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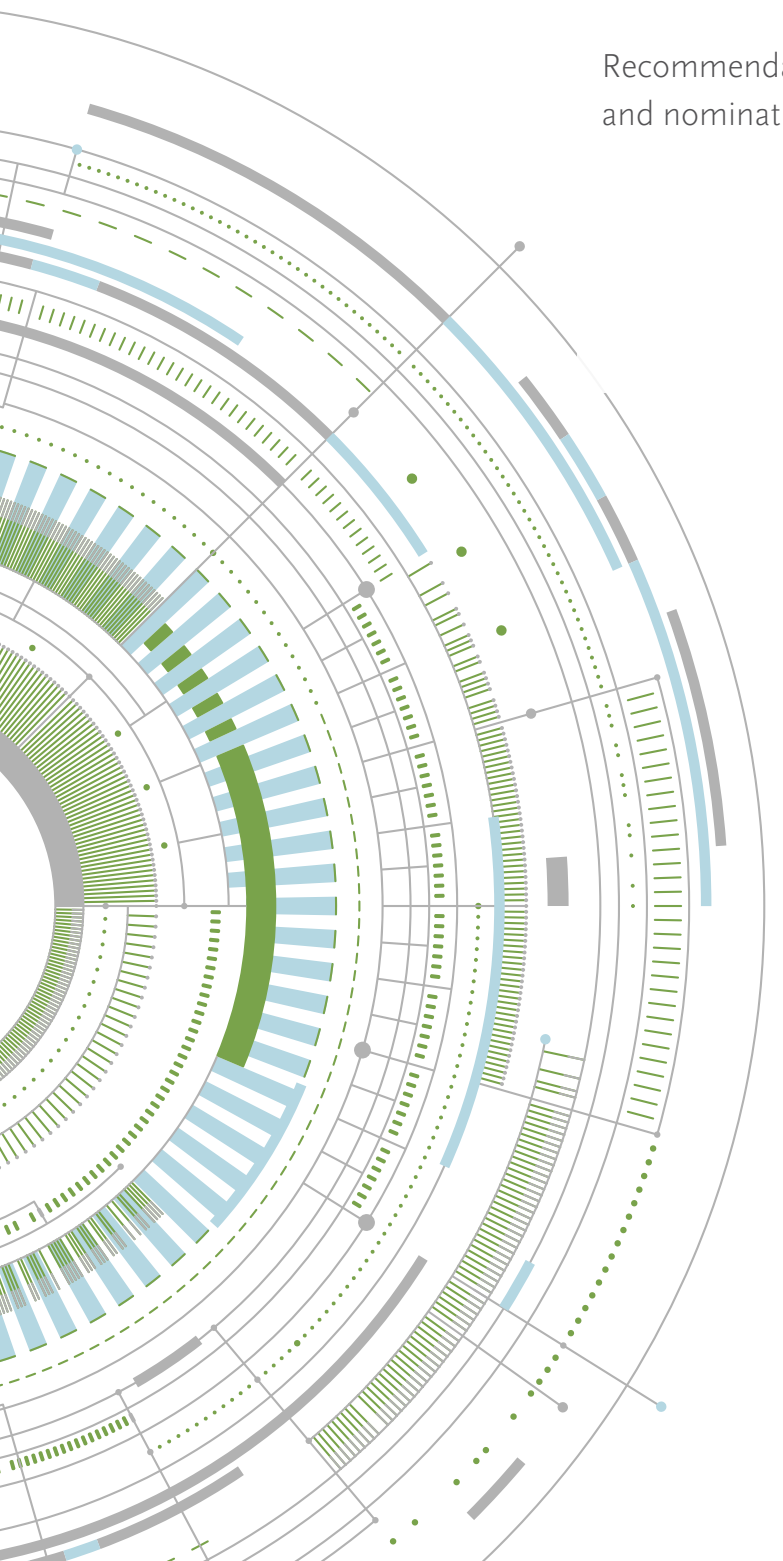
Automotive Industry

The Chief R&D Officer of the Future

Recommendations for board members and nominating committees



CHIEF R&D OFFICERS HOLD THE KEYS TO THEIR COMPANIES' SUCCESS

The supervisory board appoints and dismisses the members of the executive board. Every area of board responsibility and the people entrusted with it have a substantial share in the company's success, irrespective of the sector.

