D1.2 Risk Assessment

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PU	Public	☒
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Revision history

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V0.1	10 April 2020	Petr Motlicek (IDIAP)	All	Structure defined
V0.1	3 September 2020	Joshua Hughes (TRI)	Section 2	Added risks related to WP3 and WP10.
V0.2	4 September 2020	Eric, Tuan-Anh (LUH)	Section 2.5	Added risks related to WP6
V0.3	4 September 2020	Dawei Zhu (USAAR)	mainly 2.4 and 2.5	Added risks related to WP5
V0.4	4 September 2020	Erinc Dikici (SAIL)	Section 2.4	Added risks related to WP4
V0.5	5 September 2020	Honza Cernocky (BUT)	Section 2.4	Added risks related to WP5
V1.0	5 September 2020	Petr Motlicek (IDIAP)	All	Finalising and proof-reading

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Executive summary

This deliverable, D1.2 Risk assessment summarizes the risks related to the ROXANNE project and proposed risk mitigation measures. The information provided in this document already includes new risks identified during the project duration (M1-M12, September 2019 to August 2020). The new risks are especially related to the COVID-19 crisis, which partially influenced the project from March 2020.

Due to the possibility to include new risks related to the recent lock-down period, this deliverable was postponed by ~6 months.

Many risks related to legal, ethical, privacy issues are covered by WP10 deliverables (i.e. subject to ethics check). Thus only an overview of the most critical risks are mentioned in this document.

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1. Introduction

This deliverable "D1.2 summarizes the risks of the ROXANNE project and proposes mitigation measures to minimize their possible impact. We also include new risks, which were indicated during the first 12 months of the project (M1-M12). This also includes risks raised during COVID-19 crisis.

1.1. Background

This Deliverable is part of WP1 (Management) which is among others responsible to "Develop quality control procedures, identify and recover any possible risks" in the ROXANNE project.

In summary, we have the following risks, already clearly defined in the project proposal respectively:

- BREXIT
- Partner withdrawal
- Partner under-performing
- Underestimation of required effort
- End-user requirements are not adequate
- Field tests don't attract enough end-users
- Technology does not reflect end-users' actual needs
- Launch of a similar concept by third parties
- Insufficient research progress
- Integration of developed technologies is too complicated.

1.2. Document structure

The following Section 2 explains the risk management plan for each of the work package of the ROXANNE project. Technology oriented WPs (WP5, 6, and 7) are merged to one subsection. The same applies for WP3 and WP10 work-packages related to legal, ethical and privacy oriented risks.

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2. Risk Management Plan

2.1 WP1 - Management

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Project results are not delivered on time.	Project could not delivered on time due to several factors.	Medium	Medium	Reallocate some amount of the task requirements based on the partner's capabilities.	If the project results are delayed by un - predicable situation, it will be discussed among partners (specifically project board) and also with the project officer.
COVID19	Due to COVID 19 travel bans in many countries and restriction on work places which impact project partner's contribution for the project.	Medium	Medium	Maximize remote meetings, discussions, and other events.	The project plan will be re-discussed to find the optimal solution (an impact to the project).
Brexit	U.K. partners will not be allowed to stay in the consortium after the BREXIT.	High	Low	The consortium contains two UK partners from: TRI and PSNI. Should the negotiations on UK-participants in the EU project be unsuccessful, the consortium takes necessary steps to bridge the negotiation period, or, in the worst, to replace the partners.	TRI is an important partner in the project. In case of BREXIT, they would consider moving their business to their offices in Ireland.
Partner withdrawal	Some partner(s) will	Low	Medium	The partner will be replaced by	If this situation happens, it will

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project	decide to leave the project.			another institution, or we will use the expertise from current partners in the project.	be immediately announced to the PO. From our experience, it can happen with some LEA partners (as their engagement can vary a lot depending on the emergent situation in their country. Nevertheless, ROXANNE includes 11 internal LEAs and thus the work of any LEA can be taken over by other LEA.
Partner under-performing	Some of the partner(s) does not perform as expected (according to the GA).	Low	High	Coordinator will meet with an under-performing partner to remind them of their obligations and devise a plan to get activity back on track.	If this does not show immediate signs of success, the coordinator seeks advice from the project officer. In the short term, distribute the work among other partners, and in the long term, replace the partner.
Underestimation of required effort	The KPIs prepared by the consortium are not feasible to meet.	Low	High	The project progress will be periodically monitored vs. spent resources.	Yearly updates of work-plan will be performed and priorities to reach the goals will be assigned appropriately.
Similar concept to ROXANNE already exists	Launch of a similar concept by third parties.	Low	Medium	Continuously screen the market and should an unexpected development occur, will adapt their	Regularly discuss with end-users, as they have a good overview of currently

