

---

**CIS 410-50 Final Exam**  
**Fall 2020**  
**Emily Wantland**

---

**A CEO returns from a trade meeting excited about a machine learning computing tool demo she has seen. She believes the technology holds the potential for significant benefits for her company. She immediately calls a meeting of her IT and operational managers to discuss this opportunity. You are her CTO, so naturally you are in the meeting too. The CEO wants this technology assimilated into the IT in her sales force and charges the group to make it so. What are the major issues to be faced? How would you initiate and manage the assimilation? What are some of the risks to be faced in the assimilation a re-engineering process? Be sure to address all relevant strategic and behavioral issues; cite at least seven theories in the support of your points.**

To start we must understand machine learning and how it could be implemented with the popular Salesforce platform. Machine learning is a concept rooted in the belief that machines can increase their intelligence level over a period of time. Nearly all artificial intelligence theory is based around this belief. Machines learn how to understand and process information gradually which eventually helps them detect data patterns (Salesforce EMEA). Sales departments can benefit from machine learning because it can analyze information from their calendars, emails, and CRM systems. For example, the technology could make recommendations or even create email responses for them.

Machine learning can benefit a number of business processes. It can provide actionable insights about marketing campaigns, create automations for repetitive tasks which will improve employee productivity and efficiency, and increase security by

recognizing patterns in data which can be used to identify or detect suspicious activities or fraud. Machine learning can assist in data entry as well. Employees would have their errors reduced while manually entering data. This provides clean and valuable data that can be used for further analysis.

From the prompt, we do not know if the machine learning will be supervised or unsupervised. Therefore, we do not know if the team knows what they want to specifically predict (Chaturvedi). Machine learning is not without its limitations. It can never replace human intuition; it can only replace redundant tasks. We will operate under the assumption that the CEO has seen a demo for an automation tool, Salesforce Einstein, which is an integrated AI for the CRM platform (Smart Money: AI and Machine Learning Are Changing Business Forever). Users can employ machine learning and create complex automations.

There are four IT-driven changes in organizational structures. Business processes and structure have significantly changed due to four fundamental practices: automation, formatting, embedding, and communicating. The introduction of automation, or substituting technology for labor, threatens to change the company's organizational structure. The greater access employees have to information, the more profound the implications for the structure (Barker, IT-Driven Changes in Organizational Structure).

The prompt provides a few key pieces of information about the company's present organizational structure. I will infer that the company follows a traditional functional structure. Management controls the system and makes decisions while their employees sift through information (Barker, IT-Driven Changes in Organizational

Structure). There is a division of labor, and activities are coordinated vertically. The company uses hierarchical supervision. This structure can be weak when the company needs to respond to a problem quickly, which is why this implementation is risky. Decisions pile up and top managers may not be able to respond in a timely manner (Barker, Evolution of Organization Forms). Employee perception is restricted to the overall goals of the organization which can endanger accountability. The *Systems Theory* describes how a change in one area of an organization can alter other areas. Maintaining equilibrium will be important moving forward.

The company is currently in the initiation stage of the *McFarlan/McKenny Four Stage Model of Technology Assimilation*. This stage included the identification of a new product and the necessary investment and research (Barker, Stages Theory of IT Adoption and Organizational Learning). Here, the technology is first introduced in the organization, which can be seen by the CEO tasking the team with the assimilation (Raho). As the CTO, it is my goal to move into the contagion stage and so forth. I will need to plan for the technology assimilation and put mechanisms for an ongoing assessment of the benefits and issues in place.

I would initiate the assimilation by first gathering information on the business processes that the CEO wants to alter. I will observe employee's current job routines and pay special attention to parts of their work that requires them to make decision. I will discuss which parts of work employees find rewarding, and what they find frustrating. Lastly, I need to examine how certain processes relate to others within the company. I will translate the information I have into technical requirements. I will also create rules and regulations, this will aid overall task performance in the long run

(Morgan). I would then determine whether or not the machine learning should be supervised or unsupervised. I would decide on supervised because we have already assumed that the machine learning's main purpose is automation. We know what we want to predict with the data and what our target variables are.

As the CTO, I would need to delegate tasks when tackling the management of the project. Since I am in the position to make decisions, albeit slowly due to the functional structure, my subordinates would be tasked with the implementation itself. *The Theory of Constraints* lists a lack of skilled people as a type of internal constraints (Goldratt). Constraints are things that prevent a system from achieving its goal. My team members may not have a strong background in machine learning and need training to understand the Salesforce Einstein tool. Adapting the project timeline to capture the value of the technology is imperative.

By using *Herzberg's Theory of Motivation*, I can introduce motivators which will cause my employees to work harder. Steps I can take as the CTO are introducing functions for recognition and praise, advancement opportunities that are centered around increased responsibility, and the opportunity for growth. Allowing team members to become experts with the tool provides the opportunity to learn a new skill.

By using *Hackman & Oldham's Job Characteristics Model*, I can use tasks themselves to secure employee motivation. I will need to study skill variety, task identity, task significance, autonomy, and job feedback. Making sure employees are asked to do different things, given timelines so they understand what they need to do, show them their personal impact, give them freedom to accomplish their tasks, and provide feedback on their performance can increase and maintain their motivation levels.

My team members are knowledgeable about how the machine learning needs to be applied. They may understand the company's business processes but may not be as technically skilled as the developers of the product. In addition, I cannot assume that the tool's technical benefits will guarantee it being accepted throughout the company (Leonard-Barton and Kraus). I must correctly estimate the scope and prepare in advance. Mitigating manager acceptance means I must make sure they understand that updating our business processes by implementing machine learning will allow us to continue growing as a company and continue meeting our customer's needs to remain competitive (Fried). Using *Porter's Five Forces Model*, we can assume that customers have high bargaining power. In addition, using *Porter's Generic Competitive Strategies*, we can assume the company is following a differentiation strategy. These would both support the CEO's spur of the moment decision to implement a machine learning tool.

