

# DIVERSITY DRIVES INNOVATION

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#iwd2021

#choosetochallenge2021

38+ years corporate experience,

25+ years in creative problem solving, invention, patents, innovation management;

I have learned a lot from failure!

One of my favorite quotes: "I have not failed. I've just found 10,000 ways that won't work." Thomas Edison



Invention

Cash to Ideas

Invention = discovery of novel idea or concept



Innovation is another name for “**Change Management**” → Innovation is about how to transform novel ideas to achieve their business value.

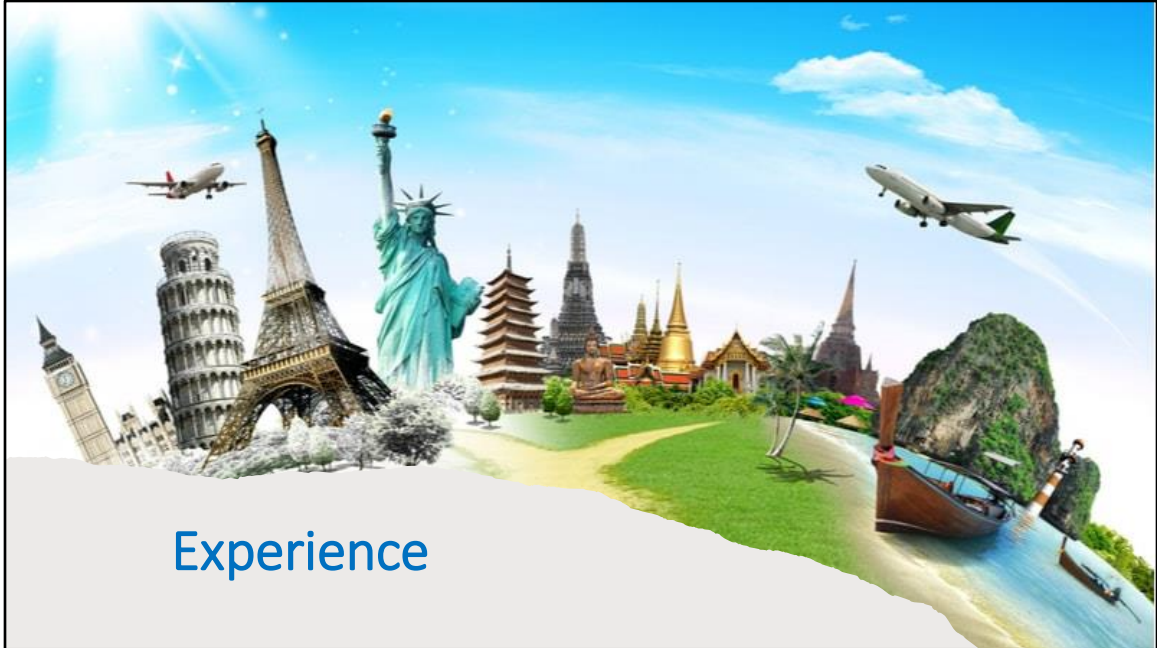




## WHY Diversity?

- Enhance your innovation efficiency
- Everyone feels free to contribute their unique ideas – to drive exponential innovation
- The power of differences unlocks innovation and drives market growth
- When women are at the table, the discussion is richer, the decision-making process is better, and the organization is stronger
- Challengers give the critical feedback we might not want to hear but need to hear.

- Researchers found a direct relationship between innovation and four types of diversity – industry background, country of origin, career path and gender. A study showed that companies that “check all the diversity boxes” enhance their innovation efficiency.
- it’s important to go beyond diversity to also focus on inclusion – establishing a culture in which all employees feel free to contribute their unique ideas – to drive exponential innovation.
- new research provides compelling evidence that diversity unlocks innovation and drives market growth—a finding that should intensify efforts to ensure that companies and universities and teams embody and embrace the power of differences.
- results show that diversity can drive innovation performance in countries as different as Germany and India, AND imply that it can so do in a variety of ways.
- It’s time for a new way of thinking. **“The business case has been made to demonstrate the value a diverse board brings to the company and its constituents.”**
- “The case for establishing a truly diverse workforce, at all organizational levels, grows more compelling each year....The financial impact—as proven by multiple studies—makes this a no-brainer.”
- “The business case is clear: When women are at the table, the discussion is richer, the decision-making process is better, and the organization is stronger.”
- diverse, challenging team members give the critical feedback **we** might not **want** to hear, but **need** to hear. “The ideal members of a **challenge network** are disagreeable — critical and skeptical.”



