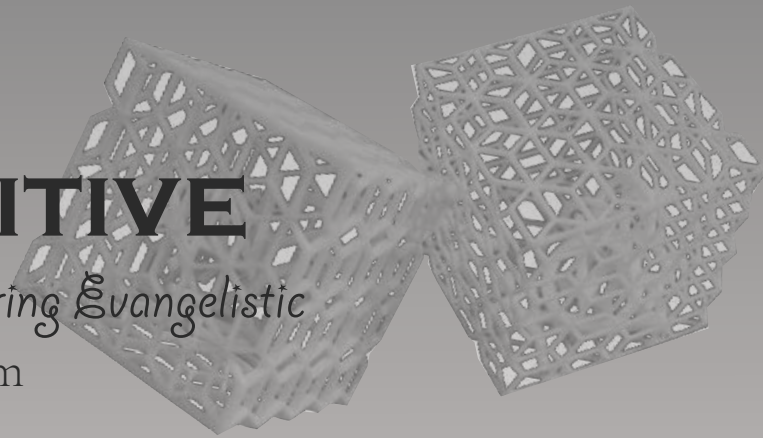


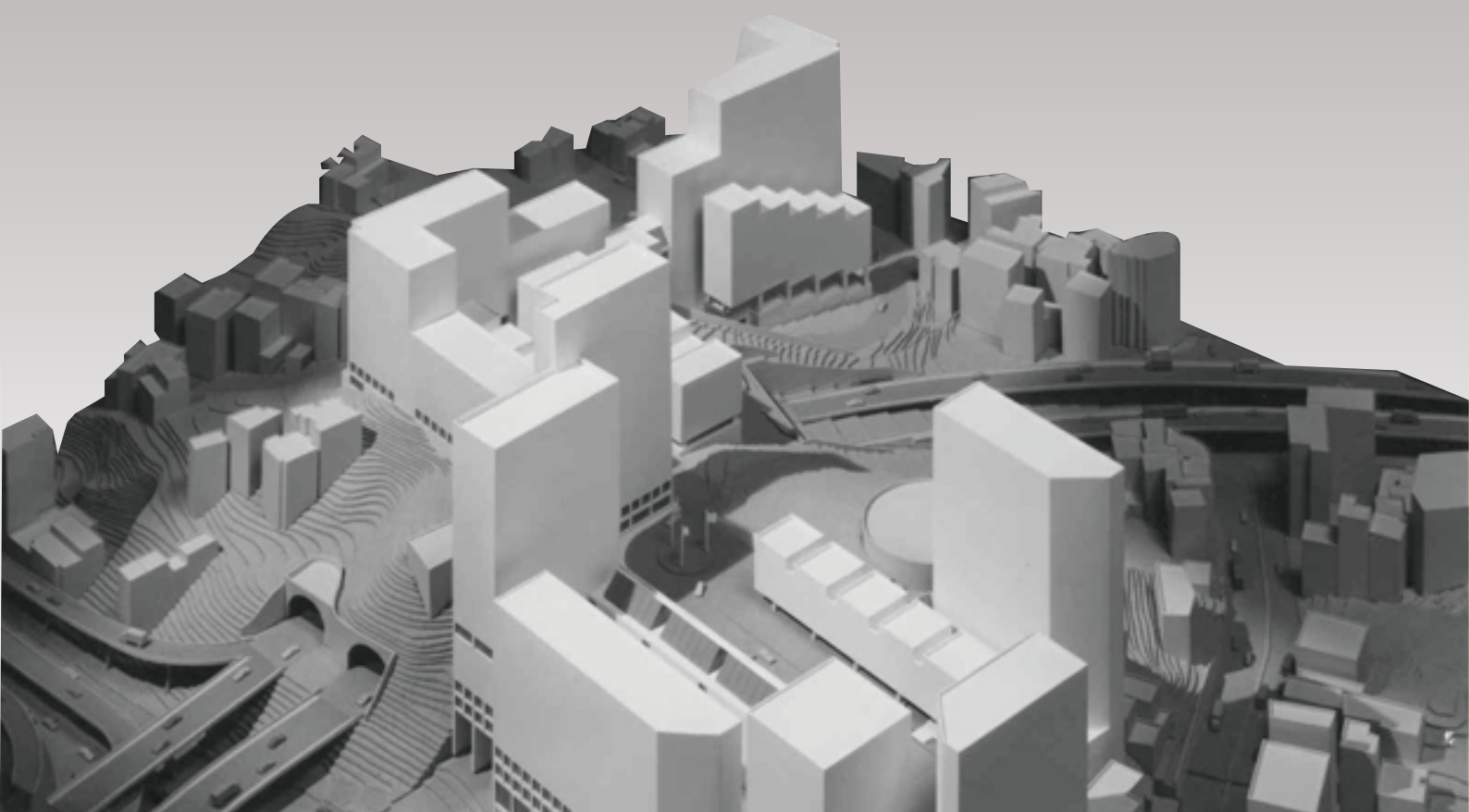
# ADDITIVE

*Manufacturing Evangelistic*

APAC Forum



**NOVEMBER 10-13, 2014**



**TRACK #1: LIFE SCIENCE & HEALTH CARE**

**TRACK #2: AUTOMOTIVE & MACHINERY**

**TRACK #3: CONSUMER GOODS**

*"Welcome to the Reality of Additive Manufacturing"*

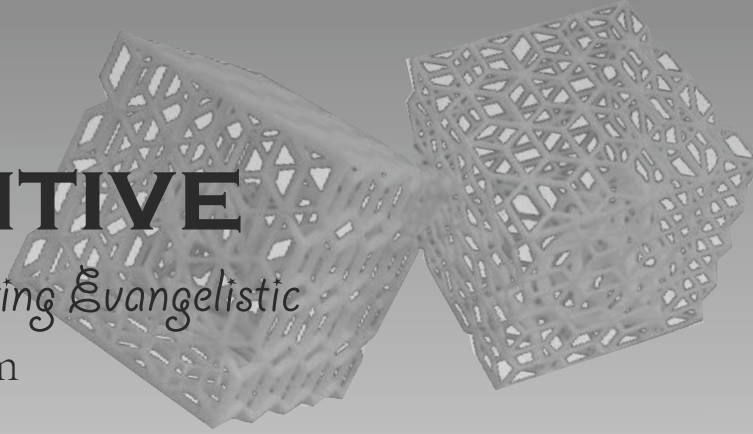
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**Workshop:** November 10-12, 2014

**Conference:** November 13, 2014



Professor Ian Gibson is the Professor of Industrial Design at Deakin University, Australia.

Born in the UK, Ian studied electronics and robotics at Hull University, gaining his PhD in 1988 on the subject of robotics applied to the shoe manufacturing industry. After a brief time in industry, he became a lecturer at Nottingham University, where he was introduced to the process called Rapid Prototyping, which is what we now know as Additive Manufacturing or 3D Printing. He became part of the first Rapid Prototyping research group in the UK and helped organise the European Rapid Prototyping Conference and co-founded the Rapid Prototyping Journal

In 1994, Ian moved to Hong Kong University, where he established a reputation as a key figure in Asia. He organised the International Conference on Manufacturing Automation and co-founded the Global Alliance of Rapid Prototyping Associations (GARPA). He edited two research texts, published by John Wiley and established one of the most prominent Rapid Prototyping research laboratories in Asia.

