Supplementary Material

# Appendices

[Appendix A]

|  |
| --- |
| **Digital Scientist 2035 – An Outlook on Innovation and Education** **Survey Questions** |
| 1. Age
2. Sex
3. OVGU Faculty
4. Academic position
5. Covid-19 pandemic forced the need to switch toward home-working. How impactful was this event on your research work? Rate your answer (1 = not at all impactful, 3 = neutral, 5 = very  impactful)
6. How likely would you continue your research at home-office? Rate your answer (1 = very unlikely, 3 = neutral, 5 = very likely)
7. How would you imagine to be the future of scientists and the way of conducting scientific research? Think ahead in 2035… (Select the most 3 meaningful options)
8. Which innovative technology would you integrate in your current research work to embrace the era of "digital science"? Think ahead in 2035… (Select the most 3 meaningful options)
9. How likely will ethics and regulatory procedures change due to the increasing implementation of technologies (e.g., AI, robots, avatars)? Rate your answer (1 = very unlikely, 3 = neutral, 5 = very likely)
10. How likely will technologies improve the execution of experiments (e.g., precision, time, quality, quantity, replicability)? Rate your answer (1 = very unlikely, 3 = neutral, 5 = very likely)
11. How likely would you be willing to share your research work with worldwide teams throughout the use of channel-based messaging/meeting platforms? Rate your answer (1 = very unlikely, 3 = neutral, 5 = very likely)
12. Which are the most relevant advantages of "digital science"? (Select the most 3 relevant options)
13. Ideally, how likely would you think that human/animal experiments will be replaced by high precision simulation with AI? Think ahead in 2035… Rate your answer (1 = very unlikely, 3 = neutral, 5 = very likely)
14. How likely will education be influenced by digitalization and the adoption of technologies? Rate your answer (1 = very unlikely, 3 = neutral, 5 = very likely)
15. Describe in one word your opinion/feeling about "Digital Science".
 |

[Appendix B]

|  |
| --- |
| **Digital Scientist 2035 – An Outlook on Innovation and Education****Survey Answers** |
| ●      18-24●      25-34●      35-50●      >50 |
| * Male
* Female
* Diverse
 |
|  Medicine Mechanical Engineering Process & Systems Engineering Electrical Engineering & Inf. Technology Computer Science Mathematics Natural Sciences* Humanities, Social Sc. & Education
* Economics & Management
 |
| * B.Sc. / M.Sc. Student
* Research Assistant
* Ph.D. Student
* PostDoc Researcher
* Principal Investigator
* Professor
 |
| 5-points Likert scale |
| 5-points Likert scale |
| * Artificial Intelligence (AI) manages massive datasets (i.e., several data analysis done in parallel)
* Robots run experiments
* Global collaborations using channel-based messaging platforms
* Lectures, workshops, courses, and meetings happening entirely online
* Change in ethical regulations and regulatory approvals
* Revision of "Good Scientific Practice" procedures
* Different management of research funds/different research costs
* Easy replication of experimental procedures among Labs (e.g., using AI or robots)
* No more laboratory experiments on humans/animals (i.e., ideally, precise simulations with AI)
* Revised education (e.g., more digital and technology skills, interdisciplinary education)
* Virtual Labs
* Other
 |
| * Digital Healthcare
* Virtual Reality / Augmented Reality
* Artificial Intelligence (or Machine Learning, Deep Learning)
* 3D or 4D Printing
* Robotics
* Brain-Computer Interfaces
* (Health) Wearables
* Voice Assistant or Avatars
* New Touch Interfaces
* Minimal / Non- Invasive Therapy Systems
* Environmental Protection and Sustainability
* Data Management / Cybersecurity
* Electronic and Sensors
* Other
 |
| 5-points Likert scale |
| 5-points Likert scale |
| 5-points Likert scale |
| * Adoption of "Open Science" principles
* Scientist acquires/develops more digital and technological skills
* Research articles are written with AI technologies
* Cloud computing
* Big data is easy to manage
* Democratization of technologies
* Innovative technologies will enable advanced data analysis
* "Smart" laboratories (virtual and cloud-based labs, co-working facilities, DIY spaces, real-time collaborations)
* High precision in predicting scientific results using technologies
* Less (or ideally no more) human/animal experiments due to high precision simulations with AI
* Interdisciplinary education
* Increased networking
 |
| 5-points Likert scale |
| 5-points Likert scale |
|   Short-answer text |