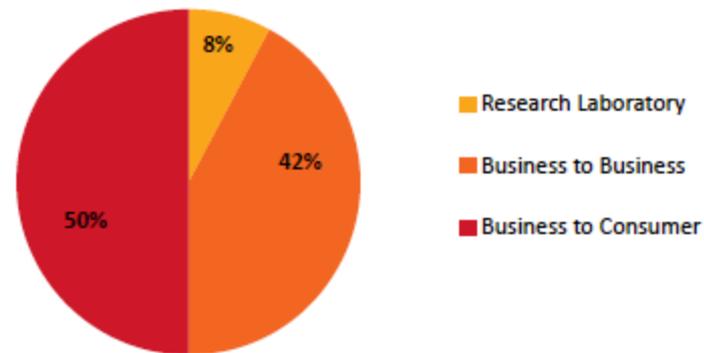
Internal Discovery:

Surveying members and non-members about their assumptions about the future

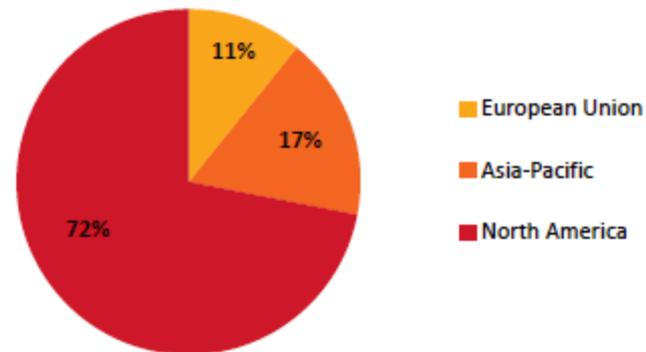
PARTICIPANTS BY INDUSTRY



PARTICIPANTS BY TYPE



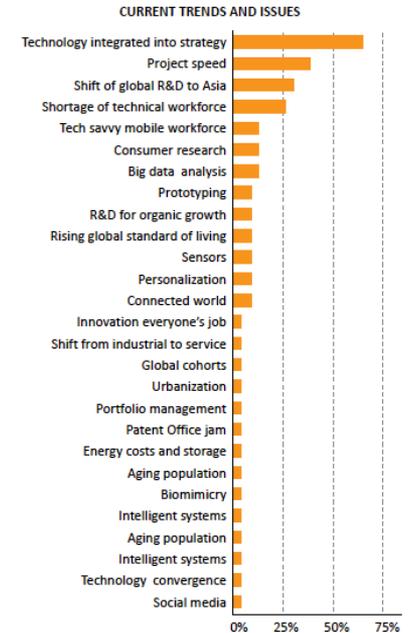
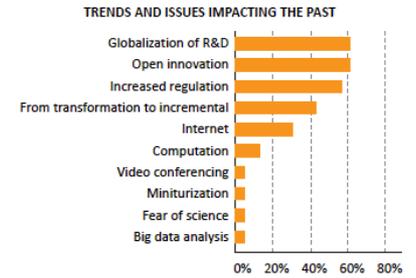
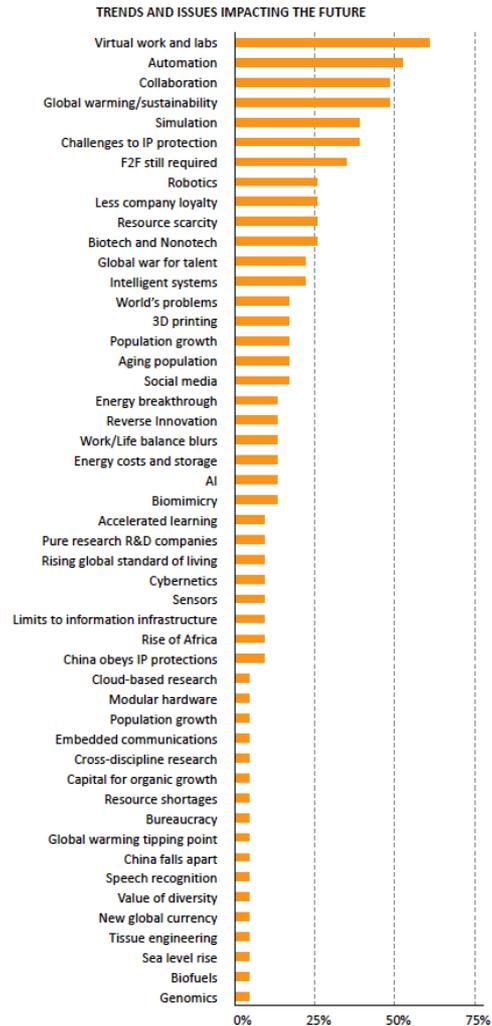
PARTICIPANTS BY Work Location



