

AUGUST 2019

The Newsletter of the Institute of Inventors and Innovators

III – The home for inventors. A non-profit organization controlled by inventors, supporting inventors.

For your diary ...

- ❖ **Dates for our monthly Eureka! Meet** for the rest of the year ... set them aside, attendance is always worthwhile. Details of interesting speakers are confirmed month by month: August 14; September 11; October 9 and November 13. We take a break in December then start again January 15th 2020.
- ❖ **PITTP – Pitch it to the Panel** – the next date is Saturday **14th September 2019**. Do you need confidential advice for your invention? Pitch it to the Panel and let our experts share their wisdom with you. Book your place now, get going with your invention - don't wait until the last minute!
- ❖ 4th Istanbul International Invention Fair - **ISIF'19** will be held on 17-22 September 2019 at International Istanbul Atatürk Airport. <http://www.istanbul-inventions.org/>

Report back

 <p>BIG IDEAS Your imagination is the limit! 3 D Printing SERVICE SALES MATERIALS PARTS</p>	<p>3 D printing is in its infancy in South Africa ... our way ahead will be astonishing." Oliver Hay - BigIdeas</p>	<p>"Imagination is everything. It is the preview of life's coming attractions." Albert Einstein</p>	<p>"The best way to predict the future is to invent it." Alan Kay</p>
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The three quotations above go some way to adding to our understanding of 3 D Printing. The specialists know what and how to do what they need to do with this amazing tool - and even though it's been around for some 40 years it seems that this futuristic technology has taken about that long to mature and hit the present with such impact that it has people shaking their heads at the vast implications it has 'on life as we know it!' Replacement of body parts? Already here. 200 parts reduced to 12 for jet engines? Construction of industrial parts en mass? Usable fashion fabrics? But wait. There's more!

We have to start somewhere and what better way than with a definition and some insight into the process. Inventors will also want to understand how it can be used in prototyping and manufacture.

Essentially, **3 D Printing** (as it has come to be known) covers several different techniques which in some circles are still referred to as rapid prototyping, stereolithography or architectural modelling, but they are all systems of additive manufacturing. This is a manufacturing process which builds up in layers to create a three-dimensional solid object from a digital model.

To print a 3D object, the manufacturer uses a 3D computer-aided design (CAD) program to create a digital model that gets sliced into very thin cross-sections called layers. During the print process, the 3-D printer starts at the bottom of the design and builds up successive layers of material until the object is finished. Oliver Hay of Big Ideas 3D Printing led a very interesting discussion on this fascinating process. His talk started with a video showing a 3D printer in action where this layer-by-layer process was clearly demonstrated.

In the past, the cost of 3-D printing was high and the technology was only used by large corporations, but the development of desktop 3D printers has made the technology more accessible to small and mid-sized businesses as well as home users. Asking how much a 3D printer costs is like asking how long is a piece of string. It depends on what you want to fabricate. Printers are available from as little as R800 on Gumtree to R80, 000 and much more.

Today, 3D printing is developing at a rapid pace and upgraded printers are used to create anything from a new toy or motorcycle part to human organs to manufacturing prototypes for testing purposes ... the process is certainly challenging our age-old ideas of what can and cannot be made. Before 3D printers existed, creating a prototype was time-consuming and expensive, requiring skilled craftsmen and specific machinery. Instead of sending modelling instructions to a production company, advances in 3-D printing have allowed businesses to insource prototype production on a regular basis.

Michael Feygen is credited with developing the first 3D printer in 1985 but much research and development and improvements over the years have meant the design of bigger, better and more versatile printers. The different processes and techniques used are dependent and controlled by the materials employed for the products ordered.

This disruptive multi-faceted technology is going to transform manufacturing forever. And Life if you would. Oliver's presentation covered many of the areas in which 3 D Printing has found traction. He showed slides illustrating how it is being put to use in industrial design, architecture, engineering; construction; automotive; aerospace; and the medical industries. Add to these education; civil engineering; fashion; crafts and hobbies; food, cooking and nutrition; toys ... "there are yet others."

As with anything as disruptive there are the cautionary aspects of assuming that 3 D Printing can be all things to all people. Of course it can't – it is still developing and changing and testing the boundaries of innovation and thought. 3D Printing with materials like plastic, rubber, ceramics and metals means some things will work and others will not. And what of the **ethical** questions that will test global thinking? It seems that replicants *are* possible... Blade Runner was truer than you thought!



Forget shopping, soon we will be able to download our clothes.
Danit Peleg



3D printing is changing personalized medical devices as we know them, from new, beautiful, conformal, ventilated scoliosis braces to millions of dental restorations and to beautiful bracings for amputees, another opportunity to emotionally reconnect with your symmetry.

Avi Reichental
(CEO of 3D Systems)

A photograph of a 3D printed prosthetic hand. The hand is white and black, with a realistic appearance. It is shown in a flexed position, with the fingers curled.

