1.   Overall

1.1.   Development:

▪   Concept/goals.

»Data Loam« was designed as a multi-faceted arts-based approach to one of the more intractable and urgent problems facing our contemporary digital environment today: the massive proliferation of data, and with it, a particularly nuanced set of complexities confronting our national libraries, universities, research labs as well non-academic cultural institutions and industry-oriented environments. The urgency of the problem circled around three areas: archiving (what to archive and how), accessibility (how to ensure that knowledges systems would remain, intrinsically, 'open' in the face of ever-increasing data) and experimental (enabling creativity, intelligence, curiosity, diversity and risk to remain as fundamental to our way of life). In so doing, »Data Loam« rejected the entrenched paradigm of indexicality as the only method capable of articulating the 'how', 'what', 'where' and 'when' of the internet. This meant rejecting also the entrenched Cold War binaric systematizing that tended to promote apocalyptic narratives of technology pitting 'man' against 'machine', and in so doing, taking as given the end of freedom, rule of law, governance and indeed humanity itself.

Instead, »Data Loam« took as its starting point precisely the unruly materiality of information, with its the massive proliferation, messy logics, oddly cathected derivatives of circulation and exchange, navigational gaming, multi-dimensional visualities, crypto-economies, block-chain equivalences, and complexly sutured arenas of cultural difference. Rather than trying to compartmentalise, frame, cut-down, or force into silos or pockets of information, »Data Loam« foreground this exponential explosion of Big Data. It did so, first and foremost, by putting art-based research and practice at its core, emphasizing the logics of sense, planes of immanence, feedback loops, multi-dimensionality, entanglement, and diffraction.

»Data Loam« was able to reach its main goal: the articulation of how data becomes self-organized and can produce a kind of open self-governance that relies of the mass proliferation of information. On a practical level, this included developing an algorithm that could enable a new lexicographical search and tag organising system. Perhaps most significantly, »Data Loam« answered the question of 'how' correlations 'matter'; that is to say, how correlations generate matter, and in so doing enable heterogeneous and local dimensionalities that 'in-form' aesthetic-ethical-political ecosystems.

▪   <u>Changes in research orientation</u>.

All research entails some form of change from its outset to its delivery. For the »Data Loam« project this emerged from a sustained exchange of communications between and amongst our partners, where implementing an arts-based 'unknowing' or 'curiosity' began to take us in directions which we had identified, but only as the project progressed, did we realise how extremely important it was, and would become. This could be briefly described as a 'method' for 21st century arts-science based research. Initially we focussed on various methods, drawn from different disciplines (library sciences, physics, cybernetics, contemporary philosophy, political theory, feminism, contemporary art practice, queer theory and critical race studies), with the view that we would be suturing these various methods to develop the project. However, we soon came to realise that this approach fell into the same trap we had criticized at the outset: the silo/compartmentalising of knowledge. What »Data Loam« came to articulate during the project was the beginning of a truly inter/intra-disciplinary methodology, one that enabled a systematic approach without sacrificing the radical, boundless nature of information. We developed the concept of 'mesh' to begin to articulate the various 'sticky cohesions', movements, shifts of information. This multi-dimensional 'mesh' could not be reduced into disciplines or faculties as had been done via 17th-20th century liberal arts and science frameworks. Instead, what we found is that 'mesh' could provide (and did provide) the platform for which we were able to reach our goal(s).

1.2.   Significant results.

▪   <u>Achieved aims</u>

We were able to meet and exceed our stated aims. »Data Loam« focussed on the problem of exponentially proliferating data in order to tackle questions of data ownership, data politics, speculative design of future data archaeology and novel approaches to so-called 'post-factual' data. At one level, our aim was to provide a different approach to the archive, open access, and experiment, and to do so by inviting partners from various scholarly and non-academic environments to share their concerns, thoughts and curiosities. To that end, we were able to articulate a wholly different approach to method, one that is profoundly inter-disciplinary and requires art-based research at its foundation. At another level, we strove to develop a new approach to the currently stymied encyclopaedic rendering of information – typical of archival environments found in national libraries and, more recently, via, for example, Wikipedia. We developed a lexicographical prototype

that is both algorithmic and scalable. It was show-cased in our final exhibition, »Data Loam: Sometimes Hard, Usually Soft«, (Angewandte Innovation Laboratory, 25 Feb-8 Mar 2019).

