

Innovative Manufacturing:

What is it?

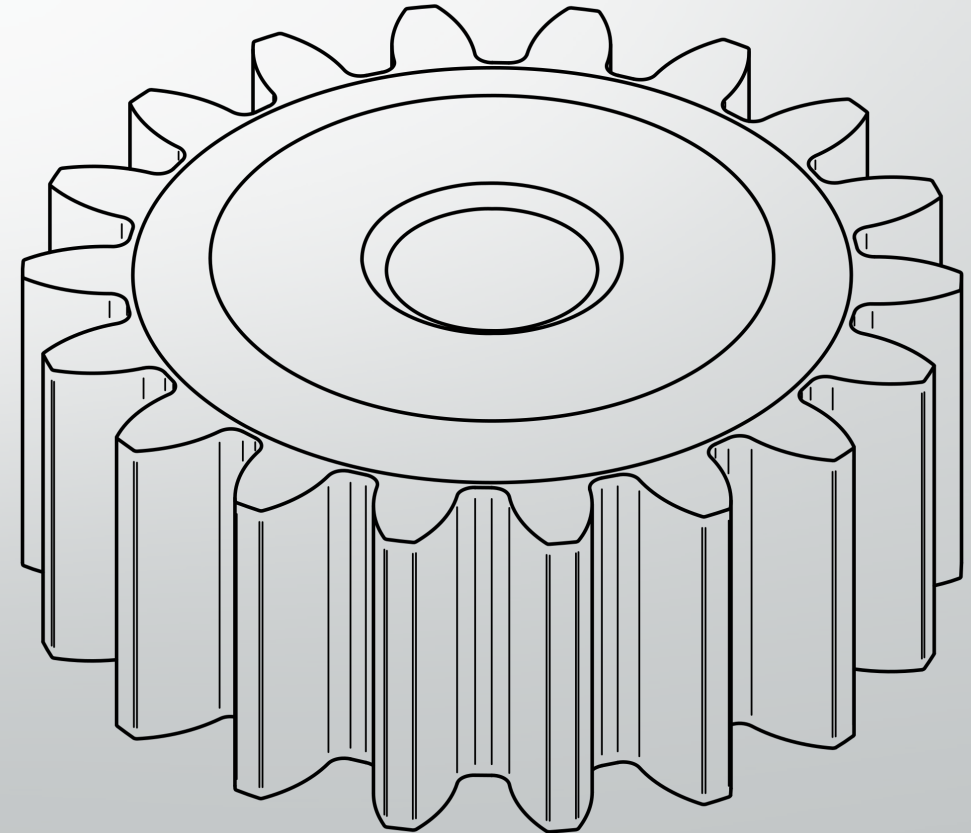
How do we teach it?

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What is Innovative Manufacturing?

- Adaptation, evolution, and improvement of a product or process
 - Relentless adaptation – Amber Mac
- Innovation is not invention
- Innovation is best done in small increments
 - Large leaps, Small steps.
- Innovation is everywhere
- Innovation is not usually an accident

