

Knowledge Series

PROCUREMENT JOURNEY (From Procurement 1.0 to Procurement 4.0)

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"Procurement 4.0" Preparing for the New Digital Reality

Our Clients





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MESSAGE

Procurement represents a major function of business. It is responsible for ensuring the functionality of all processes by providing every good the company needs but does not produce itself. Supported by the growing percentage of a globally outsourced production, procurement additionally focuses on providing the goods at the lowest possible costs.

Considering that the average company spends 40-70 percent of its revenue on purchases from third parties, procurement can drive 5-12 percent savings on expenditures under its influence. The potential impact is undeniable. Yesterday's markets were best described with 60–80% in-house value-add, local/stable markets and slow technological changes. Today's and future markets, however, are characterized by decreasing in-house value-add (reaching levels of 10% or less), global and unstable markets (hyper-competition) and rapid technological development.

They need to shift their basic mindset from a reactive, tactical mode to a proactive, strategic one. As business pressures continue to elevate procurement's strategic importance within organizations, traditional procurement organizational models fail to provide the agility and responsiveness required to meet these new demands.

The function of procurement is subject to a disruptive change as a result of the fourth industrial revolution. On the operational level procurement 4.0 represents the intelligent determination of requirements and the autonomous procurement processing while promoting the cooperation to suppliers and the availability of all relevant information on the strategic level.

For procurement to shift to a more agile and value-driven operating model, organizations will need to:

- Focus on value generation as opposed to driving savings in a vacuum
- Separate strategy from execution to allow more time for value generating activities.
- Manage Spend
- Encourage Innovation

There has never been a more exciting time to be in procurement. This research paper covers in details the journey of Procurement & impact of Industry 4.0 on it.

Happy Reading!

A handwritten signature in black ink that reads "K. Batra".

Krishan K. Batra
President & CEO
ISM-INDIA (An affiliate of ISM USA)

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Procurement Journey (From Procurement 1.0 to Procurement 4.0)

1 Introduction:

Procurement has come a long way from a reactive function to being considered as a strategic partner. In the past, procurement or purchasing was primarily clerical. With evolution of simple trade era to production era, following industrial revolution there was mass production and thus increased purchasing. In the past, **procurement was not a preferred choice as a career.**



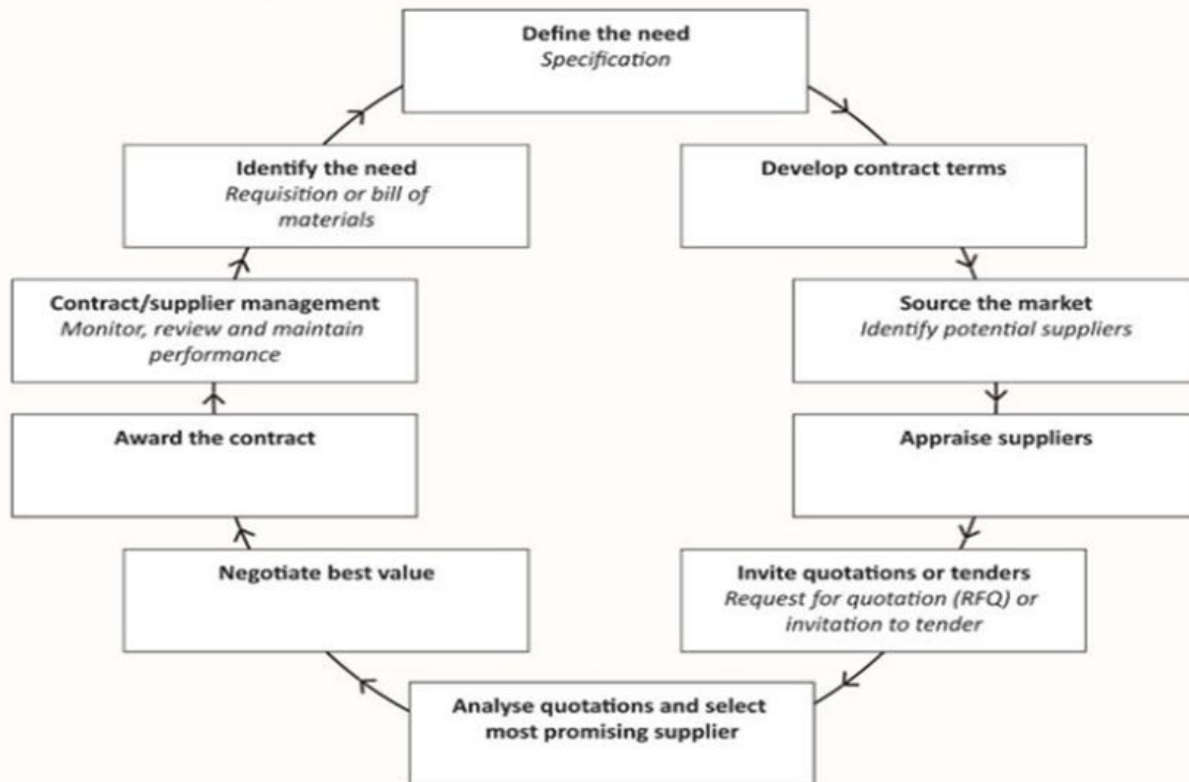
The way procurement is being viewed is slowly but surely changing. Now the focus is to move away from being only **a cost savings centre to a growth partner.** The increasing share of material costs and purchased services in major global organizations Profit & Loss account highlights its growing significance.

