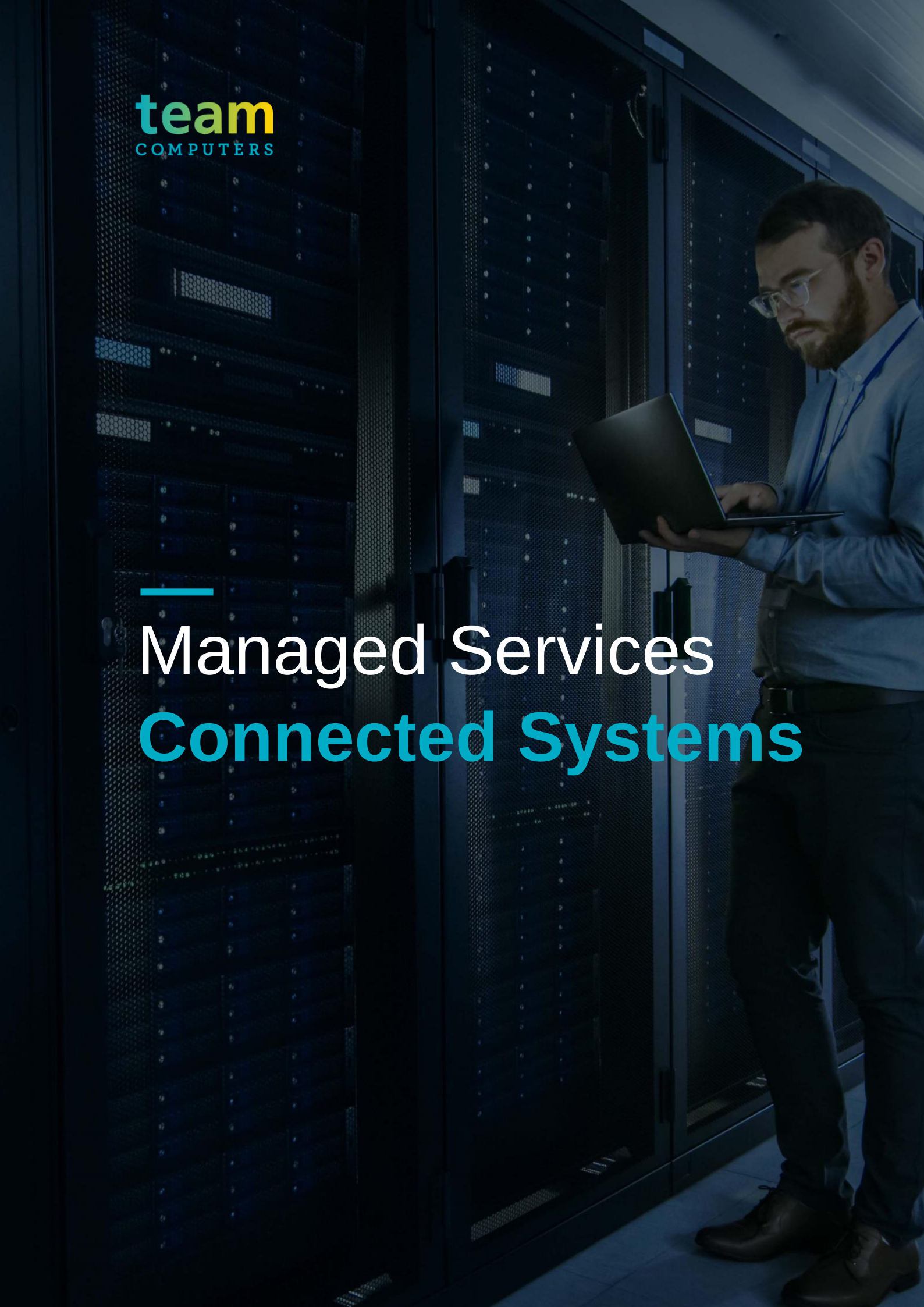

team COMPUTERS

Managed Services
Connected Systems

Industry 4.0 – A perspective

As per BCG,

"*It refers to the fourth industrial revolution, which affects every manufacturing domain and comprises advanced manufacturing technologies that capture, optimize, and deploy data.*"

And Deloitte describes:

"The term Industry 4.0 encompasses a promise of a new industrial revolution—one that marries advanced manufacturing techniques with the Internet of Things to create manufacturing systems that are not only interconnected, but communicate, analyze, and use information to drive further intelligent action back in the physical world."

Importance of connected systems in Manufacturing

The most important highlight of the industry 4.0 is key shift from production to customization. Customers will immensely benefit from the customization and decide what output/outcome they want from the platform.

If we look at the whole association as a business ecosystem, it turns out a very tightly coupled platform of 4 highly connected systems (Customer, Production, Supply chain & Talent) and then 8 steps in production connected system as shown in **Fig 1.1.**

The connected systems is a whole new emerging world of interconnected intelligent machines that will make the production smarter in most cost beneficial approach.

