# FROM SELF INTEREST TO NET WORKING:REIMAGINING THE MANAGEMENTOF THE FUTURE

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**Abstract**

The management evolution is married to socio-economic- technological changes. man used water power especially in the textile industry. Then steam energy led to the mechanization of equipment and revolutionized a variety of industries, especially textile and transportation. The machines and energy multiplied his power manifold. Scale and scope of manufacturing increased. This enabled mass production and increasing affordability of everything. Limited liability corporations were the greatest innovation in management. Through machine to machine communication, problems can be diagnosed and autonomous decision may be made without human intervention.This initiated globalization and global forums. Digital revolution becomes more sophisticated and integrated, transformed societies and global economy. These are the changes brought about by the hard work, collaboration, networking and intelligence of our generation. We have done some bad things, but we have also helped the world to change for the better.

**Keywords:** Digital Technology, Artificial Intelligence, Nano Technology, Human Genome Mapping, Quantum computing, Biotechnology, etc.,

## INTRODUCTION

The management evolution is married to socio-economic- technological changes. The first Economic Revolution was **Agrarian Revolution**, humans fought with nature to eke out their simple living. Simple tools enhanced his power to tame nature.

In the second Economic revolution, which is the first **Industrial Revolution** man was working with machines and energy- In the eighteenth century, man used water power especially in the textile industry. Then steam energy led to the mechanization of equipment and revolutionized a variety of industries, especially textile and transportation. The machines and energy multiplied his power manifold. Scale and scope of manufacturing increased. The invention of electric power in the late nineteenth century and use of electricity in the early twentieth century in assembly line ushered in **Second Industrial Revolution**.

This enabled mass production and increasing affordability of everything. Limited liability corporations were the greatest innovation in management. In the mid twentieth century, introduction of electronics and computer was the **third Industrial Revolution.** It had major impact on manufacturing through CAD (Computer Aided Design), CAM (Computer aided Manufacturing), and automation through robots.

In the **Fourth Industrial Revolution**, humans moved from mechanical and analog system to digital system. Technology converted many data into digital andoffered better, more accurate and more reliable service. It was a quality disruptive technology.

Digital technology further moved to digital platforms which were intimately connected to the physical world. In 2011, German Govt. called it Industry 4.0. It moved from centralized to decentralized production, where machine no longer simply processes a product, but where the product communicates with the machine to tell it exactly what to do. Through machine to machine communication, problems can be diagnosed and autonomous decision may be made without human intervention.This initiated globalization and global forums. Digital revolution becomes more sophisticated and integrated, transformed societies and global economy. This period is marked by robotics, Artificial Intelligence, nano technology, human genome mapping, quantum computing, biotechnology, iOT, 3D printing, A.R., autonomous vehicles etc. The changes brought in by the platform economy were too fast and too radical.

**DATA**

The driving force for all the changes is the data. The internet, smart phones, thousands of Apps facilitate these management strategies and processes. Data is the new oil of business and not finance.

A tablet used for browsing, reading and communicating possesses equivalent processing power of 5000 desk tops 30 years ago. 20 years ago, cost of storing 1 GB was $10,000, but today it costs less than $.03 per year.

The digital platforms have reduced transaction and friction costs. Each transaction can be divided into very fine increments with economic gains for all parties involved.

The digital platforms will also address negative externalities and boost growth. E.g. reducing carbon emissions. Rapid technological advances in renewable energy, fuel efficiency and energy storage will mitigate climatic change.

We shall consider the impact brought in by digital platform economy to business, society and economy. These changes made managers rethink what management should do (content) and how it should do it (style).

## 1. PLATFORMS AND ECOSYSTEMS

Platforms provide a new way of conductingbusiness that warrants an outside-in perspective, i.e. firms need to open up their systems in order to collaborate and partner with many players, some of them may even be their competitors. This requires new skills and capabilities to manage and govern a platform.

Platforms connect multiple parties such as buyers and sellers (eBay), or consumers and developers (Apple's app store). Uber has connected drivers with riders on its platform.

According to Adam Smith, in a free market an invisible hand allocates resources efficiently. But there can be heavy transaction cost. Digital technology has dramatically reduced the transaction cost of finding and selling goods and services. When one wants to sell one's usedtwo wheeler, one searches for the buyers mainly from the neighborhood. But today, buyers and sellers all around the world are connected through internet based platforms (eBay) and thereby reducing the transaction cost of buying and selling goods and services across the world.

