



The Art of Smart 2019

Understanding successful corporate decision-making

Audit / Tax / Advisory

Smart decisions. Lasting value.



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Welcome to The Art of Smart





Helping clients make smart decisions that create lasting value is at the heart of the Crowe value proposition. Throughout our member firms, in over 130 countries worldwide, you will find our people striving to do this in their work every day.

Strong and effective decision-making is critical to successful businesses. Yet, in making significant decisions, all companies face challenges. It is our hope that, by learning all that we can about the decision-making process, we are able to minimize those challenges and take decision-making from a misunderstood art to a mainstream science.

We therefore continue to invest time in considering the elements that lead to smart decision-making in order to provide vital and actionable insight to business leaders. The Art of Smart is the rich result of our investment and we are pleased to share our learnings.

Now in its second year, The Art of Smart is the most comprehensive study of corporate decision-making in the world. It is a pioneering resource that continues to contribute to a deep understanding of this vibrant and dynamic area of research. Our approach to our subject is wide-ranging and includes unique data, qualitative analysis and real-life case studies.

We also seek insight from Crowe's thought leaders, as well as experts worldwide including, this year, leading academics, entrepreneurs and even a star of Colombian song and screen.

The Art of Smart also features Crowe's own proprietary Decision-Making Index which analyses companies from across the globe, interrogating sector- and region-specific data, to evaluate the quality of their business decisions in relation to four key strategic pillars: Growth, Diversity, Boldness, and Innovation.

Last year's research laid a strong foundation for our understanding of smart decision-making and how it creates lasting value, and this year we have continued to make further exciting discoveries. These include how Diversity is driving smart decisions and explosive business performance, how risk motivates Bold decisions and Innovation, and why Biotech is setting the standard for smart decision-making globally.

Overall, one thing is very clear – you don't get lasting value without making smart decisions and at Crowe we are passionate about continuing to contribute to this on-going dialogue for the benefit of all.

David Mellor
CEO, Crowe Global

Contributors



Wayne Clarke

Founding Partner, The Global Growth Institute

Wayne Clarke is a founding partner of the Global Growth Institute based out of the UK/Netherlands, and from 2007 until 2012 was the managing and international partner of the advisory arm of Best Companies, who produce The Sunday Times Top 100 Companies lists.



Pavita Cooper

Founding Member, 30% Club

Pavita sits on the steering committee of the 30% Club, she is a Commissioner of the Board of the Equalities & Human Rights Commission and Non Executive Director at a large Government organisation. Pavita was named as Woman of the Year at the Asian Business Awards.



Kimberly Ellison-Taylor

Global Strategy Leader, Oracle

Kimberly N. Ellison-Taylor has a diverse background in finance and technology; she is currently a global strategy leader at Oracle. She has held positions at NASA's Goddard Space Flight Center, Motorola, KPMG, and in Prince George's County (Maryland) government.



Herschel Frierson

Managing Director, Crowe LLP

Herschel Frierson is a managing director in the consulting group at Crowe. He specializes in financial advisory services, utility consulting, and general consulting. Herschel has more than 23 years of experience providing assistance in economic development activities.



Mindy Herman

Principal and Life Sciences Consulting Leader, Crowe LLP

Mindy Herman is a principal at Crowe LLP. She specializes in working with major pharmaceutical and medical device companies and leads the firm's life sciences market sector. Mindy is also the dean for the Leadership, Business, and Talent Management College within Crowe University.



Andrew Hessel

CEO, Humane Genomics

Andrew Hessel is a co-founder of the Genome Project-write, the international scientific effort working to engineer large genomes. From 2012-2017 Andrew was the Distinguished Researcher at Autodesk Life Sciences. Andrew has also been the co-chair of Bioinformatics and Biotechnology at the Singularity University since 2009.



Pam Hrubey

Managing Director
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Dr. Hrubey assists clients around the world by leading and assessing complex business process development efforts in areas including data protection and privacy, ethics and compliance, transparency-related reporting, and anti-bribery and anti-corruption.



Ann Latham

President, Uncommon Clarity

Ann Latham is the world's #1 expert in strategic clarity. She is founder and president of the Boston area management consulting firm, Uncommon Clarity®, Inc. Ann is the author of 'The Clarity Papers', 'Uncommon Meetings', and two additional books. Ann is also an expert blogger for Forbes.



Chengwei Liu

Associate Professor, European School of Management & Technology

Chengwei Liu (Ph.D., Cambridge) taught MBA, executive education and PhD courses at Warwick, Cambridge, Oxford, INSEAD, National University of Singapore, Peking University, Boston University and has won 20+ excellent teaching awards since 2012.



Robert Pearl, M.D.

Professor, Stanford Graduate Schools of Business and Medicine

Robert Pearl is a practicing physician, Stanford professor, Forbes.com contributor and former medical group CEO. Recently named one of Modern Healthcare's 50 most influential physician leaders, He is a strong advocate for the power of integrated, prepaid, technologically advanced and physician-led health care delivery.



Michael Roberto

Trustee Professor of Management, Bryant University

Previously, Professor Roberto served on the faculty at Harvard Business School and as a visiting professor at New York University's Stern School of Business. He is the author of three books: 'Why Great Leaders Don't Take Yes For An Answer', 'Know What You Don't Know', and 'Unlocking Creativity'.



Gary Klein

President, ShadowBox LLC

Gary Klein, Ph.D. authored Sources of Power: How People Make Decisions, and is known for the cognitive models he described, such as the Recognition-Primed Decision (RPD) model, the Data/Frame model of sensemaking, the Management By Discovery model of planning in complex settings, and the Triple Path Model of Insight.

Why there's more to diversity than doing the right thing

Two decades into the 21st century, and today the business benefits of diversity are well known, even if there's still progress to be made in achieving it. Companies of all sizes and in all sectors around the world are embracing the idea — on paper at least, and in practice to a greater or lesser extent — that greater diversity throughout the workforce, and especially at the very top echelons of leadership, is desirable.

More than that, the most forward-thinking businesses are realizing that it is mission critical.

They recognize that a more inclusive culture will feed into (and draw from) a wider talent pool, providing an array of different viewpoints from which to create a fully-rounded perspective on

which to base well-founded strategic and operational decisions.

They know it pays for corporate composition (at all levels) to reflect the customers and communities they serve. They are well aware that this is far more than simply a PR exercise and they understand its place within a good corporate governance agenda.

Several studies¹ have highlighted a link between diversity and commercial success. Though it would be impossible to attribute business performance to any single factor, our research also indicates a strong correlation between the two.

So what can less diverse companies learn from those that are more diverse? How

¹ McKinsey & Co.
Peterson Institute for International Economics

does diversity create smarter working environments and allow for leaders to make smarter decisions? And what are the smart decisions that have led to greater diversity?

To answer those questions and find out how organizations successfully use diversity as a driver of performance,

The Art of Smart interviews prominent business leaders, diversity and talent experts, and leading academics. Their insight, coupled with The Crowe 100 Decision-Making Index data, reveals some fascinating, fresh and pragmatic perspectives on an issue that remains important yet challenging for businesses of all types.

Insights from the Index

There is a strong correlation between gender differential and overall success



Overall, companies that scored highest in diversity also achieved explosive growth in terms of revenue per employee — **3,680%** on average over five years. This compares to 450% on average for those in the next diversity-scoring band.



Overall, women tend to be more prominent in younger (i.e., less long-established), bolder companies (i.e. those that take courageous steps to differentiate themselves and make themselves more effective) and in industries that are expanding quickly, such as biotech and metals and mining.

Why diverse companies make smarter decision-makers

Cultivating the “I” in “diversity”

It's often said that “there's no ‘I’ in team,” but when it comes to diversity, the personal matters. Diversity brings together a range of individuals with original points of view and unique ideas coming at problems and opportunities from disparate angles. In this way, an effective team can be built out of discrete materials.

Herschel Frierson, Managing Director at Crowe LLP and former National Director of the National Association of Black Accountants (NABA) in the United States, makes the point: “Though discussions about diversity tend to focus on the obvious differences such as gender, race, religion, sexual orientation or disability, the spectrum of difference spans many nuances, including cultural identity, background and upbringing, language, education, personal situation (for example, single parents), variety of career history and life experience, age and more. Those differences are assets — and never more so than in today's globalized world.”

Personal characteristics and attributes are important too. Pavita Cooper, Founder of talent and career insight business More Difference and founding member of the 30% Club, a campaign group

promoting gender diversity, argues that “neural diversity” is increasingly on the radar in organizations that want people who “think outside the box” or who could even be described as “quirky.” Kimberly Ellison-Taylor, Global Strategy Leader at Oracle and former Chair of the Association of International Certified Professional Accountants, describes this as “diversity of thought.”

Diversity of behavior is another way to look at it, as people's actions are based on both the conscious and the unconscious. The role of neuropsychology in corporate decision-making is a major area of focus for Robert Pearl, MD, Professor at the Stanford Graduate Schools of Business and Medicine. He adds risk-takers and people who are more cautious to the list of diversity factors that should be considered when constructing an effective team. Dr. Pearl asserts that it is having the right group dynamics that heightens the prospects of a team making smart decisions — or enabling a CEO to do so, if he or she is surrounded by the right mix of trusted people.

Appropriately managing the contrasts that diversity can bring is an issue that

“Managers make about three billion decisions each year, and almost all of them can be made better.” — Erik Larson, *A Checklist for Making Faster, Better Decisions*, Harvard Business Review

resonates with Bruce Davison, CEO of flexible office design solutions provider GoSpace. As it is developing a new tech platform, the company is addressing how best to foster and develop diverse mindsets toward a common goal — for example, among data scientists (who deal in absolutes) and data analysts (who deal in variables). It knows that getting that balance right is critical to a successful outcome.

Ultimately, firms must think about their motivations. Are they trying to fix social injustice or improve business performance? Chengwei Liu, Associate Professor of Strategy and Behavioral Science at the European School of Management and Technology (ESMT) makes this point clear: Identity diversity and cognitive diversity are not the same thing. Therefore, hiring women with the same education and backgrounds as men will not necessarily drive better decision-making, as they may still approach issues from the same angles and with similar mindsets.

Smart companies will dive deeper into the rationale behind diversity and task themselves with finding ways to measure what it really means and how diverse they really are, on more granular metrics. And because this is so difficult to do, not every company will do it, which will create genuine competitive advantage for those that are pioneers of true diversity.

