Supplemental Material

Text S1. Interview questions based on the Action Scales Model

Please introduce yourself briefly by stating your name, age, profession, current position, and what is your connection to the academic publishing system.

Through this interview, we would like to remind you that you are representing a community of [researchers*]. We are curious about your views, but it is also welcome if you broaden your perspective.

1. What do you believe are the most important functions of the biomedical publishing system?
2. What aspects of the current publishing system work well?
3. What do you believe are the most important issues currently with the biomedical publishing system?
4. What are the most important factors contributing to these issues?
5. Are you aware of any interventions that aim to mitigate these issues?
6. Potential follow-up: Are they working?
7. What interventions do *you* believe would work? And for whom?
8. Let's focus on [researchers*]. What are the goals of these key actors in the system?
9. Potential follow-up: goals of another key actor.
10. For [researchers*], what are the values, beliefs, and assumptions that explain why things are done as they are?
11. Are the goals of the system currently supported by actions?
12. Who are the decision makers within the system with the most agency? What values, perspectives, and priorities do they hold?
13. To what extent do these key decision makers believe that change is necessary, feasible, and/or desirable?

*researchers/editors/funders/librarians/publishers/university administrators, according to the stakeholder's primary role

Table S1. **Stakeholder-expertise table indicating broad coverage of the entry points into the system**

Pseudomym	Primary role	Secondary role(s) (mentioned during the interview or via follow-up communication)
Ali	Junior Researcher	Peer-reviewer
Barbara	Senior Researcher	Peer-reviewer; Editor
Giovanni	Senior Researcher	Peer-reviewer; Editor; University administration
Jonathan	Librarian	
Lilian	University administration	Researcher; Peer-reviewer
Lucy	Editor-in-chief	
Nela	Librarian	
Patrick	Senior Researcher	Peer-reviewer; Editor
Salem	Editor-in-chief	Researcher; Peer-reviewer
Samuel	Senior Researcher	Peer-reviewer; Editor
Timothy	Publishing consultant	Publisher
Tomas	Funder	Researcher
Trent	Publisher	

Table S2. Coded observations from the stakeholder interviews, and their categorization across the nine challenge areas

Stakeholder	Code	1	2	3	4	5	6	7	8	9
Barbara	early career researchers encouraged to publish in high ranking journals	x	x							
Barbara	academic career progression depends on publishing more, faster, and in higher ranking journals	x	x				x			
Barbara	publisher shareholders profit off the system							x		
Barbara	publishing industry behaves in the framework of capitalist structures							x		x
Barbara	open access movement also became part of the capitalist profit making system							x	x	
Barbara	both people with low and high perceived power believe that they are tied to the current system of publishing							x		x
Barbara	if people are not communicating with each other, they are easier to be exploited							x		x
Barbara	academics in higher power positions are sticking to the status quo in publishing because they believe that early career researchers need to publish in the same way as they did.	x								x
Barbara	early career researchers are sticking to the status quo because they believe that they do not have the power to change the system.									x
Barbara	early career researchers are facing high pressure, job insecurity and precarious employment situations	x								x
Barbara	different stakeholders have different goals in the publishing system									
Barbara	for publishers, the goal of the publishing system is to generate profit							x		
Barbara	for scientists, the goal of the publishing system is to disseminate information									
Barbara	for librarians, the goal of the publishing system is to make information accessible, even to non academics									
Barbara	in an ideal world, the goal should be the democratiation of knowledge.									
Barbara	in an ideal world, those who produce the content (research) should have control over the delivery of this information.									x
Barbara	diamond open access and other community organized efforts aim to democratize the process.								x	x

Speaker	Statement	Red	Green	Blue	Cyan	Brown
Barbara	there are top down initiatives promoting publishing in diamond open access journals				x	
Barbara	civil societies and other organizations are actively promoting publishing diamond open access				x	x
Barbara	lots of public research funding is funnelled into paying commercial publishers			x		
Barbara	social movements promoting breaking away from commercial publishers due to the publishers' ties to the fossil fuel industry	x		x		x
Barbara	commercial publishers do not only represent a problem for academia, but a broader one					
Barbara	ties between the owner of elsevier (relx) and oil and gas lobby, and fossil fuel industry.			x		
Barbara	even though elsevier has journals supporting climate science, there are also ties to the fossil fuel industry that go against this science.			x		
Barbara	there are other alternatives in publishing than commercial publishers.			x		
Barbara	publishing industry has not been disrupted so far by newer alternatives.			x		x
Barbara	a key problem is lack of knowledge among academics and the public about the publishing system					x
Barbara	pessimistic view on reforming for-profit corporations. massive organizing from academics could be successful.			x		x
Barbara	academics are unlikely to initiate change, as they are not first movers.					x
Barbara	commercial publishing is part of the academic capitalist system, which has an end date.			x		x
Barbara	academics can highlight broken practices, and encourage transformation	x				x
Barbara	funders claim that they are not first movers, they follow the direction of the researchers.					x
Barbara	researchers believe that they need to follow what funding agencies are mandating.		x			x
Barbara	one stakeholder, in isolation, cannot move things - it needs to be a concerted effort.					x
Barbara	all stakeholders hold power to change the system.					x
Barbara	collective organizing is a way to acquire power.					x
Barbara	currently, the system is organized so that those in power remain in power.			x		x
Barbara	usually those with the least power are the largest in numbers, so they collectively have power to change the system.					x