Ecosystem: "A dynamic and co-evolving communities of diverse actors who create and capture new value through both collaboration and competition."(Deloitte Insights, 2015).

Platforms develop an ecosystem of partners who provide complementary products and services. As technologies are increasingly blurring industry boundaries a vibrant ecosystem can enable activities, assets and capabilities to be flexible and respond to new events, and bring them across organizations.

E.G. Apple Pay- customers love to use credit and debit cards that are supported by merchants and banks. Banks are good at giving credit, branding, customer service and conducting payments. Now Apple brings together the hardware, software and services to create an experience on the phone. Car manufacturers say, Ford and BMW bring together telecom operators- Vodafone or Verizon and tech players- Google and Apple, app developers and new players Tesla and Google to offer a new service.

When we combine digital, physical and biological, they disrupt systems of production, distribution and consumption: For Example, Uber- It starts with customer experience- calling, tracking the car location, description of the car and ends with a seamless payment process This experience is bundled with physical products- car- transportation from A to B. Uber maximizes the use of the asset—24/7 (Vs a car owner uses just 5% of the time). The automobile market is $2 billion, where as the taxi market is $10 billion. Amazon started as an on line bookseller. Then it extended its benefits to a few products. Later it allowed retailers sell their wares on its platform. Paytm, started as on line mobile charger. Its consumers could use its wallet (Platform) to buy bus and train tickets and other goods both off line and on line.

Internet is information high way- flow of information. It did impact management style. It moved information but not value. Whereas, Block chain is value high way. It changes how we operate and manage. It creates new portfolio of value.For example, there is no need of in house R&D but crowd sourcing- P&G and

GE.Search cost will be very low- we can instantly know who makes what, at what price and regular delivery etc.

The Platforms- Uber and Oyo are centralized repositories of information. But in Block Chain, all the members know what is available at what price and one orders directly without intermediaries.Provide value in new ways. For example Rainmaker, a HR consulting firm, has a list of companies who want personnel. Those who want jobs apply to Rainmaker and he finds matches- an aggregator. In Bloch chain, on Rainmaker platform, companies can find candidates with right skills and choose them directly. What will rainmaker do for business? It uses new strategies- makehiring easier by phone screening, validation of candidate's data and on boarding support. It helps the candidates how to have proper attitude and behavior.

In Block Chain transactions are transparent but you decide whether you want to reveal yourself fully, partially or not at all. In recruitment one gives all his requirements and gets people. In marketing, one can find out whether a customer is suitable, his life time value. Contractors program their own personal data to disclose pertinent information.

Search can be multidimensional- vertical, horizontal or sequence- according to time.How public Block chain can be?The members decide whom to invite and whom not to invite. Certain data may be public and high end data may be to paid members only.For example- anybody seeking employment and any employer can join a block chain but high end data will be available only to paid members.

## 2. STRATEGIES

**New Competition:**

Competition is no longer defined by product or industry. Data and software becoming integral to all industries, industries have shifted the basis of competition from functionality of a single product to the performance of a broad based system, in which the firm is one of many players- Amazon with Google in search engine, Apple with auto industries, Netflix with Comcast.

**Competitive Advantage**

Michael Porter's low cost (scale and operational efficiency) and differentiation (Innovation), have to be rethought. For example for Amazon, not low cost but intimate and deep knowledge of the customer,back end logistics (warehousing and shipping), and managing technology infrastructure, are the competitive advantages and not its market share.

**Network Effects**

The Competitive advantage is from a system of connected and complementary products and platform network rather than product superiority. Nokia's advantage was product based, but smart phones' advantage is, it is platform based with new apps.

## 3. CONSUMER

We see sea changes in the consumer's life style, income and spending habits. Increased income offers high discretionary residue. This great "Indian Middle Class" is 360 million, more than the USA or Europe. They have not only ability to spend but are willing to spend. Luxuries have become within their reach and they want to flaunt them.

Besides the increased income, the Gen X and Millennia's do not hesitate to borrow unlike their forefathers. Credit cards and EMIs are common lingo among them. This is bolstered by the optimistic economic outlook as shown by Confidence Index year after year.