The role of chief procurement officer is unknown to many outside the profession, but it's a job with growing importance and appeal. Procurement has become the nexus where all technologies meet.

2 Traditional Procurement Cycle

Historically, the procurement process has been broken down into essential steps that ensure businesses source necessary materials for a competitive price, work with reliable partners, and deliver value to their own customers. While purchasing is an important part of this process, it's just one part of a larger procurement operation.

Procurement begins when businesses identify a required product or service for their own operational outputs. A purchase request will be created, which will then be authorized and approved by the appropriate stakeholders. The next stage of the procurement process begins when supply chain professionals solicit proposals from vendors, negotiate possible working relationships, and select their final supplier. Then, the purchase order will be acknowledged by the vendor, at which point the relationship becomes one of "vendor management."



3 Procurement Journey:

This can be covered under evolution from Procurement 1.0 to Procurement 4.0 (Smart Procurement).

3.1 Procurement 1.0 (Tactical Procurement):

In this version the key focus is on cost containment. This could be also called as operational procurement. This dates back to an era when procurement was called Purchasing and was basically a support function. Today, the vast majority of companies have what we'd call a Procurement 1.0 organization.

Traditionally procurement has been focusing on tactical work such as responding to contract requests, running RFXs, and facilitating communications with suppliers. In this traditional model, procurement professionals are expected to perform multiple functions in a **reactive & transaction mode**.

Increasingly, businesses look to procurement to deliver **accelerated and broader value**. It is no longer just an avenue to reduce expenses. It is holistic, encompassing risk mitigation strategies, supplier innovation, demand management, global perspectives, sustainability, and more.

"The introduction of Procurement 4.0 will mean developing new value propositions, meeting new business needs, and integrating data across functions and value chains."

3.2 Procurement 2.0 (From Cost Containment to Value Creation):

When the internet became social versus simply informational, it went 2.0. When Enterprises began to control & contain the flow of information, it went 2.0. Today, we're seeing the transformation of Procurement, as part of the Enterprise's information revolution and a procurement officer's job has become more complex in the last 3 years, with more changes upcoming.

Once upon a time, procurement officers were given a strategy: get the best price, product and situation available. Today however, procurement officers are able to create the strategies. Technological collaboration has led finance executives to believe procurement offices can add value today by:

- * Managing working capital
- * Managing risks to business performance
- * Expanding into new markets or business lines

The increased ability for information flow & software to identify risks can enhance the above 3 opportunities. However, New areas where procurement can grow that are our weaknesses today:

- * Greater efficiency
- * Improved collaboration with the supplier network
- * Increased automation
- Improved discount & rebate capture with suppliers

The procurement function has changed and will continue to change in years to come. Now more strategic, better aligned with commercial value and in tune with business risks, the Procurement 2.0 is about so much more than cost management.



But along with this transformation of the value of procurement comes a need for changes in how the broader business sees the procurement function. It is critical that senior leaders recognise the true business and organisational impact of procurement and the role procurement plays in the business' competitive advantage and long-term survival. As part of this, the business must communicate the value of effective procurement to all other departments and business functions.

As procurement becomes more and more strategic, the strategic use of technology becomes more and more important. In fact, use of technology is a key metric used by benchmarking firms to measure the maturity of procurement organisations.

The above transformation is necessitated because of increase in share of procurement of the revenue. This calls for developing Category Strategy to align procurement with corporate objectives and values. The above has led to improving the profile of Procurement Professionals from a back office to an important function.

This is especially true as we see more and more cross-organisation collaboration, which sees the procurement team using a range of technologies to work closely with all departments across the business. One of the options is to embrace more streamlined supply chain processes – like centralising buying and consolidating vendors – which leads to greater operational efficiency.

