R&D Leadership – Part 2

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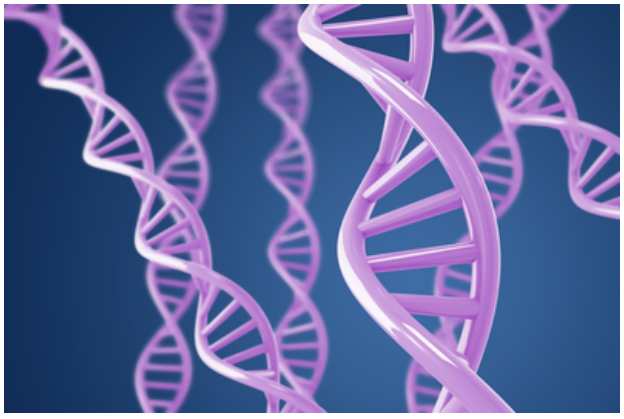
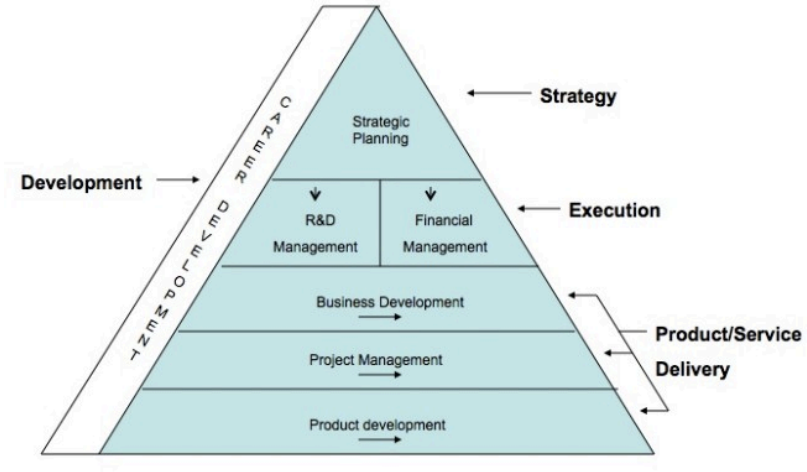


In my previous STILE POINT, I introduced the seven critical business processes essential to leading an R&D organization as shown in Figure 1. The first three processes described previously; strategic planning, R&D management and Financial Management, are vertical processes that involve developing and communicating the strategy up and down the organization, and executing that strategy to achieve business and financial goals. These are traditional "chain of command" processes that receive the most focus from management in terms of performance.

Figure 1 – Seven Critical Business Processes



The next three processes; Business Development, Project Management and Product Development are horizontal, cross-functional processes designed to deliver products and services to the satisfaction of the clients and stakeholders. These processes are considerably more difficult to manage as they involve more than one functional chain of command. The final process is the overarching process of renewal through the acquisition, development and supervision of staff throughout the organization. In this STILE POINT, we present an overview and challenges of each of the three horizontal processes and their importance to leading an R&D organization. In the next STILE POINT, we will discuss the career development process that underpins all of the other processes.

Business Development

The first lesson one learns in business school is that a business doesn't exist until the first sale is made and doesn't develop without customers. Nothing in business happens until a sale is made. The term business development has many different meanings in the business world. I am using the term broadly to define the marketing and sales process

from building awareness to closing the sale. The business development process is the first critical step in the execution of the organization's strategy and involves several cross-functional units including public relations, marketing and R&D.

Once again, there are thousands of books written on the sales process and major departments in business schools that teach it, but selling R&D is unlike any other kind of sales process and one of the most difficult to execute. Selling R&D has been excellently described in Selling the Invisible by Harry Beckwith, a book I highly recommend. Think of it this way; imagine buying a product that you're not sure exactly what you will be getting or whether or not it will work, nor can you can you try it out before you buy it; but you must begin paying for it right away with the promise that if it does work, it will be great. It's no wonder why it is so difficult to sell R&D projects either internally to management or externally to clients!

