

Grand Solutions

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Title and Applicant:

Application Title (240 characters): Unified Platform for the Future of Learning and Development

Acronym: UnFoLD

Applicant information

CVR-no: 29102384 (please search with CVR 29102384, not with name!)

Organisation name: Aalborg University

Address: [redacted]

Zip code: 9220

City: Aalborg Øst

E-mail: [redacted]

Telephone no: [redacted]

Contact person: Thomas Ryberg

When the application is submitted, you will be registered as the contact person. As contact person you will be the point of contact throughout the assessment of the application. You will be able to change the contact person after submission from your case file.

First name: Thomas

Last name: Ryberg

E-mail: [redacted]

Key persons ORCID: 0000-0003-1049-8239

Susanne Dau (UCN) Orcid-ID er: 0000-0002-5798-0519

Sahra-Josephine Hjorth: 0000-0001-7645-4859

Thomas Ryberg: 0000-0003-1049-8239

Lykke Bertel: 0000-0002-1460-2905

For each key person who holds an Open Researcher and Contributor ID (ORCID), state their name and ORCID.

You can read more about ORCID at orcid.org.

Summary (1500 characters)

Please summarize your project proposal covering the Quality of the research and innovation, Value creation, Efficiency of project execution and implementation of results.

UnFoLD aims to develop a digital learning platform for scalable and efficient upskilling in the workplace and higher education through three main innovations:

- Digitized Experiential and Collaborative Learning (ECL),
- Automated qualitative feedback,
- Measurability of educational impact and measuring ROI.

This interdisciplinary, user-driven project joins forces across research and educational institutions, workplaces, EdTech, and technical developers, to combine SoA within the following areas:

- Research in active learning methodologies and skill development,
- Technical development in digital learning platforms,
- Advanced AI, NLP, and ML¹,
- Research in the measurement of educational impact,
- Practical experience with corporate learning.

The aim is to create value in terms of:

- Scalable, efficient, and qualified education and upskilling of the workforce,
- Measurable educational impact and ROI.
- Strengthening of Denmark's position as front runner in the integration of digital technology in corporate learning and education.
- Societal value by contributing to the closing of skill gaps and ensuring retention of the workforce.

The project consortium consists of AAU, UCN, CanopyLAB, Arla, and Port of Aalborg (POA), and is led by an experienced project manager, and a steering committee representing all project partners as well as IFD.

When developed, built and tested the innovations will be implemented on the existing CanopyLAB platform, marketed, and sold via CanopyLAB's subscription model.

Category and keywords

Choose a cross-disciplinary category, if relevant for the project

- Production, materials, digitalization and ICT

¹ Artificial Intelligence (AI), Natural Language Processing (NLP), and Machine Learning (ML)

Application area keywords:

List up to five keywords that best describe the application area of the project:

Digitalization, reskilling, Artificial Intelligence, Learning Platforms

OECD Classification code:

Please characterise the research content of your project based on the international OECD code system. The codes must be listed in order of priority presenting the most relevant code first. You should only state codes corresponding to significant elements in the project.

You may download the list of OECD classification codes (pdf)

When you enter the codes below, start by typing the first letters of the title and choose the title from the presented list.

The codes are used for finding reviewers and for statistical purposes, so please select relevant codes with care. (Max 4 codes)

50400 Educational sciences (overkategori - lvl 2)
50403 Pedagogy (lvl 3)

10200 Computer and information sciences (overkategori - lvl 2)
10201 Computer sciences (lvl 3)

50900 Media and communication (lvl 2)
50903 Information science (lvl 3)

61002 Human centered informatics (lvl 3)

There are some categories under engineering - not sure, whether some could apply::

20200 Electrical engineering, Electronic engineering, Information engineering (lvl 3)

20204 Communication engineering and systems
20205 Telecommunications

UN Sustainable Development Goals

Click and mark the most relevant, if any, of the 17 Sustainable Development Goals (SDGs) the project addresses or is related to.

The information is only used for statistical purposes.

However, please select the relevant SDGs with care as IFD has as its priority to address the SDGs and therefore needs, as a minimum, an accounting of the SDGs being addressed. Link to details about SDGs: <http://un.dk/about-the-un/sdgs>

1. Good Health and Well-being
2. Quality education
3. Decent work and economic growth

4. Industry innovation and infrastructure
5. (Sustainable cities and communities)
6. (Reduced inequalities)
7. Partnerships for the goals

Previous Application

Is this a resubmission or a continuation of a previous application to one of IFDs programmes? List up to four of the most relevant applications.

- UnFoLD 2019

Related applications

Have you applied for, or received grants from other funding agencies covering or co-financing activities which are closely related to the present project?

No

Aim (2000 characters)

Describe the specific aim and objectives for the project, which should be clear, measurable, realistic and achievable within the duration of the project.

Building on CanopyLAB's existing Learning Experience Platform (LXP) UnFoLD will focus on three overall objectives:

Objective 1: Digitize Experiential and Collaborative Learning (ECL)

Experiential and Collaborative Learning (ECL) methodologies have proven efficient for developing skills (1), however they often rely on face-to-face-interaction and are limited in terms of scalability. To support interactive, personalized and adaptive education at scale we will digitize ECL patterns such as:

- Problem and Project-based learning (PBL)
- Hackathons
- Megaprojects
- Case competitions

Objective 2: Develop algorithms to offer automated, qualitative feedback

Digitization of ECLs requires feedback to large populations while containing time and cost. We will build AI-based features to automate qualitative feedback to learners to

- Deliver automated feedback 150,000+ times to learners from Arla, POA, AAU, UCN and clients using the CanopyLAB platform.
- Suggest new learning trajectories 80,000+ times to learners from Arla, POA, AAU, UCN and clients using the CanopyLAB platform.
- Ask learners to rate the quality of the feedback received.
- Iterate the feedback mechanism based on the received feedback, and incorporate rapid advances in NLP and AI throughout the 3 year project period.

Objective 3: Develop framework and algorithms to offer measurability of educational impact and document ROI

Measurability of educational impact is important for tracking personal development and documenting the corporations' return on investment (ROI). We will:

- Develop a learning impact scoring system based on *The Learning Impact Measurement Framework* for tracking ROI.
- Map and measure skills, change in skills and behavioral change of 20,000+ employees.
- Develop an interactive tool for learners to navigate, track and control their professional development of skills.
- Leverage AI and NLP in the personal profiles and dashboards to match employees with courses and career desires.

Unmet need (5000 characters)

The UnFoLD project taps into the general unmet need for digital tools, technological innovation and scalable solutions to the massive upskilling needed to meet the shift in skills demand posed by digitalization and the 4th Industrial Revolution.

