

“Product innovation is about creating a better solution to an existing problem that improves the user’s experience.”

——James Coleman
Technical Director of IDC China

Selecting the right design partner is the beginning of a successful design collaboration.

How IDC maintain innovation is one of the main concerns that companies pay attention to.

We invited James, IDC Technical Director, to share his insights into product innovation and how we keep on innovating.

James Coleman

James Coleman, Technical Director of IDC China. He holds a BEng Industrial design and Technology bachelor's degree from the renowned Loughborough University.

Specialising in consumer and medical product innovation, James drives the design and engineering integration at IDC China and is responsible for the IDC quality system.

James has over 20 years' experience of product development from product definition and ideation through to post production optimisation.

— James Coleman, Technical Director of IDC China



1. How does IDC bring value to our client?

James: I believe it is our strong ability to solve problems for our clients. We have a creative team and a robust design process that allows us to discover solutions where others cannot.

IDC bring value to our clients by deeply analysing and understanding the problem and then delivering innovative solutions.

Problems vary and are unique to each client. However, we can generally simplify problems into 2 categories: technical problems and usability problems.



1. Technical problems:

A client may have a challenge with an area of design which may include mechanism design (mechanical or electro-mechanical), functional accuracy and effectiveness, manufacturing feasibility, reliability, durability, cost reduction, intellectual property infringement avoidance, intellectual property creation etc.

2. Usability problems:

A client may have a usability related challenge which may include ease of use, comfort of use, accuracy and precision of use, size and weight reduction, ID improvement etc.

Often our clients require us to achieve solutions to both technical and usability problems.



2. You mentioned about delivering innovative solutions to client. How do you define innovation?

James: True product innovation is not just about creating something different. Product innovation is about creating a better solution to an existing problem that improves user's experience. From a bigger perspective, you could say improving the lives of the users.

I would like to give you an innovation example from the time I worked at Dyson, I worked on every aspect of the development of the first Dyson 'Airblade' hand dryer from concept to DFM.

The problem:

We were frustrated with the performance of traditional hand dryers and subsequent testing demonstrated they were ineffective, inefficient, and unhygienic.

Most people using traditional hand dryers are familiar with having to wipe their hands on their clothing afterwards!

The solution:

Therefore, we developed a new and better way.

The Dyson hand dryer is innovative in that it combines air knife technology, previously only used for industrial applications, to provide a thin uniform high speed (400mph) airflow to act as an invisible wiper blade to scrape water from the hands, combined with HEPA filtration technology previously used in Dyson vacuum cleaners, to deliver a significantly more effective, efficient, and hygienic solution.



The internal structure of the original Airblade™ product

The product has been very successful and demonstrates how true innovation can create a paradigm shift and vast market success.

During my 9 years at Dyson we defined our innovative products as 'Different, Better, Human'.

I also worked for 3 years designing products for the elderly and disabled where user centered design was the priority.

The user centered design philosophy of my previous companies has integrated well and evolved over the 9 years I have been a part of the Shanghai IDC team.

We do not produce innovative products for the sake of being different. 'We innovate to create successful products that improve people's lives.'

3. How do you achieve innovation?

James: Good question. With many aspects to the answer! There are many practices and techniques we have refined over 50 years at IDC to achieve effective innovation. I'd like to focus on 8 key areas:

1. Talented and Capable Team:

First, a team with a strong problem-solving capability builds a foundation for successful innovation.

Our IDC Design team selection process requires a demonstration of innovation capability right from the start to ensure we are talented in this area.

We put our team through a comprehensive training process, covering the whole design process including methods, best practice and project experience and resource sharing.

Also, our team understands engineering and appreciates the importance of manufacturing feasibility and cost constraints.





2. Company Culture:

Traditionally, within many companies, the design development process separates design and engineering into two distinct areas and there is a lack of collaboration.

IDC believe this process is less effective. Successful and well-respected companies such as Apple and Dyson understand that an integration of design and engineering throughout the development process is key to delivering the best optimised solution.

