LinkTADs

D2.2 Report on the mapping of synergies and gaps (follow-up report)

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D2.2

Report on the mapping of synergies and gaps (follow-up report)

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Huazhong Agricultural University

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LinkTADs

Report on the mapping of synergies and gaps (follow-up report)

Introduction

The aim of this research is to seek to identify the resources available in animal health research in the EU and China (e.g. research competencies, infrastructures, technologies); and furthermore to explore gaps and synergies, and thereby possible forms of future collaboration between the EU and China. An online questionnaire survey was conducted to gather the perceptions of key stakeholders concerning research resources and gaps in their own geographical region. Apparent gaps will be discussed and joint activities between the EU and China will be suggested.

Method

A questionnaire survey was designed and implemented using the online platform 'Survey Monkey', with the objective of assessing stakeholders' perceptions of animal health research in the EU and China. The survey took the form of two parts: the first was to assess perceptions of research resources including personnel, infrastructures and technologies/equipment; and the second was to explore possible forms of collaboration between the EU and China, establish specific areas of interest and any common themes. The survey was designed so that each part would take no more than 5-7 minutes on average to complete, and questions were mostly multiple-choice, in order to encourage a reasonable response rate. The survey questions are reproduced in the appendix of this report.

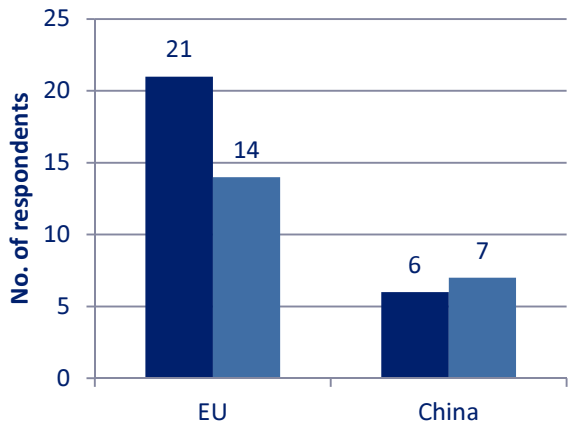
The survey was pilotted with 8 members of the Veterinary Epidemiology, Economics and Public Health research group at the Royal Veterinary College, in order to identify any mistakes, issues or ambiguity in the questions prior to being launched.

All LinkTADs partners were given the opportunity to complete the survey over a period of two weeks and were asked additionally to forward it to any key external stakeholders who they felt were relevant, i.e. those that are presently involved in animal health research in the EU or China.

Results and discussion

Figure 1 shows the number of respondents who took part in each part of the survey. Respondents were given the option to declare their affiliated institute, and these are listed in Table 1. Nine respondents chose to remain anonymous.

Figure 1 - Survey respondents by region



Survey part 1 Research theme

Survey part 2 Collaboration theme

Part 1	
Total responses	27
Total completed survey	24
Part 2	
Total responses	21
Total completed survey	19

Table 1 - Research institute affiliations given	No. of respondents
Huazhong Agricultural University, China	1
China CDC	1
National veterinary institute SVA, Sweden	1
FAO	2
FLI, Germany	1
SHVRI	1
CAHEC, China	1
Université Libre de Bruxelles, Belgium	1
CIRAD, France	2
SAFOSO, Switzerland	1
Bordeaux Sciences Agro-University of Bordeaux Laboratoire de Microbiologie, France	1
The State Scientific-Research Control Institute of Veterinary Medicinal Products & Feed Additives, Ukraine	1
University of Minho, Portugal	1
Centro de Investigacion Principe Felipe Valencia, Spain	1
SFQ - ESA / Instituto Politécnico de Viana do Castelo, Portugal	1
Institute of Animal Science Kostinbrod, Bulgaria	1
Total	**18**

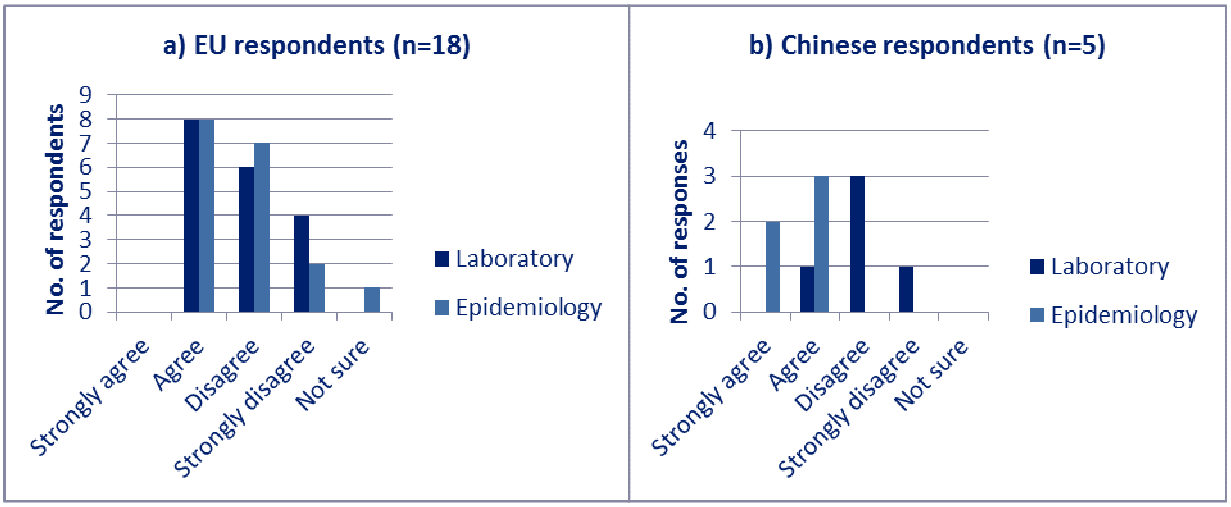
It should be noted that the responses to the survey are opinions and so the overall results will be unavoidably biased by the profile of respondents that took part in the survey. For example those who chose to complete the survey may have had particular concerns that they wished to raise. Overall there were fewer Chinese respondents than EU respondents, so we could say that the Chinese results may be less representative of the true spectrum of perceptions. However, there was an even representation from university and government Chinese research bodies.

The following figures depict the responses to survey questions, stratified according to whether respondents were based in the EU or China. These give an indication of current opinions and perceptions from expert stakeholders in animal health in these regions, and in some cases highlight possible differences in perceptions between EU and Chinese stakeholders, and possible gaps and synergies, which could be built upon in future LinkTADs activities. Respondents were asked to comment on the situation in their region (EU or China) only. Notable patterns or trends in perceptions, and the significance and implications of these, will be discussed.

