

Selectronic: Facing Disruption Due to Artificial Intelligence

Jaydeep Mukherjee

Abstract

This case unfolds the different dimensions of an Indian corporate named Selectronic India. Selectronic India is engaged in graduating to a higher value delivery of medical records review and advice and maintained a frugal organization to turn around his business. The present case has demonstrated the issues of sustainably by highlighting Artificial Intelligence (AI) based solutions including medical records review and advice for lawyers. In the near future, AI could do all the work that his company was doing, at significantly lesser costs, and with greater accuracy. This case might be very much useful in understanding business transformation, diversification and sustainability with AI.

Keywords: *Artificial Intelligence, business transformation, remote coaching of cricket, high-value solutions, Business model*

Article Classification: Management Case

Veer Sagar, CEO of Selectronic India, was extremely satisfied with the results of the company in the financial year 2017-18¹. On 20th of April 2018, his entire team of 25 employees was celebrating the performance. Veer also felt happy that his company had successfully weathered the crash in its data entry driven medical and legal transcription business for US-based clients during 2014-16. In the last two years, he had invested in understanding the evolving needs of his own customer base, modified his business model to graduate to a higher value delivery of medical records review and advice, and maintained a frugal organization to turn around his business. However, rapidly evolving technologies made him seriously worried about the future prospects of a value proposition that Selectronic offered to its clients, and its core competency.

Veer was particularly concerned with the developments in artificial Intelligence (AI) based solutions including medical records review and advice for lawyers. In the near future, AI could do all the work that his company was doing, at significantly lesser

costs, and with greater accuracy. In such a changed scenario, the current advantages of a small organization, lower cost base, skilled and empowered employees, was unlikely to help Selectronic business in the future. Veer needed to secure the future of his business, and the economic sustenance of his dedicated set of employees. Veer could explore possible niches in medical transcription related business like entering the high potential security outsourcing business in US which could be somewhat unaffected by AI in the near future but that would be only buying time. He was certain that he had no option but to go for diversification of the business, the issue was when and which opportunity.

For a few weeks now, Veer had been actively exploring the idea of developing a greenfield project for the remote coaching of cricket² in India. But, harnessing this option required very different business models, core competences and quantum of

investments from current Selectronic business. He would need to acquire new customers, possibly employ new manpower, start an innovation process, and raise adequate capital. Remote coaching of cricket had associated challenges of managing uncertainty, volatility, and ambiguity. Veer wanted to choose an option where he could be adequately ready to face the challenges in the long term. Was remote coaching a safe enough bet for Veer and Selectronic to jump in with full force?

He had to decide on the way forward before he made his annual, and typically month-long client visit to the USA in mid-May 2018. If he was certain that Cricket coaching was the way forward, he could be soft on his medical and legal transcription business, so that he could put adequate time, money and energy for the Cricket Coaching. Otherwise, he should focus on his current business, make some investments even, at least till he found the viable alternative business idea to graduate to. Veer knew that time was of the essence in tackling disruptive changes in the market and he had to make the right choice.

Background of Selectronic

Veer had been a well-known name in the IT industry in India with over forty years of experience (see Exhibit 1 for details). Apart from the medical transcription business, Veer had an interest in technology and a passion for Cricket. Possibly explained his personal involvement and investments in creating no skills-based family game of cricket for mobiles and a social site for cricket lovers where one could play cricket matches, exchange notes, and upload videos. He had set up Selectronic Equipment and Services Pvt. Ltd. in 1997 and had kept its operations very cost efficient. The company was a provider of reliable, secure, quality overnight transcription for

legal and medical business with confidentiality. It used fully secured website with a 256-bit encryption. Clients could reduce their transcription costs by at least 35% quality and improving efficiency due to the guaranteed 24 hours' turnaround time (TAT).

- Its unique user friendly Internet based secure system also cut out all communication costs. By using a digital recorder with built in computer connectivity, a PC and access to Internet, Selectronic provided its clients a secure, cost free end to end HIPPA¹ compliant Web based transcription system.
- Alternatively, Selectronic could pick up voice files from clients FTP² server, transcribe and drop the transcribed word files on the same server.

