TEES VALLEY

Funded by
UK Government

Innovation Challenge Launch:

Redesigning Processes for Detecting misuse of AI in Student Work

20-09-24

edge

Health Innovation
North East and North Cumbria

M C
Middlesbrough
College Group

Edge is North-East based, but delivers innovation from Chicago to Shanghai...

Our track record includes successful delivery of innovation projects with:

- Local businesses
- Universities
- Local government and NHS trusts
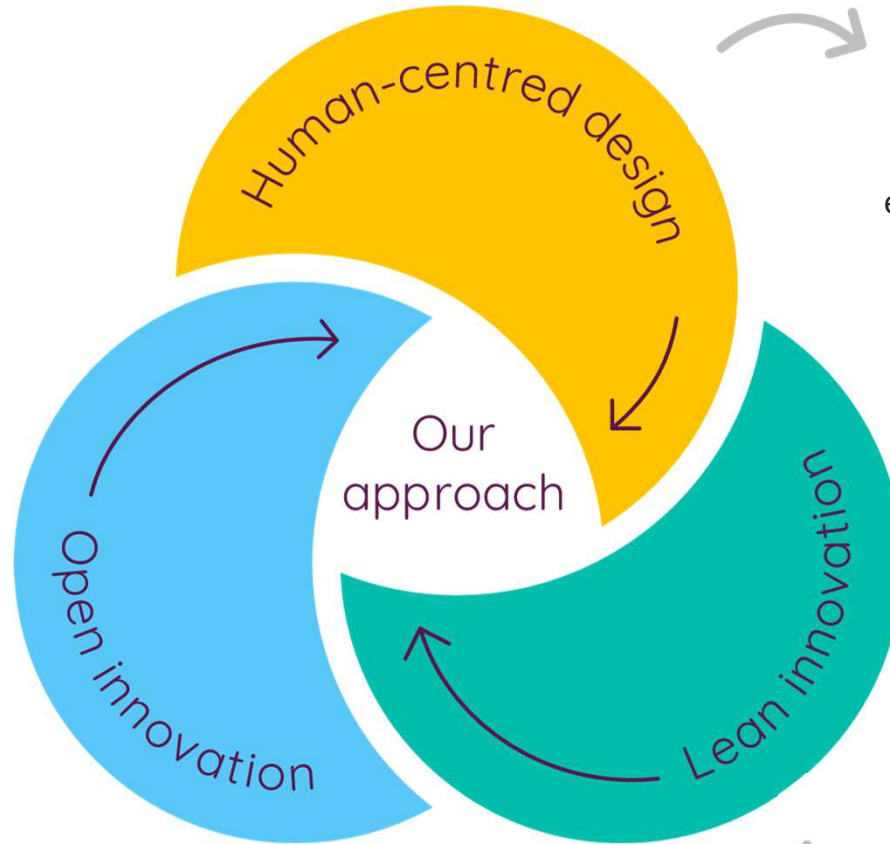- Multinational clients in diverse industries

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About our approach...

Human-centred design:

Putting people at the heart of everything we do. Based in the belief that insight can come from anyone.

Open innovation:

Building pathways for collaboration to foster innovation and mutual benefit.

Lean innovation:

Taking a strategic approach, minimising waste and prioritising experimentation to fail fast and cheap.

Human-centred design

Our approach

Open innovation

Lean innovation

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Introducing the
Tees Valley Innovation
Challenge

Simon Green,

CEO,

Edge Innovation

TEES VALLEY

Challenge Context

What is the Tees Valley Innovation Challenge?

Why?

- Strengthening innovation maturity in the Tees Valley economy.
- Support innovative businesses through tailored business support, coaching and mentoring.
- Unlock growth potential for Tees Valley organisations.

How?

- Provision of tailored business support.
- Provision of innovation and Design Thinking training.
- Supporting organisations to develop solutions to defined challenges.
- Connecting organisations for mutual growth opportunities.
- Promote Tees Valley as an innovation hub.