## Overview:

His workshop will cover two days. On the first day, we will discover what 3D Printing is and what it truly represents in terms of the future of manufacturing. It will discuss the different technologies that are available and how they can be combined with other technologies to enhance innovation and develop novel solutions. On the second day we will focus more specifically on medical applications. 3D Printing has always been used for medical purposes since the very start nearly 25 years ago. However, this area has been least explored, least developed and yet represents the most potential. We will discuss this potential and how it can be applied to solve our medical needs.

## Objectives

This workshop aims to equip executives with the necessary understanding of 3D Printing, with specific attention to medical applications.

## Benefits of attending

Attendees should be able gain insight into a variety of different technologies and business models pertaining to 3D Printing

Attendees should also gain sufficient information on what is the best technological approach to use and what are the key issues that you should consider

## Who should attend?

Decision makers in manufacturing and product development roles

Clinicians wishing to implement 3D Printing in their practices

Medical companies wishing to explore new opportunities surrounding 3D Printing

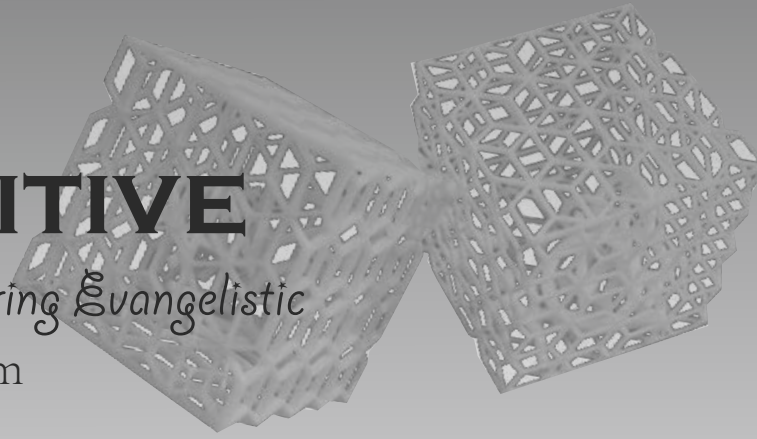
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## Day 0-1

### Tour & A-Z introduction towards Additive Manufacturing

Monday / November 10-11, 2014

#### Introductions (2 hours)

Here we will find out more about the audience. Why did you come to this workshop and what do you hope to learn?

