

J&J Supply Chain Transformation and Innovation Approach

Content

J&J, the most broad-based healthcare company and J&J Supply Chain context

J&J Supply Chain Transformation & Innovation Approach : Why, What, How and progress To-Date

J&J Supply Chain Transformation & Innovation - example : the Manufacturing for the Future Journey

Learnings & Critical Success Factors

J&J, the Most Broad-Based Healthcare Company

Consumer Products



Pharmaceuticals



Medical Devices



我們的信條

我們相信我們首先會對醫生、護士和病人負責，對父母及兒童負責，對母親和父親負責。為了滿足他們的請求，我們必須不斷地努力於降低我們的成本，以保證我們的產品能以合理價格供應。我們的供應商和經銷商必須有公平的機會。

我們對世界各國人民——男人和女人——負有責任。我們必須尊重他們的尊嚴，讓他們感到安全。我們必須確保他們的工作環境是安全、整潔、有序和安全的。我們必須確保他們的工作環境是安全、整潔、有序和安全的。我們必須確保他們的工作環境是安全、整潔、有序和安全的。

我們對我們所生活和工作的社區，以及全世界人民負有責任。我們必須是好的公民——支持好的工作和慈善事業，並承擔我們應有的稅收。我們必須鼓勵社區的改進和更好的健康和教育。我們必須保護環境，保護我們所擁有的財產，保護我們所擁有的財產。

最後，我們對全體股東負責。企業經營必須有利可圖。我們必須實驗新想法，研究新產品。新設備必須被購買，新設施必須被提供，新產品必須被推出。當我們根據這些原則經營時，股東應該實現一個公平的回報。

Our Credo

We believe our first responsibility is to the doctors, nurses and patients, to mothers and fathers and all others who use our products and services. In meeting their needs everything we do must be of high quality. We must constantly strive to reduce our costs in order to maintain reasonable prices. Customers' orders must be serviced promptly and accurately. Our suppliers and distributors must have an opportunity to make a fair profit.

We are responsible to our employees, the men and women who work with us throughout the world. Everyone must be considered as an individual. We must respect their dignity and recognize their merit. They must have a sense of security in their jobs. Compensation must be fair and adequate, and working conditions clean, orderly and safe. We must be mindful of ways to help our employees fulfill their family responsibilities. Employees must feel free to make suggestions and complaints. There must be equal opportunity for employment, development and advancement for those qualified. We must provide competent management, and their actions must be just and ethical.

We are responsible to the communities in which we live and work and to the world community as well. We must be good citizens — support good works and charities and bear our fair share of taxes. We must encourage civic improvements and better health and education. We must maintain in good order the property we are privileged to use, protecting the environment and natural resources.

Our final responsibility is to our stockholders. Business must make a sound profit. We must experiment with new ideas. Research must be carried on, innovative programs developed and mistakes paid for. New equipment must be purchased, new facilities provided and new products launched. Reserves must be created to provide for adverse times. When we operate according to these principles, the stockholders should realize a fair return.

Johnson & Johnson

Nosso Credo

Unser Credo

Adam Smith said: "The only way to make a fair profit is to provide a fair price for the goods and services we sell."

Наше Кредо

Наша основная ответственность — перед врачами, медсестрами и пациентами, перед матерями и отцами и всеми теми, кто пользуется нашими продуктами и услугами. В процессе удовлетворения их потребностей все, что мы делаем, должно быть высокого качества. Мы должны постоянно стремиться к снижению издержек, чтобы обеспечить разумные цены. Заказы клиентов должны выполняться быстро и точно. Наши поставщики и дистрибуторы должны иметь возможность получить справедливую прибыль.

Мы несем ответственность за наших сотрудников, мужчин и женщин, работающих с нами по всему миру. Каждый человек должен рассматриваться как личность. Мы должны уважать их достоинство и признавать их заслуги. Они должны чувствовать уверенность в своей работе. Вознаграждение должно быть справедливым и адекватным, а условия работы — чистыми, упорядоченными и безопасными. Мы должны помнить о способах помочь нашим сотрудникам исполнять их семейные обязанности. Сотрудники должны чувствовать свободу высказывать предложения и жалобы. Должна быть равная возможность трудоустройства, развития и продвижения для всех, кто имеет соответствующие навыки. Мы должны обеспечивать компетентное управление, и их действия должны быть справедливыми и этичными.

Мы несем ответственность за сообщества, в которых мы живем и работаем, и за мировое сообщество в целом. Мы должны быть хорошими гражданами — поддерживать хорошие дела и благотворительность, нести свою долю налогов. Мы должны поощрять гражданские улучшения и лучшее здоровье и образование. Мы должны поддерживать в хорошем состоянии имущество, которым мы имеем привилегию пользоваться, защищая окружающую среду и природные ресурсы.

uestro Credo

Lo que nuestra primera responsabilidad es con los médicos, enfermeras y pacientes, con las madres y padres y todos los demás que usan nuestros productos y servicios. Para responder a sus necesidades, todo lo que hagamos debe ser de primera calidad. más luchar constantemente por reducir nuestros costos a fin de tener precios razonables. Los pedidos de los clientes deben ser atendidos rápidamente y con precisión. Nuestros proveedores deben tener la oportunidad de conseguir una justa ganancia.

Además ante nuestros empleados, los hombres y mujeres que trabajan con nosotros en todo el mundo. Cada uno de ellos debe ser considerado como persona. Hemos de respetar su dignidad y sus méritos. Deben tener un sentido de seguridad y confianza. Deben sentir que son parte de una empresa que opera con principios éticos.