However, in the automotive industry, the chief R&D officer assumes an especially prominent role: As the person with the primary responsibility for the end product, the head of R&D represents the core of the company — its very technology. Thus, this role is particularly key for the brand, and the R&D leader's demeanor and actions carry a great deal of influence in the company's strategic focus and success.

Over the next three years, the chief R&D officer position will undergo close scrutiny, whether it's due to a potential contract extension or a reappointment. This analysis will affect a large proportion of the world's future automotive production, as well as the industry's systems, modules and components.

To ensure companies are ready for these inevitable changes, they (and their boards) need to rethink the specification criteria for this critical role. The ones who get an early start on this evaluation will gain a tangible competitive advantage down the road.

To gain a better understanding of the issues that chief R&D officers will face, we interviewed more than 30 board members, CEOs and chief R&D officers of various automotive manufacturers and suppliers as part of our executive search work. We also analyzed corresponding position descriptions and collected insights of various industry experts. Based on what we found, we developed a roadmap on how the job is likely to change, what skills will be required and the 13 competencies that will distinguish an outstanding global head of development from one who is merely good.

THE CHALLENGES AND AREAS OF RESPONSIBILITY ARE CONTINUALLY INCREASING

Executive board members are typically held to high standards, especially in terms of their personalities and leadership qualities. Chief R&D officers in the automotive industry are also facing a large number of new challenges that have to be taken into consideration for reappointments or for the appointment of new directors. To meet these challenges, they have to have abilities in the following areas:

New challenges to the development board

E-MOBILITY AND DIGITIZATION	Direction unclear — while under huge pressure to find expedient solutions in this area and pursue these successfully
DEVELOPMENT OF BUSINESS MODELS	More than mere vehicle development — also business model, strategy and additional mobility services
SYSTEM COMPLEXITY	Technical integration and command of system complexity require a networked approach to working across divisional boundaries within a multidimensional matrix
MANAGEMENT EFFORT	Increasing regulation (documents, processes, standards, etc. that will stand up in court) calls for additional management attention
SPEED	Even faster — when scouting for trends, assessing their effects and deriving corporate strategy
COMMUNICATION	Has become an even more important element of technology and innovation management. The chief R&D officer must communicate more often to create a sense of transparency.

E-Mobility and digitization

The automotive industry is facing myriad new challenges that it must stay atop, including: electrically powered, connected and autonomous cars; car-sharing and changes in mobility patterns; and the progressive digitization of the value creation chain. Coping with these dramatic developments will occupy the industry for many years to come. In many places, the direction remains unclear, but there is enormous pressure to find expedient solutions.

"In the past, the automotive industry was primarily responsible for developing vehicles, period. Today, their responsibilities are much greater."

Development of business models

In the past, the automotive industry was primarily responsible for developing vehicles. Today, they must also pay serious attention to upgrading their basic business model, strategy and mobility services.

System complexity

The technical requirements and system complexity are rapidly increasing. As a result, a networked approach to working across departmental boundaries in virtual teams is becoming everyday practice. But this new practice is taking place within a multidimensional matrix, and the reporting lines are somewhat unclear.

Management effort

The increasing regulation and escalating requirements of business partners, both at home and abroad, are fostering a trend that no longer involves merely *what* is developed, but also *how*. The resulting issues include documentation, processes and standards that will stand up in court. Cybersecurity is another pressing issue, as manufacturers must protect the vehicle as well as customer, OEM and supplier internal data. These represent a new dimension and illustrate the industry's growing complexity. For heads of development, this entails a further shift away from innovation and toward abstract management.

"Now, chief R&D officers must move fast when scouting for trends and setting the right direction."

Speed

The increasing speed within the industry has been a common theme for decades. Yet that speed, coupled with thoughtful consideration and prudence, has never been as important as today. Now, chief R&D officers must move fast when scouting for trends, assessing their effects and deriving corporate strategy.

Communication

Communication has become a critical element of technology and innovation management. The chief R&D officer has to offer more transparency while essentially acting as the "foreign minister" of his area. He needs to operate as a motivating advocate for innovation — both externally and internally — as well as being a vocal proponent for the reputation and success of the company. More than ever before, R&D leaders are outward facing.

