



pro² Network+ Advisory Board Agenda and Minutes

21 October 2024, 2-3:30pm | Microsoft Teams

Attendees:

Tim Minshall, Dr John C Taylor Professor of Innovation and Head of the Institute for Manufacturing at the University of Cambridge, **Chair**.

Giulia Pratico, Western Gateway Team Manager, Innovate UK Business Growth.

Jim Davison, Region Director, Make UK.

Lars Erik Holmquist, Professor of Design and Innovation, Nottingham Trent University.

Laura McDonnell, Senior Portfolio Manager, EPSRC.

Maura Lydon, pro² Network+ Senior Administrator, **Secretary**.

Mike Fraser, Professor of Human-Computer Interaction and Head of Department of Computer Science, University of Bristol. pro² Network+ Steering Group Principal Investigator and Chair.

Sarah Fawcett, VP Operations, OKdo.

Sarah Hughes, pro² Network+ Manager.

Stephen Chadwick, EVP & President EMEA, Hexagon Manufacturing Intelligence.

Steve Hodges, Professor in Computing and Digital Systems. pro² Network+ Steering Group Co-Lead.

Apologies:

Isabel Qamar, Materials Scientist, Formlabs.

Maria Galvez Trigo, Assistant Professor in the School of Computer Science and Informatics, Cardiff University.

Agenda

Item	Title	Allocated Time	Lead
1	<p>Welcome and review of actions from the last meeting (Tim), including an overview of outcomes from the policy sub-group meeting (Steve)</p> <p>Actions:</p> <ul style="list-style-type: none">• ML to follow up with IQ about providing a profile photo.• AB to help promote upcoming pro² activities including the summer school.• ML to organise a meeting for SHo, TM, JD, and SF around building a policy engagement plan for the network within the next two months.• AB to continue engaging with pro² social media posts and spreading the word about the network.	2-2:20	Tim/Steve

	<ul style="list-style-type: none"> ML to tag AB members in social media posts. ML to schedule the next meeting of the AB in six months' time. 		
2	Update on what has been done since the last meeting and what is next for pro ²	2:20-2:40	Mike
3	Finance update	2:40-2:55	Mike
4	Ideas for getting the word out to industry people, particularly for our latest funding call	2:55-3:10	Steve
5	Recruitment update	3:10-3:20	Mike
6	AOB	3:20-3:30	Tim

Minutes

Item	Title	Deadline	Responsible
1	<p>Welcome and review of actions from the last meeting (Tim), including an overview of outcomes from the policy sub-group meeting (Steve)</p> <p>Actions:</p> <ul style="list-style-type: none"> ML to follow up with IQ about providing a profile photo – Incomplete, ML has contacted IQ but has not received a reply yet. AB to help promote upcoming pro² activities including the summer school – Completed. ML to organise a meeting for SHo, TM, JD, and SF around building a policy engagement plan for the network within the next two months – Completed, see update about this below. AB to continue engaging with pro² social media posts and spreading the word about the network – Completed, TM asked whether there had been sufficient engagement from the AB around pro² social media posts. ML responded to say that there had been a lot of engagement, especially in support of posts advertising the summer school and RA vacancy, and thanked the AB for their help with this. Continuing AB engagement with pro² social media channels was requested. ML to tag AB members in social media posts. – Completed, ML to continue with this going forward. 		

- ML to schedule the next meeting of the AB in six months' time. – **Completed.**

Update on the pro² policy meeting:

SHo explained that following the previous AB meeting, those who expressed an interest in further discussing the issue of policy engagement (TM and JD) met with SHo, MF, SHu, and ML. He explained that pro² is interested in responding to the open industrial strategy consultation '[Invest 2035](#)', and may suggest that the UK government consider changing policies around regulation for new products. SHo argued that doing so could help to differentiate the UK from Europe and give it a competitive advantage, possibly attracting companies and innovators to the UK which could become known as the best place to trial new products. He recognised that current regulations exist for a reason, however devices produced in low volumes may have scope for being less regulated than those produced in higher volumes. Exceptions like this already exist for medical devices, for instance to support their use in trials.