Who?

- Tees Valley organisations.
- Large organisations.
- SMEs - under 250 employees.
- Less than 50M turnover.

What?

- 4 routes to support.
- 10 Innovation Challenges
- 7 Innovation Challenge themes.
- £130,000 awarded in grant funding, to 30 SMEs.

The Support Routes

Supporting innovation through 4 key activities

Innovation Challenges

30 SMEs receiving financial and advisory support to respond to specific challenges defined by Challenge Holders and the Edge Team.

1-to-1 Support

30 SMEs receiving bespoke business support to accelerate movement towards their organisational objectives.

Innovation Training

36 SMEs receiving non-financial, design-led innovation training to create new products, services or processes and unlock growth potential.

Innovation Showcase

Promote the Tees Valley as an innovation hub, connecting ambitious SMEs with advice, finance, collaborators and potential customers.

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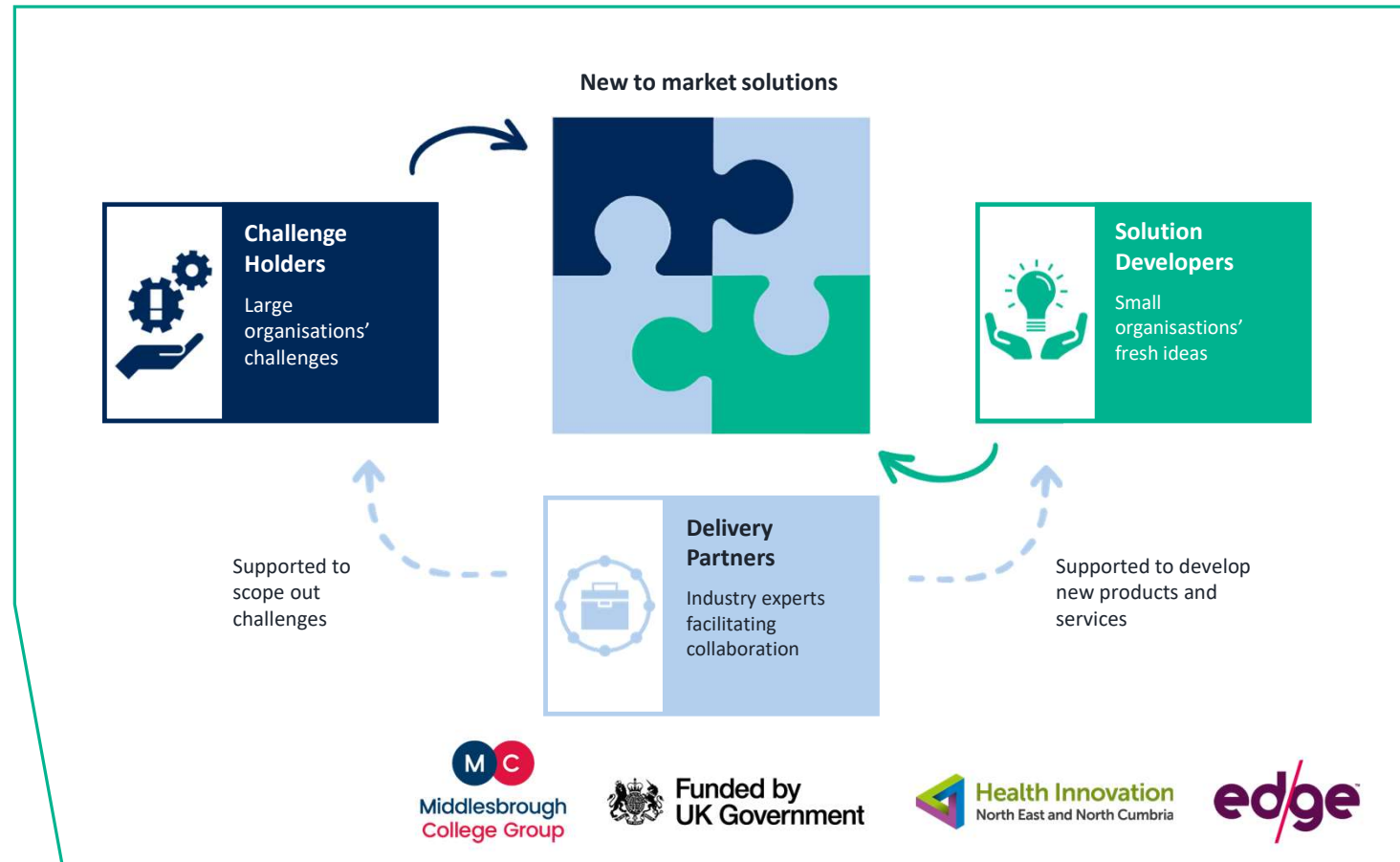
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Innovation Challenges

