











Effective collaboration in research Patrycja Radek





Agenda

1st day

- Teambuilding
- Research projects
- Leadership in innovation
- Flexibility
- Vision

Work 9 am – 4 pm Coffee break 11 am Lunch 12:30 – 1 pm Coffee break 2:30 pm







TEAM CANVA / 1ST EXCERCISE

TEAM NAME / LOGO	VISION	TEAM VALUES	STRONG COMPETENCIES
TEAM DESCRIPTION	TEAM ROLES	PRINCIPLES AT WORK	LACKING COMPETENCIES



INNOVATION

- ...is the creation of something both novel and useful"
- innovation is about challenging the status quo and introducing new and, one hopes, better products, processes, services or management approaches
- innovation requires curiosity, experimentation and openness to change



THE SPECIFIC ASPECTS OF THE INNOVATION BASED PROJECTS

- innovation needs breaking the rules
- it is always a risky process: complex, complicated and full of challenges as well as contradictions

• Ii means that managing innovation processes is special mission

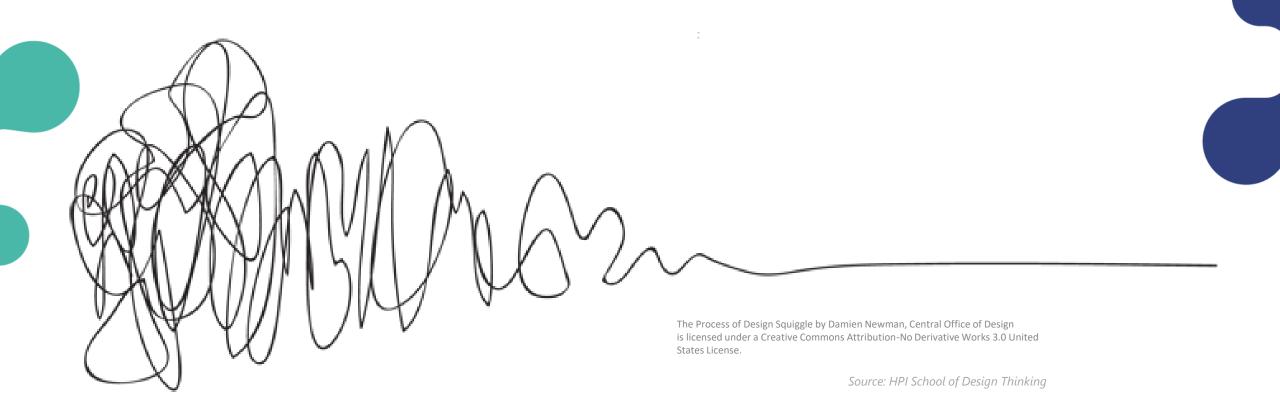
for the leader

WHY INNOVATION IS SO DIFFICULT?

- finding solutions that are new and useful is not easy
- the is messy and full of the tensions
- It's very risky and turbulent
- tasks are nonroutine
- it's challenging to predict the achievments
- complex tasks, requiring deep up to date knowledge, technical skills in multiple areas and scientific facility (devices, gases, reagents...)



FROM THE CHAOS TO THE SOLUTION





LEADERSHIP & STRATEGY

- Leaders must combine multidisciplinary knowledge with strong social skills
- Managing people and projects requires communication, empathy, and strategic thinking
- Visionary leadership
- Strategic alignment
- Decision-making
- Innovation management
- Goal-setting & KPIs (SMART)
- Change management

TEAM DYNAMICS & COLLABORATION

- Modern science is a team effort, not a solo journey
- Talents with different skills and experience
- Success relies on multidisciplinary collaboration and shared goals
- International cooperation
- Cultural differences
- Knowledge-sharing
- Effective communication
- Conflict resolution
- Trust & psychological safety & strong relationships



PERFORMANCE & PRODUCTIVITY

- Project management in R&D
- Involves idea generation, critical evaluation, and implementation
- Metrics for success
- Public funds
- Administrative support for the project
- Talent development
- High-performing teams
- Continuous learning & upskilling
- Projects need substantial funding, infrastructure, and time



DIVERSITY & INCLUSION

- Inclusive leadership
- Equity in innovation
- Gender balance in STEM
- Role models
- Matchmaking and networking
- Understanding challenges and differences
- Strategy and principles

RESEARCH & BUSINESS SYNERGY

- Bridging academia and industry
- Strategy
- Commercialization of research
- Technology transfer
- Solution teams
- IP management
- Funding & investment strategiess
- Aims to deliver applicable and impactful results







PARADOXAL REALITY OF INNOVATION

"innovation leadership is about bringing the gap between:

dreams and reality, past and future, certainity and risk,

concrete and abstract, us ("we love innovation") and them ("they don't want to change at all") and success and failure.