**The digital age offers some challenges and opportunities:**

- Target groups are more accurately defined based on global or local life style and consumption pattern. Some Global (coffee, blue jeans, business suit), others regional/ subcultural- (Briyani, Degree coffee).
- More focused messages to behaviorally defined targets bring better results- what movies a FB group watches.
- Marketers have an edge over manufacturers because they have direct touch with customers. This has brought in private labels and they have become even lucrative.
- Customers have access to global market place. Marketers offer best products, best customer service at low price.
- Complete data on the products along with the views of customers and price are available on on-line marketing.
- On line purchase anywhere, anytime.
- Data on customer when, what and how customers use the products and services results in more efficient use of energy and material inflows. It results in preserving resources, creating positive impact on environment and lowering costs. For Example John Deere from farm equipment manufacturer to Farm manager, where he counsels on seed optimization, irrigation, weather data and farm equipment use. MM's driverless machine analyzes the soil as it moves through the field to dispense only as much fertilizer as it needed according to the soil profile and expected weather patterns.
- Experience Marketing- Starbucks, Café Coffee Day, Malls without anchor shops but film theatres and entertainment.

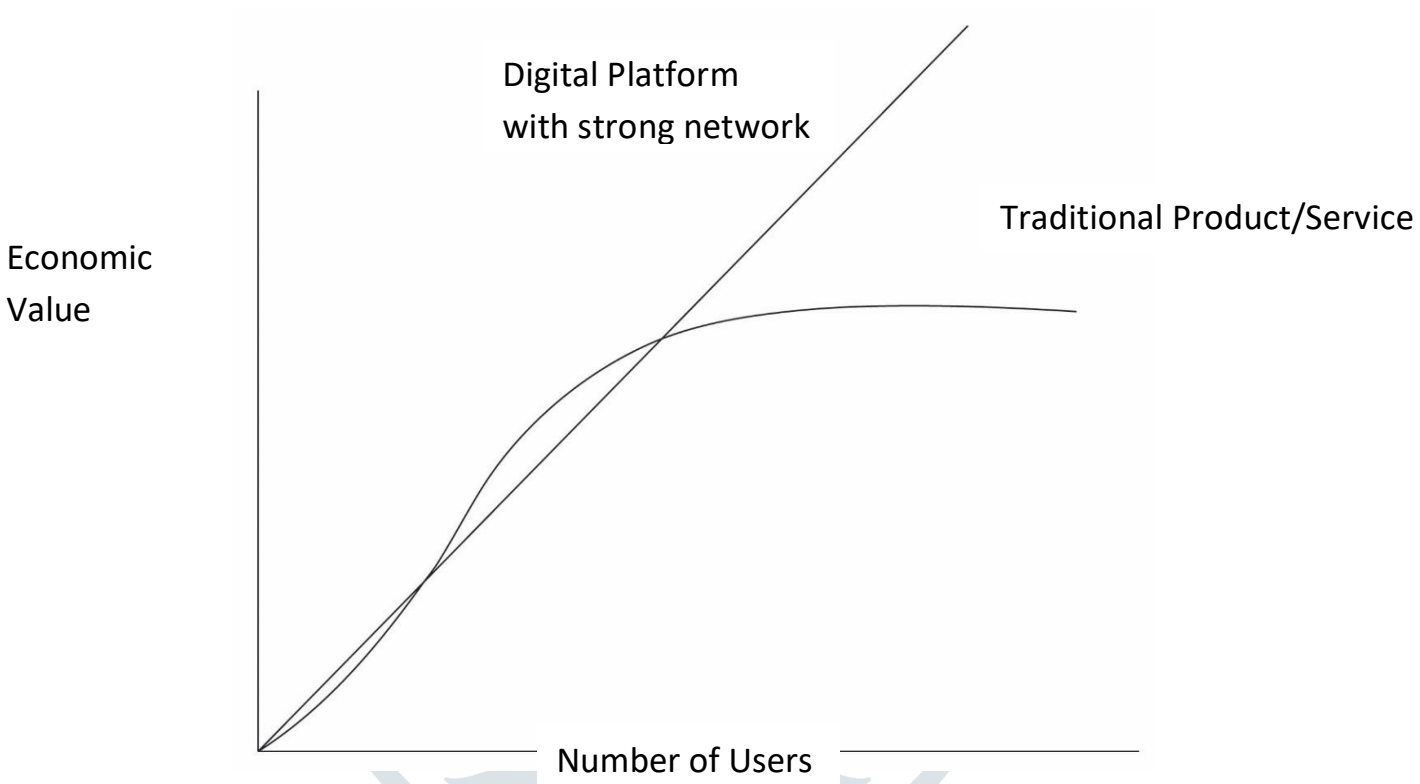
## 4. FROM TRANSFER OF ASSETS TO DELIVERING SERVICE

When the marketerbecomes customer centric with enhanced data management, the company shifts from selling products to delivering services.