OVER THE NEXT THREE YEARS, MANY CHIEF R&D OFFICER POSITIONS WILL BE UP FOR RENEGOTIATION

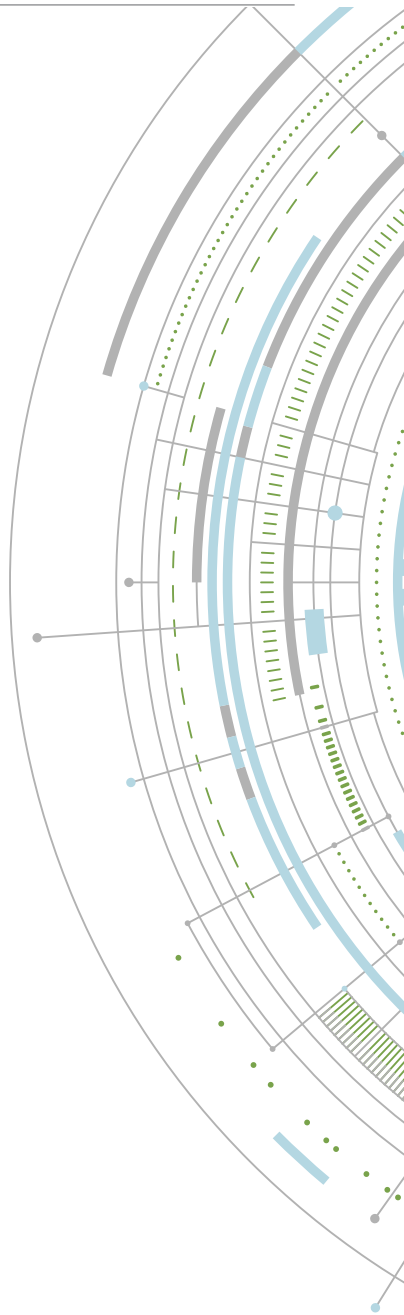
When we examine the contract periods of chief R&D officers at automotive manufacturers and the world's 50 largest suppliers, it becomes clear that numerous head of development positions will be closely scrutinized over the next 36 months (whether with respect to contract renewal or replacement). This will affect a significant share of future automotive production and the related systems, modules and components. This looming issue is clearly an important one, so companies and their boards that deal with it early and face it head on will enjoy tangible competitive advantages.

EXTENDING CONTRACTS OF CHIEF R&D OFFICERS OR MAKING NEW APPOINTMENTS ARE SUBJECT TO HIGH RISKS

Given the importance of the role, the risks involved in hiring a new head of development go well beyond those normally associated with a senior hire, but also encompass product and other associated risks.

If suitable internal or external candidates are not available, the situation can become especially complicated when a development head retires or leaves the company for the competition. Given the role's importance, a smooth transition between predecessor and successor is a priority. If the transition fails or a potential successor does not possess the desired skills, members of the board must revisit their decision quickly and decisively.

So when appointing a chief R&D officer, it is essential to clarify what the development head's tasks will be, and what functions need to be fulfilled. Given that old position specifications apply less and less, it's essential that boards state a clear starting point in terms of experience, core competencies and the desired effect.



"If the transition fails, members of the board must revisit their decision quickly and decisively."

"One way to be successful is to release superior products faster than competition."

THE ROLE AND DIMENSIONS OF THE POSITION MUST BE DEFINED MORE PRECISELY

For a company to be successful, the enterprise needs to implement change quickly. Leaders must also realize the pathway to success is found despite technical uncertainty, and one way to get there is to release superior products faster than competition. Fulfilling these tasks are the core roles of a chief R&D officer, although the position is anything but standardized. Every company has very different requirements for the role, and they vary depending on its specific phase, organization and its management constellation. That's why it's essential to provide clarity about the function and task of the role.

Shifts in key responsibilities

Heads of development will also continue to manage that position's own development area. The responsibility for the global product range includes developing competitive advantages and safeguarding — or increasing — the company's profitability. This requires providing innovative products at competitive costs, and also demands an increase in the speed of innovation.

