

CompuSOFT:

THE DIGITAL FOUNDATION FOR INDUSTRY 4.0 IN KSA

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REVOLUTION INDUSTRY 4.0

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"A Happy, Safe and Prosperous New Year to You and Yours!"

Raed Al Maskeen, President & CEO



Digitization + IR 4.0 = Smart Buildings and Smart Cities

As we introduced in our last newsletter, our position here at CompuSOFT is that Digitization plus components of the Fourth Industrial Revolution (IR 4.0) are the prerequisites for Smart Buildings and Smart Cities...*with that, Digitization is key!*

CompuSOFT and Digitization

Digitization is the process of converting analog information into a digital format that can be understood by computer systems or electronic devices, and at CompuSOFT, this has been a core service offering from our inception. As the largest Saudi-owned engineering solutions provider in the GCC for almost three decades, CompuSOFT is all about converting our clients portfolio of infrastructure assets into a solid 'digital foundation', one that now supports the Kingdom's Vision 2030 focus on the Fourth Industrial Revolution (IR 4.0). Our broad range of engineering services complimented by technical and vocational training all underscore this important endeavor.

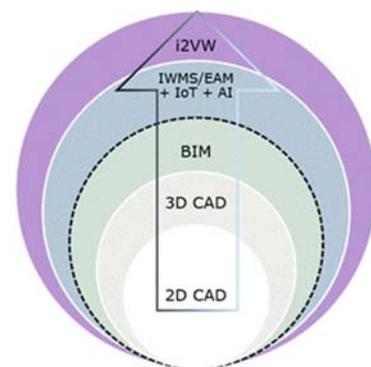
As we now transform to a full-service solution provider, it is also our position that this 'digital mirror' will serve as the basis for efficiently managing and maintaining said infrastructure; for effectively addressing environmental sustainability challenges, especially those in challenging environments in Kingdom; for providing immediate and accurate situational awareness, designed for emergency preparedness and continuity of operations; and for Virtual Reality/Augmented Reality/Mixed Reality training solutions that provide experiential learning...*learning by doing* for 21st Century workers. These and others serve as the catalyst for our change.

The Digital Maturity Continuum

Specifically, the approach to our technology-agnostic service offerings can be viewed as a journey along a maturity continuum, beginning with basic 2D CAD digitization and culminating with AI-enhanced, Immersive, Interactive Virtual Workplaces (i2VW™)...*our framework for VR/AR/MR.*

Along this digital maturity continuum, we support 3D Laser Measurement and Digitization; 3D Design, Visualization and Documentation; Building Information Modelling (BIM); Integrated Workplace Management Systems (IWMS); Enterprise Asset Management (EAM)...*both of which can be enhanced with IoT and AI for a 'Digital Twin';* and Immersive Visualization (iVW™).

Understanding that the challenges we face here in Kingdom are potentially global in nature and recognizing that technology is rapidly changing at an exponential pace, our go-to-market approach is with relevant strategic Partners that provide unique solutions to specific problems. Our value proposition at CompuSOFT is to contextualize and regionalize these solutions to accommodate the many subtle nuances that exist in KSA.



Understanding IR 4.0

Originating in the Manufacturing sector of Industry, the concept of IR 4.0 builds on the extensive adoption of computers and automation in the third industrial revolution and reinforces this with smart and autonomous systems supported by data and machine learning. According to Forbes, and for context, the first industrial revolution came about with mechanization through water and steam power and in the second industrial revolution, was followed by mass production and assembly lines using electricity.

Enhanced by the internet of things (IoT), artificial intelligence (AI), and cognitive computing with big data analytics, and now referred to as 'smart' (i.e. smart factories, smart buildings, smart cities, etc.), IR 4.0 enables the seamless integration of digital (cyber)/physical infrastructure (digital twins), physical processes, and decentralized decision making. Specifically, the physical systems integrate with the IoT devices which communicate and cooperate both with each other and with humans in real time over the wireless web.

These have all resulted from the rapid transformations due to innovation and technological advancements and from the CompuSOFT perspective, all need our digitization services. For further clarification, 'Smart' means:

- Interoperability – Machines, devices, sensors and people that connect and communicate with one another.
- Information transparency – The systems create a virtual copy of the physical world through sensor data in order to contextualize information.
- Technical assistance – The ability of the systems to support humans in making decisions and solving problems and the ability to assist humans with tasks that are too difficult or unsafe for humans.
- Decentralized decision-making – The ability of digital/physical systems to make simple decisions on their own and be as autonomous as possible.



IR 4.0, KSA, and Vision 2030

According to the Kingdoms Vision for 2030 (<https://www.vision2030.gov.sa/en>), His Highness, Crown Prince and Chairman of the Council of Economic and Development Affairs Mohammad bin Salman bin Abdulaziz Al-Saud, "Vision 2030 is a bold yet achievable blueprint for an ambitious nation. It expresses our long-term goals and expectations and it is built upon our country's unique strengths and capabilities. It guides our aspirations towards a new phase of development - to create a vibrant society in which all citizens can fulfill their dreams, hopes and ambitions to succeed in a thriving economy".