And all of these dualities are present at the same time."







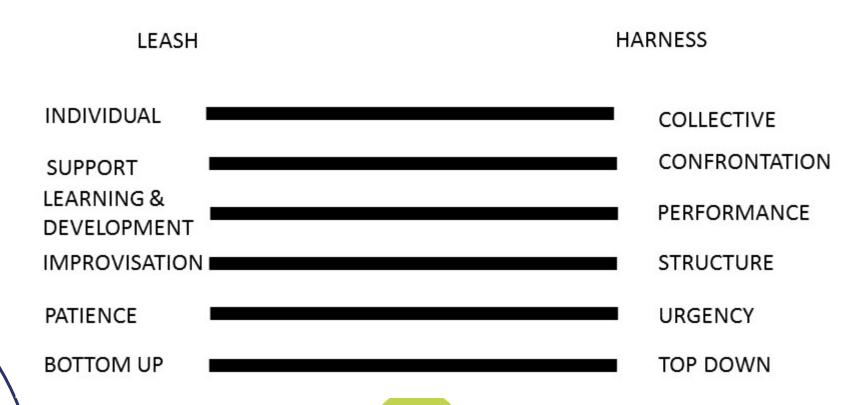
Buijs J., 2007







TYPICAL PARADOXES IN THE INNOVATION REALITY



to adapt behaviors according to the situation at hand

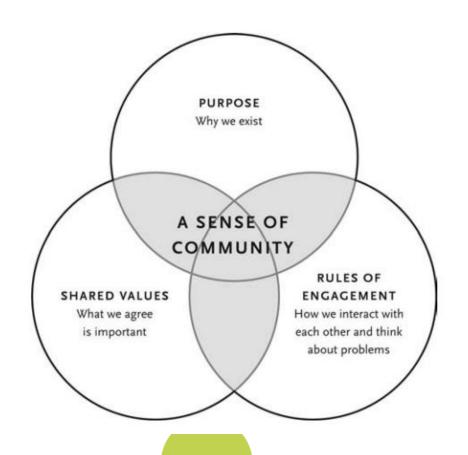
BUILD A SPACE FOR INNOVATION

 Create an environment where people are ready to work hard on innovation despite stress and paradoxes

 Foster a sense of shared purpose, where individuals feel meaning in what they do



BUILD A SPACE FOR INNOVATION









GROW A STRONG INNOVATION COMMUNITY

Establish common values and engagement principles:

- Vision, goals, and shared values
- Organizational culture, rituals, and team meetings
- Open knowledge sharing and transparent communication
- Trust, psychological safety, and "OK2fail" mindset
- Empathy, feedback, co-ownership, and shared power





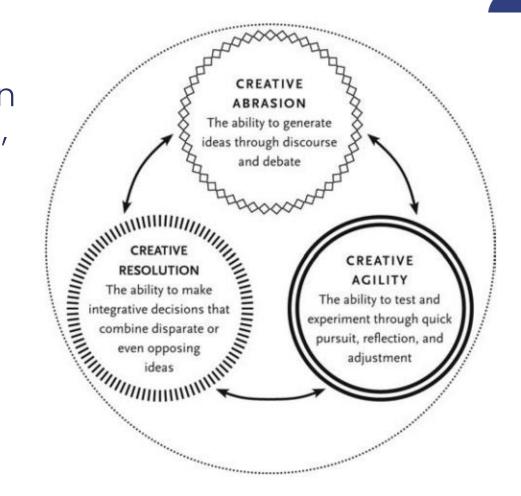
ENABLING INNOVATION THROUGH ORGANIZATIONAL

CAPABILITIES

To foster innovation, build an organization where people can engage in meaningful, challenging work.

This requires developing three key organizational capabilities:

- Creative Abrasion
- Creative Agility
- Creative Resolution





COLLECTIVE GENIUS

"leaders create the environment that somehow draws out the slice of genius in each individual and then leverages and melds those

many slices into a single work of innovation

- a new product, a new process,

a new strategy, a new film

- that represents collective genius"

(Hill L.A., Brandeau G., Truelove E., Lineback K., 2014).



EXERCISE

Who is a leader

 What is the difference between a leader and a manager?

 What is the difference between leadership and power authority?

