

Do consultants add value?

Sensors and Instrumentation Knowledge Transfer Network Meeting

30.7.2007

at the MRC, London

Dr Joachim Steiner

jsteiner@sentec.co.uk

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

With pressures like time constraints, limited manpower, limited lab resources the question immediately poses itself:

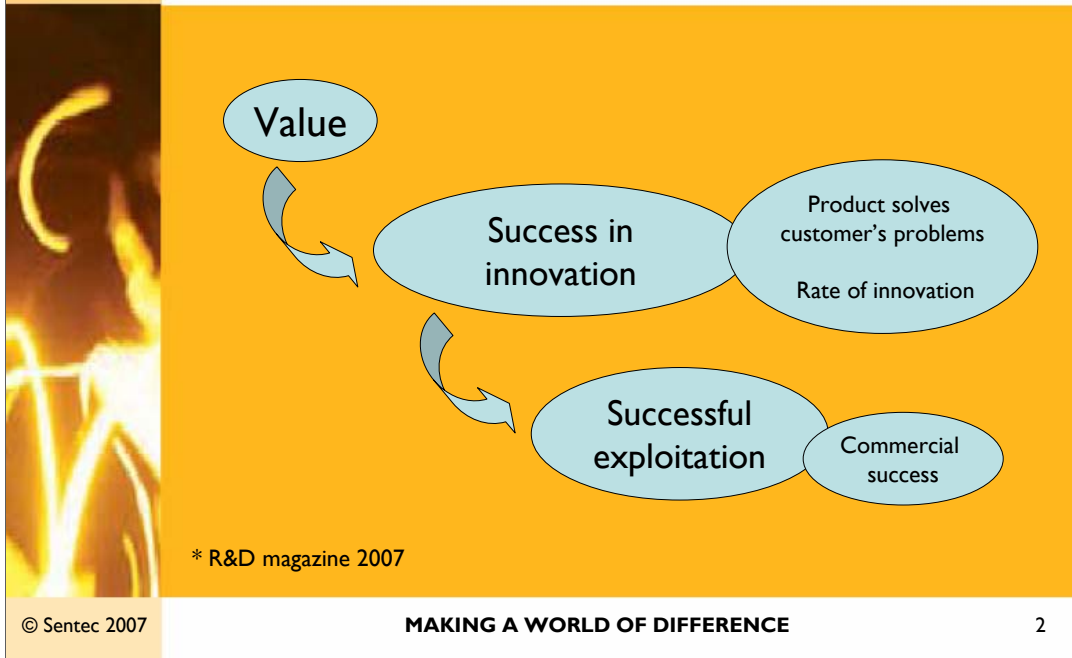
How can I optimise the Innovation Process?

Do I need consultants?

Do consultants add value?

It's probably worthwhile to have a look at
how one does define value?

What is value from innovation?



The value to the R&D department comes from success in innovation.

The value to the company as a whole comes from its successful exploitation.

And you can measure this in terms of its commercial success, but you can't put a price tag on the innovation process.

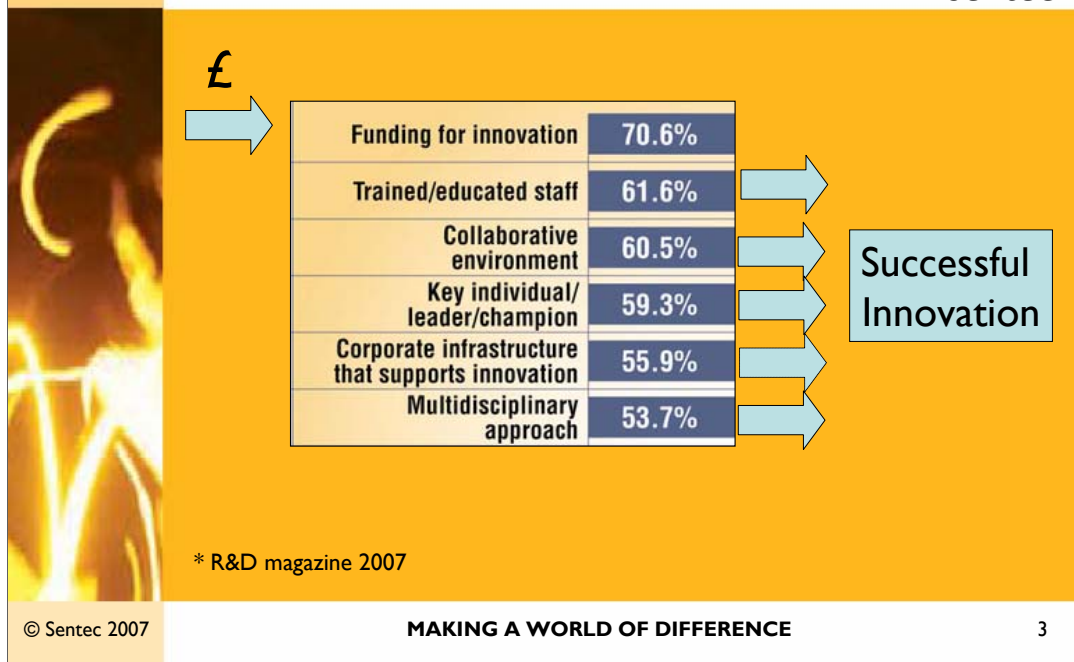
Your innovation was successful, if your product solves the customers problems.