Alongside these traditional tasks, it will eventually be even more important for the head of development to identify relevant high-risk/high-return technologies, make them accessible, and integrate them into existing or new products and solutions, where appropriate. In addition, the role of chief R&D officer is becoming more important in the strategy process, in the technological and strategic due diligence for M&A activities, in brand communications, and in maintaining external networks in research and development.

It will also be important for the leader to create an agile, startup-like culture of innovation in the development function and processes. This will enable engineers in autonomous project teams to take advantage of current market opportunities, while recruiting and retaining the right talent. In addition, R&D leaders must overcome internal barriers to innovation.

"It's important for the leader to create an agile, startup-like culture of innovation in the development function and processes."

The company organization and the executive board have a substantial influence on the way the chief R&D officer's tasks are described. The introduction of strong product-line champions, for example, narrows the role of the chief R&D officer. At the same time, new alliances are often formed: If, for example, the CMO orchestrates innovation in close cooperation with the CIO, this can have considerable influence on the range of tasks and the responsibility of the chief R&D officer.

"Strong product-line champions narrow the role of the chief R&D officer."

So in order to achieve the best results for both the company and the R&D leader, there needs to be clarity about this organizational set-up before an appointment is made.

Candidate requirements need to be future-directed

The classic selection criteria for a chief R&D officer continue to apply: Along with a proven track record of success, the R&D leader should also develop access to the most important stakeholders at executive board and board level. The chief R&D officer should also network well within the company and within the R&D department, and have many years of functional and industry experience. And because elements such as a chassis, powertrain and cooling system will continue to remain important in the future, a chief R&D officer should also have have a basic understanding of logic and technology.

Managing risks requires a minimum level of experience as well as a lack of concern about potential career pitfalls. If R&D leaders are overly worried about career considerations, they will be less likely to cope with the inherent uncertainty within the profession and be hesitant to express independent opinions. Successful chief R&D officers need to have a certain equanimity about their careers.

"Successful chief R&D officers need to have a certain equanimity about their careers."

Some board members, however, align themselves too closely with the past rather than the future, and thus fall short when describing future requirements for candidates for the chief R&D officer. In the past, the importance of research and university work often topped the priority list, but now other requirements have become more important, such as:

- Long-term development experience,
- relevant production-/operations experience,
- management skills and finance/controlling-experience,
- intercultural and language skills and
- the ability to act confidently in public.

"How much sense does it really make to insist on X years of functional experience when 30-year-old billionaires are disrupting entire industries?"

These requirements initially sound plausible, yet we have to ask ourselves how much sense it makes to insist on x years of functional experience when 30-year-old billionaires are disrupting entire industries. In this respect, the most important requirements of a chief R&D officer also include:

- Robust experience in software engineering. Previously, this wasn't part of the DNA of a chief R&D officer, but it's become a highly desired skill in today's environment.
- A proven track record of introducing new business models. This is already an important requirement, and will become even more so in future.

Even if these points are sufficiently considered, some board members are inclined to spell out specific skills or sector experience as criteria in the job description. Thus specialized knowledge can be overvalued as a success factor, to the detriment of leadership skills. Thus, the field of candidates is narrowed from the start.

"Specialized knowledge can be overvalued as a success factor to the detriment of leadership skills."

Despite how banal it might sound, being able to actually "lead" is far more crucial than understanding everything in detail. So the focus of the search has to be on finding a person with true leadership capabilities. Task force managers aren't as important as leaders and shapers of companies with a long-term perspective, who can combine a technical understanding with an appreciation of future business models. In this respect, it is might be useful to set out the core competencies required to become better and more "future-proof."

So the crucial question here becomes: What differentiates an outstanding head of development from one who is merely good?

THE THIRTEEN COMPETENCIES OF THE CHIEF R&D OFFICER OF THE FUTURE

Ideally, future chief R&D officers will be proficient in strategy, innovation and leadership. Also, it would be helpful if they are experienced change managers who are distinctly results-oriented.

"We don't need task force managers — we need leaders."

When we break down the chief R&D officer role, we find there are four key areas skill sets required. Within those four areas, there are 13 core competencies that will make an excellent R&D leader.