A LEADER

 A leader is a person who can influence the behavior of others, regardless of formal authority.

 Leadership is based on the ability to perceive and implement common goals, extract employees' potential, develop their talents, accumulate knowledge, and use the group's competencies to achieve the set goals.

Leadership is an action, not a title

(Chrostowski et al., 2013).



LEADERSHIP IN THE R&D

- operates through reserach projects
- a social process of interaction between the supervisor and employees
- the leader develops and leads the team in a complex environment that requires specific management
- · the leadership focused on the development of innovation









MANAGER VS LEADER

Project Managers	Project Leaders	
focus on systems	focus on people	
appointed by their superiors	chosen by their team members	
administer	innovate	
focus on conforming and maintaining	focus on challenging and developing	
short-term perspective	long-term perspective	
like consistency and accept the status quo	flexible and challenge the status quo	
are risk averse	are risk opportunists	







MANAGER VS LEADER

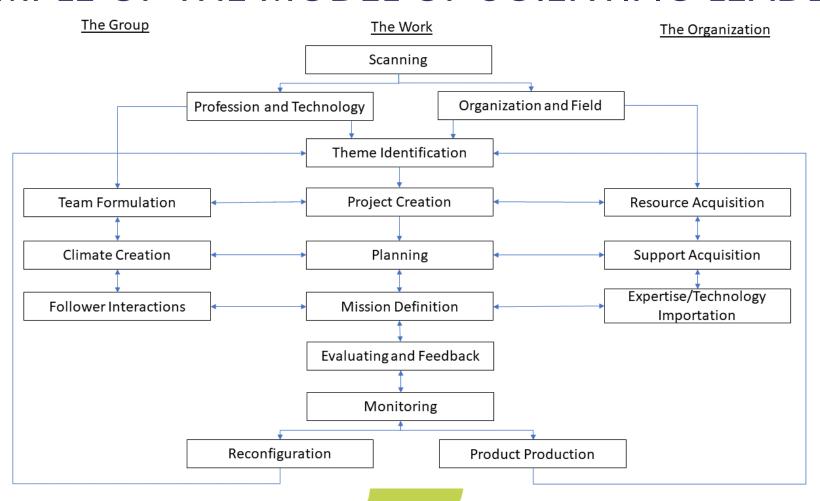
Project Managers	Project Leaders	
focus on planning, budgeting and the bottom line	create a vision of the future with an eye on the horizon	
develop communication systems	develop interpersonal lines of communication	
focus on organization structures	focus on people	
focus on the problem-solving processes	aim to inspire and motivate	
focus on targets and milestones	focus on creating change	
want to control their project	are passionate about their project	
focus internally on the project	focus externally on the other research groups, client, the competition, the market and new technology	







AN EXAMPLE OF THE MODEL OF SCIENTIFIC LEADERSHIP



EXERCISE

- WHAT ARE THE DIFFERENT ROLES OF A SCIENTIFIC TEAM LEADER?
- WHAT DIFFICULTIES AND CHALLENGES DO THESE ROLES INVOLVE?
- FROM YOUR POINT OF VIEW, WHAT ARE THE MOST AND THE LEAST DIFFICULT THINGS?







AN EXAMPLE OF THE MODEL OF SCIENTIFIC LEADERSHIP

- Effective leaders must develop influence in three core domains:
 The Group The Work The Organization
- Understand the research and innovation landscape
- Forecast trends and identify research gaps through environmental scanning
- Adapt to the dynamic nature of team composition across project stages
- Foster a positive team climate and support healthy team interactions
- Ensure organizational support, integration of project work, and mission clarity
- Seek external validation, provide meaningful feedback, and monitor performance

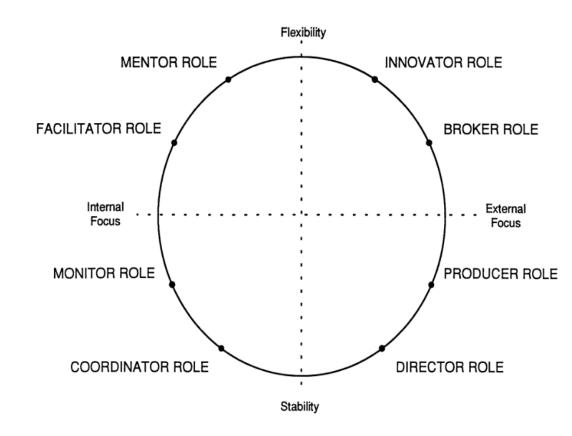






QUINN'S MODEL OF LEADERSHIP ROLES

Model of opposing roles and creating mutual tensions between the roles, which consists of two orthogonal value dimensions: control – flexibility and internal – external focus.







