



# Inovação...

... é a implementação de um **produto (bem ou serviço) ou processo novos** ou **significativamente melhorados**, de um **método novo de marketing**, ou um **método novo organizacional** nas práticas de negócios, na organização do local de trabalho ou nas relações externas.

OCDE (2005)  
*Manual de Oslo*



# I+D

Investigação		Desenvolvimento
Fundamental	Aplicada	Um <b>trabalho sistemático</b> desenvolvido com utilização do conhecimento gerado no trabalho de investigação e na experiência, com o propósito <b>de criar novos ou significativamente melhorados materiais, produtos ou dispositivos, para a instalação de novos processos, sistemas ou serviços, ou para melhorar substancialmente os já existentes.</b>
Trabalhos experimentais ou teóricos, desenvolvidos com a finalidade de <b>obtenção de novos conhecimentos científicos e técnicos</b> sobre os fundamentos de fenómenos e factos observáveis, sem objetivo específico de aplicação prática ou utilização futura	Trabalhos de investigação, originais, desenvolvidos com o objetivo de <b>criar novo conhecimento, direcionado para uma aplicação ou um objetivo predeterminado.</b>	

OCDE (2002) *Frascati Manual*

# I+D+I exemplo

Investigação

Desenvolvimento

Fundamental

Aplicada



Journal of Insect Physiology

Volume 47, Issue 12, December 2001, Pages 1429–1440



Water balance and osmoregulation in *Stenocara gracilipes*, a wax-blooming tenebrionid beetle from the Namib Desert

S. G. Naidu

Show more

[https://doi.org/10.1016/S0022-1910\(01\)00133-0](https://doi.org/10.1016/S0022-1910(01)00133-0)

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Research Article

ACS Publications

LANGMUIR

## Mimicking the *Stenocara* Beetle—Dewetting of Drops from a Patterned Superhydrophobic Surface

Christian Dorrer and Jürgen Rühe\*

University of Freiburg, Department of Microsystems Engineering, Laboratory for the Chemistry and Physics of Interfaces, Georges-Köhler-Allee 103, D-79110 Freiburg, Germany

Langmuir 2008, 24 (12), pp 6154–6158

DOI: 10.1021/la800229e

Publication Date (Web): May 20, 2008

Copyright © 2008 American Chemical Society

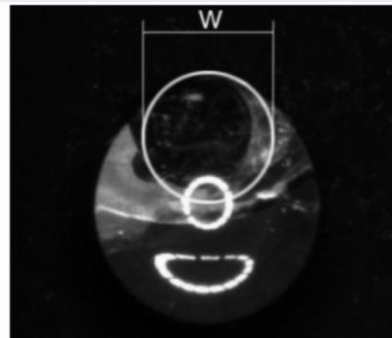
\* Corresponding author. E-mail: ruehe@imtek.de

Cite this: Langmuir 24, 12, 6154–6158

RIS Citation

GO

Abstract



This paper describes the preparation of superhydrophobic surfaces that have been selectively patterned with circular hydrophilic domains. These materials mimicked the back of the *stenocara*



<http://nbdnano.com/>

## OUR STORY

Welcome to NBD Nanotechnologies, the global leader in modifying surface wettability through coatings and additives. NBD stands for “Namib Beetle Design” as our company was inspired by the Namib Desert Beetle, an insect that is able to harvest fog in the desert by alternating hydrophobic and hydrophilic regimes on its back. This beetle has evolved to drink 12% of its weight in water via mastering surface wettability to thrive in the desert. With the same spirit, NBD mastered surface wettability to solve a wide range of commercial problems. Through our robust and proprietary technology platform, NBD has unprecedented ability to customize liquid wettability through either direct integration to polymers or through chemically grafted monolayers on oxide surfaces. Because our technology platform is so robust we can work with virtually any substrate and durably impart any surface wetting functionality.

# I+D+I exemplo

The screenshot shows a news article on the DN website. The header is blue with the DN logo, the word 'Ciência', and navigation icons for menu, follow, weather, signature, newsletters, and search. The article title is 'Cientistas criam garrafa de água que se enche sozinha'. The byline is 'Aldara Rodrigues'. The date and time are '26 DE NOVEMBRO DE 2012 13:54'. There are social media sharing icons for Facebook, Twitter, Google+, and LinkedIn. Below these are icons for sharing (0 PARTILHAS), email (ENVIAR POR EMAIL), and print (IMPRIMIR). The article text describes how scientists inspired by the Namibian desert beetle have developed a self-filling water bottle. The text is in Portuguese.

