**NPEx**
The National Pathology Exchange

**NHS**
The Health Informatics Service

# NPEx Newsletter

## December 2018 - Issue 11

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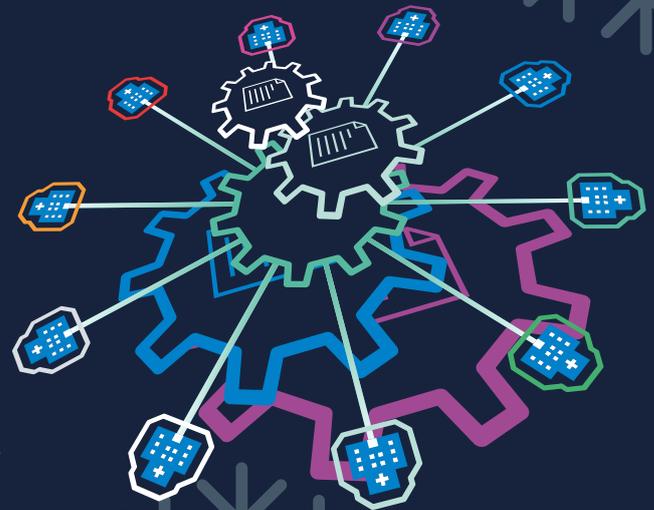
# NPEx's Digital Pathology Bid Success



Image: University of Leeds

NPEx's unique lab-to-lab digital messaging solution is part of the successful bid which will receive investment to transform artificial intelligence (AI) and digital pathology across the North of England. The £10.1 million investment from UK Research and Innovation, which is part of the Industrial Strategy Challenge Fund, will allow the University of Leeds and Leeds Teaching Hospitals NHS Trust to lead the expansion of a digital pathology and AI programme for cancer diagnoses. We will be joining nine other industry-leading medical technology companies, eight universities and ten NHS hospitals to form the Northern Pathology Imaging Co-operative (NPIC).

Leeds Teaching Hospitals NHS Trust is a global leader in digital pathology and cancer diagnosis and this investment is set to transform diagnoses further. Dr Yvette Oade, Chief Medical Officer

at the trust, said: 'This is a huge opportunity for Yorkshire to lead in this new area and further enhance our position as a hub for medical technology.' As a member of NPIC, NPEx will prove itself to be a crucial enabler in driving this innovative expansion across Yorkshire, the North and the rest of the UK.

Steve Box, Business Development Director at X-Lab said:

'We are delighted to be part of NPIC. For patients and clinicians, written reports for Histopathology tests will be available immediately and risks of transcription errors will be eliminated. For staff, both technical and clinical, the time-consuming paperwork of manually recording and processing hundreds of thousands of pathology results will be completely automated using NPEx.'

Image: University of Leeds

NPEx will fulfil and facilitate the project's aim to develop more integrated ways of working across regional clinical pathology services. The project plans to place digital pathology scanners into a network of northern NHS hospitals to gather digital pathology images for training AI systems, generating 760,000 images or 1.2 Petabytes of data per annum. NPEx will allow the ethical, efficient, errorless and cost-effective exchange of this data through clinical reporting across the region and wider UK. NPEx will ensure that the ground-breaking findings of NPIC members can be utilised for research and treatment purposes between NHS sites.

Dr Darren Treanor, Consultant Pathologist at Leeds Teaching Hospitals NHS Trust and University of Leeds said:

'NPIC will allow us to introduce digital pathology across the Yorkshire and North region. But to get the maximum benefit for patients and the NHS, these images have to be linked to requests and reports. By integrating digital pathology to NPEx, we will be able to provide a seamless service for patients, both within our region and, more ambitiously, between hospitals across the entire NHS.'

For more information about the investment and the transformation it offers cancer diagnostics, please see **this article** by the University of Leeds.

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# STP – NPEx's Next Steps



NPEx is taking exciting new steps to improve its capacity for patient care, efficiency and cost-effectiveness. Speaking with Chris Dunne, Assistant Director of Informatics at The Health Informatics Service (THIS), he explained the Sustainability and Transformation Partnership (STP) funding NPEx will receive to pursue this direction.

'There are 44 STPs up and down the country and each STP has got a slightly different agenda. The West Yorkshire and Harrogate STP has multiple work streams associated with it, one of which is digital. NPEx put in a bid as part of this digital work stream to improve the way in which the solution can drive efficiencies, improve patient care and the way in which messages are sent and received between trusts.'

