

Inventique

The newsletter of Wessex Round Table of Inventors December 2003

News in brief

● WRTI Chairman Professor David Nicholas MBE can be heard on BBC Radio 4 at 3.45pm daily from 15th to 19th December, contributing to a series of 15-minute programmes on invention recorded at last month's British Invention Show in London.

"Being flippant on radio rarely pays off," David quipped ruefully.

Mike Keenan, Ted Prosser and other high-profile inventors also feature in the programmes.

BBC Radio 4: 92.4-94.6FM, 198LW

● To gather data for a 6-month MSC research project run by Paul Field at Salford University (measuring the different personality traits between inventors and entrepreneurs), a questionnaire for inventors and entrepreneurs to complete has been posted on the WRTI website.

www.wrti.org.uk/questionnaire.htm

● A Smart Winners Network evening is being held on Wednesday 17th December at Bletchley Park (home of the Enigma code-breakers) to hear presentations from the DTI, the Innovation Relay Centre, Oxford BioSensors, international technology promoters and other guest speakers.

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WRTI diary date

WEDNESDAY 14 JANUARY

Guest speaker: Richard Little on sales & marketing for inventors, plus a club review (see page 2).

Launch Pad: all systems are go

ENTERPRISE COMPETITION DEADLINE APPROACHES

ENTRANTS TO the Enterprise Launch Pad Competition for knowledge-based and new technology start-ups have only a few weeks left in which to make their submissions. The deadline for the prestigious competition, which was launched in September by the Cambridge-MIT Institute, is set for 10 January 2004.

Entrants are required to complete a simple form and attach a 3-page synopsis of their business plan. Entries will be evaluated by an independent judging panel, chaired by sponsor Atlas Venture. Other sponsors of the event include Ernst & Young, HSBC and NESTA.

The Enterprise Launch Pad competition constitutes part of the 6th Cambridge Enterprise Conference, which is designed to encourage and support electronics, engineering, internet, life sciences, materials, telecommunications and software start-up businesses.

It provides an ideal opportunity for innovators to meet business 'angels' and advisors, technology experts, venture capitalists and fellow entrepreneurs.



6TH CAMBRIDGE
ENTERPRISE
CONFERENCE

Prizes for up to 100 entrants to the competition include exhibiting at Deal Day on 26 March 2004 and making short presentations to an audience including venture capitalists and business 'angels'; and invited attendance for ten entrants to the Cambridge Enterprise Conference, networking contacts and making short presentations to all conference delegates (in addition to exhibiting at Deal Day).

The winner will also receive the £5000 Enterprise Launch Pad Award to help grow their business.

Warwick Effect Polymers, who won the 2003 competition, went on to secure £360,000 in business funding and was able to move to new premises. Another finalist met their future finance and operations directors at the event. ■

● www.cambridgeenterprise.co.uk

The 6th Cambridge Enterprise

Conference is on 24-26 March 2004

Wessex Round Table of Inventors meet at 6pm on the second Wednesday of each month at Southampton Institute, East Park Terrace SO14 0RP



VIEW FROM THE CHAIR

WE'VE HAD SOME fascinating meetings this year, and last month was no exception. Where else could we enjoy such diversity?

Our main speaker, Dr Rod Drew, talked about Mica, a natural substance with remarkable insulation and heat-resistant properties. He and his business partner, Dr Ming, are reviewing a wide range of applications where the unique characteristics of this very special material can be applied.

Following that, Peter van Peborgh made the case for forming a loose association of curiosity-led researchers, pointing out that some of the great minds of the past were, to all intents and purposes, enquiring 'amateurs'. Peter certainly struck a chord when agreeing that the most difficult task lies in asking the right question (there are many answers).

Webmaster Mike Overy then clicked onto the internet to show members our new website. It's already very impressive and is growing by the day – look under www.wrti.org.uk. (As a result of a contact I made at the British Invention Show last month, Zagreb Inventors Association now uses it and receives our newsletter.)

Mike Smithard followed with a discussion on what the members would like out of the club, which certainly generated a lively debate.

Finally, my guest, Daniel Beard, gave us a tip for the ideal present for any cyclist (see www.danlite.com).

Sincerely,

David

PS – I do hope members will make the effort to join the WRTI visit to Southampton University's Institute of Sound and Vibration Research on Wednesday 10th December; it should be an exciting presentation.