Part 1 – Resources in animal health research

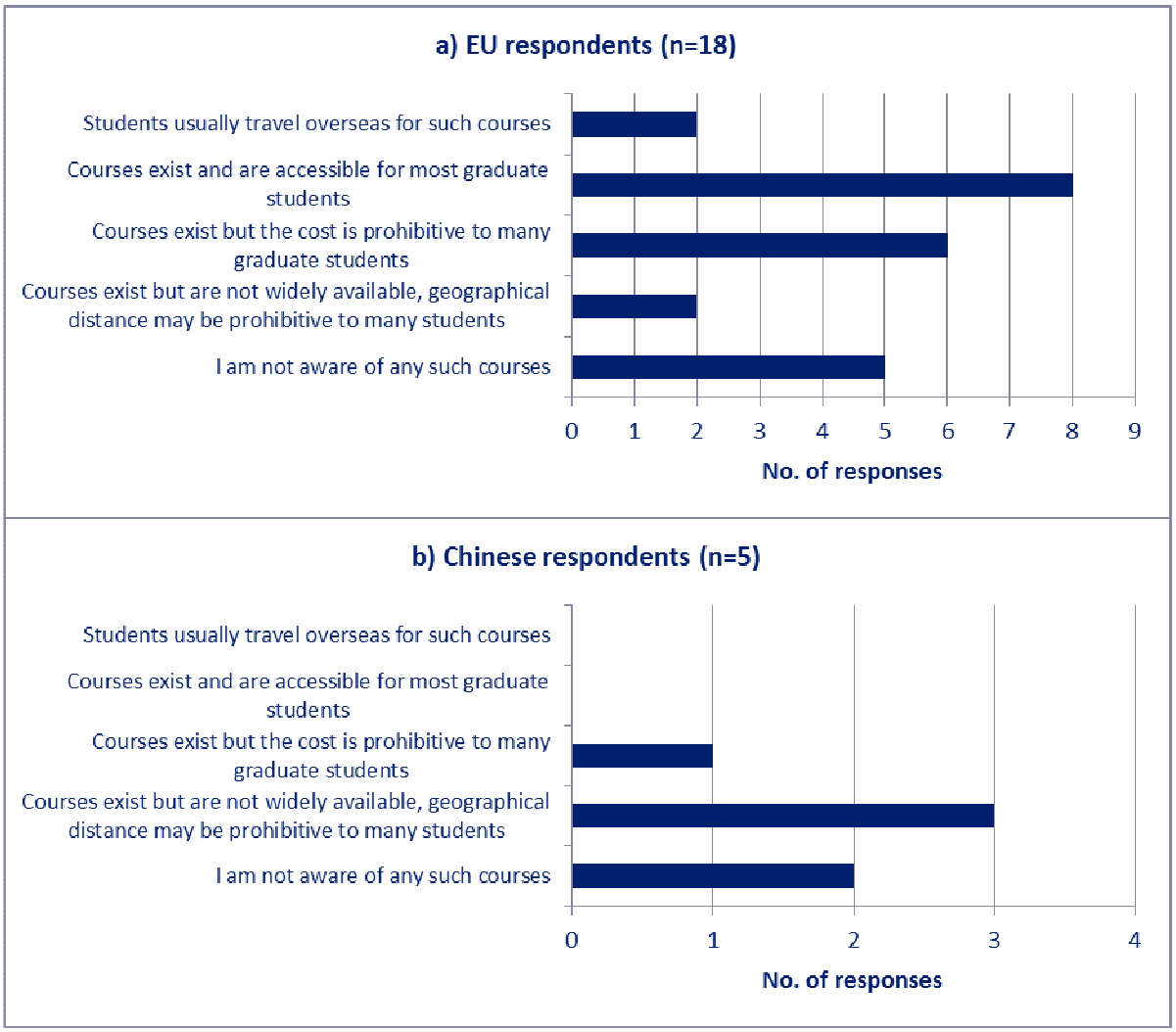
Figure 2 examines the differences in perceptions of EU and Chinese stakeholders of whether laboratory and epidemiology research is constrained by the availability of research personnel trained to an appropriate level. Interestingly, while EU stakeholders' responses were fairly evenly spread and did not show a clear opinion either way; Chinese stakeholders demonstrated clearly that the lack of effectively trained research personnel is a big issue in epidemiology, but not in laboratory research.

Figure 2 – "Do you feel that animal health research in your region is constrained by a lack of research personnel trained to an appropriate level?" a) EU; b) China



One additional comment by a respondent from the EU was: "There is too much left to commercial interest and not enough for pure independent science work", indicating perhaps a perception that young talented researchers are frequently finding their way into the commercial sector rather than research in universities. It could also be that it is a reflection of research funders increasingly expecting measurable impacts of research.

Figure 3 – "In your region, do graduate students have access to postgraduate training courses in epidemiology and/or risk analysis for animal health purposes?" Respondents could choose more than one answer. a) EU; b) China



It should be noted that the responses shown in figure 3 are, as with all questions in the survey, based upon perceptions only. However, regardless of whether postgraduate epidemiology courses exist or do not exist, if institutions involved in animal health research are not aware of these courses or feel that there are barriers to access then there may be an issue with accessibility. Many of the respondents from EU and China were not aware of any postgraduate epidemiology courses, which may represent a significant gap. In the EU there were some concerns about cost and geographical distance being a barrier to postgraduate training in epidemiology, but in China these concerns appear to be heightened, with none of the respondents agreeing that epidemiology courses are accessible, and geographical distance appearing to be a major issue.

