H. Rozenfeld

Technology and Innovation Management
Design thinking - Introduction
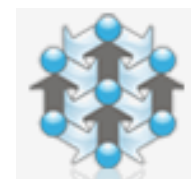
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Production Engineering Department

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Integrated Engineering Group

Goals of the lecture

To explore basic knowledge and capabilities on TIM

To present approaches, tools, methods and concepts useful for TIM

TIM: integrated Technology and Innovation Management

Lecture Content

Theory
- Basic definitions
- Innovation management
- Technology management

Hands-on activities
- Roadmapping
- Design thinking (value proposition)
- Portfolio management
- Business Model Innovation

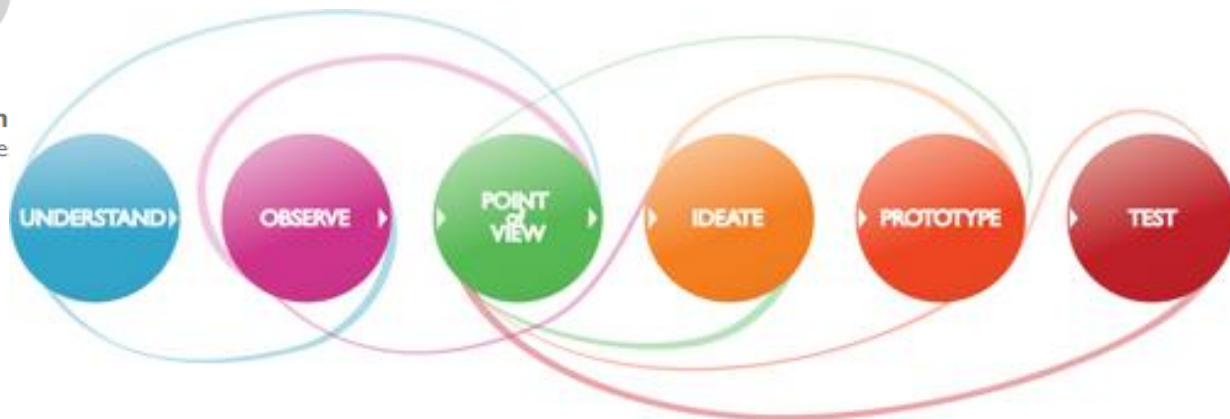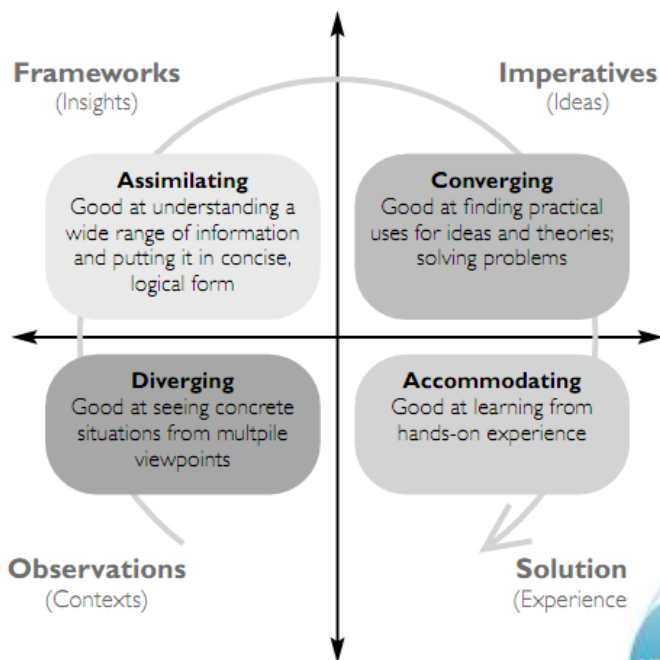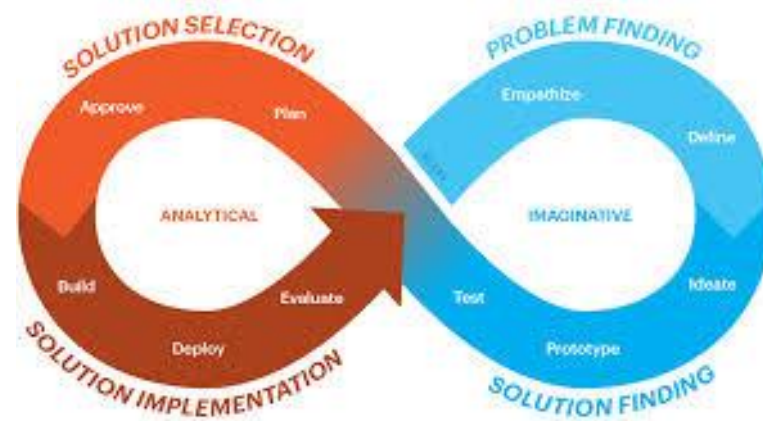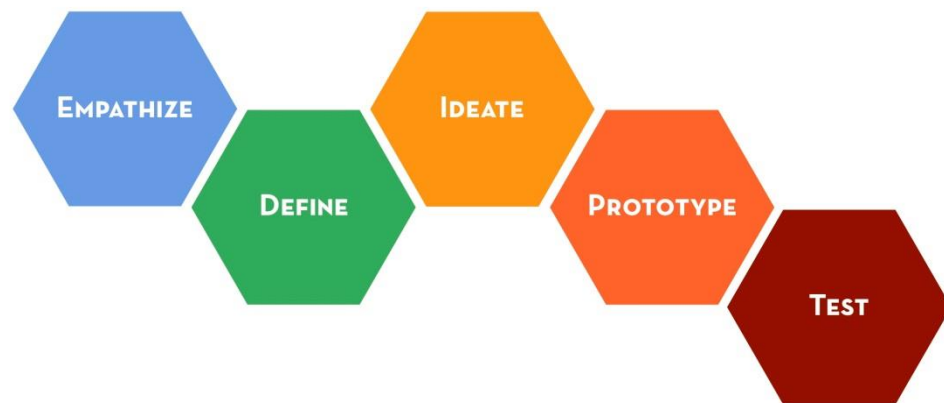Integrated technology and innovation management (TIM)

