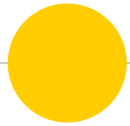


Replacing Heroes with **Teams**

Recognizing a diversity of contributions to research





Maria Cruz

14 December 2022

'All I want for Christmas is Open Science'

VU Amsterdam



About me

Researcher

Astrophysics, galaxy evolution,
Oxford UK and Leiden NL

Science writer and educator

Worked on communication,
education and outreach,
European Space Agency,
Noordwijk, NL

Postdoc (read: project manager)

Coordinated the development of
the European Astronomy
Infrastructure Roadmap,
Liverpool, UK

Research Data Management Community Manager

Research Data Management
(RDM) Support at TU Delft &
Community Manager RDM, VU
Amsterdam, NL

Scientific Editor and Publisher

Astronomy and space sciences
editor at Science Magazine,
Cambridge UK & Publisher,
Elsevier, Amsterdam NL

Open Science Policy Advisor

Open Science policies and Open
Science Fund, NWO, NL



What motivated me to become an **astronomer**?

Curiosity about the night sky, fascination with the natural world, interest in chemistry and physics, desire to contribute to solving the big questions about the universe.



What didn't factor in

- citation scores
- journal impact factor
- h-index

1

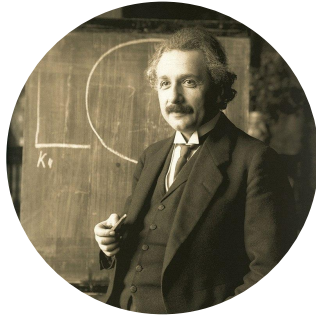
The heroes of science



My heroes of science



**Marie
Skłodowska-Curie**



Albert Einstein



Richard Feynman



Stephen Hawking



In the **hero model**, research disciplines are siloed off from each other

“For a millennium, academia has created and curated knowledge using the model of one senior scholar for each discipline, with a pyramid of people and resources under their leadership ...”

A Portrait of the Scientist as a Young Woman, Lindy Elkins-Tanton



Personally owned research

- “My lab”
- “My team”
- “My student”
- “My data”
- “The Smith lab”

