

## Sandpit: New Industrial Systems

15 – 19 May 2017  
Stratford Manor, Stratford-upon-Avon

### Call for Participants in a five-day Sandpit focused on New Industrial Systems

**Closing date for applications: 16:00, Thursday 02 March 2017**

#### Introduction

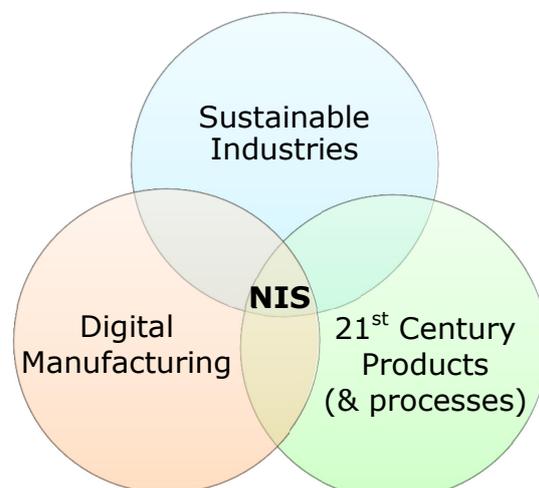
Productivity is a major challenge for the UK as it is one of the drivers of economic growth. A key part of this challenge is enabling future creation and capture of value across the manufacturing sector.

The future competitiveness of the UK economy requires the successful development of world leading products, processes and technology based on discovery and innovation in the engineering, ICT, mathematical and physical sciences. Recent government announcements concerning the Industrial Strategy highlight the importance of science, engineering and innovation in increasing productivity and economic prosperity.

In order to stay ahead in a global marketplace, manufacturers will need to think differently about their business and embrace new ways of creating and capturing value. Changes in resource availability and costs, advances in ICT and enabling technology, as well as the desire for new products will drive changes in how manufacturing is performed.

Reflecting these drivers, the EPSRC Manufacturing the Future theme has identified [four research visions](#) describing the future of manufacturing, namely Sustainable Industries, Digital Manufacturing, 21<sup>st</sup> Century Products and New Industrial Systems (NIS).

Our concept of NIS, represented by the diagram on the right, comprises the intersection of the other three research visions. How the drivers behind these visions come together at a systems level will help define the future productivity of the manufacturing sector. New industrial systems must be developed that are more effective at creating and



capturing value at a variety of scales and levels.

In response to these challenges EPSRC is running a sandpit with a focus on New Industrial Systems to engender a radical change in the research undertaken in this field in the UK. We hope that this sandpit will enable UK researchers to identify and undertake research with the potential to have a transformative impact on our manufacturing industries.

**It is expected that up to £5 million of EPSRC funding will be made available to fund research projects arising from this sandpit.**

## **The Research Challenge**

The challenge identified for this sandpit is to understand how advances in engineering, ICT, mathematical and physical sciences research could transform the future of manufacturing. It will look at the interdependencies between resources, products and services, new enabling technologies, and digital capabilities and consider how these factors could lead to new industrial systems, creating opportunities for the UK manufacturing sector.

New science-led approaches to manufacturing, for example redistributed manufacturing, additive manufacturing, circular economy approaches and advances in digital technology, have transformed manufacturing in recent years. Although these approaches will influence discussions at the sandpit; new, innovative and creative ideas will be encouraged and explored.

Thinking at the Sandpit is expected to span a broad range of disciplines within a number of fields including, but not limited to: engineering, design, materials science, physical sciences, mathematics and computer science, economics and social sciences including business models, sustainability, life sciences and energy systems.

The broad aims of the sandpit are to generate research proposals which can:

- Build a better understanding of the opportunities and challenges in developing new industrial systems
- Address the key research challenges that are identified
- Identify a common language between disciplines
- Facilitate interactions between key researchers and users.

The EPSRC wishes to explore innovative new research ideas through this sandpit and the research themes discussed will be dependent on the attendees. Achieving the Sandpit aims will require the participation of researchers from a broad range of disciplines.

**Participants should be able to apply their knowledge, skills and experience across discipline areas to develop innovative research arising from a systems perspective with the potential to deliver results focussed on transformative change in the manufacturing industries.**

It is expected that a number of multi-disciplinary research projects will be funded, addressing EPSRC's four Prosperity Outcomes (<https://www.epsrc.ac.uk/about/plans/deliveryplan/sciencestrategy/>), in particular Productivity.

## The Sandpit Event

The concept of the IDEAS Factory is to organise interactive workshops (sandpits) on particular topics, involving 25-30 participants. The focus for this sandpit is **New Industrial Systems**. Anyone eligible to apply for funding from Research Councils UK can apply.