An efficient lever to enrich cross-functional synergies is an advanced Category Management. It structures and drives collaboration in an end-to-end process – both internally across all relevant functions as well as with the supply base.

There has been a quiet evolution taking place in the marketing procurement landscape. More and more companies are getting onto the 'Procurement 2.0' bandwagon. And the best thing about it is that everyone wins. So, what differentiates Procurement 2.0 from 1.0?

- ❖ Without oversimplifying, where Procurement 1.0 was about slashing costs, Procurement 2.0 is about establishing fair value.
- ❖
- ❖ Procurement 2.0 focuses on Category Management, Cross Functional approach & Supplier Relationship while these are missing in Procurement 1.0.

"Where Procurement 1.0 was about slashing costs, Procurement 2.0 is about establishing fair value."



Procurement Stand in Value Chain

3.3 Procurement 3.0 (Supply-Side Optimization)

Digital is the Foundation of Procurement 3.0. Digital procurement isn't just the next phase in IT's evolution. It's a genuine step-change—a dramatic departure from both procurement's use of technology and its operating model of the past few decades.

This is characterized by a focus on using technology to automate processes and record what has happened: a transaction executed, an invoice paid, an item purchased, a contract signed. And, unfortunately, it's also marked by systems of record (in the form of software) that generally have made the procurement process overly complex and unpleasant to navigate from a user's perspective. Some leading procurement organizations are making strides toward 2.0, in which they're using technologies to dig deeper to get much more contextual information about what happened and why (see "Example: Capturing the Context").

Such information is critical: It's foundational to building AI-enabled predictive models that help improve future decision making. Within the next few years we'll see the emergence of Procurement 3.0. That's when procurement and the business will operate and interact with information outside their own data ecosystem, and intelligent capabilities will go beyond simply executing transactions to actually guiding (and in some cases, making) business decisions.

Broadly the key paradigm change from Procurement 1.0 to Procurement 3.0 is as follows:



The key objective of Procurement 3.0 is to optimize Supply Side. This entails explicitly linking to the enterprise business strategy and ensuring that the supply base is aligned and contributing, with the goal of having the right suppliers, under the right commercial agreements, delivering the right goods and services. There are clear building blocks required to accomplish this evolution.

" Transforming procurement into an agile, linked innovation leader and catalyst. "

The Creation of Supply Strategy will lead to:

- Cost Leadership
- Agility & Service
- Innovation
- Supply Certainty

Within the operating model is the source-to-pay process, which splits into three key sub processes:

- ❑ **Supply portfolio optimization.** Through rigorous evaluation, this process selects the optimal portfolio of suppliers to achieve the purpose and identifies contractual terms that align suppliers with the enterprise.
- ❑ **Commercial excellence.** This confirms that the portfolio of suppliers is fulfilling the spirit and intent of tailored contracts to help deliver on the purpose. It also actively monitors and helps to manage performance.
- ❑ **Touchless procurement.** This utilizes leading-edge digital assets to improve P2P processes and assists requisitioners to order and receive, in compliance, without procurement involvement.

The New Paradigm

According to the Survey, many of Chief Procurement Officers are focused on delivering self-service solutions for the business, taking the strain off their teams and allowing the business to manage its own activity.

This is part of a major technological shift that's on the cusp of sweeping the procurement world, moving from Procurement 2.0 (spend visibility, e-Sourcing, contract management, and requisition to pay) to Procurement 3.0 (self-service software for the business, cognitive analytics, crowdsourcing, and digital reporting).



