

Title: AI Business School – Episode 4  
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AI BUSINESS SCHOOL – EPISODE – INNOVATION: BECOMING A BUSINESS PRIORITY

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David Carmona: In 1939, World War II erupted with invasion of Poland. Within weeks, the Nazi Germany invaded entire country and destroyed the capitol city Warsaw. A new kind of war started, a war where technology played a horrible role. At the same time, the U.S. Military, led by generals who saw no need to change their methods, was preparing to bring a metaphoric knife to a gunfight. President Franklin D. Roosevelt knew this. He could see that his country stood to lose everything. He called in Vannevar Bush, a Scientist and Naval Reservist who was at that time second in command at MIT. Bush knew firsthand the frustrations of convincing military brass of the need to adopt new technologies. His experience, however, had given him the tools to speak the language of scientists and the language of generals and bring them together to spark massive change. This story is masterly told by author Safi Bahcall in his book, "Loonshots: How to Nurture the Crazy Ideas That Win Wars, Cure Diseases, and Transform Industries". As the book will tell you, that decision from President FDR dramatically changed the course of the war. The ability of Bush to bring scientific innovation, such as the radar, to the allied troops ultimately turned the tide of the war.

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Welcome to the AI Business School Podcast from Microsoft. I'm David Carmona. In previous episodes, we talked about moonshots, or as Safi Bahcall would call them, going even farther, loonshots. We discuss the innovation strategy and culture you need to foster those crazy ideas that will redefine your business in the future.

In this episode, we are going to discuss how to bring those moonshots to life. We'll see how they must overcome the hurdles of technology, funding, and even the lack of perceived value because they have a different approach. Just like in World War II when Bush had to convince U.S. generals to change their established military, innovation in your company will compete with established revenue streams. So, how do we approach that tension?

Mohanbir Sawhney: Innovation is the application of technologies, tools, platforms, and data in order to create superior customer value. So, that is my touchstone. That is my north star. That it my benchmark is at the end of the day, did we create customer value? Did we create competitive advantage?

David: That was Mohan Sawhney, Professor of Technology and Marketing at Northwestern University's Kellogg School of Management. He's touching on a very interesting point, which is the importance of balancing the awe-inspired vision of an innovator with the down-to-earth considerations of customer value and widescale adoption. Finding this balance is not

just important for tech giants with big R&D departments. But we see this conversation also taking place at companies all over the world. Here's what Deb Cupp says about what she's observing. She's the Corporate Vice President of Microsoft's Commercial Enterprise business.

Deb Cupp: We're seeing more connection to the actual specifics of a strategic priority. So, what I mean by that is they're mapping it into the strategic priorities for the organization. So when they do that, we see much better uptake and consistency around how they're executing versus those that are doing it how I would describe almost one-off.

David: In Deb's view, this different way of innovating means using an insight or actual market observations to make changes that are really impactful to how the business succeeds. Going back to that innovation story from World War II, Roosevelt gave a one-word approval to launch Bush's initiative, OK. And with that OK, he also blessed Bush with a safe haven, a place where his scientists could experiment before turning over the technology to the military. Bush used his [MUSIC] own experience with both sides to prove that the innovators could have value for the military and vice versa. But Bush got a lot of pushback. Innovators will always, always have naysayers. Change is hard. They need empowerment from the leadership to have a chance to succeed. How many times have you heard a leader talking about existing business units as those who pay the bills? How many times have you seen innovation being deprioritized because they have any conflict with an existing revenue stream? As a leader, you have to love both motions equally. Innovation has to come from the very top of the organization. This is something that Bertrand Bodson, Chief Digital Officer for Novartis, has experienced as the business has moved rapidly to use data and AI to develop its drug therapies.

Bertrand Bodson: We have made something we call going big on data and digital one of our top five priorities. We call it focusing on innovative medicine powered by data science and AI, so it's really up there. It's one that is owned by the executive committee jointly, including in all objectives, and it's something we view as essential as when you look at the next three to five years ahead.

David: Novartis has baked innovation, prioritized by their leadership, into its strategic plans.

Bertrand: You see, the commercial teams and some of our launches, especially COVID times, have been really accelerated and becoming very innovative and using very different channels where healthcare practitioners and patients were naturally gravitating.

David: Let's keep in mind as well that product innovation is different from strategic innovation. Perhaps innovation is coming from how the business operates. That's the case of Novartis. When we think about a pharmaceutical company, using AI to speed up trials to help avoid dead ends, that can save money to the tune of billions of dollars, but it also can save lives.

Bertrand: How can we cut by two plus years the time to get our drugs to market? How can we reach twice as many patients twice faster, which we convert into specific bottom line impact or top line impact? And how can we remove one to two billion of cost of the business? Not just for the cost but also for simplifying a lot of our models to be much more nimble and to be able to re-ingest that into the investment that we need it on for some of our key launches and some of the [MUSIC] research and development investments that we had.