From the beginning, Veer focused on serving the needs of a select set of clients in USA. Over time he augmented the services from the basic to the value added, utilizing the advances in information technology and availability of low cost, high quality technical manpower in India. He had used the references and word of mouth from his customers to acquire new clients, delivered value through operational excellence provided by empowered manpower. He visited his US based customers once every year to understand their emerging needs and maintain personal as well as business relations. He had a penchant for successfully referencing his existing client base to connect to new and potential clients.

Selectronic business went through a transformation in the period 2014-16 to morph into a medical record review and advice company for lawyers based in US. During 2014-15, competitors of Selectronic started offering unrealistically

low prices for the commodity services offered, and hence those clients switched. Consequently, Veer was forced to reduce his manpower and cut other costs. The business continued to suffer in 2015-16 and Selectronic responded by aggressively seeking consumers who were looking for value added services. Selectronic moved from low value added work, which could be done by simple graduates to medical records review and advice. This work was done by doctors and pharmacists, making the jobs of clients simpler and hence more valuable to clients. The hardship of two years (2014-16) was somehow weathered and Veer could absorb the losses, while working out the annual contracts for 2016-17 with new customers for medical record review and advice. This repositioning of the company to do medical records review rather than data entry, revived the company and made it profitable. The key business parameters are given in Exhibit 2 and the organization structure is Exhibit 3.

In 2016-17, Selectronic enjoyed a steep growth in business. However, during his customer visits in May 2017, Veer had realized that many of his clients were excited by the developments in the field of AI transcription. By April 2018, the developments in AI based transcription solutions provided by leading technology providers like Microsoft, Google, Baidu, Nuance etc. could provide his clients far more value than he was providing.

While a few firms focused particularly on one subset of customers (Saykara on medical transcription), many were forming a wide net and either offers software meant for general-purpose or different software available for different market segments (Nuance, provides a different software is one of the burning example)³. All these technologies had the potential to outperform the Selectronic

core competence of meeting high volume transcription requirements at very low costs in near future.

After a lot of deliberations, Veer zeroed on the idea that he had to definitely continue with his existing business for may be one more year. Thereafter, he had two options. One was to concentrate wholeheartedly on the remote coaching of Cricket in India, and entirely innovative business opportunity. The other was to continue with medical and legal transcription business and add to it opportunities from the already existing field of security systems support for US based clients for a few more years till he found a viable alternate business opportunity.

In both these options, he could utilize Selectronic's core competence of picking a distant activity, solving it in a low cost environment and exporting the solution back. Also, he was reasonably confident that his dedicated and skilled manpower could make the necessary technical adjustments, while new skills could be acquired by fresh recruitments.

Security solutions scenario

Typical households in many states of USA had 4 to 8 closed circuit television cameras, strategically located to oversee the security requirements. Similarly cameras and sensors were installed in the security bays of buildings or airports. However, such camera's needed to be continuously monitored to be effective in preventing crime. The system had to be intelligent enough for discerning the nature of infringement and based on the same, deciding to take any preventive action. This monitoring was very vital, resource intensive, and of the nature where a human being had a few clear advantages over existing technology. There were many companies in USA which provided this service, but Selectronic could be a very useful outsourced solution provider,

cutting down costs. Selectronic had the technology and the manpower experienced enough to handle the problem. Veer was also confident that he had the credibility and personal connect in the US market to acquire adequate volume of such business, if needed.

However, these were typically much lower end jobs which Veer expected to be substituted by AI based solutions in near future. Also, the value add was likely to be less, reducing the possible margin. Also it was possible that many of the companies in India and other countries which provided outsourced medical transcription services could easily take it up. There were no apparent niches in the market for value added services, hence ability to offer lower prices and big scale of operations was going to be significant business strengths in this market. Selectronic had clear disadvantages to start with, and Veer could foresee serious challenges in creating and maintaining a sustainable competitive advantage in this market. Also, with development of AI and machine learning, cameras of future were likely to become more intelligent, and even able to send signals in case of anomalies. Thus, this business was also likely to be a short lived business, though it could lend a temporary lifeline to Selectronic, without making much change in its business model, manpower or infrastructure etc.