Our Supply Chain



350,000
SKUs



>350
Distribution
Centers



250
Operating
Companies



>100,000 Orders a Day
250,000 Customers



>60,000
Employees /
Contractors



500
External Partners

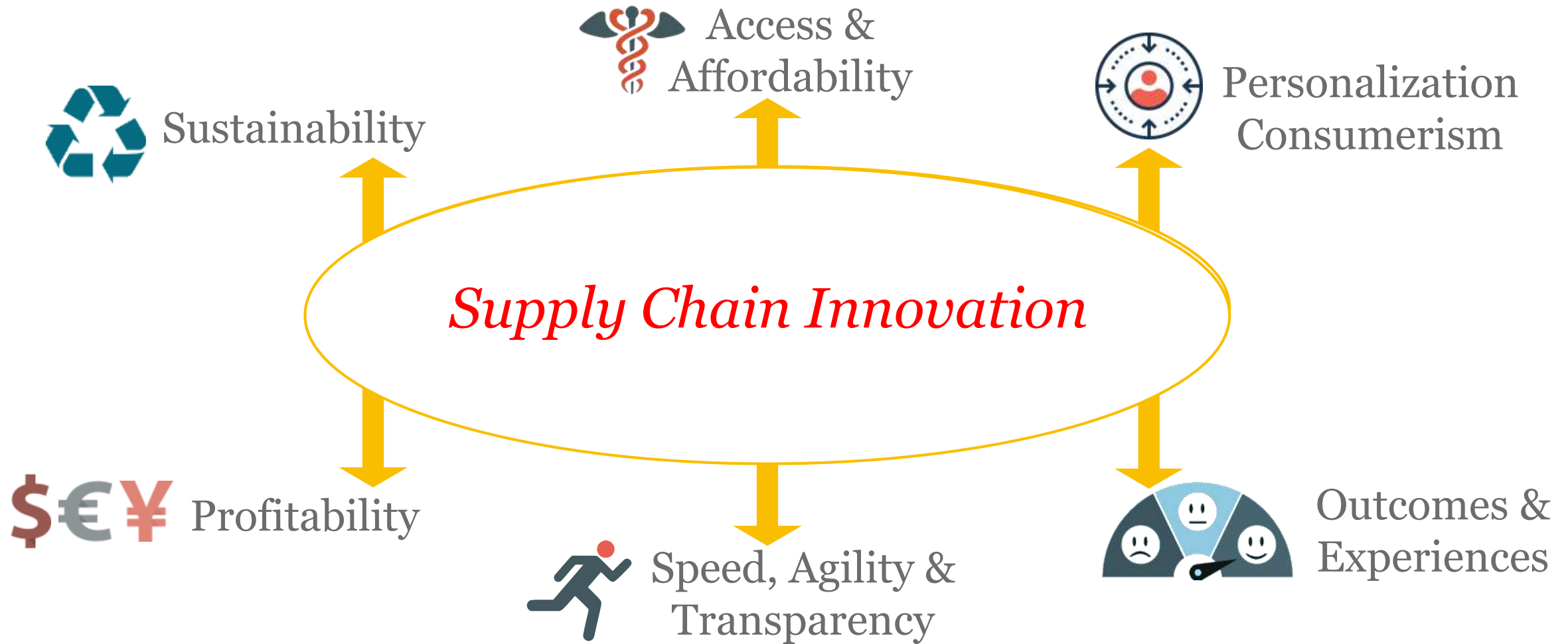


100
J&J Manufacturing
Sites



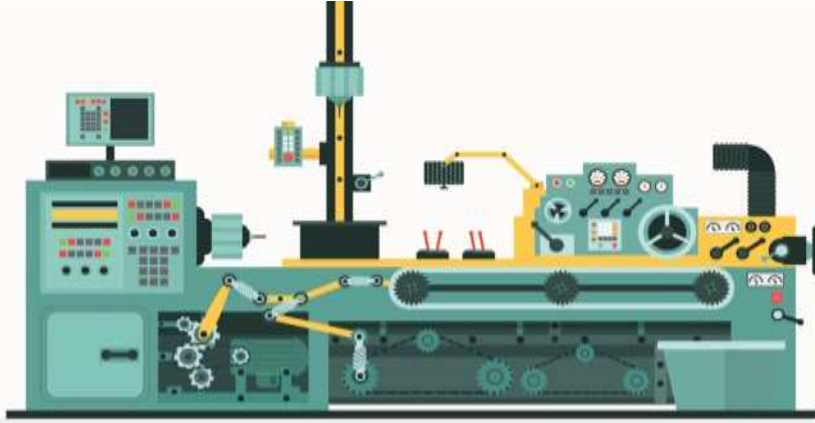
3,500
Suppliers

Addressing Healthcare Trends & Disruptors



Pivoting to become more “future-back” and “customer-pull” focused, while continuing to strengthen our operations

Economic Evolution



Industrial Economy Era

Products
Value Chains (linear)
Power of controlling supply chain
Supply-side economies of scale
Physical assets & capital depreciation
Diminishing returns
Market valuations driven by ROA
Growth organic or via M&A
GDP as economic measurement

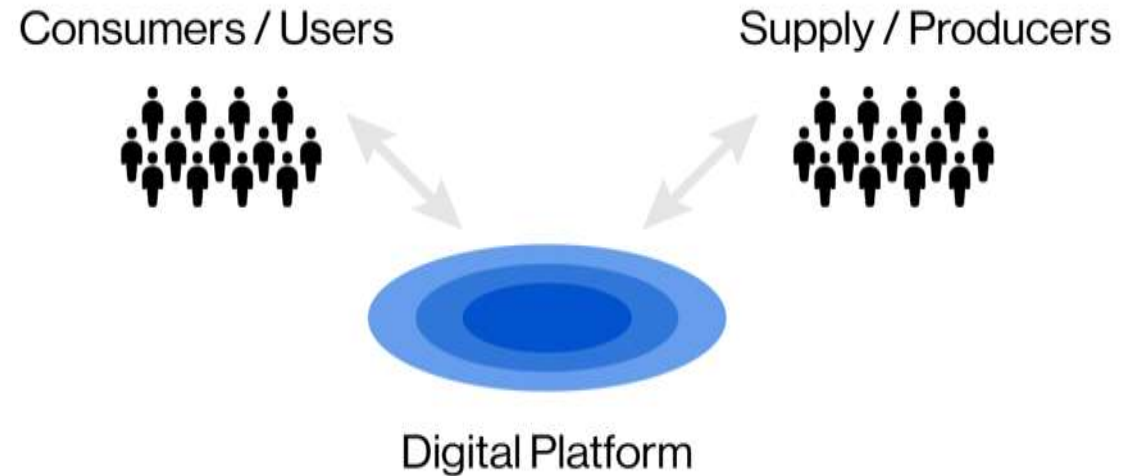


Digital Economy Era

Platforms
Ecosystems (non-linear)
Power of optimising ecosystems
Demand-side economies of scale
Digital assets & innovation capital
Distribution power law & network effects
Market valuations driven by ecosystems
Growth driven by asymmetric & network effects
New measures, digital density & 'free goods'

Platform Business Models: What Are They?

A platform is a single business model that creates value by facilitating exchanges between two or more interdependent groups, usually consumers and producers. In order to make these exchanges happen, platforms harness and create large, scalable networks of users and resources that can be accessed on demand.



Service
Platforms



Products
Platforms



Payments
Platforms



Communication
Platforms



Social Networking
Platforms



Development
Platforms



Content
Platforms

Source: Accenture, Technology Vision 2016 Report, The Platform Economy

Software is Eating the World



Netflix

The largest growing television network lays no cables
Market Value: **57.15 Billion**



Uber

The world's largest taxi company owns no vehicles
Market Value: **68.35 Billion**



Instagram

The most valuable photo company sells no cameras
Market Value: **35 Billion**



Airbnb

The largest accommodation provider owns no real estate
Market Value: **31 Billion**



Facebook

The largest and most popular media provider creates no content
Market Value: **352.65 Billion**



Alibaba

The most valuable retailer holds no inventory
Market Value: **238.85 Billion**

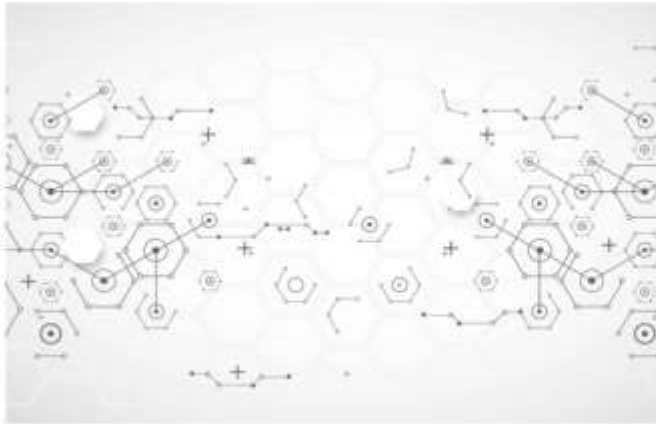
Platforms: Market or Technology?