We are able to apply a 3D-printing method to grow embryoid bodies in a controlled manner to produce highly uniform blocks of embryonic stem cells. In principle, these blocks could be used like Lego bricks to build tissues "and potentially even micro-organs"

Wei Sun
professor of mechanical engineering

A photograph of a 3D printed red structure. The structure is complex and appears to be a part of a larger assembly. It has a smooth, curved surface.

With 3D printing, complexity is free. The printer doesn't care if it makes the most rudimentary shape or the most complex shape, and that is completely turning design and manufacturing on its head as we know it.

Avi Reichental
(CEO of 3D Systems)

A photograph of a 3D printed gear mechanism. The gears are made of a dark material and are arranged in a complex, interconnected pattern. The lighting highlights the intricate details of the gears.



South African Business awards

Following the economy's exit from technical recession in Q2 of 2017, there have been many **promising signs of improvement in South Africa**, and consumer confidence is growing. The economic and political tides ebb and flow, but the expertise and strength of businesses in South Africa continue to show that the country's economy is resilient.

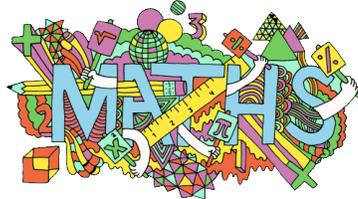
The 2018 MEAM South Africa Business Awards have been designed to shine a light on the firms and individuals who are achieving outstanding results within industries that are constantly evolving.

As with all of our awards programmes, these awarded are based on merit, which means all nominees are equal, regardless the size or location of a firm. Once the voting closed, our own dedicated in-house research team underwent a rigorous research analysing the achievements made over the last 12-months by each nominee. This has ensured that each one of our award winners can be rest assured that their win was one that was truly deserved.

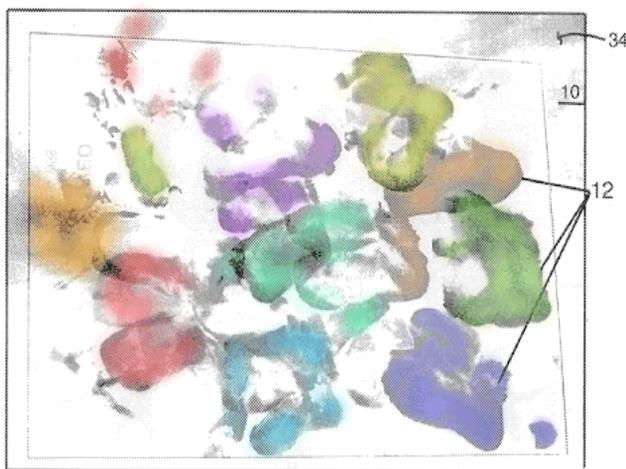
In the light of the above, The Institute of Inventors and Innovators is particularly proud to be a 2018 Award winner. www.meamarkets.com/2018-south-african-business-awards

Was Maths Invented or Discovered?

The fact that one plus one equals two or that there's an infinite number of primes are truths about reality that held even before mathematicians knew about them. As such, they're discoveries – but they were made using techniques invented by mathematicians. For example, according to Pythagoras' theorem, the square of the hypotenuse of a right-angled triangle is equal to the sum of the squares of the other two sides. This is true for all right-angled triangles on a level surface, so it's a discovery. Showing it is true, however, requires the invention of a proof. And over the centuries mathematicians have devised hundreds of different techniques capable of proving this theorem. In short, maths is both invented and discovered. Sourced from the **Very Interesting Magazine** Issue 48, July/August 2019.



What were they Thinking? - Baby Bottom Art – A US Patent was issued In 2000



Let's say you wanted to remember your baby's first months with a keepsake that is different from the usual – you know, the bronzed shoe or curl of hair in a locket? Photographs, digital recordings or models of hands and feet are all very well but isn't all of that a bit ho hum or old-fashioned? What you really need to do is create a lasting memory that doubles up as a work of fine art, something for instance, that uniquely represents your baby but which is not immediately recognizable as such. So what did this inventor do?

She **'invented' AND patented** the Baby Bottom Fine Art Kit! That's right, you read right. Now you can take your baby's little bum and dip it into paint and then stamp it all over a sheet of paper to create that masterpiece

lurking within you. The inventor states that 'this work of art will generally be abstract in nature as posterior prints tend to be heart-shaped.' The kit includes paints, paper and dipping reservoir for an all-inclusive fine art experience. You can purchase the kit but it doesn't come with a baby. Ag – just borrow one!

We'll feature other silliness in future issues of EUREKA! One might agree - **it's patently nonsensical.**

EUREKA! MEET

Why not come to our next monthly meeting on **14th August 2019** for a presentation on **FUNDING** – specifically **ANGEL INVESTORS**? What is an Angel Investor? Who are they? Where are they to be found?



