

# Sales enablement, Leonardo da Vinci and the Industrial Revolution

01

*Realize that everything connects to everything else.*

LEONARDO DA VINCI

I had a sales enablement moment in France when I paid a visit to Leonardo da Vinci's last residence at the Château du Clos Lucé. Perhaps it is strange that when everyone else was simply in awe of Leonardo's imagination, I was thinking about how to market and sell his inventions. But that moment of hypothesizing while standing in his study was the inspiration for this book.

Leonardo used his imagination to design machines that wouldn't be manufacturable for almost five hundred years. I marvelled over his drawings (the flying machine, the automobile) and some of his fearsome military inventions (an assault chariot, a machine gun, a steam canon). As a marketer, I kept wondering: *If he had been able to bring these machines to life and make them work, how would he have marketed and sold his incredible inventions?* How would he have explained the complicated features and benefits in a way that nobles, kings and wealthy merchants could comprehend? What would his show-and-tell demo have looked like? What kind of visual content would he have created to convey his message without the resources to create prototypes? If he had been a savvy business person, would

he have built a company, hired a team and dispatched them to different kingdoms and territories to promote his inventions?

Leonardo was so ahead of his time that he was creating objects no one had ever envisioned before, let alone knew how to use in a practical sense. Standing in his study, I contemplated a series of sales and marketing efforts that I'd implement (I imagined myself as his Chief of Staff or VP of Sales or Chief Marketing Officer) if his ideas became viable products that could scale. And the term 'sales enablement' kept popping in to my mind when I was strolling through the Clos Lucé. Wouldn't it be fun to help Leonardo assemble and enable a sales team and sell his creations? *Suddenly, I got excited.*

Then, I asked myself a hypothetical question: 'Would it have been possible to successfully sell Leonardo's creations in his era, the early sixteenth century, if the products were manufactured and a sales team were properly trained?' Well, humans have been selling and buying 'things' and 'stuff' for thousands of years. Selling is not an issue; the issues are the products and buyers.

### 1.1



Then the next two questions came to my mind:

**Are my products relevant?** During Leonardo's time, most of the goods in transactions were products people needed to eat, wear, live or travel. Although transactional products may also have included art, music and different forms of entertainment or even weapons, products existed to meet their daily needs. Obviously, most of Leonardo's creations were so advanced that they were not directly relevant to people's personal or business essentials.

**Are my buyers ready?** The so-called 'technologies' used during that time were winches and wedges. Until Leonardo's death in 1512 people still believed that the Earth was the centre of the universe. Galileo didn't publicly announce his belief that the Earth orbits

around the Sun until 1632. Acceptance of out-of-the-box thinking and new products was low. And the pool of potential customers that could afford luxuries was small.

As much as I was excited about marketing and selling Leonardo's creations, I quickly analysed the possibilities in my mind and recognized the chances of success were very low. I could convey his vision and put a sales enablement team together to support a sales team that was ready to sell the products, but the products didn't solve the buyers' immediate challenges and the whole ecosystem wasn't ready. I sighed. Leonardo's ideas would remain only ideas in his era.

## Then came engines... powered by steam

The tipping point for technology was the Industrial Revolution in the 1700s. For thousands of years, steam from boiling water evaporated in the air, wasting its potential energy. Nobody thought too much of it until Denis Papin. He successfully confined the steam until high pressure was generated, then used a safety valve he invented to release the steam as energy to enable a cylinder and piston to move back and forth. Thomas Savery, a military engineer, saw the challenge of pumping water out of coal mines when the mines became progressively deeper. In the early days, one conventional way of removing water from mines was to use a series of buckets on a pulley system operated by horses. It was slow and expensive. Savery created a steam-powered water pump to remove water from mine shafts in 1698. 'An energetic advertising campaign brought him customers, and he manufactured a number of his engines not only for pumping out mines but also for supplying water to large buildings,' according to the *Encyclopedia Britannica*. It was clear that he was a brilliant inventor as well as a savvy businessman. Savery's water pump had several disadvantages: it could only draw water from shallow depths, and boiler explosions were common due to the primitive design. Savery's version of the steam water pump reminds me of modern start-ups' minimum viable product: the product is good, but is not good enough to scale.

Back in the early 1800s, technology improvements moved at a much slower pace than they do today. Savery certainly didn't have any financial backing. It took another twelve years, until 1712, for the next generation of power pump to come to market. Thomas Newcomen,

who is widely credited as the inventor of the steam engine, was an ironmonger (aka blacksmith) by trade. His ironmonger's business included designing, manufacturing and selling machines and tools to the mining industry. His biggest customers were coal-mine owners in Cornwall. Coal-mine owners complained vehemently to Newcomen about the same issue that Savery tried to solve: pumping water out of coal mines. As any salesperson would tell you, the biggest opportunities lie in solving their customers' biggest challenges. Newcomen set out to solve his customers' water pumping challenges by further modifying and improving Savery's design. 'Newcomen's version worked 12 strokes per minutes, raised 10 gallons of water from a depth of 156 feet. The engines were rugged, reliable and worked day and night which is a key factor to make them hugely successful.' Unfortunately, due to Savery's broad patent, Newcomen was forced to partner with Savery to sell his product, despite significant design differences. By the time Newcomen died in 1729, more than one hundred of his steam engines were installed in Britain and across Europe.