The Economic Perspective:

Platforms create value by acting as conduits between two or more groups of consumers who would not have been able to connect or transact without the platform.

Platforms are two-sided or multi-sided markets.



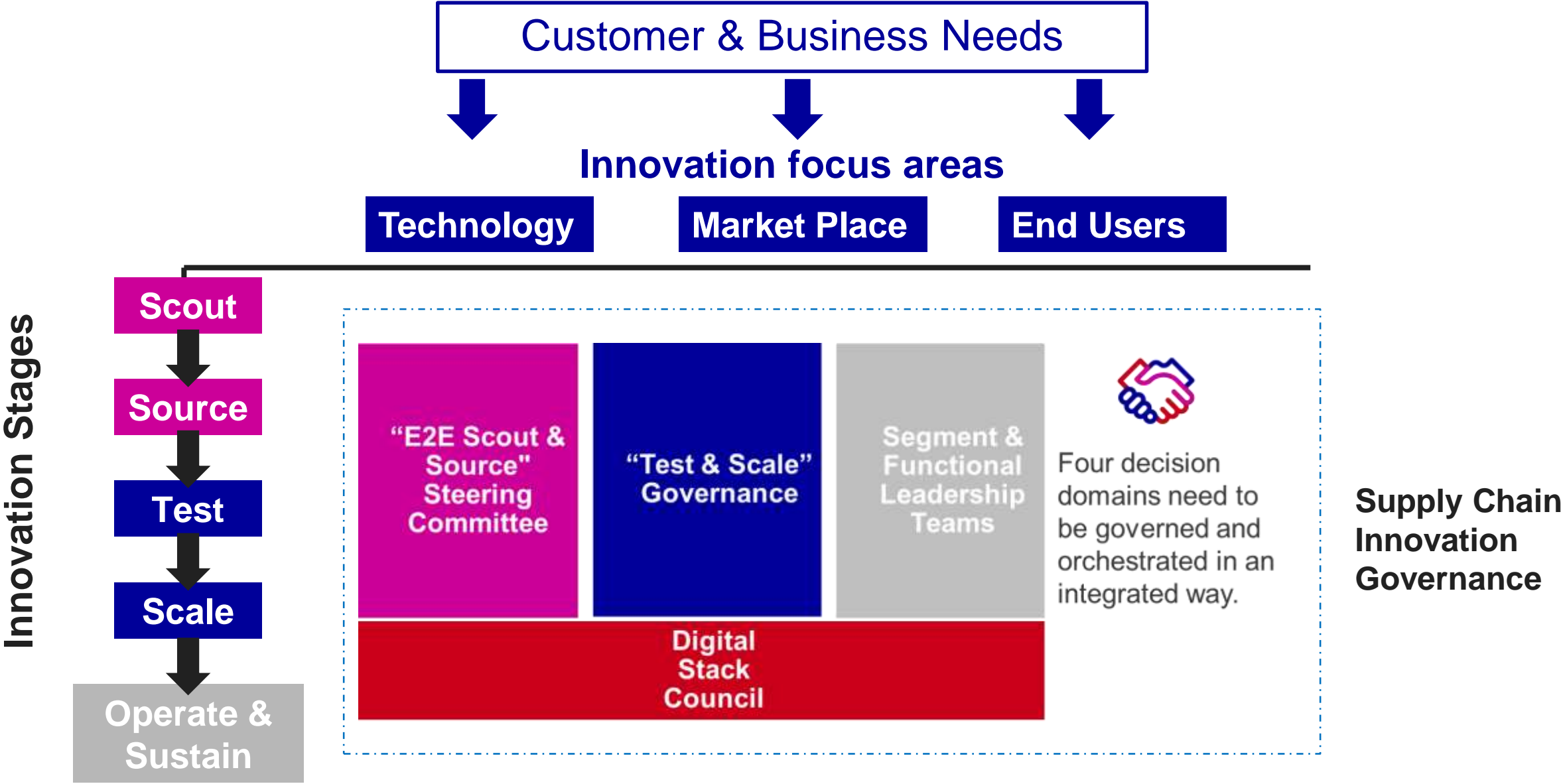
The Engineering Perspective:

Platforms have a modular type of technological architecture, with interfaces (APIs) being fundamental for modularity to facilitate innovation.

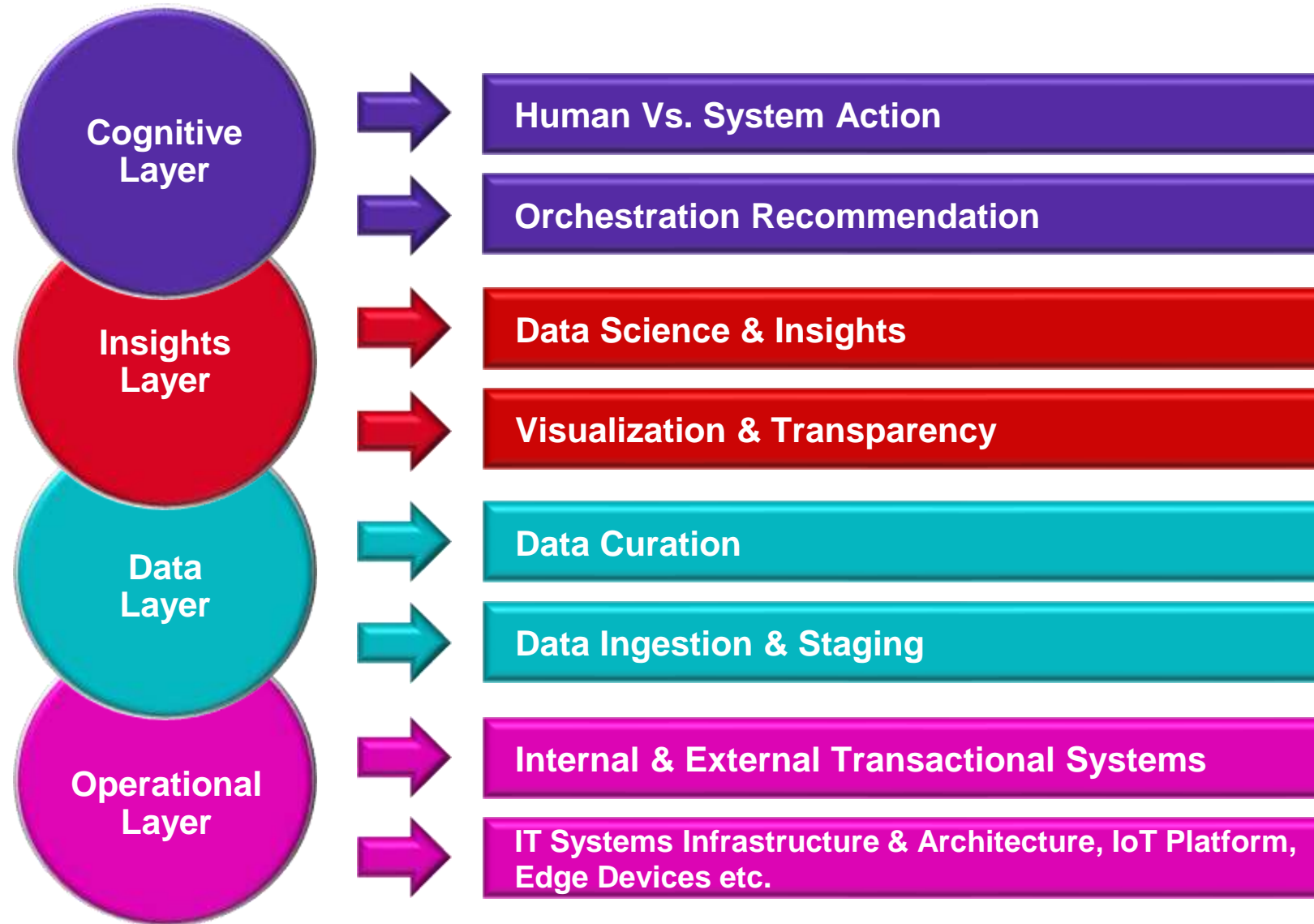
Platforms are purposefully designed technological architectures that facilitate innovation.