In a nutshell

- SMEs (Solution Developers) are supported to respond to the challenges of Large organisations (Challenge Holders) for mutual benefit and collaboration opportunities

- 10 challenges will span across 7 key themes

- Grant funding and business support is available for successful applicants

- Solutions are products, services or processes which respond to the challenge

New to market solutions

Challenge Holders

Large organisations' challenges

Solution Developers

Small organisastions' fresh ideas

Delivery Partners

Industry experts facilitating collaboration

Supported to scope out challenges

Supported to develop new products and services

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Challenge Themes

10 challenges to be announced relating to 7 key themes
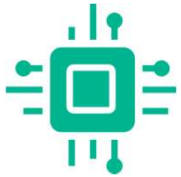
Digital Innovation

Digital technologies and strategies.

Healthcare

Wellbeing and patient care.

Net Zero & Decarbonisation

Sustainable futures and reduction of emissions.

Social Enterprise

Community development and socially conscious innovation.

Transport & Logistics

Transport, mobility and supply chain management for goods and services.

Professional Services

Adding value through innovation in service delivery.
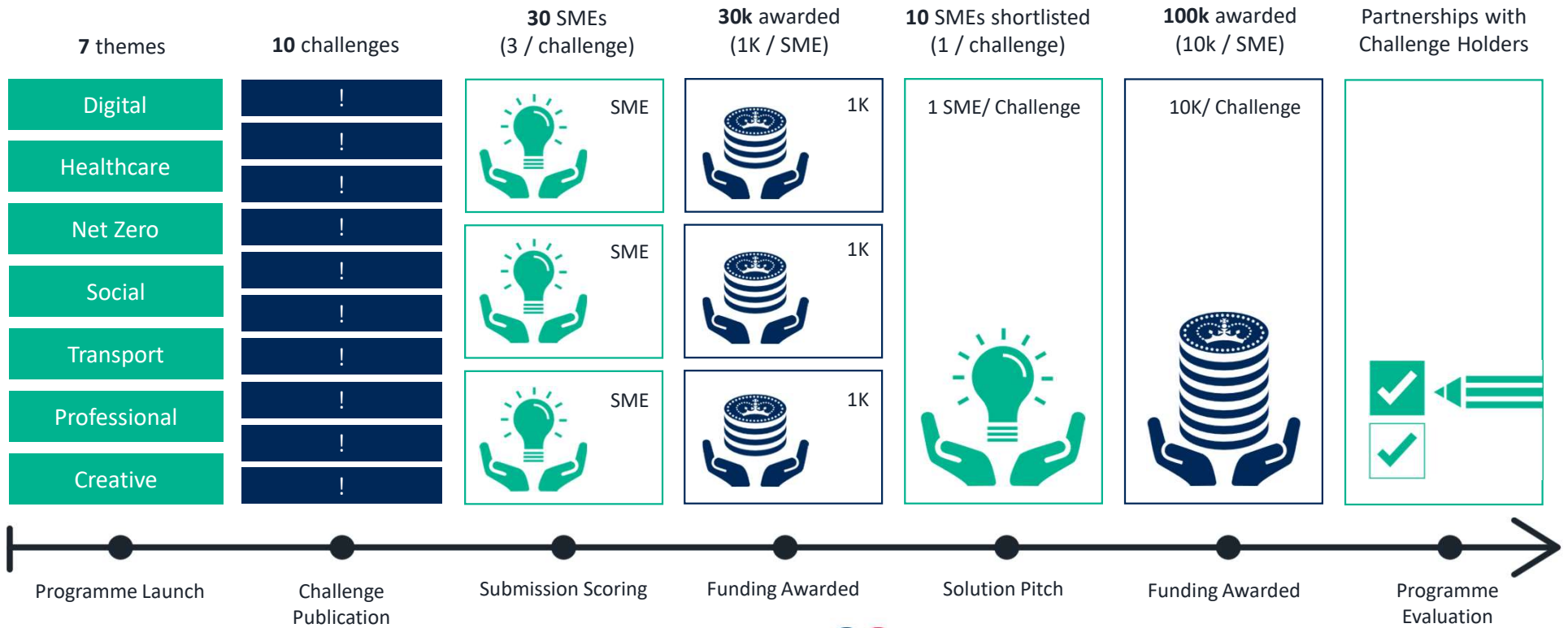
Creative Industries