Figure 4 – "Do you feel that animal health research in your region is constrained by a lack of technologies, equipment and/or facilities?" a) EU; b) China

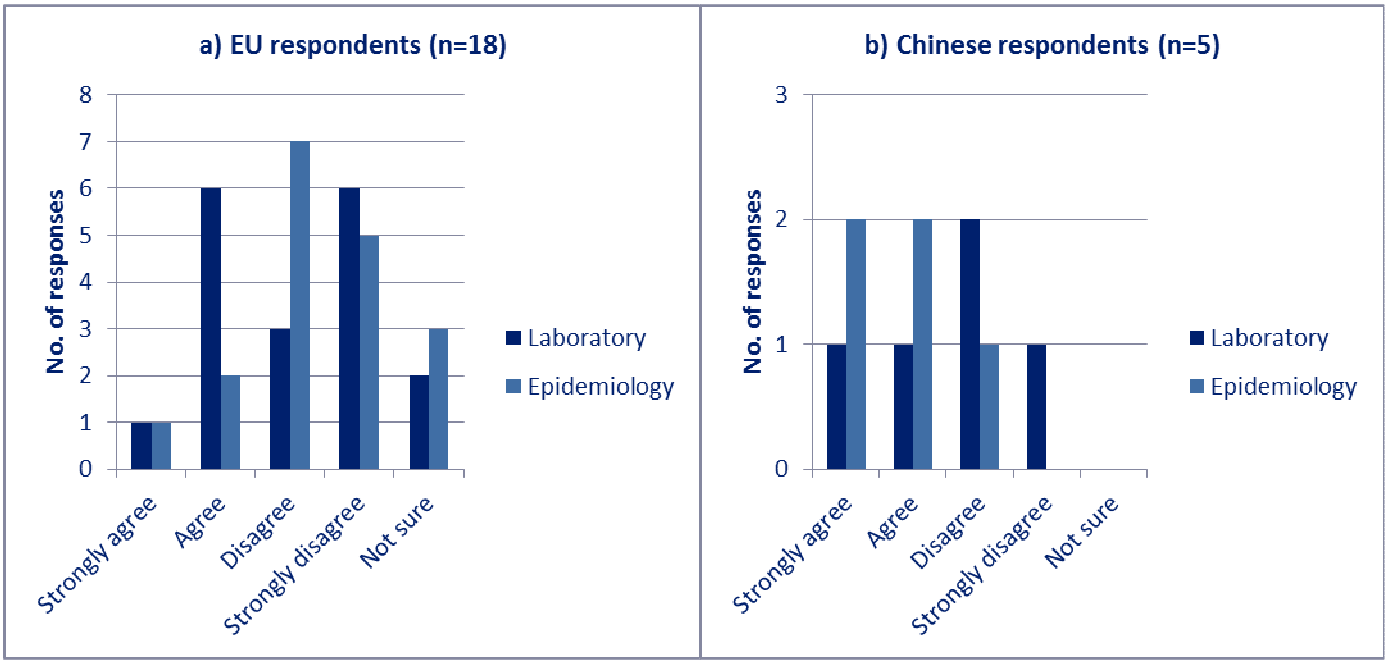


Figure 4 shows that neither EU nor Chinese stakeholders appear to have a strong view on whether laboratory research is constrained by a lack of technologies, equipment and/or facilities, although EU stakeholders tend to agree that it is lacking and Chinese stakeholders tend to disagree. However when it comes to epidemiology research, stakeholders in China appear to acknowledge a lack of technologies, equipment and facilities. However those in the EU appear not to agree or are not sure. The uncertainty may be due to a perception that epidemiology may not require a great deal of physical equipment and facilities compared to laboratory research.

In figures 5 and 6, we can see the opinions of EU and Chinese stakeholders regarding access to databases of animal health information and adequacy of database management in centralised systems. While there is no strong opinion in the EU, Chinese respondents very clearly expressed that they believe animal health research is constrained by lack of access to and lack of effective centralised management of data. Even given the small number of respondents, this is an indication of a gap which has been so lucidly expressed that it ought to be given due consideration as part of LinkTADs activities and perhaps explored further. Information-sharing opportunities could be considered.

Figure 5 –"Do you feel that animal health research in your region is constrained by a lack of access to databases of animal health information?" a) EU; b) China