We will go on to discuss my background so that you can appreciate my perspective on this technology. More importantly, we can set some terms of reference. For example, I am not a businessman, so I cannot explain the financial advantages of 3D Printing, but I can discuss business opportunities. I am not a medical doctor, so I cannot cover all aspects of medical practice, but I have worked with many doctors and surgeons throughout the years.

We will then cover the basics of 3D Printing. This will be quite brief since I expect most attendees to already be familiar. However, I do feel that we need to set the scene. Many people are familiar with the popular, entry-level machines. However, fewer people are aware of the variety of technologies that are out there. We will therefore spend some more time looking at the laboratory and industrial-scale technologies.

#### Applications (2 hours)

We will look at different application areas for 3D Printing. These will include automotive, aerospace, (briefly) medical, and other industrial sectors. We will discuss why 3D Printing is used in each of these sectors to develop so called 'disruptive' techniques. These are techniques that do not correspond to conventional ways of manufacture. We will spend some of this time looking at 3D Printing in metals. This is a rapidly growing sector that represents some really exciting prospects, including the fabrication of medical implants. Finally in this section we will consider what can be referred to as 'hybrid' manufacturing. In this context we are looking at additive, subtractive and assembly processes combined together to form highly flexible manufacturing systems.

#### Mass Customisation, bespoke and direct digital manufacturing (2 hours)

This is a branch of manufacturing that has been radicalised by 3D Printing. In essence it is the application of automation to traditional hand crafts. Before the industrial revolution, virtually everything made was bespoke; houses, clothing, furniture, etc. As the population grew, we found the need to mass produce. Now that technology and economies have developed further, we can now use 3D Printing to customise our solutions again, in a quick and economical manner. We will discuss some of the pioneering businesses that have used 3D Printing to produce custom solutions. Many of these are in the medical industry, but even those that are not could be applied to medical applications. This can lead nicely on to day 2.



#### Wrap up of day 1 (1 hour)

Discussion and mini thought exercise that can be used to prepare for day 2.

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## Conference Tracks



### TRACK#1

**HEALTHCARE &  
MEDICAL**



### TRACK#2

**AUTOMOTIVE &  
MACHINERY**



### TRACK#3

**CONSUMER  
GOODS**

Here's a sample of some the leading brands who attended our events



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TRACK 1

## Day 2 **Life Science & Health Care Industries**

Tuesday / November 12, 2014

### Medical applications for 3D Printing (1 hour)

This session will start by a review of Day1 and discussion regarding the thought exercise of the previous day. We will then move on to discuss why 3D printing is particularly suited to medical applications.

### Overview of current medical applications for 3D printing (1 hour)

This session will cover the existing commercial uses for 3D Printing. This includes dental applications, implants, surgical procedures, drug delivery, etc.

### Setting up a clinical 3DPrinting Facility (2 hours)

This session will discuss the experience I had working with surgeons in Hong Kong University and the National University of Singapore, where we used 3D Printing to solve a variety of actual medical cases. At NUS in particular, we developed solutions that eventually resulted in the head of Reconstructive Surgery implementing his own system inside his own practice.

The solutions we developed were based around the MIMICS Innovation Suite software developed by the Belgian company Materialise. This software assists in the conversion of medical imaging data from CT/MRI into the engineering domain. Surgical procedures, medical models, implants and guides can all be developed using this software and we will discuss a number of cases where these techniques were used.