However, if you ask R&D managers how they measure success in innovation, they will say it is actually the rate of innovation.

And this is quite obvious, because many products have a very short lifetime and the mobile phone market is a good example for that.

So now let's have a closer look at what you need for successful innovation.

What are the key components for successful innovation?



R& D Magazine has asked quite a number of R&D Managers what they think is necessary for successful innovation.

And most of them think that funding is most important - no surprise there.

In second place is how well trained their R&D staff is. After that, a collaborative environment, where people can bounce ideas between each other.

A Key individual that feels responsible for the project and is skilled in the area, infrastructure that supports innovation, and last but not least, a multidisciplinary approach.

Now, if you look at the lower five components, you'll find that these components can be outsourced - and THAT's where consultancies come in.

Of course, to outsource the funding is a bit more difficult.

If you do decide to outsource innovation, you have to be clear what your goals are.

A clear choice

- Manager of innovation needs to decide
 - what the new product is meant to achieve
 - or
 - specify his goal
- Consultancies can put value in :
 - by defining development objectives
 - by giving fresh ideas
 - by going the first steps in the right direction (proof of principle experiments)
 - by creating a product prototype and testing it
 - by assisting in manufacturing testing
 - by increasing the rate of new innovation

Once you have a reasonably clear idea what you want to achieve, then a consultancy can help you to focus in on the problems and help define development objectives.

What is valuable?

Is the goal realistic in the given time?and:

is it against the laws of physics?

....

The most important point is, again, they can increase the rate of innovation.

Don't touch !

- Do not use a consultancy, if
 - it is just about manpower
 - one can usually outsource the work for a lower price
 - a solution has already been decided on
 - waste of money and time

Do not use consultancies if it is just about manpower.

Of course it always depends on the special circumstances, but you can usually find contractors that can do the work for a lower price.

And if a solution has already been decided on, it would be a waste of time and money to use consultants.

So what are some realistic cases where one would use a consultancy?

Value to whom?



	Concept development	Prototype and testing	Manufacturing development
Small	Bluetooth tag	Wireless charging	X
Medium	Petrochem	Optical testing	Utility metering
Large	Packaging	High Performance Imaging	Banking equipment

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

6

In a moment I am going to ask for some audience interaction.


What I am going to show here is that it doesn't depend on the size of the company whether you can get value from a consultancy.


And it doesn't depend either on what stage to market you're at.

Having said that, you'll notice that one box is empty, simply because we have never been asked to work with a small company to do manufacturing development.


You are welcome to tell me which case study you would like me to talk about?

Concept development – startup new media company





- Bluetooth data tag
- Needed skills:
 - expertise in bluetooth technology
- Activity:
 - create concept
 - create demonstrator
 - optimise battery life
- Value:
 - access to new technology
 - several million € of funding



© Sentec 2007
MAKING A WORLD OF DIFFERENCE
7

This example is about concept development for a startup new media company.

The product idea was to develop a bluetooth data tag for a museum, for example.

Each visitor gets a bluetooth phone, and when the visitor walks past something with bluetooth tag, he can download more information about it.


The reason why this startup company needed Sentec's services was that the technical requirements were quite challenging.