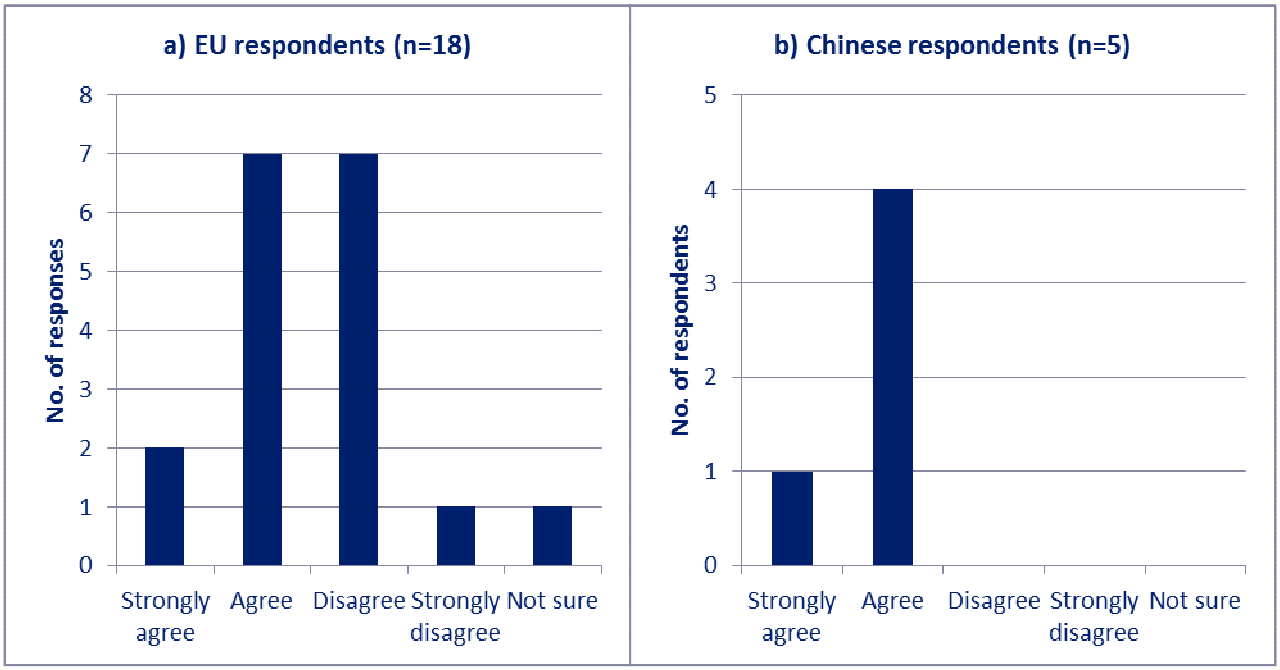
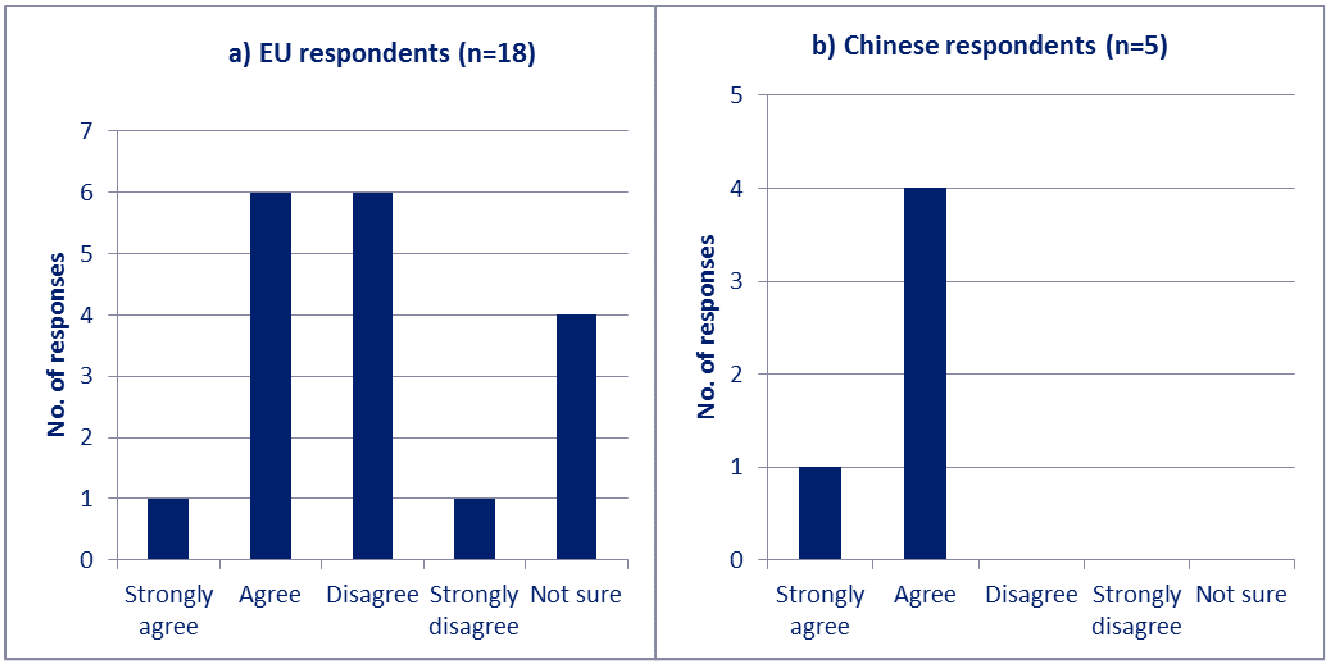
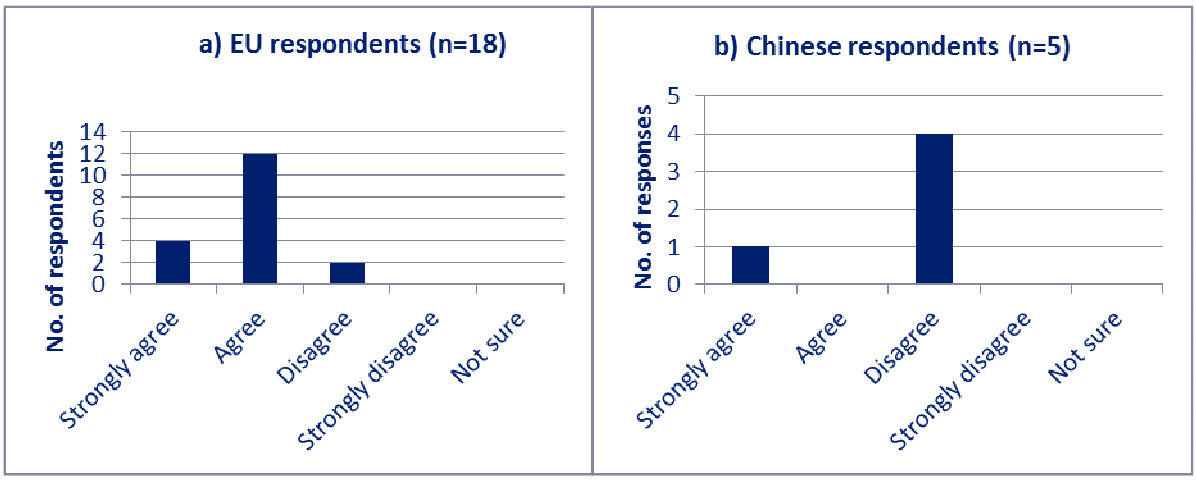


Figure 6 – "Do you feel that animal health research in your region is constrained by a lack of effective centralised management of databases of animal health information?" a) EU; b) China



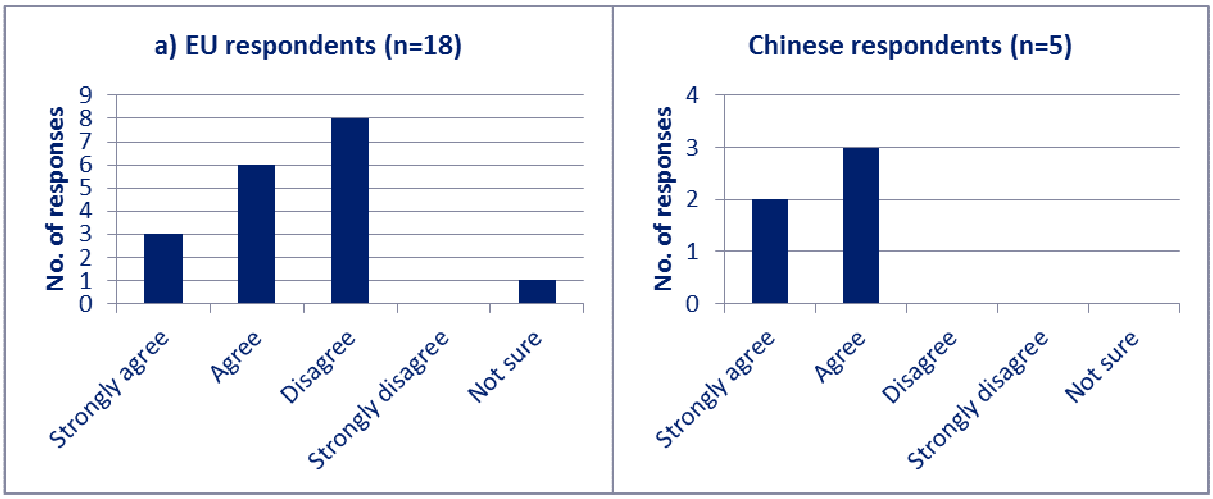
There appears to be a discrepancy between perceptions in the EU and China regarding access to funding sources, as shown in Figure 7. While EU stakeholders feel that access to funding sources is lacking, Chinese respondents generally do not. This is interesting and possibly may reflect the scale of funding support given to laboratory research in China.