		Green	Yellow	Red	Orange	Purple	Magenta	Blue	Cyan	Brown
Barbara	governments should regulate the academic publishing system.							x		x
Barbara	diamond open access journals are positive developments, with researchers donating their free time								x	
Barbara	science is produced according to what researchers believe funders and journals want to have, not what is actually important									x
Barbara	academic publishing system is not sustainable and is already falling apart.							x		x
Barbara	ai-produced content, paper mills, and fake journals are all signs of the system falling apart.			x	x					
Barbara	producing papers became more important than producing good science	x					x			
Barbara	disruption so far did not impact publishers enough to overhaul the system.							x		x
Barbara	an interesting question is what will happen when the current system collapses - how will it be rebuilt?				x			x		x
Barbara	ai makes it difficult to ascertain what is real and what is not real.				x					
Barbara	ai causes distrust between humans, as we cannot rely on information humans are giving each other.				x					x
Barbara	ai many times offers surface level solutions to deeper problems				x					
Barbara	peer-review is one of the weakest points in the commercial publishing system, it might be easy to disrupt the system via (refusing) peer review.					x				
Barbara	researchers fear that refusing to peer review will have negative repercussions for their careers.	x				x				
Barbara	peer review, in general, improves papers, if done well.					x				
Barbara	academics do not talk to each other, so it is difficult to organize and coordinate.									x
Barbara	some quantiative metrics are bought by publishers, and they lobby so that these metrics become the goals in publishing.		x							
Barbara	journal prestige hiearchy is beneficial for publishers.		x							
Barbara	it is easier to evaluate academics based on publishing metrics rather than we they actually do	x	x							
Barbara	in some high ranking journals, retraction rates are larger than other journals.		x	x						
Barbara	better reviews in high ranking journals also reinforce the prestige hierarchy between journals		x			x				
Barbara	large publishing corporations have lots of resources for pr							x		

		Green	Yellow		Magenta	Blue	Cyan	Brown
Barbara	researchers believe in the logics of producing more equals to better science.				x			
Barbara	researchers anchor excellence in productivity, so e.g., producing more papers means better.	x			x			
Barbara	universities are run as corporations					x		
Barbara	researchers have a romantic idea about their papers changing the world and being a force for good, but this might be an illusion.							
Giovanni	taking well-functioning aspects for granted							
Giovanni	searchability; large free public repositories						x	
Giovanni	large quantity of published papers				x			
Giovanni	low utility/usefulness of published research							
Giovanni	threat of external control of publicly available resources						x	x
Giovanni	taking well-functioning aspects for granted; impact of politics; threat							x
Giovanni	threat; large, searcheable databases						x	x
Giovanni	increasing number of journals				x			
Giovanni	some journals/publishers not acting in good faith and are focused on profit only					x		
Giovanni	current number of journals are not enough for the number of papers				x			
Giovanni	researchers are encouraged to publish more	x			x			
Giovanni	researchers are encouraged to publish in good, established journals	x						
Giovanni	academic assessment prioritizes quantity of publications	x			x			
Giovanni	at the informant's workplace, there are no requirements for number of papers when hiring	x			x			
Giovanni	even though number of papers is not a formal criteria, it still matters for hiring decisions	x			x			
Giovanni	impact factor as a metric for quality of publication		x					
Giovanni	justification for why impact factor matters when comparing journals in a certain field		x					
Giovanni	impact factor is field specific for journals		x					
Giovanni	reputation and established status of journals		x					

Name	Statement						
Giovanni	lancet has a good reputation	x					
Giovanni	bmj has a good reputation	x					
Giovanni	new journals in a journal family borrow reputation from the mother journal	x					
Giovanni	older journals = better perceived reputation	x					
Giovanni	big journals; american journals = better percieved reputation	x					
Giovanni	newer journals; asian journals = less perceived reputation	x					
Giovanni	publishers have the incentive to make money					x	
Giovanni	business seems to be flawed, but no expertise to fully understand					x	
Giovanni	prestigious journals are expensive to publish in	x					
Giovanni	mdpi publisher is perceived less prestigious	x					
Giovanni	at less prestigious publishers it is cheaper to publish.	x					
Giovanni	reputation, size of readership, impact are guiding decisions for where to publish	x					
Giovanni	based on findings in a project, there is a feeling to publish in a certail level of journal	x					
Giovanni	for some people, impact factor matters less	x					
Giovanni	publication speed, fair peer-review process are important in where to publish		x				
Giovanni	perceived more thorough editorial and peer-review process increases journal prestige	x	x				
Giovanni	previous experience with editorial and peer-review process matters in guiding decisions where to publish next.		x				
Giovanni	flawed peer review process; poor reviewers's comments also need to be addressed; waste of time		x				
Giovanni	labor of the editor is valued						
Giovanni	labor of the editor is valued and adds to journal reputation	x					
Giovanni	too many peer-review requests		x	x			
Giovanni	perceived obligation to pay back to the community through peer-review	x	x				
Giovanni	peer-review is academic duty, even without financial compensation	x	x				

		C1	C2	C3	C4	C5	C6	C7
Giovanni	amount of publishing and amount of peer-review should be in balance				x	x		
Giovanni	peer-review is useful to keep up-to-date				x			
Giovanni	academic research becoming less disruptive; more and more papers advance science only marginally							
Giovanni	papers satisfy funder/institutional kpis regardless of impact (number of papers is the most important)	x				x		x
Giovanni	some papers are very niche and serve only very narrow purposes					x		
Giovanni	some papers are niche and only read by a very narrow audience					x		
Giovanni	incentive to publish more, even if it is uninteresting	x				x		
Giovanni	coara - framework for assessing researchers beyond metrics like h-index and impact factor of journals	x	x					
Giovanni	research assessment should be broader than quantiative metrics	x						
Giovanni	informant's institute signed coara but have not implemented it yet.	x						
Giovanni	upper management has agency in changing the incentive system (in assessments)	x						x
Giovanni	first implementers of a new assessment system might be disadvantaged - less incentives to be the first	x						x
Giovanni	broad implementation could be the most advantageous and quick to change the assessment landscape	x						
Giovanni	to change a system you need to change it at several places							x
Giovanni	system change is not fast.							x
Giovanni	shift to narrative cvs and impact description in cvs could shift assessment	x						
Giovanni	alternative solutions (e.g. narrative cv) can also carry biases	x						
Giovanni	strategies for narrative cvs	x						
Giovanni	sometimes most cited papers are not the most highly valued from the applicant's perspective	x	x					
Giovanni	assessment: how does research impact policy?	x						
Giovanni	editorial resignation due to disagreements between capitalist incentives vs. the goals of the journal						x	x