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				exploitation plans as needed.	applied technologies/platforms in their work.
Research Progress	Insufficient research progress	Low	High	Balance research between high-risk and original directions, with lower-risk and popular directions. Regularly evaluate progress. Each research block (WP5/6) has already existing basic components which will be used as backup if required. Should progress in one component be below the expectation, the overall system will use the basic component.	Strengthen cooperation between technological partners to identify new research areas.

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2.2 WP2 - End- user requirements and use-cases

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Insufficient number of stakeholders.	Not sufficient number of stakeholders in the project.	Medium	Medium	WP2 and WP9 regular calls will be used to remind all consortium partners to propose new stakeholders of the project.	Contacting new stakeholders during the first months of the project.
Low response	Not sufficient end-user requirements. Low number of responses provided by them.	Low	High	We will reiterate the process and especially ask Interpol and LEAs to provide more info from their colleagues or other contacts.	We will use other channels to attract end-users for ROXANNE platform.
The project fails to connect product development to LEA requirements	The final platform will not be well accepted by the (internal) LEA partners.	Medium	High	Continued engagement of LEAs and knowledge exchange between LEAs and technical partners in order to develop realistic use cases.	Clear exploitation plan will be offered to LEAs by the tech partners to motivate them to closely participate in the development and testing of the project platform.
End-user requirements	End-user requirements are not adequate.	Low	High	In an unlikely event where more information is needed, INTERPOL can easily identify it and engage other relevant experts.	We will actively engage other stakeholders in the project.

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2.3 WP3, WP10 - Compliance with EU societal value, fundamental rights and legislation, Ethics check

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Inability to acquire ethical approval for the use of human participants in research.	If no ethics review committee is available to consider risks to research participants, there would be no independent oversight of these activities and no advocate for the research participants.	Low	Medium	Review possible ethical review committees that could consider use of human participation in research activities, but national boards and those of university partners.	If such a case were to arise whereby no independent ethical review committee was possible, the project would follow good ethical principles as outlined in the EC's 'Ethics in Social Science and Humanities' guidance and ask our ethics board to provide oversight. (In actuality, the ethics review board at USAAR was able to provide review.)
Delay to 1st field-test	If the 1st field-test is delayed, this will prevent the societal values workshop (T3.2) taking place.	Low	Medium	Delay carrying out the societal values workshop, and the associated deliverable (D3.1).	If the first field-test is delayed by a long time, the societal values workshop could be held virtually. (In actuality, delaying the workshop with the field-test will only create a modest delay to submission of D3.1).
Personal data breach	Personal data processed for the project by a partner experiences loss or unauthorised	Low	High	All partners to review their data security measures, and technical and organisational measures to safeguard personal	Partners agree to discuss how to deal with a personal data breach (e.g. whether there is a need to inform

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	access.			data	a data protection authority, which data protection authority(ies) should be informed, whether data-subjects should be informed, how data-subjects should be informed).
Failure to satisfy ethical or data protection requirements.	Failure of key WP10 ethics requirements related to ethical research and legal bases for data processing.	Low	High	Review all project procedures and policies to ensure that they are compliant with ethical and data protection standards.	If solutions cannot be found to issues that arise, research activities that have not met ethical/data protection requirements could be paused until solutions are found.
Lack of data-subject control	Data-subjects being unable to exert control over their personal data.	Low	Low	Process data gathered from data-subjects according to consent, allow data-subject to object to processing of their personal data when it is not gathered from them.	Edit and re-share datasets where a data-subject has withdrawn consent or objected to processing.