Figure 7 – "Do you feel that animal health research in your region is constrained by a lack of access to funding sources?" a) EU; b) China



Chinese stakeholders, however, expressed that establishment of more reference laboratories would be desirable, as shown in figure 8.

Figure 8 – "Do you feel that your region would benefit from the establishment of more reference laboratories at regional, national or local level, for research into high priority animal diseases?" a) EU; b) China

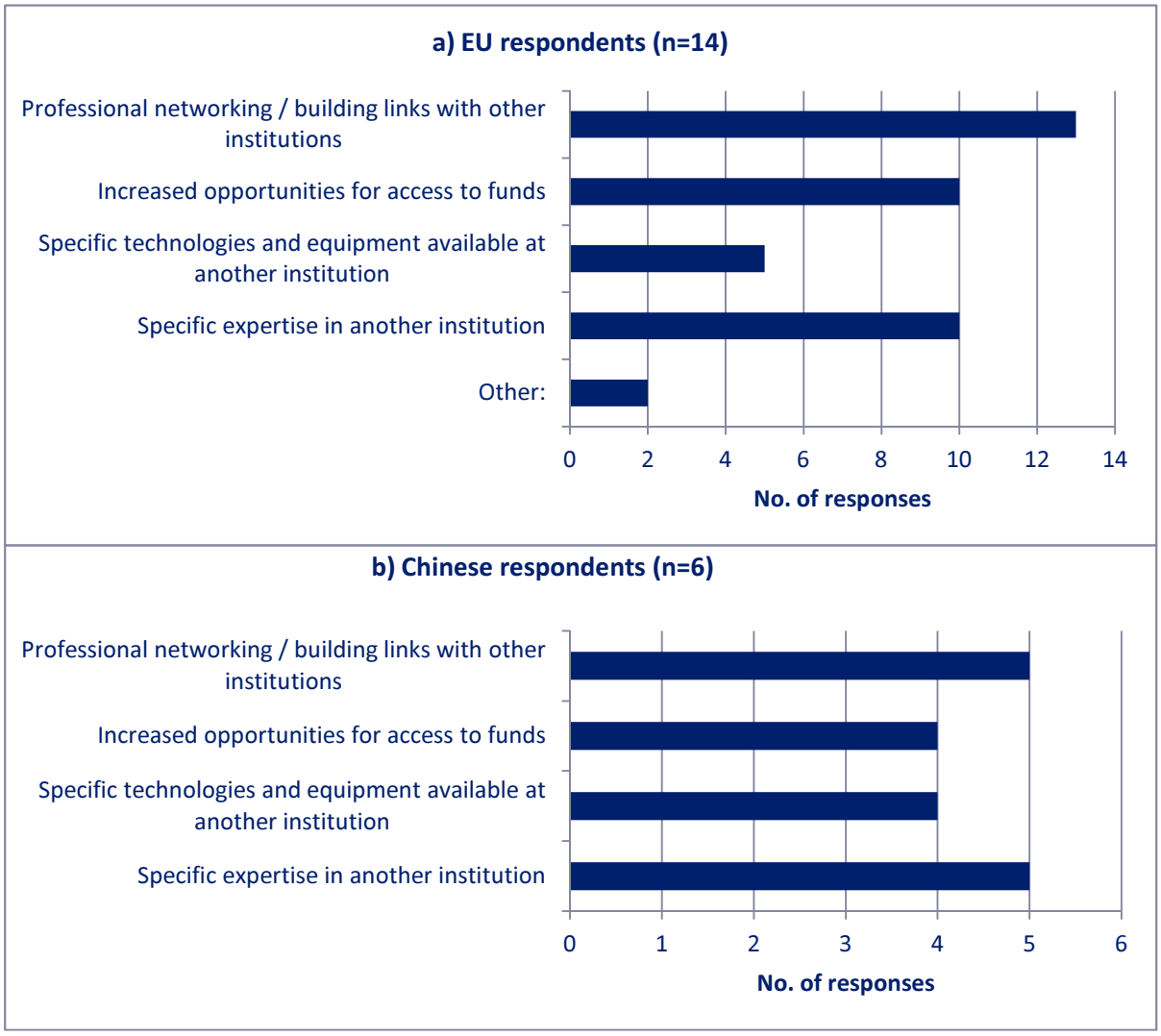


Part 2 - Collaboration opportunities

This part of the survey dealt with stakeholders' perceptions towards collaborations between the EU and China.

Figure 9 shows that EU and Chinese stakeholders largely agree on the primary reasons for wanting to collaborate with another research institution. Professional networking and accessing specific expertise at another institution are among the most important reasons.

Figure 9 – "On what basis would you decide to collaborate with another institution in animal health research?" Respondents could select more than one answer. a) EU; b) China



''Other' comments suggested were "chances to publish", and "[establishing] specific Public Private Partnership Networks".

Figure 10 shows the summary of a ranking exercise where respondents were asked to decide on the most important reasons that the EU and China should work together. As can be seen, EU participants felt that it was highly important to consider the potential of diseases to cross international boundaries. Chinese participants thought that a lack of resources in one region over another was the most important reason to collaborate, and this was also regarded as important in the EU. Lack of existing collaborations was seen as an important criterion by both parties and opportunities for publication was less important.