PROFESSOR DAVID NICHOLAS MBE, Chairman

INVENTORATOR Mike Smithard

The Quad of Aims

HOW A MANAGEMENT TOOL HELPED OUR CLUB

IN 2001, I WAS INVITED by David Nicholas to develop ideas which might aid the growth of the WRTI. I duly attended some club meetings and listened. As with anything novel yet intangible, a wide variety of opinions on how things should proceed were aired.

I recommended that the WRTI committee apply a management tool used by companies and universities to the project, known as The Quad of Aims.

This tool is especially valuable at the early stages of such projects, where no plans exist, where something new is being attempted and where a number of different groups and opinions exist: it can be quite difficult to achieve a real consensus and create a structure, without which work cannot be shared out, planned or implemented.

What it is and what it does

The Quad of Aims is a simple method of introducing structure by asking: What is the purpose? Who are the customers and stakeholders? What are the deliverables? What are the success factors?

Although the club didn't create its own Quad of Aims, I produced a version based upon the views expressed and my own experiences of the innovation process. From it, I identified and itemised:

The purpose There were several strands reflecting different viewpoints (all of which were important).

The customer/stakeholder If the club wished to attract aid, it had to recognise others' needs and strive to meet as many as possible.

The deliverables It was important to have some tangible deliverables, including a plan, to enable work to be shared out and progress measured.

The Success Factors The criteria by which to judge whether or not the project succeeded.



Using Mike Smithard's deceptively simple model, 44 different items were identified, listed and acted upon

I recently reviewed the listed items to see how things actually progressed. The result was very pleasing. With the success factors, for instance:

- Plans were created by the club's committee (although a formal plan wasn't issued).
- The club attracted 20 members.
- The milestones were completed.
- The club now has 55 members (exceeding the 50% growth rate).
- 10 Smart awards have been made to members.
- One WRTI member has gone to market, another is nearly there and others are in negotiation with backers or distributors.
- Southampton Institute's excellent facilities are available to members at subsidised rates, thanks to support from Business Link Wessex.
- Over 80% of the original activities planned have been completed.
- WRTI membership is growing and events are well attended.

Although the initial project covered the WRTI's formation, we should still look at ways to improve the club. A number of views were aired last month: let's develop them at January's club meeting. ■

● Fulltime inventor Dr Mike Smithard is a WRTI member and the recent winner of a Smart award.

USING TRIZ PRINCIPLES

HERE ARE the final four of the 40 TRIZ Principles developed by Genrich Altshuller, for you to include in your problem-solving matrix.

37. Thermal expansion When you heat things up, they usually expand at varying rates. This can either be a problem that you need to handle or it can be a tool to solve problems. The bimetallic strip is a simple example where two connected metal strips, each of which expands at a different rate, result in a device which bends when it is heated, thus giving the basis of many thermostats and thermometers.

38. Using strong oxidisers The oxygen in the air reacts with many substances, from iron (creating rust) to flammable substances (enabling fire). This effect can be increased by using materials which combine with oxygen more easily or by adding more oxygen to the system, for example in a blowtorch.

39. Inert environment When oxygen and other reagents in the environment are a problem, sometimes a good solution is to take them away, replacing them with chemicals that will not react with your device. For example, light bulbs are partially evacuated and filled with inert gases to prevent the thin filament from oxidising and thus breaking.

40. Composite materials Things made of all the same substance are vulnerable to problems which affect that material. By using a combination of materials, synergistic effects can be created where the different materials used not only contribute their different properties but also act together to provide something that is better than the individual part (composite bows fire arrows further and more consistently than bows made of any single material.



GRAHAM RAWLINSON
CONCLUDES HIS SERIES
ON HOW TO INVENT
(ALMOST) ANYTHING

TRIZ (pronounced 'trees'), is an acronym from the four Russian words 'Teoriya Resheniya Izobretatelskikh Zadatch', which stands for the Theory of Inventive Problem Solving – a theory developed by the Russian patent officer Genrich Altshuller, who noticed similarities in invented solutions from different fields.

In analysing over 200,000 patents, Altshuller discovered that most patented ideas use a number of objective principles and are based on a finite number of physical, chemical and geometric effects, so he developed 40 TRIZ Principles as being common to many inventions. Using one or more of these Principles as tools can help solve any inventive problem.

The 40 Principles have been identified as the way to solve contradictions – called 'technical contradictions' in the TRIZ world. That is, when something gets better something else tends to get worse. Some are what TRIZZERS call 'physical contradictions', which is easy to understand. You want two opposite things – hot and cold, fast and slow – but in the laws of physics it cannot be two things. Can you solve these contradictions?