Organizationally, the marketing/public relations departments have the role of increasing awareness; i.e. communicating who the company is, what it is known for, what are its services, and the benefits of these services and what makes the organization different and special (key elements of branding). The R&D departments are responsible for driving the development of new business by building strong client relationships and selling technical solutions/products with support from the marketing department. The role of market intelligence (i.e. who is competing with similar products/services in the chosen market space and how good are they) is shared by both marketing and R&D.

Given the broad scope of business development activities and the interconnected roles and responsibilities of marketing and R&D departments, developing and executing a seamless business development process presents major leadership challenges. I have seen it work extremely well and very poorly. In my opinion, the key to success is not just the competence of the respective individuals, but their attitudes toward the two professions.

The best marketing professionals I have worked with have a deep appreciation and wonder for science and technology and enjoy working with and for scientists. They take the time to reach out and learn as much as they can from them and then use their own talents to communicate the science in a compelling way that accentuates its value and benefits to clients. They understand the value that they bring to the business development process, but never lose sight of the fact that it's not about them. The product/service is all about the scientists and their technical staff.

On the other hand, the most successful R&D scientists recognize their own limitations and value what the professional marketing staff brings to the process. They are willing to suspend their egos and be challenged by marketing staff as to why their work has value and what makes it any better than the competition. They understand that communicating what they do (i.e. selling the invisible) is extremely difficult and the marketing staff can't do it by themselves, but it must be done together. This level of alignment is rarely achieved in R&D organizations but is essential for achieving success.

Project Management

While the business development process comes first for the reasons just mentioned, the most effective business development that an organization can conduct is a job well

done. Successful organizations depend on repeat business. Since buying R&D is a highly risky proposition, clients tend to minimize their risk by contracting with organizations with a track record that they know and trust. Also, new clients will depend a great deal on referrals before purchasing R&D. Most R&D is conducted through technical projects that deliver reports, recommendations or products to clients. This is why I believe that the project management process that delivers products and services to clients is the most important of all the execution processes.

Once again, there are many academic sources and practical guides to project management, including professional societies such as the Project Management Institute that issue certifications (Project Management Book of Knowledge, PMBOK). The science of project management is well understood. The concept of work breakdown structures, ghant charts, critical path analysis and earned value that were developed to put a man on the moon and perfected on large engineering and construction projects is now used on most technical projects. In my experience, the major difficulties in executing a technical project lie not with the science of project planning (although difficult in and of itself), but in leading the project and satisfying the needs of multiple stakeholders with different needs and expectations.

The client wants his product/service delivered on time with high quality at a competitive price. The management of the organization desires the project be conducted with distinction and minimum risk and flexibility of resources while meeting the budget and making a profit. The project staff wants clear direction, sufficient time to do their work properly and minimum disruption or changes once the work commences. Regulatory agencies (i.e. EPA, FDA) demand that the work be conducted according to mandated guidelines (e.g. GLP, GMP) and environmental standards. There are a myriad of conflicts in trying to meet all of these needs simultaneously and the solutions are not contained in the textbooks or manuals! A few examples below will illustrate the point.

The first conflict oftentimes is setting expectations. During the proposal phase of a project cycle, senior marketing and technical staff make many promises in order to "close the sale". In the worst case (and I've seen it) management signs off on the proposal that commits more than can be delivered; with staff and resources that may or not be available at the start of the project; with an unrealistic budget given the proposed work scope. The assigned project manager starts his project in a deep hole that can be very difficult to negotiate out of.

Another common problem encountered is often "scope creep". This refers to changes in the conduct of the work scope caused by the client's need for additional information or experiments that involve additional costs. The client's perspective most often is that the additional work is needed to ensure success of the project or answer particular questions raised by his management and that it should be part of the original agreed upon contract cost. Your management's perspective is that this additional cost will result in a budget overrun and loss of profit unless a "change order" is issued asking the client for more money. Your project staff's perspective is that they are not willing to put in their own personal time without compensation. Resolving such a conflict is difficult and will challenge the best of project managers. On a positive note, there are solutions which we will explore in future STILE POINTS.