**Ciência**

## Cientistas criam garrafa de água que se enche sozinha

**Água**

26 DE NOVEMBRO DE 2012  
13:54

Aldara Rodrigues

 0 PARTILHAS

 ENVIAR POR EMAIL

 IMPRIMIR

Tendo como inspiração o besouro do deserto da Namíbia, em África, a empresa americana 'NBD Nano' está a desenvolver uma garrafa capaz de se encher sozinha, recolhendo água do ar.

O besouro da Namíbia desenvolveu a capacidade de extrair água do ar através da condensação. Nas suas costas tem uma zona hidrófila onde armazena a água, o que é essencial para a sua sobrevivência visto que na zona onde habita é raro chover, diz o site do jornal espanhol 'ABC'.

Se o besouro foi capaz de o fazer, os cientistas da 'NBD Nano' acreditam que também podem seguir o seu exemplo, adaptando a natureza à tecnologia. Deckard Sorensen, co-fundador da empresa, concluiu que é possível imitar-se o processo do besouro e aplicá-lo a uma simples garrafa.

<https://www.dn.pt/ciencia/tecnologia/interior/cientistas-criam-garrafa-de-agua-que-se-enche-sozinha-2909710.html>





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NBD offers innovative solutions that keep products looking like new, longer. Our repellent coatings, adhesion promoters, and additives enable surfaces to stand up to the world.


[Message](#)


Miguel Galvez · 3rd

CEO at NBD Nanotechnologies, Inc.

Suffolk County, Massachusetts, United States ·

500+ connections · [Contact info](#)

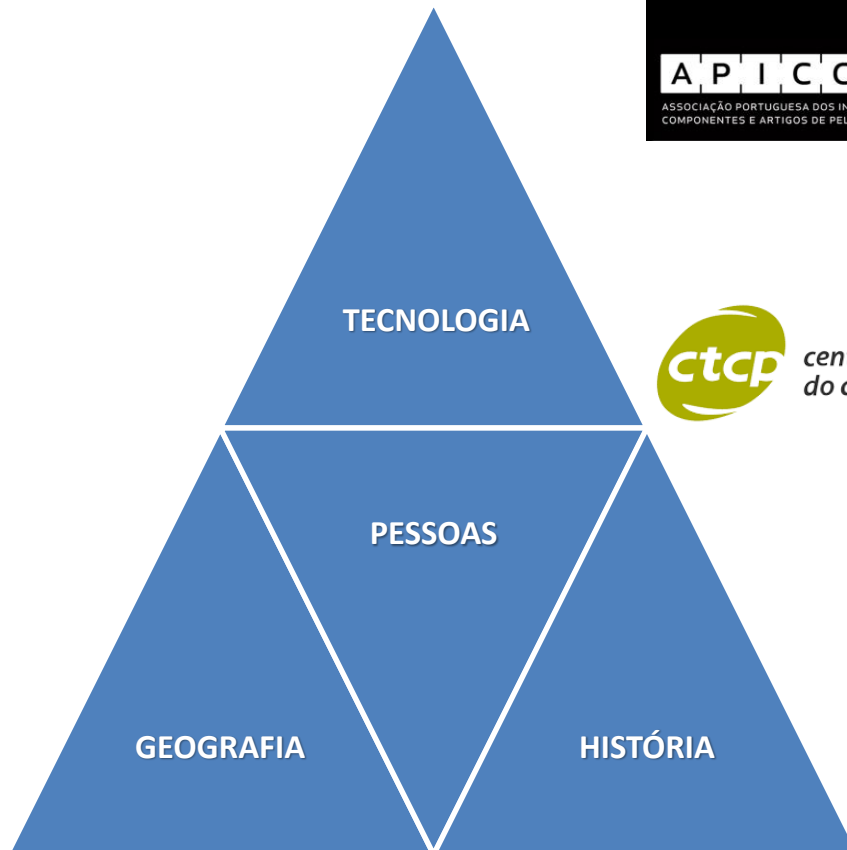
 NBD Nanotechnologies

 Boston College

### About

Material science entrepreneur with a background in venture capital, bench science research, and startups.