What Sentec did for them was to


- create concepts of possible solutions
- create demonstrator
- optimise parameters, for example the battery life.

The value the client got out of this project was that they were given a winning concept, that gave them a working demonstrator at the end which put them in a much better position to raise money.

Shall we have a look at another example?



Concept development – medium size petrochem services company



sentec

- Down hole oil testing
- Needed skills:
 - physical transducers
 - durable electronics
- Activity:
 - create (novel) measurement concepts
 - build and test prototypes
- Value:
 - new down hole testing services

[BACK](#)

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

8

This example is about concept development for a medium size petrochem services company.

The business of that company is mainly built around providing drill sample testing service


The product idea here was to measure the properties of the fluid in situ at the bottom of a drill line.


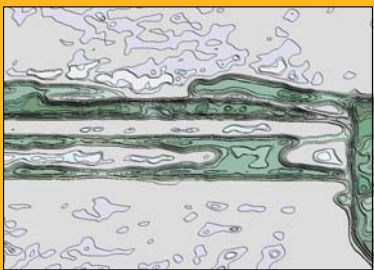
This company needed special skills about how to design physical transducers and durable electronics, which were not available in the client organisation.

Sentec created novel measurement concepts and build and test prototypes which allowed the clients to offer a new type of downhole testing service that gave them an edge over their competitors.

Concept generation – multinational packaging company

- Packaging leak detection
- Needed skills:
 - multi-disciplinary approach
- Activity:
 - technology audit
 - concept generation
- Value:
 - instant insight in current state of the art
 - focussed view of possible steps forward



© Sentec 2007
MAKING A WORLD OF DIFFERENCE
9

In this example a multinational packaging company needed some concept development

They maintain competitive advantage through finding new ways of assuring the quality of their packaging process.

While they have a large R&D department of their own they wished to focus their attention on some existing projects and needed a new approach to this particular problem.

Specifically they wanted to know what solutions were available to detect leaks in multi-layered packaging.

What they needed was a broad, multidisciplinary approach and some experience in a wide variety of industries.

Sentec carried out a technology audit and did some concept generation, giving the client a rapid insight in current state of the art in this area and focussed view of possible steps forward, without diverting any of their internal resources to deal with this.

Prototyping – small wireless charging company



- Wireless charging
- Need:
 - specific complementary skills
 - problem solving skills
- Activity:
 - develop specification
 - brainstorm solution
 - set up benchmarking system
 - test solution against benchmark
 - software and electronics design & testing
- Value:
 - increased functionality
 - strengthened negotiating position with partners



[BACK](#)

© Sentec 2007

MAKING A WORLD OF DIFFERENCE


10

A small wireless charging company approached us needing some assistance with prototyping their product.


The product idea was to charge a mobile phone or other device without plugging it in and in building pre-production prototypes they had discovered some difficult features which they lacked the expertise to incorporate, so they needed some complementary skills.

Sentec delivered a prototype with all the desired features, giving them the functionality they needed to strengthen their market position with their partners.

Prototyping – medium size packaging equipment supplier



- Online packaging testing
- Need:
 - multidisciplinary R&D
- Activity:
 - concept development
 - prototype build
 - portable demonstrator build
- Value:
 - extra product line for existing major client



[BACK](#)

© Sentec 2007 MAKING A WORLD OF DIFFERENCE 11

In this example our client wanted to develop an alternative way of testing blister packs online, rather than batch testing using a vacuum.

From a previous phase of work with Sentec they had already decided to use optical methods. The reason for that was that they could test every single blister pack for 100% compliance.

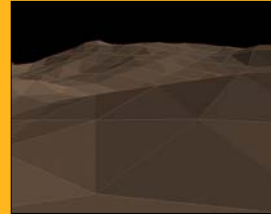
They needed a multidisciplinary R&D department that could do the optical design, software development and build the demonstrator.

At the end of this project, the client had an extra product line for an existing major customer.

Prototyping – multinational aerospace company



- Mapping / rendering system for real-time presentation of 2D and synthetic 3D topographical data
- Need:
 - additional skills
 - solution before deadline
- Activity:
 - develop full system specifications
 - create subsystem architecture
 - incorporate hard-, soft- and firmware solutions
 - prototype system
 - knowledge transfer
- Value:
 - subsystem arrived early and on budget
 - full knowledge transfer allows further in-house development



[BACK](#)

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

12

Another client, a large multinational aerospace company, needed a software development to display e.g. a 3D map for a pilot.