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2 Reuters

“Companies need to talk about what type of diversity they are pursuing. Is it about taking affirmative action to provide more equal opportunities, or is it pragmatic and performance-driven? The answer will dictate very different ways of achieving it.”

Chengwei Liu, Associate Professor, Strategy and Behavioral Science, European School of Management and Technology

Some might say that artificial intelligence (AI) will be invaluable in this respect. However, commentators urge caution here. AI may be smart, but it is only as smart as the humans who design it. Unconscious biases can therefore be built in, exacerbating the very barriers to diversity that organizations are seeking to break down, as Amazon recently learned when a machine-learning tool it developed to sift CVs to identify top candidates was found not to be operating in a gender-neutral way². Plus, as AI seeks to simplify the complex, and because it can predict only what can be quantified, blind spots can occur. Early adopters beware: AI is a tool that needs careful handling.

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“The really smart companies are not thinking about this from a diversity lens, they are looking towards the future of work and anticipating the next industrial revolution and asking themselves what shape of workforce will we need 10, 20, 30 years from now?”

Pavita Cooper, Founding member, 30% Club



Carlos Vives

From global entertainer to gastronomic entrepreneur

Decision

Carlos Vives is a household name in Colombian performing arts, reaching the top of the music charts and appearing in hit TV shows. Few entertainers have successfully transitioned between music and acting. Fewer still have found success as a restaurant entrepreneur – but Vives has never been afraid to buck the trend.

Already a star of song and screen, his decision to branch out and enter the world of gastronomy might therefore seem strange. With a huge global following and success underpinned by numerous awards including 11 Latin Grammys and 2 Grammys (including being the first Colombian to win such award), moving into a new area was certainly a risk.

Vives knew that if he could retain the ‘essence’ of what brought him musical success, such risk would be mitigated. He wanted to be bold, and to innovate.

“Boldness has to do with losing our fear of change,” says Vives. “Innovation is what you always look for, and from my point of view, it is reinventing from within, but without changing our essence. That’s what consequently generates growth.”



Process

Gaira Café launched in 1998. Using the brand and persona he had established as an artist, Vives wanted to replicate the cultural seeds of success that drove him to the top of the charts, within the world of experiential dining.

“Motivated by the nature of working for our identity, while finding new ways that were purer and more authentic for our sounds, the idea of doing the same with food emerged.”

The Colombian ‘essence’ of Vives touched on above was an integral part of his launch strategy. Authenticity and creativity were key, but Vives could not do it alone. He quickly harnessed the skills of his nearest and dearest, who he knew would showcase the same commitment to Gaira’s essence. Carlos’ brother, Guillermo – a talented chef – was the co-founder. Having moved to New York to study dramatic arts, Guillo discovered a love and talent for all-things-food.

“Of course, creativity is very important. My creativity, and Guillo’s, in terms of food, have been vital. But around us, all the time a good team was being built.”





“Boldness has to do with losing our fear of change. Innovation is what you always look for, and from my point of view, it is reinventing from within, but without changing our essence. That’s what consequently generates growth.”

Carlos Vives, Co-founder, Gaira Café

Carlos’ wife, Claudia Elena Vasquez, delivered administrative direction to the company, ensuring the overall smooth running of the business and bringing in Pedro Scarpetta as General Manager. The project was close to the Vives family’s hearts, but they understood the value of a diverse team and recruited accordingly. The team set up in the same space that housed the TV and recording studio, a move that helped to infuse the spirit Vives sought to channel.

“This team, which has been put together around me and my brother, has been fundamental for Café Gaira’s growth. The components of everyone’s specialties – from creative through to gastronomic and administrative skills – combined to produce our winning team.”

Gaira Café quickly grew to become more than just a restaurant, helped by a location strategy that focused on important ‘hubs’, such as at Aeropuerto el Dorado, where Gaira served as a metaphorical ‘gateway’ to Colombian culture for foreigners, and as a ‘welcome home’ destination for returning Colombians.

The goal was to be seen as a ‘temple of Colombian-ness’.

“The first great decision I learned to make, as an artist, was to seek authenticity. I understood that I could do it founded on my roots,” says Vives. “It was a good decision, because that gave me the love of my people, of my country, and that’s the way my audience started growing up throughout Latin America.”

This focus, Vives believes, enabled the Gaira brand to take off, but it was not always plain sailing. A breakthrough moment occurred for Vives when he actively stopped trying to conform to what he thought the global entertainment industry wanted.

“I was no longer thinking about how or whether I would be exported, or if I would make it in Hollywood. The experts did not forecast good things, but it was a very enlightening moment and this change in focus opened a door, with a powerful light that caused great happiness in my heart.”

This was a risk but Vives remained steadfast, and brought those lessons to Gaira Café.

“It really was a moment of truth, even though it looked like there was a big risk of losing everything.”

Outcome

Financially, the pivot has been a success story. Numbers aside, Vives prefers to use cultural impact as a measure of success. He set out to embody Colombian rhythm, flair and creativity through music and food, to drive cultural pride and remind Colombians of the values that make their country unique.

Vives practises what he preaches, and his commitment to Colombia comes through as clearly in his actions as it does in his vallenato music.

He used music, and then food, to send a message of unity and commitment to his compatriots. In an age of global mobility, particularly for the wealthy, here was an international star whose talent transcended national boundaries, choosing to focus on investing in Colombia in the hope of inspiring others. For Vives, growth and profit were never the main motivation; connecting with – and inspiring – local people and places was the goal.

“During that journey with our food and music, we were able to open up a space in people’s hearts.”

By tapping into the cultural heartbeat of the country, and prioritising authenticity, Vives and his team are sure to occupy that space in people’s hearts – and stomachs – for some time to come.

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Encouraging diversity beyond the organization itself — for instance, within the supply chain — is another factor many smart companies are considering, especially in the manufacturing arena. One example is Biogen (ranked 12th overall), which is among those that operate a program that takes supplier diversity into account in its procurement procedures³.

Fresh perspectives on the board

When it comes to smart decision-making, the distinct characteristics each person brings to the (board) table can help avoid “groupthink,” where the risk of confirmation bias is intensified. In this context, individuality should be celebrated and encouraged as a means of opening up debate and providing a hedge against conformity that could stifle innovation or prevent decisions from undergoing thorough sense-testing and robust challenge — vital from a corporate governance standpoint.

The increasing digitization of businesses provides a clear example of why having individuals with backgrounds and mindsets different from that of the

stereotypical “older, white and male” board member is important at the top table.

Appointing a digital expert to the board, one who is often 25-30 years younger than most other board members, has become increasingly common, as companies grapple with issues such as how best to capitalize on social media and drive demand from millennials. That’s not to suggest that older people cannot be tech savvy — but this is about having people on the top decision-making team who reflect that demographic, fully understand social trends and are finely attuned to the market, to ensure that companies stay ahead of the curve.

Taking this idea a step further, a relatively new development among some of the world’s most enlightened organizations is the concept of the “shadow board,”⁴ where a group of more junior employees sit in on board meetings and give feedback.

The process is mutually beneficial: The shadow board members are given access to board discussions at an early stage in

³ Biogen.com

⁴ Harvard Business Review

Top Companies: Diversity



Percentage differential in favour of women (board and C-Suite level)

Overall Rank	Company	Headquartered	Industry	Percentage differential in favour of women (board and C-Suite level)
6	Midea Group	China	Manufacturing	164%
4	Swedish Orphan Biovitrum	Sweden	Healthcare	160%
30	Insulet Corp	USA	Healthcare	108%
11	Tianqi Lithium Industries	China / HK	Manufacturing	100%
33	Rightmove	UK	Real Estate	100%
99	GlaxoSmithKline Pharmaceuticals	India	Healthcare	100%
95	Annaly Capital Management	USA	Real Estate	90%
9	Alexion Pharmaceuticals	USA	Healthcare	88%
12	Biogen	USA	Manufacturing	88%
55	Abcam	UK	Healthcare	86%

their careers, learning about the depth and breadth of the decisions that the board makes. In turn, they can provide refreshing, alternative views on the decisions being made.

Anticipating the future

There's a sense that diversity is an evolving part of the business journey: What it looks like today may look different tomorrow.

Kimberly Ellison-Taylor puts it like this: "I don't think anyone can say 'That's it, we've achieved diversity.' We should applaud success, but we have to keep going. We can always do better."

Pavita Cooper shares this long-term perspective. In her view, "The really smart companies are not thinking about this from a diversity lens, they are looking towards the future of work and anticipating the next industrial revolution and asking themselves *what shape of workforce will we need 10, 20, 30 years from now?*"

With average human life expectancy in the developed world increasing, in the future people's working lives will be far longer, but careers are likely to become less linear and regular re-skilling will be required, while ways of working will become less rigid. Companies need to think about talent and demographics in tandem, and build jobs around people.

There's a widespread feeling that businesses that pursue diversity in an active, positive way will reap the benefits of greater productivity and innovation from happy, motivated employees, but that those that do it in a reactive, box-ticking way, in order to mitigate risk of being seen not to be diverse, will not.

That requires buy-in and accountability at all levels. Of course, this needs to be led from the top. But for it to be executed properly, the middle-management strata is just as important, so that entry-level candidates are not just recruited, but encouraged to stay, develop and progress. This is an area that some feel may be being overlooked.

"It's not always easy to step out of your comfort zone. But if you only ever eat apples, how are you ever going to know just how good an orange can taste?"

Herschel Frierson, Managing Director, Crowe LLP

"Diversity is about creating the right team for the needs of the business, and team dynamics are critical. Individual differences need to be well balanced."

Professor Robert Pearl, MD, Stanford Graduate School of Business and Medicine



The team dynamics of diversity

Changing the filters and settings

When creating a diverse workforce, the obvious place to start is with recruitment. Much has been made of quotas, especially for senior posts, which may explain why our data found that European corporate board diversity is so high (34% female representation, compared to 23% in North America, 17% in Asia-Pacific and 5% in the Middle East), as countries like France now have mandatory quotas⁵ while others, such as the UK, are working toward recommended targets.

But while that's one strategy, for many commentators what's truly important is looking critically at the entire recruitment process and asking if it is really fit for purpose, both in terms of identifying the right candidate pool and creating the right interview panel.