Global megatrends have transformed the labor market through rapid digitization and automation, challenging both workers' ability to stay relevant on the job market with their current skill set and corporations' ability to remain competitive in their respective industries. Artificial Intelligence (AI), Machine Learning (ML), Natural Language Processing (NLP) and cloud computing and other new technologies will replace millions of jobs in the EU; in Denmark alone, they could replace 40% of total working hours, which is equivalent to 1 million full-time jobs (2).

According to the World Economic Forum (3), the only way to solve the global skills gap is through leveraging scalable, online-based training, however current digital solutions for corporate learning do not meet the needs of education and corporate learning of the future.

The objectives in the UnFoLD project are set to address the following 3 unmet needs in current digital learning solutions for corporate learning:

Unmet need no. 1: Shift in skill demand requires digital solutions for Experiential and Collaborative Learning (ECL)

In 2015 KPMG released the analysis Corporate Digital Learning: How to get it "right" which shows that traditional online or physical training does not lead to significant performance improvement or behavioral impact (4) and that bridging the technical skills gap in the future workforce requires experiential, active and informal learning (5). Research supports that participant-centered and experiential learning approaches, collectively called ECL, increase learner motivation, support the development of skills and competences, facilitate the acquisition of knowledge in the workplace and prepare participants for the labor market of the future (6, 7, 8, 9).

ECL have so far been proven efficient in physical environments, but are expensive, time-consuming, applicable to only a limited number of participants and dependent on time and place. Therefore, there is a need for digitization of ECL in order for corporations to upskill their workforces efficiently at the necessary pace and at manageable costs.

Unmet need no. 2: Digitized ECL requires automated, qualitative feedback

In order for ECL to be digitized, the scalability of the solution must be heavily considered as an important aspect of the platform. There is currently no option in the Learning Management

System (LMS) market for large scale qualitative feedback for learners, creating an unmet need for automated, qualitative feedback for learners. It is well-established that feedback is of significant importance for learning (10), yet a third of students in Higher Education report they receive insufficient feedback (11). In order to deliver feedback at scale without massively expanding the person hours required, AI must be leveraged to automate this process.

Unmet need no. 3: Up- and reskilling efforts require solutions to measure educational impact, track development in skill levels and document ROI.

According to Gartner's 2019 HR Survey (12), one of HR leaders' top priorities in 2020 will be to build critical skills and competences for the organization. Brandon Hall Group's 2018 Learning Measurement Study found that few organizations collect metrics that help link learning to organizational and individual performance. In fact, only about 8 percent of companies truly measure different types of learning with an eye on business results (13,14).

A study from the International Journal of Advanced Corporate Learning found that with current technology, it is hard to document ROI (15,16) and measure the educational impact of the digital training that is delivered. A study by Franklin University confirms this sentiment and concludes that existing evaluation methods are not adequate to measure ROI for training programs (17), and that new efforts are needed to accomplish this.

Significant business opportunity

The educational technology (EdTech) market has matured significantly in size, traction and solutions over the last 5 years, estimated to reach a global market size of \$342 billion by 2025 (18). The corporate e-learning market is especially interesting, which is estimated to grow by \$38.09 billion during 2020-2024 (19). There is a significant business case to be made around digital learning, and companies such as Arla and POA are specifically requesting digital learning that enable ECL to help upskill and reskill their workforce. Internationally, China is a particularly interesting market, where EdTech unicorns are taking advantage of the need for work-based training and digital learning, which has accelerated at an unprecedented pace due to covid-19 (20), where workers and students are quarantined at home (21).

State-Of-The-Art (5000 characters)

Please describe the present state-of-the-art of the scientific and technical field at a national and international level. Be aware of related technical fields which can be both of inspiration and in competition. Please describe why this project will succeed in comparison with relevant work of others and the present state-of-the-art.

The LMS market is transitioning from platforms supporting *Linear Learning* (a one-size-fits-all model), to platforms supporting *Adaptive Learning* (personalised learning aimed at identifying and closing individual knowledge gaps using AI, ML and NLP). Furthermore, LMS are increasingly replaced by *Learning Experience Platforms (LXP)*, which include social learning features. LXP market is over \$300M and growing at 50%+ per year (22).

Only a handful of current learning providers have a combined approach leveraging adaptive learning on an LXP, namely CanopyLAB and Smart Sparrow. Area9 and Docebo are leading names in adaptive learning, but they are yet to develop an LXP. In the following we present SoA on the market within UnFoLD's three areas of innovation:

Current	SoA	in	digitized	ECL
In the higher education sector, the combination of off-campus blended learning with on-campus intensive hands-on experiential learning (such as PBL) is emphasized as a distinctive pedagogical feature of leaders in education innovation (26). Research and practice at ECL-driven educational frontrunners such as Stanford, AAU, Olin College and MIT support that participant-centered ECL increase learner motivation and support the development of transversal skills and competences such as communication, collaboration, critical thinking and creativity (5, 23, 24) and facilitate the application of knowledge to the workplace and prepare participants for the labor market (6, 8, 9, 25). Furthermore, partnerships with industry and the integration of work-based learning combined with informal student-led learning activities (such as case competitions and hackathons) is predicted to define the trajectory of global engineering education in the future (26).				

Similarly, in the corporate sector companies are already moving from transmission & training to a constructivist learning approach such as hackathons and case-competitions to boost corporate innovation (27).

While the need for ECL is widely accepted, schools or universities that institutionally commit to ECL (including partners AAU and UCN) are still pioneers. Therefore, we are yet to see systematic research and practice on successful digitization of ECL on a unified platform, as most LMS cater to more traditional and course-based pedagogies.

The UnFoLD consortium represents SoA in ECL where AAU & UCN are world-leading from a research perspective. In 2018, AAU was ranked nr. 4 in current leaders in engineering education (nr. 1 in Europe) and AAU organizes the International Research Symposium on PBL (IRSPBL), as well as the international Networked Learning Conference. Furthermore, researchers from AAU

are leading an international journal on PBL (International Journal of Problem Based Learning in Higher Education).

Current SoA in automated, qualitative feedback

Assessment of digital learning is currently limited to instructor- or peer-based methods. Giving meaningful qualitative and quantitative feedback to a large volume of learners is currently impossible, or very costly in terms of human resources. As an example, CanopyLAB's client SLUSH's 3221 end-users generated over 7000 actions for feedback in just 14 days.

Current SoA learning platforms provide automated grading and feedback using AI, NLP, ML, semantic and syntactic analysis. Since 2017 the Japanese AI Todai Robot was able to perform better than 80% of students at Tokyo University on an entrance exam (28), showing how adept machine learning can be for evaluating responses in a learning context. We can build further on examples like: *Project Essay Grade (PEG)*, *Peergrade*, *Grammarly* and *WriQ* which use AI-based statistical and linguistic models to assess written assignments (29) (see Appendix A.1).

In UnFoLD, CanopyLAB's existing platform represents a market-leading solution and has already released 4 AI-based features aimed at automating parts of the course creation process. CanopyLAB's subcontractor, Damvad Analytics, has a long history of building AI algorithms for the public and education sector, living up to the highest ethics and privacy standards.