EXERCISE

• THINK ABOUT IT AND WRITE DOWN WHAT THE LEADER DOES IN EACH OF THE ROLES?





THE MENTOR

- Understands individual goals and career paths of researchers
- Practices active listening and fairness
- Supports justified requests (e.g. training, time, resources)
- Facilitates personal and professional growth within the team





THE INNOVATOR

- Brings creativity into scientific and project design
- Anticipates emerging trends and future research directions
- Encourages change and experimentation in research approaches
- Helps navigate uncertainty with curiosity and openness





BROKER ROLE

- Politically savvy and externally oriented
- Secures funding, partnerships, and access to infrastructure
- Maintains the team's visibility and legitimacy in the research ecosystem
- Builds and sustains strategic networks across disciplines and institutions





THE PRODUCER

- Task- and results-oriented
- Drives the team towards delivering project outcomes (e.g., publications, reports, prototypes)
- Motivates high-performance behavior and ensures accountability
- Keeps focus on research deliverables and timelines









THE DIRECTOR ROLE

- Defines shared vision, goals, and expectations
- Clarifies individual roles and aligns them with the team mission
- Sets priorities and helps navigate conflicting demands
- Provides strategic direction in complex research settings









THE COORDINATOR ROLE

- Ensures operational stability of the team
- Plans and coordinates workstreams across disciplines
- Resolves bottlenecks and fosters adherence to ethical, institutional, and project standards
- Maintains clarity of process and responsibilities



THE MONITOR ROLE

- Collects and shares information about progress and performance
- Ensures quality control and evaluation of research activities
- Provides continuity and long-term perspective
- Maintains a learning-oriented environment





THE FACILITATOR ROLE

- Encourages open dialogue and active participation
- Promotes inclusive decision-making and shared ownership
- Mediates conflicts and facilitates compromise when needed
- Builds a psychologically safe and collaborative team environment



FLEXIBILITY

- Cognitive flexibility means being prepared to deal effectively with a situation that requires a change of plan, such as an unfavorable test result, a changing technology or a new opportunity.
- Behavioral flexibility is changing behavior to adapt to a specific situation.
- Thus, flexibility also means being able to adapt to conditions and expectations that are constantly changing (Blanchard et al., 2018)





VISION

Vision is a statement of the desired future state of something

(Rice et al., 1998)

Team vision refers the extent to which the team has a **stable**, **shared**, **clear vision or set of purposes**

(Gibbon et al., 2002)



ATRIBUTES OF VISION

- clear (transparent) to all members of the organization and participants in the project
- supported by others in the organization
- stable to ensure predictable working and development conditions







EXERCISE

• HOW CAN THE BULB BE IMPROVED?





Agenda

2nd day

- Ambidexterity
- Principles
- Feedback
- Onboarding
- Meetings
- Ideation, co-creation

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WHAT HAS SURPRISED YOU LATELY?



Exercise

- The example of what I did not succeed in during my academic work...
- What have I learned from this story?







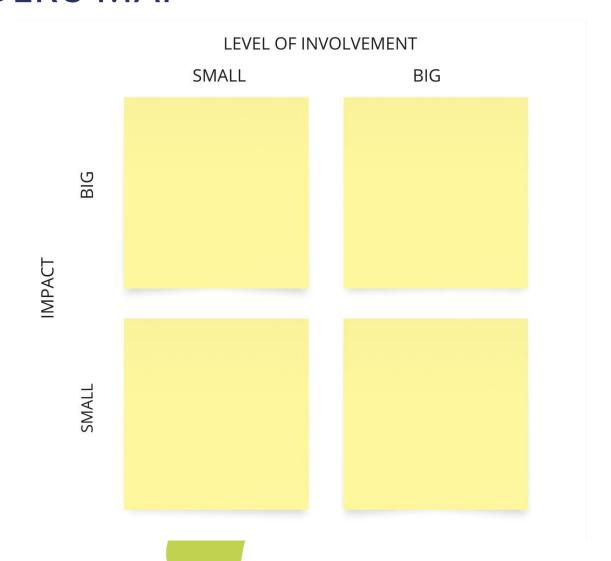


EXERCISE: THE POWER OF EXPRESSION OF PERSONAL VISION

The Proposed Template of 60 sec pitch

- 1. My name is _____
- 2. What I believe is ____
- 3. My professional vision is to _____
- 4. So far, I have accomplished the following: _____
- 5. In the future, I hope to _____
- 6. My biggest challenge is _____
- 7. I'm looking for _____

STAKEHOLDERS MAP



CLEAR VISION

- understandable
- ambitious
- set in the future
- long-term
- not too wide not too narrow
- contains a piece of a dream
- talks about positive impact
- relates to real needs
- communicated with main target groups in mind
 (employees, organization, external environment competitors, partners, financing institutions, supervisory authorities)





VISION WHY?