Application of design, arts and other creative practices.

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Innovations Challenges - Funding Process

£130,000 to be awarded to 30 SMEs

7 themes
- Digital
- Healthcare
- Net Zero
- Social
- Transport
- Professional
- Creative

10 challenges

30 SMEs (3 / challenge) — SME

30k awarded (1K / SME) — 1K

10 SMEs shortlisted (1 / challenge) — 1 SME/ Challenge

100k awarded (10k / SME) — 10K/ Challenge

Partnerships with Challenge Holders

Timeline:
- Programme Launch
- Challenge Publication
- Submission Scoring
- Funding Awarded
- Solution Pitch
- Funding Awarded
- Programme Evaluation

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Introducing
Middlesbrough College

Name, Title, Place of work

Introducing Middlesbrough College

Middlesbrough College, the largest education provider in the Tees Valley for those 16+. The college serves over 13,000 learners and offers courses across all occupational sectors, with a curriculum shaped by strong employer partnerships and regular analysis of labour market needs.

However, the growing misuse of generative AI tools, which threatens the integrity of assessments and student learning outcomes, has become a significant concern. As a result, the College has prioritised the implementation of policies and procedures to address and mitigate AI-related plagiarism.

Challenge Context

Generative AI holds great potential for education, particularly in reducing administrative workloads and speeding up content and knowledge creation. However, existing automated AI detection systems are often inaccurate and unreliable, necessitating time-consuming manual checks and preventative measures such as increased supervised testing. This adds significantly to the workload of teaching staff.

The challenge is to develop digital infrastructure that integrates with manual processes, simplifying the identification of AI-generated content while maintaining the quality of learning outcomes. An adaptable framework that supports the diverse assessment methods used by different exam boards and departments could benefit the entire education sector.

Introducing the Challenge: Redesigning Processes for Detecting use of AI in Student Work

Name, Title, Place of work

The challenge in a nutshell

Problem

Checking for AI-specific plagiarism is currently an onerous process due to fully automated systems being unreliable.

People

Current processes rely on time-consuming manual checks from staff, creating significant increases in their workload. Students misuse of AI affects the development of essential skills, affecting learning outcomes.

Process

Recognising and evidencing misuse is time consuming for both staff and students. Current processes have the potential for human an/or system errors.

Progress

Establishing clarity and confidence around the use of AI would better allow the college to begin teaching the use of AI as an employable skill and utilise AI as a tool to improve education.

The challenge: People - Curriculum Staff

CURRENT STATE

Time efficiency: At present, automated AI detection is inaccurate creating both false positives and failing to identify misuse. This unreliability means staff must rely on manual processes to detect AI plagiarism and misuse. Manual checks are time consuming, creating a significant increase in workload.