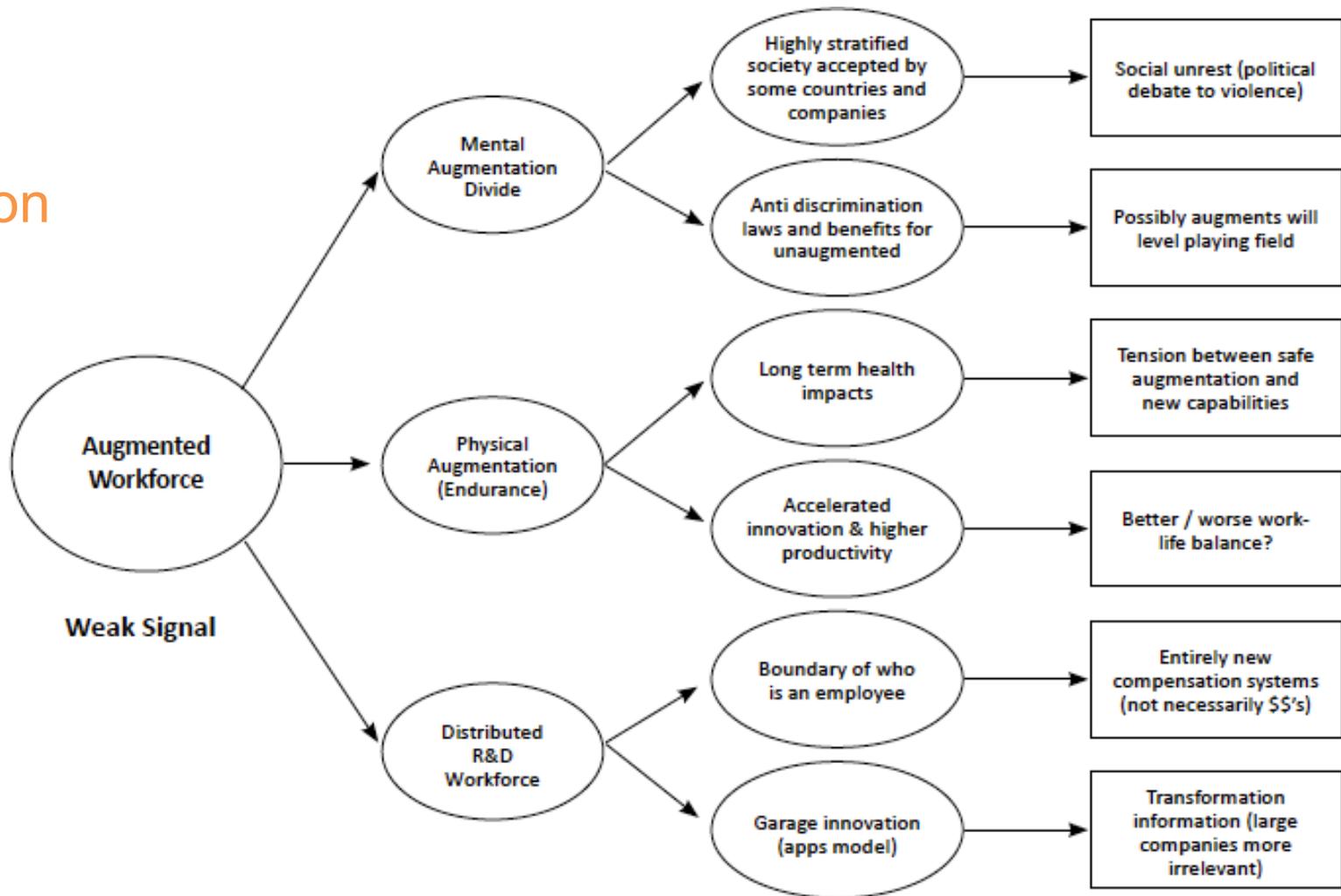


Internal Discovery:

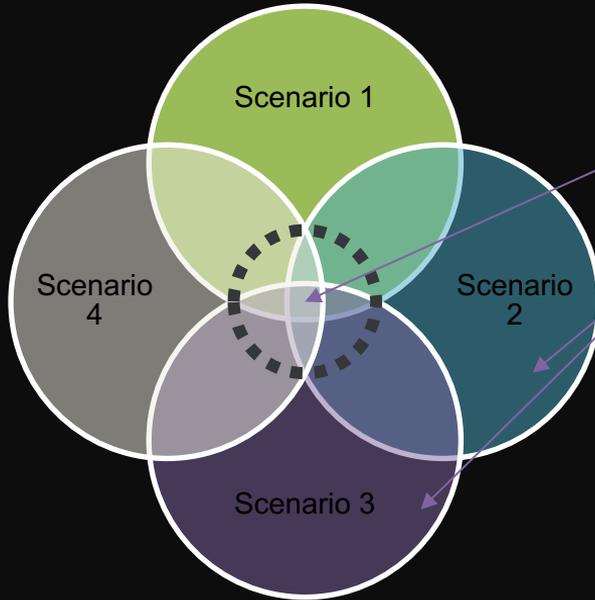
What are the widely held assumptions about the future?



Extrapolation is Critical



Integration: Creating Scenarios



Foundational Innovation that works across all scenarios

Specific Innovations for each scenario to pivot to based on milestones

SCENARIO 1

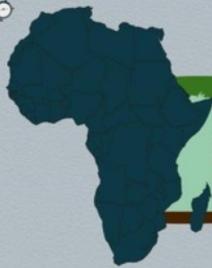
Africa Leapfrogs Developed Markets



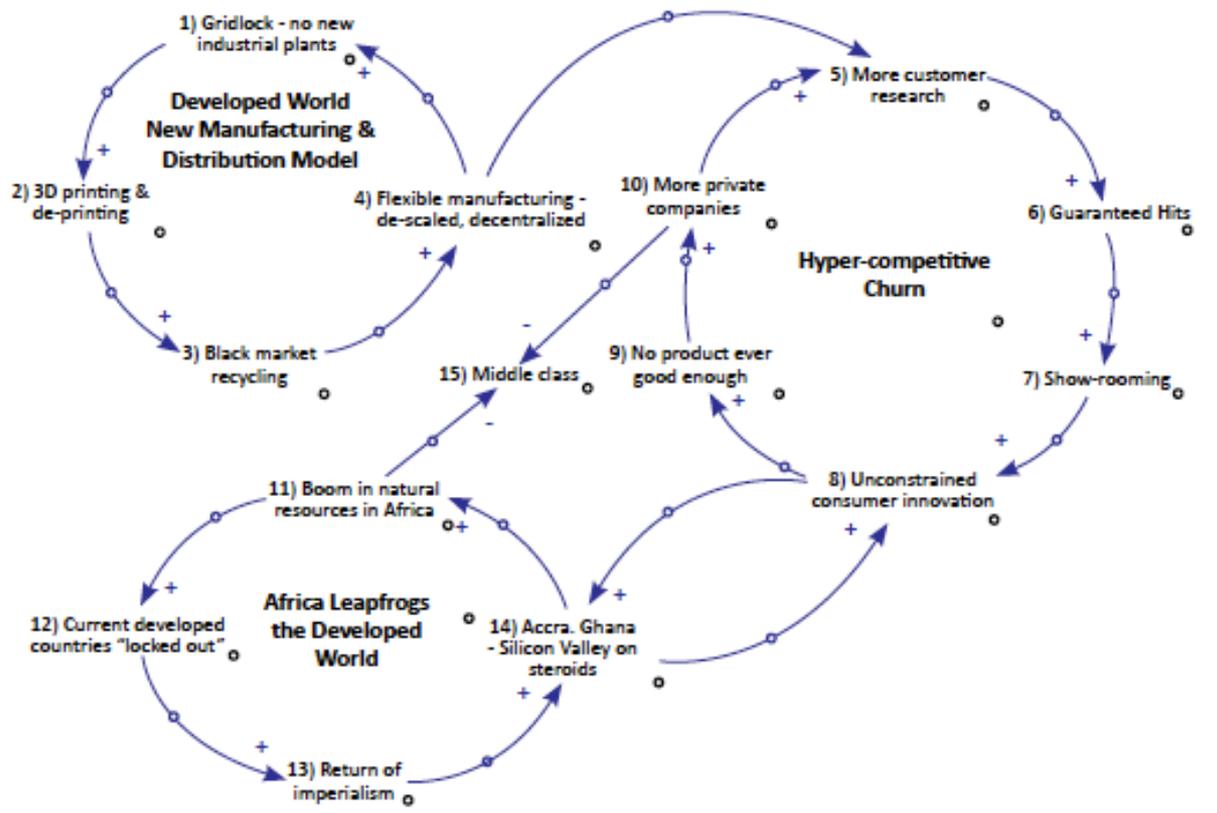
Increasing environmental regulations prevent capital investment across the developed world which leads to the creation of a new, flexible, and localized manufacturing ecosystem built around nearby natural resources...