- WHERE ARE WE GOING MOVING FORWARD?
- WHAT DO WE WANT TO ACHIEVE IN THE FUTURE?
- WHAT KIND OF FUTURE SOCIETY DO WE ENVISION?



MISSION WHAT? HOW?

- WHAT DO WE DO TODAY?
- WHAT DO WE SERVE?
- WHAT ARE WE TRYING TO ACOMPLISH?
- WHAT IMPACT DO WE WANT TO ACHIEVE?





CODE OF PRINCIPLES

RULES FOR WORKING IN "OUR" (INSERT NAME HERE) PROJECT TEAM We adhere to the established rules and, if necessary, refer to them to shape a good working climate in the project.

The following rules apply to our work in the We can modify and develop this together to support our successful teamwork, in which everyone feels comfortable.

We follow the established rules and, if necessary, refer to them to foster a good working climate.

As part of the standing rules that serve our good cooperation, we accept that:

- 1. How do we communicate? (channels, frequency) 2.
- 2. How do we make decisions
- 3. How do we get into conflicts, and how do we solve them?
- 4. What values are crucial to us?





CORE PRINCIPLES FOR MEETINGS

Template Agenda (60')*

Welcome & Objectives (5')

Quick Updates (15') – Key progress from each member

Discussion Topic 1 (15')

Discussion Topic 2 (15')

Wrap-Up & Action Points (10')

*prepared in advance, on-line – common file

Meeting Roles*

Facilitator – Guides the meeting, manages time, and ensures participation

Timekeeper – Keeps track of the agenda timeline Note-taker – Documents key decisions and action points

*rotating roles

Purpose of the Meeting

Before you meet, always clarify:

- What is the purpose of the meeting?
- What decisions need to be made or what progress needs to be shared?
- Who needs to be involved?

Meeting Minutes Checklist

After the meeting, share a summary in a shared online file if possible:

- decisions made
- action items with deadlines and responsible persons
- follow-up items for the next meeting
- optional links to documents

CORE PRINCIPLES FOR MEETINGS

- Agree on the basic rules for meetings in the group,
 e.g. time and duration
- Clarity of purpose
- Show respect for time: start and end on time
- Organize regular meetings, scheduled in advance
- Stay focused on the agenda
- Inclusive participation make sure all voices are heard
- Keep the discussion on track and summarize key points
- End every meeting with clear action points: who

does what by when

- Psychological Safety foster an environment where people can ask questions, share ideas, or express concerns.
- Q&A session
- Continuous Improvement: use regular retrospectives or feedback rounds to improve the meeting process. Ask: what should we start, stop, and continue doing
- personal matters require 1:1 meetings
- Be flexible if it's needed

KINDS OF MEETINGS

- check-ins (short 15-minute operational meetings)
- status meetings (weekly or every two weeks)
- retrospectives (monthly or at the end of a phase)
- brainstorming / planning / celebrating successes
- 1:1 with the leader

How to co-create shared team values that reflect how we want to work together, collaborate, and grow as a research team.

1) Individual work

- What values guide me in my research?
- What behaviors do I appreciate in colleagues?
- What kind of environment helps me thrive?

2) Group work

Share personal values and look for overlaps.

• The group agrees on a shortlist of 5–7 **shared values** they believe are essential for the team.

- 3) Open discussion
- What resonates most?
- Are there any tensions or missing elements?
- 4) Agree on a final list (5-7 core values).
- 5) Co-create short definitions for each value.



