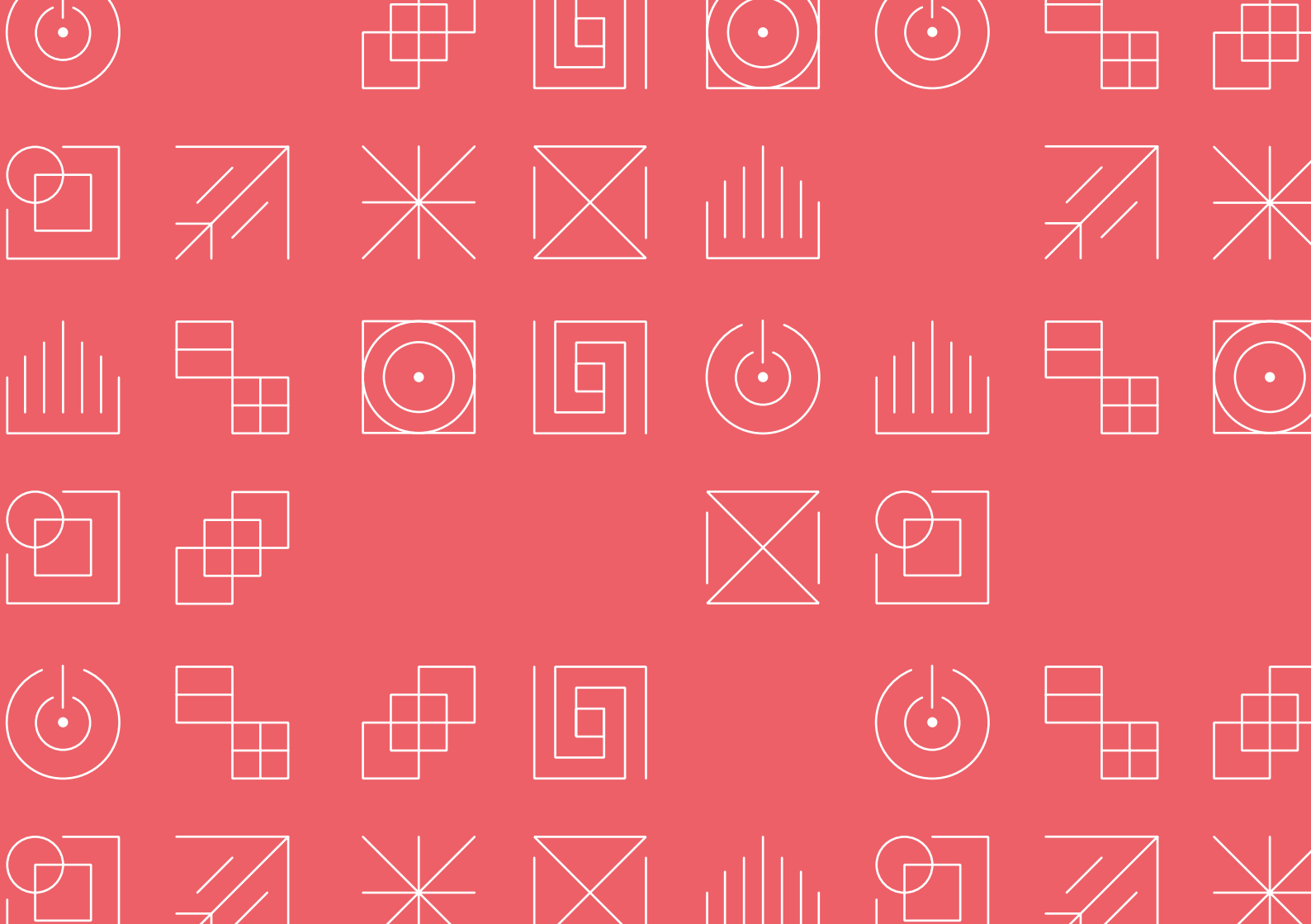
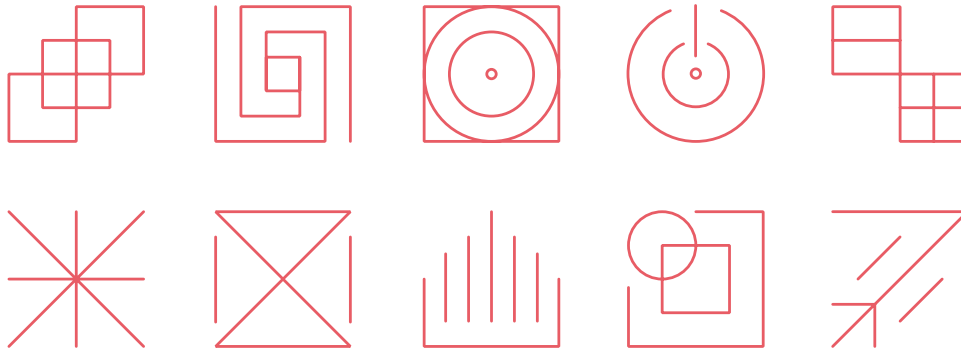