Current SoA in measurability of educational impact

Learning analytics as a research field has established the potential in collecting data about learners' engagement, but provides little insight into the educational impact on the learner or ROI of training programs. The technology to assess training programs does exist (see more *Scientific, technical or commercial competitors*). Although not focusing on measuring educational impact for obtaining skills, they do show that the technology is possible to develop.

The UnFoLD consortium represents SoA in measurability, as the AAU UCPBL center and associated postdocs have solid experience with competency mappings and measurability of educational impact in an analog setting. Working together with CanopyLAB, these experiences will be digitized on a unified platform to ensure scalability and impact.

Scientific, technical or commercial competitors (2000 characters)

Name the most important scientific, technical or commercial competitors, with respect to e.g. technology development or market application. Please also describe how the competitors, to the best of your knowledge, are currently trying to solve the unmet need.

The main competitors are existing learning platforms servicing both the educational sector and the industry; see competitor analysis in *Appendix A.1*. The competitors listed below refer specifically to UnFoLD's three innovations:

Competitors in the field of digitized ECL

1. *Smart Sparrow* features pre-made elements and gamified virtual reality experiences such as exploring human cells in a 3D game (30).
2. *ENGAGE* provides a platform with Virtual Reality where several users can learn together. (31)
3. *Acadal* is an HR change-management software that enables data-driven team decisions and collaboration (32).

Competitors in the field of automated, qualitative feedback

All automated feedback on the market today uses AI, NLP and semantic/syntactic analysis to automatically grade written assignments, but none delivers automated, qualitative feedback.

1. *Project Essay Grade (PEG)* provides learners with instant feedback based on an analysis of written prose generated through an evaluation of for instance fluency, grammar and sentence structure (33).
2. *Peergrade* specializes in peer grading, by assigning other students to provide individualized feedback on each other's work (34).
3. *Grammarly* analyzes grammar, diction, and tone and supplies grammar suggestions (35)
4. *WriQ* automatically assess written documents based on custom rubrics and a focus on spelling, grammar, punctuation and vocabulary (37).

Competitors in the field of measurability of educational impact

1. *EI Design* provides learner analytics reports using Kirkpatrick's model of training evaluation and learnability to measure the effectiveness of online training and ROI (39).
2. *Cornerstone OnDemand* measures skills growth and performance improvement of e-learning courses by tracking user behavior and interaction to calculate ROI (40).
3. *Newrow* is a virtual classroom provider that automatically collects and creates readable and actionable databases. It uses quantitative assessments and measures on focus, attendance and activity (42).

Strategic relevance of the project (5000 characters)

Please explain how this project specifically will fit into the partners or beneficiaries strategic and/or political roadmap. Please also describe the strategic relevance of the project from a Danish perspective. This may include a description of how the Danish scientific, technical, industrial or social positions are strengthened.

In this section, we outline how UnFoLD fits into the strategic roadmap at CanopyLAB, Port of Aalborg, Arla, AAU and UCN as well as the political roadmap in Denmark.

CanopyLAB

For the past two years, CanopyLAB has released a series of features to optimize the impact and scalability of CanopyLAB's LXP. The releases are part of a vision entitled "HR's Best Friend" and are powered by AI, ML and NLP models including Google's AutoML and BERT as well as Stanford's Squad 2.0:

1. *Auto-tagging* of learning content: Using NLP, the platform reads and analyzes text and video, and generates 5-7 tags to summarise and categorise the content of the course.
2. *Exercise Recommender*: Course creators can choose from 55+ exercises, or activities such as quizzes, writing exercises, discussion exercises. The *Exercise Recommender* provides a series of recommendations for what exercises should be combined with the learning material.
3. (Q1 2020) *Automated question & instruction generator*: This feature is embedded in all 55+ exercises, generating prompts that can easily be adapted by course creators to fit the goals of their courses.
4. The NLP summation feature will automatically summarize course content and materials into concrete and high quality descriptions in every course unit, highlighting unit objectives and learning goals.

UNFoLD fits into CanopyLAB's vision because it will elevate the current LXP into a solution that is more automated, efficient, scalable and will generate measurable data points to ensure ROI in terms of financial gearing towards upskilling and reskilling programs.

Aalborg University & UCN

UnFoLD differs strategically from previous Danish studies on digital learning as it emphasizes a unified platform for facilitating ECL across sectors and contexts, and it covers the entire education ecology by addressing higher education, vocational training, employee development and informal education. Aside from adding to an emerging body of educational research, there is political backing at AAU and UCN to begin working with ECL in a digital context. So far, this has not been possible because both institutions lack a unified LXP that supports ECL.

A core tenet of AAU is the PBL approach to learning, which was an instrumental part in the ranking of AAU as best engineering education in Europe, and the fourth best worldwide (49). Further pioneering PBL and digitizing the approach is crucial to making sure AAU meets those

high standards, which are key components in AAUs strategy for 2016-2021 titled “Knowledge for the world”(50). UnFoLD provides the opportunity to collaborate with an experienced partner within the field of e-learning, CanopyLAB, on the development of a unified LXP suited for the digitization of new learning methods.

Port of Aalborg

Port of Aalborg (POA) has launched an ambitious vision and development plan for developing POA to become an intelligent port and a modern business park through broad collaboration and intelligent solutions across the entire logistics chain. Collaboration and intelligent solutions require increased skills development and inter- or cross-organisational learning with the businesses within POA, and beyond (external partners and knowledge institutions). Innovative learning infrastructures pioneering ECL pedagogies, collaboration and feedback at scale are crucial in this regard.

Arla

Arla Foods is a global company with more than 19.000 employees. The vision is to create the future of dairy to bring health and inspiration to the world, naturally. With the different current trends in the market as VUCA and fight against dairy, it becomes even more crucial to make learning available at any given time, in the right personalised and engaging format with the right content building the right capabilities fit for the future. Secondly, engaging the workforce in different ways across a unified digitized platform e.g. adapting new methods such as Design Thinking and Hackathons and making them valid in a global context is also crucial to stay relevant for the advanced, digital user. Thirdly the need for making data driven decisions based on impact measures from different learning trajectories is increasing.

The strategic relevance of UnFoLD from a Danish perspective

Erhvervsministeriet (43) argues that every worker needs digital competences to be able to grasp new job opportunities. However, analyses show that traditional online or physical training does not lead to a significant performance improvement or behavioral impact (4) and that bridging the technological skill gap in the future workforce requires experiential, active and informal learning (5).

UnFoLD relates to national and global education strategies as well as strategies for digitization, competence development and lifelong learning, including ‘Strategi for Danmarks digitale vækst’, the strategic framework for European cooperation in education and training (ET 2020) and World Economic Forums’ “New Vision for Education”.