Evolution of Procurement Paradigm

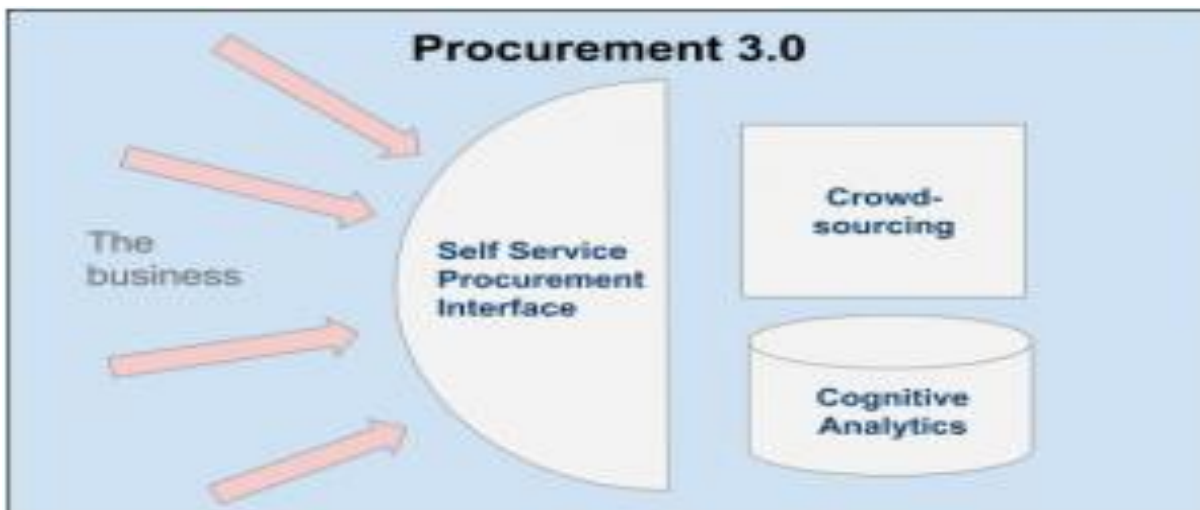
Procurement 2.0 came out of the e-Commerce revolution of the 1990s, and over the last 20 years shifted from on-premise toward cloud-based tools. It has laid the foundation for emerging Procurement 3.0 technologies to gain adoption and make a categorial improvement in functional efficiency.

Procurement 3.0 Tools

This is a trend being driven by technology. So, what tools can procurement teams adopt to be more self-service and data-driven? There is a class of emerging technologies that can help automate and optimize key spend categories.

- ❑ E-Procurement: It empowers end users to create and approve compliant RFPs/Bids in private/public sector organizations, without leaning heavily on procurement staff's time. It provides self-service tool.
- ❑ IBM is leading the charge in Cognitive Procurement with the Watson supercomputer. They are helping advanced analytics power a new era of supply chain.
- ❑ Amazon's Mechanical Turk is one example of crowd sourced work. Gartner predicts that 75% of high-performing enterprises will be using some type of crowd sourcing for business process services.

Adopting these technologies will be essential for procurement leaders to implement a Procurement 3.0 model.



3.4 Procurement 4.0 (Smart Procurement):

It's old news that technology has changed the face of business today. Just as the digital revolution has transformed once predictable consumer purchasing paths into a more circular pattern of touch points, B2B selling has become less linear. Sellers who are ready to meet customers at different points in their journeys have been exploiting and utilising digital tools more fully, allocating sales and marketing results more successfully.

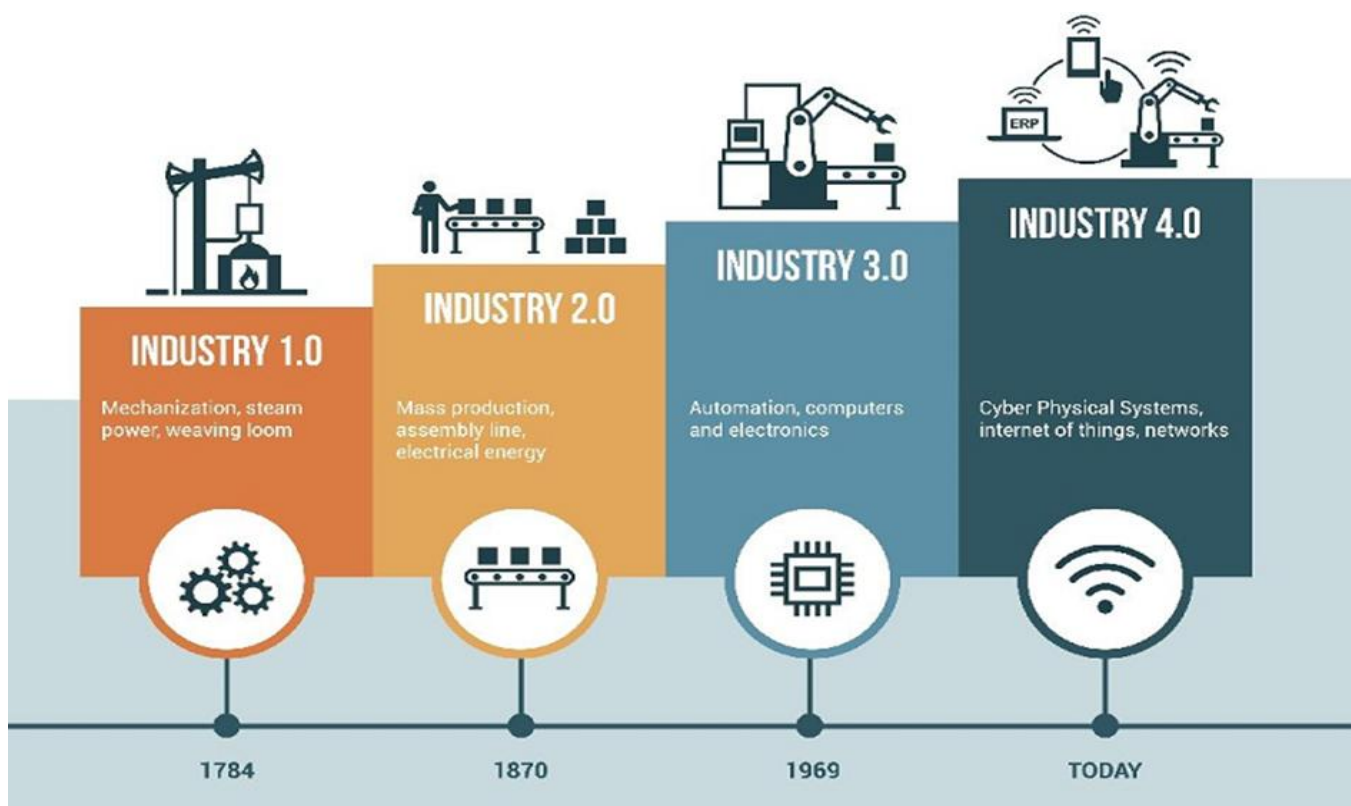
To understand the role of Procurement 4.0, it is necessary to understand the impact of Industrial Revolution on Procurement.