# Clusters de inovação



centro tecnológico  
do calçado de portugal

## MAPPING PORTUGAL'S CLUSTERS

In a middle-income economy like Portugal, exporting clusters tend to be more natural-resource or labor intensive.



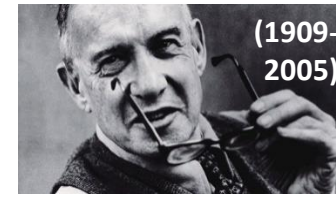
Michael E. Porter (1998) *Clusters and the New Economics of Competition*. HBR

# Tendências globais para a Inovação

- Visão do Peter Drucker para o novo Milénio
- Previsões para 2021
- Desenvolvimento sustentável – economia circular







# Beyond the Information Revolution

*By Peter F. Drucker*

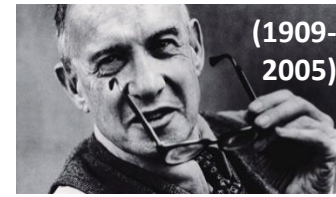


The truly revolutionary impact of the **Information Revolution** is just beginning to be felt. But it is not "information" that fuels this impact. It is not "artificial intelligence." It is not the effect of computers and data processing on decision-making, policymaking, or strategy. It is something that practically no one foresaw or, indeed, even talked about ten or fifteen years ago: **e-commerce**—that is, the explosive emergence of the **Internet as a major, perhaps eventually the major, worldwide distribution channel for goods, for services, and, surprisingly, for managerial and professional jobs**. This is profoundly changing economies, markets, and industry structures; products and services and their flow; consumer segmentation, consumer values, and consumer behavior; jobs and labor markets. But the impact may be even greater on societies and politics and, above all, on the way we see the world and ourselves in it.



Bribing the **knowledge workers** on whom these industries depend will therefore simply not work. The key knowledge workers in these businesses will surely continue to expect to share financially in the fruits of their labor. But the financial fruits are likely to take much longer to ripen, if they ripen at all. And then, probably within ten years or so, running a business with (short-term) "shareholder value" as its first—if not its only—goal and justification will have become counterproductive. **Increasingly, performance in these new knowledge-based industries will come to depend on running the institution so as to attract, hold, and motivate knowledge workers.** When this can no longer be done by satisfying knowledge workers' greed, as we are now trying to do, it will have to be done by **satisfying their values, and by giving them social recognition and social power. It will have to be done by turning them from subordinates into fellow executives, and from employees, however well paid, into partners.**





# Beyond the Information Revolution

*By Peter F. Drucker*



# Top Strategic Technology Trends for 2021



<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 1: Internet of Behaviors**

As demonstrated by the COVID-19 protocol monitoring example, the IoB is about using data to change behaviors. With an increase in technologies that gather the “digital dust” of daily life — data that spans the digital and physical worlds — that information can be used to influence behaviors through feedback loops.

For example, for commercial vehicles, telematics can monitor driving behaviors, from sudden braking to aggressive turns. Companies can then use that data to improve driver performance, routing and safety.

“ IoB does have ethical and societal implications depending on the goals and outcomes of individual uses ”

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>



# Top Strategic Technology Trends for 2021

## **Trend 2: Total experience**

Total experience combines multiexperience, customer experience, employee experience and user experience to transform the business outcome. The goal is to improve the overall experience where all of these pieces intersect, from technology to employees to customers and users.

“ This trend enables organizations to capitalize on COVID-19 disruptors ”

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 3: Privacy-enhancing computation**

Privacy-enhancing computation features three technologies that protect data while it's being used. The first provides a trusted environment in which sensitive data can be processed or analyzed. The second performs processing and analytics in a decentralized manner. The third encrypts data and algorithms before processing or analytics.

This trend enables organizations to collaborate on research securely across regions and with competitors without sacrificing confidentiality. This approach is designed specifically for the increasing need to share data while maintaining privacy or security.

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 4: Distributed cloud**

Distributed cloud is where cloud services are distributed to different physical locations, but the operation, governance and evolution remain the responsibility of the public cloud provider.

“ Distributed cloud is the future of cloud ”

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 5: Anywhere operations**

An anywhere operations model will be vital for businesses to emerge successfully from COVID-19. At its core, this operating model allows for business to be accessed, delivered and enabled anywhere — where customers, employers and business partners operate in physically remote environments.