Project description (7000 characters)

Please describe your project in terms of specific scientific, technological or other innovative methods applied within the project. This may include reasons for choosing specific note technical methods, instruments, project organization, workflows etc. Please note that the detailed operational work plan must be described in the later section “Operational Work plan”. Please avoid repeating information. You may include relevant figures or tables in Appendix A.

The UnFoLD consortium consists of two academic institutions; AAU and UCN, who are in charge of research and parts of the end-users testing. CanopyLAB is the software developer, working closely together with subcontractor Damvad Analytics. Finally, commercial players Port of Aalborg and Arla provide ongoing feedback and end-user testing.

Over the span of 36 months, UnFoLD will leverage CanopyLAB’s existing LXP, and improve the technical and research-based foundation during the 7 work packages of the project:

WP1: ECL Conceptual Frameworks

AAU and UCN have proposed 4 distinctive and relevant ECL patterns to be unfolded, mapped and digitized within the project: PBL, Hackathons, Megaprojects, and Case Competitions. Building on that, AAU will conduct a comprehensive study on how leading stakeholders (both companies and educational institutions) use digital tools to enhance ECL. The focus is threefold:

- Mapping out the structure of analogue PBL, Hackathons, Megaprojects, and Case Competitions and synthesize these into patterns. Patterns express a particular sequence of activities or tasks and who carries them out.
- Describing how technologies such as AI, NLP and ML can support the digitization of ECL.
- Providing overview over concrete research projects and solutions to learn from and open-source to be utilized.

At the same time, CanopyLAB prepares the platform for digitizing ECL’s, slightly altering the architecture to include new learning approaches.

WP2: Digitizing ECL to be used on a learning platform

CanopyLAB launches the development cycle by completing the following:

1. Creation of digital ECL design documents
2. Validation of online pedagogical models by AAU and UCN
3. Design of mockups and wireframes
4. Patterns gathered from the academic research in WP1.
5. Prepare a master scrum plan and entering items in backlog, alongside prioritization of release order

CanopyLABs core activities in related to software development:

- Build a new “funnel” for educators, where they are offered guidance on which type of learning experience they should offer their employees.

- Research and decide which of the AI, NLP and ML algorithms from WP1 that can be built on open source technologies, just like most of “HR’s Best Friend” features already are.
- CanopyLAB will evaluate the success and failure of specific features related to ECL released by other companies.
- Building and launching each ECL pattern consecutively in BETA versions in close collaboration with project partners using the SCRUM methodology.
- Building on CanopyLAB’s use of NLP and the “HR’s Best Friend” approach, each ECL is powered by AI and NLP, to autofill as much content as possible, and make concrete recommendations for HR.

WP3: ECL pilot testing with end-users involvement

Along with UCN, Arla and POA, AAU will host a number of cases to pilot, demonstrate and validate the feasibility and flexibility of the platform, including the new ECL patterns added to the existing linear/pre-requisite based learning and adaptive learning already on the platform. Specifically, the following will occur:

- ‘Megaprojects’ (AAU, UCN and POA): 100+ students from a large variety of study programmes working in disciplinary and interdisciplinary teams and networks addressing the same “Grand Challenge”, i.e. open-ended and highly complex problems e.g. proposed by the industry or by governmental institutions (such as the SDG’s).
- ‘Case Competitions’ and ‘Hackathons’ (AAU and Arla): Small teams working to solve a similar, concrete problem in competition or in short, intensive sprints (1-72 hours) either synchronous or asynchronous, face-to-face or distributed, using the UnFoLD platform to share knowledge, ideas and experiences and to track and assess competences.
- Industrial transitions (Arla): Arla will test all new modalities and methods focusing on production line and onboarding of new employees. The focus will both be on employees collaborating to solve global challenges and to develop new learning practices within Arla.
- Collaboration at scale (POA): POA is building a new intellectual infrastructure in the cloud, with a bold ambition to be the most forward thinking, green and collaborative port in the world. They will use the ECL formats to foster collaboration across companies and employees, and later internationally between ports.

WP 4: Development & pilot testing of scalable and automated qualitative feedback

CanopyLAB will develop and test a data-driven, AI fuelled automated qualitative feedback tool for adding scalability to digital learning without compromising quality of feedback.

The tool will be tested at Arla with staff from “Baby & Me”, at POA and at UCN and AAU with current students. Qualitative feedback will be awarded 150,000+ times, before the first model is revised, it is expected to be optimized 3 times before it is ready for release outside a BETA version. We will rely on the following testing for feedback

1. Focus-groups (qualitative feedback)

2. Usability tests (qualitative feedback)
3. Online rating of feedback on a 7-point likert scale (qualitative feedback)

Once WP4 is completed, we will have developed a qualitative automated assessment tool that gives end-users feedback on their performance on specific tasks completed in ECLs, such as a stakeholder mapping, written assignment etc.

WP 5: Developing & testing the measurability of educational impact and ROI

Two distinct features are developed:

1. At individual end-user level, the Aalborg UNESCO center for Problem-Based Learning in Science, Engineering and Sustainability will in collaboration with CanopyLAB combine different existing international competency frameworks to pioneer new ways of calculating and visualising competences. A model will be created for how specific online activities and tasks contribute to and corresponds with practicing a specific competence. The model will be used to develop and implement algorithms for intelligent and automated mapping, feedback and assessment of competences.
2. At company-level: calculating the educational impact at company-level to measure ROI of an entire online training/learning program.

WP6: Commercialization & Dissemination

CanopyLAB conducts a stakeholder mapping, takes part in evaluating the final UnFoLD platform and outlines different paths for a commercial model, where all project partners benefit from the subsequent market introduction.

Dissemination will happen through academic channels and partner networks such as MADE, BrainsBusiness and EdTech Denmark and include press releases, peer-reviewed papers, online workshops and presentations at international conferences.

WP7: Management

The management structure consists of AAU who is responsible for administration, reporting and finances. CanopyLAB has hired a new project manager with the overall responsibility for the day to management and Coordination of UnFold and the coordination and reporting to the Steering Committee. Project meetings will be bi-annual and with annual Steering Committee meetings.

Value creation (4000 characters)

The project must generate industrial and/or societal impact through value creation. IFD defines value creation as growth, employment or solutions to societal challenges. Examples are new permanent jobs, increased revenue from domestic sales or export, reduced costs for the society, reduced environmental- or resource footprints, improved Quality of life, optimised processes, etc. The specific call may state additional examples of measures or specific assessment criteria.

Please describe the estimated and expected value creation of the project in terms of Quantitative and/or Qualitative measures, based on expected launch or implementation into the society.

Describe how this happens over time.

The project is positioned at the end of the value chain, with widespread market introduction immediately following completion.