SHo said that another area of discussion at the meeting included the need to identify use cases to demonstrate pro²'s value and impact. The approach of the Digital Manufacturing on a Shoestring programme was given as an example of how pro² might achieve this, as the programme began by identifying challenges among small firms through in-depth interviews and then sought digital solutions to them which could be scaled for use by others. SHo recognised there are many competing demands on the government and said there was a need to consider how pro²'s work may be able to feed into other priorities or existing work when responding to the industrial strategy consultation.

With regard to AB support, SHo said the network would appreciate help spreading the word about pro² and its mission, as well as sharing use cases in future with organisations like The Institution of Engineering and Technology.

Comments:

	<p>LEH said his pro² funded project is getting started with a workshop with their industry partner, and he felt this could be an opportunity to talk to them about any low-volume manufacturing challenges they face. He asked whether there was anything in particular to be looking for in this conversation with regard to policy, or any guidance on how people working in prototyping can assist with information gathering. SHo explained that LEH was successful in receiving pro² funding for a project he is leading, noting that the pro² Management Team organise interviews with project teams to help share information about projects funded by the network. These interviews also include the projects' industry partners when possible. The network is considering whether to conduct interviews of industry partners using more formal research methods as well, to gain an understanding of how to benefit more from our partners and to show a pattern of pro² support for SMEs.</p> <p>TM asked if there is a process now for gathering material to respond to the industrial strategy. MF confirmed that no mechanism for this has been developed yet, but there are plans to begin formulating one very soon. He is aware that the need for this is urgent, as there are only six weeks to respond to the industrial strategy consultation. SF commented she had not seen the consultation yet and would like to provide comments after looking at it. MF requested the other AB members also provide comments at a later point if they have any.</p> <p>Actions:</p> <ul style="list-style-type: none"> • ML to follow up with IQ regarding a photo for the website. • AB members to provide guidance on how pro² might respond to the industrial strategy consultation. • The pro² SG to develop a plan for gathering information that will feed into a response to the consultation. 	<p>31/10/24</p> <p>8/11/24</p> <p>A.S.A.P.</p>	<p>ML</p> <p>AB</p> <p>SG</p>
<p>2</p>	<p>Update on what has been done since the last meeting and what is next for pro²</p> <p>MF presented on the following pro² activities since the last AB meeting in April 2024:</p>		

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| | <ul style="list-style-type: none">- Activities organised by themes: MF provided context for the network's activities, explaining that they aim to improve the transition from prototype to product for digital devices around three main themes. Theme One focusses on prototyping with emerging materials and technologies, Theme Two focusses on 'isotyping' or replicating, scaling and refining digital device prototypes, and Theme Three focusses on infrastructure for producing digital devices in low volumes. Running across all themes is sustainability.- Funded projects: The network is now in its second year. Its first funding call, 'Replicability', was held in year one and fell within the remit of Theme Two. It resulted in awards being granted to three projects which are currently underway. One of these, 'REPLICATE,' is coming to the end of its cycle and will report its outcomes soon. The other two projects are still ongoing. This year the network organised a second call which fell within Theme Three, titled 'Infrastructure for Device Production'. It resulted in three funded projects including the one which is led by LEH. The Management Team have begun interviewing funded project teams and sharing these interviews as short videos on the pro² social channels. The topics for each project are quite different, including the use of AI in designing and testing devices, XR for working with stakeholders, and a project on quality control documentation with a focus on microscopy. The latter is led by a Glasgow team that has developed a low-cost microscope for use in countries that lack sufficient scientific equipment for labs. MF reminded the AB that at this time last year they discussed the pro² funding review process. Based on the input received, the SG revised the process significantly in following calls and the process now includes external reviewers. The network has since been successful in awarding funding to a more diverse set of institutions, which | | |
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	<p>MF feels is likely the result of this intervention.</p> <ul style="list-style-type: none">- Lancaster Summer School: SHO provided an update on the summer school which he organised alongside his Theme Two co-lead, Joe Finney, and the pro² Management Team. Taking place in July 2024, it was a three-day residential event held at Lancaster University. The focus was on replicating prototypes, or 'isotyping', to aid in the transition to final products. The organisers set a broad agenda which included prototyping, however the primary focus was on scaling devices. They hoped to attract about twenty attendees but ultimately welcomed thirty-five. Among them was a good mix of individuals from different backgrounds including about 25% undergraduates, 25% PhD students, some academics and members of industry, and one hobbyist. Attendees were required to submit a short paper describing a prototype they have developed; some of these were more developed than others and their authors were given the chance to present at the event. The network awarded funding to winners of the summer school's prize competition, which is intended to help the winners scale their prototypes further. Awardees have so far asked for a range of things, such as device components or Amazon vouchers to support research trials. Altogether three prototypes were awarded £1,000 and five awarded £200. The event's speakers included members of industry like John Hardy of Hardy and Ellis Inventions, Steve Jones of Eurocircuits, and Mandy Xiang of Seeed Studios who presented on the PCB manufacturing ecosystem in Shenzhen. Activities included a hands-on surface mount assembly session, during which attendees made a device that they later learned to programme and then used to control the stage lighting at a gig led by Joe Finney. MF felt that the summer school was very successful and noted that the network is planning now for		
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another one. It is unclear yet whether it will be similar to the first or if changes will be made, for example to the event's focus or location. He said that positive feedback was received with regard to the diversity of individuals' backgrounds involved in the event. He added that part of the SG's current discussion around another event is the possibility of organising something like a hackathon alongside the next summer school, if there seems to be sufficient interest in this.