Although Savery and Newcomen created a steam engine water pump for coal mining, James Watt took it to the next level by further optimizing their design and inventing a rotary motion for the steam engine. This design could easily apply to other industries such as textiles, paper mills, cotton mills, distilleries, transportation and more. Watt was lucky that he had the financial backing of Matthew Boulton. He had the grand vision of steam engines being employed in almost every industry to enhance productivity. He even applied steam power to coining machinery. He supplied coins for the East India Company and sold machinery to the Royal Mint. By 1800, when Boulton's son took over the business, almost five hundred steam engines were working in Britain and abroad.

More than one hundred of Newcomen's and almost five hundred of Watt's steam engines installed across Europe doesn't sound like a lot in today's terms, but it probably covered all the major mining companies and key industry players in various industries at that time.

Since there was no Silicon Valley venture capital investment infrastructure back then, it took three different people over sixty years (Savery's machine in 1698, Newcomen's design in 1712 and Watt's commercialized design in 1765) to perfect the design and

get it adopted by various existing industries. Yet this technology, steam engines, almost single-handedly led to the acceleration of the Industrial Revolution that also guided the invention of new industries such as steam boats, steam trains and massive assembly lines for manufacturing factories for the next two hundred years.

## Did we need sales enablement to sell the steam engine?

Steam engines, like Leonardo's creations, were something new. Business owners had never seen the steam engine before, but the key element to success was that the products were relevant and the customers were ready. It was an easy sell for two key reasons:

**It was easy to show and tell.** Although it would be hard to explain the technical features to proprietors or business owners and most of them had never seen these machines before, a quick show-and-tell or demonstration easily showcased the products' immediate benefits.

**It was easy to quantify savings.** It was also easy to explain and quantify direct cost savings. A mining owner at Griff in Warwickshire needed to employ 500 horses and spent £900 a year to feed and care for the horses in order to drain the water from a deep mine. Business owners could quickly calculate the savings of installing a steam-engine water pump based on the rate of water drainage and cost of maintaining the machines and horses. Even though the up-front cost would be high, the decision was a no-brainer.

### Remember

Sales enablement may not be necessary when

- the customer's pain point is acute
- product is relevant to address the pain point
- it's easy to show-and-tell
- it's simple to quantify savings

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Despite technology being complicated, involving many components and being challenging to assemble, selling is not difficult if the products are solid and readily solve end users' pains. The steam engine was the right product at the right time. Since the inventor was also the owner, sales manager and maintenance person, the selling process was a lot easier. A separate sales enablement team wasn't needed to sell steam engines.

## **Selling became complicated after the Industrial Revolution**

Alvin Toffler's book *The Third Wave* refers to the Industrial Revolution as the Second Wave. The First Wave was the agrarian revolution during which humans moved to agriculture-based communities from the hunter-gatherer phase. Because of the invention of the steam engine, for the first time in history, humans made the transition from hand-production to machine-production and from manual manufacturing to mass production.<sup>1</sup>

The shift from manual to mass production had a significant impact on almost every aspect of people's daily lives. The factories required massive manpower. Therefore, more and more people left their villages and moved near factories to work, which indirectly formed cities and suburbs. The formation of mega-cities and suburbs led to the creation of 'super' stores. These, in turn, changed how people shopped and purchased products. To improve the cost competitiveness of their products and increase overall margin on items with elastic demand, owners of factories pursued more automated and efficient machines. More machines meant a gigantic pool of upfront capital, which indirectly created the demand for the stock market and banks. The Second Wave created massive, interconnected and complicated systems to manufacture, finance and distribute products to satisfy people's new needs. There are three key elements that impacted the complexity of selling:

### ***Machines powered by machines***

The Second Wave pushed technologies to a new level. It spawned gigantic electromechanical machines, moving parts, belts, hoses,

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bearings, and bolts – all clattering and ratcheting along. According to Toffler, these machines ‘could hear, see, and touch with greater accuracy and precision than human beings. [Humans] were able to invent machines that give birth to new machines in infinite progression.’ Suddenly, selling newer technologies is powered by existing technologies.