Name	Statement							
Giovanni	publisher prioritized profit generation and speed over quality					x		
Giovanni	publisher cut costs which impacted editors (poor pay and more work)					x		
Giovanni	editorial board started a new journal without the publisher (elsevier) and without financial support					x		
Giovanni	new journal (not part of elsevier) supported by a university					x		
Giovanni	independence of commercial interest is important for editors and community readers		x			x		
Giovanni	publishers support with lots of services around the publication process					x		
Giovanni	difficult to operate a journal without help from a publisher					x		x
Giovanni	high prestige journals unlikely to succeed without commercial publisher	x				x		x
Giovanni	shift from readers paying to authors paying for publication					x		
Giovanni	importance of open access movement						x	
Giovanni	inequality in being able to afford to publish					x		x
Giovanni	importance of collective models (between institutes and publishers)					x		x
Giovanni	even with collective agreements the publishers profit a lot from the system					x		x
Giovanni	publisher profit is based on free and/or underpaid labor					x		x
Samuel	researcher can have many roles, including editors for journals.							
Samuel	researchers peer review papers in many journals.			x				
Samuel	the publishing industry benefit various stakeholders, researcher, individuals and organizations,					x		x
Samuel	there is a large diversity of publishers and range of publishing practices (good and bad).							
Samuel	some journals are less legitimate, contribute less to the system quality than others.		x					
Samuel	open access and online only journals are emerging.						x	
Samuel	electronic publication have greatly facilitated papers dissemination and publication.				x		x	
Samuel	peer review is the main limit of the publishing system.			x				
Samuel	peer review lacks transparency, both in term of duration and quality			x				

Name	Statement						
Samuel	reviewers selection and qualification are important to guarantee peer review quality			x			
Samuel	the increase in publication numbers induce a lack of reviewers			x	x		
Samuel	peer review activities are under valued by scientists	x		x			
Samuel	the whole peer review process lacks quality standards			x			
Samuel	stakeholder, universities, ngos, should advocate for peer review quality standards			x			x
Samuel	developing peer review guidelines requires global international collaboration.			x			x
Samuel	peer reviewing requires specific skills and time investment which need to be compensated.			x			
Samuel	peer review guidelines should be accompanied by easy to use technical solution			x			
Samuel	review reports are wasted between journals and publishers			x			
Samuel	ai could be use as a screening tools to evaluate paper eligible to peer-review			x	x		
Samuel	reviewing should be compensated, financially or by academic recognition.	x		x			
Samuel	journal could compensate time spend reviewing through researcher's institutions.			x			
Samuel	the scientific publishing is an industry that produce more and more scientific papers				x		
Samuel	scientific papers are the most important outcome of science.	x					
Samuel	pressure to publish more papers	x			x		
Samuel	lack of indicators beside publication number.	x			x		
Samuel	the number of publication is the easiest indicator to calculate and evaluate research.	x			x		
Samuel	improving the publishing system require a global vision and system wide efforts to improve it.		x				x
Samuel	academic institution and publishing industry are the main stakeholder of the publishing system.						x
Samuel	funding research give power to influence the system						x
Samuel	researchers and editors have relatively limited influence on the system compared to stakeholders.						x
Samuel	universities should aim at guarantying research quality and efficient use of funding.		x				x
Samuel	peer review of a paper should be short			x			

Name	Statement	Green	Red	Purple	Orange	Magenta	Cyan	Brown
Samuel	for profit publishers aim to make profits.						x	
Samuel	government should act as gatekeeper of the research system.		x					x
Samuel	funders can drive research topics area.							x
Samuel	funder have enough leverage to influence the publishing system							x
Samuel	the number of publication is important for researchers career progress.	x				x		
Samuel	researcher should engage more with other aspects the the publishing system: peer review, publishing, edition.	x		x				
Samuel	promoting qualitative metrics of researcher's production is important to change the system.	x						
Samuel	the lack of diverse indicator is a reason for the focus on the number of publication.	x				x		
Samuel	researcher's tasks also include teaching, mentoring, peer-review.	x		x				
Samuel	researchers should spend less time writing and producing papers.	x				x		
Samuel	scientific culture and scientist training shaped the current publishing system.		x					x
Samuel	academic education should educate future researchers about the publishing system and promoter better practices.		x					x
Samuel	ai will help automate many publishers tasks.				x			
Samuel	ai tools can handle repetitive and low value tasks of every actors in the publishing system.				x			
Samuel	ai can assess papers and research quality.			x	x			
Samuel	gen ai tools can often hallucinate and be wrong, limiting trust in their results.				x			
Samuel	ai tools need to be monitored by human to avoid further deterioration of the publishing system.				x			
Ali	labor intensive process of publising							
Ali	relatively few peer review requests for junior reseachers			x				
Ali	function of publishing system: gatekeepers for bad and fake research		x					
Ali	all research should be published, including null-results		x				x	
Ali	a lot of research is not published, eg due to null results		x				x	

		Green	Yellow	Red	Mauve	Magenta	Blue	Cyan	Brown
Ali	(pre)registration facilitates publishing null-results (but is not exactly part of the publishing system)			x				x	
Ali	a lot of clinical trial results never get published			x				x	
Ali	without preregistration it's very easy and sometimes almost inevitable to not publish findings you don't like			x				x	
Ali	published research is often of low quality and this is not (sufficiently) addressed by peer review				x				
Ali	researcher fake data to compete			x					
Ali	scientific sleuths do tedious work and typically do not get anything in return			x					
Ali	falsification is rewarded by high-impact journal publications (due to compelling story)		x	x					
Ali	publishing code and data is not rewarded							x	
Ali	researcher impact is only measured by publication count and journals that were published in	x				x			
Ali	funding agencies should also look at quality, open science, and importance of the research	x		x				x	
Ali	we already have indicators that eg look more at open science but these are not yet implemented by funding agencies and research institutions	x		x				x	
Ali	whole research community will benefit from focus on quality over quantity	x		x		x			
Ali	there are incentives for successful later career researchers because the system of high-volume high-impact publishing is working well for them and they might get funded less. these people may have significant power	x	x			x			x
Ali	publishers most benefit from quantity of quality because they earn money for each published paper (apc)					x	x		x
Ali	current publishing business model is outdated now that we have everything online						x		
Ali	apc could be spent elsewhere as it consistutes a big part of research budget						x		
Ali	diamond open access is a solution to high apc						x	x	
Ali	funders could demand publishing in specific low-cost journals, eg european (in horizon projects)						x		x
Ali	society journals may have low fees or fees that go back into the community						x		
Ali	frameworks exist like osf for publishing preprints before peer review				x			x	