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 6: Cybersecurity mesh**

Cybersecurity mesh is a distributed architectural approach to scalable, flexible and reliable cybersecurity control. Many assets now exist outside of the traditional security perimeter. Cybersecurity mesh essentially allows for the security perimeter to be defined around the identity of a person or thing. It enables a more modular, responsive security approach by centralizing policy orchestration and distributing policy enforcement. As perimeter protection becomes less meaningful, the security approach of a “walled city” must evolve to current needs.

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 7: Intelligent composable business**

An intelligent composable business is one that can adapt and fundamentally rearrange itself based on a current situation. As organizations **accelerate digital business strategy** to drive faster digital transformation, they need to be agile and make quick business decisions informed by currently available data.

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>



# Top Strategic Technology Trends for 2021

## **Trend 8: AI engineering**

A robust AI engineering strategy will facilitate the performance, scalability, interpretability and reliability of AI models while delivering the full value of AI investments. **AI projects** often face issues with maintainability, scalability and governance, which makes them a challenge for most organizations.

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Top Strategic Technology Trends for 2021

## **Trend 9: Hyperautomation**

Hyperautomation is the idea that anything that can be automated in an organization should be automated. Hyperautomation is driven by organizations having legacy business processes that are not streamlined, creating immensely expensive and extensive issues for organizations.

<https://www.gartner.com/smarterwithgartner/gartner-top-strategic-technology-trends-for-2021/>

# Desenvolvimento sustentável...

*... aquele que satisfaz as necessidades presentes, sem comprometer a capacidade das gerações futuras de suprir as suas próprias necessidades.*

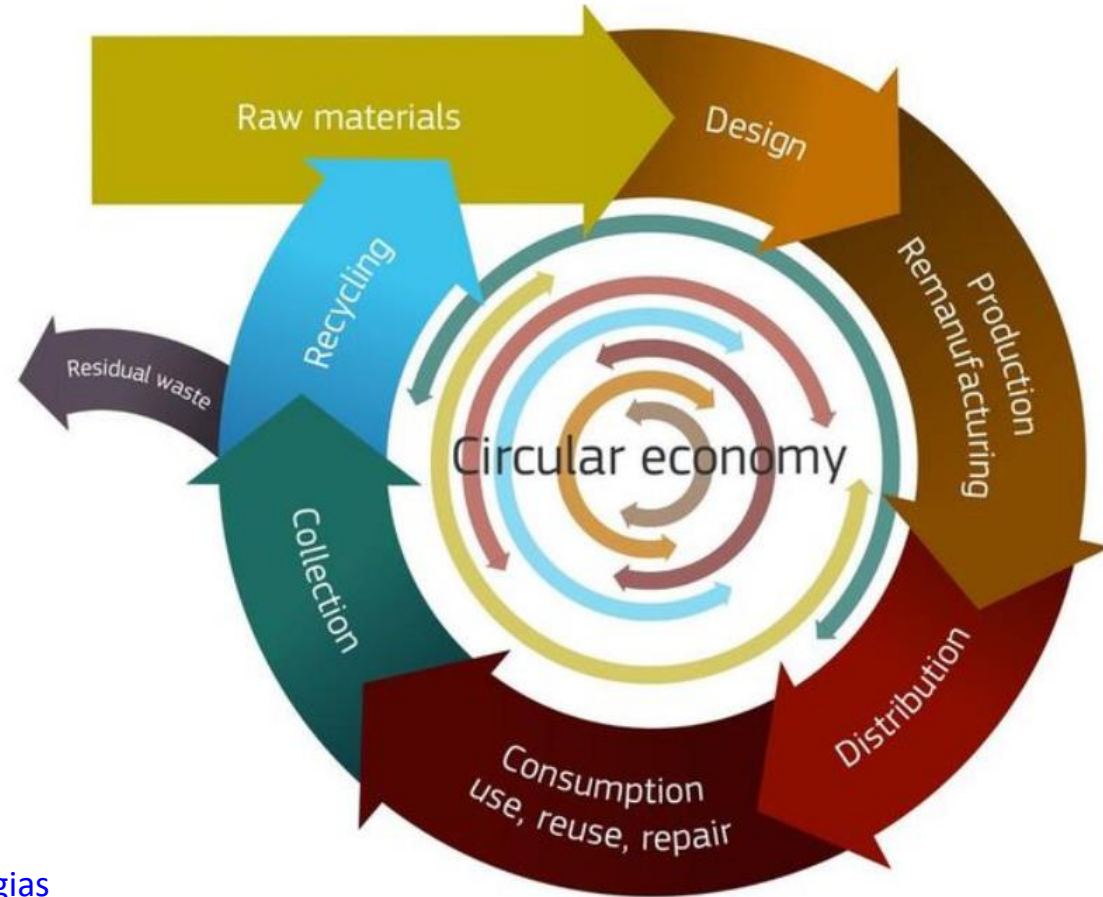


ONU (1987)

