KTP and Knowledge Exchange

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My areas of expertise…

- **Databases/Big Data/Data Science/Pedagogy**
  - e.g. NoSQL, Relational Databases, Data Warehousing, Big Data applications, Cloud Database systems, data streams, temporal databases, OLAP/SQL/NoSQL Data Analytics, etc.
- **Experience in managing KTPs in areas both in and outside my area of expertise**
  - Successful track record of previous KTPs with outstanding rating
  - KBS/lead academic for 7 KTPs/TCS and 2 CIPs worth approx. £1.5m income to the university
  - Currently lead academic for KTP with TDR Training Ltd
- **Contact details:**
  - david.nelson@sunderland.ac.uk
  - https://www.linkedin.com/in/david-nelson-b520b711/
  - https://teams.microsoft.com/l/chat/0/0?users=cs0dne@sunderland.ac.uk

University of Sunderland KTP Team

○ **KTP contacts**

    ○ **John Clayton**, Knowledge Transfer Adviser in North-East England and North-West Yorkshire, Innovate UK Business Connect, https://iuk.ktn-uk.org/people/john-clayton/ john.clayton@iuk.ktn-uk.org

    ○ **Amanda Li**, KTP Officer at the University of Sunderland, amanda.li@sunderland.ac.uk

KTP in a Nutshell…

Academic

- Has knowledge and expertise to develop commercial solutions
- Cross disciplinary expertise – a team could span different departments

Associate

- Graduate recruited to deliver the project
- Transfer of new knowledge
- Implements solutions

Company

- Faces a challenge
- No off the shelf solution
- Requires external university expertise between 18 and 24-month duration
- Not achievable through employing additional staff
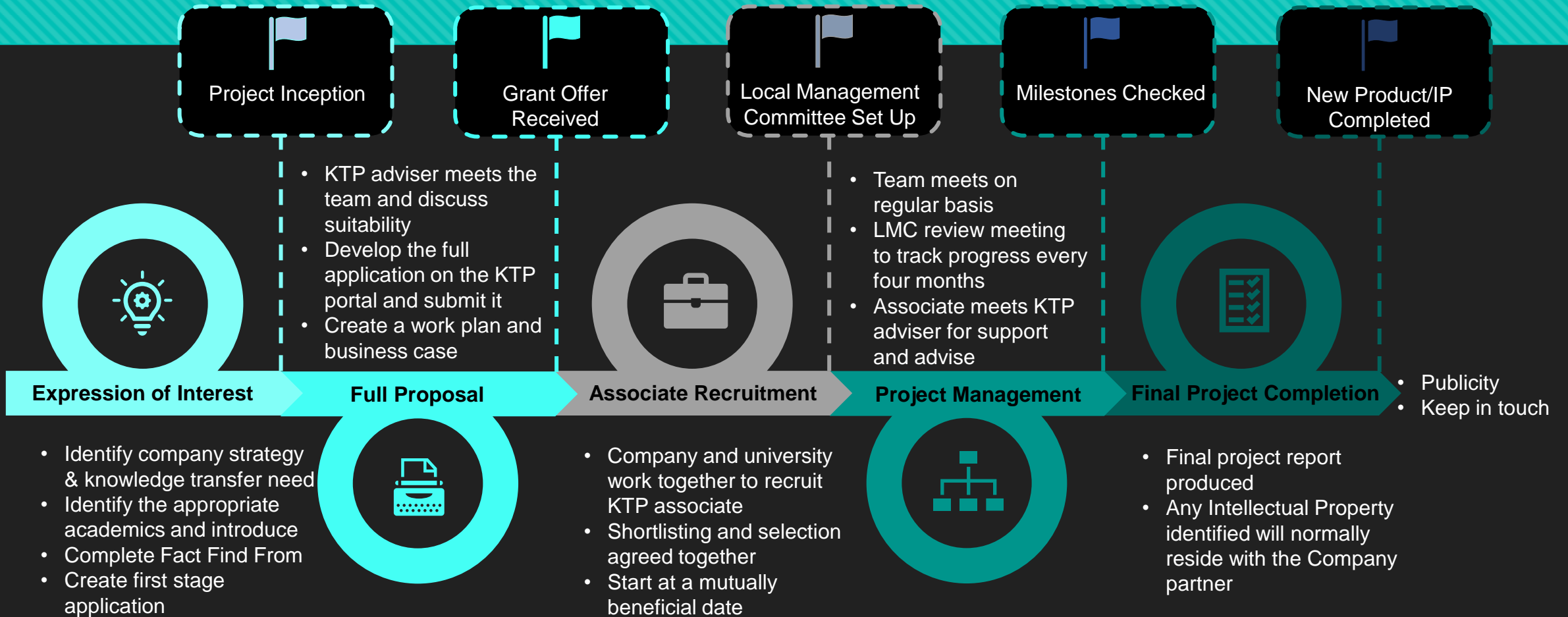
Access specialist resources and expertise