Note that, in addition to the risks highlighted above, D10.16 included a risk assessment regarding misuse and mass surveillance. An overview of those risks has been adapted to format in this document here:

Risk	**Description of risk**	**Likelihood**	**Impact**	**Proposed risk-mitigation measures**	**Contingency**
Sharing of critical information	Leaking of sensitive details through dissemination.	Low	Medium	Following dissemination guidelines. Seeking guidance from the Security Advisory Board or Internal Ethics Board.	In extremis, dissemination materials could be recalled by removing them from the project website, or repository, or asking for a

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					journal article to be rescinded, for example.
Misuse of ROXANNE data	Unauthorised access and use of ROXANNE project personal data.	Low	Medium	Limiting access to sensitive data	Pausing data processing/data sharing with partners until adequate organisational policies are in place.
Exploitation of legal grey area	LEA officers using 'research' as a cover to carry out data processing they would not normally be allowed to do under their law enforcement mandate.	Low	High	Logging uses of the ROXANNE platform.	Informing LEAs of activities that LEA officer have conducted whilst testing the ROXANNE platform.
Incidental findings	Whilst processing data, partners discover information indicating that criminality has occurred.	Low	Low	Following the incidental findings policy.	If a partner discovers information indicating that criminality has occurred, it is to be reported to local law enforcement.
Use of the ROXANNE platform on real LEA data before it is ready.	A ROXANNE prototype being used to assist in investigations during a testing phase.	Low	High	Ensuring LEAs are aware of the nature of ROXANNE as a prototype.	Informing LEAs of potential errors that could have arisen.
Misrepresentation of findings.	Researchers making the ROXANNE platform seem better than it is.	Low	Low	Following dissemination guidelines.	Ensure that any exploitation partner provides any potential customer with accurate information about the capabilities of the ROXANNE platform.
Social media analysis.	Discovering the identity of people	Low	Medium	Following consortium	Destroying data that identifies

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	whose social media data is analysed.			policy not to attempt re-identification.	someone from their social media data.
Export to a state controlled by authoritarian regimes.	ROXANNE is used by an oppressive regime against an innocent population.	Low	High	Following exploitation guidelines.	Implement digital rights management as part of the exploitation phase so that licenses can be rescinded immediately.
Mass surveillance and violations of human rights.	ROXANNE is used to analyse data about the public at large.	Low	High	Logging uses of ROXANNE, implementation of lawful decision-making mechanism	Implement digital rights management as part of the exploitation phase so that licenses can be rescinded immediately.
Discriminatory use	Analysis of 'Abnormal behaviours' highlight innocent behaviours owing to misunderstanding behaviours from different cultures.	Low	High	Evaluation of training data-sets for bias, assess meaning of 'abnormal behaviours'.	Re-training machine learning models that are shown to be biased.

Further, the 'Ethics Touchpoint table' conducted in WP3 provides analysis of ethical risks, which are discussed in detail in D3.1. Additionally, data processing risks for each partner involved in high-risk processing will be presented in completed data-protection impact assessments as part of the next iteration of the data management plan, in D1.7.

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2.4 WP4 - Data management

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Unavailability of real data.	Technical partners do not have access to real (criminal investigation) data to evaluate the technologies	High	Medium	End-user partners actively participate in the continuous evaluations of the ROXANNE platform.	• LEAs will do evaluations on their side with real data and will provide frequent and anonymous feedback on the accuracy of technologies to the technical partners. • Interested stakeholder members (e.g. Ulm police and ZITIS) will be invited to also evaluate the platform. • LEAs will be motivated by providing a free license for the platform at the end of the project.
Relevance of publicly available data.	Publicly available datasets do not cover the topics/modalities relevant to the use-cases	Medium	Medium	Use combination of datasets, collect own data	• Different datasets will be used to evaluate different technologies and artificially merged whenever possible. • ROXANNE will collect its own dataset covering the topics of use-cases and the data modalities involved. • Missing ground-truth information will be faked to create a realistic setting.
Unavailability of web sources / social media	Changes in the API/Terms of Use prohibit the ROXANNE	Medium	Low	Monitor API changes regularly, use different sources if needed.	ROXANNE will monitor changes in the API and make the necessary

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platforms.	platform to receive data partially or completely.				adjustments. In case of a change in the terms of use, alternative web sources / social media platforms will be investigated.
Data presented in field-tests do not meet LEAs' expectations.	The use and pre-processing of data in field-tests do not match LEAs' expectations.	Low	Low	Establishing a transparent information and feedback loop between the technical and LEA partners.	• The technical partners will make sure that the data availability and pre-processing methods are clearly explained to the end-users. • The end-users will give regular feedback to the technical partners about their methods of data use. • The upcoming field-test(s) will be adjusted based on these feedback.