This ecosystem churns out highly customized products consumers demand at an ever-faster pace...

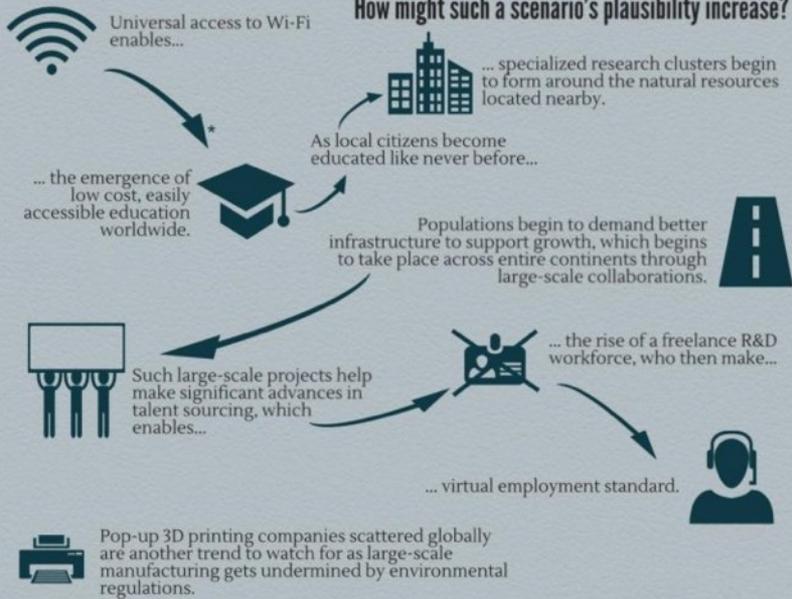


With less of an installed asset base, and the ability to leverage its abundant natural resources in this new system of localized manufacturing, Africa jumps ahead of the developed world in growth and economic dynamism.



WHAT TO WATCH FOR

How might such a scenario's plausibility increase?



Universal Access to Wi-fi



Emergence of low cost, easily accessible education worldwide

Populations demand infrastructure through global collaborations

Virtual employment is standard

Pop-up 3D printing capabilities distributed globally



Milestones

What to Watch For

How might this scenario gain in plausibility?



A freelance, virtual R&D workforce becomes standard.

Advances in analytics and artificial intelligence allow cities to process city- and regional-scale data to increase resource efficiency.



Cities become more powerful than federal governments and wrest autonomy from them.



Companies support city autonomy by tailoring their goods and services to the city's needs as it maximizes its efficiency with data analytics.

Large-scale collaborations on infrastructure development result from this newfound autonomy and produce even more efficient resource use.



Virtual R&D Workforce

Advances in analytics and AI allow cities to increase efficiency

Companies respond to city autonomy with customized products

THREE ROADS to INNOVATION

IRI 2024 Futures Study
Scenario #3

Society chooses between three roads toward innovation in an era of virtual work and prize driven motivation.



FIRST ROAD

Many individuals choose to directly connect their brains to a community in which the network runs project management.

