Three weapons of the next-gen technologies

The word 'Weapon' is generally associated with something destructive but was invented by our ancestors as a means to save them from unexpected events and attacks from enemies. Though we have evolved over centuries, now this word still holds the same weight. For businesses, it's an answer to similar questions asked in different ways like "How can we trump the competition?" or "How should we tackle disruption?" or "How can we stay relevant in our businesses?" If this question is not a part of your boardroom meetings, your leadership hasn't been exposed to the concept of rapid pace of technology change. Being ignorant about technology change could lead your organization to self-destruction and the only way to make amends is to start harnessing the value of next-gen technologies in your businesses.

Next-gen technologies are innovations that essentially displace or can displace existing technological establishments in some way. Can these next-gen technologies kill businesses? I will say No, but businesses will kill themselves if they don't adapt to them at the right time with the required pace for the benefit of their end customers.

There are many such technologies but the ones that are making an impact are Artificial Intelligence, Internet of Things (IoT) and advanced analytics. The combination of the three technologies has so many business use-cases like prescriptive maintenance, anomalies detection, intelligent recommendations etc.

I would love to borrow the famous tagline from our doctors i.e. "Prevention is better than cure" and would like to demonstrate the same in the form of a use-case.

Artificial Intelligence is the idea that there are tasks which can be performed by machines in place of humans with better accuracy, and these machines are capable of thinking, acting and learning like humans.

Internet of Things is a connected ecosystem of devices, software systems, sensors, internet and platforms that perform better by exchanging information, understanding each other and delivering a seamless experience. Understand Internet of Things as a bunch of devices talking to each other like a family.

Advanced Analytics is the idea of using data and analytics techniques to get insights, which are otherwise not possible or very difficult to take better actions and decisions. Advanced analytics can give better dashboard experience thus improving the quality of decisions.

When these three technologies intersect and work together, they can create wonders for various businesses especially in industries relying heavily on sensors and robots.

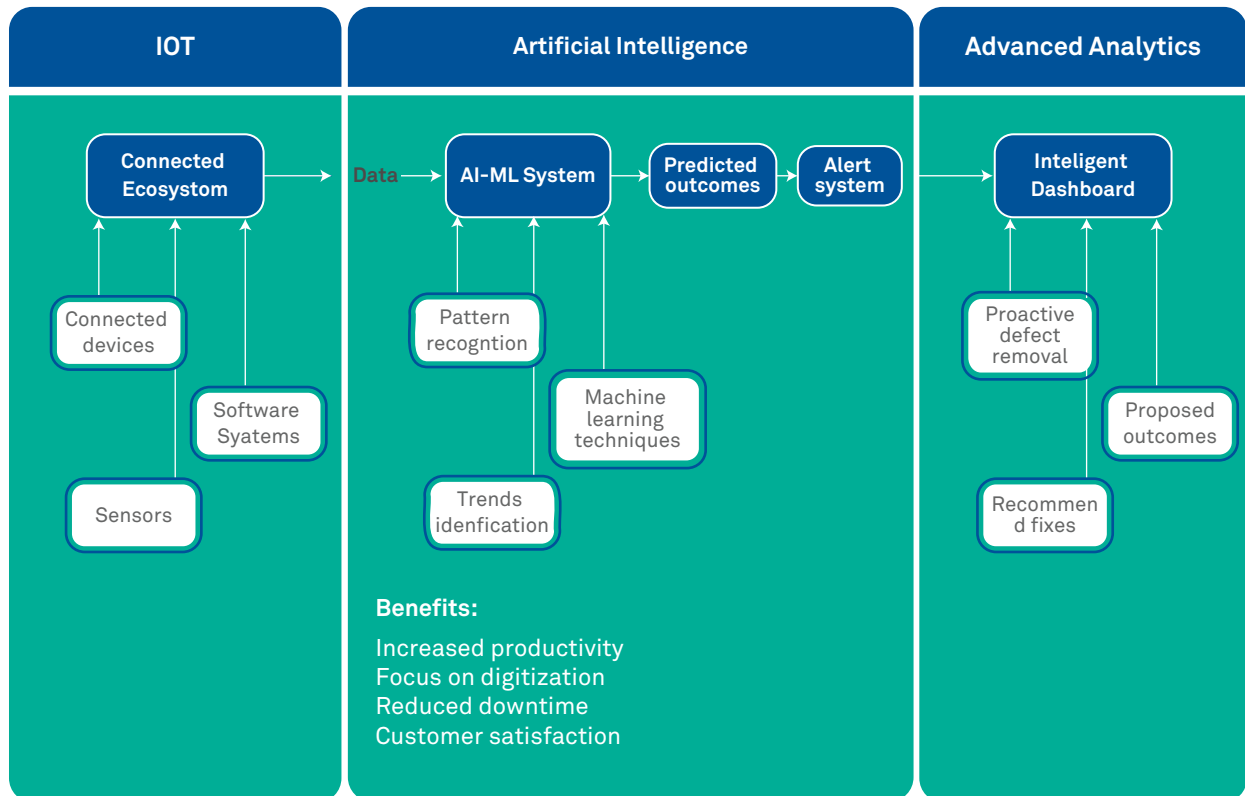**Use Case: Proactive detection or prescriptive maintenance of machine failures**