Towards this end, the Strategic Management Committee, on 15 July 2017, approved the delivery plan for the National Industrial Development and Logistics Program (NIDLP). The program is mandated to transform the Kingdom of Saudi Arabia into a leading industrial powerhouse and a global logistics hub in promising growth sectors (with focus on Industry 4.0), which would generate ample job opportunities for Saudis, enhance the trade balance and maximize local content.

The program focuses on four key sectors: Industry, Mining, Energy and Logistics, and many enablers including the development of Policies and Regulations, Financial Enablement, Infrastructure, Industrial Lands, Special Economic Zones, Research, Development and Innovation (RDI). It also supports technological innovation and industry 4.0 to improve productivity and maintain priority sector competitiveness.

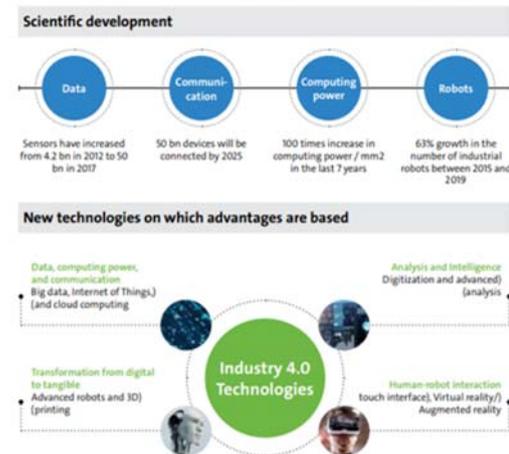
Relevant Elements of IR 4.0

Our strategic transformation here at CompuSOFT is designed not only to serve as a digital foundation, but also as a springboard into the Kingdoms future to support innovation, empower local participation, and to provide a catalyst for Saudi involvement in the myriad of opportunities afforded by the components of IR 4.0. Here are a few in alphabetical order:

- Additive Manufacturing – An example of this is 3D printing which is used for prototyping and small-scale production purposes.
- Autonomous Robots – Driven by needs of the manufacturing sector to increase productivity and safety, robots are being developed that will coordinate between themselves and with humans to expand their present capabilities and capacities.
- Big Data, Analytics and Artificial Intelligence – Tremendous amounts of data is being collected from multiple sources at an unprecedented rate. The objective is to decipher and analyze this data to uncover hidden patterns, correlations and other insights.
- Cloud Computing – This is the use of various services (software development platforms, servers, storage and software) over the internet, often referred to as the 'cloud'.



<https://www.vision2030.gov.sa/en>



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"We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another."

Klaus Schwab,
President, World Economic Forum

- Cybersecurity – The increased connectivity of devices and the continuous flow of data across open networks also makes the system susceptible to cyber threats through malware and spyware. Identifying these threats and protecting the data is important to maintain its integrity and confidentiality.
- Internet of Things (IoT) – This will enable more devices to communicate directly through embedded computing for data collection and population, data creation and management, and cognitive data analytics.
- Virtual Reality / Augmented Reality / Mixed Reality (VR / AR / MR) – VR simulations leverage real-time data that mirrors the physical world. This virtual

model provides a safe and benign environment for the proposed physical change to be explored, tested and evaluated from the perspective of time, cost, risk and overall efficiency.

As you have no doubt by now surmised, these components of IR 4.0 all involve digital information and digitization.

This is not only at the core of our original service offerings but is also front and center in our transformation to a full-service solutions provider...*and with our strategic partners like Unity (the world's leading 3D development platform), CompuSOFT is your digital partner!*

The Next Issue

In summary, our position here at CompuSOFT is that Digitization plus components of the Fourth Industrial Revolution (IR 4.0) are the prerequisites for Smart Buildings and Smart Cities. We are also acutely aware that this concept is also an integral component of the Kingdom's Vision 2030.

Towards this end, and in support of the Saudi Smart Cities Summit and Expo 2020, the organizers cite that the World Bank estimated that 75% of future GDP growth around the world will come from cities and towns. They mention that realizing the potential, and under the umbrella of Vision 2030, KSA also launched 'The Quality of Life Program 2020' with a goal to build "All Inclusive Economic Cities" referred to as Smart Cities that can gain a spot in the top ranked 100 cities in the world. With this as a catalyst, KSA is investing billions of dollars to develop 10 of these smart cities in the region and it is expected to contribute US\$150 billion to GDP and create more than 1 million jobs by 2020.

These also serve as the catalyst and motivating factors for CompuSOFT. As we describe earlier, digitization is a primary foundation for this, and our core service offerings can assist you along this journey. Stay tuned for our next newsletter that explores this in much greater detail. In the interim, please visit our website at www.compusoftme.com, and reach out to us directly at: info@compusoftme.com virtual.workplaces@compusoftme.com



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