There have been several successive industrial revolutions over the past few centuries which has seen exponential changes to the commercial markets both domestically and globally. Given the current state of Industry, it is evident that we are in the midst of transitioning from Industry 3.0 – the industrial revolution powered by computer and automation – to Industry 4.0.

We are part of a digital revolution led by demanding customers and powered by a combination of new technologies – from big data analytics to 3D printing. Digitization places new demands on purchasing in relation to changing tasks and processes. Procurement is shifting from the traditional approach of enabling cost savings to delivering strategic value to the enterprise. The concept of Procurement 4.0 (inspired from ‘Industry 4.0’ or ‘the next industrial revolution’) is part of this shift wherein companies are adopting innovative and smarter ways to digitalize their supply chains and unlock new growth opportunities.

- ❑ **3rd industrial revolution** – IT and computer technology are used to automate processes
- ❑ **4th industrial revolution (Industry 4.0)** – Enhancing automation and connectivity with CPS

We’ve basically followed a sequence of increased automation, and the final development (which is still underway) takes that automation to a whole new level by making use of big data.



If the First, Second, and Third Industrial Revolutions involved advances in mechanization and power, mass production, and computer technology respectively, the Fourth Industrial Revolution (a.k.a. Industry 4.0) is directly related to the rise of cyber-physical systems that are increasingly bringing the physical world online.

Indeed, the Internet of Things (IOT), artificial intelligence (AI), and other information (and operational) technologies have transformed what’s possible across nearly every vertical.

Through the use of data management platforms that synthesize information streams, end-to-end visibility is now an achievable goal.

While this visibility has found multiple use cases throughout supply chains, there's one area where it's especially exciting: procurement. In fact, the rise of Industry 4.0 has given birth to a mini-revolution of its own, known as Procurement 4.0. By tapping into the potential of cyber-physical systems, Procurement 4.0 is empowering Chief Procurement Officers and other supply chain professionals to leverage better data to their benefit.

4 Procurement 4.0 Benefits:

- ❑ An 'ecosystem' linking internal Procurement teams with external experts (e.g. from supplier side) fuels (product) innovation processes and ensures leadership in technology and market expertise.
- ❑ Cross-functional instead of siloed expertise required: Procurement 4.0 is linked to IT-based and digitized processes, product development and marketing
- ❑ Disruption of traditional Procurement models implies new ways of thinking and working – within the unit and on executive level