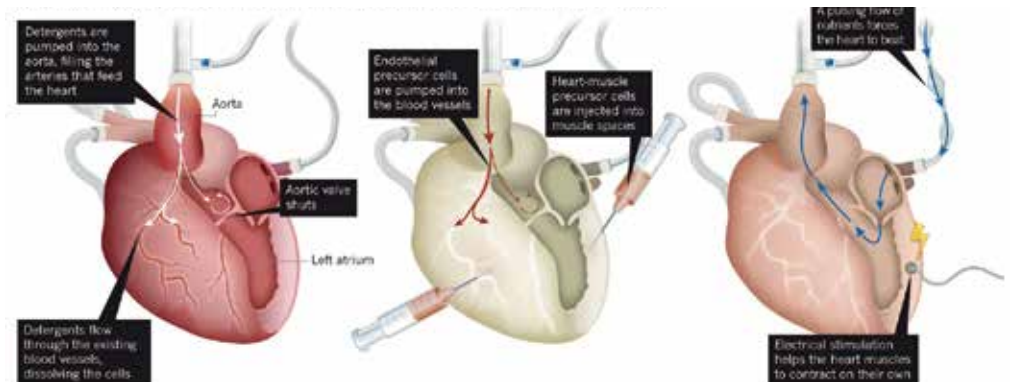
### Tissue Engineering (2 hours)

3D printing has long been considered as a way for us to create replacement body parts. Since humans are complex 3D organisms, it stands to reason that we need 3D construction methods to create replacement organs. We will discuss the different research directions that are currently underway and determine the state of the art. Discussion will include bone tissue regeneration, bone cartilage interface, complex organ transplants, and other related applications.

Note that this is a translational technology that requires input from a wide number of diverse disciplines. I will attempt to summarise the key issues in these areas so that we can understand from a layman's perspective

### Summary (1 hour)

Here we will try to recap where we have gone over the 2 day workshop and decide on any follow-up items.



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TRACK 2

## Day 2 Automotive & Machinery Industries

Tuesday / November 12, 2014

Automotive (Machinery) applications for 3D Printing (1 hour)

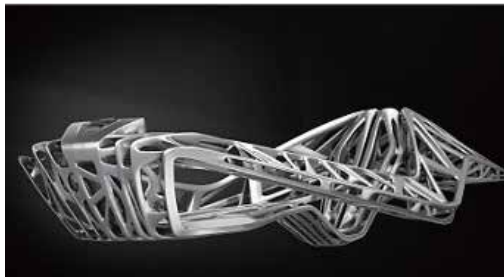
Overview of current automotive applications for 3D printing (1 hour)

Setting up a 3D Printing Facility for Part Production (1 hours)

AM as a driver of Supply Chain Transformation (3 hours)

- AM cuts down on overall lead time, thus improving market responsiveness by eliminating the need and directly producing final parts.
- AM generally uses only the material that is necessary to produce a component, using it can drastically reduce scrap and drive down material usage.
- AM-manufactured lightweight components can lower handling costs, while on-demand and on-location production can lower inventory costs.
- AM can support decentralized production at low to medium volumes.
- All these AM capabilities combined allow companies to drive significant change within the supply chain—cost reductions, reduce supply chain complexity, and better serve consumer segments and markets without the need for extensive capital deployment.

Summary (1 hour)



### Trainer

**Graham Tromans**  
President  
**G P Tromans**  
Associates



TRACK 3

## Day 2 Consumer Goods Industries

Tuesday / November 12, 2014

Applications for 3D Printing of Consumer Goods (1 hour)

Overview of current applications of Consumer Goods Industry (1 hour)

Capital VS. Scale: Maximize your Supply Chain Efficiency (2 hours)

- A promise to Reduce Manufacturing Time and Material Usage
- A promise to Increase Flexibility
- AM allows consumers to satisfy their individual needs without the significant labor or capital investments

From Prototype to Production to Sales in weeks (2 hours)

Summary (1 hour)



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Day 3

Conference

Wednesday / November 13, 2014

9:10-9:50 3D Design: Designing for Purpose and Function With Commercial Value

9:50-10:30 Process & Materials: Using Bioprinting for the Sustainable Manufacturing of Consumable Animal Products

Tea break



11:00-11:40 The Evolution of 3D Printing: Rapid Prototyping and Your Business Needs: Shorten Design and Development Cycles

11:40-12:20 Panel: Patents, Copyrights and Digital Rights Management

- Discussing the uses of Stereolithography, Selective Laser Sintering, Fused Deposition Modeling, Direct Metal Laser Sintering and SolidScape
- Getting the most out of metal and polymer materials
- Gain technical: Addressing the challenges of 3D CAD solid & advance freeform modeling, digital prototyping, finite element analysis, and reverse engineering
- Providing educational and development training on core competencies in Additive Manufacturing

Lunch break



14:00-14:40 Choosing the right technology to meet your 3D printing needs

- Knowing your product: Which solution providers work best in specific situations?
- Should I redesign? Why overhauling your product, as well as your manufacturing process at the same time, can make a whole lot of financial sense... and deliver a superior product as well!
- Assessing the various AM techniques and materials: Looking at how each can be best utilized
- After Processing: Is it possible to eliminate this in the AM implementation phase?