Smart companies are changing the way they recruit for talent by changing the filters in the selection process or engaging in “blind” recruitment and promotion, to ensure they are not sifting out good candidates (or excluding them from applying) simply because they are focusing, for instance, on high school grades or good degrees from top universities. They are recognizing that some minorities may simply not have had comparable opportunities, and are adapting their approach accordingly to

re-think what “talent” means and how it is quantified, as well as how important potential is and how it can be identified.

“There's often more than one ‘best person for the job.’ It depends on how and where you look.”

Kimberly Ellison-Taylor, Global Strategy Leader, Oracle

Fostering inclusion

Recruitment is only half of the equation, however. Retention is equally important — especially as competition for talent is fierce, and as globalization widens career opportunities. At a time when moving roles every few years is increasingly seen as a positive rather than a negative, staff loyalty is hard-won, and the factors that encourage people to stay are complex and multifaceted.

Having diversity at the top can not only inspire and motivate people to join the company, but can show them that there is scope for them to flourish because others of the same gender, community, orientation, etc. have already climbed the ladder.

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Chester Barnard, author of ‘The Functions of the Executive’, brought the term “decision-making” into the business world, replacing narrower descriptors such as “resource allocation” and “policy making.”

To get there, HR processes and procedures may need to be adapted to recognize and support the various attributes and abilities of a diverse workforce. “If you want to maximize employee performance, you can’t apply the exact same strategies for everyone,” says Kimberly Ellison-Taylor.

Creating an atmosphere where everyone feels comfortable is essential if staff are to stay. Another initiative deployed by many smart companies is the creation of internal social or professional groups that provide a platform for support and inclusion based on shared interests or other commonalities. These can be minority-specific, such as LGBTQ+ or women’s professional networks, or they can foster cohesion and a sense of belonging more broadly.

For example, Regeneron Pharmaceuticals (ranked 3rd overall) has a wide variety of employee interest groups, supported by company-sponsored time and resources. These range from a Chinese culture group and a Women in Science and Engineering group to Veterans at Regeneron, an environmental concern group and even an improv comedy group!⁶ Smaller businesses may have limited opportunities for these kinds of formal organizations, but they can equally benefit from finding ways to foster inclusivity so that staff feel an important part of a close-knit team.

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⁶ Regeneron.com

Small, family-owned businesses can face very specific challenges when it comes to diversity and retention. Where skill sets are lacking among family members, hiring in external talent makes enormous sense, but the value of such a move may be limited if there are no career progression opportunities for non-family members, or if the views of “outsiders” are overlooked or disregarded in boardroom decision-making. Unless those “outsiders” are fully integrated and their opinions welcomed, they will move on and the opportunity for them to effect positive change could be lost.

“Rather than blaming under-representation on a shortage of diverse talent, some companies are now looking at their own processes and systems to see what’s working against diversity in a passive or subconscious way.”

Pavita Cooper, Chair, 30% Club

“Companies need to talk about what type of diversity they are pursuing. Is it about taking affirmative action to provide more equal opportunities, or is it pragmatic and performance driven? The answer will dictate very different ways of achieving it.”

Chengwei Liu, Associate Professor, Strategy and Behavioral Science, European School of Management and Technology



Key points to consider

Diversity is by no means an exact science, and there are a huge number of variables that each organization will need to consider within the context of their unique corporate culture and market dynamics to foster and promote it.

When it comes to the art of smart decision-making, there are clear commercial imperatives for creating a workforce and a leadership that reflects and understands its audiences, but also one that is prepared to be agile, do things differently and be bold — a topic that we explore elsewhere in this year's *The Art of Smart*. A diverse set of opinions and attitudes is essential to creating such a climate, and to making sure that any decisions taken are properly scrutinized and tested.

If diversity is truly to be a driver of business performance, companies could benefit from becoming more analytical about how they define it and more creative about how they approach it, looking beyond the obvious markers and the established ways of recruiting and retaining talent.

Being able to map the workforce against their business needs, not just now but into the future; to be pragmatic and flexible about change; and to seek out diversity of thought as well as of identity: These are all key areas that will differentiate the companies that effectively harness the power of diversity from the rest. Diversity may be important for its own sake — but done well, it's also innovation in the making.





Duplays

Game of frisbee births Dubai SME100 company

Duplays co-founder and CEO Ravi Bhusari shares his tale of how the flight of a frisbee gave birth to a community that has since soared to more than 100,000 members. Not many entrepreneurs can claim that flinging a frisbee was the first smart decision that would propel them to professional prosperity. He did not know it at the time, but for Bhusari this was Duplays' genesis moment.

The frisbee has come to represent the sports and networking platform's journey from inception to today. Like the frisbee, Duplays had a rapid launch, powered by the energy and fervour of Bhusari and co-founder Derv Rao. It has also had to change its trajectory mid-flight, showing resilience to course-altering winds of change and adapting, too, to the tailwinds of success.

Take-off

Sports-enthusiast Bhusari's own journey began in Montreal, Canada – though he grew up in Saudi Arabia. An engineer, he studied for his MBA in Toronto before setting off for the Middle East in summer 2006.

“Conventional jobs didn't really interest me. So I packed my bags for Dubai and – like most entrepreneurs – hoped to find adventure, excitement and fortune.”

In Dubai, he gravitated to social spots and institutions as many other expats did. He enjoyed the culture and lifestyle. But something was missing.

"I was holding a beverage instead of a basketball."

Bhusari and others craved a setting something like the sports and social clubs he had frequently seen in Toronto. But he did not build a club; he built a community.

"Most entrepreneurs start a business based on personal experience. Ours was no different," he says. "Moving to a new place can bring loneliness for people. We wanted to find a way to connect social people online, to enable them to connect offline and continue playing the sports they all loved growing up. The idea was to use sports as a wholesome way to connect and build social relationships."

Two things were key in the nascent days of Duplays, and most business leaders will recognize both: One was technology; the other was the need for 'a hook', something to turn heads.

"Originally we built an online platform, post-Facebook," Bhusari explains. "The strategy and DNA was always to have that platform as an efficient way of connecting disconnected groups."

"Ultimate frisbee was quirky enough to help put us on the map, so we had additional interest-through-intrigue. It was a good differentiator."

Institutionalizing interest through innovation

Inspired by the Toronto Sports & Social Club, Bhusari's goal was to institutionalize a similar model in Dubai. Ad hoc sports options were available, but none had the formalized community behind it which Duplays sought to achieve.

"We're proud to have innovated – looking at models I've seen elsewhere – and it's rewarding to see that resonate here. We formalized it in an easy and seamless way. Pay, sign up, check rosters, fixtures and tables all in one place. There was a gamification and competition element, but mostly we were creating connections through sport."

By focusing on community, Duplays has organically grown its own army of ambassadors, keen to improve their own experience while also sharing it with others.



"No business has unbridled success with no setbacks. Equally important is the humbling experience of the tough times."

Ravi Bhusari, CEO, Duplays

"If you're an iPhone or Android user, you're likely very loyal to your phone, but probably won't push it onto others because the network effects are limited," says Bhusari. "But if you have a good experience at Duplays, sharing that enhances your own experience – through more sports, fixtures, choice, competition and so on."

The ultimate plan for the business is to be the largest participatory sports platform in the MENA region, bringing together sport services, technology, and facility management.

"It's the Booking.com for sports."

After initial success, things can get tough. That's start-up life. Bhusari knew that, while he wanted his idea to fly, he must remain grounded.

"We've had winning seasons and losing seasons. We've seen it all over the past 10 years," he says. "No business has unbridled success with no setbacks. Equally important is the humbling experience of the tough times."

In those tough times, having a supportive community to rely on can be a powerful reminder of your original goals, as well as of how far you have already come. For a business leader, this can be as invigorating as finding comfort and validation in the financials and the numbers.

Bhusari wants to pay this forward. His latest launch, nook, is focused on sports, fitness and wellness co-working. Again, community is at the heart of the business. Where Duplays brought together people interested in playing and connecting through

sports, nook does the same for entrepreneurs. Personal trainers, physios and others in the industry can benefit from a flexible physical location and a network of like-minded professionals.

"Inspired by co-working models in the West, we offer office space per chair, not per office. nook will enable the next Duplays to arrive and thrive."

Connections from the heart: From Duplays to 'I do'

Duplays' community continues to thrive, building a camaraderie both online and offline. Business deals have been signed on the sports field, while in 2011 Duplays members broke a Guinness World Records by conducting the longest soccer match, at 42 hours 7 minutes.

Strategic partnerships with corporates in the region, as well as academic institutions and the Abu Dhabi Health Authority are further signs of continuing success, and 2015 saw Duplays selected as a Dubai SME100 company.

"We even had a wedding proposal on the home plate of Duplays' softball league. The couple met through their Duplays membership, and the community becomes your de facto family, so we're proud of the connections we've helped to create."

Not bad, for what started as a game of pick-up frisbee!





The Crowe 100

Decision-making may be an art, but how close to a science can we make it?

We are in the results-based business. Which is why – at Crowe – we focus on smart decisions that have *lasting value*. We acknowledge that decision-making processes are art, not science. That is why we have tested the theory, psychology and smart decision-making themes we see in our research and thought leadership against the actual performance of public companies. By analyzing theory alongside reality, we have been able to establish an index-based metric with which to test correlation in this vibrant and growing field of research.

We focused on three international sectors where Crowe has deep experience: Manufacturing, Healthcare and Real Estate. Using more than 30 sources of public information and assigning values to companies for their performance in the four key decision-making areas of Growth, Diversity, Boldness and Innovation, we have produced the most authoritative index of corporate decision-making in the world.

Our research revealed some interesting data-driven findings and enlightening case studies showing the different artistic approaches to decision-making. We hope it provides some thought-provoking ideas and examples that resonate with, or even inspire, you and your organization in your pursuit of lasting value.

Explaining the thinking behind our methodology

One of the top challenges for corporate leadership is how to ensure decision-making is efficient, effective and growth-driving. No organization is immune to the impact of luck, but – chance aside – how a company fares in good times and bad will be dictated more by its decision-making approach than by any other factor.

Decision-making remains the key component to distinguishing successful companies from the pack, and a sound decision-making approach is the best immunizer against the impact of luck and other external factors.

Through our history of working with top business leaders and corporate boards, we've come to better understand the importance of decision-making and of studying its impact and results. As part of this process, we set out to create an index of the top decision-making companies across Manufacturing, Healthcare and Real Estate, using objective indicators and subjective analysis of the process and products of good decision-making.