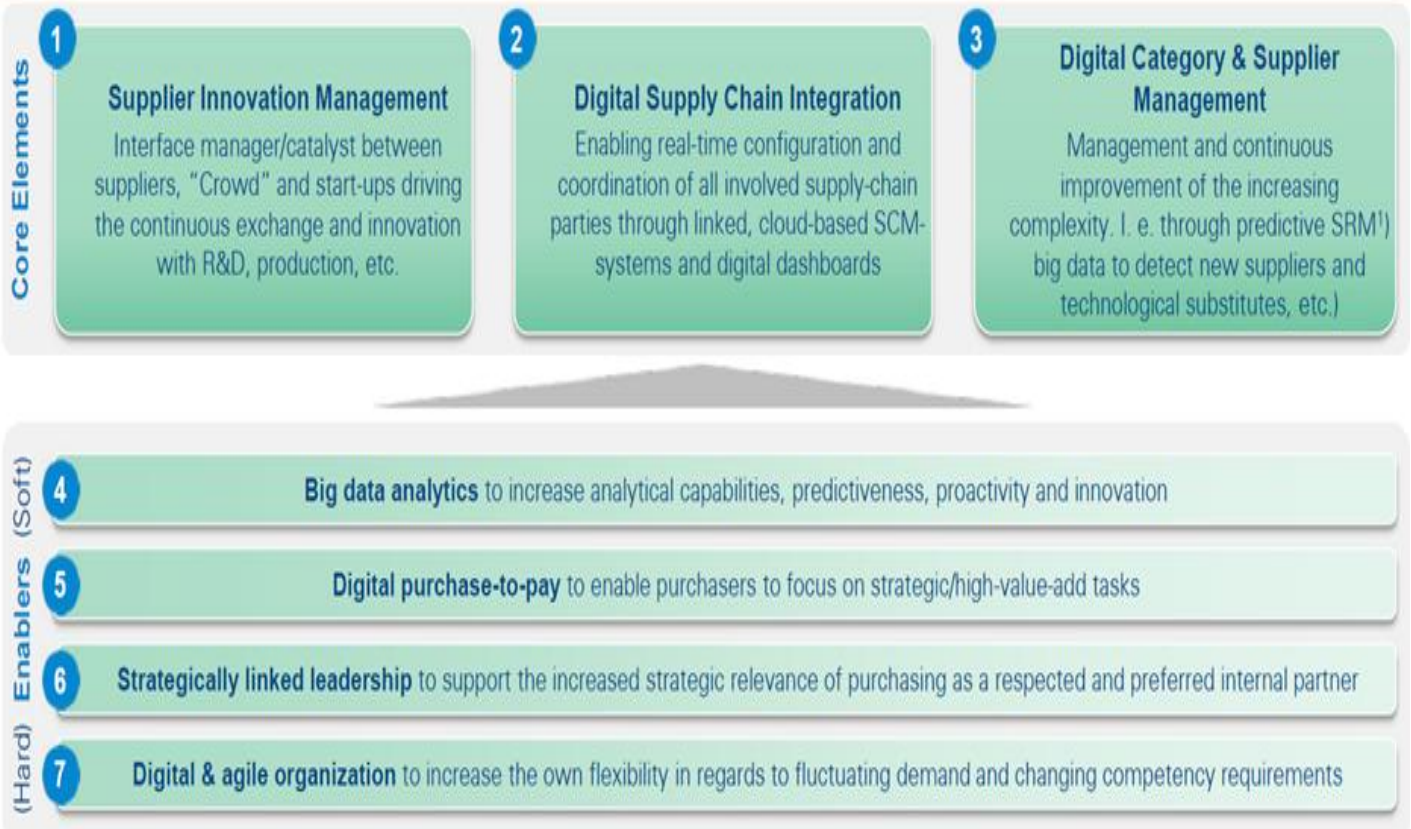


5 Procurement 4.0 Framework:

Procurement 4.0 can be characterized by boundary-less procure to pay functions, with capability to act on “here and now” spend insights, offering zero-touch smart buying, while leveraging internal and external supply eco-systems. Procurement 4.0 framework can help organizations adopt agile, automate intelligently, leverage prescriptive business intelligence, improve supplier engagement and help make changes flexibly.