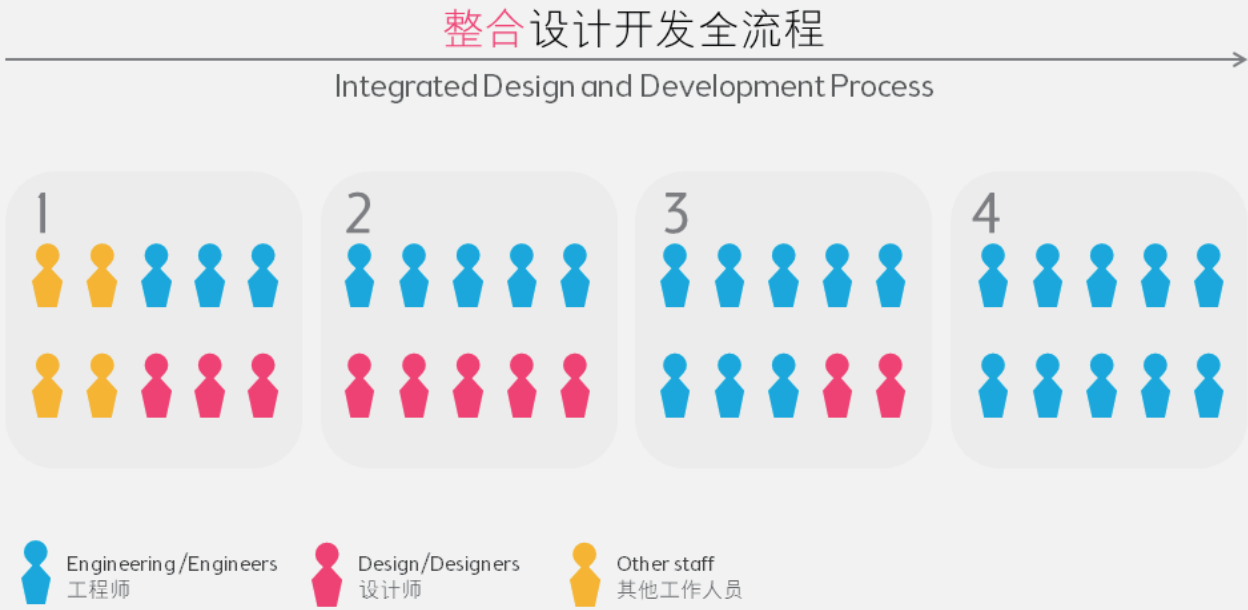


'A beautiful product that doesn't work very well is ugly...Design is the whole thing'.

—Sir Jony Ive (Former Apple Chief Designer and founder of 'LoveFrom')



设计与工程的整合 Design and Engineering integration



As a team we aim to help, support and build on each other's ideas. We are collaborative, not competitive. We care about creating the best solutions. It is the final product that matters, not who came up with the initial idea. This culture enables a smoother development process that is appreciated by our clients.

3. Critical thinking:

The secret is that we apply a ‘critical thinking’ approach and formulate our questions carefully, both before project kick off and during research. This allows us to understand the fundamental nature of the problem.

Many great minds use critical thinking as a starting point when solving problems.



Recently, SpaceX used critical thinking to analyse and define every aspect of space rocket design on a fundamental level. By doing so they reduced the cost of their rockets by over 75%!

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‘Rather than reasoning by analogy, you boil things down to the most fundamental truths you can imagine and then you reason up from there.’