### ***Expanded sales channels***

Before the Industrial Revolution, most goods were made by hand and were manufactured on a custom basis. Some goods, such as tea, spice, silk, etc, were distributed by merchants. They opened trade routes around the world, organized by convoys of ships, wagons and camel caravans. The distribution was more linear. After the 1700s products and goods were delivered by sea, railroads, highways and canals. In addition, cities and suburbs created the demand for large-scale outlets such as department stores and supermarkets. Complex networks of wholesalers, commission agents, resellers, channel partners, distributors sprang up. Sales teams needed to engage with different layers of buyers.

### ***The formation of corporations***

‘As recently as 1800,’ says Toffler, ‘there were only 335 corporations in the United States, most of them devoted to such quasi-public activities as building canals or running turnpikes.’ The rise of mass production changed that completely. Merchants and investors formed corporations to limit their liability and the court treated corporations as ‘immortal beings’. Therefore, they could make long-range plans, issue stocks or borrow money and invest capital to build more massive production lines. This introduced a less direct sales process in which a team of buyers acted on behalf of corporations. Industrial marketing was a new requirement, which eventually came to be called business-to-business marketing (B2B).

The ramifications of the Industrial Revolution were profound. No one could have predicted the rippling effects of a steam engine, just as no one would have predicted the impact of social media on language development, modern politics and human interactions. The steam

engine impacted how people lived, how purchases were made, and how products were distributed, which led to other changes with further impacts. Those impacts currently include how organizations sell and market their products. In addition to selling directly to potential buyers, a salesperson may need to engage with other channel partners such as wholesalers, resellers, retailers, distributors and trade reps to complete sales. Rather than selling to one decision-maker, sales reps may need to sell to a team of employees in a corporation – a task made more complicated as the products and services became more complex and difficult to comprehend.

## Fast-forward to the computer era

According to Oxford Dictionaries, the word *computer* has referred to a person since 1613, to a machine since 1869, and to an electronics device since 1946. Toffler has an interesting analogy to describe how technology begets technology. Toffler stated that humans ‘gave technology a womb, by inventing machines designed to give birth to new machines in infinite progression’. Once humans discovered that they could mix and match different components to create new machines and tools – *BAM!* It steadily moved us to the Third Wave, the Information Age.

Ironically, the pace to the Third Wave was also accelerated by World War II and the space race between the United States and the Soviet Union. In order to help break encrypted German military code, the British built the world’s first electronic digital programmable computer, Colossus, in 1944. To calculate artillery firing tables for the US Army, John Mauchly and Presper Eckert at the Moore School of Electrical Engineering of the University of Pennsylvania built the Electronic Numerical Integrator and Computer (ENIAC) in 1945. ENIAC could add and subtract five thousand times a second, a thousand times faster than any other machines at that time.

From the 1950s onward, computing made lightning fast improvements compared with the Second Wave. The fascinating history and major milestones are available on the Computer History Museum website, which includes the Timeline of Computer History.<sup>2</sup> You can see

all the major milestones and inventions by year. They cover most of the major technology milestones and inventions since 1933.

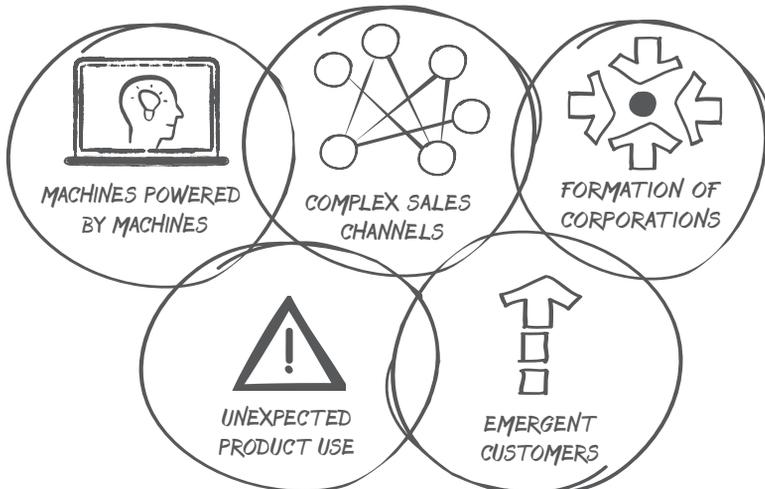
Sitting in front of my computer, I was browsing through inventions throughout the years on the Timeline of Computer History. If Leonardo da Vinci had been born in the twentieth century, he would fit right in and have the time of his life! He could have taken technology to another level. Just as I was marvelling at Leonardo's creations in Clos Lucé, I was mesmerized by the plethora of innovations over the past eighty years. A question popped into my mind: how could I sell and market new technology-based products? Is sales enablement necessary to sell these innovations?