Source: Accenture, Technology Vision 2016 Report, The Platform Economy

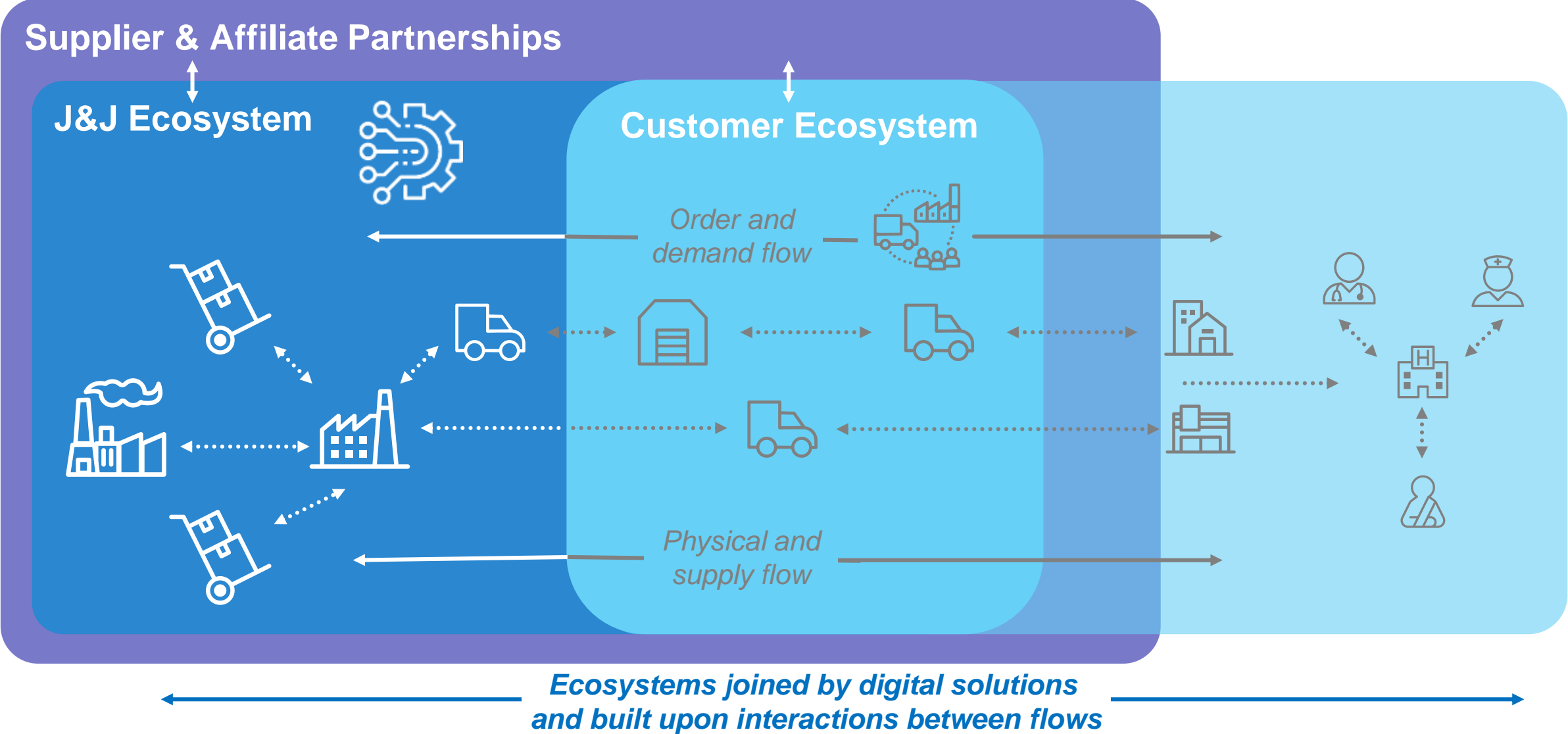
Holistic, E2E Supply Chain Innovation Framework & Governance



The foundation of all our digital solutions is the 'Digital Stack'



J&J has made headway digitizing its own ecosystem, and now collaborating & connecting with supplier & customer ecosystems



J&J's digital Supply Chain Maturity Evolution

J&J Ecosystem: within 4 walls

Customer Ecosystem: Turn customers to collaborators



Predigital

- Paper based transactions with limited digital capabilities



Digital Functions

- Function specific digitization of processes
- Supply chain functions at different maturity level & digital progression
- Limited digital interaction between functions



Digital Supply Chain

- End to end linkage of supply chain within "4 walls"
- Digital leveraged to capture and shape demand, supply signals



Digital Value Chain

- Digital supply chain directly connected to customers and suppliers
- Capabilities drive value through the development of new offerings
- Customer experiences enabled eg. personalization



Digital Ecosystem

- Supply chain has evolved into a digital ecosystem consisting of internal and external capabilities

Most JJSC functions/segments continue on journey towards digital supply chain within functions

A few JJSC leading digital solutions have started advancing into a digital value chain, collaborating with customers