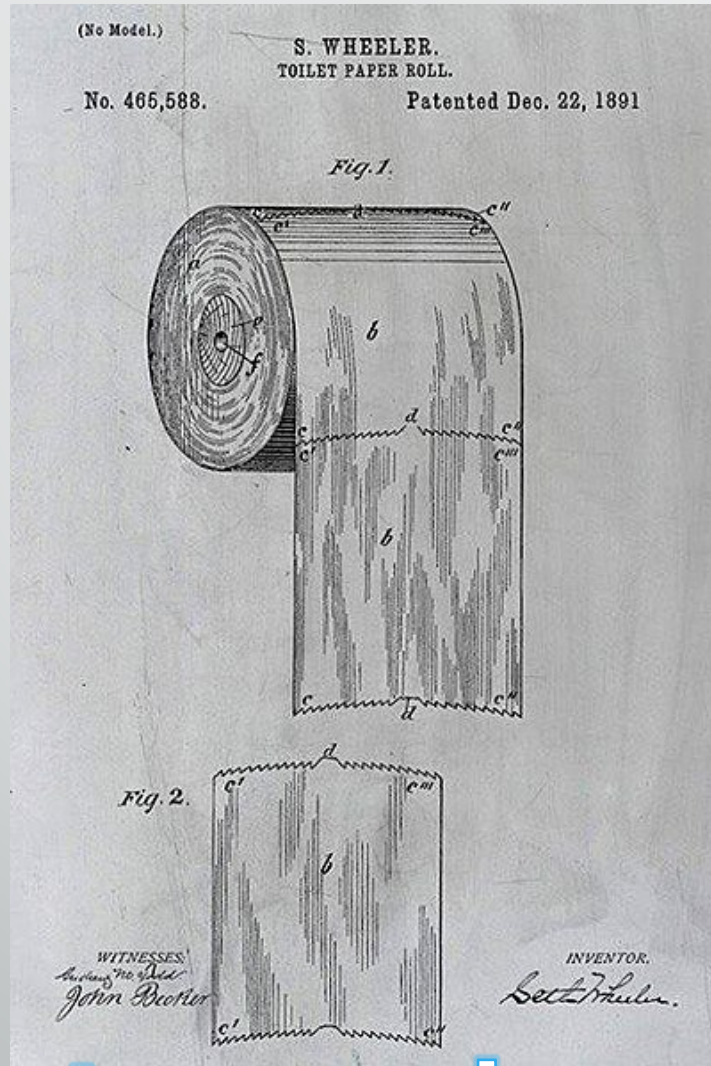


**Adaptation, Evolution,
and Improvement of a
product or process**

**“Relentless adaptation” –
Amber Mac**



Innovation is not invention



Invention



Innovation



Innovation is best done in
small increments.

Large leaps, Small steps.

Innovation is everywhere

- There's very little room for invention.
- Innovation is an ageing term already