- **Comments:** SF asked how the network would keep in touch with this cohort of attendees, who SF felt could support the network moving forward. SHo said the SG is considering offering content for returning attendees if another summer school is held next year, alongside content for newcomers. He felt that attracting returnees would present an opportunity to see how far they have progressed and what further support they need. SHo also mentioned that a large part of the event was to raise awareness about the issue of device scaling and the network's mission, so that attendees could help spread the word among others. SHu said that a WhatsApp Community was created and it was a great way for people to stay in touch during and immediately after the event, but it was closed in September to comply with GDPR regulation. One attendee was keen to keep everyone in touch, however, and set up their own group to communicate with others who opted in. The Management Team will check in with them in the spring to see how they are progressing with their prototypes. She also noted that

	<p>in the event's feedback survey, permission was requested to follow up with attendees in few months' time to help understand the summer school's impact. In addition to this, the team is also in touch with the competition winners, who will report on their outcomes following work that is achieved with the prize winnings. SHo requested guidance from the AB on any further action that should be taken in this area. SF felt that what was described was very comprehensive and she felt the network has been very proactive. TM suggested capturing stories or video clips from attendees on what they have done since the event to keep the momentum going. He invited the AB to share any other suggestions around this topic with the Management Team.</p> <ul style="list-style-type: none">- Network Communications and Recruitment Efforts: MF said that the network has been active on social media with communications around topics like Featured Member Interviews and Black History Month. Recently the network has been attempting to recruit a Research Associate to support activities like engaging with industry. The role was offered to a candidate who turned it down, so the network re-advertised and is currently shortlisting for interviews. MF was hopeful that a good candidate would be recruited very soon.- Upcoming funding calls: MF explained that Themes Two and Three have already held funding calls, so the next call is currently being organised by the Theme One leads (Anne Roudaut and Jason Alexander) with a focus on emerging materials and technologies. Anne and Jason held a workshop in February 2024 to discuss priorities for		
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	<p>this call which will be released imminently in either November 2024 or January 2025. The SG have also been discussing a joint funding call around sustainability with the newly funded network+. MF reminded everyone that in the previous AB meeting, the group discussed the fact that EPSRC was interested in building a digital sustainability network+ and this changed pro²'s plans around activities related to device production sustainability. The new network+ will be led by Exeter University and is planning to launch soon. MF shared that pro² wrote letter of support for their bid which committed pro² to a joint call and MF will also sit on their advisory board. In addition, pro² launched its new Residency Scheme recently, which offers small awards to support international or industry-academia collaborations. As pro² is UKRI-funded, it can only offer awards to UKRI eligible institutions. The issue of how to advertise the new scheme will be further discussed in agenda item four.</p> <ul style="list-style-type: none"> - Network growth and partnerships: MF said that a lot of work had been done since the spring to grow the network. For example, MF, SHo, SHu and ML recently met with Andrew Lamb, the founder of a UK charity called the Internet of Production who principally work on distributed manufacturing. The charity was founded following Andrew's experience of challenges related to using distributed facilities to respond to natural disasters and emergencies. The charity's work is closely aligned with the pro² mission but comes from a very different perspective. The network is currently considering how to collaborate with them and recently wrote a letter of support for an Internet of Production funding bid. 		
	<p>Actions:</p> <ul style="list-style-type: none"> • AB to provide further guidance, if any, on how the network can best stay in touch with summer school attendees 	AB	8/11/24