Objective of this presentation
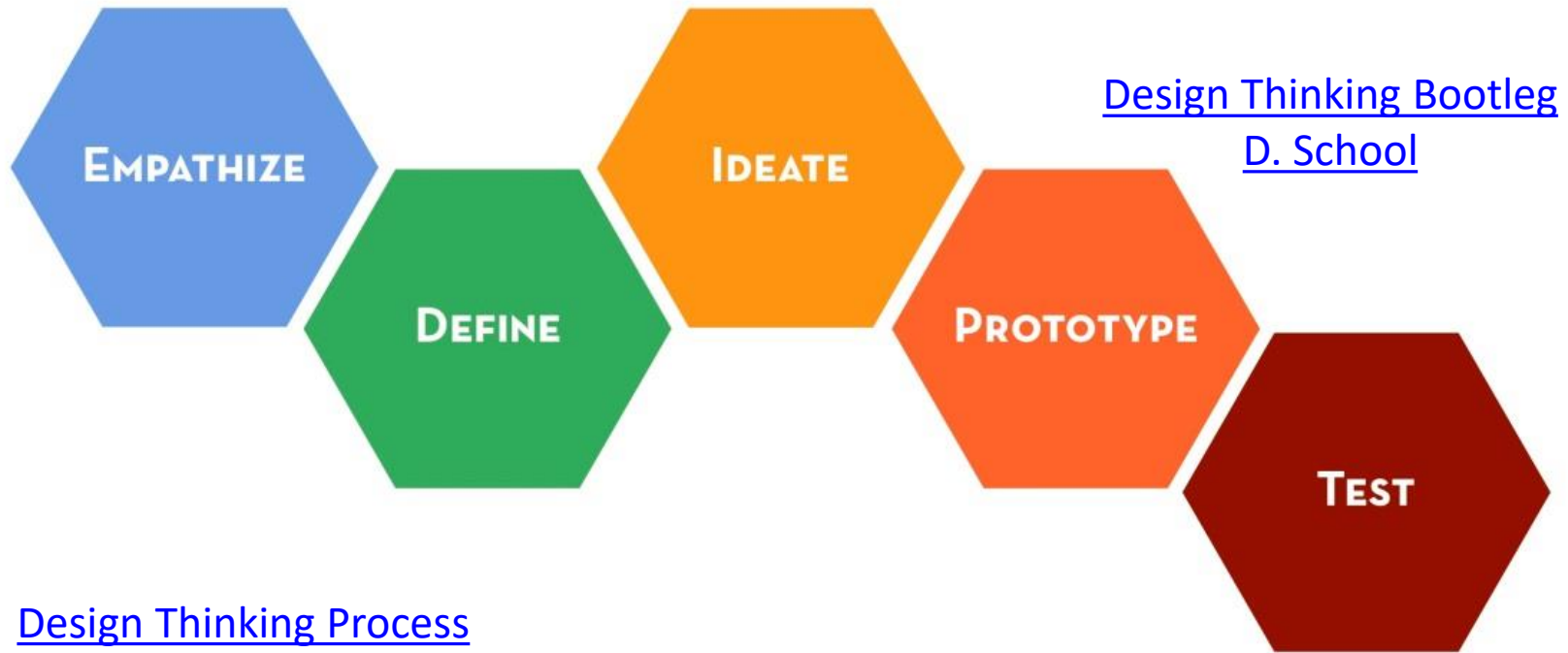
- To introduce the basic concepts about design thinking