The sandpit will run over **five days** starting mid-morning on Monday 15 May and finishing mid-afternoon on Friday 19 May 2017.

As the sandpit progresses, participants will build up thoughts on how the identified 'challenges' may be addressed and develop their innovative ideas and activities into research projects. Projects will contain genuinely novel and speculative research. The sandpit will include inputs from a variety of sources.

## How will the Sandpit Work?

The sandpit is an intensive, interactive and free-thinking environment, where a diverse group of participants from a range of disciplines and backgrounds get together for five days, away from their everyday worlds, to immerse themselves in collaborative thinking processes in order to construct innovative approaches.

The process can be broken down into several stages:

- Defining the scope of the challenges
- Evolving common languages and terminologies amongst people from a diverse range of backgrounds and disciplines
- Sharing understandings of the challenges, and the expertise brought by the participants to the sandpit
- Taking part in break-out sessions focused on the challenges, using creative thinking techniques
- Capturing the outputs in the form of highly innovative research projects
- A funding decision on those projects at the sandpit using "real-time" peer review.

The sandpit will be an intensive event. For the well-being of participants, the venue offers opportunities for relaxation, and the timetable will include networking and other activities to allow a break from the detailed technical discussions.

The sandpit will be led by a Director, who will be supported by a team of mentors. We are pleased to announce that Professor David Williams of Loughborough University will be the Director of this sandpit. The Director, mentors and a small number of stakeholders will attend the sandpit, but will not be eligible to receive research funding. Instead, their role will be to assist participants in defining and exploring challenges in this area. Furthermore, the Director and mentors will act as independent reviewers, making a funding recommendation on the projects emerging from the process through a "real-time" peer review process.

## Who Should Attend?

Attendance of participants from an appropriate mix of relevant disciplines and backgrounds is crucial to the success of a Sandpit event. **Researchers from a diverse range of domains are encouraged to apply to attend this Sandpit,** and we are not defining the disciplines that should be represented; rather we are asking potential participants to indicate how their expertise can address the challenge of the **New Industrial Systems**.

Applicants are encouraged from diverse research areas across engineering, design, materials science, physical sciences, mathematics and computer science, economics and social sciences including business models, sustainability, life sciences and energy systems and need not have worked on the problem before. The emphasis will be placed on working across disciplines to foster new collaborations and bring new thinking to the problem. Applicants are not required to have current EPSRC funding, and we would welcome relevant expertise from people who traditionally apply to other Research Councils.

Those selected to attend will receive further briefing before the event.

As a Sandpit is predicated on an ethos of innovative collaborative working, applicants must demonstrate both enthusiasm and appropriate personal attributes for cross-disciplinary collaborative research. Furthermore, the ability to develop and pursue a new approach will also be a key criterion in selecting attendees. Applicants should not feel limited by conventional perceptions of research performed in this field; the sandpit approach is about bringing together people who would not normally interact.

**Participants are welcomed at any stage of their research career as long as they meet Research Council eligibility requirements to receive grant funding.**

This is an opportunity to share ideas and develop future collaborations, to define, understand and address some of the opportunities and challenges in developing New Industrial Systems.

## Location and Date

**The date for this sandpit is Monday 15 – Friday 19 May 2017, at Stratford Manor, Stratford-upon-Avon**

An application will be taken to indicate participant availability for these dates and their commitment to attend if short-listed. Please be advised attendance for the full week is mandatory.

The environment will encourage free and open-minded thinking, vital for the purposes of this event and to the future of this area. Full details of the venue, how to get there and the accommodation arrangements will be sent to participants once they are confirmed.

It should be noted that all accommodation, refreshments, breakfast, lunch and dinner costs will be met by EPSRC. However, all travel expenses and incidental costs incurred while at the event must be met by the participant.

Where participation in the Sandpit would involve additional care requirements, our expectation is that your employer is approached in the first instance to meet

these costs. If your employer is unable to cover these additional costs then our guidelines on the support available to researchers with caring responsibilities are at <https://www.epsrc.ac.uk/funding/howtoapply/basics/caringresponsibilities/>.

## **Applying to Participate in the Sandpit**

Applications are invited from individual eligible academic researchers who feel that they can contribute to the challenges in this topic area.

Approximately 25-30 participants will be selected to take part in the sandpit. In order to participate, the person applying must be available to attend for the full five day duration of the sandpit.