In the past when a company hit at a lucrative product, it produced large quantity and expanded the market share. Its focus was on product and selling. The relation with the customer was transactional. Producing large quantity resulted in the economy of scale and reduced the cost. But the economy of scale was only up

to a point and then the economy disappears. So there was competition and multisite manufacturing. But in service economy, there is no flattening of the curve.

As they produce more, the more cost is reduced and marginal cost tends to be zero. Google, Facebook, iTunes. In Schiphol Airport, Philips receives paid for the lighting as a service. Philips owns all light fixtures, their maintenance and upgrade (inputs), Schiphol pays for the lighting (output), used by it. Philips now uses upgraded fixtures and LED bulbs. Xerox owns its machines and maintains them, while the customer pays for the copies he makes. Michelin introduces "paid per mile" for the use of its tires.




## 5. FROM INVENTORY ECONOMY TO ON DEMAND/SUBSCRIPTION ECONOMY

When we move from Transfer of Asset Economy to On Demand economy, we may not in some cases own an asset. The companies try to match demand and supply instantly. This results in companies serving across business lines-

(i) Amazon from book seller to $ 100billion retail conglomerate.

(ii) Google and Apple have entered into automobile industry. Now a car is a computer on the wheels.

(iii) Uber the world's largest taxi company, does not own a vehicle.

(iv) Facebook- the world's largest media owner, but creates no content.

(v) Alibaba – the most valuable retailer, but has no inventory.

(vi) Airbnb, OYO- The world's largest accommodation provider, but owns no real estate.

(vii) SaaS (Software as a service)- One need not buy a soft ware but use it as and when one requires.

## 6. MANUFACTURING

Siemen's Smart factory: 95% of operations are digitized, Each component has its own marker- bar code or embedded chip. It communicates with machine, which makes precise action, even changes in new component, new supplier or new machine is communicated. For every product complete information on each component and each stage along the assembly process.

Now it can customize without extra cost. Early growth of internet was used for communication and consumer commerce. But with platforms, data flow among machines.

GE's Predix: A cloud based operating system for industrial operations. It embeds sensors in assets like jet engines, wind turbines. The sensors supply data n their performance. So, GE can go for predictive maintenance and reduce down time. It increases the efficiency of equipments and brings huge savings. Reliability of assets is increases manifold.It can also manage the machines remotely. It is boon to the oil rigs, jet engines and oil and gas.

**3D Printing:**

Built intricate steel bridge in Amsterdam. Built 400 sq.fthouse in Russia. GE's fuel nozzles. It is very complex and intricate design, but it does successfully, and it reduces fuel consumption and emission from jet engines. It is very useful for prosthetic surgery.

**Augmented and Virtual Reality:**

Virtual reality immerses you in virtual world. Gaming industry uses for immersive games.Tourism uses for visit to various places from your home. Virtual test driving of cars.Training pilots and virtual designs before manufacturing.Augmented reality uses wearable reality, assemble many parts of an aircraft or warehouse.

**Digital Supply Chain**

Consumer product companies using sensors on shelves in retail stores monitor real time shift in demand. Amazon's on demand apparel manufacturing, results in less inventory and less "on sales items."

## 7. FINANCE

"Robo Advisory" algorithm dispenses with brokers and offers advisory services, portfolio tools at the fraction of the old transaction cost(from 2% to .05%).Block chain connects many of the financial services automatically.Storage of clients' cross border payments and clearing and settling of trades, products and services are possible because of network in block chains.

Fintech with digitalization, cheap processing and fast sanctions, offers on line loans instantly. Data driven algorithms quickly prequalifies customers on personal credit scores, then demand deposit account data, tax returns and three month bank statements. Using the data, the bank can sanction a loan in a jiffy.Futures contracts can be self-executed without a trader. E.g. credit derivative that pays out automatically.

Digitization of banks in the past focused on line access to bank accounts and remote deposits. Now marketing, underwriting and servicing of SME loans is done. It is a boon to SMEs. Since they require small loans and the processing is very expensive, many banks do not entertain SMEs. Now United Payment Interface (UPI) of National Payment Corporation of India, facilitates payment through mobile even if one does not have the bank account number. If no money is in one's savings account, the UPI automatically takes the money from his overdraft account and honors the bill.