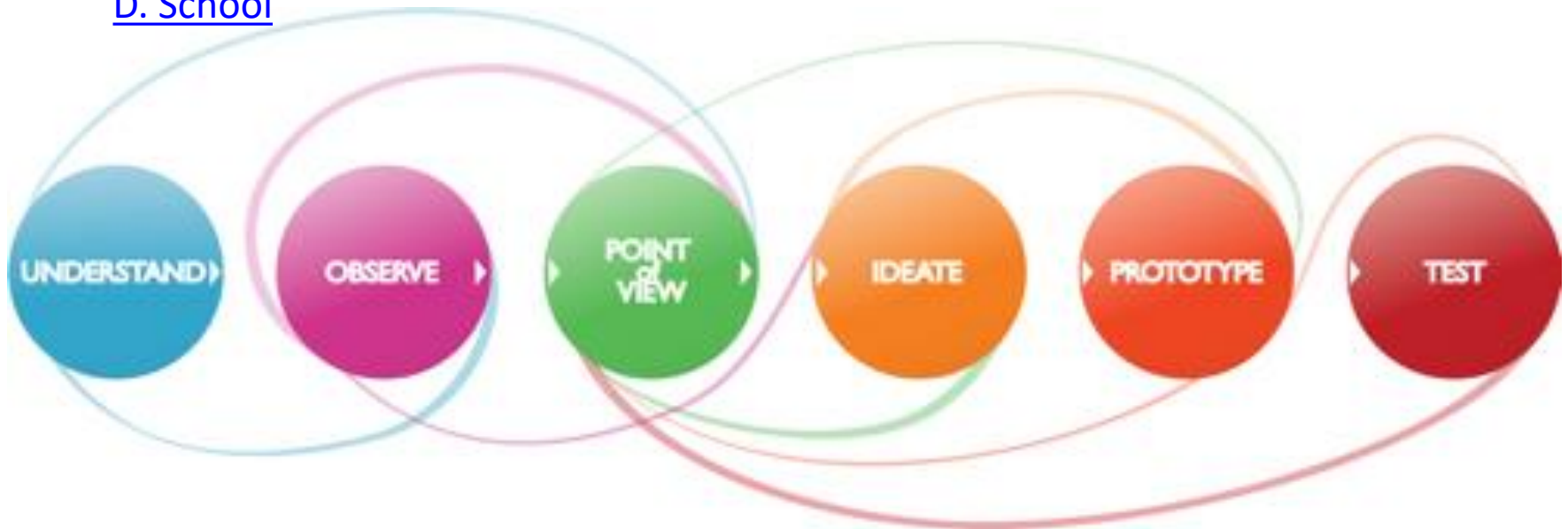Design thinking process frameworks

Hexagonal process:
EMPATHIZE · DEFINE · IDEATE · PROTOTYPE · TEST

Infinity loop:
SOLUTION SELECTION · PROBLEM FINDING
ANALYTICAL — Approve, Plan, Build, Evaluate, Deploy
IMAGINATIVE — Empathize, Define, Ideate, Prototype, Test
SOLUTION IMPLEMENTATION · SOLUTION FINDING

Learning styles matrix:

Frameworks (Insights) — Imperatives (Ideas)

Assimilating — Good at understanding a wide range of information and putting it in concise, logical form

Converging — Good at finding practical uses for ideas and theories; solving problems

Diverging — Good at seeing concrete situations from multpile viewpoints

Accommodating — Good at learning from hands-on experience

Observations (Contexts) — Solution (Experience)

Numbered steps:
1 DISCOVERY · 2 INTERPRETATION · 3 IDEATION · 4 EXPERIMENTATION · 5 EVOLUTION

Circular process:
UNDERSTAND · OBSERVE · POINT OF VIEW · IDEATE · PROTOTYPE · TEST