SHAPING SCIENCE: HOW TO START

Ideas on how to shape research culture from
the **We Scientists 2035** workshops





SHAPING SCIENCE: HOW TO START

Ideas on how to shape research culture from
the **We Scientists 2035** workshops

Swiss Academy of Sciences (SCNAT)

We Scientists Shape Science Project
naturalsciences.ch/wescientists

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WE SCIENTISTS SHAPE SCIENCE

Small changes today for a better research culture tomorrow

The **We Scientists Shape Science** project aims to empower researchers to re-imagine a better and healthier research culture.

Research culture describes the values, norms, expectations and behaviours of research communities. It shapes the environment that we work in and how science is done and communicated. It affects our incentives to practice open science, to collaborate with our peers and to conduct research responsibly. A healthy research culture is key to good science.

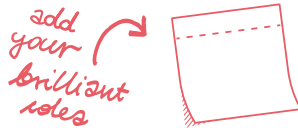
Currently however, research culture is facing a crisis. Factors such as the nature of the publication system, how researchers are evaluated and increasing competition for higher-level positions, has resulted in an unhealthy and unsustainable research ecosystem. This has, at times, led to questionable research practices and can have tangible effects on scientists' lives. If we want science to be creative, open, helpful for society and a viable career opportunity, we need to re-define our research culture. The culture of science needs to be shaped by all players of the scientific community: from universities, funding agencies, journals and also individual scientists of all career stages. In order to shape new initiatives and better policies we need fresh ideas. But how do we achieve such a change?

We can start today by initiating this important conversation at each of our research institutions. The Swiss Academy of Sciences has produced the **We Scientists 2035** workshop package to help generate new ideas about how research culture can change. The workshops are an adapted version of the **Visions of 2035** workshops originally designed by the Royal Society in the UK. In these workshops, we can discuss what our ideal research culture is and create first small, but concrete steps to shape our own research culture. So far, over 200 members of the Swiss academic community have participated and given feedback! Based on these experiences we have created a workshop package which is freely available for you to download at this link:

scnat.ch/ws2035_download

Download the workshop package, and run it in your research group, or run a bigger event at your institution.

In this book, we summarise the ideas generated at the first workshops. We encourage you to use this book to join the conversation on how to change research culture. What is your idea? Leave your trace in this book when you see this visual prompt:



However you decide to start acting on, please share the outcomes with us on [@scnatCH](https://twitter.com/scnatCH) Twitter using the hashtag **#wescientists**.

Let's start to change what it means to do science in Switzerland.

Your Swiss Academy of Sciences

We would like to thank all scientists that contributed their ideas to this book from the following events: Swiss Physics Society meeting 2018 (EPFL), Life Sciences Postdoc Days 2018 (ETH), Swiss Geosciences Meeting 2018 (University of Bern), We Scientists 2035 Day @University of Lausanne (2019), We Scientists Workshop @EPFL (2019).



COLLABORATION

My ideal future culture would be one where ...

we are recognised not just through research publications, but also the soft/emotional skills that are essential to a team • we employ more diverse individuals and recognise non-classical traits such as emotional intelligence • we remember the passion that led us to science • we would create a common position for a person who can help to make collaborative research • sharing information and open access publications by paying a one time fee for the group • we would learn about the work of our lab neighbours • there are more shared facilities



team work
sharing experience
communication
thought exchange
cooperation
mutual work
co-authorship
group work
people
inclusiveness



Tomorrow I will ...

LEARN FROM OTHER
PERSPECTIVES / SEE
SIMILARITIES & TRADE
JARGON TO IMPROVE
BETTER COMMUNICATION
WITHIN THE SCIENCE

TALK TO
SOMEONE FROM
ANOTHER GROUP
AND LEARN
ABOUT HIS/HER
WORK

SEEK COLLABORATION WITH
NEW COLLEAGUES
AND PEOPLE
AROUND THE
FIELD

identify my strong
skill and setup
a session / skill
sharing workshop
to share this with
my team

follow my
inspirations
and promote
collaboration

Go to lectures
from other
disciplines/
institutes

BUILD
A SCIENCE
COOPERATIVE

your
brilliant
ideas



CREATIVITY & FREEDOM

My ideal future culture would be one where ...

we promote responsible scientists and risk takers, smoothen the transition between academia and other sectors, accept failures • we have more flexible deadlines, less stress, more collaborative working • we are open to more diverse professional paths • we do one thing at a time and work at our own pace • there is more creativity • part of the funding is reserved for crazy ideas • there is more autonomy and flexibility to achieve goals

new ideas
innovation
flexibility
diversity
time for research
collaboration
less stress



Tomorrow I will ...

tell
us
more!