Work life balance: High administrative workloads redirect resources away from improving quality of learning and poorly effects work life balance.

Confidence in using AI: The negative effects of AI use have caused a poor perception of AI amongst staff preventing the acceptance of the use of AI in any form. There is also a lack of confidence in the quality of learning outcomes as a result of AI misuse.

FUTURE STATE

Time efficiency: Automated AI detection is used in harmony with manual checks. Improved reliability allows for significant improvements in the time-efficiency of assessment processes.

Work life balance: An improved system allows AI to be used to improve efficiency, giving teachers more time and autonomy to focus on the student experience.

Confidence in using AI: Confidence and trust in an established system means staff feel confident in both using AI and identifying AI misuse.

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The challenge: People - Students

CURRENT STATE

FUTURE STATE

AI Integrated into Education: Students utilise AI as a tool whilst completing time-consuming work. Currently, students may lack the skills to use AI appropriately and effectively.

AI Integrated into Education: Students are able to use AI in an appropriate way, improving learner outcomes.

Quality of learning outcomes: Misuse of AI presents a threat to the development of essential skills, damaging their future employability.

Quality of learning outcomes: Students' educations are authentic and robust, making them better equipped to enter employment.

Perceptions of Fairness: A lack of accuracy and transparency in the current system can result in students being falsely accused of AI plagiarism, damaging the trust between students and teachers and consequently the College's learning environment.

Perceptions of Fairness: Confidence in an established system from both staff and students creates an improved learning environment. Students do not fear false accusations of AI misuse.

Consequence for AI misuse: The unreliability of the available systems potentially allows students to misuse AI without consequence. This prevents AI use from being discouraged and the fair assessment of work from student to student. Peers who do not use AI may feel cheated, further encouraging AI use.

Consequence for AI misuse: Students are confident that AI misconduct is handled fairly and appropriately. Fair consequences for AI use discourage students from committing AI plagiarism.

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The challenge: People – Local Employers

CURRENT STATE

FUTURE STATE

Desirability of local graduates: Due to the threat generative AI poses on the integrity of students' educations there may be a sector-wide lack of confidence in the quality of graduates despite their qualifications.

Desirability of local graduates: Employers are more motivated to hire college graduates due to their confidence in the quality of their skills and education; increasing local employment.

Implementation of AI tools: Many employers have not yet successfully implemented AI tools into their industry. This could be improved with graduates educated in effective and appropriate use of AI.

Implementation of AI tools: Graduates are knowledgeable in AI skills and tools, helping employers to integrate AI into industry.

The challenge: Process

CURRENT STATE

Accurate identification of misuse: The manual investigative process often relies on familiarity with student work and recognising when written work is atypical. This method is effective but requires the marker to be very familiar with the student's previous work and leaves room for human error, which is made more difficult with the increasing number of AI language models available. Automated alternatives to identifying AI plagiarism are unreliable.

Time intensity: The requirement for recognising and evidencing misuse is time consuming for both staff and students. While automated systems exist, false positives can result in further time investment.

Evidencing misuse: Currently, misconduct investigations involve conversations with learners and additional in person assessments which provide a point of comparison to the alleged plagiarised work. Staff need to feel confident in their conclusions before beginning this process.

FUTURE STATE

Accurate identification of misuse: A standardised process to help teachers identify misuse across all common tools available to students. Automated flagging with manual verification/investigation processes to reduce the chance of both human and computer error.

Time intensity: An efficient system allowing for reduction of manual workload, while maintaining accuracy. The process should be easy for staff to use and integrate with current assessment methods.

Evidencing misuse: Improve staff confidence when challenging students by helping staff to evidence their claims of misconduct.

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The challenge: Process

CURRENT STATE

Education on AI use and consequences: The current lack of a standardised process creates challenges in ensuring that students understand what constitutes misconduct and what the resulting consequences are.

Preventative measures: It is difficult to implement effective preventative measures. Current methods include blocking access on networked computers and organising more supervised testing, which may become less effective as new AI tools become available.