Remote coaching of cricket

Veer was an avid Cricket lover. From business point of view, he was particularly excited about the increasing use of technology in this sport. A particular news item had caught his attention way back in 2015.....

Of late, technology has taken centre stage even in the

coaching of this game. If stats are one part of the story, video analysis is another boon to the coaches. Free video analysis software like Kinovea and Video4Coach are used for slow-motion capture, motion analysis, twin window comparisons and to draw lines and angles on screen and to analyze batting and bowling techniques. "Pictures speak a thousand words. Even small errors can be rectified by using video analysis," said Vijay Madyalkar, mentor, Just Cricket academy. (Retd) Wing Commander Arijit Ghosh, chief operating officer at the Jain Academy of Sporting Excellence, agreed. "Grassroots is the best place to correct because incorrect muscle memory is hard to change later in the career".

Veer knew that coaching was a critical element of the game, and he also knew that good coaches were in great demand. Many coaches were having a team of assistant coaches, who used to supervise the pupils, but it was not perceived to be satisfactory to the budding cricketers and their guardians. Everyone wanted to get connected to the famous coaches. This shortage of good coaches was likely to become even more challenging in near future. Veer could visualize a possibility of Selectronic providing a solution to the problem way back in 2016.

In 2018, now faced with the emerging challenge of AI based transcription solutions, Veer felt that it was time to explore the option of "remote coaching of cricket" at greater depth. He realized that remote cricket coaching provided a very unique opportunity, which could be adequately solved by utilizing the core

competence of Selectronic. The cricket coach worked on his pupil mostly in the cricket nets. See Exhibit 4 for pictures of cricket nets. The two critical aspects of coaching were batting and bowling, which could be adequately, easily and cost effectively captured using only two appropriately positioned cameras. The feed from the cameras could easily be beamed real time to the mobile device of the coach. The coach could then give voice instructions, which could be given to the assistant coach or even to the trainee directly, accessible real time on mobile devices.

The value additions done by Selectronic technology could be for both the coaching system and the trainees. The coaching team could be facilitated by the advantages like:

- i. Ability to coach multiple trainees, simultaneously and near real time.
- ii. More detailed and easier slow motion replay, making visual notes, editing, voice as well as video instructions etc. for effective coaching.
- iii. Data capture in the coaches' required format, with data retrieval and record creation facility for each pupil.

The learner could be facilitated by the advantages like:

- i. The trainee could get personal attention of the coach.
- ii. Have access to the video for easy reference to each of the instructions, which could be viewed multiple times and stored.
- iii. Data capture in the learner's required format, with data retrieval and record creation facility as per the learner's customization.

Veer would often simplify the above in his typical quote "Selectronic could be the Uber (as in Taxi hailing service) of cricket coaching in India, bringing immense value to cricket coaches and cricket learners alike".

The idea was good, but execution posed a few serious challenges for Selectronic. They were:

- i. The band width required for such a video heavy transmission could not be adequately covered even with the 4G personal mobile phones being used by the coaches or the learners. Technical solutions were possible by compression of the signal or depend on increasingly improving signal capability of mobile voice and data service providers. Other option was to use existing broad band network and laptops, which would essentially be available with already flourishing cricket clubs/ grounds. Exercising any option would however, add excessive cost, limiting the potential market.
- ii. The data capture, maintenance and analysis cost aspects could possibly be mitigated by exploring the advertising revenues possible. With a captive, motivated, affluent client base, it was a good option. However, the scales required and the marketing skills required to harness this opportunity were not currently available with Selectronic.
- iii. The core strength of Selectronic was so far "small technology company operating in a frugal manpower setup". The scale of operations in this business had to be quite high as these platform types of businesses typically had a

“winner take all” paradigm. Veer was however quite optimistic that he could possibly focus on a small set of customers, and give them very high quality service, which would help him create a niche. This would help him operate below the radar of bigger technology companies, which had marketing muscle to make a very big change in the cricket coaching space.