SECOND ROAD

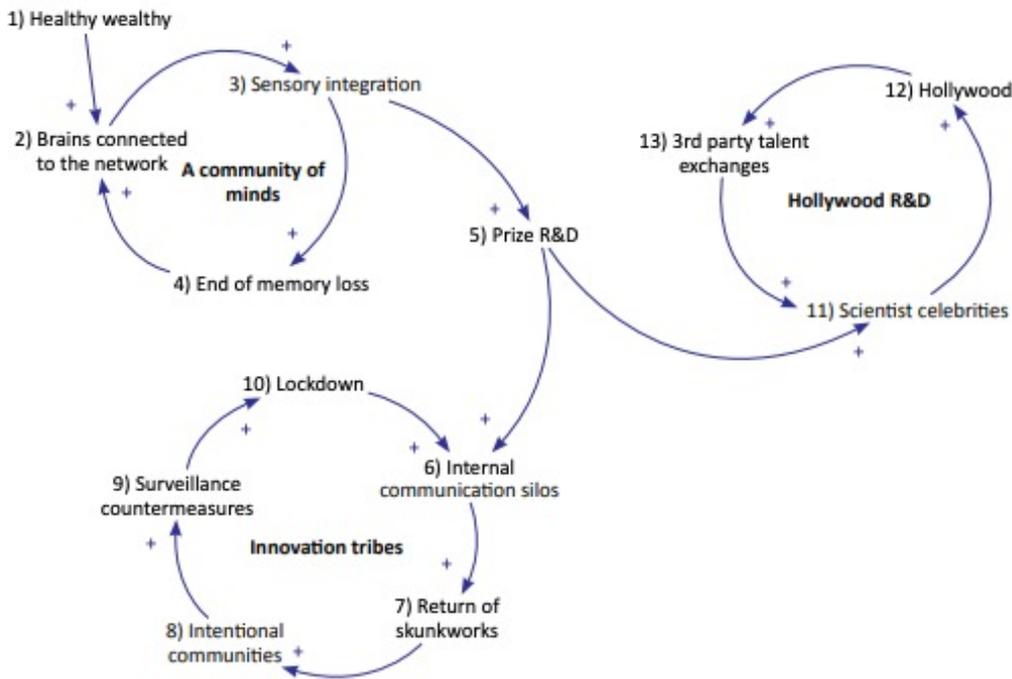
Many others choose to form insular communities in order to work in secrecy, preventing outsiders from obtaining their intellectual property.



THIRD ROAD



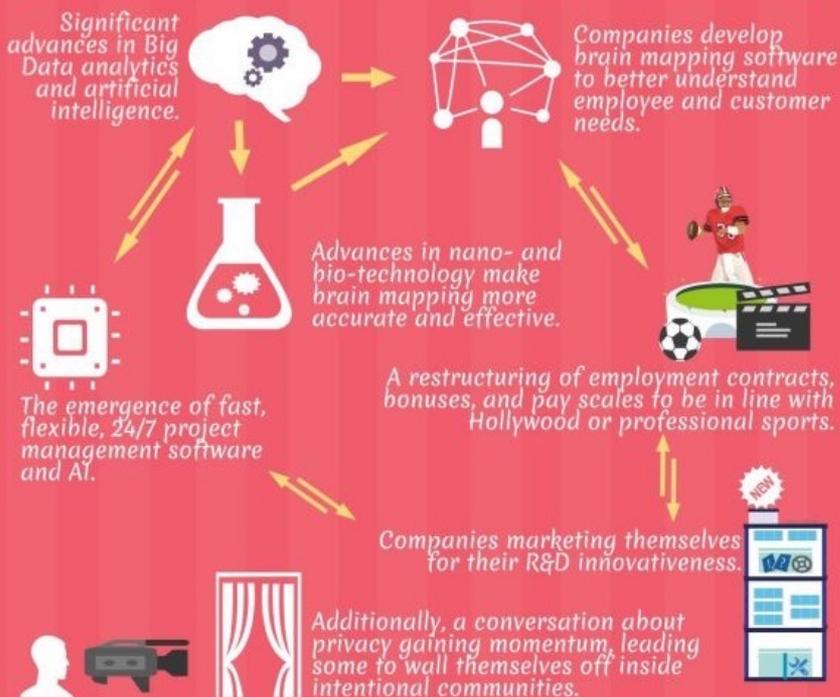
Many corporations travel a third path to maximize creativity and minimize risk by adopting a model similar to Hollywood movie studios, where a small production team manages a large pool of freelance talent.