Requirements of the development director of the future

EXCELLENT STRATEGIST AND INNOVATOR	1. Doing unusual things and fighting for projects 2. Demonstrating excellent innovative and creative skills 3. Taking and managing risks 4. Being an important partner in the strategy discussion
OUTSTANDING LEADER	5. Being able to lead and manage 6. Selecting the right team 7. Being an excellent communicator 8. Being capable of joining in discussions on many topics 9. Covering a range of management styles
WELL-VERSED CHANGE MANAGER	10. Dealing confidently with the unknown 11. Initiating and managing change processes 12. Having and using networks
STRONG RESULTS ORIENTATION	13. Delivering on strategy

EXCELLENT STRATEGIST AND INNOVATOR

Skill 1: Is measured in terms of doing unusual things and fighting for the right projects

A chief R&D officer needs the ability to set the course for the next five to ten years, then fight for these goals. Within the leadership, there needs to be an idea of where the company is going, and which technologies will successfully lead the enterprise into the future. These should be compatible with the company's corporate strategy, or be a driving force for its development.

In this respect, the future chief R&D officer will not only identify and analyze the relevant trends with the management team, but also understand their conceivable implications and their impact on the company. For this, the R&D leader will anticipate future customer needs and translate these into specific product and business model–related requirements. Fighting for the required budget will also be an important job.

"A chief R&D officer needs the ability to set the course for the next five to ten years, then fight for these goals."

"A strong chief R&D officer must have the courage to pick out certain technology subjects and insist the company focus on them."

Skill 2: Is innovative and creative

An excellent chief R&D officer questions traditional assumptions about technology, products and markets, and also creates new opportunities and competitive advantages for the company. This quality should be accompanied by a passionate commitment to filling the development pipeline with competitively superior, innovative and marketable products.

Skill 3: Takes risks

To succeed in the position, a strong chief R&D officer must have the courage to pick out certain technology subjects and insist the company focus on them. This also, however, means deliberately not focusing on other technologies. Thus the position requires a capacity for abstraction, so the R&D leader can distinguish what will actually become important in the company's future.

Skill 4: Is respected as an important partner in the strategy discussion

The ideal chief R&D officer expertly (and emphatically) contributes to the strategy discussion by presenting the company's requisite technology and its effects on the business model. This requires a keen sense of the executive board dynamics, an awareness of the development of the corporate strategy, and above all, an in-depth understanding of the brand and its requirements.

AN OUTSTANDING LEADER

Skill 5: Is a leader who also knows how to manage

A pure manager would only control the business' day-to-day operations. It is far more important to have oversight of the strategic topics and to set out the company's direction for the future.

As previously discussed, an exceptional head of development has strong leadership qualities and can motivate people and excite them about the assignment and the major challenges. A key criterion is the ability to attain and maintain the total commitment of the management team.

"The leader must also have the ability to manage effectively within a multidimensional matrix."

Skill 6: Has a well-developed knack for selecting a team

An excellent R&D chief creates an open, honest space and allows employees to initiate projects autonomously. The development leader helps them set their strategic goals and take responsibility for undertaking their management roles independently. These steps require an organization, processes and management bodies to intensify cross-functional and global cooperation and break down internal resistance. The leader must also have the ability to manage effectively within a multidimensional matrix.

"A strong R&D officer is characterized by a confident appearance, is fully aware of the development area and can represent it well to the outside world."

Skill 7: Is an excellent communicator

A strong R&D officer is characterized by a confident appearance, is fully aware of the development area and can represent it well to the outside world. The R&D leader can convincingly show how the company will be better and faster than the competition, and can easily explain these advantages to analysts. This requires self-assurance and nimbleness on the international stage, plus the capability to convincingly articulate the company's strategy in English without the aid of powerpoint slides.

"It's essential that a chief R&D officer have broad-based, in-depth technical knowledge."

Skill 8: Is capable of joining in (almost) every discussion

It's essential that a chief R&D officer have broad-based, in-depth technical knowledge. Without this awareness, the R&D leader won't know whether specialists have properly fulfilled their assignments in the product development process, or whether they have compromised too much. It's also important that the chief R&D officer have the ability to assess a product as a whole. A R&D leader has to be able to "experience" the features of the vehicle, and pass his assessment on to the team to motivate them. This assumes mental agility, with the ability to switch topics quickly and change the level of analysis (operational vs. strategic).