## Experience

An organization's **culture** is the systematic way employees, leaders, and work groups behave and interact with each other. Company culture is collectively composed of values, beliefs, norms, language, symbols, and habits. Knowing and understanding your company's/department's culture (or another company's culture) can be quite useful.

- Culture is not only country, but also race, gender, age, geography, religion, experiences, education, discipline/industry, etc. Micro-cultures exist everywhere.
- Ethnic, travel, culture, LANGUAGE, years of exposure (traveled to as tourist vs. lived in foreign country for years)
- Economic standing (wealthy or poor or "middle class") – note Industrial Evolution vs. now and class hierarchy of roles within Industry

In a **local** organizational culture, employees identify with their manager/lead and their teammates. This type of environment risks having a low level of diversity, since there are social pressures to act, look, and talk in a certain way. However, these defined norms allow for a great amount of predictability. In a company with a **professional** culture, employees identify with their profession or the content of the work. **If people don't feel like they belong, it will impact their drive and desire to excel:**

**Open vs. closed system:** In an **open** system, newcomers are welcomed easily. People are inclusive and take the approach that anyone will fit in well with the organization. A **closed** system is more exclusive, where newcomers must prove themselves. Open cultures have managers and leaders who are approachable, and thus tend to see higher employee/member satisfaction.

- Understanding in terms of **cross-cultural communication** is the key to real inclusion and diversity!

# Training & education

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In a typical university like ISU majors in Arts, humanities, science, engineering and other disciplines think very differently both in how they perceive or define the problem, and in tools and skills they will use to solve any problem they are confronted with. They often self-select to study and socialize with others in same courses.

What helped Bell Laboratories generate some of the most ground-breaking inventions of all time?

Organized a network of formal and informal physical spaces designed to promote collaboration and to foster “intellectual collisions” between the building’s diverse scientists and engineers, including linguists and ethnographers.

Patenting by WOMEN IN IT:

- Co-invented patents where teams consisted of at least one female and at least one male — are cited 30-40% more often than patents invented by female-only or male-only teams. Citations denote more novel, seminal patents.
- Both the diversity of thought and mixed-sex co-inventing teams tended to be larger a possible explanation for more innovative inventions due to greater diversity of thought
  - **originality index** rises with team size = a patent draws on a wider range of



- prior art or different kinds of technologies.
- a relatively simple or incremental invention will have a lower originality index than complex inventions **drawing from multiple areas of technical expertise.**
  - \*\* systemic factors, such as company/ university environment, can make a difference

## Role



Build diversity in teams by Time in job, skills used to perform, corporate organization, function or role, level in hierarchy.

Junior or new employees often haven't yet been indoctrinated into the unwritten rules or dogma of the organization and are more frequently willing to ask WHY we do something the way we do, and propose alternatives based on what they DON'T KNOW.

Examples:

1. Inexperienced Japanese manufacturers made initial breakthroughs in compacting components to make smaller functioning radios and cellphones than Motorola because they didn't know any better, whereas Motorola's previous design fails had taught them NOT to put components closer together and it interfered with signal transmission. Apple originally had issues with their phone's strength of signals until they hired experienced Motorola RF engineers.

2. One department I worked with retained 7 paper copies of every financial report in large cabinets because every new hire was taught and all they understood was "that's the way we've always done it." We investigated and learned it had been several years since ANY paper copies were legally required to be stored.



## Directed Innovation

- Problem Storming / Assumption Storming
- Brainstorming / Ideation / Creative Problem Solving
- Evaluation
- Implementation
- Commercialization

- CONVERGENT (critical) AND DIVERGENT (creative) THINKERS are BOTH IMPORTANT!
- Embrace the opportunities for invention = every problem, every critic is your best friend and helps identify Opportunities for Innovation.
- In DOWNHILL SKIING THE MOGULS/ BUMPS ARE YOUR FRIENDS that help you focus and control your Fall down the mountain. Steer your way using the obstacles and problems volunteered by *critical* thinkers.
  - bring together cross-functional ideation participants with diverse backgrounds and experiences.
  - reframe problems in multiple ways to better ignite diversity of thought
  - evaluate and select concepts with cross-functional diverse perspectives = don't pick what's easiest or most intuitive to implement-MAKE SURE it's high value to users!
  - integrate diversity of thought into working processes, culture and team composition
  - focus on diversity brings out the unique skills and contributions of colleagues, yielding more innovative solutions to problems.
  - Make room to think differently, value novelty and uniqueness and support giving it a voice!

