

Harmonizing Heterogeneity: Orchestrating Innovation through Interdisciplinary Collaboration and Strategic Alignment

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ABSTRACT

In the rapidly evolving pharmaceutical landscape, fostering innovation is paramount. This requires aligning work with organizational goals, encouraging experimentation, and embracing diverse perspectives. We propose a strategy that thrives at the intersection of disciplines, where innovation is orchestrated through interdisciplinary collaboration and strategic alignment. Our approach emphasizes problem-solving and decision-making from an interdisciplinary perspective, acknowledging the unique insights that diverse scientific backgrounds can bring to the table. By collaborating with stakeholders across different domains, we can leverage a broader knowledge base, leading to more innovative solutions. Our strategy prioritizes the empowerment of team members. By providing a safe space for expression and putting the interests of the organization first, we foster an environment that encourages innovation. Furthermore, we understand that in the dynamic field of data science, adaptability is crucial. We believe that innovation flourishes when disciplines intersect, collaboration is prioritized, and strategy is aligned with organizational goals.

INTRODUCTION

In this paper we aim to discuss the building blocks of innovative teams through collaboration and strategic alignment based on our own experience. Ours is a proposal that fits with the rapidly changing tide of innovation in the dynamic field of data science and that can be easily adapted across diverse disciplines within the pharmaceutical landscape. The strategy focuses specifically on building innovative teams by prioritizing the empowerment of team members and providing a safe space for expression and putting the interests of the organization first. In the subsequent sections, we delve deeper into the steps we took to achieve this by using a real-life example of how we married these two important aspects of innovation: empowerment of team members and interests of the organization into value creation for the organization. The term innovation is not new to the reader of this paper, and we do not intend to spend too much time defining the term. We will instead focus on the scope and diversity of innovation and why it is important to discuss this now, the importance of aligning innovation goals with the broader vision within organizations, implementation of innovation within organizational units i.e. team or department, and finally value creation through co-creation and collaboration.

INNOVATION

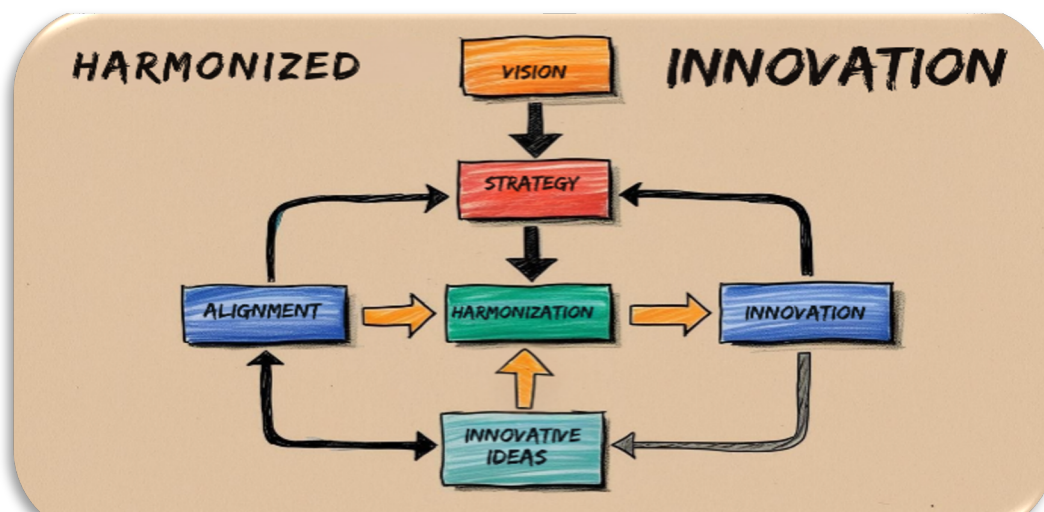


Figure 1 Harmonized Innovation

In our rapidly changing technological world, buzzwords like ‘collaboration’, ‘AI’, and ‘dynamic shared ownership’ are common. ‘Innovation’ means a new idea, method, or device. To bring innovation to organizations, we can either insource it from external creators or build it internally by fostering innovative teams, which is our focus. There are two approaches: top-down, where ideas are rolled out to teams, and bottom-up, where teams generate innovations. The latter fosters more engaged and motivated teams but must align with the organization’s vision; otherwise, valuable ideas may be abandoned, resources wasted, and disappointment. It is crucial to ensure new ideas fit within team, department, and organizational goals.