'There are five deliverables that we have asked for funding to support. Our application initiatives are, firstly, to implement and improve a point of care testing (PoCT) initiative for NPEx customers. Additionally, we aim to offer reporting for more complex disciplines through NPEx with the incorporation and improvement of Microbiology and Histopathology, and Genomics. NPEx was originally built to serve blood sciences but as the pathology arena has changed, so has the demand from our customers. Our deliverables for technical infrastructure are aimed at enabling our solution to have connectivity outside of the NHS network. We are also looking at making our infrastructure more resilient and scalable; we aim to migrate away from on-premises solutions, like our data centres, to the Cloud.'

While this may seem challenging, we have a strong and committed team working on NPEx's STP deliverables. Leading the programme are Ruth Lush, STP Project Manager at THIS, and Lucy Mairs, STP Delivery Manager at X-Lab.

Ruth explained: 'I am taking responsibility for the Standards, Resilience and Non-N3 connectivity projects. I thoroughly enjoy the journey of facing what seems to be an insurmountable task and then collaborating with knowledgeable people to find a way through the challenge. NPEx is a new area of THIS for me and I am enjoying working alongside new people on the NPEx team from X-Lab to make the service better.'

Lucy added: 'Primarily, my role is to ensure successful delivery of the STP programme on behalf of X-Lab. Effective delivery will ensure that NPEx is in a strong position by unlocking complex reporting for Microbiology, Genealogy and Histology disciplines. While there will be challenges along the way, it is evident that we have a strong group of NPEx users who are clearly engaged and primed to support our pilots and make progress with this programme of work.'

Chris added: 'Sometimes engagement with our NHS colleagues can be challenging given their main priorities; the priority of NHS labs is delivering high quality and high-speed results to ensure patients are treated as best and as soon as possible. We need to encourage engagement from our users and trusts to reassure them that NPEx's STP programme is

working towards the same goal they are.' The team are confident and clear about their strategy for making STP a reality. Explaining the methodology, Lucy said: 'Due to the nature of the funding and the complexity of the work streams, this programme of work lends itself to be managed using the PRINCE2 (Projects In Controlled Environments) methodology.'

Ruth furthered: 'In isolation, the deliverables are broken down into the 'as is', or current state, from which we will work towards a 'to be', or future state. We work to identify and manage risks along the way, but most importantly we always keep in mind that all of this is about keeping patients safe and improving their care through technology like NPEx.'

The plan, once funding is in place, will take two years to implement and will provide solutions for many years after that.

Chris stated: 'The direction of pathology and diagnostics in the NHS is changing and the NPEx team understand the need to future-proof the system. We want to use NPEx to improve patient care for the future.'

If your lab would like to get involved with the piloting of STP, please email **npex@x-labsystems.co.uk**

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# NPEx and NGIS – Messaging Success



NPEx is facilitating the seamless and secure transfer of genetic test requests and results through the National Genomic Information Service (NGIS). The service is to become the standard across genomic testing, ensuring widespread, streamlined patient care in genomics.

NGIS is a remote, central web service through which clinicians will order tests and the testing lab will access the test sample information. Currently, the seamlessness of this process is challenged by different LIMS systems and message types used across labs, hospitals and within NGIS itself. This is where NPEx comes in. Our technology will translate local data sets from NGIS and the returning lab to a standard messaging format. These messages are then translated once more into the receiver's local format meaning that both sides can send and receive requests and results.

Work has begun to make NGIS a reality. London South Genetics Laboratory Hub is piloting the transfer of HL7V2.8 messages between their genomic labs' LIMS and NGIS. A full suite of order and results messages are in development, ready to allow the lab to communicate fully with NGIS in relation to test requests, status updates and the return of results. The message structure also allows for the lab-to-lab transfer of information to facilitate additional specialist testing and result interpretation, enabling connected patient care. Once connectivity between NGIS and the genetic laboratories has been established and the message structures become stable, work will start on communications between hospital infrastructures and NGIS to enable the full end-to-end flow of data.

As more genetic testing options become available through NGIS, NPEx users too will have the ability to send and receive genetic tests.

# NPEx on a Mission



In late November Steve Box, X-Lab's Business Development Director, attended the 'Digital Health Trade Mission to Poland' at the British Embassy in Warsaw. The Mission was run by the Polish Department for International Trade. It aimed to connect British healthcare innovators with Polish businesses alongside health ministers, policy makers, stakeholders and healthcare professionals.

The Mission was in preparation for Poland to implement its new digital health strategy by collaborating with British e-health system providers to improve Polish healthcare delivery. Using the NHS as a case study of how pioneers in healthcare technology can provide solutions for national challenges. One of the key areas of focus was 'software development capability in healthcare systems', making it clear NPEx had something to offer.