THREE ROADS TO INNOVATION

WHAT TO WATCH FOR

How might this scenario become more plausible?



Significant advances in Big Data and AI

Emergence of fast, flexible 24/7 PM software powered by AI

Advances make brain mapping more effective and accurate

Companies marketing themselves for their R&D innovation around social solutions

Concern for privacy

Scenario 4 Everything's in Beta

The complex, global manufacturing ecosystem collapses...



...which leads to a bifurcation of the economy, underpinned by local manufacturing.



On one side, there is a massive churn of new goods that are introduced as beta products with little market research, creating a 'buyer beware' product environment...



...users agree to become beta testers for these products so companies can minimize their liability and risk.



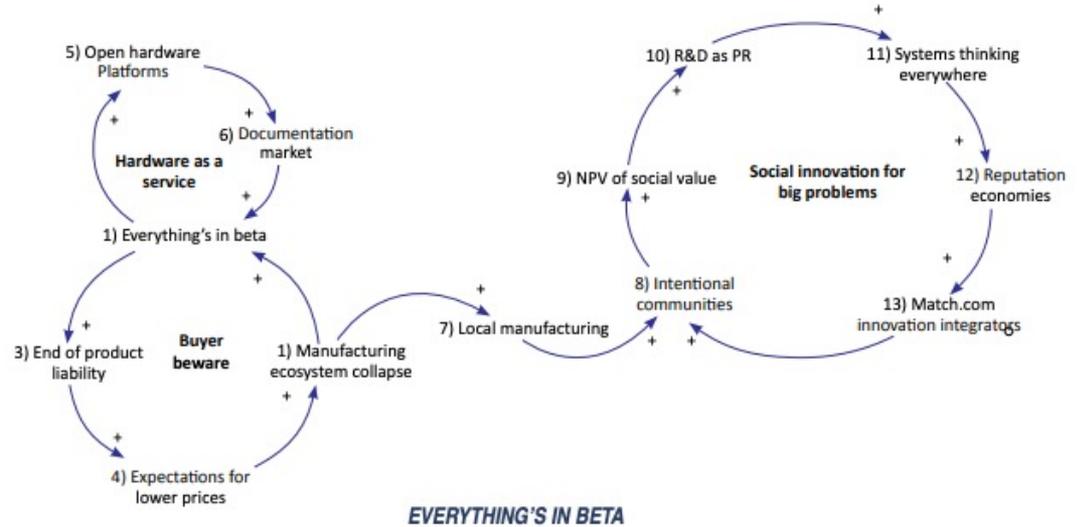
On the other side stand premium products that are socially reputable and deploy R&D resources towards tackling the big challenges of the 21st century.



A conflict between quality and quantity defines this new economy.



In this scenario, consumers and innovators work together to make sense of the chaotic world of new products while companies and communities collaborate to make the world a better place. How would you adjust your manufacturing and resource acquisition practices to account for this new economy?



What to Watch For

What conditions are needed to improve this scenario's plausibility?



A shift to sustainability thinking in all things.



Freelance, virtual R&D work becoming standard.



The elimination of barriers to speed in new product development.



Employee remuneration changes to offer social value to workers.



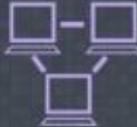
A weakening of IP laws internationally.



The arrival of pop-up 3D printing manufacturing globally.



Companies foregoing IP filing in favor of speed-to-market.



The emergence of fast, flexible, 24/7 project management AI & software.

A shift to sustainability thinking in all things

Elimination of barriers to speed in new product development

Employee remuneration changes to offer social value to workers

Pop-up 3D Printing

Fast, flexible AI PM software

Weakening IP and speed to market priority

Planning

AI systems will play an ever-increasing roles in both project and portfolio management

The role of traditional IP will be greatly diminished from today

Talent Management will be replaced by temporary resource acquisition as most of the workforce will be freelance

A majority of the projects will become far more open, with companies relying on speed-to-market rather than IP protections for value creation

With AI systems leveling the field in terms of execution, R&D's value will derive from early opportunity identification

Managers will be focused on overseeing AI process models and cultivating their external talent pool.