We recognize that while a good decision may be difficult to grasp at any one point, the effects of a smart decision can be thoroughly examined.

For The Crowe 100 Decision-Making Index 2019, our methodology seeks to get to the heart of the smart thinking behind, and effective execution of, strong corporate decision-making. A concept like decision-making is inherently intangible, but the lasting value provided by smart decisions is clear to see and measure. The impact of decision-making on corporate success is simply too powerful to overlook. With that in mind, we built a framework of measurable performance indicators with which to assess the performance of specific companies.



GROWTH

An analysis of companies using financial performance measurements, since companies that make better decisions are apt to perform above their peers in the long term. While profit may not capture growth in its widest context, and stock price may overemphasize speculation and potential growth, revenue analysis provides us with the clearest insight into corporate performance.



DIVERSITY

An analysis of governing boards and C-suite executives that recognizes the powerful advantages of a diverse corporate team. We scrutinized annual reports, company websites and public records to measure gender diversity.

Our framework is constructed around the four key pillars of Growth, Diversity, Boldness and Innovation. It is these lenses through which we analyze companies' actions. Using more than 30 initial sources of key information as our base data set (and excluding privately-held companies due to the inaccessibility of their information) we created The Crowe 100 Decision-Making Index by breaking decision-making into these four components, using data mapped from one-, five- and 10-year periods between 2008 and 2018 to produce weighted scores for each category.

This allowed us to produce a score, per category, for each company, opening the door for further

analysis of how and why companies excelled in, for example, diversity-driven growth or risk-confronting innovation. By combining these disparate scores across the four components, we arrived at our ranking of top decision-making companies within Manufacturing, Healthcare and Real Estate. While inevitably imperfect, The Crowe 100 Decision-Making Index 2019 explores the quantifiable aspects of decision-making using a combination of related objective data and subjective analysis. Our goal is to better understand the measurable aspects of decision-making to better inform conversations on this crucial art. A full methodology description can be found at www.crowe.com/theartofsmart



BOLDNESS

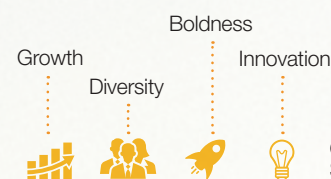
An analysis of the critical yet eventful steps that set companies apart through their willingness to confront risk. We conducted analysis of the percentage change in revenue per employee, to see how much a company had grown in proportion to its size.



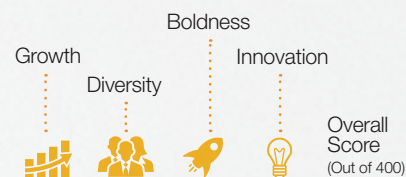
INNOVATION

A study of the companies' unique advances in management and technology. Our research team audited major business news to collect and score relevant stories and capture all innovations that companies had been recognized for. Innovations were measured according to the four values of purpose, product, people and performance, factoring in breadth and depth of innovation and adding weight for awards received.

The Crowe 100 Decision-Making Index



Overall Rank	Company	Headquartered	Sector	Growth	Diversity	Boldness	Innovation	Overall Score (Out of 400)
1	Incyte	USA	Healthcare (BioTech, Pharma & Life Science)	100	100	100	75	375
2	Country Garden Holdings	Hong Kong	Real Estate (Diversified Holdings)	91	100	82	100	373
3	Regeneron Pharmaceuticals	USA	Healthcare (BioTech, Pharma & Life Science)	78	100	75	100	353
4	Swedish Orphan Biovitrum	Sweden	Healthcare (BioTech, Pharma & Life Science)	87	100	80	75	342
5	Becton Dickinson	USA	Healthcare (Medical Equipment & Supplies)	53	100	84	100	337
6	Midea Group	China	Manufacturing (Electronics)	58	100	98	75	331
7	China Molybdenum	China	Manufacturing (Metals & Mining)	79	100	91	50	320
8	Nidec	Japan	Manufacturing (Electronics)	96	50	94	75	315
9	Alexion Pharmaceuticals	USA	Healthcare (BioTech, Pharma & Life Science)	71	100	68	75	314
10	Supernus Pharmaceuticals	USA	Healthcare (BioTech, Pharma & Life Science)	98	50	90	75	313
11	Tianqi Lithium Industries	China / Hong Kong	Manufacturing (Metals & Mining)	97	100	87	25	309
12	Biogen	USA	Manufacturing (BioTech, Pharma & Life Science)	49	100	58	100	307
13	Anthem	USA	Healthcare (Managed Health Care)	11	100	96	100	307
14	Allergan	Ireland	Healthcare (BioTech, Pharma & Life Science)	92	50	88	75	305
15	Vertex Pharmaceuticals	USA	Healthcare (BioTech, Pharma & Life Science)	68	50	86	100	304
16	AmerisourceBergen	USA	Healthcare (Healthcare Services & IT)	45	100	83	75	303
17	Natura	Brazil	Manufacturing (Materials & Packaging)	72	100	78	50	300
18	Seattle Genetics	USA	Healthcare (BioTech, Pharma & Life Science)	67	100	77	50	294
19	Greenland Holdings Group	China	Real Estate (Builders & Developers)	99	0	93	100	292
20	Assa Abloy	Sweden	Manufacturing (Heavy Equipment)	38	100	51	100	289
21	Great Wall Motor	China	Manufacturing (Automotive)	39	100	99	50	288
22	MKS Instruments	USA	Manufacturing (Semiconductors)	77	100	59	50	286
23	BAE Systems	United Kingdom	Manufacturing (Aerospace & Defense)	-11	100	97	100	286
24	Longfor Properties	China	Real Estate (Diversified Holdings)	74	100	35	75	284
25	Tesla	USA	Manufacturing (Automotive)	95	50	38	100	283
26	Ionis Pharmaceuticals	USA	Healthcare (BioTech, Pharma & Life Science)	85	50	66	75	276
27	Illumina	USA	Healthcare (BioTech, Pharma & Life Science)	65	100	33	75	273
28	Prologis	USA	Real Estate (Financing, Investors, Lenders)	30	50	92	100	272
29	Safran	France	Manufacturing (Aerospace & Defense)	22	100	73	75	270
30	Insulet Corp	USA	Healthcare (Medical Equipment & Supplies)	63	100	79	25	267
31	Essilor International	France	Healthcare (Medical Equipment & Supplies)	60	100	56	50	266
32	Cisco Systems	USA	Manufacturing (Networking, Comms & Security)	-6	100	72	100	266
33	Rightmove	United Kingdom	Real Estate (Services Platform)	46	100	67	50	263
34	UnitedHealth Group	USA	Healthcare (Managed Health Care)	42	50	95	75	262
35	Fortinet	USA	Manufacturing (Networking, Comms & Security)	75	50	55	75	255
36	DAMAC Properties	UAE	Real Estate (Diversified Holdings)	52	50	53	100	255
37	DexCom	USA	Healthcare (Medical Equipment & Supplies)	93	50	85	25	253
38	Saudi Arabian Mining	Saudi Arabia	Manufacturing (Metals & Mining)	66	50	62	75	253
39	Northrop Grumman	USA	Manufacturing (Aerospace & Defense)	8	100	43	100	251
40	Sun Hung Kai Properties	Hong Kong	Real Estate (Builders & Developers)	29	50	70	100	249
41	Amgen	USA	Healthcare (BioTech, Pharma & Life Science)	10	100	37	100	247
42	ASML Holdings	Netherlands	Manufacturing (Semiconductors)	61	100	9	75	245
43	athenahealth	USA	Healthcare (Healthcare Services & IT)	56	50	61	75	242
44	Cerner	USA	Healthcare (Healthcare Services & IT)	41	100	0	100	241
45	Intuitive Surgical	USA	Healthcare (Medical Equipment & Supplies)	34	50	81	75	240
46	Foundation Medicine	USA	Healthcare (BioTech, Pharma & Life Science)	84	100	5	50	239
47	Larsen & Toubro	India	Manufacturing (Construction Services)	24	50	65	100	239
48	Lockheed Martin	USA	Manufacturing (Aerospace & Defense)	6	100	57	75	238
49	Aldar Properties	UAE	Real Estate (Diversified Holdings)	86	0	76	75	237
50	Medidata Solutions	USA	Healthcare (Healthcare Services & IT)	64	50	48	75	237