David: These are all important questions. At Microsoft, we actually use a horizon-based framework to evaluate and prioritize our AI investments. Projects are grouped into three horizons. Horizon 1 represents initiatives that are optimizing existing business functions or products today. Horizon 2 initiatives are taking advantage of emerging opportunities that we use to improve or expand existing businesses or products. And lastly, Horizon 3 involves disruptive and innovative new business models. How can you balance your efforts across all three horizons? And how does this all fit into your business strategy? Professor Sawhney has some answers here.

Mohanbir: What that means is that your AI strategy has to begin with an understanding and analysis of your customers, the customer journey, the customer pain points. What are the flaws and problems that customers face today? And how can we address those? How can we improve their experience? So, if you keep yourself anchored to that, I think innovation will be relevant because otherwise what you can end up happening, seeing is innovation for innovation's sake. So, a lot of heat being generated but not a lot of light.

David: This is where we run into that balance of innovation versus customer desires. It is said, although not confirmed, that Henry Ford stated that if he'd listened to his customers, he would have just made a faster horse. So, how do we promote future thinking, especially when the future seems to be moving toward us much more quickly today? When you facilitate your organization's AI adoption, you need to consider how creating space for these innovations fits into your overall AI strategy and how you'll prioritize these opportunities. Like Roosevelt did for Bush an innovative organization creates safe spaces that give those crazy ideas a place to succeed [MUSIC] or to fail. Not every loonshot will make it. Sometimes a loonshot will fail two or three times before its true value uncovers itself.

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Companies need specific processes and frameworks to spark this innovation. Let's analyze Novartis's strategy in more detail.

Bertrand: We have made some specific investments into areas like one that we call the biomes. So, this is an investment we have made to foster innovation across data and digital.

David: Novartis launched four biomes across the world, and they're pinned by the deep resources that a pharmaceutical company can provide. These subject specific startups could advance their efforts and both the company and patients could benefit.

Bertrand: This is a way to make it easier for startups, for partners to work with us, so to remove a lot of the usual barriers that those partners that we absolutely need alongside us really have. We've put the right governance as well behind, so it's not a free-for-all, and so that we are systematic about our thinking. And once we embed some of our partners, we had the tools to really give them a chance to succeed.

David: The setup is very systematic and strategic, but it has also been an iterative process. While the biome helps these startups scale, Novartis has also adjusted the program, so they can achieve the results they are looking for while leveraging the nimbleness of a startup.

My colleague, Deb, talks about this.

Deb: I think that there is this really cool opportunity for small companies to move more quickly. They actually do have a large amount of data as well. So, I actually think there's some benefit in the ability for a small company to execute more quickly. They often also do have great capability people-wise.

David: And why is that? Why do startups almost always innovate quicker than big corporations?

Deb: They just have a natural tendency to think about iteration and execution in a different way than larger companies who may have a large on-premise or more challenging infrastructure that they have to deal with. So in some cases, there's an advantage to small and new. Certainly, there's also great advantages to large and big and those might come from funding or, again, just from additional capability. But I don't actually see one better than the other. I think it's just different.

David: If there's a near universal problem that organizations run into, it's something that I like to call the pilot purgatory. The problem comes when you test, which is important, but then you test, and you test and test and test and never bring it to the market. So, how do you avoid this purgatory? And if you are in it, how do you get out? What if it's not a single proof of concept but 600?

Bertrand: Probably one of the toughest things to do and that I think we haven't cracked into the pharma space enough yet is, how do we move from pilot to scale? So, we're good at being innovative by nature, but the risk is you end up with 600 different projects all over the place at a completely sub-scale. How do we have the courage to kill a lot of the 600 plus local programs that we have to make sure that we can really go and focus on the one that has the best chance of scaling across the world and faster for patients?

David: Bertrand raises an important point. Moving from pilots to production at scale is complicated. But what if we could just keep the pilot phase? We have learned this already. Software development went through a huge transformation in the past two decades called DevOps. Instead of sequentially building products, with software you can grant multiple iterative cycles between [MUSIC] development and operations. You bring the technology

and the business together in a tight loop that is constantly developing, moving to production, and monitoring, so you can learn for the next cycle.

AI's a little bit different because you have not only code, but also data and machine learning models. But the same principle of DevOps can apply here. We call it MLOps, and it's critical to scale AI innovation in your organization. Not only because it can manage the complexity of the lifecycle across multiple projects, but mainly because it allows you to accelerate the use of AI and connect it to the business immediately. That concept is extremely powerful because you can learn from how your customer is using it as you build it. Andrea Temporiti, Electrification Business Area Digital Lead for ABB was sharing with me the importance of that.