The additional financial requirements for this business could be funded from Selectronic’s own surplus. The technological infrastructure and manpower requirements could be acquired by involving a reasonably well entrenched and established set of dealer or franchisee network to do the operational work. For example, the extensive dealer network of direct to home satellite TV services, could be easily leveraged. These dealers would make the relevant investments in the technological hardware, and maintain the operations using relevant manpower against some share of revenue.

Making the choice

Veer was sure that Selectronic did a good job for all its clients, as it could provide customized high value solutions even now. However, he was increasingly coming to the conclusion that medical records review and advice business was going to be disrupted by AI based solutions. However, he was still not sure enough to conclusively decide that if there would be scope beyond a year or two, for Selectronic to find an adequate and viable niche in the potentially fast shrinking US market for his medical records review and advice services for lawyers.

The already developed security outsourcing business in US could provide him some leeway to carve out a niche where human intervention was critical. So,

it prudent for him to consider security business as an extension of medical record review business. But then, he also knew that the effect of disruption due to AI could be faster and far reaching than his imagination. If he did not take action now, it might be too late. But for the present, it could sustain Selectronic for some more time, which would give him the opportunity to consider options other than the remote coaching of cricket, just in case he decided not to go for it.

Veer found the “remote coaching of cricket” opportunity to be conceptually quite attractive. There was a very clear need gap in the market; the technology was there to satisfy that. It was a novel, innovative idea which could change the way cricket coaching was done. However, Veer could also very clearly visualize the very high execution challenges in making this dream come true. Veer prided in his abilities and demonstrated past experience of “*Setting up new companies or turning around existing ones. Identifying the one big idea and help create a vision for the company and then create a process for implementation*”. It was time to put in some more specific numbers against the options for him to decide. He knew some data was available, and some he would have to estimate, but he was definitely there to explore the options well, before he decided. He thought of considering a three-year time horizon for this planning.

Veer was clear that the medical records review business, its technological infrastructure and manpower would essentially provide the backbone of his services in both the potential businesses scenarios he was exploring. Thus Selectronic would not reduce any of the two critical resources of technology and manpower, though some additional investments maybe required in each of these resources in near future.

The medical records and security businesses would not require substantial increase in technological infrastructure and manpower. However, some nominal increase in technological infrastructure and manpower skilling may be required. Technology would not require an outlay of more than US\$ 30,000 each for the next three years, which could be funded from the company's own reserves. These assets would be depreciated using straight line method with an economic lifespan of 5 years. These assets were typically easy to sell off at their written down value, in case of need. The revenues would possibly be showing a dip of 10%, 15% and 20% respectively in the next three years in the worst case scenario. In best case scenario, an increase of 10%, 15% and 20% respectively in the next three years could be expected. In either case, he would continue with the existing philosophy of frugal and profitable organization which operated steadily at minimum risk. He would continue to be the sole front end marketing person and his expenses for the market development related annual visit to USA would remain constant. Overall his operating costs of running the business would increase 5% year on year, for the next three years.

In case of the "cricket coaching" business, the existing medical transcription business would continue. Its technological infrastructure and manpower would additionally provide the back-office support. However, increase in technological infrastructure and manpower skilling would require an outlay in the range of US\$ 30,000 – 50,000 in each for the next three years, depending on the market acceptance and technological change. He would have to pay overtime of 25% of salary for using his transcription staff for the "cricket coaching" business related work. Also, a completely new marketing team would have to be employed by Selectronic, which in 2018-

19, would cost (manpower plus operating) US \$ 30,000 annually at the central head office level and US\$ 20,000 for each city serviced (See Exhibit 5 for the planned organization structure). Selectronic could expect a 30% net revenue sharing from a coach for the additional business generated by this technology and it would incur 17% of total revenue earned from coaches as cost of getting the support services from the dealer network.

Veer estimate that a very good coach (would be referred as "A"), whom he would target, would additionally earn US\$ 40,000 annually with the help of Selectronic technical services. Acquisition cost of such a coach would be in the range of US\$ 1500. He would also expect a churn rate of 40% for the first year, followed by 10% in the next two years. The next rung of coaches who could be benefitted by the Selectronic solution (would be referred as "B"). They would additionally earn US\$ 15,000 annually and acquisition cost of such a coach would be in the range of US\$ 1000. Veer's experience suggested that many of the coaches as well as their pupils may find it difficult to adjust to the new way of technologically supported coaching. He thus expected a churn rate of 50% for the business acquired in the first year, followed by only 20% in second and 10% in the third year of operations.