Project reach

CanopyLAB expects to reach 5 million users across 90+ locations 4 years after the project completion date. Data from collaboration with POA and Arla provide replicable cases globally within similar industries, and a unique possibility of branding the prout as having a strong Nordic approach to learning. Successful testing through UCN allows for a scalable business case to 100+ different types of vocational education and training systems in Denmark (VET-system) to reach 30% of the 71.032 Danish vocational students (51) as well as a wide range of international universities transitioning to ECL methods.

Revenue and job creation within CanopyLAB

As a direct result of UnFoLD, CanopyLAB's expected revenue growth is 1,19 USD Million (year 1), 3,194 USD Million (year 2), 8,81 USD Million (year 3), and 25,023 USD Million (year 4). The LXP is sold as a SaaS product, and CanopyLAB expects to create an additional 80 FTEs. During UnFoLD, CanopyLAB expects to attract 10 USD Million in a series A and 55 USD Million in a series B, in line with similar trajectories in the industry.

Reduced time and resources spent on physical training courses (WP 4+5 value creation)

An initial survey conducted by CanopyLAB in 2019 showed that the amount spent on reskilling and upskilling through e.g. physical courses in Danish corporations varied from DKK 2000 to 20.000 per person per year depending on function. These numbers do not include loss of man hours.

A large scale Danish survey states that Danish companies spend DKK 15 billion yearly on corporate training (52). CanopyLAB clients spent 2.000-20.000 per person per year on physical courses, depending on job function. These numbers do not include loss of man hours. Today, CanopyLAB reduces corporate spending on training by 23%, without reducing the quality of the training. As a result of UnFoLD, we expect to reach a reduction of 43%. We expect to reduce time spent on creating and maintaining courses by 27%. Using CanopyLAB's client SLUSH's as an example, where end-users generated over 7000 actions for feedback in just 14 days. the

automated feedback feature could potentially save them 85% of the time spent on providing feedback.

Reduce the labour and resources required for ECL formats (WP1-3 value creation)

Today, AAU is able to facilitate megaprojects with networks of 5 groups each. However, the aim is to reach 25 groups in each network with an aim to move from 100+ students total participating to facilitate 1000+ participants in megaprojects. This can only be done cost effectively through digitizing megaprojects and working with automated feedback.

Improve the quality and objectivity of feedback while freeing up time

Today, lecturers at AAU spend up to 150 hours per semester assessing assignments with no actual feedback but a grade, and reports suggest that only 20-30% of university students experience they receive good feedback for study activities. Providing students with proper feedback, however, is evidently important for their learning and development (45, 46, 47, 48). With UnFoLD's automated qualitative feedback feature we aim to reach a minimum of 70% students who experience they have received good feedback. This will be measured through qualitative surveys administered through the platform.

Value in society at large (WP 4+5 value creation):

Studies indicate that automation will replace 40% of total working hours in Denmark, or 1 million full-time jobs (2). Through competency mappings and the ability to measure educational impact, companies will know where to get the best ROI, who to invest in at a given period, and whether the investment pays off. We expect to be able to help companies like Arla increase the quality of life and happiness of their employees, through individualized learning with personalized feedback.

CanopyLAB will retain the Intellectual Property Rights (IPRs) to their existing solutions and technologies. Thus, UnFoLD will not affect any existing IPR.

IPR

This is an overview of our strategy as related to IPR:

- After the completion of the project, CanopyLAB has sole IPR to the new platform, and the algorithms developed, as well as the digital version of ECL patterns.
- Intellectual property rights (IPR) will consist of patent rights and/or copyrights.
- In the cases where new software is developed, this will be protected by copyright covering the source code, the object code and user interfaces. All details of the IPR strategy will be explicitly described in the consortium agreement that will be signed by all partners before the start of the project.
- The disclosure of results (e.g. in scientific articles, conference papers etc.) will be done after filing of the patent applications as early as possible. In the cases where new software is developed, this will be protected by copyright covering the source code, the object code and user interfaces
- CanopyLAB has an existing software patent strategy developed with Gorrisson Fielderspiel for the already developed software, and if we are successful with the Grand Solutions application, the new features will be discussed with Gorrisson Federspiel. Whenever a result is foreseen patentable and holds commercial potential, a patent application may be filed.
- AAU retains the rights to the non-digitized ECL patterns, and will use the research for new publications.

Open-source

The field of artificial intelligence is developing rapidly and with the most advanced areas through open communities and open source. One example is the currently most advanced algorithm for Natural Language Processing Bidirectional Encoder Representations from Transformers (BERT) developed by Google. These technologies are vital for developing AI-powered assessment, feedback and curation as part of UnFoLD and in order to ensure that the algorithms developed for UnFoLD are and will remain at the technological forefront. Therefore the key AI-powered assessment, feedback and curation will be adaptations of open source, rather than proprietary software. The business model here lies in adaptation and training of algorithms rather than exclusive ownership.

Operational work plan (8000 characters)

UnFoLD consists of the following 7 work packages (WP) (see Gantt chart Appendix A.2):

WP1: ECL Conceptual Framework

Based on a comprehensive study on how leading stakeholders (both companies and educational institutions) use digital tools to enhance ECL, this WP will unfold and map out 4 distinctive ECL patterns to be digitized within the project: PBL, Hackathons, Megaprojects, and Case Competitions. The focus is threefold:

- Map out the structure of analog PBL, Hackathons, Megaprojects, and Case Competitions and synthesize into patterns
- Describe how AI, NLP and ML can support digitization of ECL
- Provide an overview of relevant research projects and open-source solutions to be utilized.

Year: 2020-2021 (M1-9)

Deliverables

D1.1 Review of research and frontrunners on digitized ECL in education and industry (M4).

D1.2 Review of research on AI, NLP and ML to support the digitization of ECL (M4)

D1.3 Initial map of 4 analog ECL structures (M6)

D1.4 Final conceptual framework for digitizing 4 ECL's: PBL, Hackathons, Megaprojects, and Case Competitions (M9)

Milestones

M1.1 Internal half-day conference discussing results with all consortium partners (M6)

M1.2 Conceptual framework for ECL approved by UnFoLD steering committee (M9)

Organisation: AAU (Prof. Thomas Ryberg, WPL + postdoc) and CanopyLAB (CLO Lise Andersen-Alstrup).

WP2: Digitizing ECLs to be implemented in one unified learning platform

To technically prepare the existing CanopyLAB platform for the implementation of 4 new ECLs, this WP will cover:

- Building a new “funnel” for HR, providing guidance on type of ECL to offer employees
- Determining which AI, NLP and ML algorithms can be built on open source technologies
- Evaluating the success of specific features related to ECL released by other companies
- Building and launching each ECL in beta versions for project partners using the SCRUM methodology.

