Case Study: Vallée de Goût information system

'Vallée de Goût' is a French cuisine restaurant located in outer suburbs Sydney, offering a luxurious and contemporary fine dining experience. Thanks to maintaining their quality standards, their business has been growing steadily. But for the past few months their venue has been getting overcrowded during weekends. This has impacted the customer service quality, for example, due to delays in order preparation, mistakes in orders or bills etc. The management firmly believes that an existing customer is worth more to a business than a new customer, because the cost to attract a new customer can be multiple times higher than the cost to retain an old customer. A customer is likely to return to a restaurant, if they receive an excellent customer service as well as appetising food. However, the restaurant would easily loose the customers if they have to wait for an unreasonable amount of time or there was a mistake in their order.

To solve these problems, firstly the management has convinced owners to relocate to a bigger venue nearby. Secondly, the management would like to upgrade to a sophisticated information system at the same time. Their current information system has become a hurdle in smooth business operations because of very limited features. For the past two weeks, the business manager has been evaluating multiple off-the-shelf systems for Vallée. But he came to the conclusion that all of those systems are quite generic; those will require excessive customization to adapt to some of the Vallée requirements, while lacking some important features. Therefore the restaurant manager have decided to get a custom integrated system developed that better fits their business needs. Your company 'Hospitality Innovations' has won the contract Vallée's software on the basis of extensive experience in developing restaurant related softwares. You and your team have had several meetings with restaurant staff and they have communicated to you their system requirements. You were provided an opportunity to observe day to day restaurant operations, and then interviewed all the potential users of the proposed system (managers, cooks, waiters etc.) in order to get as clear idea of the requirements as possible.

Once you got a clear idea of the system requirements, you propose the new information system to be named *iDine.* The management liked your name and asked you to describe how the system would work. You wrote a detailed description as below, providing a vision of system working in full capability. Your team will now help Vallée convert this vision into reality.

Getting inspiration from touchscreen self-ordering kiosks used by fast food restaurants, Vallée wants to apply a similar concept (to some extent) in the fine dining. For this purpose, all tables in restaurant are to be equipped with tabletop tablets. These tablets display their detailed digital menu and allow customers to place and send their orders directly to the kitchen. This potentially saves time because customers do not have to wait for a server, especially during lunch or dinner rush hours. Furthermore, while enjoying their meals, customers can use this system to quickly order an extra drink or an additional plate. Plus, since customers can dig deeper into the menu to discover more add-ons and extras than any waiter could recite,

orders can be customized as per customer wishes. As an added bonus, some tabletop tablets come loaded with games and entertainment to keep kids busy while their parents are chatting waiting for the order.

Customers who are not tech savvy enough to use those tablets, can just tap the "Call waiter" button to order the old school way. There is main terminal located in the dining room that is overseen by the head waiter. This machine would display a prominent notification of which table is requesting the waiter visit. The head waiter can then direct one of the available waiters to that table to collect the order. The waiter keys-in the order details into the system via a handheld tablet. The table number is also recorded in the system along with the order details.

Whichever way an order is placed (customer self-order or through waiter), the system categorizes the individual items in the order according to the section where they are prepared, and then route the suborders to printers in the appropriate preparation area. For example, to the printer in cold section if ordered item is a salad, to the cafe printer if it is a coffee or sandwich, or to the main kitchen if order is from the main course menu. This ordering system eliminates any problems caused by a waiter's handwriting. In each preparation area, the cooks have access to a large touch screen display that shows all orders that are yet to be served. Once an order is ready, a cook will mark the order as ready, which will send a notification to dining room terminal along with the table number. The head waiter then instructs one of the waiters to pick up the order from kitchen and serve to customers. After the customer have finished with their meal, they can see their final bill on the same tabletop tablet. Alternatively the waiter can print out the bill from the main terminal for any given table number.

Other than customer order management, *iDine* is also composed of several other subsystems like pantry and fresh produce inventory management, and supplies ordering management. Although the inventory system provides a lot of benefits as described later, but it does impose a strict data entry requirement. Every item added to inventory must be keyed in to the system. Similarly every item used up from inventory must be recorded. To simplify these tedious tasks, the inventory system is linked together with customer ordering system and supplies ordering system. A workflow is designed like this: All the supplies are ordered through the supplies ordering system. When those supplies are delivered to the restaurant, a staff member keys-in the details of everything added to inventory. Most of it is same as the supply order, so the information is automatically copied over using the supply order number, but staff can adjust the details if the delivery does not exactly match supplies order.