EMPATHIZE DEFINE IDEATE PROTOTYPE TEST

Design Thinking Bootleg
D. School

Design Thinking Process
D. School

UNDERSTAND OBSERVE POINT OF VIEW IDEATE PROTOTYPE TEST

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UNDERSTAND ▶ ◀ OBSERVE ▶ ◀ POINT OF VIEW ▶ ◀ IDEATE ▶ ◀ PROTOTYPE ▶ ◀ TEST
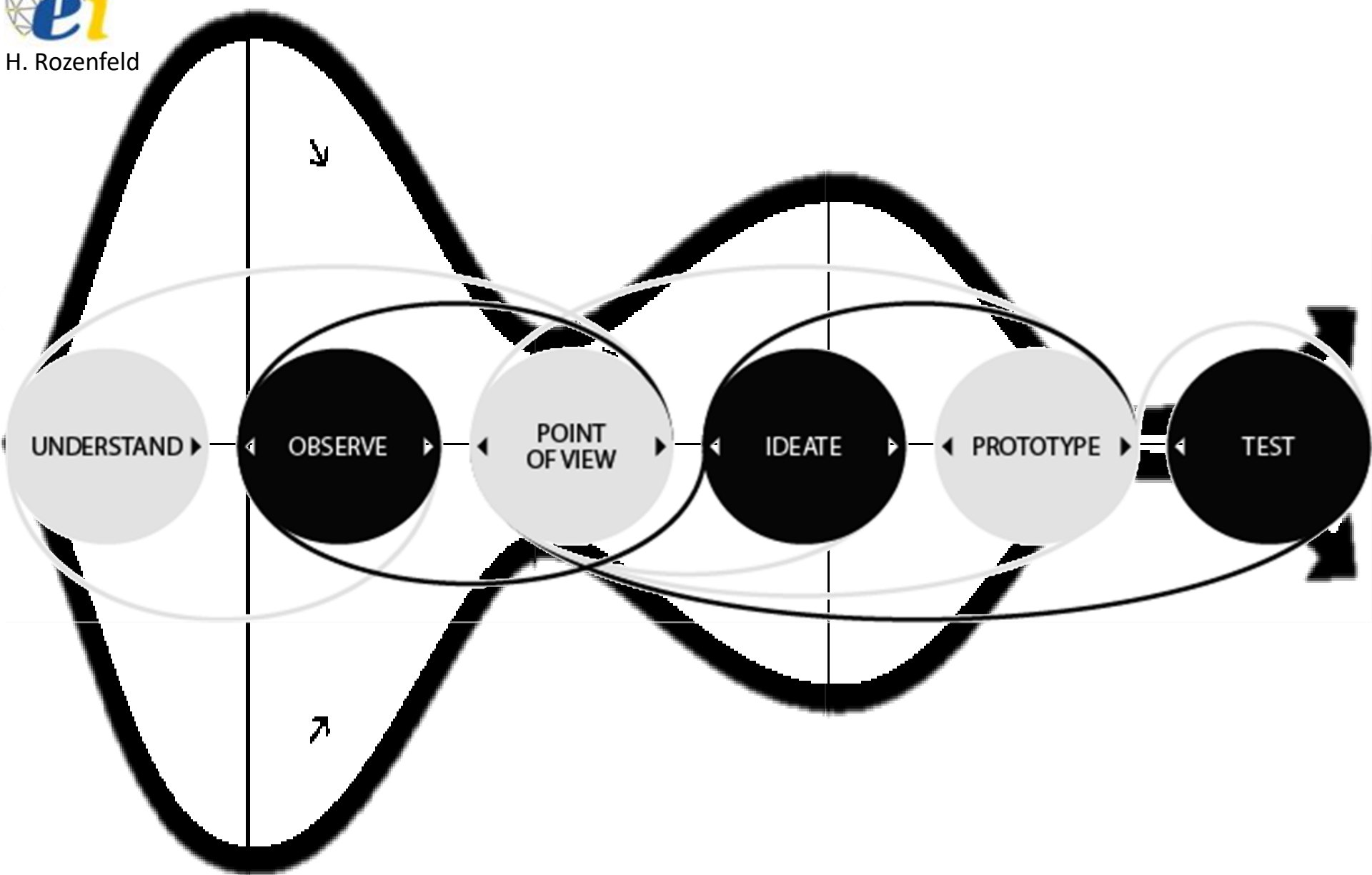
DESIGN THINKING MINDSET

SHOW DON'T TELL

Communicate your vision in an impactful and meaningful way by creating experiences, using illustrative visuals, and telling good stories.

CRAFT CLARITY

Produce a coherent vision out of messy problems. Frame it in a way to inspire others and to fuel ideation.

FOCUS ON HUMAN VALUES

Empathy for the people you are designing for and feedback from these users is fundamental to good design.

Source: d.school bootcamp bootleg

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EMBRACE EXPERIMENTATION

Prototyping is not simply a way to validate your idea; it is an integral part of your innovation process. We build to think and learn.

BE MINDFUL OF PROCESS

Know where you are in the design process, what methods to use in that stage, and what your goals are.

Source: d.school bootcamp bootleg

BIAS TOWARD ACTION

Design thinking is a misnomer; it is more about doing that thinking. Bias toward doing and making over thinking and meeting.

RADICAL COLLABORATION

Bring together innovators with varied backgrounds and viewpoints. Enable breakthrough insights and solutions to emerge from the diversity.

Source: d.school bootcamp bootleg

Pirate Island