



Call for Partner Interest  
Learnovate Y3  
Core Funded Projects

IPAAS  
(IP as a service)

All Sectors



Learning Innovation

AN ENTERPRISE IRELAND  
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# IPAAS (IP as a service)

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## Motivation (General Problem Addressed)

The adoption and licensing of Learnovate technologies provides competitive advantage to industry partners and aids the sustainability of the centre as a whole. However, there is a need to ease the adoption of these technologies from both a technical and usability perspective. This adoption can be eased through readily accessible services that can be freely trialled, are standards compliant, and are easily integrated into existing systems.

## Project Overview

The first objective is to develop an approach to ease selection and application of existing Learnovate components for adoption by Industry partners. This 'IP Packaging' research will focus on developing standards for highly usable APIs that will be applied through example packaging for existing content reuse components. The packaging of non-service-based IP such as UI/UX innovation, visualisation, and instructional design, will also be considered.

A further objective of this project is to conduct an internal review of previous Learnovate projects that have applied content reuse technology. This review will ascertain both the current capabilities of the technologies as well as identifying the current challenges in reusing existing (legacy) content. The first 3 months of this project will be used to establish the criteria for effective API design and deployment, as well as identifying opportunities and gaps in Learnovate's content reuse offerings.

## Business Challenges

The core business challenge for this project focuses on how effective IP Packaging is required to ease integration, encourage adoption, and provide a pathway to the licensing of technologies. This challenge is considered in the context of enhancing the sustainability of the Learnovate Centre through licensing both foreground and background IP.

The further business challenge of selecting appropriate technologies to aid in the reuse of content is considered in terms of cost effective means to remonetise existing industry content.

## Specific Project Objectives

Two highly related Objectives

- To research and prototype 'IP Packaging' approaches to enable the agile adoption of Learnovate technology so as to enhance industry learning platforms & enhance industry (legacy) content reuse & remonetisation. To research and deploy best practices in API usability, to increase adoption rates and provide baseline standards for API deployment. To research approaches to packaging non-service-based IP to facilitate its reuse.
- To create a report based on core funded projects that have included content reuse technologies. In particular to identify opportunities and gaps between (a) the industry need for technology to add value to/enhance/remonetise existing content and platform offerings and (b) the capabilities of Learnovate content/re-composition/reuse technologies and learning services.

## Project Outcomes

The outcome of this project will be an approach and prototype implementation of how Learnovate technologies can be packaged for agile and easy adoption within industry platforms. This platform will adopt best practices in API usability, API design methodologies (e.g. REST), and API standards (e.g. Tin Can API). Within such technologies the ALMANAC components will be considered as well as the industry performance tracking standard (Tin Can).

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A further outcome of this project will be an up-to-date report on the Learning Sector requirements for content analysis and reuse as well as, an indication as to the current opportunities for addressing these requirements using Learnovate Content technologies.

It is expected the project would also output one white paper appraising the Tin Can standard as well as a research paper on content reuse for eLearning (in approved publications).

Evaluation will be based on interoperability testing and possibly end user trials with API integrators.

## Key Innovations

- R&D into the packaging of APIs to expose Learnovate technologies. This will require research into the usability of APIs, including current approaches and best practices for their design. A research report on the packaging of non-service-based IP will form part of this research. A set of guidelines for developing research technologies compatible with IP Packaging will also be compiled.
- An initial demonstrator system that showcases the packaging of at least one content analysis/reuse technology e.g. Almanac, for ease of integration within Learning Industry platforms/existing technology frameworks e.g. LMS, Tin Can, etc.
- Evaluation report of the affordances of the existing (informal and formal) learning content analysis technologies in Learnovate.

## Potential Commercial Opportunities

The report will inform the technical planning, focus and direction of Learnovate and Partner projects, ensuring that outputs are innovative and future ready. In particular it will define 'packaging' techniques for ease of integration of Learnovate IP as well as providing a way of evaluating Learning content analysis tools.

## Links to Previous Projects

This project will investigate IP Packaging techniques and the affordances of Learnovate's content reuse technologies. This investigation will focus on the following projects to determine how IP packaging can be achieved and the affordances of the content reuse technology respectively.

- ALMANAC – Adaptive Learning on Mobile using Analytics and Analysis of Content
- Saffron - Mining for Expertise in Corporate Document Repositories

## Technical Approach

The initial 3-month evaluation study will guide the technical approach used to achieve the IP packaging. This study will consider the variety of technical and usability benefits of varying API technologies. The study will also consider the merits and weaknesses of Service Oriented Architectures (SOA), Software as a Service (SaaS) approaches, Platform as a Service (PaaS) approaches, and scalability through cloud computing deployments. It is expected that a number of cloud computing platforms will be considered during the study (e.g. Microsoft Azure, Amazon Web Services, etc.).

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## Project Structure and Duration

Phase 1: Evaluation study (3 months):

- (i) Identification of evaluation scope
- (ii) Evaluation of affordances & usability of existing Learnovate content analysis technologies
- (iii) Identification and evaluation of usability and standard approaches to service/API design, development, and deployment

Phase 2: Definition and R&D of tools for packaging of Learnovate IP (9 months)

## Resources (People, Data Business Partners, Trial Partners)

Industry champions are yet to be identified, however the project should be of interest to those interested in deploying and integrating with SaaS systems and/or the ALMANAC and Saffron technologies.