*“O nosso futuro comum”*

# O QUE É A ECONOMIA CIRCULAR?

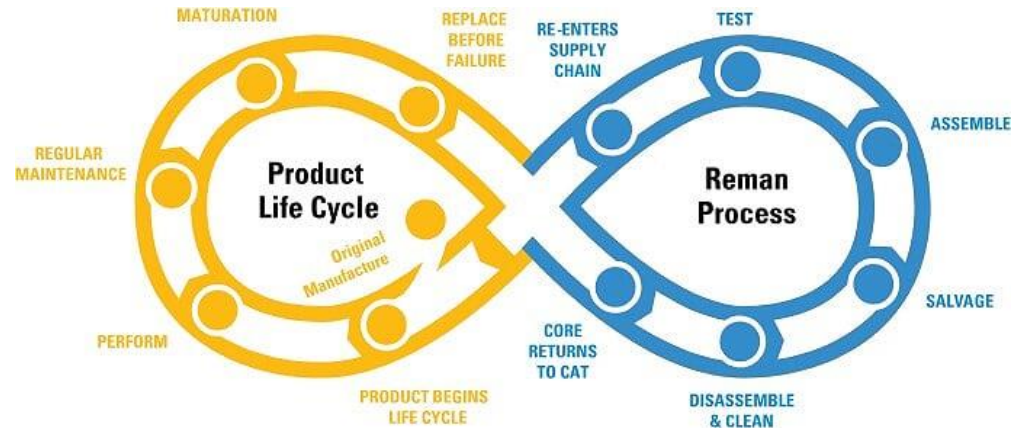
Um modelo económico reorganizado focado na coordenação dos sistemas de produção e consumo em circuitos fechados



<http://eco.nomia.pt/pt/economia-circular/estrategias>

# CATERPILLAR®

<https://www.youtube.com/watch?v=2XZIQOFLjXU>



<https://www.caterpillar.com/pt/company/sustainability/remanufacturing.html>

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Damos-te algumas dicas

QUERO SABER AS DICAS

Uma solução de Economia Circular inovadora a nível mundial



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Cuidar da Loiça

EcoXpert



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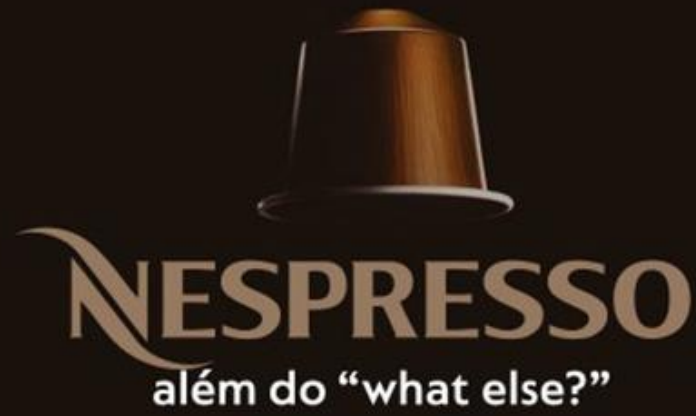
 Lyft    Uber    Airbnb

## Sharing Economy

The sharing economy will continue its boom in 2018, as more companies follow the likes of Uber and Airbnb. What remains to be seen is which industries it is that are turned on their heads.



<https://channels.theinnovationenterprise.com/articles/business-innovation-top-trends-2018>



## Sketch Out Your Hypothesis

■ Nespresso Machines

■ Nespresso Pods



**Harvard  
Business  
Review**

The business model canvas lets you look at all nine building blocks of your business on one page.  
Each component of the business model contains a series of hypotheses that you need to test.