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2.5 WP5, WP6, and WP7 - Speech, text and video data analysis, Network and relation analysis, Integration and visualisation of results

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Incoherence of data from testing scenarios and real LEA use.	The data used by technological partners in development and testing (i.e. NIST, CSI, ENRON, simulated) is too far from data in real LEA scenarios.	Medium	Medium	The technologies are being developed with robustness in mind, this means that they should produce usable results on real data. All technology partners use extensively data augmentation, that contributes to coping with data mismatch. Moreover, close cooperation and feedback loop is foreseen when technologies will be deployed on real LEA data.	Larger amount of data will be used for development.
Roxanne technologies not available in desired languages.	LEA might have rapidly changing requests for new languages that are not in the current portfolio of technology partners.	Medium	Medium	Technology partners have experience with rapid development of engines for new languages (for example from the US Babel project), but the availability and performance depends on training data. Data can be acquired from commercial providers or recorded, which is however demanding from both financial and organization points of view. Some	The consortium will attempt to ensure that data resources specific to the LEA requested language will be purchased by some of the consortium partner(s) for commercial use.

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				technologies (such as diarization, Voice activity detection and partly speaker recognition) are language-agnostic.	
Technological risks and integration	Integration does not work. The ROXANNE project involves different technologies from different partners and integration of these technologies might not work as expected.	Low	High	• All technical partners are involved in the specification and design phase • industrial partners, Pho, Airbus, Aegis, Aditess and ITML, are working in close collaboration • follow an incremental process for the integration, add functions gradually in order to prevent possible problems.	Conventional integration approaches will be employed.
Combination of core technologies is practically not feasible.	Lack of a real scenario involving the different modalities (Audio, Videos / Images, Text and Network) which will not allow to test the correlations that can be made.	Medium	Medium	• End-user partners actively participating in use cases definition • Work on partial correlations Audio/Video, Text/Image, etc.	This is a research risk. Drop one of the modality, the least interesting from LEAs point of view.

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				• Define at least a simulated scenario to show the feasibility of the approach.	
Speech Technologies do not perform well enough.	The use-case scenarios are too complex (e.g. too noisy data aligned with the scenario) so that the speech technologies yield very low performance.	Low	High	There are 4 partners (BUT and IDIAP, PHO and SAIL) in ROXANNE working in the Speech technologies, with large experience from the past projects.	Clearly define which technology operating on the speech can offer sufficient performance and avoid using the other.
Text processing technologies do not perform well enough.	Available data may be very different to the real data (not available for now). We could face domain-shift issues.	Medium	Medium	There are two partners (USAAR and IDIAP) working in the text processing technologies. We will test a more robust model that is less sensitive to domain shift. We will employ a low-resource algorithm to alleviate domain-shift by having a small fraction of in-domain data.	Clearly define which technology operating on the text can offer sufficient performance and avoid using the other.
Network analysis technologies do not perform well enough.	Disruptions due to the employee changes in the partner(s).	Medium	Low	There are two partners (LUH and UCSC) working in network analysis.	Clearly define which technology operating on the network can offer sufficient performance and avoid using the other.
LEA needs	Technology does not reflect end-users' actual needs.	Medium	High	Design of the ROXANNE tools will be discussed intensively with the	Engaged user partners, external experts, and

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				consortium partners involved in WP4-WP7.	stakeholders will be consulted (i.e. panels) to ensure the project's benefits regarding the scope, type and presentation of the framework.
Complex integration	Integration of developed technologies is too complicated.	Medium	High	Application of simplified integration of engines (i.e. dockers) into final workflow.	ROXANNE R&D plans are quite ambitious: accelerate several types of technologies in machine learning beyond state-of-the-art (related to speech/text/video processing and network analysis) and integrate them with visualisation and data exchange tools into one platform, tested by LEAs. Nevertheless, the consortium has a large number of technical partners (led by AIRBUS) with excellent experience in the given technological domain.