Name	Statement						
Ali	preprints have pros and cons, they allow for rapid free dissemination of science but can due to complete lack of peer review also be of very poor quality			X		X	
Ali	preprints are in the interest of researchers (or people who can otherwise not access the science) while it is not in the interest of journals and publishers					X	
Ali	difficult to find good journals to publish in, we only have impact factor	X					
Ali	difficult to distinguish predatory journals from non-predatory journals		X				
Ali	predatory journals create a win-win situations where researchers can publish quick and easily and the publisher gets paid		X		X		
Ali	to prevent predatory behavior by journas we should demand transparency like time for peer reviewing and numbers of rejected papers		X	X			
Ali	funders could enforce publishing in good quality, non-predatory journals		X				X
Ali	extra difficult to not publish in predatory journals when you want to publish eg null findings or a replication study		X				
Ali	journals like plos and scientific reports in principle publish all papers with good methodology and valid results but this is evaluated through peer review which is often not good			X		X	
Ali	paid peer review is a good idea, even by full-time peer reviewers			X			
Ali	a metric for journals and reseachers could be what fraction of papers complete strobe/prisma/etc checklists	X	X			X	
Ali	peer review would be made easier if researchers have a clear format for self-reporting eg risk of bias of the study		X	X			
Ali	all analysis code should be published online with every paper		X			X	
Ali	a limiting belief researchers have is to think in papers rather than thinking by analysis, about bias etc		X				
Lucy	professional scientific editor positions varies from handling manuscript to managing journals.						
Lucy	editors can have experience working in many different publishing companies.						
Lucy	editor in chief is responsible to set and evaluate the journal scope and position in the publication landscape.						X
Lucy	editors in chief represents the journal and publishing companies with stakeholders						X

Name	Statement	1	2	3	4	5	6	7	8
Lucy	the main function of the publishing system is to distribute share scientific knowledge.								
Lucy	the use of the publishing system to evaluate scientist career is a secondary function / side effect.	x							
Lucy	publications is insufficient to evaluate scientists.	x							
Lucy	journals curate the vast amount of research and preprint.								
Lucy	journals provide a brand name, a marker of quality.		x						
Lucy	increase funding and number of researcher partly explain the increase number of publication.					x			
Lucy	papers are the only way to evaluate scientists.	x							
Lucy	papers are the primary / main science output.	x							
Lucy	funding and money is an important lever of change.								x
Lucy	career and funding depends on the publication system	x							x
Lucy	intense competition for researcher positions and funding.	x							x
Lucy	stakeholders (university, funding agencies) are currently lacking good proxies to evaluate good science practices to evaluate researchers.	x		x					
Lucy	alternative science outcome (sharing data, software development, mentoring / teaching, peer review) are not considered in scientist evaluation.	x		x	x		x		
Lucy	need for new measure of scientist activity and productivity.	x		x					
Lucy	science knowledge cannot be resumed to papers.	x							
Lucy	the big private for profit publishers makes a lot of profit with very large margins.							x	
Lucy	self reinforcing loop of publishers recognition and brand that create prestige to attract researchers who publish with them at any cost, which in turn reinforce perceived prestige in a publisher.		x					x	x
Lucy	journals provide outreach to researchers which is easier for the most prestigious journals.		x						
Lucy	paper and submission has become easier for researchers and is still improving (ex. free format submission)								
Lucy	editorial task are working well after paper acceptance.								
Lucy	peer review largely contribute to the quality of the papers published.				x				

Name	Comment								
Lucy	there is a waste of peer review resources when papers go in the hands of different publisher.			x					
Lucy	sharing review reports across journals and publisher would eliminate waste of peer review and improve it's sustainability (ex. portable peer review, reusable reviews)			x					
Lucy	not all the papers need to be be peer reviewed			x					
Lucy	readers of a papers are the best peer reviewer of it and they can better assess the quality of a preprint than a non specialized peer reviewer.			x				x	
Lucy	how and who should decide which papers to review (in particular if papers are not peer reviewed by default).			x					
Lucy	overabundance of papers. " most of papers that a published today have more authors than readers, and many are read only by machines."				x	x			
Lucy	ai ethical issues with generation of a whole paper.				x				
Lucy	ai facilitates the writing process, especially for non native speakers.				x				
Lucy	ai is not yet usable to generate a full review report.			x	x				
Lucy	ai is used by publisher to check plagiarism across papers.				x				
Lucy	ai is not used on all paper by publisher as it's resource intensive to deploy.				x				
Lucy	ai could summarize papers for the editors, help to find suitable reviewers and save time for editors.			x	x				
Lucy	editors assess robustness of papers in regards of journal's standards for publication.		x	x					
Lucy	journals can evolve with it's research communities and promote specific practices, like open science, as part of it's mission.		x					x	x
Lucy	alternative metrics to citations are needed and should provide a comprehensive view of a paper performance.	x							
Lucy	sharing review report across journals and publisher would eliminate waste of peer review and improve it's sustainability			x					
Lucy	suggestion of a global peer review across journals with shared standard of research quality.			x					
Lucy	impact factors, citation and prestige a artificial proxies of research quality.	x	x						
Lucy	society belief that scientist can only be evaluated through publications.	x				x			