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIPS	CUSTOMER SEGMENTS
		 <p><b>Alexander Osterwalder</b> Lead Author <i>Business Model Generation</i> Co-founder <i>Strategyzer.com</i></p>		
	KEY RESOURCES		CHANNELS	
COST STRUCTURE			REVENUE STREAMS	

<https://www.youtube.com/watch?v=dhQh-tryXOG>



The long read

# How Nespresso's coffee revolution got ground down

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>



Today, some 14bn Nespresso capsules are sold every year, both online and from 810 brightly lit boutiques in 84 countries. More than 400 Nespressos are drunk every second. Hundreds of rivals and imitators have emerged,

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>

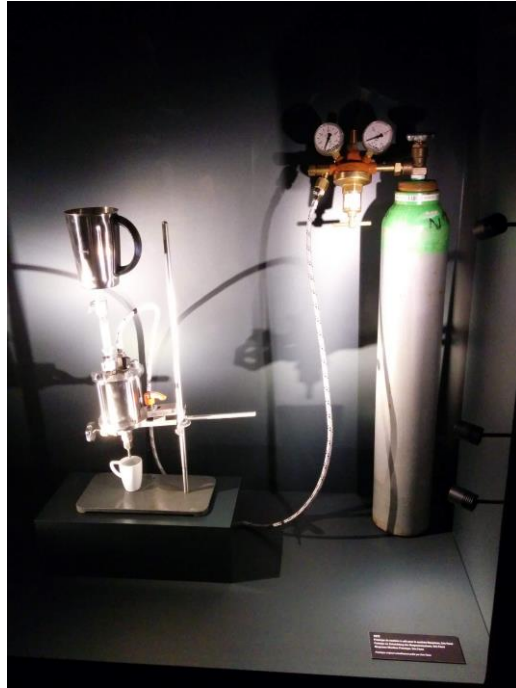
In 1975, a young engineer named Eric Favre took a trip to Rome that would change the history of coffee. Favre had recently started working at Nestlé's headquarters in Vevey, Switzerland, and one of his first projects was to develop a machine that would combine the convenience of domestic coffee with the quality of an Italian espresso bar, where customers paid more for a product made by an expert using large, expensive equipment.



50s, but no one had seriously pursued it. Favre's aim was to build a world in which espresso was available at home. Customers would own a machine, into which they would place a sealed pod filled with ground coffee. The pod would keep the coffee fresh. (Although roast coffee can stay fresh for weeks, ground coffee loses its freshness after about half an hour.) The capsule design would also ensure greater aeration, mimicking the repeat oxidisations at the Sant'Eustachio. After the pod was inserted, a needle-like spout would

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>





The following year, 1976, Nestlé filed its first patent for a single-serve coffee system. “Favre is one of those people who pop up in history and do great things,”

**A**t Nestlé headquarters in Vevey, there is a small museum dedicated to the history of Nespresso. Looking at the early prototypes on display - elaborate Rube Goldberg-type machines with outsize tanks and pumps and tubes - it is easy to see why it took 10 years after the first patent was filed for the product to come to market.

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>



▲ Jean-Paul Gaillard, former head of Nespresso and later founder of its rival Ethical Coffee Company, in 2010. Photograph: Philippe Desmazes/AFP/Getty Images

When Nespresso was finally launched in 1986, it seemed like the sceptics had been right all along. The first models were designed to resemble traditional espresso machines, bigger and clunkier than the sleek designs available today, and only four types of capsule were available, offering various strengths of coffee. Pitched to businesses in Switzerland and Japan, for offices without enough space for a full-size coffee machine, Nespresso failed to find many takers. In 1988, in a bid to rescue the product, Nestlé brought in Gaillard, a tobacco man who had created the clothing brand Marlboro Classics when he worked at Philip Morris. Gaillard would work alongside Favre, but his brief was clear: if he couldn't turn the ship around, it would be

Under Gaillard, Nespresso would be transformed from an office coffee company into a luxury brand, the look and feel of which would be as much a part of the product as the beans themselves. “I wanted to create the Chanel of coffee, and decided to keep it chic and bobo,” [he said](#) in a 2010 interview.

and required a skilled operator - Gaillard worried about everything else. He cut the price of the machines and licensed them to third parties. The [first home machines](#) had been made with one firm, Turmix. Later, you could buy a Krupps or Alessi Nespresso machine. These brand associations gave Nespresso familiarity in local markets, and encouraged fancy shops such as Harrods to stock them. Gaillard also overhauled the capsules, reducing the aluminium content and putting up the price by 50%. Most importantly, he began marketing Nespresso to individual consumers, rather than to businesses, through the new Club Nespresso. It was no longer just a better coffee for your office - it was a way of life.