Over ten British companies were welcomed by Jonathan Knott, the British Ambassador to Poland, who talked about the value of mutual opportunities alongside Janusz Cieszynski, the Polish Deputy Minister for Health. This was followed by a series of panels discussing the value of the event.

Steve sat on a panel alongside representatives from MIT Enterprise Forum Poland, the UK Department for International Trade's Global Entrepreneur Programme, University College London and Hospify App. The discussion covered the different challenges facing technology companies when trying to deploy a solution at scale. NPEx was discussed both as a solution to the challenges facing healthcare and an example of success in innovation and strategy.

Steve said: 'X-Lab was invited to the Digital health Trade Mission for its demonstrable success in delivering a live solution working at scale across the NHS. The unique partnership behind NPEx has achieved efficiency, cost-saving and better patient care in the UK. It was a pleasure to speak with other like-minded businesses, government organisations and individuals about what NPEx could potentially offer Poland as it expands overseas.'

Participation in the Trade Mission was a continuation in NPEx's current direction. This chance to seek opportunities in Poland follows our multiple visits overseas to the Republic of Ireland in 2018, where members of the team have met with clinical and IT leaders across the country, as well as our existing work in France.

# NPEx Scotland Roadshow

For NPEx, 2018 was a successful year. NPEx was selected to deliver the IT connectivity solution for the complicated challenge of connecting multiple laboratory information management systems across NHS Scotland. Deployment of the NPEx solution has begun in earnest with a desire for all 14 regional boards to be live with NPEx within a year, delivering cost-effectiveness, efficiency and improved quality of patient care.

For users to experience NPEx to its full potential, our team must support them during this crucial development period. Our Scotland Roadshow offers technical and clinical staff from Scottish labs, that are either in the middle or the early stages of deployment, an opportunity to meet the NPEx team and engage in discussions with us. New users will be able to hear experiences from our established users and ask crucial questions about their deployment process through a series of talks and technical discussions. We will provide updates on the NPEx service, talk more about the national roll-out, and hear your thoughts regarding the development of NPEx's features.

**Location:** The Mercure Glasgow City Hotel

**Date:** 27th March 2019

**Who:** Technical and clinical staff involved in the roll-out of NPEx across Scottish labs

If you or anyone in your lab would like to know more about this event, please email **npex@x-labsystems.co.uk**

GLASGOW

# THIS Spotlight: Pav Kalogeropoulos, Network Engineer

This quarter we sat down and chatted to Pav at The Health Informatics Service about how his role contributes to successfully delivering our solution.

When describing his role, he said: 'I work as a Network Engineer for THIS. Within my role I manage and maintain NPEx's connectivity within our network and connectivity to other trusts around the UK. I ensure that the service continues without any issues and guarantee the highest security possible using secure VPN connections between trusts.'

Pav has been working for THIS since 2006, first starting there as a member of the service desk. Discussing the next few years and his involvement with NPEx, he explained how he 'progressed into different areas within THIS, all leading to my current role. As NPEx develops the services it delivers, we also need to adapt the way in which they are delivered. This includes working with companies outside of the United Kingdom with new technologies like Sophos UTM for secure VPNs over the Internet.'

'As a network engineer my day-to-day role varies and, as new technologies come along, our roles develop with them. My main goal of the day is to ensure that the network is working as it should and any issues are flagged and corrected as soon as possible. We have a number of tools at our disposal that continuously look at the network, such as Solarwinds Orion, as well as X-Lab logging calls with us in regard to changes via BMC Remedy OnDemand.'

This is not without its challenges, however. 'As the NHS is such a diverse organisation, sometimes sometimes VPN connections are hard to set up. Everyone has their own flavour of networks which are sometimes managed by multiple companies and their own way of setting up the connection. I need to be able to work with all these variations successfully.'

But this can be very rewarding. Pav concludes: 'my favourite part about working as a member of the NPEx team is being satisfied that at the end of a new connection call with an NPEx customer, I know that everything is working as planned.'