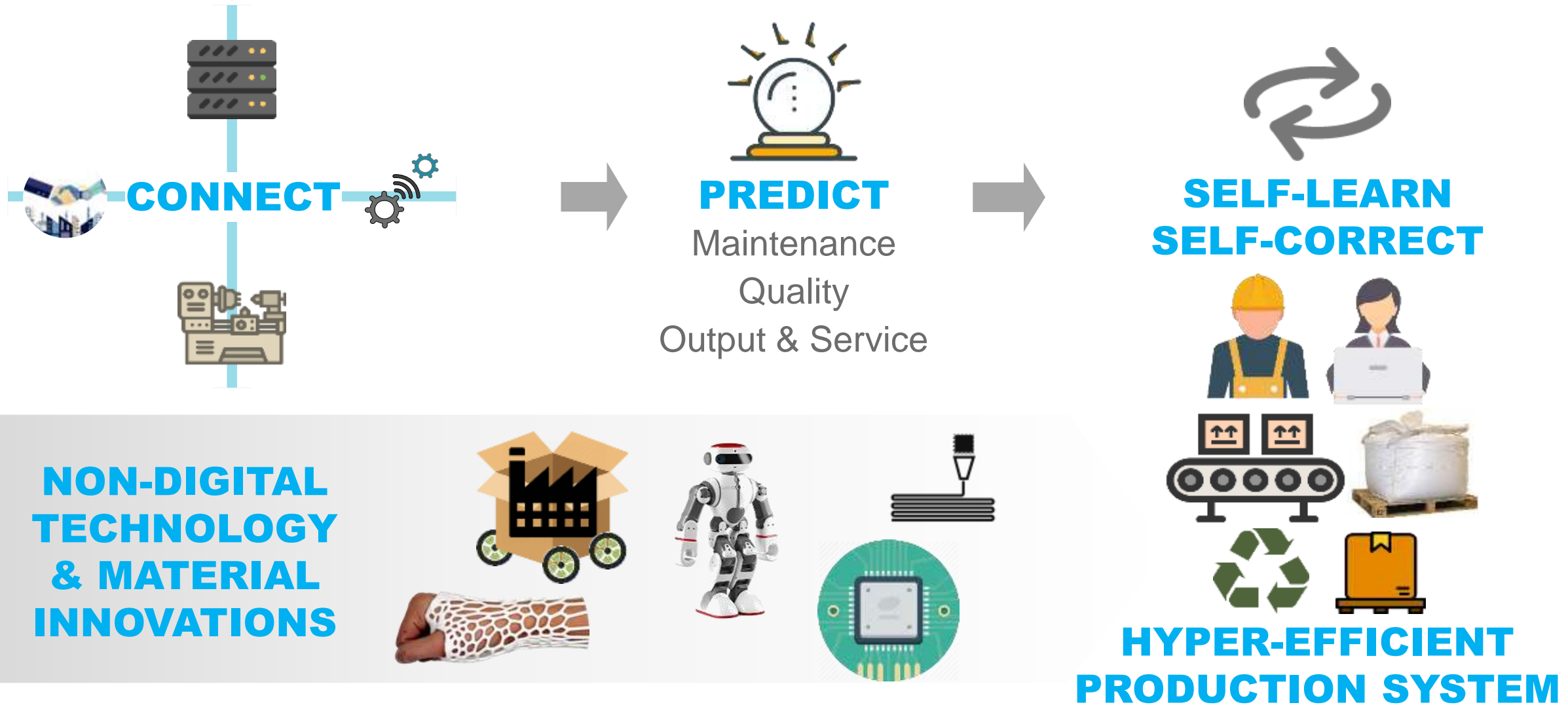
Our Manufacturing for the Future Journey since late 2015

We have build a new manufacturing capability and are now accelerating deployments across J&J Supply Chain, integrating technology solutions into bold customer use cases and drive E2E Supply Chain integration.