—Elon Musk

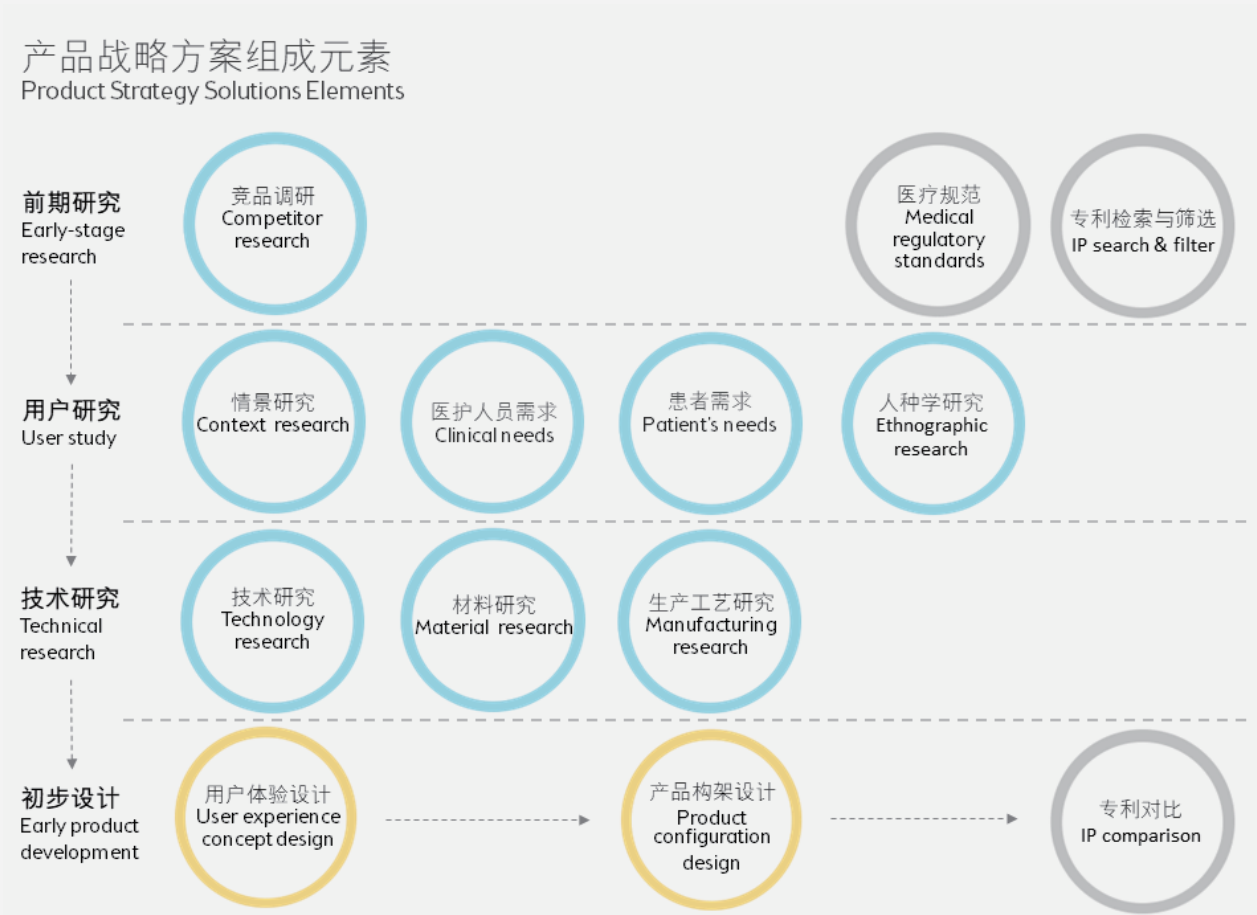
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4. Robust Process:

Next, we believe the best ideas cannot come from nowhere. ‘Genius is 1% inspiration and 99% perspiration’.

As mentioned earlier, we have a systematic research process, developed, and refined over 50 years at IDC, to help us develop a deep understanding of the current products, technology, users and environment.

These insights prepare a foundation for us to create design solutions.



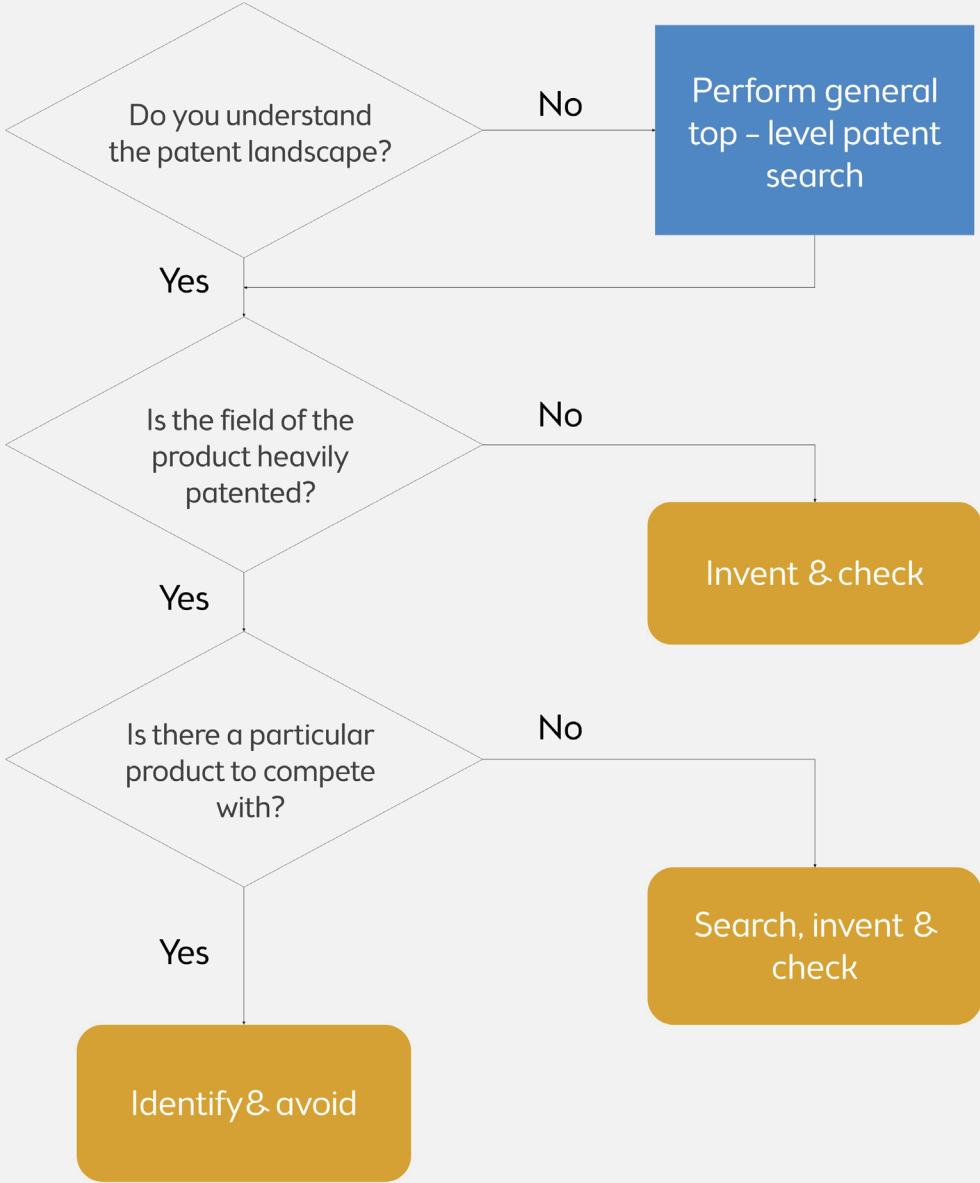
Some examples include:

- Client product and competitor product testing (both by the actual users and our own team members) to bring us effective evidence on pain points and uncovered needs. The observation and conversation of ‘In Depth Interview’ (IDI) can spark new ideas which can evolve into effective solutions during the product development phase.
- Product research and teardown can reveal much about a product very quickly.
- New and existing technology and manufacturing research can go hand in hand with supplier communication to ensure technological and economic feasibility.
- Patent and regulatory understanding is an effective way to learn about product mechanism details and inform performance and intellectual property requirements.



IDC Patent strategy flow chart

Our well tested design and development process then ensures any solutions are created and tested to their full potential.



Note: Yellow boxes are patent strategies

5. Open mindedness:

A big problem with many companies that have been making the same products for many years is that they become comfortable and accustomed to the same development methods and become closed minded to new and different development opportunities.

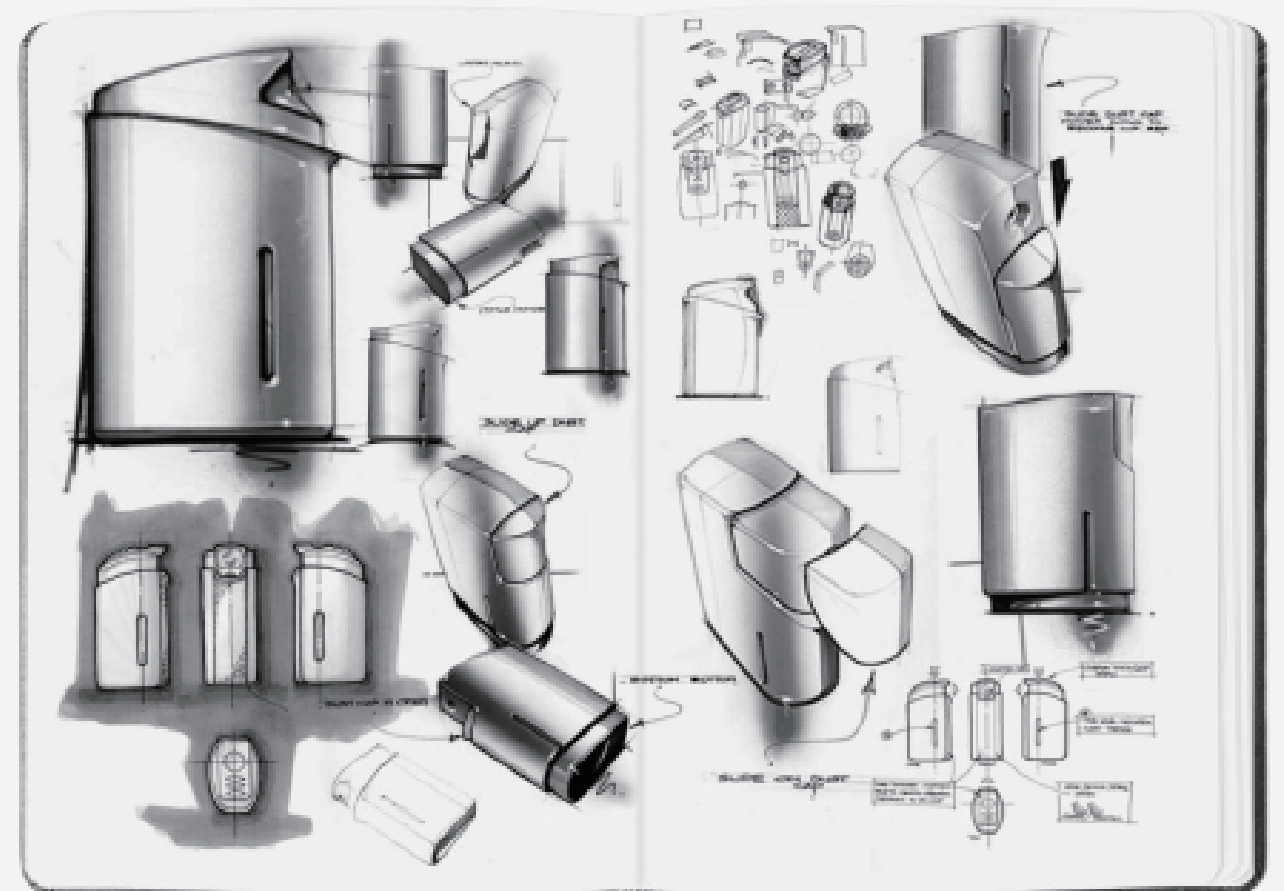
Many times, I have been told that an innovation suggestion is 'impossible' in the past. Actually, it is often possible with an open mind and a different approach.