Skill 9: Covers a range of management styles

Companies are seeking chief R&D officers with a backbone, who will not be muzzled and possess the courage to raise their objections. That said, they also must be able to make decisions by consensus. Equally, these R&D officers must be able to call on a range of cooperative and autocratic management elements that are in line with the phase the company is in. This requires a high level of interpersonal skills, as well as great diplomatic and intercultural aptitude.

"These R&D officers must be able to call on a range of cooperative and autocratic management elements that are in line with the company's dynamics."

WELL-VERSED CHANGE MANAGER

Skill 10: Deals confidently with the unknown

An exceptional chief R&D officer seeks out trails through uncharted territory. Going into unknown areas can be daunting, but the ideal R&D leader has the confidence to stay the course.

Skill 11: Can successfully initiate and manage change processes

An adept leader makes a commitment to whatever new direction the company has selected, and personally pursues this new line even if it contradicts common practice. It's crucial that the R&D leader not be rigid, but also incorporate new findings from pilot projects (such as: fail early, fail cheap). The chief R&D officer should communicate the new direction and the changes required with a clear rationale, and promote the future direction at every possible opportunity.

Skill 12: Is a strong networker

A skillful chief R&D officer has strong internal and external networks in technology, science, and the relevant management bodies, and is able to use them for the good of the company. This requires the R&D leader to think and act within networking categories, and entails active collaboration across functional boundaries.

STRONG RESULTS ORIENTATION

The success of a head of development can be measured by means of established criteria — for example:

- The successful realization of development projects,
- The number of new model introductions or model upgrades per year,
- The ability to achieve compliance with the SOP and stay within the budget,
- A facility with motivating the engineering managers and their teams and
- The achievement of high scores on benchmark tests.

But simply hitting these marks would not be going far enough, or would be thinking on too small a scale. Instead, what is really involved is fulfilling strategic objectives.

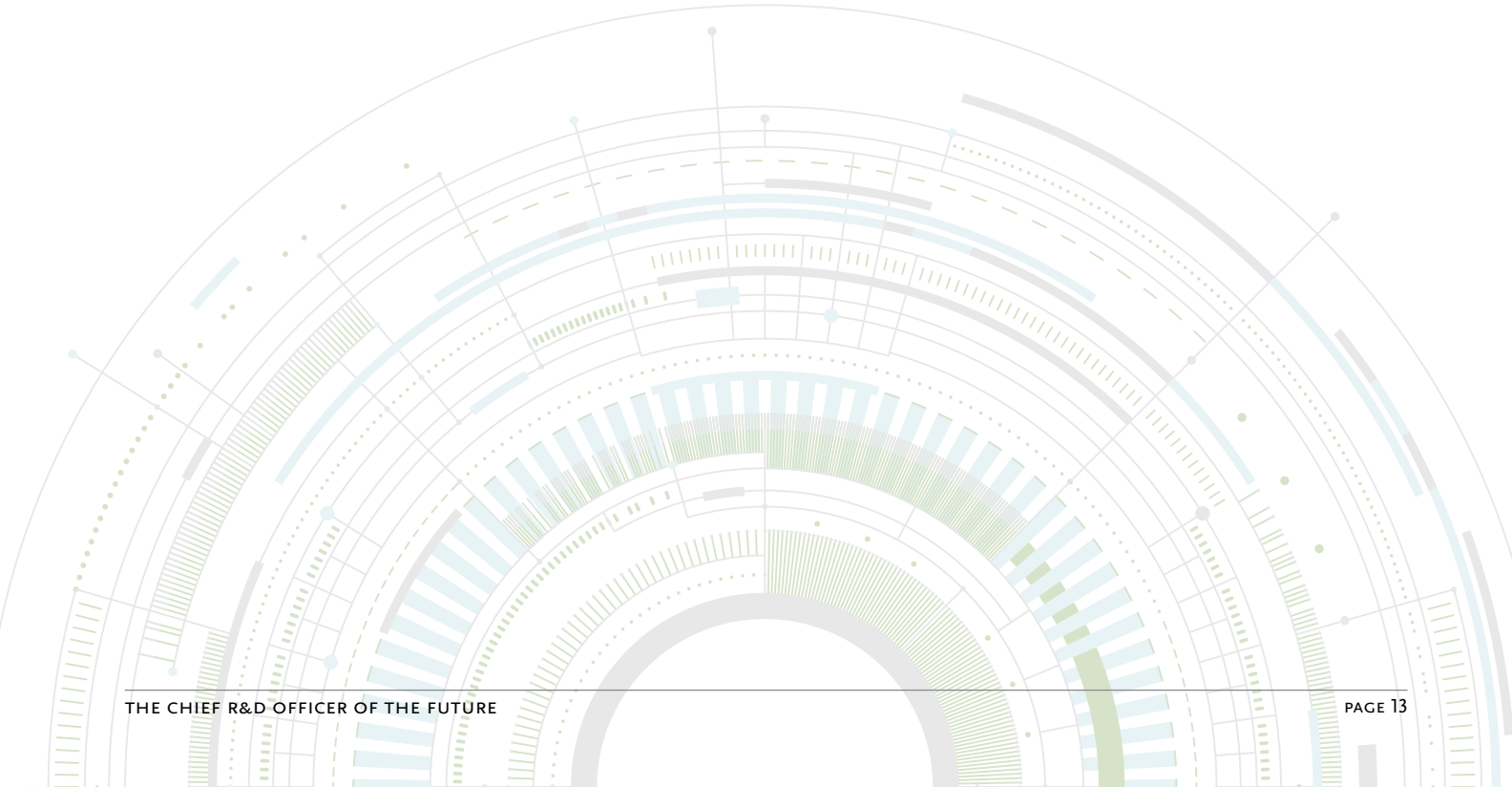
"Instead, what is really involved is fulfilling strategic objectives."