Overall Rank	Company	Headquartered	Sector	Growth	Diversity	Boldness	Innovation	Overall Score (Out of 400)
51	Veeva Systems	USA	Healthcare (BioTech, Pharma & Life Science)	90	50	45	50	235
52	NXP Manufacturing (Semiconductors)	Netherlands	Manufacturing (Semiconductors)	55	50	54	75	234
53	Anhui Conch Cement	China	Manufacturing (Construction Materials)	62	50	71	50	233
54	Stryker	USA	Healthcare (Medical Equipment & Supplies)	21	100	10	100	231
55	Abcam	United Kingdom	Healthcare (BioTech, Pharma & Life Science)	44	100	12	75	231
56	AbbVie	USA	Healthcare (BioTech, Pharma & Life Science)	35	50	46	100	231
57	Haier	China	Manufacturing (Consumer Durables)	12	50	69	100	231
58	Edwards Lifesciences	USA	Healthcare (Medical Equipment & Supplies)	43	50	60	75	228
59	Apple	USA	Manufacturing (Electronics)	26	50	52	100	228
60	Inogen	USA	Healthcare (BioTech, Pharma & Life Science)	88	50	64	25	227
61	Thermo Fisher Scientific	USA	Healthcare (Medical Equipment & Supplies)	51	50	26	100	227
62	Henderson Land	Hong Kong	Real Estate (Diversified Holdings)	-13	50	89	100	226
63	Daimler	Germany	Manufacturing (Automotive)	17	100	32	75	224
64	Vicinity Centres	Australia	Real Estate (Commercial Retail)	47	100	-4	75	218
65	Wright Medical Group	USA	Healthcare (Medical Equipment & Supplies)	80	50	63	25	218
66	Unibail-Rodamco	France	Real Estate (Commercial Retail)	18	100	-1	100	217
67	Alkermes	Ireland	Healthcare (BioTech, Pharma & Life Science)	48	100	14	50	212
68	Mercury Systems	USA	Manufacturing (Aerospace & Defense)	69	50	13	75	207
69	Coherent	USA	Manufacturing (Optics, Photonics & Lasers)	70	50	36	50	206
70	General Dynamics	USA	Manufacturing (Aerospace & Defense)	7	100	19	75	201
71	Novartis	Switzerland	Healthcare (BioTech, Pharma & Life Science)	-12	100	11	100	199
72	Align Technology	USA	Healthcare (Medical Equipment & Supplies)	76	50	-3	75	198
73	Opko Health	USA	Healthcare (BioTech, Pharma & Life Science)	94	50	29	25	198
74	CRH	Ireland	Manufacturing (Construction Materials)	32	100	-10	75	197
75	Volvo Group	Sweden	Manufacturing (Heavy Equipment)	-7	100	2	100	195
76	Klepierre	France	Real Estate (Financing, Investors, Lenders)	-4	50	74	75	195
77	Brookfield Asset Management	Canada	Real Estate (Financing, Investors, Lenders)	73	50	-7	75	191
78	China Vanke	China	Real Estate (Builders & Developers)	33	50	8	100	191
79	Ecolab	USA	Manufacturing (Specialised Chemicals)	0	100	41	50	191
80	Cigna	USA	Healthcare (Managed Health Care)	23	50	16	100	189
81	Electronic Arts	USA	Manufacturing (Entertainment Software)	19	50	44	75	188
82	Neogen	USA	Healthcare (Medical Equipment & Supplies)	50	50	34	50	184
83	Baxter International	USA	Manufacturing (Medical Equipment & Supplies)	5	100	3	75	183
84	Medtronic	USA	Healthcare (Medical Equipment & Supplies)	40	50	17	75	182
85	Tata Motors	India	Manufacturing (Automotive)	36	50	-8	100	178
86	Harmonic Drive Systems	Japan	Manufacturing (Capital Goods)	81	0	47	50	178
87	BTG	United Kingdom	Healthcare (BioTech, Pharma & Life Science)	57	100	-6	25	176
88	Boston Scientific	USA	Healthcare (Medical Equipment & Supplies)	15	50	7	100	172
89	Abiomed	USA	Healthcare (Medical Equipment & Supplies)	82	50	-13	50	169
90	Ligand Pharmaceuticals	USA	Healthcare (BioTech, Pharma & Life Science)	89	50	4	25	168
91	EADS/ Airbus	Netherlands	Manufacturing (Aerospace & Defense)	-1	50	42	75	166
92	Toyota Motor	Japan	Manufacturing (Automotive)	-2	50	15	100	163
93	TE Connectivity	Switzerland	Manufacturing (Electronics)	9	50	23	75	157
94	Patrick Industries	USA	Real Estate (Construction Materials)	83	50	-2	25	156
95	Annaly Capital Management	USA	Real Estate (Financing, Investors, Lenders)	-10	100	-9	75	156
96	Roper Technologies	USA	Manufacturing (Capital Goods)	31	50	25	50	156
97	Celltrion	South Korea	Healthcare (BioTech, Pharma & Life Science)	54	0	49	50	153
98	KIA Motors	South Korea	Manufacturing (Automotive)	1	0	50	100	151
99	GlaxoSmithKline Pharmaceuticals	India	Healthcare (BioTech, Pharma & Life Science)	2	100	22	25	149
100	SAIC Motor	China	Manufacturing (Automotive)	28	50	18	50	146

Balancing the risk equation

How the smartest decision makers are overcoming challenges

Analysis of The Crowe 100 Decision-Making Index indicates that risk can be a driver for bold decisions and innovation.

The findings suggest that bolder companies (i.e., those that take courageous steps to differentiate themselves and make themselves more effective) often operate in more challenging business conditions, for instance, due to macroeconomic regional conditions, market factors in their sectors or the potential for scalability in particular business models or industries.

Separately, innovative operations and outputs (i.e., where employees are

empowered to be creative and pioneer new ideas) tend to be more prevalent in sectors where growth is sluggish.

This article looks at the factors that inspire organizations to make bold decisions that push them out of their comfort zones; whether younger (i.e., less long-established) companies are necessarily more innovative and groundbreaking, as some might expect; and how companies can maintain risk compliance while making those “outside the box” choices that they believe will benefit their businesses.

Insights from the Index



There is a positive correlation between boldness and overall level of challenge: The more challenging a situation, the bolder companies tend to be.



Successful companies operating in slow-growing industries had a higher number of recognizable innovations than those in faster-growth sectors.



Younger companies do not necessarily innovate more than longer-established companies.

“Innovation is one of the biggest tell-tale signs that a company has got employee engagement right. It’s the result of having space to think and caring enough to go the extra mile for the business, as well as feeling sufficiently safe and secure to air ideas that may or may not work.”

Wayne Clarke, Founding Partner, The Global Growth Institute



Do something? Do nothing?

“Doing the same thing as everyone else is easy. Doing something different is hard”

**Prof. Michael Roberto, Trustee
Professor of Management,
Bryant University**

There are many good reasons not to make bold decisions or support innovation. Successful companies are often very comfortable with the status quo and see no need to change. That’s understandable — they’re doing well, after all. Sometimes sticking to the established formula is the best course of action. However, it pays to question whether things can be done better and keep looking out for threats and opportunities. Inaction due to complacency or inertia can be as risky a strategy as decisive action.

Then there is the perceived payoff derived from the “safety in the herd” mentality. Fear of making mistakes is a major barrier to taking bold actions or supporting innovative ideas. Market leaders may be more risk-averse because they have more to lose, and moderately successful rivals can be prone to follow in their wake, reluctant to be the “odd one out.”

As Gary Klein, President and founder of cognitive training consultancy Shadowbox, and author of ‘Sources of Power: How People Make Decisions’ and other books on the science of decision-making and cognitive processes, says: “People think: If I make a mistake, people will see it. If I fail to come up with an idea, nobody will ever know.”

Boldness and innovation defined

Boldness



What we measured...

Company growth in proportion to size as a proxy for daring companywide changes (percentile change in revenues per employee over five-year and ten-year intervals).



Innovation



What we measured...

Depth and breadth of transformative thinking across four opportunity areas: purpose, product, people and performance, taken from a comprehensive media audit.

“Most innovation comes from adversity”

Wayne Clarke, Founding Partner, The Global Growth Institute

There are also cultural and practical deterrents. Change can disrupt the direction of travel, throw schedules and budgets into disarray, divert focus and resources, alter strategy and goals, and upset staff who want predictability. There are customers to keep happy and shareholders to convince. “Leaders talk a good game about boldness and innovation, but in reality, it can be hard to achieve, and most people are naturally cautious,” says Michael Roberto, Trustee Professor of Management at Bryant University and author of ‘The Art of Critical Decision Making’.

For those who do want to be more creative and utilize their skills in different ways outside of what may be a narrow job description, the inability to do so can be a source of extreme frustration, according to Wayne Clarke, Founding Partner of the

Global Growth Institute, a leading advisor on driving growth through human capital strategies. Wayne is also former Managing Partner at Best Companies (producer of the UK’s Sunday Times Top 100 Companies list).

“Individuals get hired for all the many skills and interests they put on display in the interview process, as well as their specific role-related expertise,” he says. “But few of them ever get to use most of these assets in their jobs: They’re confined to the role they were recruited for and that’s it. That’s turning off graduate talent big time, as today’s young people want more scope to be creative in their careers and have control over what path that might take.”

“But it also means that, in fact, there’s vast pool of opportunity for innovation that organizations could tap into if they only had the will and means to do so,” Clarke continues. “If you recruit smart people, you’ve got to find ways to create opportunities to use their various skills, by matching them to what the organization needs.”

The case for doing things differently

While businesses in any sector could benefit from daring themselves to think differently or make tough choices, in challenging environments where growth is slow or the pace of change is rapid, being

bold and innovative is a way to get ahead. For example, Japanese manufacturer Midea Group (Crowe 100 Index ranking 6, boldness score 98/100, innovation score 75/100) has carved out a prominent

“Sometimes when you innovate, you make mistakes. It is best to admit them quickly and get on with improving your other innovations,” – **Steve Jobs, Co-founder, former Chairman, and CEO of Apple Inc.**

position in the fast-moving smart home appliances market, using artificial intelligence (AI) to develop cutting-edge “microclimate” air conditioning units that it believes will revolutionize the industry¹.

Both boldness and innovation help companies overcome challenges: Those that do nothing increase their likelihood of business failure; those that are proactive increase their chances of survival and success. In difficult scenarios, companies that make bold moves such as entering new markets or developing new products and services may still fail, but they’re unlikely to be successful without making those big decisions. It’s all about changing the balance of probabilities.

“When it comes to taking risky decisions, people are often more concerned with losses than gains”

Gary Klein, President, ShadowBox LLC

Robert Pearl, MD, Professor at the Stanford Graduate Schools of Business and Medicine, has written about “the science of regrettable decisions.”² He explains that human attitudes about — and perceptions of — risk and reward are

1 IFA International
2 Vox
3 PR Newswire
4 Planning, BIM & Construction Today
Clyde & Co.

much the same as they were thousands of years ago, when our ancestors would have pitted the dangers of hunting a large animal against the rewards of being able to eat and survive. It’s when our perceptions of risk change, and gains rather than losses become uppermost in our minds, that we’re able to make those brave moves.

Being both bold and innovative, Chinese real estate company Country Garden Holdings (Crowe 100 Index ranking 2, boldness score 82/100, innovation score 100/100) is taking the lead in sustainable, “green” development by investing in an industrialized manufacturing base for the construction industry at a major new purpose-built facility. This is said to comprise facilities for construction engineering, prefabrication, logistics and transportation, part assembly and construction as well as R&D³. Prefabricating buildings (or parts of them) is an innovative approach that many in the industry see as a major potential driver of productivity, with the ability to increase capacity and underpin new standards in construction.⁴

Continued on page 34 ▶

“Leaders talk a good game about boldness and innovation, but in reality, it can be hard to achieve, and most people are naturally cautious,”

Michael Roberto, Trustee Professor of Management, Bryant University





GoSpace

Who wants to be a decision-maker extraordinaire?

In the popular quiz-based television show *Who Wants To Be A Millionaire?* contestants must answer a series of questions, which grow progressively more difficult, as they climb the ladder towards the ultimate prize of winning the competition's riches.

At various points along the way, contestants may be taken out of their comfort zone, needing to find the answer to a question they have not come across nor dealt with before.