Planning: Implications by Scenario

	Africa Leapfrogs Developed Markets	Death of Distance vs Megacities	Three Roads to Innovation	Everything's in Beta
Project Management	<ul style="list-style-type: none"> PM by AI Systems Managers Manage the Process only 	More, smaller projects Team Assembly the core competency	Automated stage gates Mangers pursue higher level functions	Fully automated PM Very short cycle times
Portfolio Management	PPM by systems and big data	Priorities set by cities and crowdsourced funding	PPM across both open and closed projects	PPM beta testing
R&D Value Proposition	Providing quick cradle to grave solutions Not about long term IP	R&D value is to the megacities not the corporation	Identifying future opportunities	Solving social problems Ecosystems of external partnerships
Talent Management	Workforce is rented, not owned TM replaced by human capital resourcing	Reputation market R&D Superstars Compensation in cludes city perks	Cultivating freelance workforce is key Humans manage and managed by AI	Bifurcated TM management needs Large social projects Many beta projects
Role of Traditional IP	Diminished	Must be valued by the megacity	Diminished by need for speed to market	Gone
Overall Considerations	More AI supporting R&D	Megacities replace corporations as R&D's clients	Time freed up by AI used to solve social problems	Two very different types of projects demand very different skills



ON TRACK



AI EVERYWHERE



SIMULATION/DIGITAL TWINS



SOCIAL R&D



An aerial photograph of a modern residential development. The houses are arranged in neat rows, separated by paved roads. In the bottom left corner, there is a large circular clubhouse with a blue pool and two tennis courts. The development is bordered by a fence, and beyond that, there are large, dark brown agricultural fields. The lighting suggests late afternoon or early morning, with long shadows cast across the scene.

SPLINTERED
MARKETS & LOCAL
MANUFACTURING



IN THE AIR





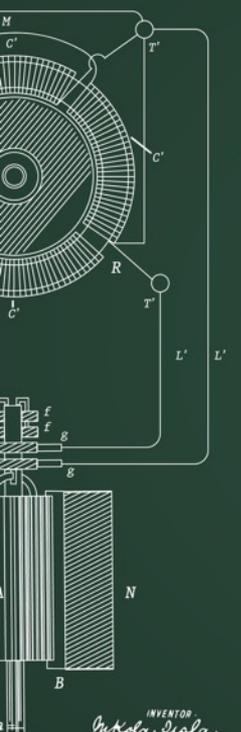
AFRICA
POWERHOUSE

The Hollywood Model?



THE ROLE OF IP

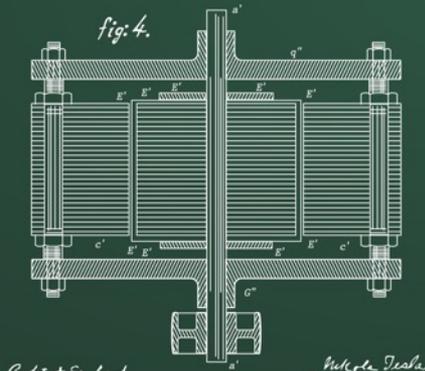
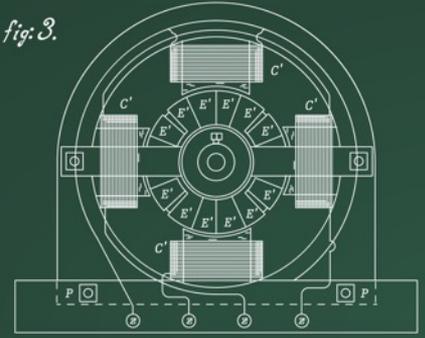
TESLA.
TRANSMISSION OF POWER.
Patented May 1, 1888.



INVENTOR
Nikola Tesla.
BY
Duncan Carter & Co.
ATTORNEYS

(No Model.)
N. TESLA.
ELECTRO MAGNETIC MOTOR.
No. 382,279
Patented May 1, 1888.