 - Harmonization
 - Proactive
- Aggressive adaptation
 - The concept that there must be "loss" in order to advance.



Innovation
is not
usually an
accident.



The persons that will create innovation are those that understand the process and product.



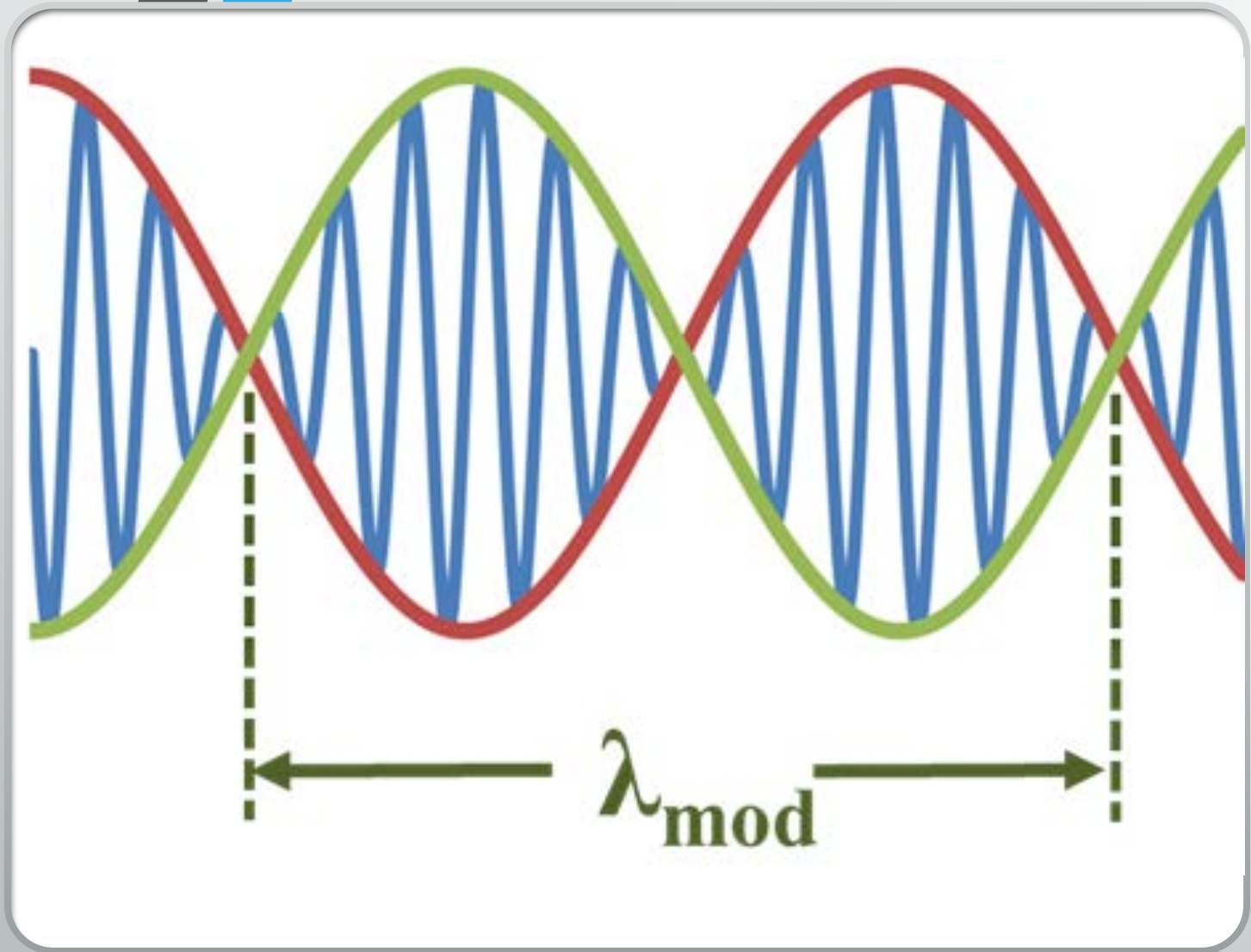
The more one understands the whole cycle of process/product, the easier it is to find innovations.