The CEO may believe that the organization's technology maturity is restrictive. It is her view that the company should develop a plan to invest in technology to exit this state. If we look at *Maslow's Hierarchy of Needs Theory*, a human that does not feel secure or still has physiological needs cannot strive for anything outside of their own survival (Guerrieri). The organization may be in this position, unable to meet business objectives due to unreliable technology and tools. Once a human has that need met, they move on to love and belonging. This is similar to an organization needing the new technology to serve the entire business. Next, a human needs esteem, to feel recognized and appreciated by others to be satisfied. When the technology is valued by all, it can be viewed as effective. Lastly, there is the self-actualization need. Not settling for effectiveness helps an organization become innovative. An innovative organization

uses technology to better serve its customers and increase revenue. As we know, the goal of a company is to make money now and in the future (Goldratt).

I must determine the groups whose acceptance is essential. If I cannot, the risk of a failed implementation increases drastically. I need to market the project to groups with different approaches for each. Top managers will be focused on the bottom-line, discussing the overall benefits of machine learning with them is essential. They cannot just be sold though, they need to be simultaneously involved in the process to claim ownership. The scope of the project will dictate their involvement, so it may not be substantial, but they must be considered. Lower-level employees will be more concerned with their day-to-day work, showing them how machine learning and automation can assist them is the first step.

I need to make sure my organization positively receives the completed project. If employees have a low effort expectancy and a high-performance expectancy, there will be positive behavioral intentions. This can increase the acceptance of the new technology (Cash). Media coverage of AI could raise expectations of the implementation too high, employees need to have realistic expectations. I cannot oversell them on its capabilities.

I will need to first implement the technology in a unit that is performing averagely. If I try in the worst-performing unit first, groups may believe that introducing any piece of technology would have improved the outcome. If it fails the first test, groups may believe that if it cannot improve the situation there, it will not improve the situation anywhere. I need to be clear about the purpose of my tests, and have public demonstrations with clear criteria.

The CEO is the project champion, having her support greatly influences the rest of the company. She has the organizational power to mobilize the resources I will need to implement the technology. As mentioned previously, increasing my employees skill levels will reduce a constraint, and reduce fears of deskilling workers with the introduction of automation. Highlighting the innovation's personal benefits and displaying the advantages will be possible during the aforementioned testing stage.

As we've already discussed the benefits of machine learning, we can see clearly that the assimilation risks are outweighed. The higher at the organization level at which a problem is defined, the greater the need for a successful implementation. It is my job to support my CEO and the functional structure of the company. I will carry on with the assimilation and see it through to the end.



## Works Cited

- Barker. Management of Information Systems. 2014. Print.
- Cash, James I., et al. *Building the Information-Age: Structure, Control, and Information Technologies*. Irwin, 1994.
- Chaturvedi, Saket. "Integrating Custom Machine Learning Models With Salesforce." *Atrium*, 14 July 2020, [atrium.ai/resources/integrating-custom-machine-learning-models-with-salesforce/](https://atrium.ai/resources/integrating-custom-machine-learning-models-with-salesforce/).
- Fried, Louis. *Managing Information Technology in Turbulent Times*. Wiley, 1995.
- Goldratt, Eliyahu M., and Jeff Cox. *The goal: a process of ongoing improvement*. North River Press, 2004.
- Guerrieri, Mike. "IT Maturity and Maslow's Hierarchy of Needs." *Delcor*, 7 Feb. 2020, [www.delcor.com/resources/blog/it-maturity-and-maslows-hierarchy-of-needs](https://www.delcor.com/resources/blog/it-maturity-and-maslows-hierarchy-of-needs).
- Leonard-Barton, Dorothy, and William A. Kraus. "Implementing New Technology." *Harvard Business Review*, 1 Aug. 2014, [hbr.org/1985/11/implementing-new-technology](https://hbr.org/1985/11/implementing-new-technology).
- Morgan, Gareth. *Images of Organization*. Sage Publications, 2006.
- Raho, Louis E., et al. "Assimilating New Technology into the Organization: An Assessment of McFarlan and McKenney's Model." *MIS Quarterly*, vol. 11, no. 1, 1987, pp. 47–57. *JSTOR*, [www.jstor.org/stable/248824](https://www.jstor.org/stable/248824). Accessed 5 Dec. 2020.
- Salesforce EMEA. "What Is Machine Learning and How Can Businesses Use It?" *Salesforce Blog*, [www.salesforce.com/eu/blog/2020/03/what-is-machine-learning-and-how-can-businesses-use-it.html](https://www.salesforce.com/eu/blog/2020/03/what-is-machine-learning-and-how-can-businesses-use-it.html).
- "Smart Money: AI and Machine Learning Are Changing Business

Forever.” *Salesforce.com*, [www.salesforce.com/products/platform/best-practices/ai-and-machine-learning-technology/](https://www.salesforce.com/products/platform/best-practices/ai-and-machine-learning-technology/).

### **Cited Theories**

1. Systems Theory
2. McFarlan/McKenny Four Stage Model of Technology Assimilation
3. The Theory of Constraints
4. Herzberg’s Theory of Motivation
5. Hackman & Oldham’s Job Characteristics Model
6. Porter’s Five Forces Model
7. Porter’s Generic Competitive Strategies
8. Maslow’s Hierarchy of Needs Theory