A rough estimate showed that in Delhi-NCR⁴ alone, there were 30 "A" and 80 "B" Cricket Coaches. The conversion rate for "A" would be 20% and "B" would be 25% in each of the first three years. Veer expected some Cricket Coaches to try, fail and once again come back to the Selectronic fold. Hence regular connect and relationship building with all of them would be required, which would be the

key role of the Selectronic business development team.

Veer knew that he would have to pilot test this opportunity in Delhi NCR for a year to start with. In case successful, he could either consider additional bigger markets like Mumbai, Chennai etc. each of them having a business potential similar to Delhi-NCR. Or he could focus on adding smaller Indian cities like Varanasi, Ranchi etc, where the potential was almost 40% of Delhi NCR, but the conversion rates would be 80% higher. The upside was that AI was unlikely to disrupt this business in foreseeable future. The challenge was that the business concept could be easily copied and improved by larger players, who could operate at bigger scale. For Selectronic, even the pilot test would require upfront expenses but uncertain business revenues. Veer had to work out the business viabilities of this option to decide on whether to go for the remote coaching for cricket or buy time from his current business till finds a more viable alternative.

Exhibit 1: Profile of Veer Sagar

- **Chairman and CEO,** Selectronic Equipment and Services Pvt. Ltd., 1997 – Present,
- **CEO,** TCG Software Services Pvt. Ltd, 1998 – 2004
- **PRESIDENT AND CEO,** DCM Data Systems, January 1988 – 1998
- **SRVP SALES & MARKETING,** International Computers Indian Manufacture Limited (ICIM), 1984 – 1987

- **GENERAL MANAGER,** Dunlop Tire, January 1964 – January 1984

I have been running a BPO that provides medical transcription for small clinics and medical records management for legal firms. My work experience is in excess of 50 years with extensive experience of in turning around sick companies/divisions and setting up new companies. Have been involved in the IT industry for about 50 years and have been an active participant in its growth. Was a member of the executive councils of Computer Society of India (CSI) Manufacturer Association of IT (MAIT) NASSCOM and Electronic and Software Export Promotional Council (ESC). I was one of the leading players in making India an IT and BPO hub. I turned around DCM DATA SYSTEMS. This turnaround was the subject of a case study by IMD. Set up TCG Software for a US investor and FTK Israel to do off shoring. Set up CATS a JV between CA and TCG and SKYTECH a JV between United Airlines and TCG to do SW development in India. Specialties: Moving companies to the next level through quantifiable visioning and positioning. Identify that one thing that the company must optimize. Setting up new companies or turning around existing ones. Identifying the one big idea and help create a vision for the company and then create a process for implementation.

Source: Company documents

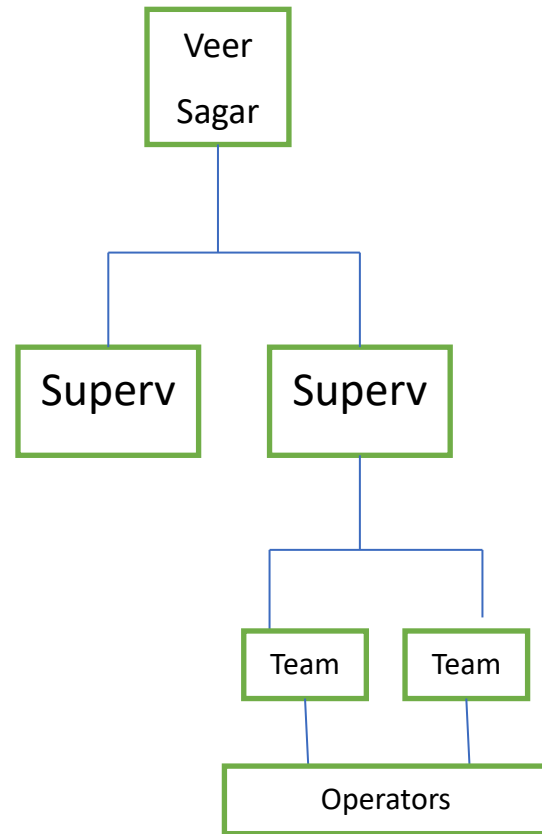
Exhibit 2: Key financial parameters of Selectronic