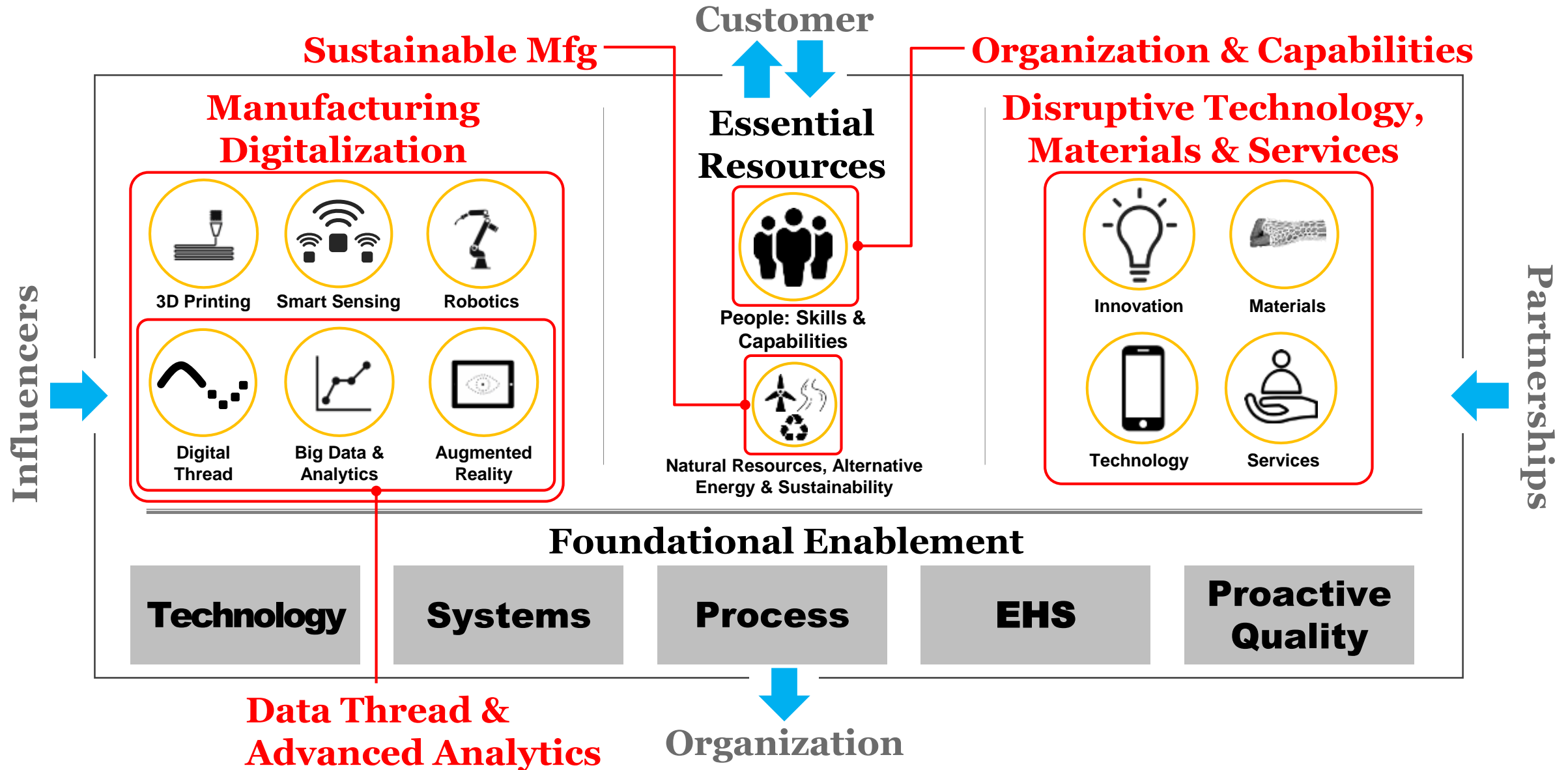
Bringing the Future of Mfg. to Life

The Transformation





Framework & Focus Areas



Approach for New & Disruptive Technologies

Identification, Testing & Deployment

**The
WHAT**

SOURCE

TEST

SCALE



Explore, evaluate,
develop proof of
concept, demonstrate

Prove feasibility,
applicability and
business value

Build, deploy and
sustain the new
capability in E2E
Supply Chain

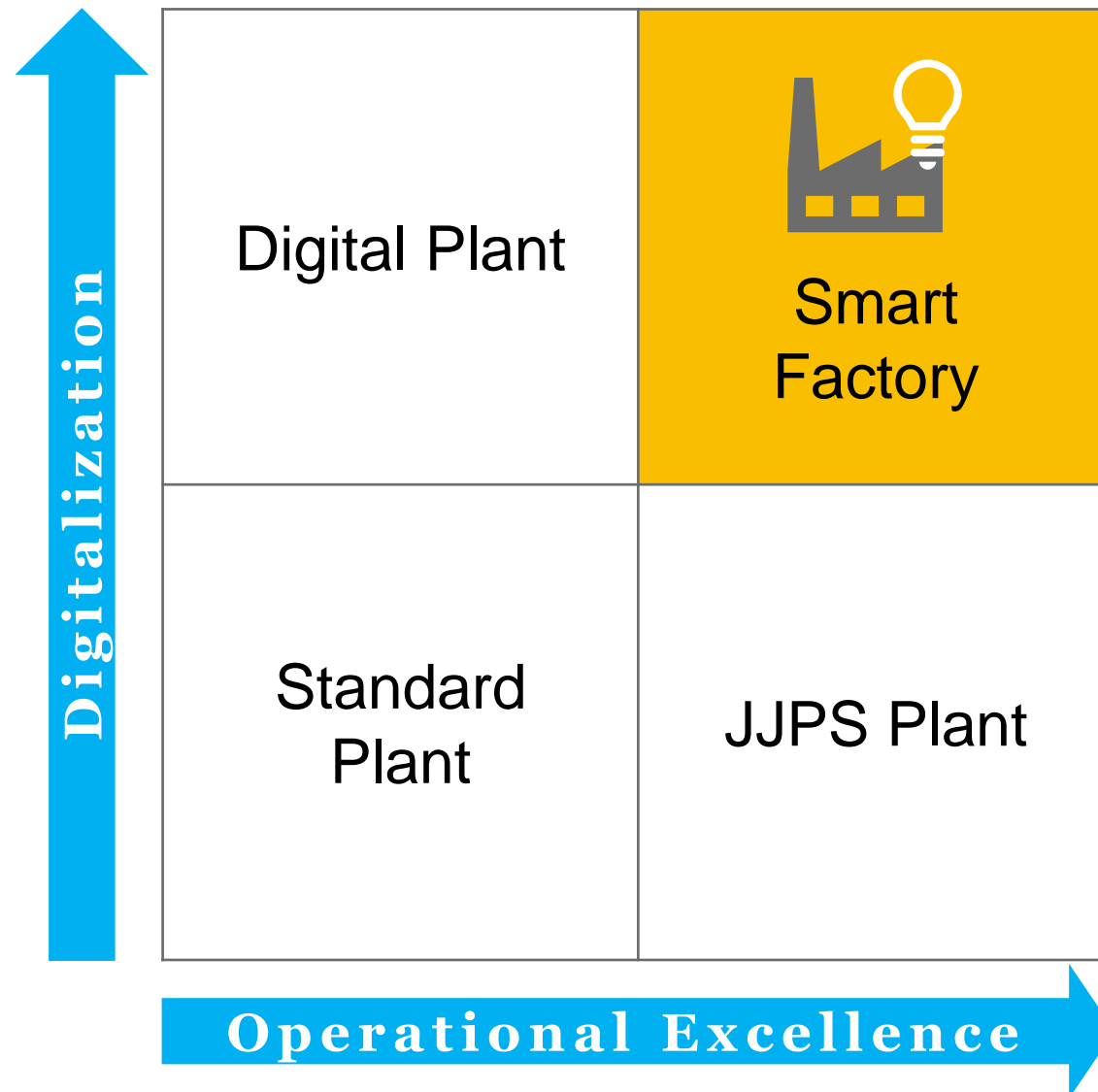
**The
HOW**

**Advanced
Technology
Teams**

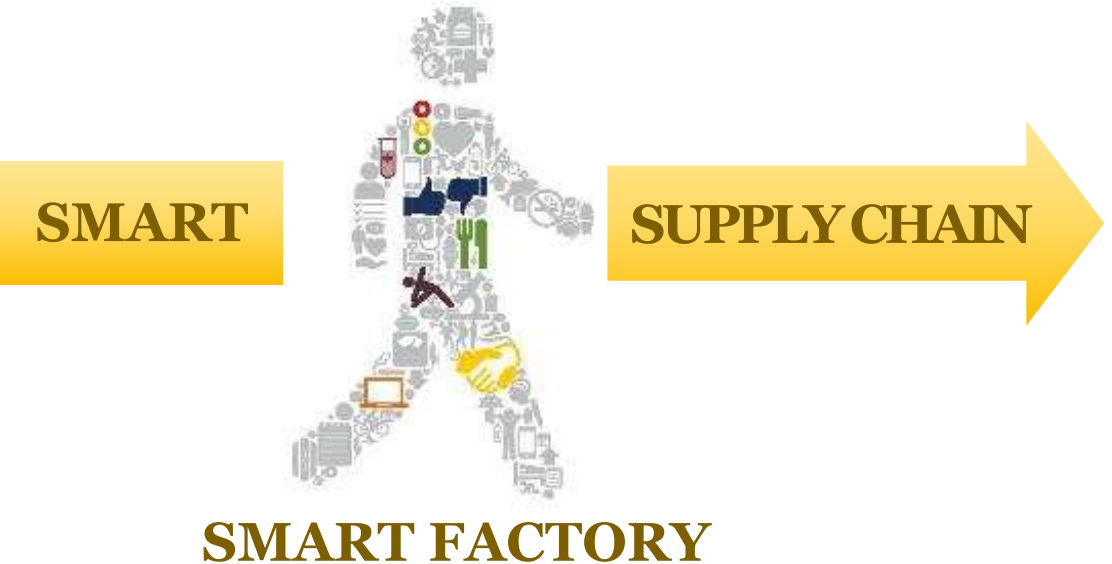
**Test & Learn
Sprints**

**JJPS/JJOS
Operating Model**

J&J Smart Factory Vision



Technology innovation is integrated into the J&J Production System (JJPS) methodology and capabilities



Customer Centric Use Cases - Archetypes

Combine individual technologies into solution platforms & integrated use cases



Launch & Growth

Accelerate speed to market through enhanced development, technology transfer capability and manufacturing ramp-up



Access & Affordability

Adapt product design and manufacturing to broaden access in emerging markets, also support new supply and delivery channels



Speed, Agility & Responsiveness

Enable agility through manufacturing flexibility, automation and postponement, network re-design, personalized and on-demand manufacturing



Profitability

Deliver more value through improved productivity, cost, quality, asset and capital efficiency and inventory reductions

Example: 3D Printing

Personalized Products & Solutions



J&J Learnings - Critical Success Factors



Strategy

- Robust business case and value proposition
- Bold leadership and deep engagement
- Establish external partner ecosystem



Sustainable Deployment

- Deploy via customer use cases and integration of disruptive technology implementations into the standard operating model, to maximize value creation for the business and customers