This is not unlike the journey of an entrepreneur. In the same way an entrepreneur would consult to find external assistance, or confide in a trusted confidante, or use technology to refine the possible route forward, contestants are armed with the Ask the Audience, Phone a Friend and '50-50' lifelines.

Crowe Global sits down with **Bruce Davison, CEO of GoSpace AI**, to explore artificial intelligence (AI) and the need for businesses to balance the

About GoSpace

GoSpace provides tools that dynamically allocate team space as your organization changes. It uses a powerful cloud-based AI engine that gets the right people working together in the right space.

individual and the collective, the technological and human, and the virtual and physical.

Balancing human and technological

Davison recalls the 'lifelines' used on the quiz-show and sees how these translate to the support functions that business leaders rely on to become successful.

"Contestants can 'Phone a Friend' and you always feel sorry for the poor person on the other side of the telephone. But 'Ask the Audience' usually resolves things with the correct answer – it's never even close."

There's a business lesson, here, about the potential danger of relying on one or two advisors, versus gathering a diverse range of views. It's why focus groups exist, for example. Sometimes consensus creates a clear path; sometimes nuance reveals another solution. Putting the pressure of decision-making solely on one person's shoulders, particularly in a time-constrained scenario as in *Phone a Friend*, can create an undue burden.

"Successful people do not turn ideas or advice away. Treat everyone's comments with the same value. But understand the context, then qualify and synthesize," says Davison. *"Don't let ego or your sense of hierarchy dull that ability to recognize opportunity and good ideas."*

Fortunately, the artificial boundaries of the show – that the audience’s choices must be relayed as clear-cut, definitive answers, with no supplementary analysis, context or reasoning – do not apply in business. In the real world, stakeholder feedback can be much more nuanced. You are not simply advised to go with option ‘A’ or ‘D’. You are presented with the pros and cons of options A through D, along with a recommendation.

This is the sweet spot. Let the data tell you something, and use your human intelligence and experience to add layers of analytical nuance which will apply context and look at the ‘how’ and ‘why’, not just the ‘what’ and ‘when’ that data provides.

“Balance is key,” says Davison. “Technology empowers us to move at pace through large data sets, however you can easily be lulled into a false sense of security. More data does not solve the issue of judgement or replace vision.”

The same principle of balance applies to gathering not only diverse viewpoints, but also diverse attitudes.

“We have this incredible knowledge and wisdom held by older generations, and we also have spirit, adventure and this sense of ‘anything is possible’. Both camps have pre-conceived ideas and structures they operate within,” says Davison. “Many people are turning their backs against history and assuming that technology holds all the answers. If you want to make smart decisions faster, the ability to synthesize these two insight sources is critical.”

The Power of AI

AI is a powerful tool in business. But Davison says there is misunderstanding about how it can impact our ability to make smart decisions. He breaks AI into two categories: linear or non-linear, or in layman’s terms: reactive and proactive intelligence. At present, he fears business is leaning too heavily on the reactive.

“With AI, large data-sets can be mined for insights and clues. In terms of decision-making, this backward-looking data reminds me of the statement that if you keep doing the same thing over and over and expect a different result, that’s a sign of madness. This is the issue with looking at historic data-sets and trying to determine future behavior.”

Business Lifelines: The Smart Decision Toolkit

Ask the audience – for consensus building, but also to gather a diverse range of views.

- Pros: Allows consensus-building. Gathers a diverse range of views. Avoids confirmation bias or echo chambers.
- Cons: Need to analyze, interpret, synthesize information collected. Need to understand context for each audience member.

Phone a friend – drawing in, or calling on, a specific expert source because you think their skillset is suited to solving the problem at hand.

- Pros: Share decision-making burden with trusted source(s) – “a problem shared is a problem halved”. Leverage specialist expertise.
- Cons: Potential for over-reliance on one voice, or small group of voices (and pressure on one set of shoulders). Greater risk of echo chamber.

50-50 – for removing choice, or narrowing down the number of possible routes forward, which then enables a deeper-dive into the remaining options before a final decision is taken.

- Pros: Narrows focus. Refines options to streamline decision-making.
- Cons: Caution necessary to avoid dismissing good options prematurely.

Proactive intelligence comes through simulating forward-looking ‘what if’ scenarios. Simulation techniques imagine different things and how these may affect possible outcomes.

“We all know the examples of the butterfly effect. In business, we have to balance the understanding and insight of the past with our innate ability to synthesize an idea from seemingly unrelated things, formulate a vision and belief, and then will this new reality into existence. Most of human progress has occurred because of this tension between linear and non-linear thinking.”

Data and analytics are great, believes Davison. But you have to keep in mind what you are trying to achieve, rather than blindly pursuing more and more data.

“When we look at proactive intelligence, that’s when we can really use technology as a partner, not a threat. Artificially assisting decision-making, but augmenting human skills with the analytical capabilities brought through data.”

While humans can draw on memory and experience, AI can create the maps and scenarios to allow us to see patterns, predict outcomes and make decisions.

“We can then look at our own situation and say we have the same pattern occurring here, right? And that can influence your decisions, but so too should your experience and understanding of context and circumstance.”

The GoSpace Experience

At GoSpace AI, Davison tries to put this into practice. He wants the business to harness the benefits of AI to better manage resources and increase efficiency. But he is conscious of the pendulum swing that occurs when technology provides breakthrough moments. There is a risk of over-reliance on the shiny and new, at the expense of things that have worked well in the past. This can be detrimental to success.

For GoSpace AI, the problem was clear. Davison kept hearing the same cry from business leaders: “How do I get my people together?” and “How much space do we actually need?”

“We were trying to solve this problem with space, but space is a static thing – no matter how well you design it. There’s a graveyard of architects that have tried to design flexible offices with walls and furniture that moves and re-configures. The Eureka moment came in realizing this was a people problem, not an architectural one.”

The real solution to workplace engagement was in managing people in space in a more dynamic way. But balancing the aspirations of the individual and the effectiveness of the collective is easier said than done.



In days gone by, working models and practices were more straightforward. People began their career, and 30 years later they were doing the same job.

“Workplace and workforce were symbiotic, so architects designed buildings accordingly,” says Davison. “Over the past 25 to 30 years, we’ve seen the emancipation of the autonomous worker, with people leaving the traditional workspace.”

This has led to strong virtual communications networks, but physical engagement has suffered. Non-verbal communication cues are lost; virtual connectivity is not enough.

“Everyone is floating in the ether and we miss the connection. To harness the power of individual freedom and increase social capital, space is a huge factor in achieving dynamic interplay between virtual and physical worlds. AI can be the link to restore discipline and bridge the engagement gap. There’s this assumption that technology and innovation is fantastic – and it is. But people get carried away without remembering to harness that human touch.”

Despite all of the workplace technology in play today, the reality is that people are more predictable – and less dynamic – than they like to think, argues Davison. Working models may have changed, but the reality is that offices are at their

busiest between 10.00 and 11.00 and between 15.00 and 16.00, as they have always been.

Human nature takes much longer to change, compared with technology. The two must work in harmony to produce the best results.

“While digital transformation has empowered people to work in different ways, we’re observing distinctive trends across all our clients; from completely different sectors, locations and sizes. Whether people are assigned desks or they’re hot desking, almost all still gravitate to working together as a team, and that’s not about to change anytime soon.”

The Universal Challenge

GoSpace AI is an innovator. And innovation does not just apply to technology.

“How we communicate and socialize is evolving,” says Davison, who also keeps diversity at the core of the business.

“With our software development, we pull together groups of people that technically would probably not be collaborating. It’s a generalization but mathematicians tend to be drawn to linear well-ordered models. Physicists on the other hand have to be comfortable with the non-linear, fuzzy logic or chaos theory, and the notion of multiple realities, that there is never one solution but many.”

GoSpace AI has brought these two groups together well, and the business is reaping the benefits of AI. But they have had to overcome communications challenges and review their own findings in light of the other group’s research. For the benefits of AI to truly extend across industries, inter-team interaction is vital.

“While it’s critical that teams have enough space to work together effectively, enabling inter-team collaboration cannot be overlooked. It’s where creativity and innovation have the opportunity to thrive.”

Davison believes that, by balancing the individual and the collective, the physical and virtual, human and technological, AI can help people to work better together, to manage resources better and to achieve more.



“Successful people do not turn ideas or advice away. Treat everyone’s comments with the same value. But understand the context, then qualify and synthesize.”

Bruce Davison, CEO, GoSpace

Above all, we must resist the temptation to look for a silver bullet and keep in mind the desired outcome.

“We’re moving beyond the age of data and analytics, into the age of solutions. In order for AI to empower humans to make better decisions it needs to address both the reactive and pro-active realms. It will still be up to us to plant the seed of a vision, after which we will work with our AI Partner to extend this into possible realities beyond our wildest imaginations. AI will free us up to focus on our innately human abilities. It’s a powerful combination.”

“While we can now provide the answers to how much space is really needed, and how teams can work together more effectively, there’s another factor that’s even more important. If organizations can reduce the wasted office space they currently have, which, based on what we regularly see is between 30-50%, they can have a significant impact on reducing global carbon emissions.”

It isn’t easy, but if you can keep these checks and balances, and use your business lifelines wisely, you can climb the rungs of success to become a smart decision-maker extraordinaire.

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Disruptive vs. incremental innovation

The idea of a favorable risk/reward ratio also resonates with Chengwei Liu, Associate Professor of Strategy and Behavioral Science at the European School of Management and Technology. He points to the well-known “Moneyball”⁵ example, where a struggling baseball team deployed a radical new strategy (analyzing team data) to great success. Prof. Liu argues that it was the team’s underdog status — the fact it had more to gain than lose, rather than the data — that enabled it to make its bold moves.

Given all these arguments, one might assume that younger companies are more innovative, but The Crowe 100 Index rankings suggest that this is not necessarily the case. Despite the hype, disruptive innovation is not the only kind. Large, established corporates with big budgets for R&D are often better at incremental innovation — however, they typically focus on “doing what we do better” rather than on radical, risky change.

The finding that established companies are as likely, or more so, to be innovative (and successful) as startups does not surprise Ann Latham, President and founder of strategic clarity consultant Uncommon Clarity, author of four books on business effectiveness and regular

⁵ Wikipedia

Forbes contributor. She makes the point that boldness has much to do with personality and an entrepreneurial mindset, which can be found in large corporates as well as smaller firms. Some of the world’s biggest companies, such as Facebook, Apple, Amazon and Google, continue to be the most innovative.