	and keep momentum from the event going.		
3	<p>Finance update</p> <p>MF said that the network's total grant is worth £3.3 million including in-kind contributions from partners. So far £1.8 million has been spent. MF clarified that in this case 'spent' does not equate to 'buying things' as the network is a funding distributor, so instead it refers to funds the network has awarded to others. pro² requires quarterly spending reports against the awards, and then in turn reports back on a quarterly basis to UKRI. He said there is a lot of work done to make sure pro² is aware of what has been spent by the network itself and its awardees, as well as checking for things like project underspend.</p> <p>Internally, the network divides funds into different categories of spending which include Directly Incurred (DI) costs such as the team's salaries, equipment, and travel, and Directly Allocated (DA) costs which include the time of people who are already employed (e.g. technicians) and other consumables. There is an additional budget the SG think of as the 'flexible pot'. Funding is kept there as the network does not always know in advance what will fall into the DI and DA categories. In MF's opinion, the network's spending seems reasonable so far. He explained that projects typically take six to twelve months to deliver outputs, so the network needs to work within a four year funding window to allow sufficient time for outputs to be produced. Some institutional mechanisms for delivering awards are very slow, so the network tries to be proactive about awarding things early and quickly in order to allow time for processes like recruitment of new project staff.</p> <p>With regard to upcoming spending, MF said that £240,000 has been budgeted for the Theme One funding call, which is likely to be awarded in the next 6 months. This will leave about £1 million left to spend. Other future costs will include the joint call with the sustainability network+ and The pro² Residency Scheme, although popularity of the scheme remains to be seen. The network is likely to have held a call</p>		

	<p>within each theme without using up all of the remaining funds, so the SG will look to see where the network can spend more. MF said that he would likely bring a proposal related to this to the next AB meeting for input.</p> <p>Comments: TM asked how the network is able to accurately track surplus funds when managing itself as a funding body, especially when dealing with issues like recruitment. MF said the network provides projects with a window for spending, with requirements for a midpoint check and a final report; following this the network is aware of any underspend. The final deadlines for two of the network’s projects have been delayed by twelve months, mainly due to recruitment challenges and institutional barriers. SHu explained that processes can vary by institution; some are happy to agree to a contract and sign off on costs quickly, so that recruitment can take place right away. But in other cases there have been challenges, for example around the qualifying salary for UK work visa sponsorship which was increased last year. This resulted in one institution being nervous about initiating the funded project due to recruitment issues. The network committed to providing a certain amount of funding for this, but the institution wanted no-cost extensions before even recruiting. pro² agreed to the extensions, but had to do so a couple times just to start the recruitment process. Despite these delays the project has now recruited a Research Associate.</p> <p>MF said that he has also encountered these issues as the Head of School for Computer Science and does a lot of underwriting to help get ahead of the game on recruitment. The Finance Team often ask if the school can underwrite a grant to help with recruitment. Unfortunately, this leaves pro² reliant on local management supporting this kind of underwriting.</p> <p>TM advised that it is best to avoid a lot of open-ended projects at the end of the network’s lifespan. MF agreed and said the network is doing its best to avoid this.</p>		
4	Ideas for getting the word out to industry people, particularly for our latest funding call		

The following list represents channels the network has used or would like to use for the dissemination of the new scheme:

- Women's Tech Hub – published
- Pivot-RP - published
- TechSpark
- Pervasive Media Studio
- Business West
- EPSRC – do not seem to be a viable option for disseminating
- Innovate UK, Catapults
- British Council
- Make UK
- UoB Industrial Liaison Office newsletter

MF said that the intent of the scheme is to support industry/academia or UK/international collaboration. The network will also consider applications to support residencies between UK higher education institutions, but this is less desirable. Applications can be submitted on a rolling basis with awards of £5,000 or £10,000 available depending on the type of residency. The residencies can last up to three months but there is the potential to last longer if the funding available can support this. The proposed work can be anything that fits within one or more of the pro² themes.