What does an inventor have to do to get funding from an Angel Investor? Do they *only* fund already established businesses? Do you have to give away EQUITY or is funding structured as a LOAN the better option? These are the kinds of questions that will be covered at the August Eureka!

Join us but make sure you book – space is limited. There is no charge.

The venue is 'Made in Workshop',

65 Maria Street, Fontainebleau –Tel: 083 269 2195 – speak to Henry.

Park in front of the building. Take Republic Road towards Randburg, Maria Street crosses Republic Road just south of the Rabie Road junction or click [Google maps](#)

Members and visitors are welcome!

We look forward to seeing you at our meetings, feel free to bring a guest.

The one we missed ... The Coca Cola 'Sharing Can'

See how inventors think about the little things that make all the difference? How many times have you landed with one 'cool' drink when there is a pretty girl next to you and you really needed two? A glass and two straws were not



always available but these cuties would have solved the problem. They were part of a clever design that allowed a can of Coke to twist apart giving you two half-size Cokes - one for you and one for sharing. Would they have really caught on? Oh yes, but sadly they're not likely to be available anytime soon as they were part of a limited-time marketing campaign in Singapore.



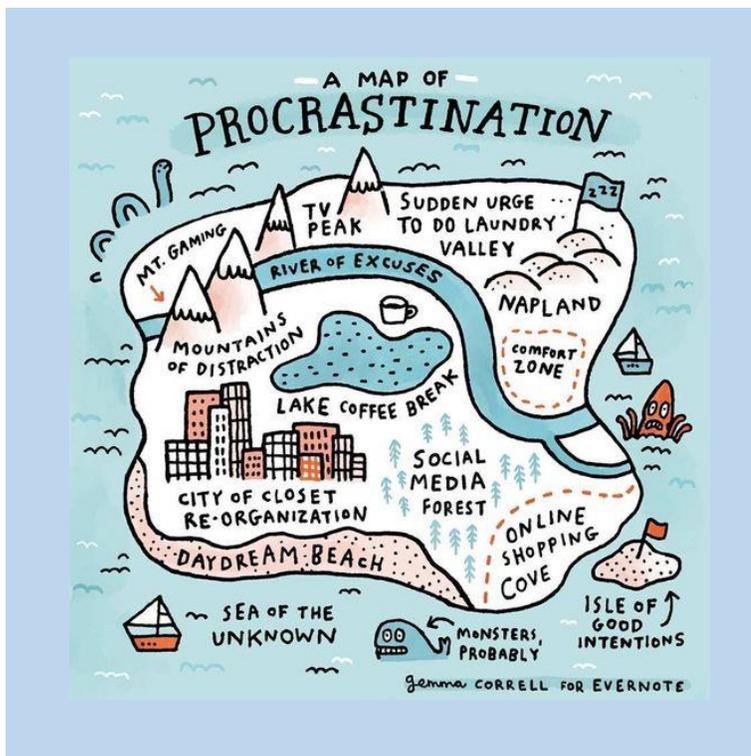
A testimonial for PITTP - Pitch it to the Panel - III's confidential meeting between inventors and a panel of business experts and professionals.

"Good day Gordon and panel members,
May I express my sincere appreciation yet again for the valuable opportunity offered by the Institute to pitch my project to you all? These are the points which sum up my experience:

- #. Relaxed and informal atmosphere
- #. Many years of your joint experiences
- #. Candid and constructive comments
- #. Invaluable advice and pointers
- #. Contacts to move forward
- #. Favourable and enthusiastic response to my products

Thank you for all of the above which constitute a vital step in this journey. I left feeling motivated, refreshed and excited ... Sincerely, Nick Neil-Boss, Sundays River."





**SERVICE OR PRODUCT TO OFFER?
ADVERTISE WITH US!**

Do you have a service that you offer to inventors, innovators and entrepreneurs?

So much comes to mind as this busy sector needs professional and quality services from all sorts of people and companies. Would you like to advertise your service or product on the III website www.iii.org.za or the EUREKA! Newsletter?

There are different ad sizes, positions, time periods and styles that are available. Our current click rate is around 2000 a month (and counting!) and while still developing, the exposure is good for a selective audience who need the services and products you have to offer

**Have you invented something? Brought it to Market?
Do you have a Service for inventors?**

Please tell us about it. Opportunities exist for you to promote your **invention/s** or **service** through 'MEMBER SERVICES' on the www.iii.org.za website. It's available to members at no charge until **1 January 2020**. Talk to us, and we'll send you information on how to get your product in front of interested eyes, the sooner the better, as we would be pleased to support you. Email info@iii.org.za



Do you know someone who may be interested in becoming a member of the III? Why not forward this newsletter to them then let us know so we can send them an invitation join.

**THE NEXT EUREKA! Newsletter will be out by 5 September ... look out for it.
Greetings to you all.**

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