Figure 10 – "Why do you think institutions from the EU and China should work together on specific animal diseases/issues?" Respondents were able to select as many responses as they liked, and were asked to rank their choices in order of importance. No. of responses shown in each square. a) EU; b) China

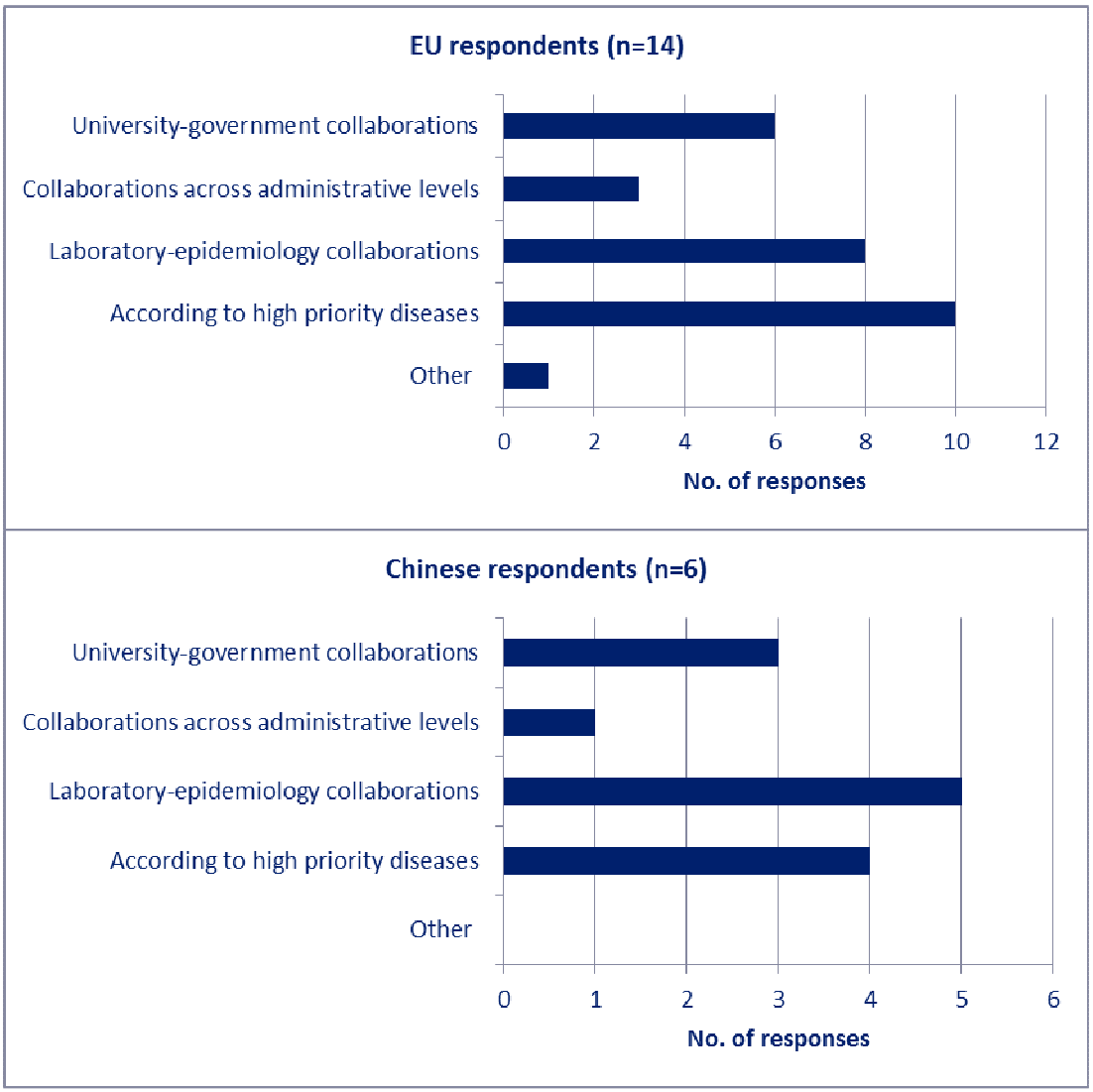
a) EU respondents (n=14)	1 = Most important	2	3	4	5 = Least important
Lack of resources in one region compared to the other (including technologies, expertise, infrastructure)	1	6	5	1	2
High potential of particular disease to cross borders	7	4		1	
Lack of existing collaborations	2	4	3	2	1
Improving opportunities for publication in international scientific journals		1	4	4	3
Other	2			1	

b) Chinese respondents (n=6)	1 = Most important	2	3	4	5 = Least important
Lack of resources in one region compared to the other (including technologies, expertise, infrastructure)	3				
High potential of particular disease to cross borders	1	1	2		
Lack of existing collaborations	1	3		1	
Improving opportunities for publication in international scientific journals		1	1	1	2
Other					

Comments in the 'other' category were: "implement an international network"; and "improve knowledge of mechanisms and treatments of diseases".

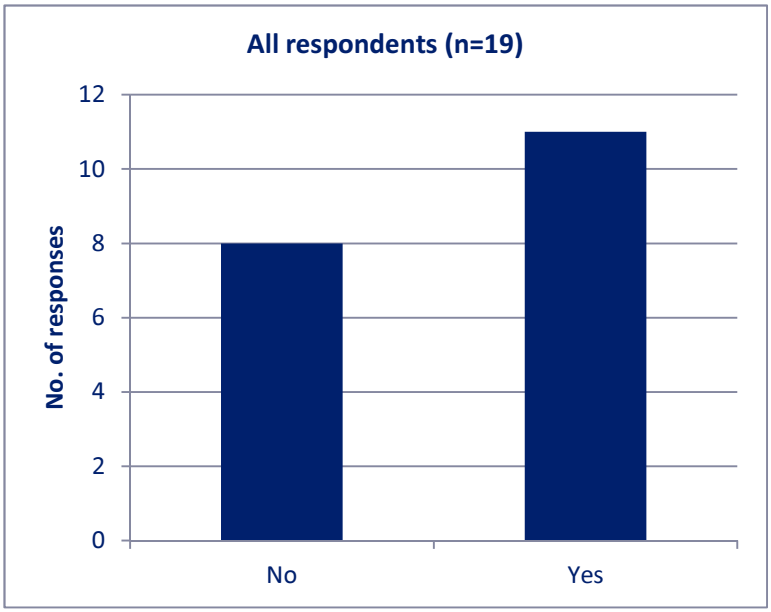
Respondents were asked where, in their opinion, should LinkTADs focus its resources in terms of collaborations and exchanges between institutions. The EU felt that exchanges should be based on the high priority diseases, reflecting the concern shown in the previous question regarding ability of diseases to cross borders. All expressed that laboratory-epidemiology collaborations would be important, a view which has previously been suggested during the course of the LinkTADs project to date.

Figure 11 – "Where should LinkTADs focus its resources when facilitating collaborations / exchanges between institutions?" Respondents could select more than one answer. a) EU; b) China



To attempt to identify gaps in previous collaborative efforts, respondents were asked whether they had previously collaborated with another institution in China (if based in the EU) or EU (if based in China), and if so what was the focus of their research. Figure 12 and table 2 detail these responses.

Figure 12 – "Have you ever collaborated with another research institution in the EU (if you are based in China) or in China (if you are based in the EU)?"