ORGANIZATIONAL ALIGNMENT OF INNOVATION AND VISION

While we know that building teams starts with great hires, let’s step back and see what is more important even before we start recruiting. In our experience it starts with having a clear vision and objective of what innovation means to the team and its stakeholders. For the early drug development space, it could mean identifying new drug targets faster and in the most efficient way. For a statistician in early phase studies, this may mean identifying the best study design to detect the most practical MTD. For a late phase study team, it might translate to confirming the efficacy and safety profiles of a promising drug and expediting access to the patients in need. Our team bridges clinical drug development operations with advanced technology and methodology, creating actionable solutions that enhance operational efficiency. It is important to realize that we cannot anticipate the actionable solutions without collaboration from our partners that translate these to clinical understanding. Our success largely stems from collaborating with end-users throughout all stages, from problem statement to MVP, ensuring adoption and solving the intended problem.

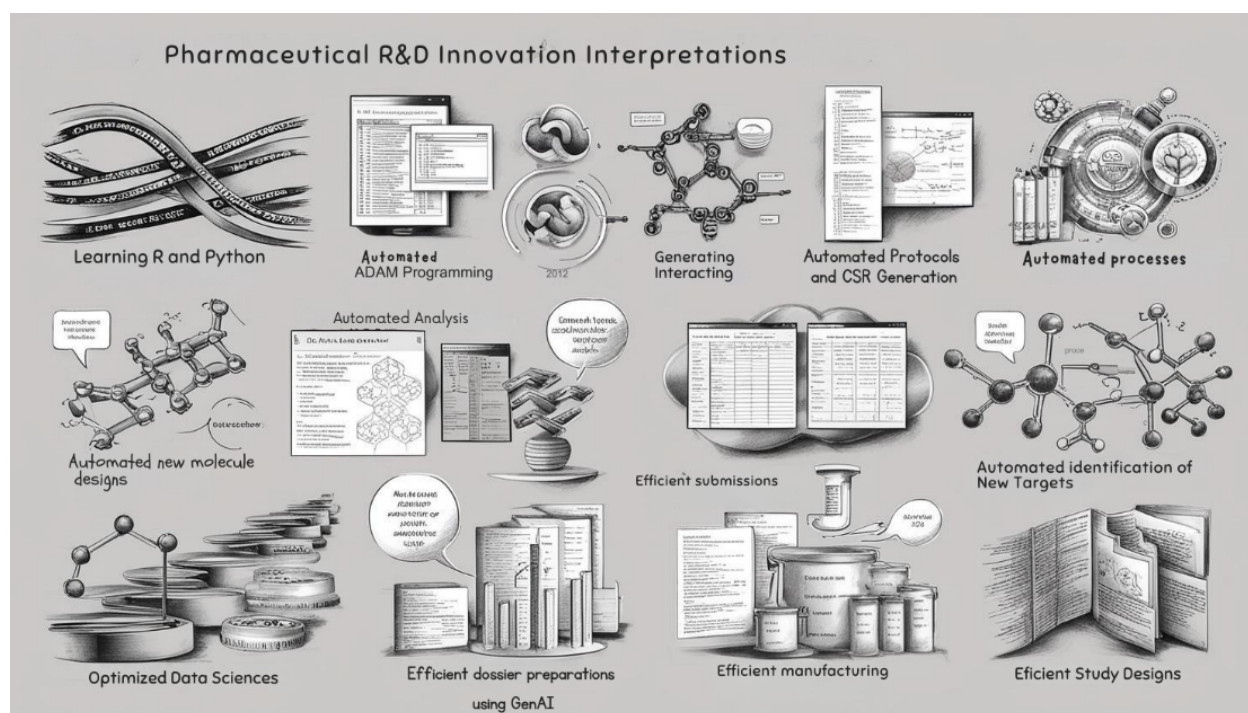


Figure 2 Interpretations of innovation in Pharma R&D (Credits: LLM)