RELATIONS & COOPERATION

Trust

Respect

Empathy

Openness

Collaboration

Team spirit

Supportiveness

Kindness

Inclusion

Belonging

Psychological safety

Appreciation

Constructive feedback

Listening

WORK AND PROFESSIONALISM

Integrity

Accountability

Responsibility

Excellence

Reliability

Transparency

Commitment

Discipline

Consistency

Accuracy

Precision

Fairness

Ethics

RESEARCH & SCIENCE

Curiosity

Scientific rigor

Evidence-based thinking

Critical thinking

Innovation

Creativity

Open science

Objectivity

Reflection

Peer learning

Reproducibility

Interdisciplinarity

Methodological freedom

DEVELOPMENT & LEARNING

Growth

Learning

Development

Mentorship

Humility

Adaptability

Exploration

Openness to change

Self-awareness

Courage

Experimentation

Resilience

Patience

ENGAGEMENT

Impact

Relevance

Responsibility to society

Stewardship

Sustainability

Public engagement

Justice

Equity

Advocacy

Global mindset

Contribution

Legacy

COMMUNICATION

Clarity

Dialogue

Constructiveness

Authenticity

Honesty

Diplomacy

Emotional intelligence

Openness to feedback







USEFUL TOOLS



AMBIDEXTERITY

- Literally, the term means the ability to use both hands efficiently
- **Exploration** is associated with exploration, variability, risk-taking, flexibility, discovery and experimentation.
- Exploitation focuses on goal achievement, efficiency and the avoidance of risks and errors and requires increased control of performance and convergent thinking to make proper use of the opportunities already available
- Ambidexterity is the ability to both use and improve existing knowledge (exploitation), while simultaneously creating new knowledge (exploration).

AMBIDEXTERITY

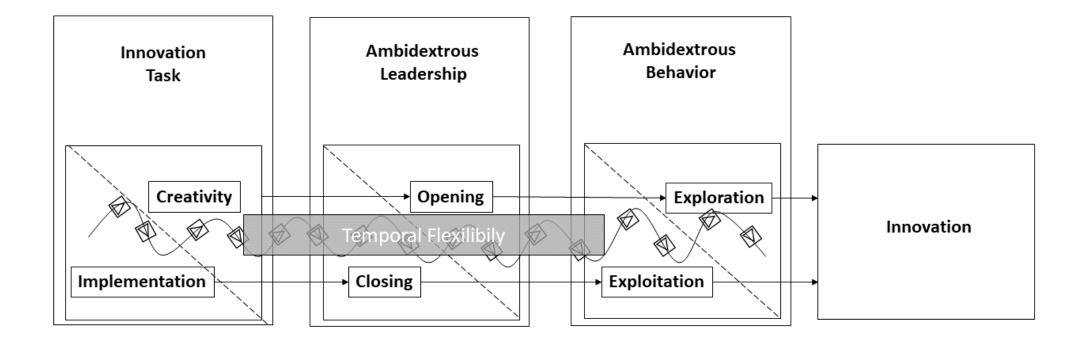
- In innovation processes, it is difficult to predict more than a few next steps.
- This means that the requirements for exploration and exploitation change, often as part of the innovation development process.
- This is why it is so essential to move skillfully between the two or even to flexibly switch between these opposing modes.







EXPLORATION/EXPLOITATION





AMBIDEXTERITY

Exploitation

- is about efficiency
- increasing productivity
- control
- certainty
- variance reduction

Exploration

- is about search
- discovery
- autonomy
- innovation
- embracing variation









OPENING/CLOSING BEHAVIORS OF THE LEADER

Examples for opening and closing leader behaviors.

Opening leader behaviors

- Allowing different ways of accomplishing a task
- Encouraging experimentation with different ideas
- Motivating to take risks
- Giving possibilities for independent thinking and acting
- Giving room for own ideas
- Allowing errors
- Encouraging error learning

Closing leader behaviors

- Monitoring and controlling goal attainment
- Establishing routines
- Taking corrective action
- Controlling adherence to rules
- Paying attention to uniform task accomplishment
- Sanctioning errors
- Sticking to plans









TRANSACTIONAL/TRANSFORMATIONAL LEADERSHIP STYLE

Transactional vs. Transformational Leadership



Transactional Leaders

occur when followers are moved to complete their roles as agreed with a leader in exchange for a reward.

- Focus on goals
- Use rewards and punishments for motivation
- Are reactive in nature



Transformational Leaders

move followers to awareness about what is important, and away from own self-interests.

- Focus on vision
- Use charisma and enthusiasm for motivation
- Are proactive in nature







TRANSACTIONAL/TRANSFORMATIONAL LEADERSHIP

Categorization of transformational and transactional leadership behaviors as opening and closing leadership behaviors.