Name	Description								
Lucy	society belief that some journals are better than others	x							
Lucy	quality of research is heterogeneous between preprint and publications								
Lucy	journals have different quality criteria.								
Lucy	more importance is put on journal prestige than journal contribution to knowledge advance or quality standards.	x							
Lucy	citations are used as a indicator of a paper's contribution to science advancement.	x							
Lucy	editors performance, with non managerial roles, are evaluated through citations counts of the published papers.						x		
Lucy	"we editors have yearly assessments and so on, and we have targets to meet."					x	x		
Lucy	editor with managerial position have to steer the journal to conform to profitability / rentability indicators.						x		x
Lucy	citations are used as a indicator of a paper's performance, prestige, contribution to science and progress in a specific field	x							
Lucy	journals editors with managerial position have to monitor science gaps and competitors publications trends.								x
Lucy	"all editorial levels decision are based on money"						x		
Lucy	journal subscription price are set based on the expected number of paper that the journal will publish.					x	x		
Lucy	editors values and beliefs can conflict with journal / publishers strategic choices.			x			x		x
Lucy	some editor tasks are not valued by publisher (ex. conference organization, masterclasses)								x
Lucy	editors have little leverage on the levels of the apc fees.						x		x
Lucy	publication costs varies by journal size (economy of scale) and structural charges (services provided, graphic editors...)						x		
Lucy	publications costs are lower than some of the large fees charged by some editors.						x		
Jonathan & Nela	libraries negotiates with publishers								x

		Col1	Col2	Col3
Jonathan & Nela	new subscription models with publishing as service more and more common.			
Jonathan & Nela	diversity of organizations that negotiates agreements with publishers (ex. national, universities)			x
Jonathan & Nela	large varieties of publishers with different sizes.			
Jonathan & Nela	researcher sometime need to access specific journals or publish in specific ones.			
Jonathan & Nela	negotiations with publisher are mostly written.			
Jonathan & Nela	many factors influence the price of subscriptions (material usage, sharing policies).	x	x	
Jonathan & Nela	legal teams are involved in the agreements negotiations to make sure that there are conforming to university needs.	x		x
Jonathan & Nela	few publishers own almost all scientific journals (ex elsevier, wiley, springer nature)	x		
Jonathan & Nela	large publisher have a very mature and established business model.	x		
Jonathan & Nela	smaller publisher and society journals don't provide the sames services as larger publishers	x		x
Jonathan & Nela	academic institutions /consortium that negotiate agreement are split at the international level, with one or many institution for each countries or regions.	x		x
Jonathan & Nela	agreements used to be secrets and are more and more publicly available.			x
Jonathan & Nela	large academic consortium and national laws can influence the system and improve agreements transparency.			x
Jonathan & Nela	subscription price is now proportional to the number of publication in a specific publisher.	x		
Jonathan & Nela	swedish funders promote and pay for glod open access publication.	x	x	x

Author	Statement							
Jonathan & Nela	funders have agreements with open journals.						x	x	x
Jonathan & Nela	quality of some publisher included in the swedish agreements is questioned as they have potential bad practices (ex mdpi)		x						
Jonathan & Nela	there is different levels of open access journal, with diamond better than gold better than hybrid journals.							x	
Jonathan & Nela	diamond open access are free to publish and read, but somebody has to bear the cost (states, funders..)						x	x	
Jonathan & Nela	there is more publication than readers				x				
Jonathan & Nela	the increase in the number of publication make it impossible to keep up on the research happening, ie for broad areas.				x				
Jonathan & Nela	university department funding is based on bibliometric indicators and number of publications.				x	x			
Jonathan & Nela	funding policies can influences research production and push toward paper production.				x	x			x
Jonathan & Nela	there is a balance between the number of publications and the quality of publication.				x				
Jonathan & Nela	bibliometric indicators are not reliable at the individual levels or small group level.	x							
Jonathan & Nela	evaluation of scientists by peers is subject to subjectivity and local influence and bias.	x		x					
Jonathan & Nela	bibliometric indicators are quantitative and objective	x							
Jonathan & Nela	peer review evaluation of journals and publishers quality.			x					
Jonathan & Nela	need for qualitative and quantitative indicators of journal quality, especially the peer review process			x					
Jonathan & Nela	the norwegian list summarize the scientific integrity of journal.		x						

		Red	Blue	Cyan	Brown
Jonathan & Nela	difficult for researcher to assess seriousness of a journal.	x			
Jonathan & Nela	opens science community and practice can improve the quality of the research independently of the publishing system.				x
Jonathan & Nela	librarian can influence the system at the publishers levels, but should not judge journal quality.				x
Jonathan & Nela	researcher are the one who can judge journal quality	x			x
Jonathan & Nela	open science practice should be part of journals quality evalution.			x	
Jonathan & Nela	large publishers are in position of monopoly.		x		x
Jonathan & Nela	duality of publishers which acts to promote science and to make profits.		x		
Jonathan & Nela	open access has failed to change the publishing landscape and practices.		x	x	x
Jonathan & Nela	university, researchers, librarians are divided.				x
Jonathan & Nela	large publisher have the power to adapt quickly to changes in the system.		x		x
Jonathan & Nela	large publishers have a lot of power		x		x
Jonathan & Nela	publisher control all the identifiers data which create power (doi, isbm, orcid).		x		x
Jonathan & Nela	"the publishers become what is called the metadata master"		x		x
Jonathan & Nela	national libraries could be the keepers of publications identifiers and manage metadata instead of publishers.		x		x
Jonathan & Nela	the balance of power in the publishing system is in favor of the large publishers.		x		x

Source	Statement	1	2	3	4	5	6	7	8
Jonathan & Nela	preprints are transparent especially within open science.							x (cyan)	
Jonathan & Nela	researcher get more credits for publishing in prestigious journals.	x (green)	x (yellow)						
Jonathan & Nela	scientific papers can be used as training material for ai models				x (orange)				
Jonathan & Nela	creative commons license are not sufficient to prevent the use of papers as ai training material.				x (orange)				
Jonathan & Nela	authors transfer agreement can conflict with open science principle							x (cyan)	
Jonathan & Nela	publishers shifted their business model to business intelligence systems for research and academic institutions.				x (orange)	x (blue)			
Jonathan & Nela	"papers are just the raw material in publisher's system to then create business intelligence solutions for university leaders so that they can see, you know, improve the ranking, monitor what all other universities are researching in real time, positioning themselves				x (orange)	x (blue)			
Jonathan & Nela	the publishing system hard to change because it's based on a traditional merit system based on journal reputation.		x (yellow)						x (brown)
Jonathan & Nela	government have most of the power to change the academics publishing system.								x (brown)
Jonathan & Nela	changing the publishing system require changes in political beliefs.			x (red)					x (brown)
Jonathan & Nela	publishers think ahead of the system and drives policies.					x (blue)			x (brown)
Jonathan & Nela	relying on state funded journal can cause issues if the states and political leaders are not promoting good scientific practices.			x (red)					x (brown)
Patrick	all that matters to research performing organizations is how many papers are published	x (green)					x (magenta)		
Patrick	university ranking systems are highly related to how many papers can be pushed out		x (yellow)				x (magenta)		
Patrick	journal impact factor says nothing about the quality of a paper		x (yellow)						
Patrick	the journal impact factor was never intended to be a measure of journal quality by its inventor		x (yellow)						