While it is encouraging to see that more respondents have collaborated across EU-China borders than those who have not, this is of course a biased sample as many of the respondents are partners in LinkTADs. We could instead consider the proportion of respondents who have not previously collaborated, and view this as a significant gap and opportunity. Some respondents who answered 'yes' also gave details of the focus of their previous research, as described in Table 2.

Table 2 - Focus of collaborative research	No. of responses	Further details
Epidemiology	3	
Avian Influenza	3	(AI, H7N9, priority diseases (HPAI)
Classical swine fever	1	
antimicrobial resistance	1	
viral vaccine molecular biology	1	
Preventive Health Management and Crisis Management	1	
Salmonella cost benefit analysis	1	

Summary of findings and recommendations for future work

Several apparent gaps in research resources were highlighted by survey participants in both the EU and China. Figure 13 summarises the major gaps identified. One issue was a concern for both regions – the lack of awareness of and difficulties in access to postgraduate epidemiology courses. The other issues were highlighted in one region but not the other, in other words these are gaps which could potentially be filled by cross-collaboration between the two regions, which is illlustrated by the arrows in figure 13.

Figure 13 – Gaps in animal health research resources according to perceptions stakeholders, and opportunities for cross-collaboration

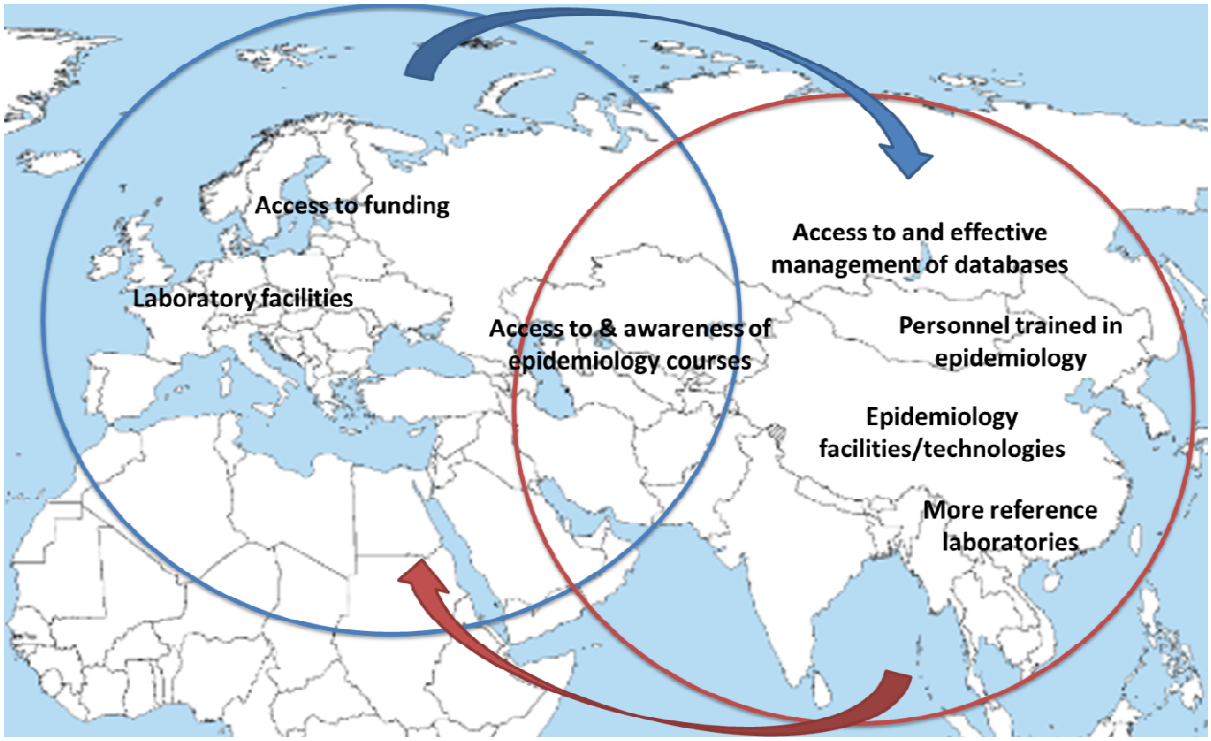
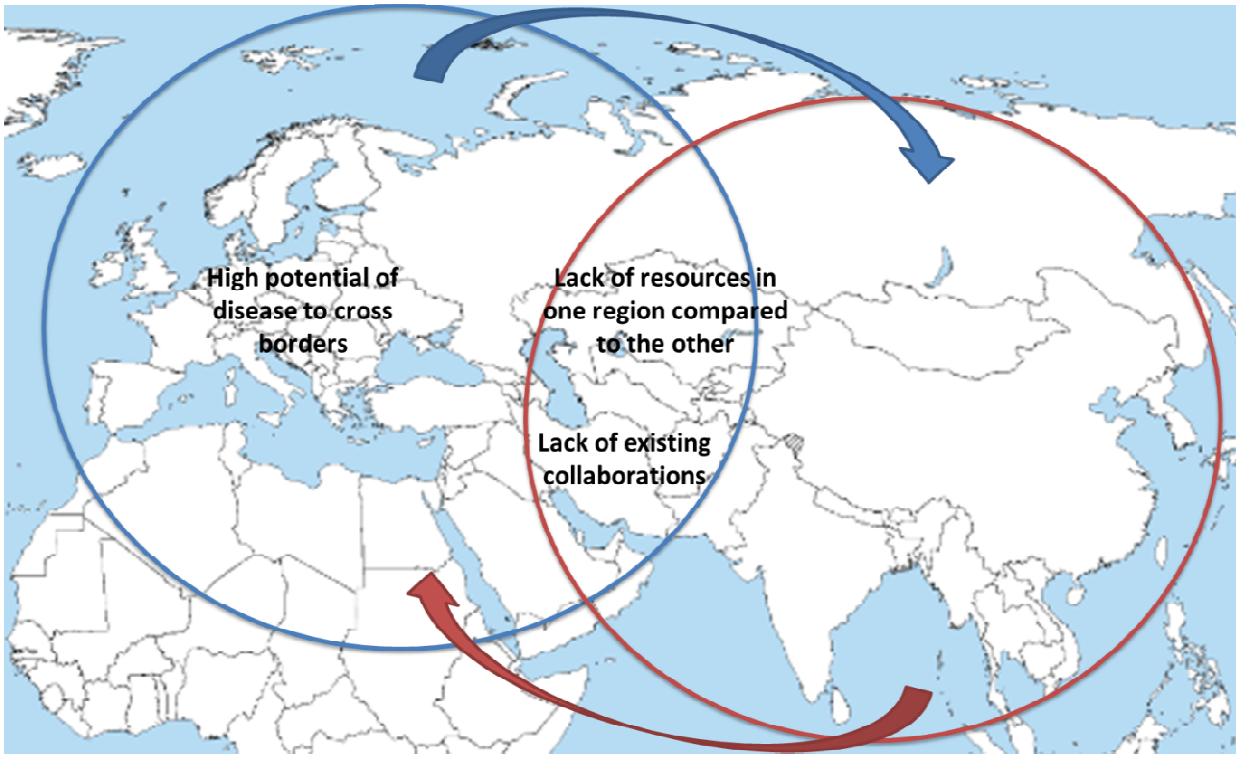