Broad skills, hands on interaction, and transparency will push creativity.



Collaborations between content experts.



Technology

Technology - Sorry, this one will hurt.

- Not understanding or using technology is 100% your fault.
 - Don't blame PD, management, "the system" for your inability to progress.
 - You force yourself to learn on your own time, if you want it.
 - Be responsible for your own success.
- Learning is a lifelong journey
- What we expect from our students must be modeled by us.
 - They are a direct reflection of what we are.





**Look at your own life. Fridge.
Living room. Etc..**

Not everyone is cut out for it.
That's ok.

But team up with someone who
is.

Ego is the death of innovation.



**LEAN, 5S - systemic trends –
and it will never “end”**

They all work. If you want it to.

Failure is due to buy in, not
system.

**Its
everywhere!!**



Learning outcomes.

Find what you are going to teach.

Copy and paste

Adapt evolve and improve

Leave open ended

Expect results

Push the next idea through collaboration



Build it

Make it real

Establish metrics

Collect data

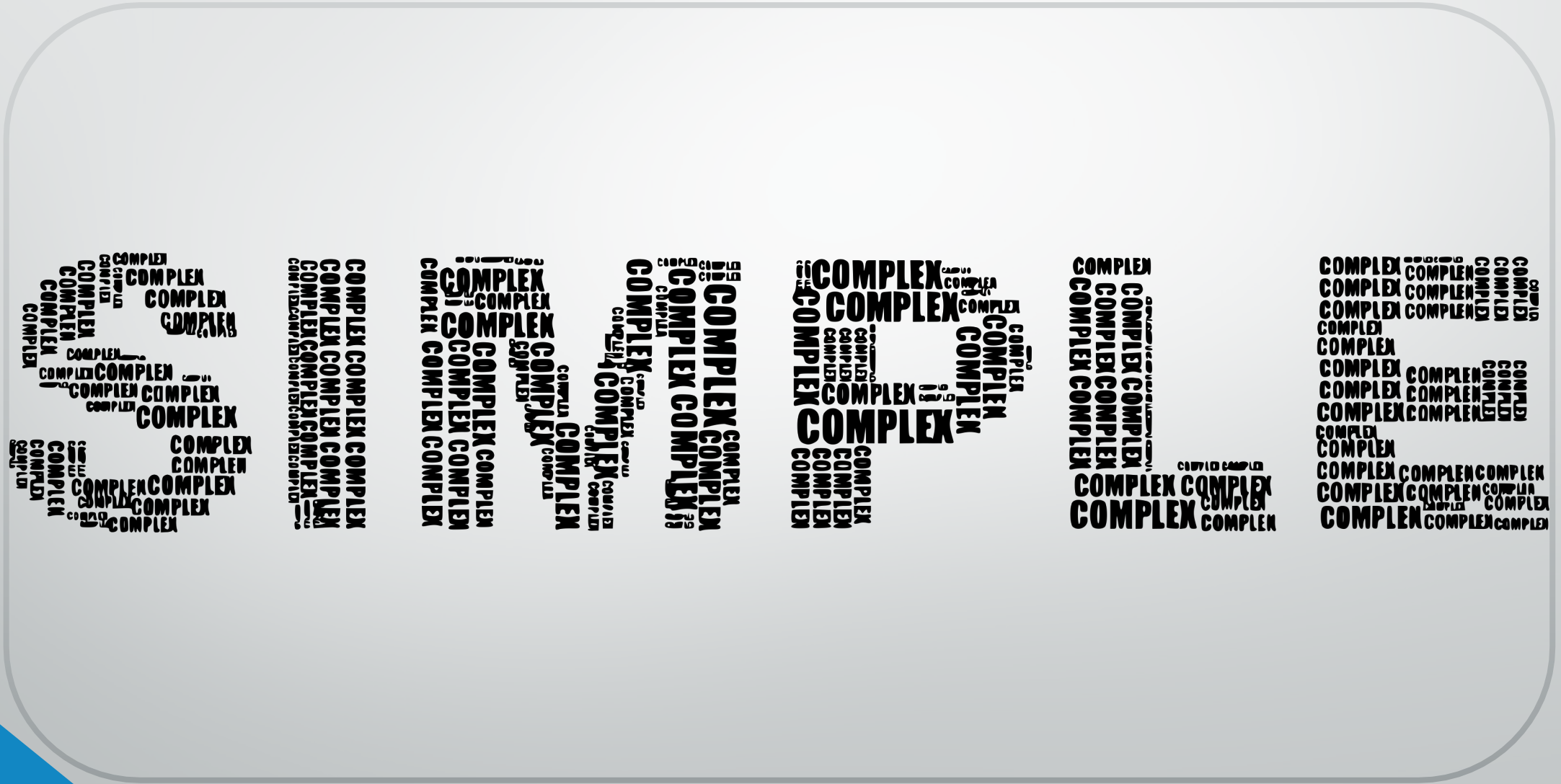
Start the cycle

Expect loss and costs

Where to start?

What to stay away from

- Keep it simple – always
 - Bread maker vs weight clamp



What to teach?



Process vs product

Space management
Faster is always better
Metrics reallocation
Data collection



There must be interaction with all levels of production.