- <u>Contributions/impact</u>

»Data Loam« has contributed to the advancement of arts-based research at both methodological and pedagogical levels. It has been able to produce a methodological approach that no longer silos knowledge but requires a radical proliferation of data whilst simultaneously emphasising cohesions and intensities rather than zero-sum binaric divides. It has done this, in part, by embedding our project in two different but highly regard contemporary arts practice postgraduate programmes; namely: the PHD programme at the Royal College of Art (London) and the MA programme at The University of Applied Arts (Vienna). It was also rolled out at various conferences throughout Europe and North America with extremely positive reception.

Importantly, also, »Data Loam« has had impact on non-academic environments, where we have rolled out various aspects of the project (via performances, exhibitions, gaming conferences, design symposia) often connecting those who have been in some way disenfranchised from an academic environment. This has included cultural performances at Transmediale (Berlin), Grey Areas Festival (San Francisco), and BIO-26 (Ljubljana).

- <u>Advancement of arts-based research</u>.

»Data Loam« has increased the central role of arts-based research for the humanities and sciences at both the methodological as well as practical level. This has been specifically advanced by foregrounding contemporary art practice within emergent knowledge systems, demonstrating both 'how' and 'why' art-based research, with its generative heterogeneic and sensuous expression, 'makes' (that is, produces, establishes, proliferates) logics of sense. In so doing, »Data Loam« has incorporated undecidability and incompleteness into the very fabric of technological change – a methodological and practical move that has helped to eclipse the usual apocalyptic narratives of technological foreboding. Morevoer and by fore-grounding contemporary art within, and as expressed by, emergent knowledge systems linked to new forms of circulation, distribution and exchange, »Data Loam« has provided a new method (the Mesh) for the mining, structuring and organising of wildly multiplying data. This elegantly simple and accessible move has already shown an impact at the University level, where there has been a strong and significant number of new PHDs taking up this emergent methodology regarding the radicality of matter and its coincident

requirements for proliferation, multiplicity, and groundless logics of cohesion. At the RCA, for example, there have been six fully funded AHRC and EU funded PHDs working directly on this emergent method and the new materialities associated with it. In the course of the two year PEEK award, the PHD Entanglement Research group has grown from 9 students to 21. One PHD research award has been developed in cooperation with Google Artificial Intelligence Research Lab (from 2018).

- Contribution to a new research agenda or possible paradigm shift.

The »Data Loam« project addressed the need to articulate the profound generation and acceleration of information and its regimes of circulation, distribution, and preservation beyond the modern paradigm of indexicality. It took on the challenges created by the paradigm shift brought on new media, the technosphere, and profound advances in the sciences, but did so by place art-based research and practice at the core of the study. This enabled a refocussing, away from Cold War cybernetics and binaric zero-sum methods. In so doing, »Data Loam« has opened up and contributed to promising new research agendas, particularly in the field of new materialities and the method around which one can develop rigorous analytic tools without bringing to bear instrumental reason. We name this new field 'radical matter' and its method for engaging with it, the Mesh. It is an emergent field that takes as positive the development of distributed and artificial intelligence, crypto-economies and does so, in part, to rethink the archive (especially regarding national libraries) , experimental preservation (especially targeting museums and other cultural institutions), and governance (especially focussing on humanity, machines, as an ecosystem of democracy and the rule of law).