“When you look at a lot of the entrepreneurs who are successful, they might fail nine times before they finally found a business that takes off. They just keep going at it,” Latham says. “It does become harder to be agile in bigger companies, however.”

For Wayne Clarke, “Innovation is one of the biggest tell-tale signs that a company has got employee engagement right. It’s the result of having space to think and caring enough to go the extra mile for the business, as well as feeling sufficiently safe and secure to air ideas that may or may not work.”

“Whenever you see a successful business, someone once made a courageous decision.” — Peter F. Drucker, author of ‘Concept of the Corporation’

Lighting the spark

The factors that will determine success (or failure) when organizations make bold decisions or seek to spur innovation differ by company and industry; there is no one-size-fits-all solution. However, experts highlight a range of factors businesses should consider to light the spark.

These include:

- **Present strong leaders who listen and learn.** High-performing CEOs are highly visible within their organizations, listening to staff at all levels and even going back to the floor regularly — not in an orchestrated “state visit,” but on an informal basis, even getting their hands dirty by doing some of the lowest-paid jobs to see the business from all angles. Leadership teams should also be strong enough to challenge their own thinking to make better decisions.
- **Identify who cares and give them something to care about.** Not everyone is motivated to go above and beyond their job description, not even the high performers or those who have reached a senior level in the business. Find ways to identify those that are — line managers may be able to help here — and speak to their personal desires and interests. Simply asking them to get behind a growth plan is unlikely to set the creative juices flowing, so give them a vision or goal they can get excited about.
- **Create headspace.** It’s unrealistic to expect 100% productivity all the time, and rigid processes and rules can be confining. Staff at every level, from leadership down, could benefit from having some space set aside each week to think, either strategically or creatively. Give direction and channel blue-sky thinking by posing different questions for them to consider, or inviting them to give some suggestions (e.g. for shaping strategy).
- **Tap into corporate culture – but not as you know it.** In many companies, overall organizational culture is too big a behemoth to work with from an innovation standpoint. But within an organization there may be many subcultures, perhaps regionally or within service areas, that can be tapped into where individuals or teams can take ownership of new ideas or drive change.
- **Find an effective knowledge-capture process.** In every organization there will be teams doing great things. Learning from these highly performing parts of the business can be far more beneficial than merely constantly fixating on what the competition is doing, and easier and cheaper than trying to engineer internal innovation hubs.

“If you have bold leadership, [employees] are more willing to invest, they’re more willing to let go of what’s been done in the past and they are more willing to take risks. But it’s also important to take time to examine those risks and decide how to mitigate them.”

Ann Latham, President, Uncommon Clarity



- **Temper boldness with discipline.** Mistakes come from not managing risks carefully, so good corporate governance is essential. Preparation gives comfort that risks are mitigated, for instance, by providing processes to test new ideas, or using evidence-based analysis. If companies must move quickly, they should still anticipate the what-ifs: What could go wrong, what's serious and what's likely.

“People think: If I make a mistake, people will see it. If I fail to come up with an idea, nobody will ever know... When it comes to taking risky decisions, people are often more concerned with losses than gains.”

**Gary Klein, President,
ShadowBox LLC**

Key points to consider

Being bold or innovative does not have to mean changing the world. It's not necessarily about making radical structural or strategic changes or coming up with the next iPhone or Alexa — it's as much about making businesses better, improving the customer experience, and taking calculated risks to stay ahead of the competition and drive success.

That said, by definition, boldness and innovation both mean difficult choices must be made, and there can often be a huge amount at stake — for businesses and individuals personally. It's in daring to be different and shaking off the shackles of convention that the value of smart decision-making is really put to the test. But for those who get these tough calls right, the rewards should be well worth it.

Top Companies: Innovation



Overall Rank	Company	Headquartered	Industry	Innovation Value*
98	KIA Motors	South Korea	Manufacturing	16
40	Sun Hung Kai Properties	Hong Kong	Real Estate	12
13	Anthem	USA	Healthcare	11
32	Cisco Systems	USA	Manufacturing	11
78	China Vanke	China	Real Estate	10
62	Henderson Land	Hong Kong	Real Estate	9
36	DAMAC Properties	UAE	Real Estate	8
85	Tata Motors	India	Manufacturing	8
88	Boston Scientific	USA	Healthcare	8
47	Larsen & Toubro	India	Manufacturing	8

* Innovation value was measured across four categories: Purpose, Product, People and Performance. Awards included, but not limited to, the most sustainable companies, the most innovative companies, the fastest growing companies and companies awarded the best place to work, as well as product innovations. Weighting the breadth and depth of innovations gave us values from 16 at the highest, down to 1 at the lowest (every company had at least one innovation).





Lionel

Lionel train pulls into the digital station

Problem

Lionel Trains, America's largest international model train retailer, brought families together and captured the imaginations of young and old for more than 100 years. Its proud heritage and association with America's railroads as a symbol of the nation's engines of progress dates back to 1900 and, since then, the brand has become synonymous with celebratory holiday periods and gift-giving.

As with any company with an audience that involves (though is by no means limited to) younger generations, Lionel is in a perpetual state of evolution as it seeks to continue to inspire and ignite excitable imaginations.

The problem Lionel faced was how to adapt to the modern business and transport reality, while remaining true to its heritage. It therefore embarked on a journey of digital transformation.

Decision

At the heart of this decision was a desire to modernize the systems upon which the business was built, without losing the spirit and essence of 'Lionel'.

While rail networks may no longer represent the economic lifeblood of the US, Lionel continues the legacy of founder Joshua Lionel Cowen, who grew up with that reality. As such, the company gladly bears the responsibility of helping to tell the 'romance of the rails' story.

To bring that story to life in today's world, Lionel's storytellers must utilize a significant digital element.

While the consumer-facing arm continued to thrive through partnerships with evergreen brands such as NASCAR, Warner Bros, Coca-Cola and John Deere, Lionel leadership was acutely aware of the need to surpass customer expectations and refresh its offer, while also ensuring the behind-the-scenes financial and operational mechanisms worked as effectively as possible.



Just as the wagonway evolved to the locomotive steam engine, which in turn has evolved to today's high-speed, electric-powered models and the hyperloops of the not-too-distant future, Lionel recognized the need to not only innovate, but to be bold in doing so.

"We undertook a full digital transformation of our financial and management systems and e-commerce operations," explains Rick Gemereth, CIO of Lionel LLC. *"Crowe created customized functionality to add firepower to our order management processes."*

The core brand offer and weight of customer loyalty provided the perfect platform upon which to digitize with minimal disruption. Lionel enlisted Crowe support to improve the user experience through streamlining of legacy systems and by offering increased customization and personalization options. This has helped to bolster brand equity, as well as bringing behind-the-scenes benefits.

Outcome

Lionel was able to seamlessly unify disparate financial and operational systems while delivering an e-commerce function that can be tailored to meet customers' changing demands. The customer experience was improved, and continued consultative support and on-site training post-roll out led to upskilling of the workforce.

"It's important to have this deep relationship that delivers for customers, retail partners and employees alike," says Gemereth.

At first glance it may sound counter-intuitive, but Lionel discovered that the best way to restore the romance of the rails was through embracing the digital revolution.

How Biotech is getting it right

Biotech is a standout sector in The Art of Smart data. What can other industries learn from its success?

It also dominates the growth rankings: 11 of the top 20 companies ranked by overall growth (across all industries) are healthcare companies headquartered in the United States — and of those, eight are in biotech.

That's surely no coincidence, but why is this? What commonalities can be observed in the decisions behind this success? And what, if anything, can businesses in other sectors learn from the Biotech example?

Investing in innovation

Investment in research and development (R&D) is a major factor with record amounts of private funding flowing into biotech last year¹, although given the high costs involved in getting products to market, some commentators argue that even more is required to fully exploit its potential.

This is a sector that is continuously having to adapt: unlike in many other verticals, in Biotech (and pharmaceuticals

generally) exclusivity [of patents and other intellectual property] is known to disappear in time. Businesses are perhaps better placed to anticipate the death of certain income streams in the future and innovation is built in accordingly. This long-term view requires significant upfront investment.

Thankfully, market dynamics are attractive, given the world's growing and ageing population, but what investors are

1 PharmaTimes.com

Multiple-criteria decision-making (MCDM) is a discipline used to explicitly evaluate multiple conflicting criteria in decision-making. MCDM was first popularized by Stanley Zionts whilst serving on the faculty of the University of Buffalo's School on Management in 1979.

really backing is innovation that will lead to important advances and solve problems.

Pam Hrubey, Managing Director of Crowe LLP Consulting Group, explains that in this sector, attracting investment is about identifying an unmet need or developing next-generation processes. In healthcare, that could mean focusing on “orphan” (extremely rare) diseases, as Seattle Genetics (ranked 18th overall) is doing, or improving patient care, as with Stryker’s (ranked 54th overall) focus on improving patient outcomes in back pain–related procedures, knee replacements and even stroke-related treatments.

Andrew Hessel, CEO of Humane Genomics, a developer of virus-based therapies for cancer, and founding faculty of the bioinformatics and biotech track at Silicon Valley’s Singularity University, makes a similar point regarding investment in biotech in food production. For example, as the earth’s ecosystem comes under increasing pressure to provide for changing demographics, the drive to find alternatives to meat via synthetic processes that create vegan “meat” products and to deliver more

efficient and environmentally friendly farming practices is becoming intense.

As in other industries, highly specialized ideas for cutting-edge products and techniques that improve quality of life or user experience, and the ability to capitalize on them, are as important as the macro trends shaping the market itself.

Investment may be a key to unlock success, but it takes smart decisions to secure it, particularly in a highly regulated environment where scrutiny is stringent and several stages of support may be needed over a decade or more to allow for clinical trials before treatments get to market. Having a robust communications strategy right from the start is vital, both to navigate regulatory requirements, and to help companies make a strong case so they can attract the funding (or acquirer) they are looking for. For example, if a company can demonstrate that its team has the right capabilities and dynamics to deliver an innovation successfully, investors will have confidence even at an early stage. Clearly, this translates into other sectors too.

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“Moving from serial processes to parallel processes is key to successful innovation in the biotech sector. It requires enormous boldness and bravery, but the payoff can be huge.”