Year: 2021-2023 (M5-25)

Deliverables

D2.1 Sprint plan for platform prep phase (M5)

D2.2 Map of open-source algorithms to build further upon (M10)
D2.3 Sprint plan for ECL implementation phase (M20)

Milestones

M2.1 'PBL' released in beta (M14)
M2.2 'Megaprojects' released in beta (M17)
M2.3 'Hackathons' released in beta (M20)
M2.4 'Case Competitions' released in beta (M25)
M2.5 Public launch of platform that enables all 4 ECL (M25)

Organisation: CanopyLAB (CLO Lise Andersen-Alstrup, WPL, Senior Full-stack developer and AI expert Chuong Minh Nguyen).

WP3: ECL pilot testing with end-users involvement and implementation

This WP tests the beta versions of the 4 digitized ECL's at POA, Arla, UCN and AAU both conceptually (M5-14) and contextually (M14-35), focusing on the quality of the ECL end-user experience and the usability of building digitized ECL's on the platform.

Each project partner is lead on its own testing:

- AAU: tests all 4 ECLs in cross-faculty settings (at least two departments in each ECL)
- UCN: tests at least 2 ECLs, including a 'Megaproject' with students and companies
- POA: tests at least 2 ECLs with companies residing in the port
- Arla: tests at least 2 ECLs with employees from "Baby and Me"

CanopyLAB will gather all feedback, conduct a comparative analysis and categorize feedback.

Year: 2021-2023 (M9-35)

Deliverables

D3.1 Description of all interventions based on conceptual framework (M9)
D3.2 Report on first round of user feedback (M21)
D3.3 Report on second round of user feedback (M32)

Milestones

M3.1 Presentation of first round of results to steering committee (M22)
M3.2 Re-release of features based on pilot tests and iterations (M35)

Organisation: CanopyLAB (CLO Lise Andersen-Alstrup, WPL), AAU, UCN, Arla, PoA

WP4: Development & pilot test of scalable and automated qualitative feedback

This WP covers the development of a data-driven, AI-fuelled automated qualitative feedback tool adding scalability to digitized ECL without compromising quality of the feedback. The tool will be tested with all partners and revised 3 times based on 150,000+ feedback items before release outside beta. We will rely on the following test methods:

- Focus-group interviews

- Usability tests
- Quantitative online rating of feedback (7-point likert scale)

Year 2020-2023 (M1-35)

Deliverables

D4.1 Framework for automated qualitative feature based on AI, ML and NLP models (M5)

D4.2 Technical documentation on automated feedback feature (M12)

D4.3 Report on user feedback and evaluation (M20)

Milestones

M4.1 Release of automated feedback and assessment feature in beta (M12)

M4.2 Results from pilot tests and iterations presented to steering committee (M22)

M4.3 Re-release of feature based on pilot tests and iterations (M35)

Organisation: CanopyLAB (CLO Lise Andersen-Alstrup, WPL), UCN, AAU, Arla, POA

WP5: Development & test of measurability of educational impact and ROI

This WP will enable establishing a competency baseline and tracking of progress and impact by:

- Determining data points for assessment of skills and competences
- Deciding on methods for tracking and visualising learning effectiveness and progression
- Developing tools for calculating individual and organisational educational impact and ROI based on relevant KPI's to be tested with all partners in WP3.

Year 2021-2023 (M6-35)

Deliverables

D5.1. Review of competency frameworks and data points to support tracking of progression (M12)

D5.2 Map connecting ECL patterns and proposed competences and KPI's to determine ROI (M12)

D5.3 Initial design of dashboard for impact assessment (individual and organisational) (M20)

D5.4 Open-source technical documentation of competency mapping and tools (M30)

D5.5 Report comparing automated and analog assessment of impact on individual and organisational level (M32)

Milestones

M5.1 Presentation of framework for competency mapping and ROI measurement to steering committee (M22)

M5.2 Results from pilot tests and iterations presented to steering committee (M32)

M5.3 Re-release of feature based on pilot tests and iterations (M35)

Organisation: CanopyLAB (CLO Lise Andersen-Alstrup, WPL), AAU, UCN, Arla, PoA

WP6: Commercialization & Dissemination

The purpose of this WP is to ensure the commercialization and availability of the UnFoLD platform across markets, including:

- Plans for partner adoption of platform beyond the duration of the project
- Map of paths for commercializing the joint product
- Dissemination of conceptual frameworks and key findings in relevant research and industry networks

Year: 2020-2023 (M1-36)

Deliverables

D6.1 Dissemination plan (M6)

D6.2 Commercialization plan - first version to be updated throughout (M9)

D6.3 3-5 Peer-reviewed papers on the digitization of ECL (M36)

D6.4 2-4 Peer-reviewed papers on feedback scalability and assessment of individual/organisational impact (M36)

Milestones

M6.1 Dissemination/commercializations plan approved by steering committee (M9)

M6.2 Online midterm international seminar discussing and showcasing conceptual frameworks, pilot tests and initial results (M22)

M6.3 Online international seminar discussing and showcasing platform, results and paths for future research and development (M35)

Organisation: CanopyLAB (CLO Lise Andersen-Alstrup, WPL), AAU, UCN

WP7: Management

This WP ensures the scientific, financial and contractual quality coordination between all partners and WPs, including ethical and legal aspects. This includes communication with IFD and day-to-day management of progress, risks and potential internal disagreements.

AAU is project holder and manages finances and reporting to IFD. CanopyLAB is overall project manager, represented by experienced project manager CEO Sahra-Josephine Hjorth.

Year: 2020-2022 (M1-36)

Deliverables

D7.1 Partner agreement and quality assurance plan (M2)

D7.2 Final project report (M36)

Milestones

M7.1 Launch of project and approval of project plan with monthly meetings (M1)

M7.2 First year evaluation of project (M12)

M7.3 Midterm evaluation of project (M24)
M7.4 Final year evaluation of project (M36)

Organisation: AAU (Prof. Thomas Ryberg, WPL), CanopyLAB, UCN, Arla, POA

Governance, leadership and project team (3000 characters)

Briefly describe the proposed governance model and how the project will be lead and managed.

Explain how the organisational structure and decision-making mechanisms match the complexity and scale of the project. It is recommended to have a steering committee with authoritative representatives from the various partners including project beneficiaries.

Please describe the leadership qualifications of the proposed project leader.

Please explain how the project team will match the project's objectives, and bring together the necessary expertise. How do the team members complement one another, and cover the value chain? You may refer to Appendix C.

IFD considers diversity as a resource, as greater diversity makes for superior team performance on measures such as innovation, collaboration, and critical thinking.

Applicants are encouraged to consider diversity also when forming the project team.

The organisational structure of the UnFoLD project consists of:

1. A steering committee with members from each consortium.
2. An overall project manager who reports to the steering committee and work package leaders (Sahra-Josephine Hjorth).
3. Individual WL package leaders.