Another common problem is the lack of awareness of the project manager (and his management at times) to truly understand the cross-functional nature of the project management process. The project team not only consists of the project leader and his technical staff but also regulatory, human resources, marketing, purchasing, financial and billing staff. Each of these team members has an important role to play in insuring a high quality product/service delivered, invoiced and paid for on time. By focusing project communications solely on the technical staff, the project manager loses the opportunity to develop ownership in his project by the entire team and has difficulty getting their attention when their intermittent services are required.

Product Development

So far, we have been describing critical business processes of an organization's existing products or services. The lifeblood, however, of an R&D business is product development as innovation is the major differentiator among technology organizations. It is important to distinguish between technology development and product development. R&D managers lead the technology development process to harness the creativity of research staff and shepherd innovative ideas through research, development, testing and evaluation (RDTE). In my opinion the primary role of the R&D manager is to create organizational value from research and it is all about the nexus between technical expertise and market insight.

Product development on the other hand is a cross-functional process led by a marketing/commercialization team supported by R&D and finance. Product development builds on and expands technology development to include product/packaging/service innovation, process innovation, business model innovation, new relationships with customers/markets/partners, and novel operations and supply chains. The primary role of the product development manager is determining if the envisioned product/service will sell and it's all about market insights.

The staffs of these two processes represent very different cultures. Technology development staff represent homogeneous technical teams led by a research leader that deal creatively with uncertainty. The result of their work is often fuzzy unpredictable and non-linear with an end point that identifies technical feasibility or proof of concept. Product development on the other hand involves cross functional teams led by a business leader that are focused and disciplined with a sense of urgency and an endpoint of a well defined product and customer set.

While innovation is the Holy Grail for most all technology organizations and much emphasis is being placed on it, there are good reasons why it is difficult to achieve. In my opinion, innovation is more a culture than an event. The technology development process needs to be led so that creative technical staff will have the freedom to experiment, be encouraged to build an innovation pipeline of ideas and given the latitude to fail. Trying to control or micromanage this process is a sure fire way to stifle innovation.

The product development process, on the other hand needs to be closely managed so that the organization can make wise investment decisions as the costs of development increase exponentially from the technical feasibility stage to product launch. At each stage of product development, the business case must remain compelling in order to justify the next higher level of investment.

In my experience managing the hand off from technology development to product development is the Achilles heel of the innovation process. I concur with most innovation surveys by business schools that point to the involvement of senior management, even the CEO, as a key success factor in innovation. The reason in my opinion is to facilitate the appropriate handoff from R&D to marketing/commercialization and insure that the cultural transition is managed appropriately. Most importantly, since most technology initiatives are killed during the product development process, how senior management communicates the rejection plays an important role in developing the culture.

I would like to share a personal experience that illustrates this point. As a R&D manager, I championed the development of a new environmental technology that I felt could revolutionize the waste management field. After two years of technology development I presented the proof of concept to senior management who agreed to form a commercialization team to develop the business case. I led that team for over a year through the technical market feasibility studies, prototype development and evaluation, and financial modeling and presented the business case to senior management.

In the end, management rejected the idea as not fitting with its strategy. Needless to say I was upset. The very next day I was called into the office of the corporate officer who made the decision. I paraphrase his words to me: "Tony, I know you must be disappointed with the organization's decision not to proceed with your idea. You worked really hard and put together a great case for the business. Please don't be discouraged, as our organization needs more leaders like you who are willing to bring us good ideas even if we can't fund them all. I encourage you to continue and look forward to your next try". As a result of that meeting, I gained valuable perspective on the importance of leadership and how it influences organizational culture.

Dr. Tony Graffeo is the president of Graffeo & Associates, a global consulting company founded in 2007 that provides technology executives and R&D managers consulting and training on Strategic Planning, Performance Management, and Leadership Development.

Dr. Graffeo has over 35 years experience in R&D management, serving as Vice President of R&D for two internationally recognized Science, Technology, and Innovation organizations, Battelle Memorial Institute and Arthur D. Little. He was also one of the founders and Executive Vice President of Biodevelopment Laboratories, a contract R&D Company serving the pharmaceutical and biotechnology industries.

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