



## OPPORTUNITY #26

COULD EVERY FACTORY PRODUCE EVERYTHING?

# ON-DEMAND MANUFACTURING

Agile mass manufacturing hubs that can rapidly design prototypes then immediately test and launch multiple products

### WHY IT MATTERS TODAY

Manufacturing is responsible for around 16% of global GDP,<sup>256</sup> but has a relatively large environmental footprint, consuming more than half of energy supplies and accounting for 20% of global greenhouse gas emissions.<sup>257</sup>

The time to market for most industrial and consumer goods today is one to seven years.<sup>258</sup> Manufacturing is also under pressure to change its model as consumers seek more personalised goods and services, delivered more rapidly to meet demand.<sup>259</sup> Manufacturers are seeking to respond to these forces by becoming more agile<sup>260</sup> and adopting a 'just-in-time' philosophy to meet demand cost-effectively.

Another feature of global business world is a productivity gap between small and medium-sized enterprises (SMEs) and large companies that ranges between 26% and 80%<sup>261</sup> between countries. A large share of the world's workforce works for SMEs, ranging from 50% to 90%, depending on the country.<sup>262</sup> Halving this productivity gap between SMEs and large companies would add around \$15 trillion or 7% to global GDP (at 2020 levels).<sup>263</sup>

SMEs in the Middle East account for around 90% of registered companies, contribute between 4% and 40% to GDP<sup>264</sup> and create about half of new jobs.<sup>265</sup> They could therefore play an instrumental role in creating jobs for the 20 million young people expected to join the workforce by 2025.

### SECTORS

AGRICULTURE & FOOD • ADVANCED MATERIALS & BIOTECHNOLOGY • CONSUMER GOODS •  
HEALTH & HEALTHCARE • MANUFACTURING



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#### THE OPPORTUNITY TOMORROW

There is an opportunity to shorten times to market and supply chains by using increasing computational and modelling power to enable machines to monitor demand, collaborate and reconfigure themselves to create and test innovations, scaling up production within hours.

Such 'agile manufacturing' can transform how goods are produced and, if used in large-scale facilities, could take advantage of advances in machine intelligence and multipurpose materials to produce a wide range of products.

Such agile techniques will mean that consumers get quicker access to higher-quality products, while predictive demand modelling reduces waste. Regional and global trade can be transformed as individual regions become more self-reliant by producing a wider range of products themselves.

SMEs, for whom manufacturing is not currently the source of competitive advantage,<sup>266</sup> can set up agile and connected manufacturing hubs to increase capital efficiency and lower operating costs.

#### BENEFITS

Agile processes can reduce waste, cut costs and boost efficiency in supply chains. Agile supply chains support multiple small processes for each product instead of one large process. They also produce goods in a way that reduces the effects on the environment and the communities they serve.

#### RISKS

Risks include the potential to encourage unsustainable consumer habits, regional or global dominance of a few leading firms and vulnerability of mass manufacturing hubs to outages or large production runs containing faults. The concentration of capacity exposes them to malicious attacks.