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>



▲ George Clooney in a Nespresso advert

When you ordered capsules, you joined the “Club”, which also meant handing over your contact information. Over time, Nespresso gained a huge database of customers it could market to, as well as a way of recording consumer preferences and buying habits. For customers, the club created the

Clooney’s public image - sophisticated, cosmopolitan, expensive - fitted Nespresso’s desired image. “Mr Clooney embodies elegance,” Anna

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>



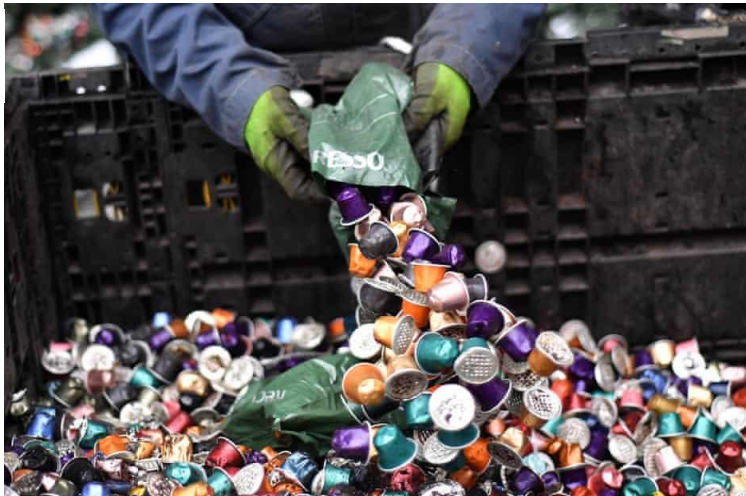
Nespresso furiously litigated against its rivals, arguing that its patent systems were being infringed. Things came to a head in 2012, when a key batch of Nespresso patents from 1992 were set to expire. That year, Nespresso lost its

Jean-Marc Duvoisin became CEO in 2013, and was charged with taking Nespresso to a new era, leaving the patent disputes behind. From a closed, Apple-type system - Nespresso products for Nespresso machines - the company had to move to a more open, Android-type model. “There are going to be rival capsules,” Duvoisin told me. “We need to leverage our strengths: knowing our customers, and knowing our farmers.” Having worked for 40 years to be the only coffee-pod system in town, the company had to pivot to arguing that its capsules - made from strong, light aluminium, and filled with high-quality, responsibly farmed coffee - were the best on the market. Eight years on from Nespresso’s *annus horribilis*, its biggest problem is the aluminium itself.

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>

In the past decade, consumers have grown increasingly concerned about the sheer amount of waste caused by coffee pods. Halo, a firm which makes

“The business model of the future is not in grand statements about what companies will do,” says Tima Bansal, a professor at Ivey Business school in Canada who specialises in sustainability. “It’s about waste measurement and transparency. If someone measured the garbage I put out on the lawn, I’d behave differently.” Bansal was mystified as to why Nespresso didn’t provide more detailed public data, such as regional breakdowns, about how its capsules are recycled. “With their competitive advantage, they could be a model of sustainability, leading the circular economy,” she said. “But once you lose your way, the competition makes it really scary.”



▲ Nespresso pods being recycled in Cheshire in 2017. Photograph: Anthony Devlin/PA

<https://www.theguardian.com/food/2020/jul/14/nespresso-coffee-capsule-pods-branding-clooney-nestle-recycling-environment>





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# Leonardo DiCaprio Uses Oscar Speech to Urge Action on Climate Change

The world must “stop procrastinating” and tackle “the most urgent threat facing our species”

By Lisa Friedman, ClimateWire on February 29, 2016

**TED**

Ideas worth spreading

The troublemakers. The ones who see things differently.  
holes. They are crazy enough to change the world are the ones who do



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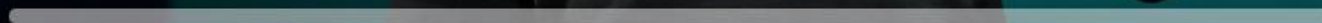


Recommend



Adam Grant | TED2016

# The surprising habits of original thinkers



15:16



[https://www.ted.com/talks/adam\\_grant\\_the\\_surprising\\_habits\\_of\\_original\\_thinkers](https://www.ted.com/talks/adam_grant_the_surprising_habits_of_original_thinkers)



“Oh this ain't a jelly gun, sunshine” Dr. Nefario