WORK
FROM
HOME

talk to members
of my group to
make sure they
have enough
freedom to work
from home

arrange a good
meeting to discuss
openly with the
group about social
pressures on flexible
working hours

SHARE my CREATIVITY
WITHOUT THINKING
COMPETITIVELY

DO CREATIVE
AND
RESPONSIBLE
RESEARCH

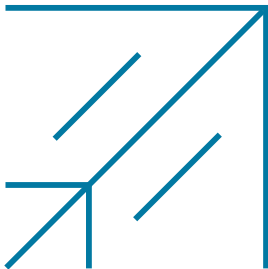
Take the
time to
develop my
creativity



CAREER TRAJECTORY

My ideal future culture would be one where ...

there would be a more transparent and accessible career path. This can be achieved by better supervision • we should have the choice between mobility and stability • there are no age limits for science • we have more permanent research scientist and technician positions • more standardised and accessible technical training • there is leadership training for group leaders • we promote alternative career paths • there is more freedom in academic careers • we ask for policies addressing gender and racial bias and improve conditions for academics with families

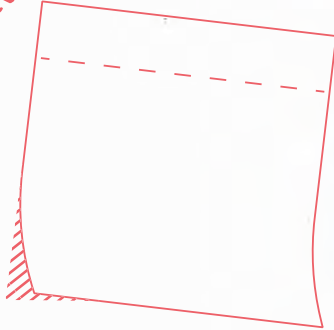


mentorship
training
diverse careers
permanent position
professorship
early career
leadership



Tomorrow I will ...

your
brilliant
ideas



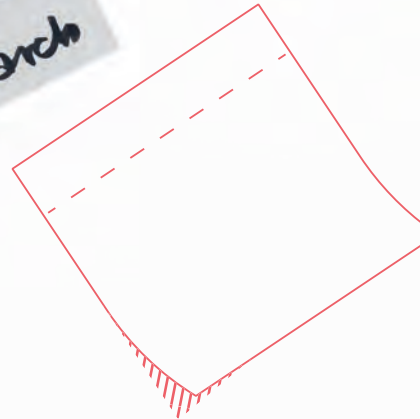
generate a
database
of scientists
with
scientific profiles

help to develop
standardised
scientific skill
certifications

FIGHT
EVERYDAY
SEXISM!

be proud of
my quirky
career path

think of
ways to
encourage
female
research





RESPONSIBLE RESEARCH

My ideal future culture would be one where ...

we write articles with truth and integrity • we build trust through transparency and
have a clear code of conduct • there are standardised research and teaching facilities



ethics
research integrity
transparency
reproducibility
data stewardship
trust



Tomorrow I will ...

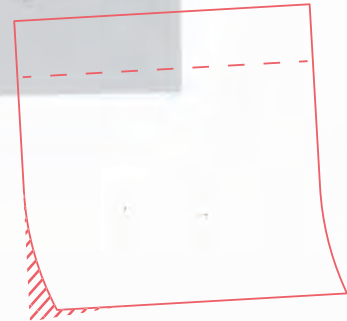
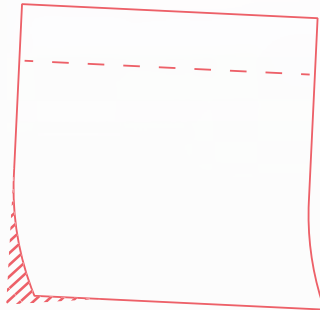
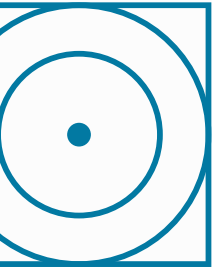
IMPLEMENT
A LAB
MANAGEMENT
SYSTEM

write and follow
my own "code of
conduct" in the
scientific
environment

WRITE
A REPORT PROTOCOL
THAT ALL MY
COLLEAGUES WILL
BE ABLE
TO REPRODUCE

better policy
at my university
(code of conduct,
regulations against
bad behaviour,...)