Name	Note	Green	Yellow	Red	Purple	Magenta	Blue	Cyan	Brown
Patrick	within research institutions researchers are basically asked about only how many papers were published and how high the impact factor of the journal was	x	x			x			
Patrick	(in canada) while the main health funder requires open science policies, research institutions do not adhere							x	
Patrick	research institutions should be evaluating researchers based on whether they preregistered their studies, shared data, involved patients in their research, etc	x						x	
Patrick	large fraction of randomized controlled trials is not preregistered			x				x	
Patrick	there's a reproducibility problem/crisis			x					
Patrick	only a small fraction of peer reviewers has actually received training in peer reviewing				x				
Patrick	there are almost no free online peer review training resources				x				
Patrick	in germany they have integrated peer review training into the phd program				x				
Patrick	journals / publishers offer almost no reciprocity to peer reviewers (not even a month free access to the journal, etc)				x				
Patrick	there is no global agreed upon definition of peer review				x				
Patrick	publishing industry has the highest rates of return of investment						x		
Patrick	the people with the most agency are the publishers while those with the least agency are the researchers						x		x
Patrick	peer review should be integrated within a broader system (eg phd degree) and appropriately credited	x			x				
Patrick	it would be good to bring together leading researchers, publishers, editors, patients, etc, and discuss the issues with the publishing system and potential solutions								x
Patrick	the effectiveness of peer review is very minor				x				
Patrick	some editors have received death threats for rejecting manuscripts			x					
Patrick	two large surveys indicated patients want their data shared							x	
Patrick	patients and the public should be the ones most incentivized to force change			x					x
Patrick	some studies suggest the quality of preprints is comparable to published studies, which would suggest peer review is useless, other studies do find a difference in quality				x			x	

Name	Statement	Green	Yellow	Red	Purple	Orange	Magenta	Cyan	Brown
Patrick	preprinting is equitable							x	
Patrick	there is no monitoring of research quality by eg funders	x		x					
Patrick	it's crucial to monitor things like data sharing and open access publications as a research institution	x		x				x	
Patrick	societal values and assumptions that keep the system in place include the notion that peer reviewed means "high quality" or even "true" and professor means genius		x		x				
Patrick	the book doctored discusses high impact publications that were later retracted that led to numerous trials pursuing the amyloid cascade hypothesis on the basis of falsified data			x					
Patrick	many top dementia researchers have retracted papers			x					
Patrick	there is a bias that studies coming from high impact factor journals like nature are of good quality		x	x					
Patrick	10,000 retractions in 2023			x					
Timothy	primary function of the publishing system is to act as a scholarly record and a filter			x					
Timothy	greatest challenge for publishing is research integrity			x					
Timothy	nature started offering transparent peer review			x	x			x	
Timothy	quality in biomedical publishing may be higher due to more stringent requirements from pharmaceutical or biotech funding			x					x
Timothy	an important problem in publishing is the use of generative ai, especially in fraudulent research			x		x			
Timothy	scientific sleuths increasingly identify research that should be retracted			x					
Timothy	retraction watch is a great independent venture thst can help put pressure on publishers eg to retract an article			x					
Timothy	increasing volume of fraudulent research slips through peer review process			x	x		x		
Timothy	there is an attempt to use generative ai to improve (the efficiency of) the peer review process				x	x			
Timothy	large numbers of peer reviewers have to be contacted to ultimately find only two				x		x		
Timothy	huge exponential growth of research articles in the last 10-15 years leads to fatigue in the community						x		
Timothy	limited peer reviewers as it is unpaid time				x				

Name	Statement	Green	Yellow	Red	Mauve	Orange	Magenta	Blue	Cyan	Brown
Timothy	insufficient peer reviewers available to address submissions, this may be addressed by using generative ai that assesses eg technical details like coherence with author guidelines, grammar, etc				x	x	x			
Timothy	one way to reduce the burden on peer reviewers is to have more preprints, which can already be assessed by the scientific community before submission				x		x		x	
Timothy	publishers should carry the costs of preprint servers which are now covered by academic institutions. this has already happened with medrxiv by bmj which has an easy way to submit to its journals through the server							x	x	
Timothy	publishers are financially incentivized to contribute to preprint servers by making submitting to their journals easier (increasing apc income)							x	x	
Timothy	research square and springer nature are another example of a preprint server acquired by a publisher							x	x	
Timothy	many publishers are public and have to ensure shareholder profit							x		
Timothy	journal impact factor is the main criterion user by researchers to assess journal quality despite its inventor warning against that		x							
Timothy	to advance their careers researchers have to publish with the big publishers because these hold the high impact journals	x	x							
Timothy	the primary focus for publishers now is research integrity. researchers want to avoid publishing in journals like hindawi and then being amongst high volumes of fraudulent articles, leading to reputational damage		x	x						
Timothy	many publishers now have dedicated research integrity teams, work together with sleuths, and try to prevent fraudulent research from being published			x						
Timothy	the number one request consultants get from publishers is how to improve research integrity			x						
Timothy	authors commit fraud due to career pressure	x		x						
Timothy	the big impact institutions can make to disempower publishers is to stop evaluating researchers based on impact factors of journals they have published in	x	x							x
Timothy	the uk moved away from just using cv metrics like publications, journal impact factors and citations 10 years ago but in practice funders still do	x	x							
Timothy	commercial publishers are increasing collaborating with academic institutions and funders etc to promote research integrity			x						x