In short, »Data Loam« has proposed and then has begun to detail a different, more 'humane' approach to deal with the profound impact of massively proliferating information, alongside new technologies both artificial and distributive. It is one that has been diffracted along three main sets of enquiry: how to search tag and organize data; how data becomes self-organized and can produce self-governance beyond data systems; how correlations create matter and generate entanglement as environments or aesthetico-political ecosystems with heterogeneous and local dimensions. We call this emergence: "Data Loam", a materiality, sometimes 'hard' (but usually 'soft', 'ephemeral' and 'immaterial'). A flexible knowledge system that expresses, coheres and sometimes forms the basis for which we as a community of scholars, artists, and citizens can begin to navigate this new universe, both politically as well as aesthetically.

- New research methods/instruments

»Data Loam« has begun to articulate a new research method – one that has been developed in order to frame different fields of knowledge in a holistic way. This we understand as a compound of all the methodologies to generate a specific kind of knowledge as well as the topography in which it expresses its holdings. We have named it »Mesh«. In this usage is not meant as a metaphor, but as kind of materiality or even corporeality. In the way we see it, it is finite and yet open, fractal but without self-similarity. Although meshes often share similar properties and may as well overlap, some of them are closer related than others. The mesh of Medieval Scholastic for example might have little concord with Aeronautics, but still be entangled with Poetics. As part of the »Data Loam« project we took this approach as far as to develop an algorithm to organize a collection of data in a way that its inherent mesh structures would express themselves. This method draws together patterns in order to begin to articulate dimensionality and, therewith, matter. It points to a new paradigm, one that we are naming »radical matter«. The method requires the fore-fronting of experiment, making, critical reflexivity and the logics of sense.

- Transdisciplinary relevance.

»Data Loam« has connected several areas of research, with specific emphasis on transdisciplinary issues and methods. This has included, in the main linking library and information sciences with computing engineering, contemporary art practice, philosophy, economics and governance. It has included exchanges with socio-political theories, feminism and queer studies. Certain principles from the sciences (specifically from quantum mechanics and meta-mathematics) have been incredibly important (for example, the undecidability/incompleteness principle theorem of Gödel). It also included forays into important contributions in feminist theory (Sedgwick), critical race studies (Suterwalla), queer theory (Muñoz) and trans-materialities (Barad, Stengers).

1.3.   Information on the execution of the project, the use of available funds and (where appropriate) any changes to the original project plan
- Please describe briefly the following points:
    - Duration: Two years (1Mar 2017- 28 Feb 2019).
    - Use of personnel: The project was hosted at the »Art & Science Master Class« at the »University of Applied Arts Vienna« and conducted in cooperation with the »Royal College of Art London« and »RIAT - Institute for Future Cryptoeconomics Vienna«. The personnel involved in the project can be divided into:
        o Host: University of the Applied Arts, Vienna.

- **Project team employed by the University of Applied Arts**: Martin Reinhart (Principal Investigator), Matthias Strohmaier (Programmer), Marc Orou (Researcher);
- **Personnel provided by the University of Applied Arts (Vienna)** University Prof Virgil Widrich (Project Lead), Gerda Fischbach (Secretary, Internal Coordination), Franziska Echtinger (Project Finances);
- **Student Assistants from the Art and Science Master Class(Vienna):** Monica C. LoCascio, Ivonne Gracia Murillo, Istem Özen, Marc Schuran, Maximilan Gallo.

- Co-I - Research Team at the Royal College of Art (London)
  - **Project team employed by the Royal College of Art (London)**: University Prof Johnny Golding (Co-Investigator), Mattia Paganelli (Researcher), Emma Talbot (Researcher); Amir George (USA-Researcher); Gerald Nestler (Researcher);
  - **Student Research Assistants from the PHD Entanglement Research Group (London)**: Despoina Zacharopoulou, Lauren Goode, Col Self, David Johnson, Despina Papadopoulou, Dario Srbic, Barnaby Adams, Ajamu Ikwe-Tyehimba, Åsa Johannesson, Anja Kirshner.