To keep track of supplies consumption, the *iDine* estimates how much inventory the restaurant should have on-hand based on the items sold. This is possible because ahead of time when the restaurant menu is designed, the chefs provide a list of ingredients (fresh produce or grocery items) required for every single item on the menu. Therefore, as soon as customer orders are served, the inventory system uses to recipe to record an approximate deduction for every ingredient present in the order. This way the system keeps track of actual product counts, and also monitors theoretical inventory levels. The inventory system therefore provides a clear information of stock availability for every asset. Management can

view inventory counts any time for greater efficiency and accuracy. Because the system can only estimate stock consumption (based on recipes), real stock counts need to be verified by the staff at the end of the day. A comparison of the estimated vs actual stock counts can alert managers to discrepancies from over-portioning, waste, and theft so that they can be resolved immediately.

Another benefit of linking inventory management and customer ordering is that when the kitchen runs out of a food item, the cooks will use the kitchen terminal to record an 'out of stock' status. This will be helpful for waiters when taking orders. If an item can't be prepared because one or more of the ingredients are out of stock, the waiters can immediately apologize to customers, enabling them to provide a better customer service. Similarly the customer tabletop tablets will disable ordering of such items, indicating the same reason on the screen.

An automated stock control is done by the inventory system and a report is readily available showing which items are currently available in stock and which of them need to be ordered from suppliers. This greatly reduces the chances of mistakes by staff members and they do not have to remember what is to be ordered. Previously staff had to handwrite a list of all ingredients that were out of stock at the end of every night shift. It was always not that productive as there was a very big possibility on missing out some of the ingredients. Using the automated reports, managers can manually place an order of supplies to be delivered the next day before the restaurant opens. But manually preparing the orders is seldom needed because an even better automated purchasing system works most of the time. Linked directly to the inventory system, this subsystem notifies and alerts the managers about low product levels. This system intelligently suggests purchasing recommendations based on supplies (expected) delivery time, forecasted sales quantities, and predefined stock level thresholds. Managers can also enable automatic orders to placed whenever inventory reaches a certain threshold.

Sales analytics is part and parcel of every modern business and Vallée is no exception. To this end, the new information system provides up-to-the-minute reports on the food items ordered and breaks out percentages showing sales of each item versus total sales. This helps management understand which food items are popular in customers. This data is then shared with chefs so that can tweak the recipes of unpopular items. In this way, menu is tweaked according to customers' tastes. The system also compares the weekly sales revenue versus food costs, allowing planning for tighter cost controls. In addition, whenever an order is voided, the reasons for the void are keyed in by waiters. This may help later in management decisions, especially if the voids are consistently related to food or service. *iDine* is capable of generating different types of charts for sales information so that management can view statistics in numerous diagrams.

Another crucial business requirement fulfilled by *iDine* is managing customer feedback. This subsystem works in two ways. First, at the restaurant exit door, a special purpose computer is installed that provides five buttons and a small display. The goal of this device is to ask the customers a simple 'How did we do today?' question. The five buttons are labelled with emoji faces from 'sad' to 'smiling'. Customers will only need to push one button which is

acknowledged with a thank you displayed on screen. *iDine* collects all such feedback and presents in the form of charts as needed. In case customers wish to offer a detailed feedback with comments, that option is also available. The bill receipts have a QR-code at the bottom which customer can scan with a smartphone camera. The QR code is unique to each customer, linked to their order information. Scanning it leads to an online feedback form where user can leave detailed rating and comments. Later when management reviews the feedback, they will have access to order details as well so it is easy to understand and act upon customer complaints (if any).

Another convenience Vallée is proud to offer its customers is the real time space availability and wait time estimation. As soon a customer places an order, *iDine* records their table as busy and that way remaining space available in restaurant can be worked out and displayed on the company website, updated in real time. Similarly, based on the actual order placed, system can provide an estimate of preparation time which is intimated to customers via tabletop tablet or waiter. Furthermore this information is also to estimate how long queuing time is, for those arriving when the restaurant is full. To get a proper estimate of queuing time, iDine keeps track of the average time customers spend from order to payment (because most customers leave right after payment). When restaurant is full, these average values are used to work out when the next table will get free.

Ever since *iDine* has been installed at Vallée, it has vastly improved the workers organization and teamwork. Management is happy with the post-sales analysis reports. The system itself is designed with a very user friendly, touch driven GUI. The system response time is incredibly fast; the staff do not come across any noticeable lags or delays when using it. All customer orders are logged in an archive for record keeping and analytics purposes.