The UnFoLD project will be lead by experience project manager and CEO of CanopyLAB Sahra-Josephine Hjorth, and the leadership framework is based on Ramboll Management's "Project Excellence" framework, which Sahra-Josephine Hjorth (Cv in Appendix C) is trained in from her time as a project manager in Ramboll Management. Ramboll is one of only 67 companies globally to be accredited by the Association for Project Management (APM) - an internationally recognised mark of high quality project management services. The 3 fundamentals of the project management approach is:

1. Deliver project certainty
2. Create high-value solutions
3. Develop strong and enduring relationships

It is essential to have one overall project manager, who ensures that all WL leaders are on track and on schedule, and who can provide support, and practical guidance to each WL, keeping in mind how potential change, delays or shifts in priorities affect the entire project, finances and timelines.

The steering committee

All project partners have a seat in the SC, with one member appointed by the IFD. Members have the highest mandate to make project decisions, i.e. changes to the work package scope.

The SC will meet biannually and can take ad hoc meetings if necessary. The SC communicates directly with IFD about project related matters. It consists of

1. Jakob Stoustrup (Vice Dean, AAU)
2. Jens-Peter Poulsen (Chairman of the Board, CanopyLAB, former Partner at PA Consulting)
3. Christina Heegard (Head of Global Change Leadership, Arla)
4. Claus Holstein (Managing Director, POA)
5. Lene Augusta Jørgensen (Rektor, UCN)

Work Package leaders (WPL)

Each WP will be led by a WPL, responsible for the execution of the scientific/technological activities in the WP. All WPLs have experience with research/technical coordination. Professor Thomas Ryberg (AAU) will be WPL for WP#1 and WP #7. CLO Lise Andersen-Alstrup (CanopyLAB) will be WPL for WP#2 to WP#6 including.

Diversity and representation is of high priority within the UnFoLD project, which has a 60+ % representation of women, and diversity in terms of age, ethnic background, educational background, age and sexual orientation.

Readiness levels (technical and societal)

Technology Readiness Levels

State the project's expected start and end Technology Readiness Levels (TRL).

Find applicable TRL definitions at [Innovation Fund Denmark's website](#)

Start TRL	dropdown	End TRL	dropdown
	0		0
	1 ▼		1 ▼

Comments (125 characters)

Societal Readiness Levels

State the project's expected start and end Societal Readiness Levels (SRL). Find

applicable SRL definitions at [Innovation Fund Denmark's website](#)

Start SRL	dropdown	End SRL	dropdown
	0		0
	1 ▼		1 ▼

Comments (125 characters)

Risk management (2000 characters)

With reference to the listed milestones in the work plan, please identify, assess and prioritise the most important risks in the project and describe their mitigation.

1. Being outspend by competitors (WP 6) (high risk)

Widespread market penetration has primarily been dependent on the size of the players' pockets and not the quality of product. Area9 Lyceum has raised DKK 180 M, Smart Sparrow DKK 162 M and Docebo DKK 519 M in 2019 alone while preparing their IPO. In order to level the playing field, CanopyLAB is currently raising DKK 90 M.

2. Potential low SRL (WP 6)(medium risk)

UnFoLD may be a little 'ahead of its time' in terms of functionalities. HR must be empowered to use the new ECLs and feel confident in their impact. This is mitigated through close collaboration with industry partners who represent both blue and white collar workers.

3. Stakeholder collaboration and relations (WP1-5)(medium risk)

It is a skilled but large consortium, and in order to avoid any misalignment, there is one overall project manager, who answers to a steering committee where everyone is represented.

4. Meaningful automated qualitative feedback (WP4).

If the feedback is not of satisfactory quality, the users will lose faith in the platform and experience frustrations. Therefore, we must make many iterations on the algorithms and test them internally until they hit above 90 % accuracy.

5. Platform adoption, (WP 3-5) (Low risk risk)

Onboarding enough users during the project period, as we need significant user adoption to develop meaningful AI algorithms. The consortium has touchpoints with enough end-users to provide test groups.

6. Digitalization of ECL (WP1-3)(Low risk risk)

There is a reason why all platforms haven't included ECLs yet. It is tricky conceptually, and will require close collaboration between academia and software developers.

Legal, ethical, or regulatory demands (2000 characters)

Please describe any legal, ethical or regulatory demands or conditions, the project might encounter or comply with. Please also describe if any change in these demands or conditions might influence the outcome of the project.

Research

All research conducted by AAU and UCN comply with the Danish Code of Conduct for Research Integrity (44) which will guide practices of researchers and collaborators, focusing on three principles: Honesty, transparency and accountability. Researchers have the right and obligation to share results with the academic community and society at large; the projects publications will inform and support ongoing research in similar fields all while respecting an honest distribution of authorship. Research and technical documentation will be open access to the extent possible.

Use of data for automated assessment and feedback

In order to create a model for automated assessment 7000 submitted essays are needed. These can be given to the project by students or obtained through an essay competition. Here, it is paramount that students are made aware that their essays are used to build automated assessment tools, so that they can opt out.

Data Regulation & Transparency

UnFoLD platform's gathering, use and storage of user data is GDPR compliant and certified by Mazanti-Andersen, Korsø, Jensen. No persons under the age of 18 will take part in the UnFoLD project. Users can opt out of the UnFoLD platform at any time and their individual data will be deleted, while aggregated data remains available for research.

All gathered data is stored on a secure server hosted in Europe by AWS. The behavior user data is encrypted, and researchers working with data will not have access to any identifying data.

Any AI and ML algorithms are built in close collaboration with subcontractor Damvad Analytics, an established vendor for advanced algorithms for public institutions.

We will build a transparency model into the UnFoLD platform, that allows users to understand why they get the assessments and ongoing feedback that they get, including data on our grading metrics, how they do compared to a comparable group, and the opportunity to have their assessment re-visited, just like you can at university.

Project outcome beneficiaries/recipients (3000 characters)

Who will benefit directly or indirectly from the project's outcome after the investment period?

Who will use, invest in or own/manage the project outcome once the investment from IFD has ended.

The direct beneficiaries (DB) and indirect beneficiaries (IB) of UnFoLD are:

CanopyLAB (DB)

UnFoLD generates a new revenue stream, know-how and market advantages for CanopyLAB. The new strong product offering, can help position Denmark as an exporter of ethical AI-based learning, on new parkes, particularly Latin America and Asia, and CanopyLAB already has offices in Ho Chi Minh Vietnam, Hvidovre, Denmark and Lima, Peru (acquired competitor Yopublico, with official rebranding as CanopyLAB LATAM on April 1st 2020).

There is an opportunity for branding this as a concept based on a new nordic approach to learning and export it to markets such as China, Brazil and Peru through collaboration with local Danish trade councils.

Arla

With the continuously growing need for reskilling and upskilling of employees, which Arla as a global corporation is facing, the UnFoLD project's ability to automatically map competences, and through these be able to better target different learning experiences for the employees, as well as identifying competency gaps, is of great interest.