FUTURE STATE

Education on AI use and consequences: Robust and standardised processes allowing for higher transparency amongst students and staff. With clear guidance and processes in place, students can be properly educated on appropriate use of AI.

Preventative measures: Reduced pressure to prevent AI use by students, instead providing effective parameters to empower students and staff to utilise AI appropriately.

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The challenge: Progress

CURRENT STATE

Quality of learning outcomes: AI misuse affects the quality of learning as students take short cuts with tasks. AI misconduct also affects the accuracy of testing results.

Integration of AI: Education providers must find new ways to educate students and staff on appropriate use of AI, as well as find ways to utilise AI to improve the efficiency of work. This is necessary to remain competitive as other providers have already begun to implement similar tools.

Reputation of education providers: Legitimacy of learning outcomes could be called into question as the result of AI plagiarism and misuse, which has potential to impact on funding.

FUTURE STATE

Quality of learning outcomes: Education providers can easily identify and take action when AI is misused using a common process that ensures the quality of learning outcomes.

Integration of AI: AI is not only taught to students as a valuable skill but is also used to improve learning materials and improve ways of working. Use of AI as a tool for those with learning difficulties help to improve education accessibility.

Reputation of education providers: Improving academic integrity and creating higher quality academic outcomes will improve the confidence of examining bodies, parents and investors and ensure an excellent reputation for Middlesbrough College. This could contribute towards increased intake or funding

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The challenge: Progress

CURRENT STATE

FUTURE STATE

Staff costs: The need for increased staff involvement during all stages including prevention, marking, investigation and discipline increases workload and has a direct impact on the resources available to improve quality of learning.

Staff costs: Decreasing workload by improving the efficiency of existing systems will allow for resources to be redirected away from admin and towards exceptional education provision.

Staff satisfaction, recruitment and retention: Increased workload and longer working hours decreases staff satisfaction and increases staff costs. Staff retention is the worst it has been with a turnover rate of 25% per annum. Staff recruitment is made difficult as desirability of roles is reduced.

Staff satisfaction, recruitment and retention: Improving work life balance as a result of more efficient systems and the implementation of AI tools will improve staff retention and improve prospects for recruitment by improving desirability.

Learner employment: Employers may lose confidence in the quality of College graduates as a result of AI misconduct. There is a desire to ensure that students are educated to an equitable standard to students in other areas of the country.

Learner employment: Ensuring academic integrity and high quality learning outcomes produces high quality graduates who local employers are keen to recruit.

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Scope for products and services

✗ OUT OF SCOPE

✓ IN SCOPE

Your solution should not:

- Be a fully automated system, given limitations in current automated tools
- Focus on the identification of AI generated images, audio, video
- Require additional staff time or excessive amounts of management
- Require a high level of technical skill or knowledge
- Focus on anything outside the realm of education
- Aim to change or impact current assessment methods, such as written assessments
- Rely on changes to awarding body or government policy

Your solution should:

- Integrate tools that detect AI plagiarism, across all common AI language models
- Be focused on management of plagiarism in text formats
- Have a digital element
- Involve manual and automated steps within a time saving misuse management system
- Consider flexibility to evolve and grow as AI understanding develops over time
- Consider staff training or include training tools
- Have the potential to benefit the sector as a whole, with options to commercialise
- Consider current assessment methods with scope to develop/ adapt for future assessment methods in the future.

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Middlesbrough College Challenge Timeline

Redesigning Processes for Detecting use of AI in Student Work

Application Deadline:	Friday 4th October 2024 at 5pm
Phase 1 Application Review Panels:	W/C 7th October 2024
Grant application outcome notification:	W/C 7th October 2024
Phase 2 Pitch:	W/C 9th December 2024
Project close:	31st March 2025

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Questions?

Thank you

Sign up to the Middlesbrough College challenge:

https://bit.ly/TV-CHALLENGES

Register your interest to be notified of future challenges:

https://bit.ly/TV-IC

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