## Sales enablement is ready for prime time

We have come a long way. Just as steam engines created interconnected social systems that changed every aspect of people's lives, big data, artificial intelligence and connected devices will have unforeseeable consequences for years to come. More data was created in 2015 and 2016 than the previous 5,000 years.<sup>3</sup>

I mentioned the three key elements that impacted selling after the Industrial Revolution. They are still valid, but they are morphing along with technologies and customers:

### 1.2



**Machines powered by machines:** This is quickly transforming into artificial intelligence. Google, Facebook and Uber are training their computers and servers to anticipate our needs with massive amounts of data that we share through their tools and applications.

**Complexity of sales channels:** Sales channels continue to be fragmented. E-commerce is another sales channel; we can easily incorporate 'buy' buttons into various social channels. There are many sales channels to reach out to your customers and complete sales with or without a sales team.

**Formation of corporations:** The Internal Revenue Service (IRS), the US tax collection agency, received 32 million business tax return in 2016. The number of companies and enterprises will continue to grow worldwide. And there are a large number of technology-based start-ups created every year. Many of those start-ups are either acquired or merged with other companies. The way you sell to a merged or a new company may need to be different. It makes the sales process even more challenging.

There are two additional key elements to consider:

**Unexpected usage of your products:** Sometimes you create products for a specific use, but your customers use your products in a different way, which creates new sets of customers. The barcode was originally used for tracking inventory but now we see it being utilized extensively for ticket tracking at events, concerts, movie theatres and even for travel. The YouTube website is not simply a video uploading site; it has become an education destination used to acquire new skills and obtain new knowledge.

**Emergent customers from new and existing verticals:** Your products may create new verticals and new accounts that you don't initially know how to reach. A company that manufactures touch screens intended for smartphones may recognize that the same technology can also scale to other existing verticals such as TV, medical devices, computer and automobile segments. Touch screen technology can also be meshed with augmented reality (new vertical segment) as a

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dual-purpose TV monitor and mirror at retail stores so that shoppers can visualize how clothes will look on them without trying them on. With new technologies, opportunities are endless.

### **Remember**

Key elements that impact selling after the Industrial Revolution

- machines powered by machines
- fragmented sales channels
- growth of new companies
- unexpected usage of products
- creation of new verticals

I also mentioned earlier that the products need to be relevant and the customers need to be ready. However, these two rules are changing in the twenty-first century. Many new products were created when they may have seemed irrelevant and the customers were not ready. Think of the PC. When the personal computer was created, it didn't immediately take off. From Xerox Alto in 1973, MITS Altair 8800 in 1975, Altari 400 in 1978 to IBM PC in 1982, different versions of PCs didn't seem to be relevant and customers were not ready. It took about 17 years for the PC (from 1973 to 1989) to hit 50 million units in the US. The pace was much faster for the iPhone. It took less than four years to hit 50 million units worldwide.

Eric Schmidt, Executive Chairman of Alphabet and former CEO of Google, said it nicely: 'I spend most of my time assuming the world is not ready for the technology revolution that will be happening to them soon.'<sup>4</sup> Even though the world is not ready, you can still create demand for your products and educate your customers to make them ready, but the lack of demand or customer readiness should not stop you from experimenting and piloting new products and technologies. If you are selling technology products or exploring new product categories, sales enablement is especially critical to the success of the sales team. It takes a village to sell technology.

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With so many different moving pieces, technology selling is harder than ever before. Your sales personnel are like soldiers on the front line. As they move forward, the supplies of food, fuel, tools and logistics need to keep up with the soldiers in order to enable them to achieve their final objectives. Sales enablement are the supply team that stands behind the sales team to make sure they have everything they need. Sales enablement, along with sales processes and sales methodology, is finally ready for prime time.

### What you can do

- 1 Describe your company's sales processes and sales methodology.
- 2 Define sales enablement in the context of your role and your company.
- 3 Based on your understanding of sales processes and methodology, and your own definition of sales enablement, identify three areas in which you can further help your sales team.

## Notes

- 1 Alvin Toffler. *The Third Wave*, Bantam Books, New York, 1980
- 2 Timeline of Computer History. [www.computerhistory.org/timeline/year](http://www.computerhistory.org/timeline/year)
- 3 Richard Harris. More data will be created in 2017 than the previous 5,000 years of humanity. 23 December 2016. [https://appdeveloper magazine.com/4773/2016/12/23/more-data-will-be-created-in-2017-than-the-previous-5,000-years-of-humanity-/](https://appdeveloper magazine.com/4773/2016/12/23/more-data-will-be-created-in-2017-than-the-previous-5,000-years-of-humanity/) [Blog] App Developer Magazine
- 4 M G Siegler. Eric Schmidt: every 2 days we create as much information as we did up to 2003. TechCrunch, 20 November 2010. <https://techcrunch.com/2010/08/04/schmidt-data>