Applicants should complete the Expression of Interest (EoI) form which can be found at the bottom of the call page (<https://www.epsrc.ac.uk/funding/calls/sandpitnewindustrialsystems/>), below the link to this document.

Your answers to these questions will be used to assess your application and convince a panel that you have the suitable skills and attitude to participate in this sandpit. No further documentation will be accepted.

**Please note that we are not looking for your academic publication or research track record, but rather how you might approach multidisciplinary problems in this area.**

The deadline for applications is **16:00, Thursday 02 March 2017**. Applications should be submitted electronically. Please note that late submissions will not be considered.

Applicants will be informed of their selection for the sandpit event in early April 2017.

Selected applicants should inform their University Research Office, in advance of the event, that they are going to attend the sandpit. If they are part of a successful project their institution will be required to fund 20% of the FEC project costs (as standard).

## **Assessing Applications to Attend**

Applications to attend will be assessed by a selection panel consisting of the sandpit Director and mentors (including an organisational psychologist), looking to ensure a mix of disciplines and experience.

Their assessment will be based on the following criteria:

- The ability to develop new, adventurous and highly original research ideas;
- The potential to contribute to research at the interface between disciplines;
- The ability to work in a team;
- The ability to explain research to non-experts.

It is therefore important to give evidence of your fulfilment of these criteria in your application. Please ensure you fully complete the EoI survey form, as this is the **only** information on which potential sandpit attendees will be selected.

Please note that because of the large number of applications expected, we will not be able to give individual feedback to unsuccessful applicants.

If you have applied to or attended a sandpit previously you are not barred from applying or attending again. At the selection panel EPSRC will identify those applicants that have applied to sandpits previously and also those that have attended sandpits. These applications will be assessed against the selection criteria in the same way as all of the others. However, if in the last resort, two applicants are equivalent in terms of their technical expertise and personal qualities, preference will be given to the applicant that has not applied to or attended a sandpit before.

## **Post Sandpit Proposal Assessment**

Following the sandpit, investigators involved in those projects recommended for funding will be tasked with writing a full proposal covering their intended activities as identified at the sandpit. The deadline for submission of full proposals is expected to be mid July 2017. Proposals will be submitted via the Research Councils Joint Electronic Submission System (JeS). Further guidance on this part of the process will be available at the sandpit event.

The primary criteria used throughout the process of developing and assessing the final proposals will be how well proposals address the vision of the call.

We seek to support those that show:

- Novel, highly multidisciplinary research projects, clearly reflecting the distinctive opportunity for creating such projects that the sandpit provides.
- Clear evidence that the team have the capability to deliver their project as a high quality multidisciplinary activity, provided both through the presentation and their activity during the sandpit.
- Clear relevance to and the potential to make a distinctive and novel contribution to addressing the research challenges in this area.

It is planned that participants will be provided with funding decisions prior to departure from the sandpit, although these will be conditional upon the subsequent receipt of full, worked up proposal documentation. Final funding decisions will be made in **October 2017**.

Any collaborative project funded through this programme must have a signed Collaborative Agreement between the partners before the start of any grant. EPSRC attach great importance to the dissemination of research findings and the publishing of information about the research they support in the public domain. However, all dissemination and publication must be carried out in the manner agreed in the project's collaboration agreement.

For more information please see:

<http://www.epsrc.ac.uk/funding/managing/collabagreements/>.

**Please note that attendance at the Sandpit does not guarantee EPSRC funding.**

## Key Dates

Call launched	Thursday 05 January 2017
Call close (expressions of interest)	<b>16:00, Thursday 02 March 2017</b>
Participant Selection panel:	Late March 2017
Sandpit:	15 – 19 May 2017
Funding Application Deadline:	Mid July 2017
Funding Announcement:	Expected October 2017

## Equal Opportunities

EPSRC are committed to a policy of equal opportunities for our applicants for funding. No eligible applicant should receive less favourable treatment on the grounds of disability, sex or gender re-assignment, marital status, sexual orientation, pregnancy, race, colour, nationality, ethnic or national origin, religion or belief, or contractual and work roles.

If anybody has any concerns regarding our equal opportunities policies or any other aspect of the sandpit application process then please contact us to voice these issues. We constantly strive for absolute equality within our organisation, and we make every attempt to make the sandpits available to as many people as possible.

To help us achieve our aim of equality and fair treatment, an equal opportunities monitoring form is supplied at the end of the online EoI. This form is OPTIONAL however; it will help us to monitor the effectiveness of our policy. The form will be removed from your application and the information you have provided will be used for statistical monitoring purposes ONLY.

## Contacts

For further information, advice or queries regarding the application procedure please contact:

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