- RIAT - Institute for Future Cryptoeconomics (Vienna)
  - **Project team employed by** RIAT: Matthias Tarasiewicz, Andrew Newman. Jan Groos, Sophie-Carolin Wagner Markus Zimmermann, Jaya Klara Brekke, Timo Michail, Aleksandar Vrglevski.

- **Experimental Interface Development (Actimoto GmbH, Vienna)**: Leonard Coster.

- **Featured Artists**
  Juan Cruz, Johannes Frauenschuh, Maximilian Gallo, Nora Lengyel, Monica C. LoCascio, Manu Luksch, Anna Nazo, Istem Özen, Julian Palacz, Despina Papadopoulos, Henry Rogers, Marthin Rozo, Aura Statz, Marc Schuran, Dario Srbic, Laura Stoll, Mauricio Suarez, Florian Unterberger, Despoina Zacharopoulou, Jimmy Zurek.

Artistic events;

- o Data Loam: Sometimes Hard, Usually Soft / Uber die Zukunft der Wissens-systeme und die Stofflichkeit von Information. AIL-Exchange 26/02/2019 – 08/03/2019. This exhibition was main artistic event of the project featuring more than 20 international artists.
- o A wide range of project related activity as listed below, some of which were planned during the project, but rolled out after the project's end time. (Please note: dates do not always refer to the exact day of a presentation, but indicate the begin of a festival or event):
  - 2019-09-05 – Festival: Ars Electronica 2019 (Linz)
  - 2019-09-02 – Festival: BIO26| Common Knowledge - Central Exhibition (Ljubljana) 2019-06-22 – Exhibition: Understanding – Art & Research (MAK, Vienna)
  - 2019-05-25 – Presentation: Fanzineist Vienna Art Book & Zine Fair
  - 2019-02-26 – Exhibition: Data Loam. Sometimes Hard usually Soft (AIL, Vienna) 2019-02-13 – Future Cryptoeconomics: The Genesis Stack
  - 2019-01-29 – Research Platform: Entanglement The Opera (Artificial Intelligence, Hive Time, and the Future of Knowledge Systems).Visual Cultures Lecture Series. Entanglement Research Group, RCA. 20 researchers/artists, 250+ in attendance
  - 2018-11-19 – Exhibition: Understanding – Art & Research (Singapore) 2018-04-12 – Exhibition: Understanding – Art & Research (Dunedin)
  - 2018-01-25 – Research Platform: Marl: Sometimes Hard, usually Soft: A Carnival of Entanglement. Visual Cultures Lecture Series. Entanglement Research Group, RCA. 21research- artists, 200+ in attendance
  - 2017-10-31 21 Performance: Future of Demonstration
  - 2017-08-10 – Invited Artist, Installation Venice Biennale (SARN)

– Major items of equipment purchased.

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No specific equipment was rented or bought for the project except material necessary to build up and maintain the »Data Loam« exhibition in the »AIL – Angewandte Innovation Space« between February 26th and March 8th 2019.

▪ Were there any significant deviations from the original plan? If so, please describe them briefly. The decision as to what should be regarded as a "significant deviation" is the responsibility of the principal investigator. As a guideline, any deviation of more than 25% from the original financial plan or work schedule should be accounted for.

Due the two years gap between the application and the adjudication of the funding, the original involvement of the artist in residency program proposed by »RIAT - Institute for Future Cryptoeconomics Vienna« in cooperation with »MQ – Museums Quartier Vienna« could not be implemented as intended. Instead lecturer PhD Mattia Paganelli from the »Royal College of Art London« was invited to participate in the project. Also it turned out that it was more beneficial for the project to pay the money that originally was meant to cover one half-Phd position for Matthias Tarasiewicz directly to »RIAT - Institute for Future Cryptoeconomics Vienna«. In this way we could involve more scientist and artists and participate in a wide range of international events.

2. Career development – Importance of the project for the research careers of those involved (including the principal investigator)

▪ Briefly describe the project's effects on the research careers of all project members, including special qualifications and special possibilities or opportunities opened up by the project.