IDC has a broad range of product development examples within our portfolio.



Because of this we know how to adapt to different requirements, and we have direct experience of many alternative technologies, mechanisms and design approaches. This wide range of experience gives us a wide breadth of knowledge and helps us to remain open minded and inspired.

A good example of this is our wide knowledge in developing lancet pens, auto injectors and CGM devices. This has enabled us to cross-pollinate effective solutions from one area to another, avoiding patent infringement at the same time as improving user comfort.



6. Care:

For me, knowing our products have helped people who really need help is the most rewarding aspect of the job.

We work on a wide range of incredibly important products at IDC including devices that help adults and children to walk, tools that help doctors perform operations more successfully and products that help nurses perform analysis more accurately and efficiently.

A good example of this is the breathing device we helped to develop with our client.

Deep research and device understanding enabled us to identify several pain points to existing CPAP devices and create effective solutions.

A key pain point being confusing, frustrating and difficult access and filling of the humidification water tank. We worked hard and explored many alternative solutions before we down-selected an innovative push-push action to attach and release the water tank.



We thoroughly followed our design development process and created a manufacturing and cost feasible mechanism, proven to be robust and reliable through prototype testing. We delivered an innovative patented product with improved usability and competitive advantage.

This successful product has since been used to help many COVID-19 sufferers.

We understand the importance of the projects we are working on and, therefore, are passionate about the solutions we are creating. When you care about a product you strive for the best results.

7. Curiosity:

I believe this is the secret ingredient to innovating great solutions. Stay curious. Keep asking questions. Don't just accept the status quo. Try to understand why something is the way it is.

As an example, curiosity helped us discover a new technology that allowed us to halve an FMCG container part count from 6 parts to 3! For a disposable product with a volume of 350 million a year this was a huge reduction in both cost and waste! Our client was very pleased with the speed and depth of our research.

Be persistent, be focused, dig deep and very often you will discover a better solution.



'Much of what I stumbled into by following my curiosity and intuition turned out to be priceless later on.'

—Steve Jobs



'I Have No Special Talent. I Am Only Passionately Curious!'

—Albert Einstein



8. Collaboration:

Finally, of course, we also appreciate and value the experience and wisdom of our clients.

Close collaboration and the understanding that we are part of the same team with the same goal helps to deliver the best results smoothly.

I believe our ability to generate innovative product solutions enables effective, attractive and honest designs. Rather than resorting to styling or sales gimmicks, our partners can rely on the true performance benefits of IDC developed products, helping our clients to build their brand image, create patentable innovations that gain competitive advantage and even become a benchmark to lead others.





IDC is an international product design consultancy with 50 years' experience developing breakthrough products for world-leading brands.

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