They could have given this piece of work to a contractor, but chose to work with Sentec because they needed an organisation to understand the big picture and then make this subsystem interface without needing too much instruction and against a tight timescale.

The subsystem arrived early and on budget. Sentec undertook a full knowledge transfer throughout the project, meaning the client could carry on with their own in-house development.

Manufacturing development – Sensus metering system



- Novel Utility Meter Manufacture
- Need:
 - cross industry experience in manufacturing design
- Activity:
 - joint design activity with chip manufacturer
 - development of communications interface
 - design & test calibration devices
 - prototype manufacturing runs
- Value:
 - shortened time to product



[BACK](#)

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

13

This example is about manufacturing development for Sensus metering Systems.

As a leading water meter manufacturer in the US they were interested in diversifying into the electricity meter market. They were interested in acquiring technology that gave them a unique market position and licensed Sentec's Mobius current sensor as the core of a new electricity meter design, the iCon meter.

Since the client is a water meter manufacturer they had limited electronics expertise and needed assistance in this area.

What they needed was electronics expertise

The value to Sensus, and for Sentec, was a shortened time to product. There are now over a million iCon

Meters sold in the US approaching 2 billion service hours.

Manufacturing development – global manufacturer of banking equipment



- Benchmarking production costs
- Need:
 - tools for benchmarking
 - understanding of architecture and assembly
- Activity:
 - analysis of components and assembly
 - collecting and analysing data in software
 - recommendations
- Value:
 - specific recommendations for cost savings
 - existing products remain competitive



[BACK](#)

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

14

A global manufacturer of banking equipment approached us to help with regular exercises in production cost optimisation

What they needed was an organisation that had the tools for benchmarking their product against competing devices. For this exercise they also needed an understanding of the product architecture and assembly.

Sentec's experience in this area allowed for a thorough analysis of the costs and providing the data in a form the client could interrogate themselves. Sentec also made recommendations cost savings

How to facilitate adding value



- Implement recommendations
- Seek knowledge transfer
- Arrange for follow up visits

[BACK](#)

© Sentec 2007

MAKING A WORLD OF DIFFERENCE

15

How do you make sure that you get as much value as possible out of a consultancy:

Firstly, if a consultant gives you recommendations, implement them!

Saying that, we usually give our clients a ranked list of options so our client can choose according to his own priorities which option is best for him.

Seek knowledge transfer from the consultant to your organisation.

And stay in touch, arrange for follow up visits.

How to pick the right consultancy



- **Must have:**
 - skills
 - commitment to relationships
- **Should have:**
 - cultural fit
 - personality fit
 - working style
- **Excitement attributes:**
 - matching IP
 - access to a breakthrough technology or idea

Like recruitment of staff, picking a consultancy is largely a matter of accurately identifying the attributes that will be most valuable.

You will presumably have 'must have' attributes, which generally revolve around the skills that you think are needed (although in the cases of conceptual development, it may be hard to predict the skills necessary for future product development) and commitment to relationships. I would expect a good consultancy to be able to provide hard evidence of both

More variation may be found in the nice to have attributes – cultural fit (does your organisation and theirs work well together in terms of policies on levels of supervision, ownership of ideas, degrees of risk etc?) personality fit (do you respect the individuals who will be working on your project?) and working styles (where and when the work is done, how much control is given to clients, degree of documentation throughout project etc)

Bear in mind all of these careful calculations can be upset by a company that has access to IP, ideas or individuals who are so overwhelmingly exciting that you are willing to compromise on any other attributes.

Conclusion

- Consultancies will add value
 - if they are used appropriately
- Value in
 - providing focus
 - enabling innovation
 - accelerating innovation process

End:

Whether consultancies add value
Is as much under your control
As it is in theirs.

Thank you very much.

Any questions?

Sentec



For more information please contact

Dr Joachim Steiner

Technology Developer

Sentec Ltd

Brunswick House

61-69 Newmarket Road

Cambridge CB5 8EG

UK

Tel: +44 1223 303800

Fax: +44 1223 303801

email: jsteiner@sentec.co.uk