publish in a
"low-impact",
yet scientifically
sound journal





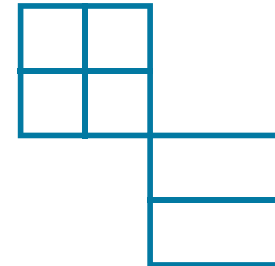
EVALUATION

My ideal future culture would be one where ...

quality is valued over quantity • there is a fair way to evaluate scientific profiles which includes scientific skills as well as inter-personal factors. This could result in more stimulating and well-functioning research teams • there is a database of scientists with profiles that have standardised scientific skill certifications • there is peer (including students, colleagues, mentors) evaluation of inter-personal skills • approaches should be field-related: not every field has the same reward system • part-time and free-time scientist opportunities are created



impact factor
metrics
incentives
rewards
publish or perish
skills
career paths
quality research



Tomorrow I will ...

talk about the
San Francisco
DORA
Declaration

encourage my
colleagues to not
only hire
"superstars"

WRITE AN E-MAIL
TO THE RESPONSIBLE
PERSON TO REMOVE
AGE LIMITS FOR
HIRING PROFESSORS

STOP LOOKING
AT PEOPLE'S
METRICS AND READ
MORE
PHILOSOPHY OF
SCIENCE

tell
us
more!



HIERARCHY & MENTORSHIP

My ideal future culture would be one where ...

there would be less hierarchy and decoupling of tasks • lab sizes are 5-15 members •
we encourage collective supervision of groups or PhD students • there is decoupling of the task of
scientific management and administration • I ask advice to more than one person – strengthening
mutual connections between PhDs and professors • there are weekly round tables



group size
PhD student
communication
post-doc
professor
support
lab meetings
time management
supervision



Tomorrow I will ...

LIST THE POSITIVE
ACHIEVEMENTS OF THE
WEEK AND DISCUSS
ABOUT POSSIBLE
FUTURE STEPS
OPTIMISTICALLY

appreciate
our technicians
MORE

check that my
post-doc has
enough personal
time to travel
to be with my
partner

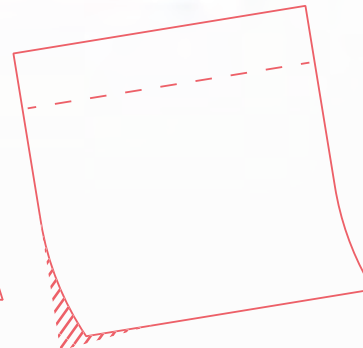
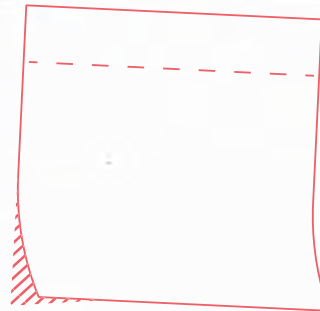
start weekly emails to
my supervisor to keep
him/her updated of
the research progress,
difficulties and ideas
(also - future plans)

STOP
GIVING MY
STUDENTS
THE
SOLUTIONS

TEACH
and
encourage
others to
TEACH

TELL MY
SUPERVISOR
"YOU'RE NOT
THE BOSS
OF ME!"

INVOLVE
THE STUDENTS
MORE





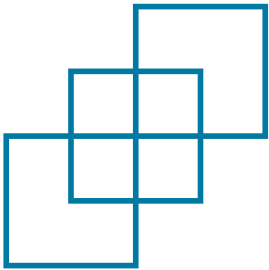
LAB SOCIAL LIFE

My ideal future culture would be one where ...

there is the facilitation of exchanges and interactions • there is real social contact • there is a common language •
there is mutual respect • we give valuable and positive feedback • we propose non-science social time activities •
we speak with each other • we decrease social sub-groups in the lab

► socialising
support network
coffee break

PhD life
feedback
after work activities



Tomorrow I will ...

BRING
COOKIES:)

ORGANISE
AN APÉRO

send the Nature
paper about the
happy lab
to everybody

TELL
PEOPLE ABOUT
THIS
WORKSHOP

rethink work
environment
layout

organise more
team bonding
by social events

stop making
fun of my
colleague that
arrives at 12

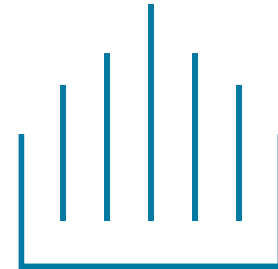
APOLOGISE FOR
NON-CONSTRUCTIVE
CRITICISM
/ GIVE
VALUABLE
FEEDBACK



OPEN SCIENCE

My ideal future culture would be one where ...