IMPLEMENTATION OF INNOVATION WITHIN A TEAM

A. OBTAINING TALENT

Clarity in vision forms the basis of whom to hire. Now let’s investigate hiring. It is a common tendency to hire someone with similar characteristics as us. Fair enough? One or two in the team is reasonable but not all hires. If everyone in the team has the same mindset then there are fewer chances of disagreement and challenging the status quo – keeping the peace but also limiting the chance of finding unique talent and diverse perspectives. So, while having a great job description and requirements in line with our vision is great, it is important to have a diverse panel who can provide different perspectives to the hiring process. While one good hire could take the team a big leap forward conversely one not-so-good hire can equally hinder the progress. It is also important to understand the candidate’s motivation for seeking the job and assess if this is in line with the team’s vision and dynamics. Are they joining for the next title or better pay? Is this job a crucial step in their long-term career for expanding knowledge and

creating value? We determined that aligning vision and talent requires a reciprocal relationship. This means the vision should also give a compelling reason for a highly talented individual to join your team if they have multiple competing offers.

We all wish we had superheroes in our teams who could do everything from data collection, curation, engineering, database building, doing ML/AI and taking actions by understanding the domain and interpreting the results. It is not always possible to get a candidate with all these skills and even when we are lucky to come across these unicorns it may cost us more than the budget to retain them. Here is where it is critical to be strategic. We need to find a good mix of team members who could leverage everyone's strengths and fill each other's gaps. We will come to it again later in this paper, but the key reflection is once you are able to pin down the main skillset of the candidate, it should provide a good estimate of areas of development while on the job.

Once a talent has been hired, it is fair to expect minimal contributions from them for the first few months. The time can vary but most skillful hires would need approximately three to four months depending on several factors including but not limited to complexity of the role and experience of the latent. There are also compliance requirements like completion of SOPs and trainings that should be factored in during this time. Remember as a leader, you have a long-term vision and it is essential to provide enough time for new talent to understand and adapt to the environment, i.e. the people and the processes/tasks. We share a few lessons here for a seamless start:

- Assigning mentors or buddies as primary contacts helps new team members integrate smoothly.
- An open-door policy to hear all their concerns, excitements, and successes as they get familiar with their new 'home' creates rapport.
- Encourage experimentation, allow room for failure, and use coaching to address and mitigate those failures.
- Assigning real projects with minimal responsibilities, combined with hands-on practical learning and traditional learning platforms, can be effective for learning the domain. Practical learning can help overcome the learning curve efficiently.

While trying to do all these, it is critical to avoid a key mistake – rigidity.

- Flexibility to the orientation curriculum may be required, especially in global teams. In global teams, cultural differences influence how dissatisfaction is expressed—some cultures are more vocal, while others are more reserved. Those from non-expressive cultures could have internal turmoil and lose morale, if as a leader you fail to identify their internal turmoil and help them overcome.
- As a leader, understand that team members are professionals. Avoid micro-managing; guide them at a high level, empower decision-making, and hold them accountable. Failures shouldn't mean blame, but rather opportunities for them to reflect and adjust for future projects.

In a dynamic and innovative work environment, it is common for team members to take on projects that may initially seem outside the scope of their department. Trusting in the decision-making abilities of team members can lead to unexpected and valuable outcomes. For instance, a project that initially appeared irrelevant may later prove to be a significant success, gaining recognition at the highest levels of the organization. This success can be attributed to the project's foundation on new methodologies, the motivation and learning opportunities it provided, and the collaboration and co-creation with colleagues from other departments. The key takeaway is to have patience and tolerance to fully realize the potential of team members' capabilities, focusing on long-term vision rather than immediate return on investment. This should be achieved by considering the overall organizational vision, balancing both top-down and bottom-up approaches.

B. UPSKILLING AND MOTIVATING THE EXISTING TEAM

Now there is a vision, hired the best team members and are preparing them for achieving the vision. What's next?