Figure 14 shows the major reasons why stakeholders feel it is important to facilitate collaborations between the EU and China. Filling the gaps in resources is a common interest shared between both regions, as is the need to address a lack of existing collaborations. This is encouraging and the identification of resource gaps in Figure 13 can aid in targeting future collaborations more precisely. The need to prevent cross-border transmission of important diseases is of major concern for the EU. This may be influenced to some degree by stakeholders' definitions of the term 'borders', as many EU stakeholders may have in mind their own country's borders rather than the EU; while Chinese stakeholders may not relate to their notion of borders in the same way as China is so much larger than an individual EU country.

Figure 14 – Major concerns of stakeholders from the EU and China regarding the reasons why cross-collaborations between EU and China should be established



This evidence will go on to inform future work as part of the LinkTADs project including Work Package 7 which will facilitate exchanges between the EU and China. The most effective use of LinkTADs resources can be made by identifying opportunities for collaboration based on the major priorities of stakeholders in both regions. By understanding the synergies and differences between the EU and China in terms of motivations, barriers and resource gaps, we can ensure that any future exchanges and collaboration projects are reciprocal in nature and targeted to address gaps and strengthen synergies.

Appendix

LinkTADs WP2 survey part 1 : Resources in animal health research

1. Are you based in (or have professional experience in) the EU or China?

☐ EU

☐ China

2. Do you currently work (or have previously worked) in animal health research?

☐ Yes

☐ No (please do not proceed with the survey)

3. Your research institution or affiliation (optional):

This part consists of 7 short multiple-choice questions about resources in animal health research.

Please consider the situation in the region where you are based or have expertise (either EU or China), and answer the questions as honestly as you can. If you are not sure you can indicate "Not sure".

Please feel free to add more information in the comments boxes if you feel it is valuable.

4. Do you feel that animal health research in your region (EU or China) is constrained by a lack of research personnel trained to an appropriate level?

	Strongly agree	Agree	Disagree	Strongly disagree	Not sure
Laboratory	☐	☐	☐	☐	☐
Epidemiology	☐	☐	☐	☐	☐

Please provide further explanation if you wish

5. In your region (EU or China), do graduate students have access to postgraduate training courses in epidemiology and/or risk analysis for animal health purposes? (select all that apply)

- ☐ I am not aware of any such courses
- ☐ Courses exist but are not widely available, geographical distance may be prohibitive to many students
- ☐ Courses exist but the cost is prohibitive to many graduate students
- ☐ Courses exist and are accessible for most graduate students
- ☐ Students usually travel overseas for such courses

Please provide further explanation if you wish

6. Do you feel that animal health research in your region (EU or China) is constrained by a lack of technologies, equipment and/or facilities?

	Strongly agree	Agree	Disagree	Strongly disagree	Not sure
Laboratory	☐	☐	☐	☐	☐
Epidemiology	☐	☐	☐	☐	☐

Please provide further explanation if you wish

7. Do you feel that animal health research in your region (EU or China) is constrained by a lack of access to databases of animal health information?

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Not sure

Please provide further explanation if you wish

8. Do you feel that animal health research in your region (EU or China) is constrained by a lack of effective centralised management of databases of animal health information?

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Not sure

Please provide further explanation if you wish

9. Do you feel that animal health research in your region (EU or China) is constrained by a lack of access to funding sources?

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Not sure

Please provide further explanation if you wish

10. Do you feel that your region (EU or China) would benefit from the establisment of more reference laboratories at regional, national or local level, for research into high priority animal diseases?

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Not sure

Please provide further explanation if you wish

End of Part 1

LinkTADs WP2 survey part 2 - Collaboration opportunities

1. Are you based in (or have professional experience in) the EU or China?

- ☐ EU
- ☐ China

2. Do you currently work (or have previously worked) in animal health research?

- ☐ Yes
- ☐ No (please do not proceed with the survey)

3. Your research institution or affiliation (optional):

This part consists of 5 short questions about opportunities for research collaborations between the EU and China.

Please consider the situation in the region where you are based or have expertise (either EU or China), and answer the questions as honestly as you can according to your own personal opinion.

Please feel free to elaborate on your answers in the comments boxes provided.

4. On what basis would you decide to collaborate with another institution in animal health research? (select all that apply)

- ☐ Specific expertise in another institution
- ☐ Increased opportunities for access to funds
- ☐ Professional networking / building links with other institutions
- ☐ Specific technologies and equipment available at another institution
- ☐ Other (please provide details)

5. Why do you think institutions from the EU and China should work together on specific animal diseases/issues? (tick all that apply, rank in order of importance)

	1 = Most important	2	3	4	5 = Least important
High potential of particular disease to cross borders	☐	☐	☐	☐	☐
Lack of resources in one region compared to the other (including technologies, expertise, infrastructure)	☐	☐	☐	☐	☐
Improving opportunities for publication in international scientific journals	☐	☐	☐	☐	☐
Lack of existing collaborations	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Please provide details of "Other"

6. Where should LinkTADs focus its resources when facilitating collaborations / exchanges between institutions? (select all that apply)

- ☐ According to high priority diseases
- ☐ Laboratory-epidemiology collaborations
- ☐ Collaborations across administrative levels
- ☐ University-government collaborations
- ☐ Other (please provide details)

7. Have you ever collaborated with another research institution in the EU (if you are based in China) or in China (if you are based in the EU)?

- ○ No
- ○ Yes. The focus of our research was:

8. Final question: If a researcher from your institution had the opportunity to participate in an exchange with another research institution, where would you like to send them and for what purpose?

Research institute(s) or geographic location	
Area of research interest e.g. virology, bacteriology, epidemiology, risk analysis, immunology, vaccinology, animal health policy	
Specific disease(s) of interest	