there will be no journals • there are big open repositories, continuous peer review, collaboration with community in different fields, industry etc • we value different types of research such as action-research and participative research • we better manage pressures to publish



open access
open data
publication system
citizen science
participatory research
paywall



Tomorrow I will ...

change the way of
financing because
this is the only
way to change minds
and to open science
to everyone

remember that
SCIENCE is not
(and will never
be) my
property

suggest to have
an open-science
Coordinator at
my university

ORGANISE
A SCREENING OF
PAYWALL, THE MOVIE

E-MAIL MY FORMER
LABS TO INFORM
ABOUT THE OUTCOME
OF THIS CONFERENCE
@ CC: TANIA
AND LUC

TALK TO HEAD OF
SNSF TO TELL HIM
WE NEED MORE
INCENTIVES FOR
SCIENCE TO GO
OPEN

SHARE
EVERYTHING,
BAD AND GOOD
IN FO
(knowledge, "bad"
results, equipment,
material, projects)

ensure we
publish all
group data

now your turn!



SCIENCE & SOCIETY

My ideal future culture would be one where ...

we will change funding structures • there are better incentives to engage with society •
we embed the researchers into experience (of society – not only of the lab) • we open doors to
the public • we organise a public journal club • we do more science storytelling • we generate
useful knowledge for society

science communication
outreach
blogs
twitter
citizen science
incentives



Tomorrow I will ...

PROMOTE
SCIENCE
COMMUNICA-
TION

HAVE AN OPEN
DISCUSSION
FORUM

do more
outreach activities, talk
with Fritz, the
former, about
our research

WRITE UP WHAT WE
HAVE DISCUSSED
TODAY IN A
BLOG THAT
I WILL SHARE

go with my students on
a "field trip" to the city
and ask people if they
want to hear about
our science or have
specific questions for
scientists

Start a blog on
my subject for
a general
audience

ASK MYSELF
WHETHER/HOW
MY WORK
SERVES
SOCIETY

ask my 10-year
old cousin if
she would like
to be
a scientist



WORK-LIFE BALANCE

My ideal future culture would be one where ...

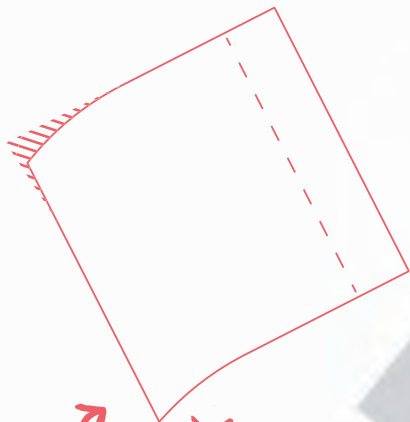
- there is a balance between happiness, well-being & sense of purpose •
- there is a better organisation of work-life resulting in better/healthier personal life •
- we are happy and not so stressed about our work

healthy lab
mental health
work-life balance
stress
time off
leisure time
organisation
time management





Tomorrow I will ...



tell us more!

NOT TAKE MY
LEFT TOP ON
MY WEEKEND
AWAY

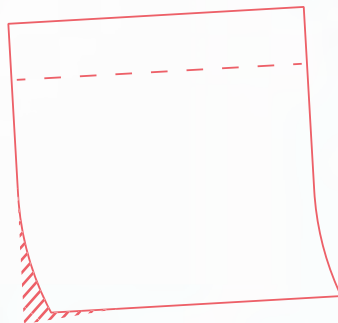
say NO to
whatever you do
not like to do
(at least once!)

Meditate
(Reduce
stress)

not work on
weekends -
and this
is OK!

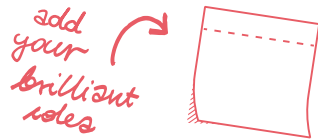
stop being
afraid of
failure!

take
the day
off



Interested in finding out more? You can download the workshop package, and run it in your own research environment:

scnat.ch/ws2035_download



Share your post-its and ideas with us on Twitter [@scnatCH](https://twitter.com/scnatCH) [#wescientists](https://twitter.com/wescientists)

Let's start to change what it means to do science in Switzerland!

The **We Scientists 2035** workshops were initiated by the Swiss Academy of Sciences (SCNAT) to call upon researchers to re-imagine a better, healthier research culture.

This booklet summarises the first results and encourages you to start the conversation in your research environment. Let's begin to shape science together.

What would your ideal research culture be? What will you do tomorrow to shape it?

Read this booklet to gain inspiration on how to start this discussion and shape research culture at your institution!

Let's start to change what it means to do science in Switzerland.