SHo requested support from the AB to help promote the new scheme, as well as input on how it could be useful to institutions. He asked them to consider who they would encourage to apply and for what purpose within their own organisations. SHu added that as there is an industry and overseas focus to the scheme, the Management Team were less familiar with the best avenues for disseminating. She asked where members of industry would be most likely to see an opportunity like this.

Comments:

LEH said that someone at his institution is interested in applying, but he was unsure whether their proposal would benefit others in the community. He encouraged them to consider this and the proposal's potential to benefit pro². SHo agreed with this advice, stating that the network would expect an output that could be shared with others, but

said that there was no formal structure or specific output in mind. SHu said the application process is less involved than a standard funding call given the smaller size and duration of the award. She explained that the network did not want to be too specific with regard to outputs in order to remain open to different kinds of collaborations that are useful to pro² objectives.

SC said that from the industry perspective, the question to consider would be what deliverables would result from a residency. Once this is defined, industry can determine how to position itself in relation to the call. The deliverables would also determine how best to advertise the scheme. SC said that he would first like to read the call and then respond directly regarding how he could help from an industry perspective.

SHu said she had spoken recently with Captive Devices, a small startup that produces XR helmets for use in film and game production. The helmets sell for tens of thousands of pounds but their non-recurring costs are very high. The company has shared their manufacturing challenges with pro², many of which are likely to be relevant to others in the network. An example of something that might support them could be a tool to help people work with mixed materials. The Residency Scheme could support work like this by enabling them to collaborate with someone from academia. Sarah explained that these academia/industry relationships may already exist, but the network can also be helpful in linking people who do not know each other already.

She added that when setting up the pro² website, the network considered having a forum for members to talk more directly, but were not convinced a forum would get enough engagement to be worthwhile. This is currently being reconsidered and the Management Team are looking at some low-cost or free options like PubPub and Hype for facilitating something like this. MF said that although pro² sits across multiple sectors and markets, finding the solutions in this space can be difficult and deliverables are not always obvious. SC said that

	<p>many industries think their problems are unique but once broken down, they are actually shared problems. LEH felt this issue could fit around an event or workshop that includes industry. He said that industry often lack a space to meet competitors, but a network like pro² can provide neutral ground for this where they can discuss shared problems.</p> <p>In addition to the list shared above, the AB suggested the following channels for disseminating the scheme:</p> <ul style="list-style-type: none"> • Sketching in Hardware • RS Design Spark Forum - we have industries and engineers globally, US and Japan we have 100K+ followers • IET, Royal Academy of Engineering • Element 14 <p>Actions:</p> <ul style="list-style-type: none"> • AB to read the Residency Scheme in detail and provide further commentary on its potential benefit to industry and avenues for marketing it. • ML to provide a reminder of the above action. • ML/SHu to explore the suggested avenues for disseminating the scheme. 	<p>8/11/24</p> <p>20/11/24</p> <p>1/11/24</p>	<p>AB</p> <p>ML</p> <p>ML / SHu</p>
5	<p>Recruitment update</p> <p>MF said that recruiting a Research Associate had been challenging as the network works across multiple areas. This has made it difficult to find the right people or identify the right skillsets that match the network's needs. Following the most recent recruitment effort, ten applications were received and MF is hopeful that one of these will be a good fit.</p>		
6	<p>AOB</p> <p>TM felt the network had made great progress since the spring which other AB members agreed with. The AB expressed an interest in having an in-person meeting at least once in future, which MF agreed would be a good idea.</p> <p>Actions:</p> <ul style="list-style-type: none"> • ML to book the next meeting in six months' time. 	<p>ML</p>	<p>29/11/24</p>