Solve an innovative strategic problem   Create transformational impact

What a KTP entails…

- Development and delivery of the project proposal and work plan
  - This will take longer than you expect
  - Make the project achievable within the time and important to manage expectations of the company
- Get a good academic team – expertise and fit with project requirements
- Associate recruitment is important
- Attend weekly supervision meetings with the company
- Continuous interaction with the company is important as it will reap so many benefits for you as well as lead to a successful KTP outcome
- Your role is to guide, not to do the project
- Work with the KTP team and your KTP champions and especially John ☺

KTP Journey

Project Inception

Grant Offer Received

Local Management Committee Set Up

Milestones Checked

New Product/IP Completed

- KTP adviser meets the team and discuss suitability
- Develop the full application on the KTP portal and submit it
- Create a work plan and business case

- Team meets on regular basis
- LMC review meeting to track progress every four months
- Associate meets KTP adviser for support and advise

Expression of Interest

Full Proposal

Associate Recruitment

Project Management

Final Project Completion

- Publicity
- Keep in touch

- Identify company strategy & knowledge transfer need
- Identify the appropriate academics and introduce
- Complete Fact Find From
- Create first stage application

- Company and university work together to recruit KTP associate
- Shortlisting and selection agreed together
- Start at a mutually beneficial date

- Final project report produced
- Any Intellectual Property identified will normally reside with the Company partner

What Makes A Successful KTP?

IMPACT

- Credible Business case?
- ROI?
- Competitive advantages?
- New market Opportunities?

INNOVATION

- Creation of a new product, process or services?
- Significant improvement of existing ones?
- Innovative to company, sector, industry?

CHALLENGE

- Challenging to all parties, business, academic and associate?
- Does it stretch the above team?
- Is it achievable via on average the 24-month KTP?

COHESIVENESS

- Does it tell an inspiring and credible story?
- What specific knowledge is being transferred?
- Embedding a new capability? How would we recognise that capability i.e., what are the tangible assets in the business?
- Transformational for the business model?

Benefits to academics and the university

- High acceptance rate
- Great steppingstone for academics
- Great opportunity to work with external businesses to feed into your teaching and research, guest speakers etc.
- New research projects initiated as a consequence of a new KTP
  - On average two papers published in refereed journals or presented conferences
  - Two other articles published, case studies produced, new teacher modules, student projects and placements, e.g., 9 student projects generated for Imprint
- Benefits REF impact and KEF ranking/income through e.g., REF case studies
- Research income, typically £180K per 2 years project
- Graduate Employability
- Half a day per week on the KTP team's workload (192 hours shared per year)

Examples of benefits to companies

- ✓ Embedding of new innovative technologies into your organisation
- ✓ Embedding of academic expertise into your organisation with an ongoing relationship
- ✓ Change in company culture
- ✓ Enhancing productivity in your teams
- ✓ Embedding/creation of IT and R&D teams
- ✓ An associate that will probably stay with you in the long term
- ✓ Student placements and projects
- ✓ Financial benefits
- ✓ Organisational cost approx. £35K per year

Examples of benefits to the associate

- Fast-track career development and potential to remain with the business post-KTP

- Competitive salary package

- Training and development (10% of time and a £2k pa budget)

- 2 residential training courses in management and all associates registered on KTP Diploma in Management Programme

- Opportunity to register for Higher Degree during the project

- 70% of Associates are offered employment by the host business

Training and Development Resource

- New two-year KTP started April 2024

- *To create and embed an immersive training capacity by creating the methodologies, knowledge and tools for Extended Reality (XR) enhanced blended learning.*

- Main area of focus:

  - Digital training platform development that is suitable for STEM Apprenticeship education

  - Investigation of leading-edge AR/VR and digital training technologies for TDR's apprenticeship electrical module learning programme

  - Adaptation of pedagogical design and product design to meet the training and educational needs of apprentices

Cellular Solutions

- **Platform Agnostic Intranet Software Development Environment**
- '*To develop a platform agnostic business intelligence software development suite to take advantage of a strategic business opportunity in productising previously bespoke software customisations*.'
  - **Rationalised company's SW development and management processes** – move from providing business mobile phone contracts towards S/w development and providing SaaS
  - Technical knowledge and understanding of the market has been significantly improved within the business
  - SaaS/Cloud based software deployment
  - **25% growth based on the KTP outcomes**
  - International expansion via a global reach
  - Unforeseen benefit to Embed Agile/Prince 2 project management into organisation
  - **Change in company culture** – weekly brainstorming events to look at future marketing opportunities
  - Two new job roles post-KTP – associate kept on as R&D Manager for the company
  - In-house training provision
  - Commercialised product created on the platform and sold
  - Awarded 'outstanding'. Submitted for Best KTP award. Case study on Innovate UK website

Orchid Software

- **Orchidnet - Cloud Based Software Development Environment**

- Development of an industry-leading intranet technology using best practice design and development techniques, resulting in increased product sales and market share for Orchid Software.

