Da Vinci's code for the Renaissance Manager *

Amboise France, 1517

I was allowed into the Château du Clos Lucé and was ushered into a big room built with red brick, like the rest of the building. The room had many windows and doors, and a fireplace on the far side and had some paintings hanging on its wall. I waited nervously, while observing the hanging paintings. After waiting for what felt like an hour, the door opened by a vibrant and cheerful looking man with white hair, a thick beard and intense eyes in his sixties who called out to me to join him in the next room. It was Leonardo, looking somewhat younger than how he is portrayed in the famous self-portrait. He broke into a big smile, as I got closer and asked, 'you are the stranger from 2019?' 'Yes, I am', I replied. 'You are welcome!' he said, as he directed me to follow him to his chamber, 'Thank you, I am very pleased to meet you', I replied, while feeling a bit star-struck.

Leonardo's chamber had a large fireplace and a table in the middle of the room. The *Mona Lisa* rested on an easel, with some wet paint in some parts as if they had been touched up only moments ago. 'It is still the most famous painting in the world till today', I remarked. 'Is that true, not *The Last Supper* or *Virgin of the Rocks*?', he asked. 'Those two are also preeminent paintings, but this is your magnus opus! The last supper has disintegrated quite a bit probably because of the methods you used in painting it, but *La Gioconda*** is arguably the most famous work of art in the world and it has been more perfectly preserved through time,' I told him.

'So what are you here to ask about?' He said. 'I can show you designs for the Ornithopter flying machine...' 'Don't bother with that', I replied. 'Man has now been flying for more than two thousand years till the present time; we have drones, different types of aircrafts, and even space crafts, but the

* Leonardo would often mirror his writing, starting from right to left

** Another name for the *Mona Lisa* painting

modern day helicopter is said to be based on your Ornithopter design and your design for a parachute was tested in the year 2000 and it worked, which is absolutely incredible for a design made five centuries previously'. 'Tell me more about the flying crafts,' he said as his face lighted up with excitement, which was no surprise, Leonardo's obsession with flight and flying objects is well documented in history. Sure! I exclaimed.

'I am here to get managerial insights from you derived from your life'; I managed to jut in, after rambling discussions in different directions and various topics. 'How do you know I know a lot about management too', he said, as his face lighted up. 'Of course you do, is there really any field of knowledge that you don't know anything about?' I asked jokingly. 'I will tell you that and we surely still have a lot to talk about your present time', he returned, 'but let us go and have dinner first, the soup is getting cold…'

An Ocean of Knowledge

"The knowledge of all things is possible."

– Leonardo da Vinci

Leonardo's statement above sounds like an overstatement, but if there is anyone in history that tried to prove the veracity of the statement, it's definitely him. Arguably most well known as an artist, but his brilliance spanned multiple disciplines including: painting, inventing, sculpting, architecture, aviation, music, mathematics, zoology, engineering, anatomy, geology, astronomy, alchemy, botany, philosophy, and linguistics. He was the archetypal Renaissance Man.

He was a polymath who was curious about all things. Peter Drucker described him as: "The greatest inventive genius in recorded history was surely Leonardo da Vinci. There is a breathtaking idea—submarine or helicopter or automatic forge—on every single page of his notebooks."

As described by biographer Walter Isaacson, Leonardo's genius was not solely based on an extraordinary innate ability like Newton or Einstein, but based on intense curiosity and observation driven by his personal will to learn and make up for his lack of formal education. But interestingly, Einstein himself was quoted to have said: "I have no special talent. I am only passionately curious." And when Peter Drucker was asked how he was able to consult successfully for various leaders of governments and top company executives around the world, he replied: "It is not my knowledge and experience, but my ignorance and lack of experience. I ask questions." The Renaissance Manager does not need to have all the answers, but she needs to be curious and always ask the right questions.

Machines and Specialization

Leonardo was a foremost inventor and his letter to Ludovico Il Moro, the Duke of Milan at the time contained descriptions of various machines, especially of military use which he could design for the Duke.

Machines are the exemplars of specialization, from the very simple to the more complicated ones. They are usually very good at what they are designed to do, possibly much better than humans in many cases, but not exceeding that realm into other functions; so a car navigates on roads but does not fly, and a plane flies in the sky, but does not navigate in water. With automation and Artificial Intelligence (AI), this trend will likely accelerate and more jobs in specialist and narrow areas are likely to be taken over by these systems. However, these systems are sometimes susceptible to errors because of their inability to see the big picture beyond their narrow design context.

Consider the unfortunate and fatal Uber self-driving crash in 2018, where a woman walking her bike across the road was killed. Preliminary investigations revealed that part of the causes of the accident was because the car initially had difficulty identifying what was in front of it, probably due to plastic bags hanging off the handlebars of the bike, which momentarily

confused the autonomous car (while its ability to apply the brakes on its own was disabled and the human supervisor driver was distracted). This misidentification, is an error even a kid would not make as soon as she is old enough to identify a bicycle.

The is part of the argument of experts that insist that human judgment and oversight is required over automated systems in order to avoid such errors. And these errors are especially dangerous because they are usually at a large scale in AI-enabled systems.