Yes, but you have to separate the feature in some way. And the ways open to you are:

Separate in time So you have something momentarily slow and then fast again. For example: you want to measure the width of a wire coming out of a die very fast but do not want to slow the manufacturing down – so you slow or even stop it very briefly and allow an overrun from the die to create slack, then speed it up again.

Separate in space You want it hot and cold? So you have it hot where it needs to be hot and cold where it needs to be cold (as with saucepan handles).

Separate in structure There are a number of ways of doing this. The simplest is a rigidity contradiction. You want a structure to be rigid and flexible, so you design some of the structure to deliver rigidity and some flexibility. Structural separation usually also involves time or spatial separation, or both.

So, have fun with TRIZ. Why not plan Christmas using it? If you want to bounce some ideas off me, email me at the address below. ■

triz@dagr.demon.co.uk www.triz.org

● *Innovation consultant Dr Graham Rawlinson is co-author with David Straker of How to Invent (Almost) Anything, 310 pages, Spiro Business Guides, ISBN 1 904298 87 7*

A new series begins next month.

HUMORESQUE

from Dave Challice dchallie@bournemouth.ac.uk

- Bullet-proof vests, fire escapes, laserprinters and windshield wipers were all invented by women.
- Conception occurs more often in December than any other month.
- Tom Sawyer was the first novel to be written on a typewriter.
- Men can generally read smaller print than women; women hear better.
- More money is printed daily for Monopoly than for the US Treasury.

Inventique

www.wrti.org.uk

"Forget the answer. First, find the right question" Christopher Cockerell

CENTRE OF EXCELLENCE Trevor Baylis Brands

Trevor pulls it off...

NEW VENTURE TO SUPPORT LONE INVENTORS

LONE INVENTORS HAVE been seeking Trevor Baylis' help ever since he burst into the public consciousness with his clockwork radio, so the Trevor Baylis Foundation was formed to work with the UK government, universities and other institutions to assist inventors in gaining direct access to advice and support.

Trevor Baylis Brands, a subsidiary of the Foundation operating out of headquarters in Richmond, opened for business in September. The new company has a healthily commercial approach, cooperating with inventors in taking their ideas to market only in return for a stake in the product.

Upside, downside

TBB – whose motto is '*Invention: creating the future*' – is talking to 20 inventors about ideas which the company believes are marketable and worthy of support, but already there have been disappointments.

"Sadly, some people submitted ideas which turned out to be neither new nor unique," said director Lynn Miller. "So before inventors get too excited – and certainly before they spend any

money – they should always check the free advice available from the Patent Office via our website link." (See also the October issue of *Inventique* on www.wrti.org.uk)

The organisation's website also provides a downloadable information pack, which advises potential applicants how to submit their ideas for appraisal in return for a non-refundable £100 appraisal fee.

The very first item TBB insist upon is a reciprocal exchange of non-disclosure agreements (also to be found on their website).

It all adds up to a refreshing new voice being added to the lone inventors' chorus. ■

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MEMBER SERVICES

Entries in this column are free to WRTI Members, who should mail their details to the Editor (see panel at foot of page).

CONCEPT TO MANUFACTURE. Help with presentation, prototyping, technical & manufacturing issues. Contact: Innovate Product Design, 01722 410 295

EDITOR/DESIGNER/JOURNALIST 30 years book, magazine and partwork experience. Contact: Frank Landamore, 01273 475 184 franklandamore@hotmail.com

ELECTRONICS CONSULTANT with 30 years experience, specialising in wireless and positioning technologies. Contact: Mike Overy, 01420 562378 mike.overy@zen.co.uk

ELECTRONICS ENGINEER Concept to proof of principle. Ex scientific civil servant. Own lab. Contact: Mike Wright, 01428 722833 mike@fwright21.freemove.co.uk

INNOVATION CONSULTANT and trainer specialising in TRIZ, author of *How to Invent (Almost) Anything*. Contact: Graham Rawlinson 01403 871321 Graham@dagr.demon.co.uk

BOOKS OF THE MONTH

Two books on two brothers, on the 100th anniversary of their feat.

The Wright Brothers Legacy: Orville and Wilbur Wright and their Aeroplanes by Walt Burton and Owen Findsen (240pp, Abrams, £25).

The Wright Brothers: The Remarkable Story of the Aviation Pioneers Who Changed the World by Ian Mackersey

(554pp, Little, Brown, £20).

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