This next step can be challenging. We are indeed working for a business and need to demonstrate value in terms of outcomes on an ongoing basis. Fostering innovation is important especially considering the value it can potentially create. Innovation does require some level of research and experimentation. It then becomes important to maintain a fine balance between how much research and exploration we do and how much time we spend on delivering the existing projects already committed at hand. A 70/30 split between projects and experimentation works well for our team, though other teams may find different proportions more effective. We have been fortunate to have the full support of our senior leadership who created the team and granted the team complete freedom to operate without questioning the ROI – we find it optimal to prepare the team to be ready to produce at least a 70% ROI which allows for the opportunity for experimentation. This is also important to attract new talent. The next generation computational scientist tends to be excited to be part of the new cool thing. Right now, it maybe be projects utilizing AI technology. Permanently assigning them 100% to one project could easily disengage them. To achieve this mix, we have extended our open-door policy to the projects as well where we have full team meetings diving into the list of all the

projects and letting folks volunteer to be part of the available projects. This kept everyone updated on the progress of other projects and the domain challenges being addressed with the latest technical advancements. We would compare this to a futuristic car like Tesla where there is a long-term vision on where we would like to take it in the next few years, incorporate key fundamental elements while building it and creating room for continued updates through software updates. This way the car keeps up and continues to evolve with the latest advancements.

As a leader, upskilling is necessary to keep up with the latest advancements and should not be optional when creating innovative teams. In addition to making sure licenses to necessary software and infrastructure are provided, giving the team opportunities to upskill by providing access to educational platforms and exposure to relevant industry forums is paramount. As leaders, it is our obligation to protect our teams by stepping up during challenging times. This requires openness to learn what the team is involved in and then connecting the dots from different industry forums to convert the needs and opportunities to real projects. This may also lead to the realization that some projects may need to be killed because they are outdated. Pet projects can hinder innovation and only by putting the interests of the organization first can we create not just innovative teams but also successful teams.

VALUE CREATION THROUGH CO-CREATION AND COLLABORATION

So far, we have seen what needs to be done within the team to foster innovation. If we just focus on this then we are not preparing the team for external challenges. There are several external factors that could impact the team's innovations. We choose to leave out the bureaucratic topics and focus on value creation for our customers and stakeholders. Never underestimate the power of collaboration with stakeholders. While design thinking values the end user's needs through a human-centered approach, gaining their trust is challenging. As data and computational scientists, we tend to overpromise to solve every data and analytical problem that the end users might be facing given our confidence in what we know. Although it is positive to think in this way it is important we present ourselves humbly. As a team you should be able to pick the right technology and methodology for the problem at hand. If you stick to a sophisticated methodology like ML and AI for every problem where perhaps it could be handled with simpler automation you might lose trust from the stakeholders. One thing to learn from sales teams of different tech vendors we have come across is that they don't try to sell their product in their first meeting with their client. They instead establish relationships with the clients by first learning about the sponsors, their culture, vision and more importantly their personalities. The same is true for our internal customers. We found building trustful relationships, educating them on the concepts they could benefit from, showing our vulnerabilities (e.g. we might not have the same level of their domain knowledge or know all the answers), and give them the confidence that we could be a good partner to achieve their goals. All these take time and we must actively look for forums to connect and engage with the end users. This is also a time to upskill our understanding of the domain by leveraging the relationships we have built, which will be a great asset when starting actual projects.

CONCLUSION

Successful teams not only achieve KPIs but also drive innovation to help organizations meet or exceed goals. Based on our experience, this paper outlines key ingredients for building innovative teams that are easily implemented. Our strategy focuses on empowering team members by providing a safe space for expression and prioritizing organizational interests. This begins with recruiting talent, upskilling and motivating the existing team, and collaborating with stakeholders. Creating a safe environment enables free expression and unleashes potential, fostering innovation. Leaders are responsible for this environment, encouraging disruptive thought, challenging the status quo, and celebrating courage without fear of failure. We suggest leaders start with coaching techniques and informal interactions such as dinners, coffee chats, and getting to know personal interests to build rapport and psychological safety that enhance workplace self-expression.



Figure 3 Orchestrating innovation

CONTACT INFORMATION

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