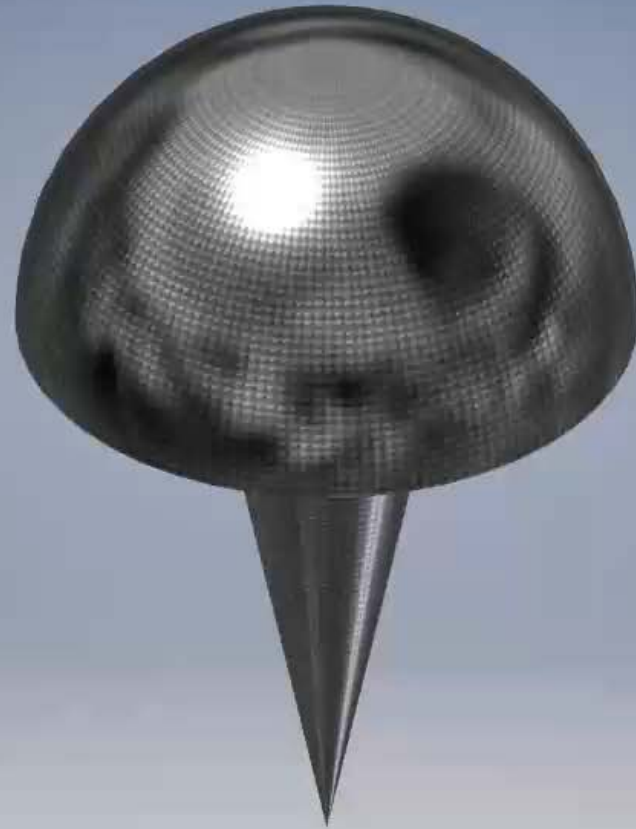
Cannot happen in isolation

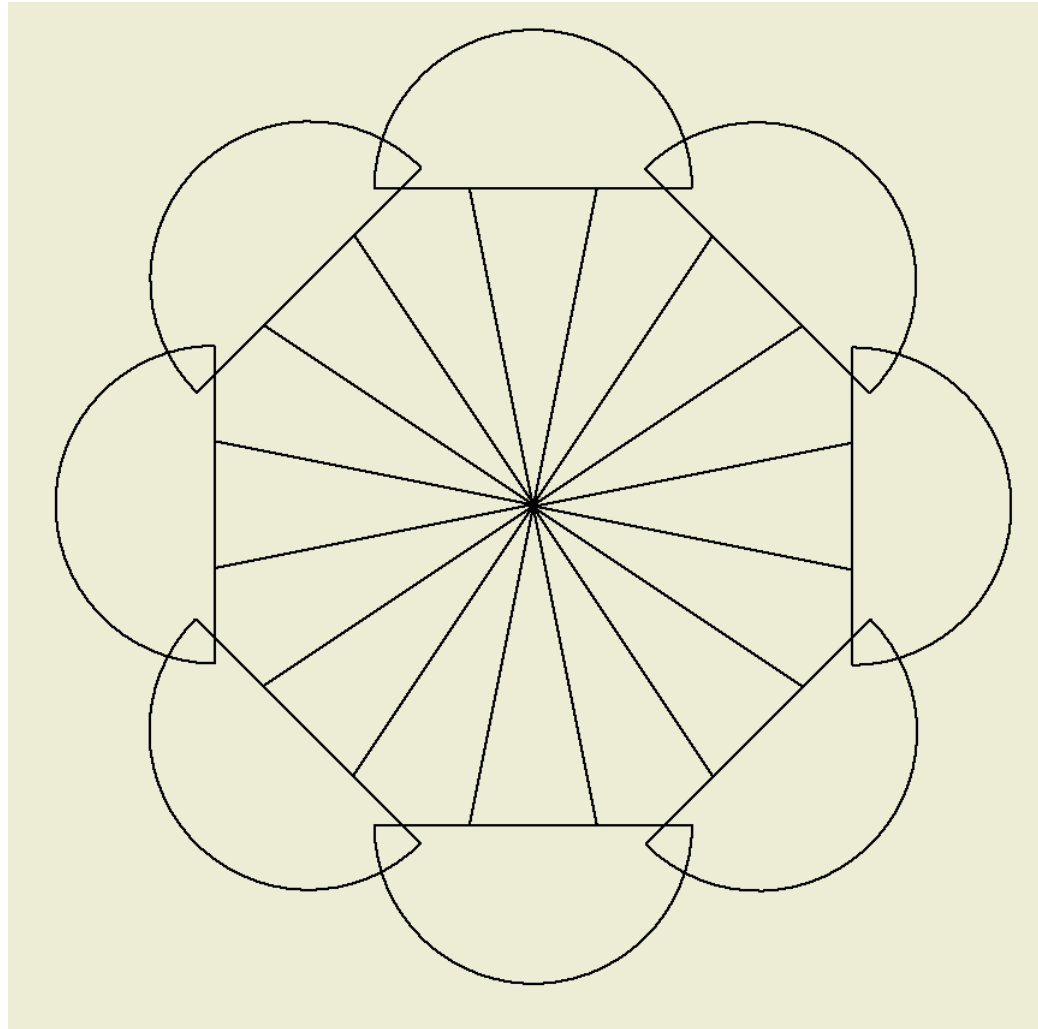


T-shaped learning.

Broad base of knowledge
Specializing in one area
Teams

T-Shaped Learning





Conclusion

- Innovation is a culture change.
- It isn't a task, but a way of approaching any existing process or product.
- We need to include education when we think of innovation.

Questions?



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