What comes to your mind when you think about IoT? We believe you will think about controlling your fan, television and other similar electronic devices using your buddy, cell phone or any remote controller. These are independent devices talking to each other and exchanging data. Prescriptive maintenance is a disruptive shift in the way machine failures are addressed and the intention for such a system is real-time monitoring of the events, learning from the past events using machine learning concepts and acting before any defect impacts the system or the production line. Prescriptive maintenance leverages advanced artificial intelligence algorithms like pattern recognition, identifying trends from the data, production lines monitoring, prediction of future failures, and using advanced analytics to change the outcome promptly.

The essence of the IoT ecosystem is a collection of interconnected devices sending data and talking to each other to improve user experience. Artificial intelligence as a technology is known for the software systems exhibiting human kind of intelligence. Now imagine the power of such a system having a huge amount of data collected from IoT devices and leveraging the collected data for smart insights using artificial intelligence and machine learning. Artificial intelligence components will better interpret the data obtained by the IoT ecosystem and will feed the interpreted results to smart dashboards. These smart dashboards built using advanced analytics

components will help to report possible machine failures, equipment dependencies or any mishaps well in advance, proactive defect removal, and proposing intelligent recommendations all without the human intervention.

Remember, the IoT itself is built on AI and ML concepts and adding an extra AI layer will enable such systems to achieve their full potential resulting in business value.

Below is one of the logical ways such a system can work

IOT	Artificial Intelligence	Advanced Analytics

- Connected Ecosystom
- Connected devices
- Software Syatems
- Sensors

Data →

- AI-ML System
- Predicted outcomes
- Alert system
- Pattern recogntion
- Machine learning techniques
- Trends idenfication

- Inteligent Dashboard
- Proactive defect removal
- Proposed outcomes
- Recommend fixes

Benefits:
Increased productivity
Focus on digitization
Reduced downtime
Customer satisfaction

Benefits of such a system are a reduction in downtime, increased productivity and improvements in equipment's reliability. Benefits of using AI & advanced analytics is that instead of just predicting the failures & mishaps the system is now focusing more on proactive recommendations. These next-gen technologies can help companies to detect failures before they even happen, to result in a reduction of losses because of reduced downtime and thus huge benefits in cost savings for big firms that spend millions of dollars on extra downtime issues.

Another major advantage for companies that are leveraging prescriptive maintenance is increased customer satisfaction.

Our take on adopting these next-gen technologies

Don't be myopic

In a dynamic industry, no one can predict what is going to happen but that should not stop leaders from foreseeing the future. Organization and their executives should look at how businesses have evolved in the past few years and how it could further evolve, as well as and how their customer preferences could change in the future.

If we take a reference from the bible of management "What got you here won't get you there" by Marshall Goldsmith, we can clearly understand that the technologies that helped you in the past may not help you in future and you have to adopt to these next-gen technologies as applicable to your business.

Don't be deaf and blind

We are in an industry driven by customers and the market. Any organization in the market is born and evolved because of the demand created by the customer and businesses will survive till the moment they can fulfill this demand. Leaders need to ensure that they're listening to customer expectations and their eyes are on the competition, new innovations and the changing technology landscape to keep abreast of any innovation or technology becoming a threat to their survival. Once it is clear, the established business must respond or adapt to protect its market position.

Be a kid

Kids are known for their inquisitive behavior and as kids, we all used to explore new things without the fear of failure. Similarly, organizations today should behave like a kid in exploring possible business use cases where they can leverage next-gen or combination of next-gen technologies to solve a problem or do existing tasks in a more intelligent way.

Embrace your people

Software systems are built by humans and will always be, so organizations need to ensure that they embrace their people by spending required money and efforts to motivate, train them to work with next-gen technologies. People investment should be on the top of your priority list for any change.

About the authors

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Damodar is a Thought Leader in the space of IoT, Industry 4.0, Blockchain, Supply Chain and Aftermarket Services. An eloquent speaker at multiple forums and conferences like CII, NASSCOM, CeBIT, IoT & AI, Blockchain Global Conference etc., he has written blogs on various Digital Transformation approaches and technology innovations.

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