	Opening leader behaviors	Closing leader behaviors
Transformational leadership	 A vision that motivates exploratory behavior Stimulation of thoughts in very new directions 	 A vision that motivates confirmatory behavior Stimulation of small improvements and enhancement of efficiency
	• Communication of the values of openness and tolerance	 Communication of the values of conscientiousness and rules adherence
Transactional leadership	 Rewarding experimentation Focus on errors to learn from errors Setting and monitoring exploration goals 	 Rewarding efficiency Focus on errors to avoid errors Setting and monitoring exploitation goals



Kathrin Rosing, Michael Frese, Andreas Bausch, 2011

CREATIVITY

- Individual and team creativity are starting points for innovation development and are essential throughout the innovation development process.
- Creativity is the process of generating new ideas and translating them into action by individuals or groups.
- Individual creativity contributes to group creativity.



CREATIVITY

- It is also referred to as leader creativity.
- It refers to the leader's creative personality, which consists of high self-esteem, a willingness to take risks and high curiosity.
- Leader creativity is also associated with the ability to develop ideas, come up with original solutions, develop creative strategies and introduce innovative solutions into the work environment.







BRAINSTORMING SESSION How do we plan the induction and introduction of a new employee to the team?

1. Brain Dumping

2. Creative Clues

3. In-depth analysis

5'
Individual
"brainstorming" of initial ideas

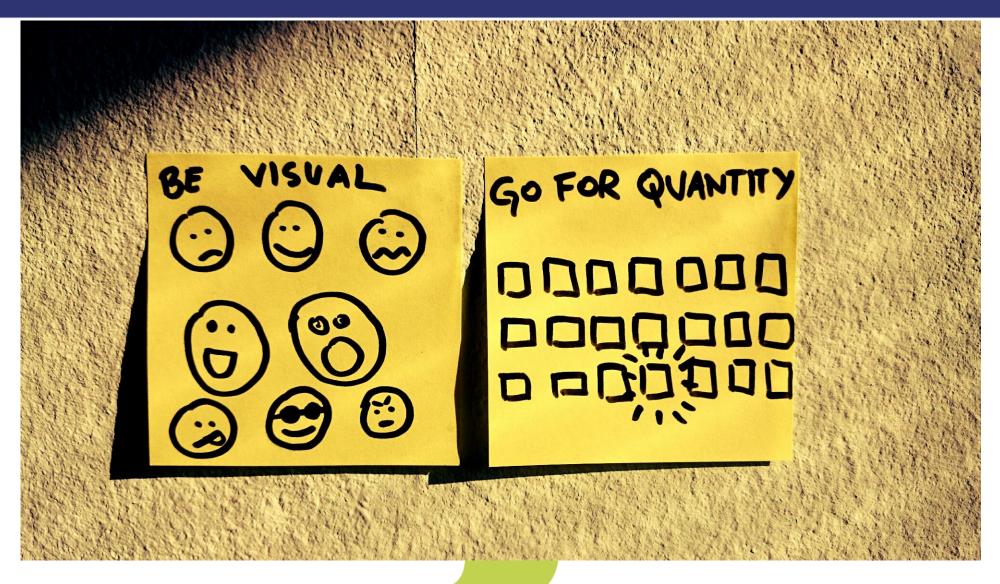
8'
Individual work on new ideas

10' Choose - The most relevant ideas

5' sharing of ideas

10' sharing of ideas

Describe them using the lotus flower technique







KANWA KWIATU LOTOSU

1		2		3	
	1	2	3		
8	8		4	4	
	7	6	5		
7		6		5	







ONBOARDING

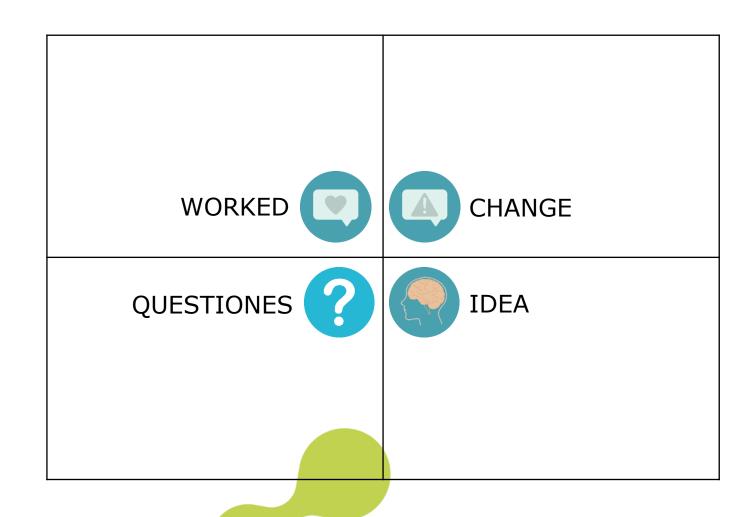
Start	Preparation & setup	 welcome email + onboarding pack set up email, access rights to introduce a buddy or mentor
First days	Welcome & orientation	 team welcome meeting tour (lab/office) present team vision, mission, values, principles set up key tools (shared drive)
2-3 weeks	Getting started	 introduction to ongoing projects review team charter and roles 1:1 with team lead intro to academic procedures (safety, ethics, data, IP)
1 month	Integration	schedule shadowing opportunitiesjoin team meetings, seminars, check-ins
1-2 months	Reflection	feedback session (what's working, what's unclear?)development plan

RETROSPECTION OF A SPRINT?