14:40-15:20 A direct manufacturer's dream: Technical and commercial considerations for using direct metal laser sintering (DMLS)

15:20-17:20 **Direct Metal Laser Sintering (DMLS) allows you to layerbuild and quickly manufacture high-quality metal parts.** When it comes to 3D rapid prototyping for complex geometries with metals, is it absolutely the preferred methodology. Smart users are reducing the time and cost factors by completing multiple prototypes directly from CAD data. This allows for rigorous alloy and product testing. When it comes to low volume metal direct and prototype manufacturing, DMLS is rapidly becoming a no-brainer, especially when it comes to freedom of design, structural optimisation, functionality, cost savings and even ecological aspects.

## Join this Conference to:

- Investigate 3D CAD modelling using .stl files
- Look at various alloys and differences that need to be identified for successful production
- Complex geometries and assemblies with multiple components
- Discuss feature tolerances, especially the complexity of getting the Z-axis right
- Learn to create tooling inserts with virtually no machining and a smooth finish
- Reduces CNC & EDM costs as well as SLS turnaround and expenses

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# Additive Manufacturing Evangelistic Forum APAC

November 10 - 13, 2014, Shanghai International 5 Star Hotel

Please register the following delegate(s) for the event

- 4 Days Workshop+Conference Shanghai, 10 - 13 November 2014  
 I am unable to attend but I would like to purchase the documentation at USD 525

(Please photocopy for more delegates)

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Delegate 1	
Name (Dr / Mr / Mrs / Ms)	
Job Title & Department	
Mobile	
Email Address	

Delegate 2	
Name (Dr / Mr / Mrs / Ms)	
Job Title & Department	
Mobile	
Email Address	

### Approving Manager

Name : \_\_\_\_\_ Job Title & Department : \_\_\_\_\_  
 Signature : \_\_\_\_\_ Company Phone Number: \_\_\_\_\_  
 Email : \_\_\_\_\_  
 Company Name : \_\_\_\_\_

Conversion Rate of USD to RMB is 6.50

Fee Per Delegate	Early Bird Rate Register before 20 September 2014	Special Discount Rate Register before 20 October 2014	Normal Rate Register after 20 October 2014
3 days Workshop+Conference	USD 2099 ( RMB 13600 )	USD 2399 (RMB 15600)	USD 2599( RMB 16900 )

### Payment Methods

All payments to be made payable to **Dot Connector Business Consulting Services** in RMB or USD and are net of bank charges. **Bank charges are to be borne by registrants.**

Please tick and fill in the following:

- Cheque / Bank Draft No.**  
 Please mail payment in RMB with registration form to **Room 909, Building 1 LvDi WeiKe Plaza, Lane 423 Xin Cun Road, 200333 Shanghai City, P.R.China**  
 Pay by **Telegraphic Transfer** to **Dot Connector Business Consulting Services**  
**RMB A/C: 03 3759 0004 00 12 881**

### Agricultural Bank of China

Bank Address: 231, Xin Cun Road, Shanghai, China PRC 200129  
 Please fax confirmation of bank transfer to Mr. Ryan Yang at +86 6607 5812  
 quoting your **company's name, delegate's name and invoice number** on your fax and bank transfer.

### Important Notes

1. Early Bird & Special Price Promotion: Fees will only be valid if payment is received by the stipulated dates, after which normal rate will apply.
2. Fee includes luncheons, refreshments and complete set of documentation in CD. It does not include the cost of accommodation and travel.

3. Full payment is mandatory upon registration for admission to the event
4. Walk-in delegates will only be admitted on the basis of space availability at the event
5. The organiser reserves the right to make any amendments in the programme, Speakers that it deems to be in the interests of the event without any notice.

### Cancellation & Substitution

1. A replacement is welcome if you are unable to attend. A 50% refund and a set of conference documentation will be given for cancellation received at least one week before the event. Regrettably, no refund can be made for "no show" participant. You will however receive a set of documentation.
2. If DOT CONNECTOR cancels the Event due to circumstances beyond the reasonable control of DOT CONNECTOR (such as acts of God, acts of war, governmental emergency, labor strike or terrorism), DOT CONNECTOR shall refund to each Exhibitor & attendees its payment previously paid, minus a share of costs and expenses incurred, in full satisfaction of all liabilities of Organizer to Exhibitor.
3. DOT CONNECTOR reserves the right to postpone, re-name or re-locate the event in the same city on which it is held if the written notice is given at least 10 days to the delegates in advance to the event without any refund.
4. A 50% cancellation fee will be charged after the submission of this contract with signature. We reserve the right to refuse admission if payment is not received on time.

**REGISTER NOW!**

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