Skill 13: Delivers on strategy

Success and results are typically achieved when the right path is identified and consistently followed. If this is the case, a strategy should take concrete shape in products within two to five years. This unquestionably demands accuracy in forecasting, and also requires consistency of the technical solutions beyond model ranges, in order to realize the maximum synergies.

Overall, the success of an outstanding head of development is evident in the speed at which the right new technologies are brought into the company and into profitable products and business models. Also important is how quickly — and to what extent — technology contributes to the competitive edge and the company's results.

In short, it is a matter of the number of blockbusters realized and the achievement of the strategic objectives.



SUMMARY

Despite all the hype about digitization and disruption, what companies really need are chief R&D officers with proven general management skills and a strong background of experience in technical development.

So it is not necessarily the best engineers who should be appointed as chief R&D officers, but the person who can combine a sound technical understanding with business plan savviness.

This applies to established car manufacturers or mid-sized suppliers as much as it does to newcomers such as Tesla, Google, etc. The difference is that newcomers need to have more of the traditional automotive engineering expertise, while established companies need to rapidly develop business model expertise.

Advice to future heads of development

In our interviews, we asked board members and incumbent chief R&D officers for their advice to future heads of development. Here's what they told us:

1. Keep the future in mind and don't let yourself be misled. Fight for your believes (and your budget). And take your management team with you!
2. Work with people you trust, who give you sound advice.
3. Talk to young people as often as possible and gain an understanding of what they like. Don't just ask people in-house, in sales and marketing — you must be aware of future needs and technology trends, and then successfully implement them into the product.
4. Be open to other functions — they have expertise and a wealth of ideas as well.
5. Look at what the core of the brand is, and work on strengthening its strengths.
6. Dare to make decisions and take (more) risks.

Thank you to our interviewees

To gain a better understanding of the requirements facing the chief R&D officer of the future, we interviewed more than 30 CEOs, board members and chief R&D officers, and analyzed the corresponding job descriptions. We would like to thank our interviewees for their time and ideas.

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Ralf Landmann (*rlandmann@spencerstuart.com*)is a member of Spencer Stuart's global Industrial Practice and brings more than 25 years of industry and consulting experiences to his role. He focuses on senior-level assignments for industrial clients in Germany, Europe and at the global level, with particular emphasis in the automotive sector.

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