This is a team meeting after the end of a work cycle (e.g. a project phase, conference, or publication preparation), during which the team analyzes together:

- What went well?
- What was challenging?
- What have we learned?
- What do we want to improve?
- What activities will we implement in the next cycle?

FEEDBACK GRID









I LIKE I WISH WHAT IF



EXERCISE, 5 WHY METHOD

Ask "Why?" five times in a row to uncover the "root cause."

The 5 Whys Method





Root Cause

Interaction Design Foundation interaction-design.org





EXERCISE TOPICS TO 5WHY METHOD

- WHY IS THE KITCHEN SUCH AN IMPORTANT MEETING PLACE?
- WHY IS FOOD THE MOST COMMON TOPIC AMONG EMPLOYEES IN AN ORGANIZATION?
- WHY DO PEOPLE GOSSIP?





EXERCISE - FEEDBACK

- When was the last time I received feedback that I remember?
- How did I feel at the time?
- Is it easy for me to give feedback?
- Why or why not?
- What prevents me from giving feedback?



FEEDBACK

1) SPECIFY **POSITIVES** (I LIKED..., I NOTICED..., I WANT TO HIGHLIGHT THAT..., I APPRECIATE...)

AND

- 2) **NEGATIVES** (WHAT I WANT TO DRAW YOUR ATTENTION TO IS ... I NOTICED THAT, WHAT I LACKED WAS....)
- 3) CONSEQUENCES (THIS IS IMPORTANT BECAUSE ...)
- 4) ALTERNATIVES (IN THE FUTURE, IT IS IMPORTANT TO ME THAT ...)



ACCEPTING THE JOB

- Setting goals
- How do we know when the work is done
- Why it is important, the bigger picture
- Ambitious, but achievable
- Receiving work
- Feeling of influence
- Evaluation based on work results, not working hours



INTERVIEWS WITH TEAM MEMBERS

- •Hypotheses
- Interview questions
- Interview testing
- Conducting interviews
- Interview analysis
- Summary



HOW TO CONDUCT AN INTERVIEW?

- Open questions.
- Questions about how and why?
- Questions about previous experiences.
- Questions about needs, problems, expectations





SOME EXAMPLES OF QUESTIONES DURING ONBORDING INTERVIEW WITH THE LEADER

- 1. Can you tell me a bit about your research background and what excites you most about your field?
- 2. What motivated you to join our team and this particular project or institution?
- 3. What are your short-term and long-term goals, both scientifically and professionally?
- 4. Are there any specific skills or experiences you hope to gain while working with us?
- 5. What working style suits you best when it comes to collaboration and communication within a team?
- 6. How do you prefer to receive feedback on your work?
- 7. Is there anything specific you need to feel well-supported in your research (e.g., equipment, data access, mentoring)?
- 8. Do you feel clear about your initial tasks and how they fit into the bigger picture of the project?
- 9. What does a positive and productive research environment look like for you?
- 10. Is there anything we can do to help you integrate into the team or feel more connected during your first weeks?

TEAM WORK

SOME USEFUL TOOLS

- COLABORATION: MIRO, MURAL
- PROJECT MANAGEMENT: TRELO, ASANA, JIRA, CLICK-UP, NOTION, GITHUB
- LITERATURE: ZOTERO, MENDELEY, READ QUBE
- COLABORATION: SLACK, DISCORD, WHATSAPP, G.DOC'S, DROPBOX
- STATISTIC: JASP, JAMOVI
- SURVEYS: QUALTRICS



Patrycja Radek, PhD

Strategic leader with many years of experience working on innovative projects and developing new business. I am an expert with interdisciplinary knowledge of the innovation ecosystem.

Design thinking consultant, problem solver and mentor of women in STEM. An expert in the leadership of R&D teams.

Key skills: #compliance #people and culture #leadership of innovation teams #design-thinking #strategist #impactful innovation