Parameter	2013-14	2014-15	2015-16	2016-17	2017-18
Revenue in '000 US\$	850	550	500	950	1200
No. of	6	3	3	6	8

clients					
No. of employees	20	15	15	20	25
Fixed Costs in '000 US\$	400	350	360	420	500
Employee Costs in '000 US\$	190	130	140	200	250
Variable Operating Costs (excluding employee) in '000 US\$	140	120	125	180	250
Gross profit in '000 US\$	120	-50	-125	150	200

Source: Company

Exhibit 3: organization structure of Selctronic in 2017-18



Source: Company documents

EXHIBIT 4: Images of cricket nets for coaching

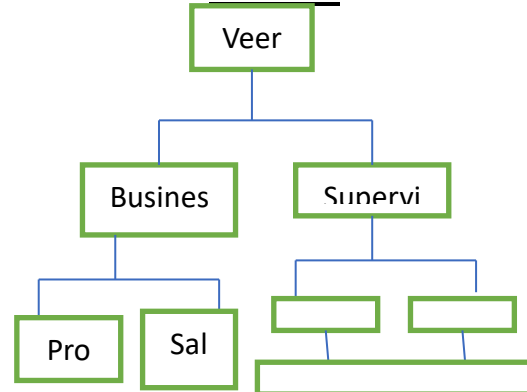


Source:

https://www.google.co.in/search?q=picture+of+cricket+net+practice&tbm=isch&source=iu&ictx=1&fir=D4Mfip1reLv02M%253A%252CLcaEZNOqSf8y9M%252C_&usg=__P31mcpSeuhDb1tKSYBvr1RJIIEo%3D&sa=X&ved=0ahUKEwjI5rCWuLfbAhWJpo8KHU0xA94Q9QEIKDAA#imgrc=TOFn30PcEid7xM:

https://www.google.co.in/search?q=picture+of+cricket+net+practice&tbm=isch&source=iu&ictx=1&fir=D4Mfip1reLv02M%253A%252CLcaEZNOqSf8y9M%252C_&usg=__P31mcpSeuhDb1tKSYBvr1RJIIEo%3D&sa=X&ved=0ahUKEwjI5rCWuLfbAhWJpo8KHU0xA94Q9QEIKDAA#imgrc=Sgp5UgKO3aLtdM:

EXHIBIT 5: Organization structure envisaged for “cricket coaching business”



Source: Discussion with Company

End Notes

Financial year 2017-18 is from 1st April 2017 to 31st March 2018.

Cricket is a bat-and-ball game played between two teams of eleven players each on a cricket field, at the centre of which is a rectangular 20-metre (22-yard) pitch with a target at each end called the wicket (a set of three wooden stumps upon which two bails sit). Each phase of play is called an innings, during which one team bats, attempting to score as many runs as possible, whilst their opponents bowl and field, attempting to minimize the number of runs scored. When each innings ends, the teams usually swap roles for the next innings (i.e. the team that previously batted will bowl/field, and vice versa). The teams each bat for one or two innings, depending on the type of match. The winning team is the one that scores the most runs, including any extras gained (except when the result is not a win/loss result).

<https://en.wikipedia.org/wiki/Cricket>

HIPAA is the acronym for the Health Insurance Portability and Accountability Act that was passed by US Congress in 1996.

An FTP server is a computer which has a file transfer protocol (FTP) address and is dedicated to receiving an FTP connection. <https://www.techemergence.com/ai-for-voice-transcription/>
<https://economictimes.indiatimes.com/news/sports/how-bengalurus-cricket-coaches-use-technology-to-help-emerging-talents/articleshow/49478143.cms>

National capital region, which included the cities of Delhi, Gurugram and Noida