▪ Could international cooperation be established or intensified?

During the projects we were able to cooperate with international archives and institutions such as:

Austrian Film Museum – as host in the EU-funded »i Media Cities« project www.imediacities.eu

Austrian National Library (OENB) – as partner in the »OENB Labs« project labs.onb.ac.at

Alan Turing Institute (London) – in context of the »Living with Machines« project www.turing.ac.uk/research/research-projects/living-machines

British Library (London) – in context of the »British Library Labs« project www.bl.uk/projects/british-library-labs

German Federal Archive (Bundesarchiv) – cooperation with the federal film archive

Humboldt University Berlin – exchange with the »Institut für Bibliotheks- und Informationswissenschaft«

University of Innsbruck – exchange with the head of the university's Library

University of Vienna »Institut für Germanistik« – in context of »Campus Medius« campusmedius.net

New York University (NYU) – as organizer of the »Orphan Film Symposium«
www.filmmuseum.at/kinoprogramm/schiene?schienen_id=1551791568946

Connect Archives Initiative (CAI) – cooperation with this international research and digital film library development lab that is part of the EU SCENESOR project

▪ Are there developments in working conditions and the environment to report (including any association with a university or non-university institution)?
»Data Loam« was tightly integrated in the »Art & Science Master Class« at the University of Applied Arts Vienna where lectures and workshops were held by the project members during the whole duration of the project. Together with the MA students the technical, political and philosophical aspects of automated knowledge systems were discussed and as a result the AIL exhibition and the »Data Loam« publication were planned and implemented as a group effort.

At the Royal College of Art London »Data Loam« for two years was part of the PhD »Entanglement Research Group« as part of the »Visual Cultures Lecture Series« format. In addition to the regular weekly lectures two performative events were designed and conducted in cooperation with the PhD group. One called »Sometimes Hard, usually Soft: A Carnival of Entanglement« took place in January 2018 and the second one called »Entanglement (The Opera)« in January 2019.

As part of the art series »The Future of Demonstration« a roleplay has been developed together with »RIAT - Institute for Future Cryptoeconomics« in order to demonstrate new modes of organizing mutual trust and material exchange. The episode called PROOF-OF-BURN was performed in November 2017. Another format developed together with »RIAT« was a forking-workshop conducted at the 2018 Tansmediale in Berlin.

3. Effects of the project beyond the scientific/scholarly field

▪ Did your project have any effects outside the sphere of the arts-based research community? If so, please leave some brief comments on those effects, including activities outside the sphere of academia.

▪	Please tell us about public relations work in the sense of raising the profile of arts-based research among the wider public.

The »Data Loam« exhibition was one of the best received shows in AIL history and got excellent one-page reviews in the two popular daily Austrian newspapers »Der Standard« and »Die Presse«.

https://www.derstandard.at/story/2000098627288/der-stoff-aus-dem-das-wissen-ist
https://diepresse.com/home/premium/5584328/Abschied-nehmen-von-der-Eindeutigkeit

▪	Did your project have any particular relevance for developments in the arts field and if so, what kind of relevance and to what extent?

4. Other important aspects

▪	Briefly mention the following points (if applicable):
–	Project-related participation in national and international artistic, scientific, scholarly, and/or arts-based research conferences and a list of the most important lectures held;
–	Organisation of symposia and conferences;

As part of the »Data Loam« exhibition we organized a round table discussion in the AIL – Angewandte Innovation Space Vienna with artists and scientists associated with the project.

2019-01-29 – Performance / Lecture: Entanglement The Opera (Visual Cultures Lecture Series. Entanglement Research Group, Royal College of Art - Visual Arts Culture, London)

2018-01-25 – Performance / Lecture: Marl: Sometimes Hard, usually Soft: A Carnival of Entanglement (Visual Cultures Lecture Series. Entanglement Research Group, Royal College of Art - Visual Arts Culture, London).