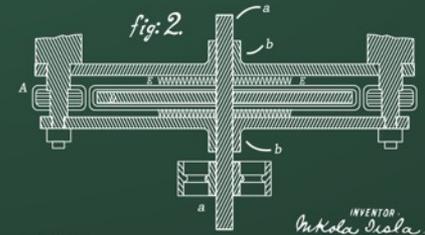
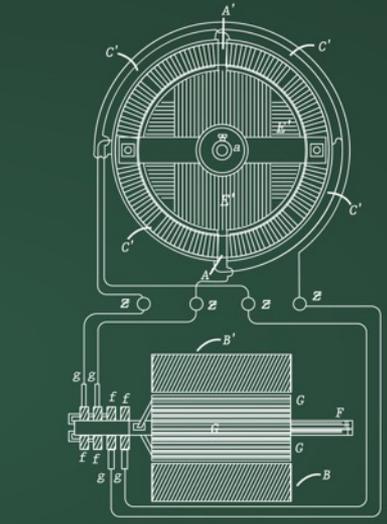
fig. 3.



Robert & Graymond
Frank B. Murphy

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(No Model.)
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P-
8

WITNESS
B. van
Benjan



MISSES



WEB3/BLOCKCHAIN/DECENTRALIZATION





DEGLOBALIZATION

GENERATIONAL CHANGE





LOOKING AHEAD





INNOVATION IN A NETWORKED WORLD

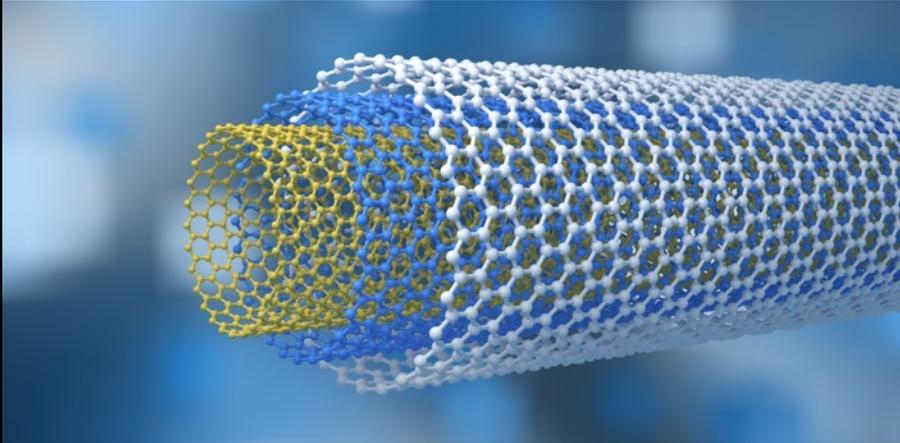
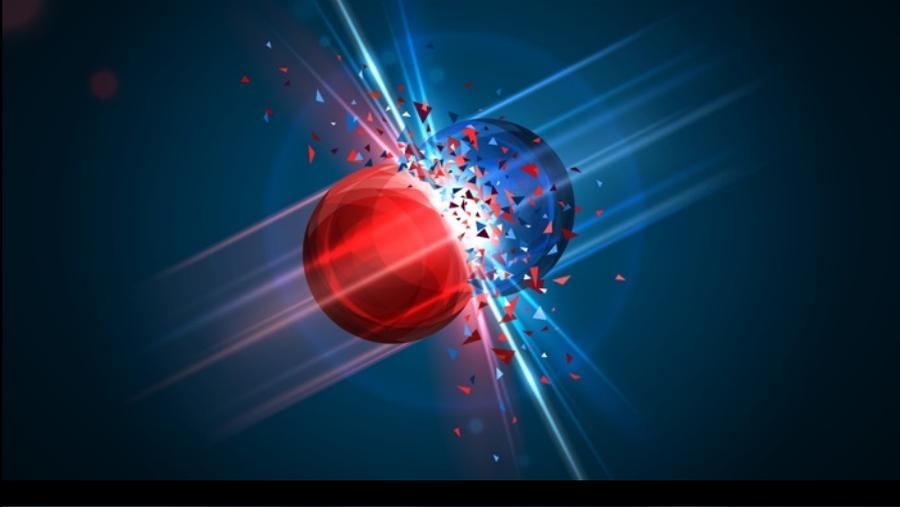
ANTHROPOCENE



EQUITY



GAME-CHANGERS





INNOVATION RESEARCH
INTERCHANGE

Accelerating Value Creation



NATIONAL ASSOCIATION OF
Manufacturers