2

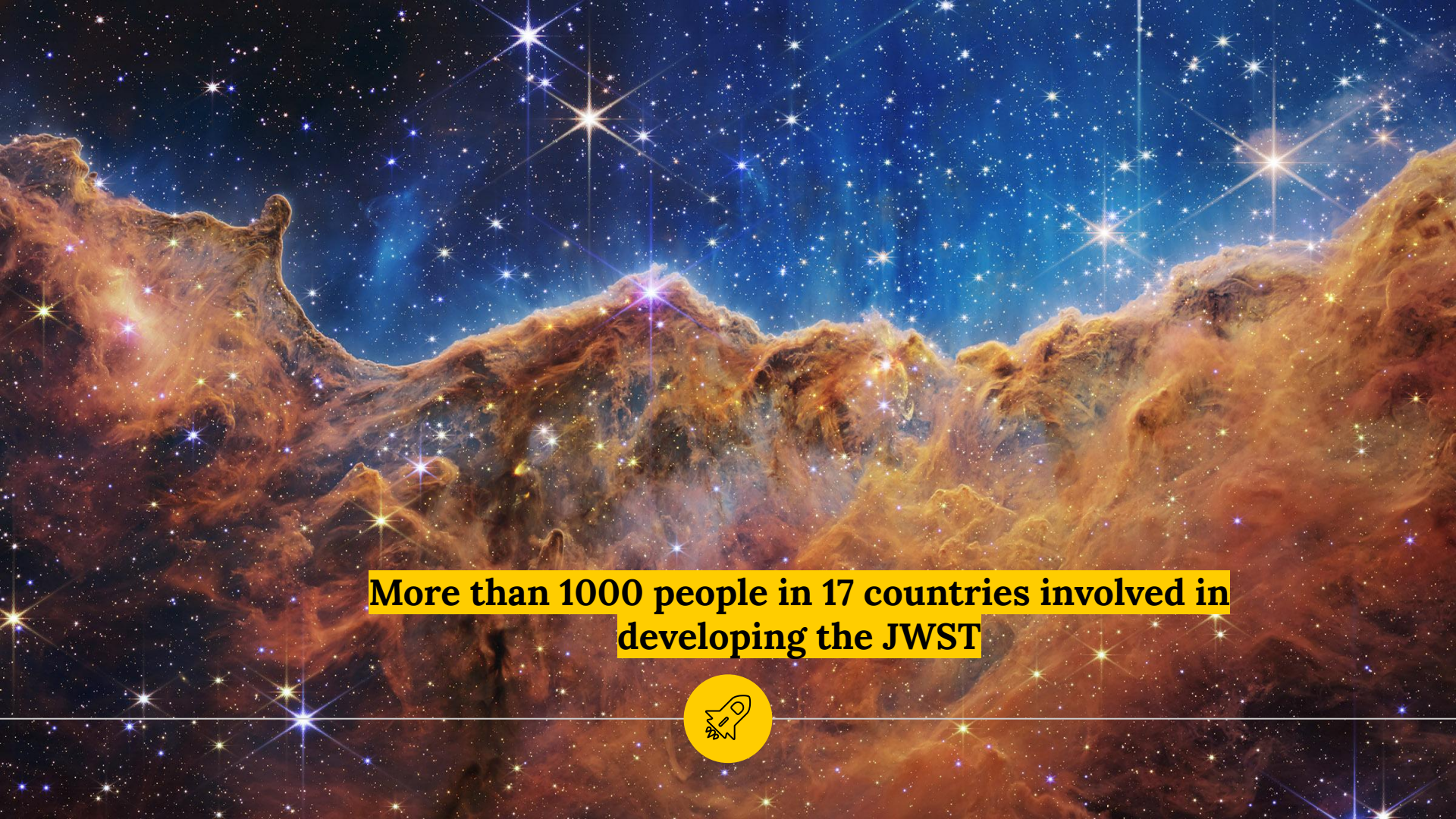
Big science



The Human Genome Project

“... brought together more than 2,000 researchers from many countries, disciplines and levels of seniority ...”

“Success stemmed from: (...) the shared sense of the importance of the task; and the willingness of the researchers involved to cede individual achievements for the collective good.”



**More than 1000 people in 17 countries involved in
developing the JWST**





“... the efforts of 800 people, 11 years, 2,000 pages of proposals, perfect wires and perfect software and perfect solar panels and bolts and joints and struts, will be perched on top of about 20,000 kilograms of explosive propellant ...”

A Portrait of the Scientist as a Young Woman, Lindy Elkins-Tanton

3

Team science

Team science is the collaborative effort to address a scientific challenge that leverages the strengths and expertise of professionals trained in different fields.



“



The keyword is **collaboration**

- Between researchers from different disciplines
- Between researchers, industry and other societal partners
- Between academic and professional support staff



Kevin Atkins,
site engineer
at the Marine
Biological
Association in
Plymouth, UK.

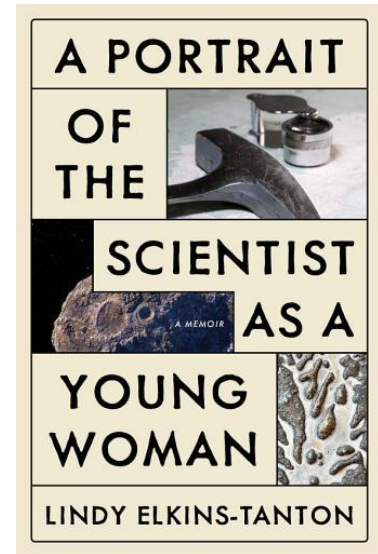
Everyone wants to be a Nobel prizewinner, but **Nobel prizewinners didn't get there on their own**

“Scientists rely on an army of technicians, librarians and other people who fill roles that contribute to research outputs.”



A human endeavour

“The stereotype of a lone man in a lone lab making brilliant progress is a lie: every scientist needs to work with, contend with, and convince their community (...). Connecting with and convincing others is a big part of driving knowledge forward (...).”



4

Replacing heroes with teams



Building a collaborative research culture

- Build teams around goals rather than leader
 - Goal: to answer a question or solve a problem
- Build diverse teams to solve problems
 - Diversity of skills, backgrounds, experience, expertise
- Value and appreciate every contribution
 - Listen to every voice and value expertise regardless of perceived status and hierarchy

T H A N K



Y O U



Inspiration for this talk

- You – the organisers and the participants in this event!
- Marta Teperek (TU Delft)– thanks for all the discussions, sharing of thoughts, ideas and slides!
- Robbert Hoogstraat (NWO)

- Planetary scientist Lindy Elkins-Tanton
- The Hidden REF – celebrating all research outputs
- UKRI 101 jobs that change the world



References

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- **Slide 11:** Green, E., Watson, J. & Collins, F. Human Genome Project: Twenty-five years of big biology. Nature 526, 29–31 (2015). <https://doi.org/10.1038/526029a>
- **Slide 12:** The James Webb Space Telescope Team, https://www.nasa.gov/mission_pages/webb/team/index.html
- **Slide 15:** Definition of team science from [Virginia Tech University Libraries](#)
- **Slides 17:** Time to celebrate science's 'hidden' contributors, Gemma Derrick & Simon Hettrick, Nature Career Column, 14 February 2022, <https://doi.org/10.1038/d41586-022-00454-3>
- **Slide 20:** Time to re-think the divide between academic and support staff, Marta Teperek, Maria Cruz & Danny Kingsley, 14 April 2022, <https://doi.org/10.1038/d41586-022-01081-8>



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