Andrea Temporiti: So if you're not 100% secure on what is the result or if you're not secure about your solution, which is even more important, typically when you approach something that is not existing, you don't know. You don't know how the customer will use that. You don't know how the customer will perceive this solution or if you're really addressing the need or maybe you need to make some changes.

David: Use that customer feedback to iterate. Your first version may not be the one that the market wants, but that can be a good thing.

Andrea: Use a technical preview to prototype this and let some customers pilot the solution and give you feedback, involve them, having a really a co-development activities and being able to engage also the known customers that you have, you may want to identify two to three customers that can help you and refine the prototype. Sometimes you have to change your services or your solution.

David: And that's okay. Monitoring the user feedback and understanding data generated by your system while you are refining it, it's extremely powerful. Andrea was telling me this one case where data was showing them insights about an HVAC system in a manufacturing facility. By looking at that data, they learned that it could shift the settings in the facility to follow the movements of the sun for its air conditioning. That saved on fossil fuel consumption and also reduced operating costs.

Andrea: We solved something like 83,000 euro a year of energy consumption in the building by fixing this and other similar issues just by monitoring the data.

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David: So, it seems like with MLOps, there are mainly benefits, well, there are challenges too. A primary challenge for a successful MLOps practice is to pick your goals. You are continuously running your AI development cycle to optimize some outcomes. Pick the wrong outcomes and the project will be a failure. Deb was sharing that with me.

Deb: There has to be a specific outcome that they're trying to understand and measure. And so when they aren't measuring—and this is consistent in any business, not just this space—but when you aren't measuring an outcome and you don't have a goal assigned with it, it's very hard for anyone to see that there's value associated with it.

David: Understanding the value, that's the key. And it brings me to the beginning of this episode. Your value will depend on the horizon that you are targeting. A common mistake is to treat a Horizon 2 or 3 project like a Horizon 1 project. Set short term goals of revenue or ROI in a moonshot and it will die as soon as it doesn't meet those expectations. Or expect a deep impact in business from a Horizon 1 project and you will create another source of frustration. Balancing short term metrics like cost reduction or revenue increase with longer term metrics is going to be critical for your MLOps to be successful. Once you master that cycle of innovation, you can scale it to the extreme. Each team can become somehow autonomous, ideating solutions, developing them, deploying them, and learning from production. That seems a lot like a startup. And, in fact, MLOps enabled big corporations to behave as smaller startups, each of them autonomous, self-sufficient, and agile. They are orchestrated by the business goals, so they build for that overall vision. But they have the flexibility to drive innovation by themselves. The full extreme of this is to empower innovation not only in each of these autonomous teams but at the individual level. Bertrand was telling me how Novartis is doing this.

Bertrand: We're doing something called AI exploration, which is at the extreme trying to build tools to get to citizen data scientists. So, how can we really do to AI what Microsoft, for example, has done to Excel to really standardize it to a certain level so that you can ingest any type of class of datasets, mix it with the right corresponding model predictively that it would be best suited for that and really put that into the hands of our team without necessarily having to be savvy on AI itself as such.

David: Now that's the ultimate realization of innovation. That's fostering an innovative mindset across the company. And it requires everything that we have discussed in this podcast series, a north star strategy for the company, a culture to enable that strategy, and processes and management to guide it, as Professor Sawhney was telling me.

Mohanbir: AI and machine learning is a transformative technology, and it is a very, very powerful set of tools. But I like to say that a fool with a tool is still a fool. So, you need to make sure that you're harnessing the potential of these tools with the right leadership, with the right culture, with the right people, the right teams and organization, the right processes for agile experimentation.

David: That transformation is not something that you will achieve in one day. Going back to Safi Bahcall's book, "Loonshots", he tells how Vannevar Bush sometimes needed to drag scientists and generals to the table kicking and screaming, but he persisted. He valued the big dreamers that were designing innovative technologies for the military but also valued a lot the generals who fought on the battlefield. By bringing them together, they were able to bring to life technical solutions that changed the course of the war. And it took time, persuasion, and persistence, and don't expect any less in your company. If it were that easy, everyone would be doing it.

Mohanbir: You're not going to achieve AI nirvana in a day. And it's sort of a step-by-step capability enhancement journey that you will have to undertake beginning with data, next going to agility, then going to production scale development, finally harnessing the power of collaboration, and getting to autonomous decisioning. So, these are the five stages of the step-by-step approach that you need to take in order to get full value of AI transformation.

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David: And with that, we'll finish this episode. Thank you for joining and thank you to our guests for this episode, Bertrand Bodson, Deb Cupp, Professor Mohan Sawhney, and Andrea Temporiti. Please visit Microsoft AI Business School at [aka.ms/aibs](https://aka.ms/aibs). You can explore in there our learning paths, one of them including much more detail in what we saw today—how to manage innovation in your organization. Thanks for listening.

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