"[Reengineering work: don't automate, obliterate."](#) By Michael hammer

a. Reengineering requires looking at the fundamental processes of the business from a cross-functional perspective
b. The reengineering team must keep asking Why and What-if? Why do we need a manager's signature? Do these reports need to be printed?
c. Reengineering strives for dramatic levels of improvement
d. IT and expert systems can capture and process data. But only supply limited knowledge to enable people to make decisions [now they do]

Question: why does Tesla not have any flagship stores like other car dealers?

Principals of reengineering
1. Organize around outcomes and not tasks
2. Have those who use the output of the process perform the process
3. Subsume information-processing work into the actual work that produces the information. in the past, orgs didn't trust the people…
4. Link parallel activities instead of integrating their results
5. Put the decision point where the work is performed and build control into the process <not a department>
6. Capture information once and at the source
7. Imagination must guide our decisions.

We have the tools to do what we need to do. Information technology offers many options for reorganizing work. But our imaginations must guide our decisions about technology – not the other way around. We must have the boldness to imagine taking 78 days out of an 80-day turnaround time, cutting 75% of overhead, and eliminating 80% of errors. These are not unrealistic goals. If managers have the vision, reengineering will provide a way.

GEOMETRIC DUDS

GOOFBALL   BLOCKHEAD   DUNCE   CLOD
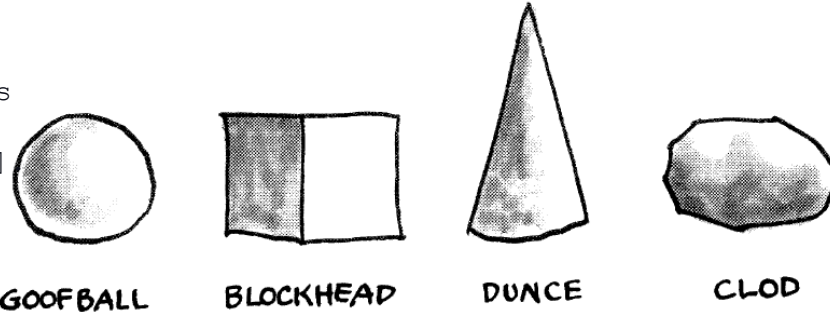
The Essence of Reengineering

At the heart of reengineering is the notion of discontinuous thinking – of recognizing and breaking away from the outdated rules and fundamental assumptions that underlie operations. Unless we change these rules, we are merely rearranging the deck chairs on the Titanic. We cannot achieve breakthroughs in performance by cutting fat or automating existing processes. Rather, we must challenge old assumptions and shed the old rules that made the business underperform in the first place.

Every business is replete with implicit rules left over from earlier decades. "Customers don't repair their own equipment." "Local warehouses are necessary for good service." "Merchandising decisions are made at headquarters." These rules of work design

Why did Ford need 400 accounts payable clerks when Mazda had just 5?

are based on assumptions about technology, people, and organizational goals that no longer hold. The contemporary repertoire of available information technologies is vast and quickly expanding. Quality, innovation, and service are now more important than cost, growth, and control. A large portion of the population is educated and capable of assuming responsibility, and workers cherish their autonomy and expect to have a say in how the business is run.

It should come as no surprise that our business processes and structures are outmoded and obsolete: our work structures and processes have not kept pace with the changes in technology, demographics, and business objectives. For the most part, we have organized work as a sequence of separate tasks and employed complex mechanisms to track its progress. This arrangement can be traced to the Industrial Revolution, when specialization of labor and economies of scale promised to overcome the inefficiencies of cottage industries. Businesses disaggregated work into narrowly defined tasks, reaggregated the people performing those tasks into departments, and installed managers to administer them.

Our elaborate systems for imposing control and discipline on those who actually do the work stem from the postwar period. In that halcyon period of expansion, the main concern was growing fast without going broke, so businesses focused on cost, growth, and control. And since literate, entry-level people were abundant but well-educated professionals hard

MACHINE LEARNING ENGINEERING

DATA PIPELINE

MACHINE LEARNING PIPELINE

SOFTWARE CODE PIPELINE

🔥 An Overview of the End-to-End Machine Learning Workflow

⛏ Generally, the goal of a machine learning project is to build a statistical model by using collected data and applying machine learning algorithms to them. Therefore, every ML-based software includes three main artifacts: Data, ML Model, and Code.

⛏ Corresponding to these artifacts, the typical machine learning workflow consists of three main phases:
1. Data Engineering: data acquisition & data preparation,
2. ML Model Engineering: ML model training & serving, and
3. Code Engineering :integrating ML model into the final product.

⛏ The Data Engineering pipeline includes a sequence of operations:
1. Data Ingestion
2. Exploration and Validation
3. Data Wrangling
4. Data Labeling
5. Data Splitting

⛏ Model Engineering
The Model Engineering pipeline includes a number of operations that lead to a final model:
1. Model Training
2. Model Evaluation
3. Model Testing
4. Model Packaging

⛏ Model Deployment
The final stage of the ML workflow is the integration of the previously engineered ML model into existing software. This stage includes the following operations:
1. Model Serving
2. Model Performance Monitoring
3. Model Performance Logging