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2.6 WP8 - Field tests, user training and continuous testing

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Field Tests planning and implementation	Field tests do not attract enough end-users.	Low	Medium	Strengthen and intensify foreseen and targeted dissemination and engage relevant stakeholders via INTERPOL's network in 194 member countries to ensure interested end-users participate in field-tests	Re-run the field-testing.
Low number of LEAs for end-users	Field tests don't attract enough end-users.	Low	Medium	Engage a large number of stakeholders.	Strengthen and intensify foreseen and targeted dissemination and engage relevant stakeholders via INTERPOL's network in 192 member countries to ensure end-users participate in field-tests.
COVID-19	Inability of physical participation due to COVID-19 crisis or other pandemic issues.	High	Medium	ROXANNE consortium will maintain a constant and more intense communication to provide a back-up plan that will include virtual meetings and other adjustments. ROXANNE coordinator will also ensure that all this adapted situation will be communicated to the EU so as for the	N/A

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				PO to be regularly informed.	
Tight deadlines of field-tests	Alteration in planning process for the field test procedures with tight deadlines for management and delivery.	Medium	Low	ROXANNE coordinator, along with the WP leaders and the technical team will have a strict program management. If necessary the willingness of consortium partners to work over a longer period during the preparation and execution phase.	Postpone the field-testing event, while informing the PO.
System failure	System Failure during the field tests (e.g. hardware overload, component unavailability due to unforeseen bug etc.).	Low	Medium	The existence of a backup plan in place such as a fail-over system to cover the gap (e.g. by limiting the number of simultaneous calls / users in the system, extensive testing, video screenshot of the working component in advance and shown in case of a failure etc.).	Have several dry-runs before the field-test events.
Communication	Poor communication between technical partners and LEAs during the field test events.	Low	Low	Plan regular in-depth meetings to discuss relevant topics on interfaces between tests. - Perform pre-tests and dry runs with the participation of all the field test partners. - Follow in detail the Field Test Plan Deliverable.	Attract more LEAs to pay high attention to field-test events.
Unprepared components for field-testing	A lot of components are on the critical path of	Low	Medium	Have project management meetings in which progress for each	Re-organise the field-test event to demonstrate only those

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	not being ready on time.			of the components is discussed: make go no go decisions for the roll out of certain components. Have back-up plans ready in case one of the components delays.	components which are in a good shape. Improve other components for the other field-test event.
Requirements for field-testing	End-user requirements are not adequate for field-test events.	Low	Medium	In an unlikely event where more information is needed, INTERPOL can support this need by engaging further relevant experts.	Improve the communication with LEAs.
GDPR compliance.	Lack of GDPR compliance during the field test meetings.	Low	Medium	ROXANNE consortium along with its legal partner TRI have issued all the relevant documents (Appendix I) that are GDPR compliant. All these documents will be revised and updated if needed. Partners will abide by the GDPR in processing data at the field-test and in processing data collected at the field-tests.	Re-organise the field-test event to be GDPR compliant.
Training platform for field-testing	Field Test Training Platform not delivered.	Low	High	The training platform will be tested before the field-test during several dry-run sessions.	Postpone the field-test even and inform the PO about this.

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2.7 WP9 - Dissemination, exploitation and communications

Risk	Description of risk	Likelihood	Impact	Proposed risk-mitigation measures	Contingency
Insufficient dissemination	Less number of dissemination activities as compared to the KPIs mentioned in the grant agreement.	Low	High	We will stress several times to motivate academic and industrial partners to do more on dissemination. We will encourage LEAs to disseminate on their website and their relevant channels. Use of trackers to record change in impact or reach through various avenues of communication, dissemination.	Put much large pressure on academic and industrial partners especially.
Incorrect or misleading communication of the project results.	Incomplete or incorrect communication which might reflect poorly on the project.	Low	High	All dissemination material and key communication assets reviewed by the entire consortium.	Employ external partner (e.g. a professional company) to help with this issue.
Lack of significant contribution to scientific community	Risk of not having enough papers published about the technical innovation and break-through made in ROXANNE.	Low	High	Regular checks on the papers published by partners. Working towards achieving all KPIs related to such publication.	Put much greater pressure on (especially) academic partners by the project coordinator.
Exploitation	No agreement on exploitation activities.	Medium	High	We have enough partners so that the exploitation will be supported by some of them at least We will aim for open source SW (released freely for LEAs, at minimum with certain years after the project ends).	Finalise the exploitation plan only with certain partners.

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