Implementation

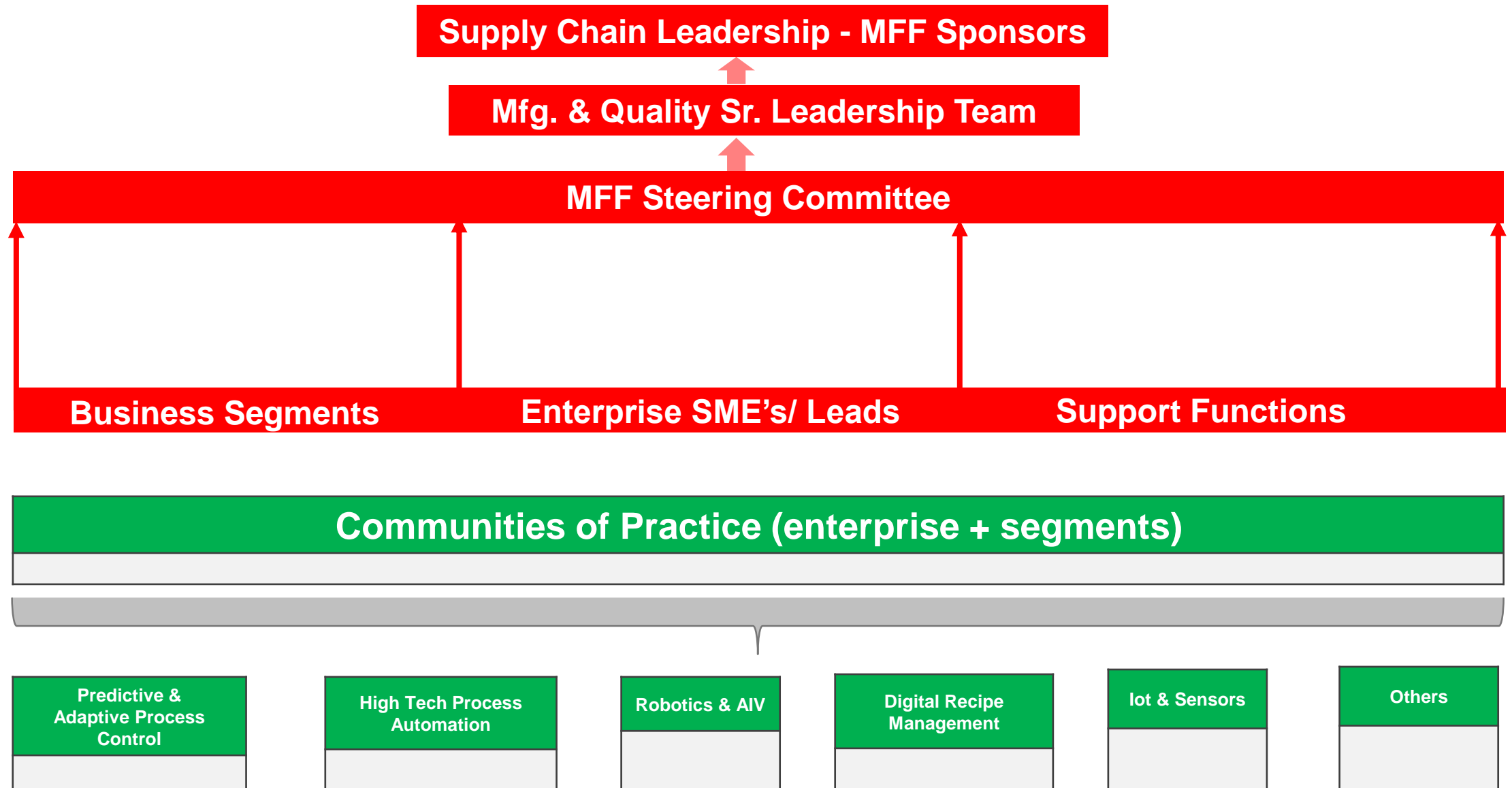
- Industrial research and benchmarking
- Think big, start small and scale quickly
- Collaborative model with robust governance between central capability teams and business



Enablers

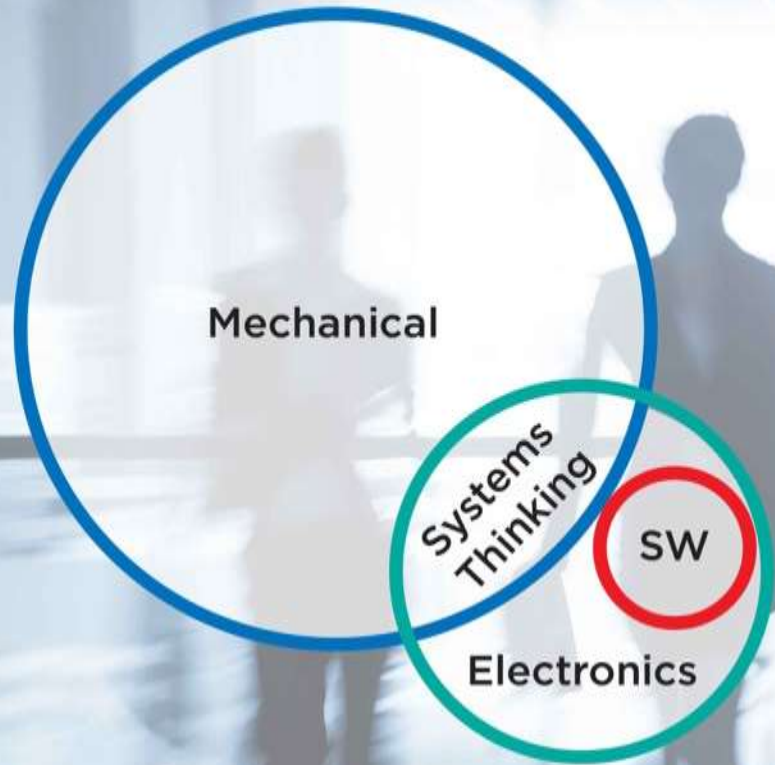
- Organization capabilities and skills building
- Agile data infrastructure and IoT platform
- Sensor strategy and implementation plan