Name	Statement	C1 (green)	C2 (yellow)	C3	C4 (red)	C5 (orange)	C6	C7 (blue/cyan)	C8 (brown)
Timothy	alternative metrics to the impact factor are important but the problem is that they are not normalized	x	x						
Timothy	current metrics are all historical, new metrics could be predictive and forward looking to inform authors where to publish, share data/results etc	x						x	
Timothy	the majority of submitted articles are desk rejected, improving that process would lead to greater efficiency								
Timothy	the clinical publication space is driven by compliance to regulations and therefore the processes are highly efficient				x			x	x
Timothy	predictive analysis is increasingly used in clinical research to predict the right outlet for research					x			
Timothy	the whole biomedical sector is driven by compliance to some extent				x				x
Timothy	ai is a double edged sword as it can hep with predictive analytics but also contribute to fraudulent research practices				x	x			
Timothy	publishers are developing tools to detect fraudulent research but will never keep up because these are also lucrative businesses				x			x	
Timothy	a structural solution to fraudulent research is changing our acceptance of it				x				x
Timothy	we should try and take the motivations for fraud away	x			x				x
Timothy	publications should be disentangled from and secondary to data sharing							x	
Timothy	several countries like saudi arabia are actually working on a central repository for data sharing and analysis that feeds directly into health applications independent of traditional publications							x	
Salem	different types of journals exist like society journals								
Salem	society journals typically have editors who work in their spare time while commercial journals have paid editors							x	
Salem	very difficult for a publisher's journal to check financial numbers without publisher							x	
Salem	publisher-owned journals have very little negotiation leverage							x	x
Salem	among the most important stakeholders of the publishing system are patients and researchers								x
Salem	publishing is critical part of the scientific process of sharing ideas and results								
Salem	difficult to measure the impact of studies but getting more important in grant applications	x							

Speaker	Note								
Salem	peer review can be flawed in many ways, eg using llms to write the reports or relationships between authors and reviewers				x	x				
Salem	many reasons why reviewers may use llms, eg time constraints or insecurity about quality or their report				x	x				
Salem	peer review experience good for cv but not a criterion for hiring				x					
Salem	friendly and personalized journal staff may be problematic for publishers because of cost								x	
Salem	when people have landmark paper kind of data they would go to lancet or nature before slightly lower impact journals	x								
Salem	most novel studies are never replicated		x							
Salem	replication studies are crucial but not very interesting for journals to publish as they are not considered novel		x							
Salem	bigger journals may ask for more experiments etc to ensure validity but would still not typically publish replication studies		x							
Salem	sister journals can sometimes publish less novel replication studies	x	x				x			
Salem	journals do not publish replication studies because these will not be cited a lot, affecting journal impact factors	x	x							
Salem	citations are critical for journal impact factors	x								
Salem	double digit impact factors are very good	x								
Salem	higher impact factors are important for journals, eg greater interest from pharma companies	x								
Salem	journals need to publish several papers that will be cited very many times so they can also publish some papers that may not be cited as much	x								
Salem	impact factor very important in authors' journal selection but author experience with the journal is as well (eg editing quality and time to decision)	x								
Salem	a score for author experience with journals would be interesting									
Salem	preprints can help clarify who was first with conducting certain work and allow for pre-submission peer review				x				x	
Salem	journal editors monitor preprints and send out invitations for submission								x	

Speaker	Statement	Green	Yellow	Red	Purple	Magenta	Blue	Cyan	Brown
Salem	many commercial journals commission research works which influences the scientific process								x
Salem	commercial journals aim to raise apc for instance by commissioning research work						x		
Salem	publishing in high impact journals like nature helps secure funding	x	x						
Salem	personal values around fairness can prevent editors from seeking to impact the scientific process (eg by commissioning work)			x					
Salem	sister journals allow for publishing good articles the mother journal is not normally able to publish		x			x			
Salem	recently journals moved from subcription based model to open access with apc, incentivizing them to publish more						x	x	
Salem	commercial publishers have huge profit margins like 27%						x		
Lilian	university administration has different responsibilities for people publishing research								x
Lilian	with busy schedules peer review tasks are deprioritized				x				
Lilian	biomedical publishing should serve the patients and citizens			x					x
Lilian	movement toward open science is positive							x	
Lilian	value in explaining medical research in lay terms								
Lilian	publishing papers consumes too much of researcher's times					x			
Lilian	research that is performed should be published			x					
Lilian	quantity and quality are at odds with each other					x			
Lilian	academic progression depends on number of papers published	x				x			
Lilian	publications are the most important criteria for assessment	x				x			
Lilian	other aspects such as content and social impact, educational value are less prioritized compared to quantity of papers	x							
Lilian	number of publications are easy to count, so assessments are easier if this metric is used.	x				x			
Lilian	quality assessment is time consuming and requires humans	x							
Lilian	lot of international efforts to focus more on quality compared to quantitative metrics	x				x			
Lilian	at informant's university, merit should not depend on quantity of publications	x				x			

Name	Statement	C1	C2	C3	C4	C5	C6	C7	C8
Lilian	by broadening criteria for merit (for assessments) one can shift focus from only quantity of papers	x				x			
Lilian	historically, only quantitative metrics were considered.	x				x			
Lilian	universities with state funded tuition fees depend less on university rankings								x
Lilian	most important for the university is to hire qualified people	x							
Lilian	good infrastructure, funding availability, and quality of life are key in attracting people								
Lilian	university administration has no say in how and where people publish				x				x
Lilian	leadership of national universities meet regularly for discussions								x
Lilian	university administration has influence in decisions via large scale negotiations with publishers								x
Lilian	university administration cares about openness in publishing	x						x	
Lilian	visibility of published product is a priority for researchers	x						x	
Lilian	for researchers, it is important that the published product reaches the right audience	x						x	
Tomas	funders associate impact with societal benefits								
Tomas	it is difficult to trace scientific publications to concrete impact in most cases								
Tomas	open science has an impact on the research system							x	x
Tomas	impact assessment from the funder relies on reporting from the grant recipient	x							
Tomas	it is difficult to obtain information on impact without recipient's reports	x							
Tomas	grant agencies evaluate impact per program rather than via individual grants for some schemes.								
Tomas	it is hard to find the right balance between detail of reporting vs the foundation's needs								
Tomas	assessing impact relies on publications a lot	x				x			
Tomas	it is easy to rely on publications in measuring impact as it is a unified medium and it is easy to synthetize	x							
Tomas	some quantitative metrics are used but grant agencies don't solely rely on these	x							
Tomas	collaborations, networks are important in assessments	x							
Tomas	aim of foundation is to strengthen a research community in an area								x