### 8. HEALTH CARE

New diagnostic approaches and therapies coincide with digitized patient records giving wealth of information gathered from wearable and implantable devices.After studying the genetic make-up of a person, the doctors can find out the diseases one will be susceptible to and prevent the disease.Telemedicine, may give access to the best health care service in the world not moving from your place and thus reduce the cost.

Precision surgery and using robotics for surgery can make surgery noninvasive and without loss of blood.Stem cell research, another discovery, which is and will revolutionize health care.The research of the brain is so advanced, I will not be surprised that soon, artificial brain may betransplanted.

### 9. AUTONOMOUS VEHICLES

Driverless vehicles and electric vehicles will bring an upheaval in management. Less energy consumption, less accidents, less insurance premium, more observation of traffic rules, no parking, no drunken driving. Even kids can take a car.

### 10. ORGANISATION

Organization will be always in "beta" mode, i.e. evolving.This will increase the number of entrepreneurs and intrapreneurs.SMEs will have an edge in speed and agility to deal with disruption and innovation.

Large organizations will leverage their scale and invest in their ecosystems of start-ups and SMEsthrough acquisitions and partnerships with smaller but more innovative businesses. E.g. Google's Alphabet.

The flip side of these advances is, everybody will go for leaner organizations. Machines will replace man. The companies should make best use of the human capital. They should make them perform with discretionary effort. This requires organizations to find ways to fully engage and empower them and offer the best opportunity.

### HUMAN RESOURCES

Yet the fact remains that human resources will be squeezed and unemployment will be high. The worst scenario is, decision making which is the prerogative of human is taken over by Automation and Artificial Intelligence. Now what will top management do?

Tesla cars- when a car is in front of a truck, which the one inthe car does not see, are noticed by the radar and the car puts emergency brake.

In Space Exploration, most of the decisions are made by the machines. Next generation may witness wars without humans but with robots and drones.

We should also realize that this will be the age of humans, not merely the digital technology, because digital cannot create empathy and responsiveness, as humans can.

**Some aspects of HRM**

1. **Recruitment:**

   What Kind: More of IT professionals will be hired. Goldman Sacs for IPO and trading uses more IT professionals. GE wants software and cloud computing skills. Gap uses now less of creative directors and salesman and more of analytics.

   How to Recruit: from GD and interviewing which is time consuming, subjective(bias), ad doubtful reliability of traditional data points like degree and marks.

   Knack has introduced mobile gaming for recruitment. It is immersive and engaging digital experience. It can process 2500 micro behaviors per game and 250 micro behaviors per minute. It shows active and passive decision making, action and reaction, learning and exploration.

   It also studies how quickly one processes information, how efficiently one attends to use social cues like facial expression, looking at the eye, smile etc. It also studies how one handles challenges, learns, adapts and challenges one'sown behavior and thinking.

2. **Training and Development**

   The objective is to understand the needs of each employee and to create customized training. For this a company evaluates the strengths and weakness and the current and future needs of the company courses. The company uses it for strategic work force planning to gauge what are our current skills and what skills the company needs for the future. It can also create an inventory of human capital. For senior managers "reverse mentoring" may be done, since they are not comfortable with the digital technology.

3. **Performance Evaluation**

   A modern method of Performance Evaluation is used to measure one's performance and attitude and use it for salary and bonus purposes. But it is time consuming, uses "batch mode" (periodical), ineffective and makes the workers very defensive.

   Now the companies use real time feedback from peers, subordinates and bosses and data based and hence difficult to be defensive. Employee may try to explain away. It helps succession planning and career coaching.

4. **Talent Retention**

   Now many apps help to predict when a person may leave the company. Based on the data the company can plan talent management. We should conclude that machines will not replace human judgment but will be complementary for effective and real time management.

## CONCLUSION

We are sure, because of these disruptive changes, the people's life style, behavior, attitude and relationship will change. All of them will affect the management theory and practice. Some of the practices will be for the better and some others may have evil effects.

These are the changes brought about by the hard work, collaboration, networking and intelligence of our generation. We have done some bad things, but we have also helped the world to change for the better. But we will not live to enjoy the fruits of our labor but we are happy to bequeath to you, the future generation, the benefits of these changes. The challenge is what will you leave to your future generation?

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