Playing to Human strengths

> "To know and to will are two operations of the human mind. Discerning, judging, deliberating are acts of the human mind." — Leonardo da Vinci

David Epstein described human's greatest strength as the ability to "integrate broadly", the exact opposite of narrow specialization. This is because human beings are capable of cognitive flexibility and adapt more readily to different situations, and the more a task shifts to an open world of big picture strategy, the more humans have to add. Gary Marcus, a professor of psychology and neural science summarized it perfectly thus: "In narrow enough worlds, humans may not have much to contribute much longer, In more open-ended games, I think they certainly will. Not just games, in open ended real-world problems we're still crushing the machines."

Continuing with the autonomous car analogy, despite significant progress in this field, experts still estimate that there is still some way to go before we get a Level 5 (L5) self-driving car that is capable of self-navigation anywhere in the world, whether it is downtown Manhattan, Lagos Nigeria or Delhi India and at all times of day and conditions of weather: fine, foggy, rainy, or snowy. The complexity resulting from this wide array of conditions is messy and difficult to surmount because there is almost an unlimited amount of

unpredictable or 'edge' situations that may present itself to the L5 self-driving car at any point in time.

Evaluating the big picture and applying judgment is a human strength as man is generally comfortable and adaptable with this 'messiness', but not only that, it sometimes even flourishes in it. And this ability is usually improved by multiple experiences, especially across different fields.

A Call for more Polymath Managers

"To develop a complete mind: Study the science of art; Study the art of science. Learn how to see. Realize that everything connects to everything else." — Leonardo da Vinci

Specialists are still required in business and other fields, especially in suitably narrow areas that require and thrive on specialization, given the increasing depth of human knowledge. Whether these roles would get automated with time is another discussion. The problem however, is the undue precedence usually accorded to specialists over polymaths in general.

Peter Drucker, himself a polymath, advocated mastering different disciplines in order to become a successful manager, he said: "Management, similarly, has a substantial number of foundation disciplines. A successful manager must know a fair amount of psychology, for instance; a fair amount of economics; a fair amount of statistics - which, by the way is the one area where most executives today are most deficient." Drucker believed that business regularly presents moral choices and he recommended that management should be taught as a branch of the liberal arts and not as a pseudoscience. He stated: "Management is thus what tradition used to call a liberal art—"liberal" because it deals with the fundamentals of knowledge, self-knowledge, wisdom, and leadership; "art" because it is also concerned with practice and application. Managers draw on all the knowledges and insights of the humanities and the social sciences—on psychology and

philosophy, on economics and history, on ethics—as well as on the physical sciences. But they have to focus this knowledge on effectiveness and results—on healing a sick patient, teaching a student, building a bridge, designing and selling a 'user-friendly' software program."

This sentiment was echoed by the late Steve Jobs, one of the greatest business minds of recent times who ascribed Apple's distinctiveness to intentionally marrying the liberal arts and the physical sciences in order to obtain the best ideas from this cross-disciplinary outlook when he said: "Part of what made the Macintosh great was that the people working on it were musicians and poets and artists and zoologists and historians who also happened to be the best computer scientists in the world. It is in Apple's DNA that technology alone is not enough – it is technology married with liberal arts, married with the humanities, that yields us the results that make our hearts sing."

Polymaths thrive in many situations, as the knowledge we acquire compounds, so we are able to apply prior knowledge even in a new and unrelated context. This cognitive flexibility enables us to take skills and apply them across jobs or fields. Leonardo and other Renaissance artists were said to have used their knowledge of human anatomy to help them depict the human body more accurately and compellingly. Therefore, the Renaissance Manager is should embrace any and all types of knowledge, and avoid tunnel vision within narrow specializations. This is not a waste of time or disadvantage, as Leonardo's quote above states: 'Everything connects to everything else!'

All we have talked about resonates strongly with me, I told Leonardo, as I have an undergraduate degree in petroleum engineering, worked for an oilfield services company on oil rigs as well as in sales, I thereafter went to business school for my master's degree and I am currently doing a doctorate

degree in Economics and Business. My unusual background helps me to see things from a slightly different perspective compared to if I had progressed from the same field and also enables me to apply skills like coding which I am very comfortable with due to my engineering background to business problems.

'I am glad you came', Leonardo replied; I wish I could take the journey into the future with you. 'I wish you could too', I replied, but if it is any consolation, your vast mind has the capacity of going anywhere it wants, up to our time or even further ahead of our time. Thank you for all the insights and knowledge you have shared with me! You are an exemplar throughout history, and there are several lessons in your life for the Renaissance Manager.

Epilogue

Buzzzzzzzzzzzzzzzzzz!

I instantly woke up as the notification and vibration of a new message on my phone rang out. I had forgotten to switch it off before going to bed as I normally do, I checked the time and it was 03:30am. Aaagh! It was all a dream, but what a magical dream that was? I switched off the phone in order to continue my sleep and hoping to continue where I left off with Leonardo…

"Why does the eye see a thing more clearly in dreams than the imagination when awake?" — Leonardo da Vinci

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