All the roles across THIS and X-Lab matter to ensuring NPEx can continue to grow and deliver its unique solution.
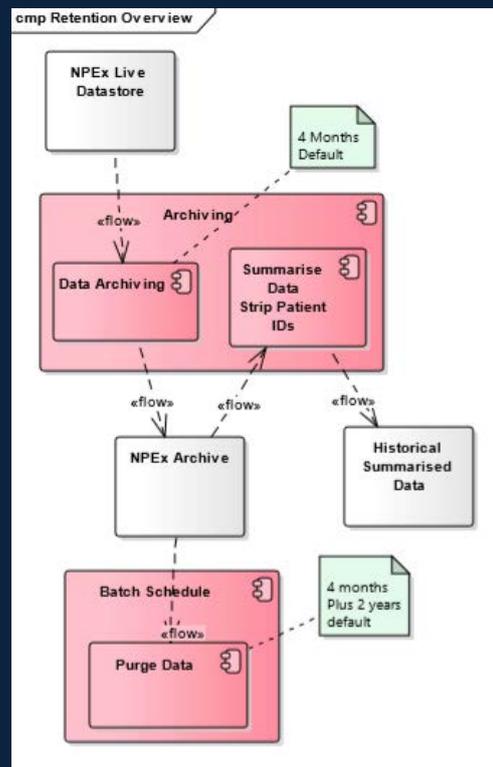
# NPEx New Features

We are always working on new features to improve our service and ensure it serves all our users' needs. Join our quarterly WebEx sessions and the NPEx User Forum to have your say.

### Headline Feature: Archiving in NPEx

Currently, our retention policy is that we will archive all orders four months after the most recent activity. The majority of labs do not have difficulties with this, however, we have seen a growing number of labs reuse existing sample numbers within this four-month activity period. When this happens, it causes issues within NPEx. We are considering amending this policy to be configurable by individual lab setups in NPEx and solve issues surrounding the differences between requester and performer archive times. We encourage the feedback of labs on how best to do this via our User Forum.

### New features deployed:

- It is now possible to scan or type a partial specimen number into the 'Quick Scan' box using a minimum of 5 numbers. This will show a list of possible matching specimens.

- When mapping a test, all labs now have the option to add additional information about the test that is being mapped. This covers 'Methodology/Technology Used' and 'Special Transport Procedures'.

- Labs using Apex or Telepath can opt to switch on a 'Require Specimen' prefix to assist specimen reception by confirming the arrival of shipments and ensuring lab numbers in NPEx contain the correct sample prefix.

- The NPEx User Forum has been tweaked to improve the process surrounding the sessions we provide. As well as publishing an agenda and minutes on the forum, we have started using Eventbrite to better organise the forums and gain analytics on where we can improve further. We hope to continue these improvements in 2019.



### Features in development and discussion:

- All of the proposed new features in development and discussion can be found in the 'Feature Proposals' tab on the NPEx User Forum.

# NPEx New Connections

- Royal United Hospitals Bath

- East Sussex Healthcare NHS Trust

- Northampton General Hospital

- Kettering General Hospital

# NPEx - Go Live

- University Hospitals of North Midlands

- Whittington Health NHS Trust

- East Cheshire NHS Trust

# UK NEQAS – New Connections

We are please to welcome more users onto our UK NEQAS scheme that enables labs to more easily perform EQA testing and guarantee error-free accreditation.

- Lancashire Teaching Hospitals

- Hampshire Hospitals NHS Foundation Trust

- Dudley Group NHS Foundation Trust

- Nottingham University Hospitals

For more information about how using NPEx for EQA could succeed in your lab, then check out our case study with Manchester Royal Infirmary being released in January 2019.

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# Tech Updates – Additional Comments

Results sent into NPEx can contain comments at the level of the whole order, the requested set, or the individual result. We're aware that depending on the system used, some users may find it difficult to distinguish between these comments or identify the item they relate to.

We already have a per-lab option to label set-level comments with the name of the requested item and/or the name of the performing lab.

Next, we're adding the ability to add the name of the result before its comments, to cater for systems where such comments are grouped together.

This option should be available on NPEx early in the new year. We're also looking for feedback on plans to improve the addition of performing lab information; if you have any, please let us know on the Forum.

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# The Team

NPEx is always looking to progress and grow and one of the most important elements of this is our team. This quarter, we wish a warm welcome to one person in particular: Ruth Lush.

Already a member of the THIS team, Ruth has taken on the new role of STP Project Manager for NPEx and she is working hard to make our deliverables a reality.

When asked about how she was finding her new role, Ruth said: 'NPEx is an area of THIS in which I've not worked before and I am enjoying meeting new people from the X-Lab side of the NPEx team while learning lots about labs and pathology! My main challenge so far has been navigating my way from Huddersfield to Leeds - I have a poor sense of direction and a terrible memory for routes!'

We look forward to hearing more from Ruth in the future as her hard work on STP benefits our users.