- *'A state of the art and market leading platform has been built onto which we will continue to evolve the future of the Orchidnet product. Adoption of an innovative cloud-based software as a service (SaaS) model allows for scalability and export sales.'*

- *'Our improved culture, which breeds and rewards innovation has helped the wider team become engaged in the project; we now have a motivated, efficient and highly agile development team.'*

- Rated Outstanding – submitted for Best KTP award

- Permanent Software Engineer post created for the associate:

  - web development with Asp.Net MVC and Html5/Javascript/CSS

  - web service programming using Asp.Net Web API

  - implementing and maintaining our unit test suite

  - large-scale application development

  - work within a small agile team to deliver projects integrated with our overall enterprise product, working regularly with designers and QA.

Imprint Creative Print Solutions

- **Development of an IT Infrastructure – bespoke MIS and process scheduling system**
  - Automation of web-to-print process (ordering, process scheduling, etc.)
  - **Effecting people and change management** in company operations
  - No previous IT strategy, legacy systems (predominately paper)
  - **New IT team embedded** in organisation
  - Associate went on to become Senior IT Systems Developer in the organisation
  - **Culture change in organisation** to be more accepting of IT driven changes
  - **Year-on-year company growth of 30%, revenue gains of £2m** through increased efficiency and client wins
  - **Staffing increase from 40-70 staff**
  - Awarded Outstanding
  - 2nd KTP on wearable technologies with engineering school

Member Article

Uni partnership which saw print firm create £2 million new business rated 'outstanding'

Encore Washington

- **Novel Data Streaming/Data Capture Architecture and Development of Mobile Data Analytic Tools for the Shop Floor Environment**

- *To develop and implement an interface between a wide range of machine mounted, live data capture systems and the company's Information Management System and provide real time performance information from the data using data-mining and intelligent computing techniques to bring about increases in manufacturing efficiency.*

    - **Agile/test driven development embedded** into organisation
    - **New technologies** used to produce lightweight front ends (touch screen interface) on the shop floor
    - Data Analytics - Mobile interface to monitor factory from mobile devices
    - **New commercial product** (beyond KTP) – the dynamic monitoring system – launched worldwide
    - Nine Msc projects
    - **New company formed** – One Point Data Streams to commercialise the product – 10 jobs created
    - Associate given R&D role within the partner company
    - Rated 'Very good'. Nominated for Best KTP Partnerships award

Others

- **Profile Analysis**
  - Two mini (6 month) KTPs
  - Development of Data and Business Information Analysis Toolsets

- **Steptronik UK Ltd**
  - Development of a MIS for a Nissan Supply Chain company

Some quotes from the companies….

✓ *Very good project for the business! Ximena is now part of the Cellular team.* ***Sales and revenue have been increased every month*** *due to the KTP outcome as well as customer satisfaction. Great range of customers from a variety of sectors.* ***A win-win partnership for businesses! A no-brainer really!*** *(Cellular)*

✓ ***KTP it's the one for me!*** *Delivering proven results to our company, shaping careers, retaining jobs and adding value to our customer proposition.* ***The KTP has given us a new lease of life and pointed us in a direction that we only dreamed of****. Our sales team have new tools to attack the market, our production staff are achieving more with less stress and our shareholders are smiling at every board meeting. I have no hesitation in recommending the KTP as a great way to alter your business as it has made such a difference to ours. (Imprint)*

And some more…

- ✓ *The real standout achievement came in the development of **a new 'Open Innovation' culture within the business, creating a shift in company behaviour towards idea generation, staff empowerment and participation across the entire business**, bringing previously disparate staff and departments together towards a shared objective. The KTP catalysed and stimulated this shift in culture and the absorption of new knowledge and working practices into the company.* (Orchid)

- ✓ *Since Kris joined us … he's been fantastic, bringing with him **new technologies which have helped transform the way we work**. The infrastructure to support IT development with the help of Kris and Tommy has now been in place for two years and we have developed a number of applications that have been successfully introduced to clients such as online ordering, job tracking, variable data printing and digital asset management libraries.* (Imprint)

Thank you...