### Do-it-yourself brainstorming approach

1. Encourage brainstorming. Learn how to facilitate or find a colleague who is comfortable with group facilitation.
2. Identify interested diverse colleagues from multiple functions and disciplines and gather them together for a monthly lunch.
3. Recruit for diversity of thought. Identify people from all functions: engineering, marketing, sales, finance, sourcing, product development, operations or field service.
4. Identify gnarly problems that your industry, technology domain, customer or business hasn't yet solved and reframe them into sub-problems, with relevant Who, What, When, Where, Why and How questions for participants to answer.
7. Evaluate, strengthen and/or prototype the most-promising concepts... always confirming selected concepts with diverse customers, users, and functions to ensure the original problem has been solved in a high-value way



The unique perspectives diverse participants bring into the innovation process often results in additional customer benefits, differentiating features, and alternate uses for an invention. Facilitating a diverse participant blend of gender, backgrounds and fields of expertise, combined with a methodology where everyone can safely share their unique ideas, results in a greater quantity and quality (e.g., creativity) of solutions.

#### **TRIZ**

5 DIVERSE Profiles of Innovators:

##### **Idea Creator**

Creativity is the high-level thinking which relates to intelligence, empathy, idealism, imagination, profound observation, communication skills, process understanding, cultural empathy, and interdisciplinary knowledge. The creative mind has a better ability to identify patterns, make unusual dots connections, and has the tendency to constantly question the status quo. Creativity is the “actual thinking” which is a conscious or subconscious effort to reorganize your memories and integrate newly acquired knowledge to trigger fresh ideas.

##### **Innovation Translator**

Innovation translators are those who have the interdisciplinary knowledge, diplomatic skills and communication fluency to push the ideas forward and advocate innovation relentlessly.

##### **Innovation Stabilizer**

the innovation stabilizer plays an important role in conducting “Systematic Innovation.” Innovation stabilizers are innovation leaders or professionals who can provide the appropriately structured framework and a set of practical tools which people can use to create and implement ideas, or improve products, processes, and services that will deliver new value. Innovation Management Systems includes policies, structures, and programs to leverage to drive innovations.

##### **Innovation Navigator**

innovation navigators are the critical role to envision the future trends and capture potential innovation opportunities. The evolution of innovation only exists in the more open environments that create unique business insights, take advantage of all sources of creativity in a more open way and leap forward innovation management to the next level of maturity. Through great navigation, a healthy innovation portfolio can be integrated with the annual strategic planning process and financial investment model.

##### **Innovation Evaluator**

The important work for innovation evaluators is how to select the right set of metrics to measure innovation management effectiveness and efficiency. The measures should be oriented to justify innovations the organization needs. Important to review past innovation results and areas for improvement and monitoring going forward.



**Help teams more effectively break down the silos created by otherness and, through intergroup contact focused on nonwork activities, foster a sense of belonging, authenticity;**

1. When making decisions, do you consider how your own cultural and social upbringing may influence your choice?
2. Do you seek opportunities to mentor/advise/befriend employees, colleagues, students from a different background than your own?
3. Do you share personal stories with your partners, colleagues, other students?
4. Do you regularly think about the assumptions you are making in your interactions?
5. Do you speak up when you observe someone being treated unfairly?
6. Do you think about ways to collaborate and problem solve with others outside your close circle of friends?
7. Do you often use open-ended, nonjudgmental questions when working with others?
8. Do you openly admit to areas of weakness or mistakes made and acknowledge their potential impact on others?
9. Do you consider how you might distribute work to be done to give opportunities to different people?
10. Do you think critically about collegiate, classroom, research lab norms, and consider whom they might exclude?  
(something as simple as the women's restroom being smaller or further away from the classroom or lab where you spend most of your time working or studying)

\*CHECKLIST FROM [CATALYST.ORG/INCLUSIVELEADERSHIP](https://www.catalyst.org/inclusiveleadership)

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## References

THANK YOU

QUESTIONS?