Name	Statement						
Tomas	publications are used to verify that the applicant is doing what they received funding for	x					
Tomas	impact is assessed via citations and collaborations, network	x					
Tomas	for larger grants there is a deeper impact assessment with qualitative information	x					
Tomas	function of the publishing system is to ensure research integrity and quality		x				
Tomas	peer review is important in ensuring quality			x			
Tomas	for smaller grants, impact is evaluated internally	x					
Tomas	impact is not assessed based on quantity of publications at this funding agency	x			x		
Tomas	external peer review when selecting grants to be awarded			x			
Tomas	try to limit the bias of quantiative applicant characteristics by focusing on other aspects (quality, approach, impact)	x					
Tomas	in selecting grants for funding, metrics are not encouraged to be evaluated.	x					
Tomas	it is not a transparent process of how the committees assess applicant cv s	x					
Tomas	in biomedical research there are a lot of papers with many coauthors						
Tomas	foundation openly encouraging open science and open access					x	
Tomas	foundation is not a first mover, they are reacting and following directions.						x
Tomas	shift in the recent years. previously people at the funding agency did not pay attention to open science					x	
Tomas	foundation wanted to be separate from the research process and leave researchers do things the way they do things						x
Tomas	a modern funding agency listens to stakeholders and develops policies together with them.						x
Tomas	foundation actively supports open science					x	
Tomas	at this foundation, preprints are encouraged, and reporting of preprints is encouraged					x	
Tomas	it is uncertain whether evaluators would be able to detect ai use			x			
Tomas	ai is being used in evaluating impact	x		x			
Tomas	investigators have different objectives than the funders in terms of their research						x

Name	Statement									
Tomas	strategic objectives differ between foundation and researcher									x
Tomas	career advancement requires publications so it is risky to embark on a high-risk project	x								
Tomas	impact assessment surveys are kept internally	x								
Tomas	for some funding schemes, strategy is developed together with stakeholders									x
Trent	peer review process can be made easier (ex. portables reviews)					x				
Trent	promotion of new scientific publication types (podcast, videos)									
Trent	new scientific publication types increases research reach.									
Trent	people are resistant to changes and need to be educated.									x
Trent	there is a large variety of journal and editors positions.									
Trent	editors tasks can range from commissioning articles, to researcher education on the publishing system and support to journals.									x
Trent	pre-submission and editorial decision can be done before peer review					x				
Trent	submission process and peer-review can be facilitated to be more transparent, take less time and avoid desks rejections.					x		x		
Trent	assessing the fit of a paper to a journal's scope is challenging for researcher.									
Trent	prestigious journals receive many submissions.		x							
Trent	for researcher, a good journal is a prestigious one which will help their career.	x	x							
Trent	definition of a good journal varies depending on individual		x							
Trent	"i think a top-tier journal will kind of help you publish an article and not kind of like put stonewalls up."		x							
Trent	submission process lacks transparency and remains opaque.							x		
Trent	"we all know what the top-tier journals are: new england journal of medicine, nature, you know... the ones with the highest impact factor... even though impact is are not important..."		x							
Trent	common knowledge that impact factor = prestige = top journal		x							
Trent	ensuring the quality of peer review process is the most important task of a publisher.				x	x				

Name	Statement	green	yellow	red	purple	magenta	blue	cyan	brown
Trent	journal credibility and scientific integrity are more important than impact factor.			x					
Trent	the main goal of publishing system is to validate research findings.			x					x
Trent	papers mills are organized in criminal institutions.			x					
Trent	journals are targeted by paper mills which can be difficult to identify.			x					
Trent	authors are willing to pay for authorship on papers from paper mills.			x					
Trent	some journals will publish any papers regardless of quality, including papers from paper mills			x		x			
Trent	predatory journal have lower ethics than traditional journal.			x					
Trent	paper mills do not use traditional communication channels to contact journals.			x					
Trent	paper mills are huge organisations			x					
Trent	journals have to be open to new contributions and new institutions from various regions of the world.								
Trent	the peer review is still an effective to insure publication quality			x	x				
Trent	the increase number of publication create a relative lack of reviewers.				x	x			
Trent	reviewers might be easier to find for prestigious journals.		x		x				
Trent	researcher communities are an important for journals in specific areas.			x					
Trent	no current solution to the lack of reviewer as there is too many papers.				x	x			
Trent	to publish, researchers could have to review one paper.				x				
Trent	the effect of the unpublished preprints on scientific knowledge is unknown.							x	
Trent	open review systems enable open discussion within science community.				x			x	x
Trent	editors are part of the publishing system and their leverage on the system might varies between journal and publishers								x
Trent	institutions pressure researchers to publish in open access journal.	x						x	x
Trent	variety of journals in fees and access models, balance between open dissemination with apcs against free publication with limited reach.						x	x	
Trent	journal can promote plain language scientific content.								

Name	Statement	1	2	3	4	5	6	7	8	9
Trent	alternative science communication modes (videos, podcasts) can help disseminating research results.									
Trent	alternative science communication modes improve reach of research output to a broad audience (easier to understand, less time to read).								x	
Trent	science podcast or video storyboard can be peer reviewed and validated by peers				x					
Trent	publisher need to establish guidelines for ai use by researchers					x				
Trent	plagiarism check tools have been ussed for a long time by publishers			x		x				
Trent	ai guidelines are needed to prevent generation of false scientific results / images			x		x				
Trent	the belief that english should be the language of science has shaped the whole system.									x

1 = Academic career progression and precarity; 2 = Journal prestige hierarchy and bibliometrics; 3 = Research integrity and misconduct; 4 = Peer review capacity and quality; 5 = Artificial intelligence as a double-edged sword; 6 = Systemic overproduction of scientific outputs; 7 = Academic publishing as a commercial industry; 8 = Open science and alternative models for dissemination; 9 = Power asymmetries and relations