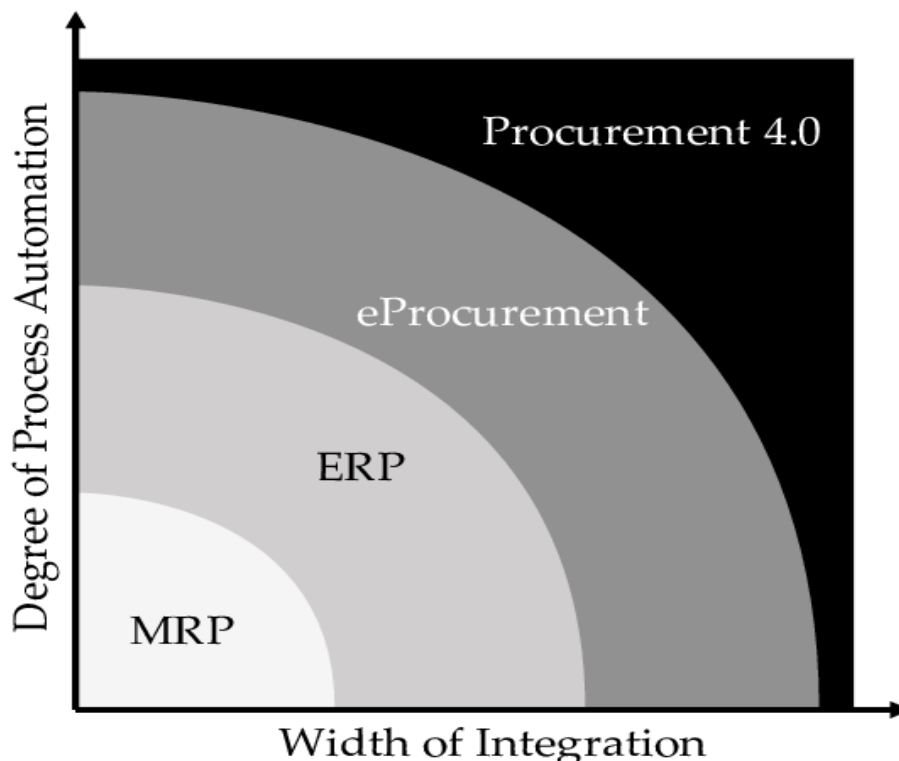
The concept traverse multiple procurement functions from contract lifecycle, supplier performance, catalog-based requisitions, PO-based buying, supplier self-service, and invoice automation including - matching, exception routing, approvals, and payment processing. Procurement 4.0 can also help organizations achieve intangible benefits such as leaner operations, greater spend visibility, responsible buying, and better buyer and seller experience.

The Procurement 4.0 thought leadership framework is characterized by following seven digital enablers. This will help procurement to drive innovation within its own enterprise and manage a real-time linked supply chain.