Fig 1.1 Connected Systems in a Manufacturing unit in 4.0

The steps in **production system** particularly play an important role because of the factors such as savings of energy , optimum consumption of plants, quality control processes (Kanban, Lean production). The tracking modes, vehicle type, time taken to deliver is tracked in real time. Assets in factory are located and put to use using RLTS(Real Time Location System). With the help of simulation technologies , it is easier to create a clone of the product which cuts down the failure rates drastically. The smart architectures, complex algorithms are employed for most efficient way to produce. The increasing range of capabilities are provided by the robots which work closely with humans. And lastly, the additive manufacturing capability using 3D manufacturing is faster, more reliable and way more innovative than the outputs received in industry 2.0 and 3.0 frameworks.

Benefits & Challenges of connected systems in the manufacturing

Fig 1.2 Benefits of a Connected Systems in a Manufacturing

While there are benefits derived from a connected technology world, we also see a lot more challenges in rolling out the strategy of these connected systems as depicted in the **Fig 1.3**.

Fig 1.3 Challenges of a Connected Systems in a Manufacturing

Partners roles in Connected Systems

The various partners across the value chain will bring in their respective competencies. The Managed Services Provider (MSP) will handle the Infra competency required for running all the applications, connectivities and workloads on the cloud and offline. The system integrator will have the initial role of setting up the things for O&M support to kick in. Some manufacturing specific solutions will come from respective OEMs(Original Equipment Manufacturer). **Fig 1.4**

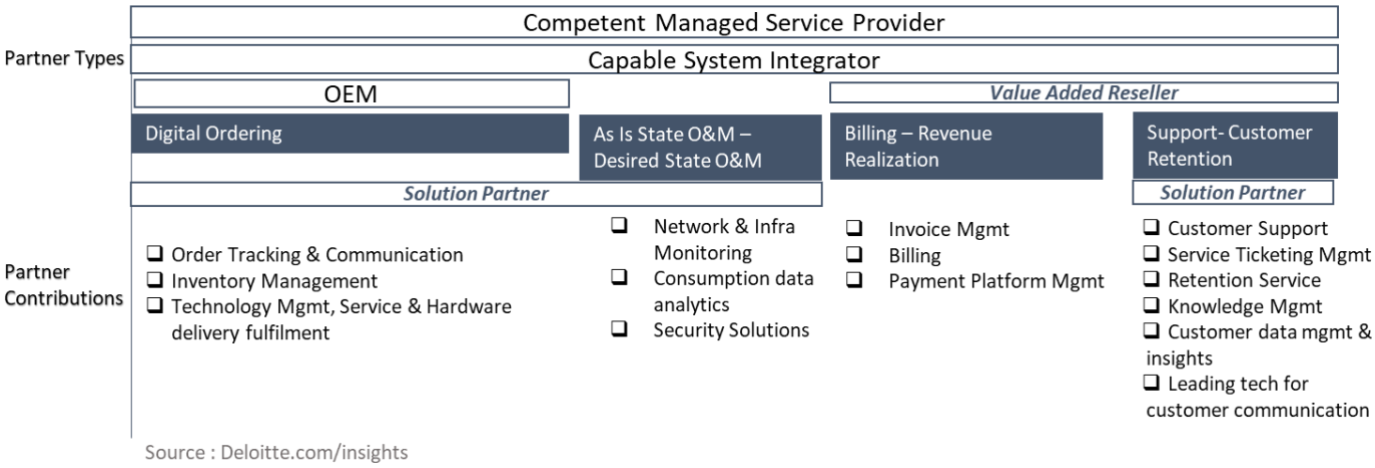

Fig 1.4. Partners' roles in connected systems

When we connect the various parameters for connected systems, picture is drawn on a bigger canvas. There are key processes linked to each system and are controlled, supported by the technology stacks. All the technical towers are supported by their respective SMEs & processes. The MSPs create value as follows:

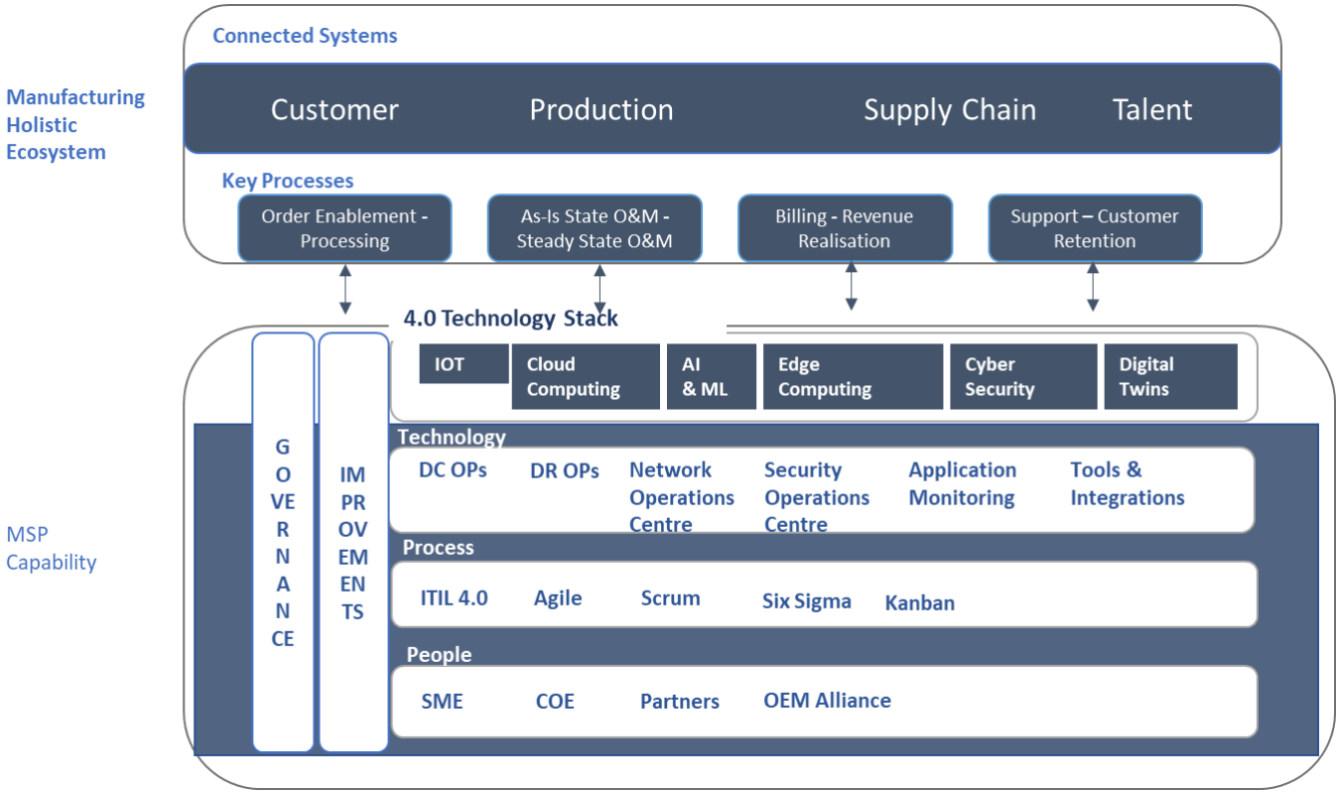

Fig 1.5. Managed Services Framework for connected systems

- Managing the O&M for whole technology stack in harmony with the capabilities they have.
- Bringing best practices of the industry to the core.
- Banking upon their past experiences & wisdom from previous projects.
- Evolve the technology, support frameworks
- with continuous improvement initiatives.
- Control, manage and utilize best skills for technology stacks.
- Help manufacturing unit comply to regulatory & statutory compliances, contribute to overall governance by the unit.

Conclusion

It is imperative that for the challenges of a connected system are certainly not easier than the conventional IT integration and it's ongoing support. The integration, monitoring and management certainly requires skills that only competent and capable partners can bring to a manufacturing unit. With the production value getting unlocked as we have seen in the **Fig. 1.4 and Fig 1.5** above, a manufacturing unit will certainly achieve lots of benefits as depicted below in Fig 1.6

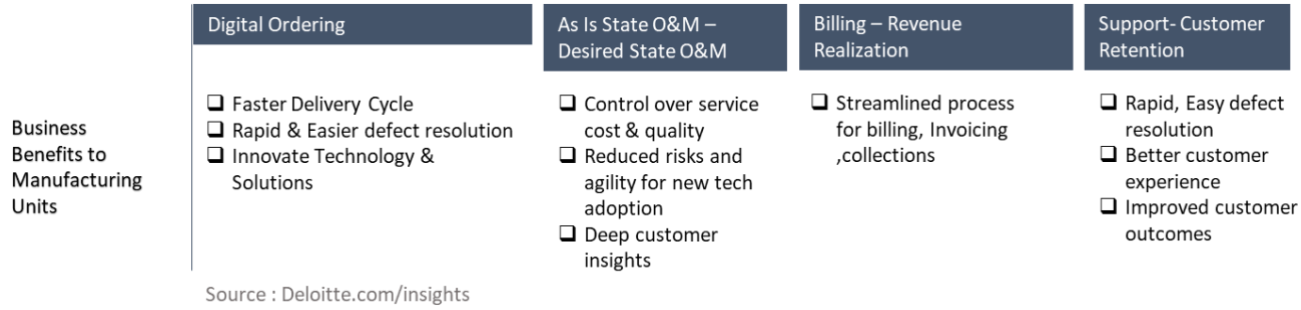

Fig.1.6. Business Benefits to Manufacturing Units with competent MSP