POA

With the vision "Gate to Great", POA is transforming the port area into a modern business park through broad collaboration and intelligent solutions across the entire logistics chain. The transformation requires skills development and cross-organisational learning with the businesses in POA, external partners and knowledge institutions. Digitized ECL pedagogies, collaboration and feedback at scale are crucial in this regard.

AAU

and

UCN

AAU and UCN will benefit from the UnFoLD platform's upscaling and digitalization of established ECLs. This will enable AAU and UCN to raise the quality of and enhance the digital support for existing pedagogical flag-ship initiatives.

This will further enable AAU to remain one of the pioneers within PBL research and practice and to contribute as a global key player to the digitalisation of PBL amongst institutions such as Stanford, Olin and MIT.

Research-

and

EdTech

communities

(DB)

Theoretical and empirical results from testing with project partners, combined with the publication of peer-reviewed papers about ECL's will be of great interest to other national and

international research- and EdTech communities, building on the results in academic as well as commercial settings and informing other national and global innovation projects.

Open-source

All work related to ECLs and automated mapping of competences will be open source, and CanopyLAB will release the code for everyone to use free of charge on Github, inspired by this common practice at other digital learning companies. CanopyLAB already has an established partnership with the Danish Design Centre around this approach.

After the project period, the offering is of particular interest to venture capitalist, particularly Learn Capital, Kapor Capital, Own Ventures and the Danish Growth Fund, who currently have EdTech as a national focus area.

Implementation (4000 characters)

Please describe how you will implement the results of the project, e.g. how and when the results are brought to market or how the results are implemented into the society. Please refer to the project's position in the value chain. Please also describe any resources needed, and any expected barriers, for the societal adoption of the project results.

The results (research and technical innovations) are implemented by the project partners during the UnFoLD project period, based on close collaboration, user testing, co-creation, and knowledge exchange. Several project partners across the consortium have collaborated on smaller projects in the past, with successful outcomes. The project is situated at the end of the value chain, introducing new features in an existing product and bringing it to market with an TRL of 9.

Commercialization/Market

introduction

During Project period, the UnFoLD features will be implemented on the existing CanopyLAB platform and CanopyLAB is responsible for the market introduction and further sales of the product. CanopyLAB can execute on this task because they;

- Already have an existing reseller network in Europe and Latin America, including a regional hub in Peru. Half way through the project, CanopyLAB expects to also have established a regional hub In Bangalore, India as well as in Dubai, and a global network of 40+ resellers.
- Serve users in 80+ countries on a multi-language platform.
- Have a dedicated commercial team, with experience in scaling new products
- Will drop the features on a continuous basis, reducing the risk of being surprised by market perception. Each featured is released to a wide client based at a time and will be iterated upon based on end-user feedback

Peer-reviewed

publications

and

postdocs

In addition to the planned continuous use of the UnFoLD platform and transformation of practice across departments at AAU and UCN, the research partners will publish peer-reviewed papers on the digitalization of ECLs ensuring that national and international research communities can benefit from this knowledge and the ECL patterns developed in the project.

AAU's EdTech research groups e-learning lab and Aalborg center in Problem-based Learning in Science, Engineering and Sustainability (UCPBL) under the auspices of UNESCO have leading global positions in the fields of networked learning, PBL and engineering education, contributing to global transitions in higher and continuing education as well as the growing research field on emerging technologies and potential impacts on learning and competence development.

Media

and

stakeholder

outreach

CanopyLAB will make press releases about the UnFoLD project in relevant national media, aimed at making other educational institutions, companies and job centres aware of the UnFoLD

platform.

Implementation in related educational and industrial communities will be further ensured through networks and stakeholders such as Networked Learning, MADE, BrainsBusiness and Astra (AAU), Aalborg Kommune and University Colleges Denmark (UCN), and the Confederation of Danish Industries and EdTech Denmark (CanopyLAB).

Financial Gearing (1500 characters)

The total co-financing of UnFoLD is DKK 7.414.132 primarily in-kind co-financing. The co-financial breakdown is:

AAU:	DKK	698.285
CanopyLAB:	DKK 5.779.463	
UCN:	DKK	69.260
Arla:	DKK	442.250
Port of Aalborg:	DKK	424.875

CanopyLAB's existing software has attracted 20+ DKK Million in investments from an angel syndicate (Christian Mærsk-McKinney Olufsen, Jørgen Balle Olesen (former CEO of Saxo.com), Kris Østergaard & Laila Pawlak (SingularityU Denmark), Louise Herping (former co-founder & CEO of Clio Online) amongst others) and the Danish Vaekstfonden as of February 1st 2020. CanopyLAB is currently raising EUR 10 mio, and has acquired a peruvian partner for DKK 16 mio in February 2020 (to be announced on April 1st 2020).

POA has attracted EUR 294 million. Over the next years POA will invest in 'The intelligent port' and the development of POA into a modern business park. Investments in digital infrastructures for learning and competence development will be important in realising these visions.

UnFoLD will form the basis for new funding proposals (Horizon Europe) to funds for the further maturing and commercialization of the UnFoLD platform internationally. From a research perspective the innovative developments in the project can lead to funding international funding proposals (Horizon Europe, ERASMUS+ or COST-actions) to further develop ECL patterns and spearhead related research initiatives on qualitative feedback.

Appendices

All appendices must be in PDF format. Each appendix must not exceed 20 MB in size. Please note that the attached PDF files must not be security-protected. For each appendix type listed below, you must attach the relevant documents in one file.

Mandatory appendices

- Appendix B - Partner motivation: Describe each partner's key competences and motivation in relation to the project activities. [Download template](#)
- Appendix C - Key persons: Describe the key individuals in the project and include CV's for key persons. [Download template](#)

Additional appendices which may be attached, if deemed relevant

- Appendix A: Figures, pictures, tables. Maximum eight pages. [Download template](#)

Personal information

For all the persons for which you have provided personal information, please provide their first name, last name and email address in the boxes below. When the application has been submitted, the persons listed will automatically receive an email in which it is described how their personal information is being handled in accordance with the EU General Data Protection Regulation 2016/679 (GDPR).

Personal information, also known as personal data, is any information relating to identifying a person, e.g. name, CV, e-mail, etc.

Resubmission info:

In the case of resubmission, please describe any changes made and how you have specifically addressed any comments received from IFD; Please also describe any connections to ongoing activities/projects based on previous submissions.

In revising the UnFold project we have focused on addressing the following comments we received. These concerned the composition of the consortium and value creation.

Consortium: "The project partners and their competencies are adequate – but not optimum for the specific project challenges."

The consortium partners and in particular the number of technical partners have been reduced. There is now only one partner - CanopyLab - leading and managing the software development.

To strengthen the commercial aspects and client-orientation we have added another commercial partner/beneficiary: Port of Aalborg.

Value creation: “The method of and responsibility for collecting the generated value in the project and afterwards is somewhat unclear.”

The section has been completely rewritten and expanded. Additional aspects of impact and value creation have been added, and measures for assessing their success have been added.