Pam Hrubey, Managing Director, Crowe LLP Consulting Group



Loccioni

Turning risk into resource

Problem

Starting out from humble beginnings in a barn in Ancona, Italy in 1965, Loccioni had become a success story. Through a proud commitment to heritage and a healthy hunger for future growth, the company had established itself as a leading developer of technical quality control systems and other measurement mechanisms to help manufacturers improve quality and efficiency.

The company also had an ideal location – or so it thought. As it continued to grow, expansion became necessary, but space was limited by its proximity to the River Esino. Loccioni's riverside location was a core feature of its heritage story. But in 1990, floods devastated the company's laboratories. Something had to be done.

With no authority overseeing river maintenance in the region, Loccioni faced a dilemma. The pending menace of further flooding prompted founders Enrico and Graziella to act.

Decision

The company entered into a Public-Private Agreement, investing in the '2km di futuro' river project to secure and enhance the stretch of the Esino bordering Loccioni headquarters.

The decision would remove a threat while also turning the river into a resource.

Loccioni rallied a group of 16 institutions and associations to secure buy-in for the project, each with different backgrounds and specialisms. The goals were to secure the safety of the area, preserve its natural beauty, and harness energy efficiency.

The next challenge: where to find the money to support the project.

Loccioni decided to cover all costs, even where those costs were incurred on public soil. Bringing together a team of geologists, environmental engineers and landscape architects, Loccioni managed the project from start-to-finish.

With a focus on sustainability, the team also brought in academic experts, collaborating with universities so that the river area can be monitored to provide valuable research data and preserve both employee safety and the natural habitat.

Enrico does not underestimate the lessons that can be learned from monitoring and measuring. Without metrics, growth is down to guesswork.

"Measurement is the first step to improvement," he says.

Having seen the destructive power of the river, Loccioni was keen to harness its energy as a force for good. Micro-hydroelectric power plants were constructed, with clean energy supplying electricity to the group's intelligence grid, increasing efficiency and safety simultaneously.

The project's combined efforts have produced 'The Leaf Community', Italy's first completely eco-sustainable integrated community, characterized by carbon dioxide-friendly homes and solar-powered schools. Regional collaborations with Nissan, Enel, Samsung and other partners have led to a smart city prototype which leverages the contributors' diverse and complimentary skillsets. Samsung's storage systems, Enel's infrastructure, Nissan's electric vehicles and Loccioni's energy flow measurement and management combine



to make energy consumption mapping a more exact science.

Loccioni's legacy is still under construction, with activity to support the Esino Project ongoing. Connections with local schools through Loccioni's 'Bluzone' initiative give students a taste of the world of work, while a generational bridging program, 'Silverzone', brings young people together with an experienced team of recently retired senior consultants. Each of these initiatives is aimed at fostering stronger connections between generations and promoting ongoing learning through diversity.

Outcome

By turning the river into a resource, Loccioni has preserved and protected the local environment while allowing employees to operate without the fear of flooding.

Since launching, the river project has led to 220 new job opportunities, while it has also attracted €13 million of investment and 36,000+ visitors. Energy self-sufficiency sits at 65%.

Loccioni's growth trajectory continues apace, with physical expansion made possible by the River Project, while the company has also had a reputational boost from its endeavors. It has regularly featured on the 'Great Places to Work' list, while 2015 saw Loccioni prominently featured at the Milan Palazzo Italia EXPO exhibition – celebrating

'The Power of Limits'. In 2018, the project was selected by the Biennale di Venezia as a leading case study for revitalization, receiving high praise for creating 'a new harmony between man and nature'.

The intangible value created by the project has thus benefited the company, its employees, and the local environment, as well as providing a blueprint for harmonizing public and private; profit, value and beauty; and nature and technology.

Loccioni has achieved all of this by embracing the Esino and turning a threat into an asset. Agility and an appetite to overcome adversity are essential. As the environmentalist David Brower remarked, *"we must begin thinking like a river if we are to leave a legacy of beauty and life for future generations"*.



"Measurement is the first step to improvement."

**Enrico Loccioni, President,
Loccioni Group**

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Technology: a decisive factor?

As the name suggests, technology can be a success factor for some biotech companies, but in this sector, it's often the way that technology is deployed that matters most. Mindy Herman, Principal and Life Sciences Consulting Leader at Crowe LLP, makes the point that in the main, these are research-focused businesses that use tech tools to support and facilitate their work, rather than being tech-focused.²

That's not to say that tech is not transformative. Robotics is set to revolutionize labs, and pharma companies will increasingly seek to leverage the power of artificial intelligence (AI) to deliver new ideas, for instance, by scanning their libraries to identify new drug candidates.

Andrew Hessel adds that the tech tools available as the industry digitizes are becoming much more powerful, easily accessible and far faster, so that processes can be rapidly accelerated, and startups can leapfrog more established rivals in a way that would not previously have been possible. What's more: "This growing base of tools is opening up more and more possibilities for the development of new medicines and other biotech applications. It's a feedback loop."

Of course, something similar is happening across many industries to a greater or lesser degree. Perhaps what companies in other sectors can take from biotech's example is the extent to which technology can be an enabler for efficiency gains and for opening up new avenues for exploration. In the future, Hessel believes, as biotech becomes increasingly digitized, the opportunity to capitalize on an even more diverse range of potential applications — for instance, in areas such as building materials or textiles — will continue to grow, inspiring a new wave of advances.

"Technology is changing the processes of biotech companies. Thanks to digital tools, I think the industry is going to see even more innovation and new competition coming"

**Andrew Hessel, CEO,
Humane Genomics**

² However, Crowe's Art of Smart Index does include some innovative "tech-focussed" examples like Veeva Systems which develops cloud-based software tools for use by biotech companies

Dalton E. McFarland: "A decision is an act of choice wherein an executive forms a conclusion about what must be done in a given situation. A decision represents a behavior chosen from a number of possible alternatives." – Author and Fellow in the International Academy of Management

Diversity and a new approach to processes

This report has already discussed various aspects of diversity and its link to performance. In the specific context of Biotech, diversity of thought is critical to success, and the industry has long sought to bring together the brightest brains from around the world across various scientific, medical and other technical disciplines. Today, this approach has evolved, so that problems are tackled from multiple perspectives at once (e.g., organic chemists, physicians and regulatory scientists together) and, crucially, teams can look at the entirety of a problem in parallel (rather than in sequence).

Working in parallel may be more expensive in the short-term, but it also saves time, so that products can be brought to market faster and profit can be

returned to shareholders far earlier in the patent lifecycle. As efficiency gains remain a high priority for businesses of all types, the benefits and feasibility of such tactics may be worth considering more widely.

“Moving from serial processes to parallel processes is key to successful innovation in the biotech sector. It requires enormous boldness and bravery but the payoff can be huge”

**Pam Hrubey, Managing Director,
Crowe LLP Consulting Group**

Smart partnering

Businesses in many industries are seeing the advantages of partnering with complementary businesses to innovate and create competitive advantage, with partnerships between automotive manufacturers and tech companies being a prime example. What's different in biotech is that partnerships often focus

on spotting and exploiting synergies with rivals so that progress can be made more quickly and to increase the chances of success.

This collaborative approach between biotech companies allows them to continue to focus on what they

“Companies that can manage antitrust concerns may find that their biggest competitor can actually bring them major business benefits. And it's not just the big fish who win. Done well, it's something businesses in other industries could learn from biotech.”

Mindy Herman, Principal and Life Sciences Consulting Leader, Crowe LLP



each do well, while maximizing their chances of finding a product, getting it through testing and approval, and building their product portfolios. Irish pharma company Allergan's (ranked 14th overall) partnerships with several other companies in recent years, from a clinical data provider³ to a startup therapeutics biotechnology company⁴, among others, are cases in point. These have helped enable Allergan to become an attractive acquisition target in itself, for

US biopharmaceutical company AbbVie (ranked 56th overall).

Such partnerships can take many forms, but to make them work clearly requires robust intellectual property (IP) protections. Biotechs have become adept at crafting well-defined processes and milestones into partnership agreements so that they are mutually beneficial and the rewards outweigh the risks on both sides.

Key points to consider

In a sector so synonymous with innovation, what stands out is that groundbreaking ideas are not simply focussed on the end result: Biotechs are pioneering creative ways to arrive at those outcomes too. Driven by a desire to find cutting-edge solutions to human problems and a need to continuously look for new revenue

streams, they are harnessing appetite for investment to its fullest potential, deploying sophisticated tech tools in a transformative way, and re-writing the rule-book on processes and partnerships. All smart factors that could resonate with any business large or small, new or established, in any sector, anywhere.

3 European Pharmaceutical Review

4 PR Newswire

Top Companies: Biotech



Company	Headquartered	Industry	Overall Rank
Incyte	USA	BioTech, Pharma & Life Science	1
Regeneron Pharmaceuticals	USA	Diversified Holdings	3
Swedish Orphan Biovitrum	Sweden	BioTech, Pharma & Life Science	4
Alexion Pharmaceuticals	USA	BioTech, Pharma & Life Science	9
Supernus Pharmaceuticals	USA	Medical Equipment & Supplies	10
Biogen	USA	Electronics	12
Allergan	USA	Metals & Mining	13
Vertex Pharmaceuticals	Ireland	Electronics	14
Seattle Genetics	USA	BioTech, Pharma & Life Science	15
Ionis Pharmaceuticals	USA	BioTech, Pharma & Life Science	18



Why are US biotechs so dominant?

While most biotech/pharma companies have business strategies aimed at global markets, it's very common for them to be headquartered in the US, and to derive a large proportion of their turnover from there, which is why they are so dominant in The Crowe 100 Decision-Making Index.

Partly, this is due to different political systems, as well as to a culture of openness to new ideas and

innovation: With the US government being a major spender thanks to Medicare and Medicaid, a large, entrepreneurial health-related infrastructure has developed, supported by large amounts of venture and corporate capital. However, other major centers of "spend" include European countries like Switzerland, the UK, Germany, France, The Netherlands, Italy, Spain and increasingly eastern European EU member states like Poland.



To discuss how the art of smart decision-making can help your business email us at crowe100@crowe.org

Join the conversation on Twitter and LinkedIn using #TheArtofSmart or #TheCrowe100

For more details on The Crowe 100 Index visit www.crowe.com/artofsmart

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