MFF Operating Model

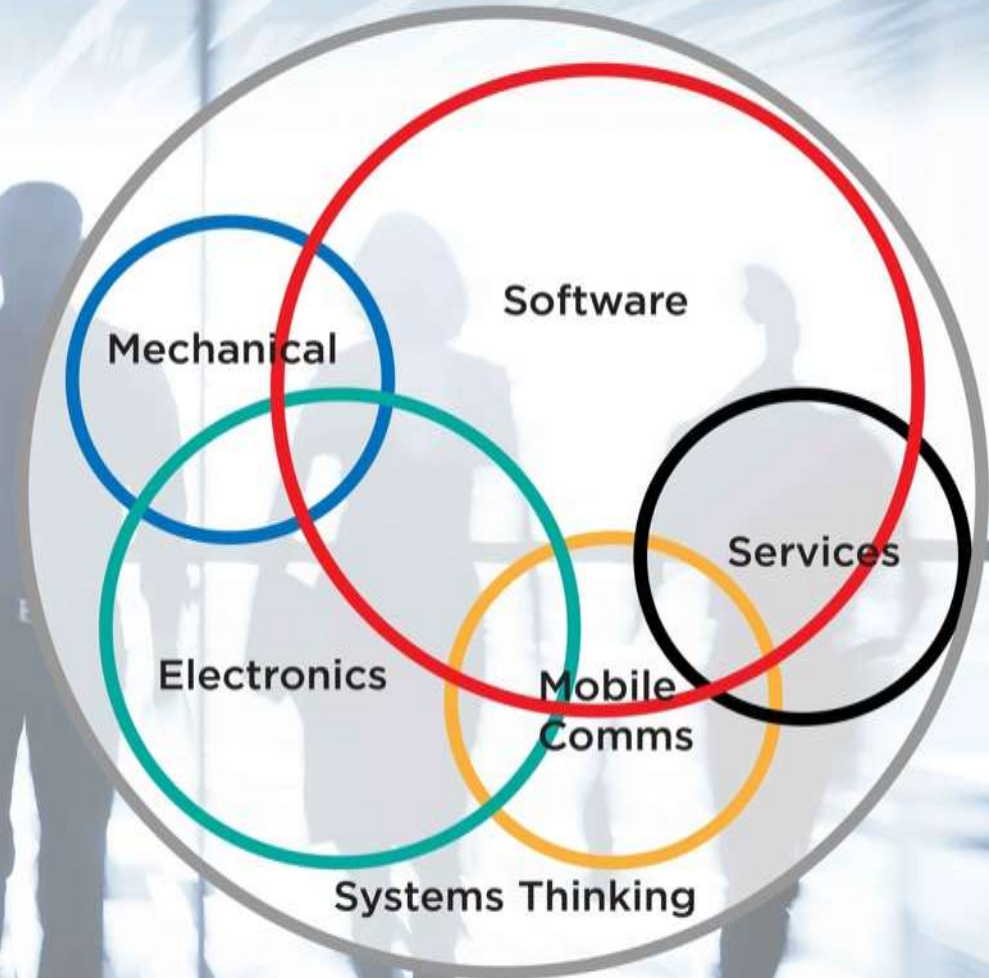


CHANGING SKILLS SHARE

_Towards Industry 4.0

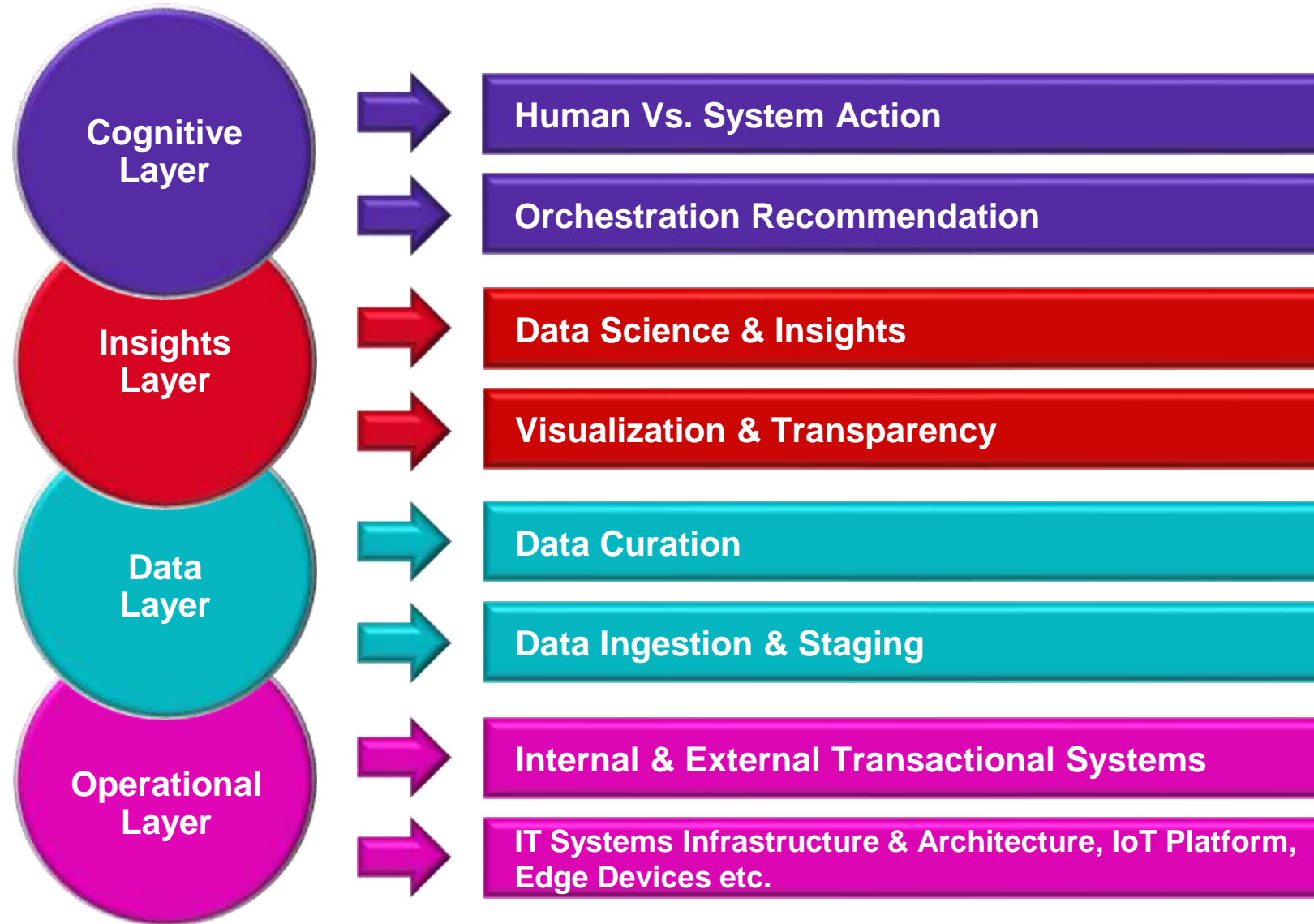


INDUSTRY 3.0



INDUSTRY 4.0

The foundation of all our digital solutions is the 'Digital Stack'



IoT/Machine Learning is a Key Enabler for Digital Transformation – Key Use Case Areas of focus

Adaptive Process Control

- **Closed loop automated process optimization** using Machine Learning – predict, self adjust, and optimize
- Enhance quality, reliability and line productivity

Real Time Release

- **Predict and ensure product quality** based on process data using PAT and predictive models
- Real time product release - reduce lead time and inventory, improve quality and process understanding

Non-Conformance Reduction

- **Identify root causes of non-conformances** using machine learning algorithms to inform NC reduction actions
- Reduce cost of NC investigations and quality related scrap, increase quality and compliance

Predictive Maintenance

- **Real-time assets monitoring and failure prediction** to enable proactive maintenance decisions
- Reduce unplanned downtime and maintenance cost, improve capacity and productivity

Established J&J Mfg IoT reference architecture

- ✓ Descriptive Analytics (Slow Scan Time)
- ✓ Predictive Analytics (Fast Scan Time)
- ✓ Prescriptive Analytics (Closed loop)

Thank you!