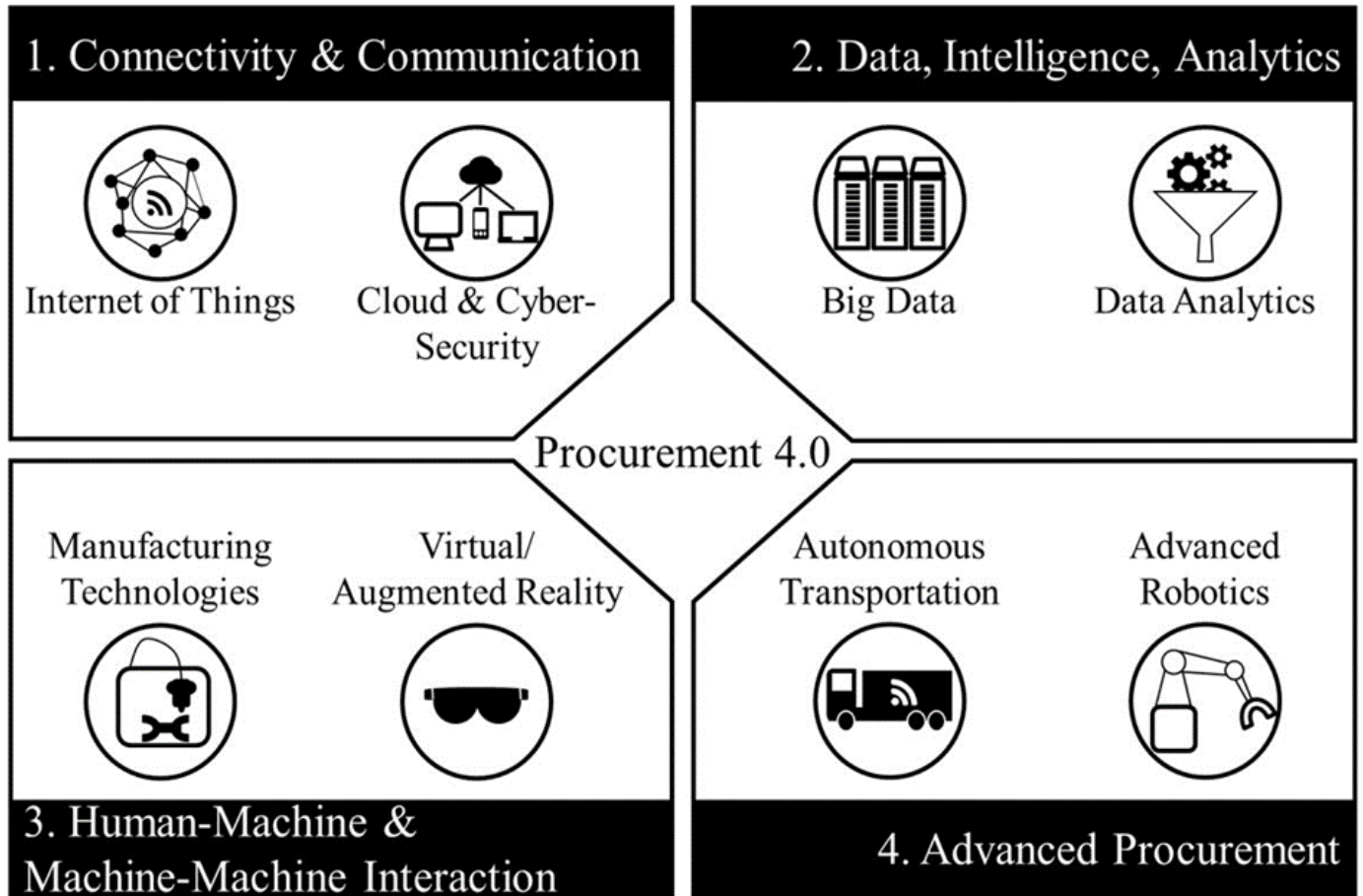


6 Procurement 4.0 Technologies:

To begin with let us have an overview of the Evolution of Procurement IT System i.e. from MRP to Procurement 4.0



The key procurement 4.0 technologies which are playing key role are as follows:



Connectivity & Communication:

- ❑ Industrial Internet of Things: Embedding of heterogeneous devices from different participants with diverse functionalities into one network;
- ❑ Cloud & Cyber security: Management of large amounts of data in cloud-based, open, but secure systems in order to provide a universal data access.

Data, Intelligence, Analytics:

- ❑ Big Data: Ability to process data with regard to velocity, variety and volume and gain valuable insights in order to make an informed and reasoned decision;
- ❑ Data Analytics: Set of Business Intelligence-Technologies that detects patterns in large sets of data in order to predict future events.

Human-Machine and Machine-Machine Interaction:

- ❑ Virtual/Augmented Reality: Display of additional digital information, e.g. for the employee;
- ❑ Manufacturing Technology: New manufacturing technologies (e.g. 3D-printing) for the rapid manufacturing of prototypes or replacement parts.

Advanced Procurement:

- ❑ Autonomous Transportation: Usage of automated vehicles and transportation systems (on the road as well as in the warehouse) in order to deliver goods more efficiently and increase the driver's productivity;
- ❑ Advanced Robotics: Devices that are able to perform different tasks without or with little human intervention or interaction.

Effect of Technologies on Procurement Steps

Cost Element	Procurement Step	Technologies
Demand Analysis Costs	Procurement Strategy	Big Data, Data Analytics, Manufacturing Technologies
	Demand Planning	Big Data, Data Analytics, Manufacturing Technologies
Supplier Selection Costs	Offer Request	Internet of Things, Cloud & Cyber-Security, Big Data, Advanced Robotics
	Offer Evaluation	Data Analytics, Internet of Things, Cloud & Cyber-Security
	Negotiation of Conditions	Big Data, Internet of Things
	Supply Agreement	Internet of Things, Cloud & Cyber-Security
Direct Procurement Costs	Determination of Order Quantity	Data Analytics, Advanced Robotics
	Purchase Order	Advanced Robotics, Internet of Things
	Material Transport	Internet of Things, Big Data, Data Analytics, Autonomous Transportation
Supplier Failure Recovery Costs, Order Costs	Material Reception and Inspection	Internet of Things, Virtual/Augmented Reality, Advanced Robotics

"The future of procurement is extremely interesting & Industry 4.0 is at the basis of revolution for Procurement 4.0."

7 Procurement 4.0 Professional Profile:

In the future, the profile of the successful professional will be quite different; a mix of soft, hard and meta skills.

Soft skills

Skills of the human nature (creativity, critical thinking, social intelligence and communication).

Hard skills

Knowledge and technical skills (agile methodologies, big data analytics, software development, etc).



Meta Skills:

Skills that involve a growth mindset, resilience, and the ability to cope with change and uncertainty. According to a survey conducted by LinkedIn, the ten most requested professional skills in résumés today are:

❖ Creativity	❖ Cloud data handling
❖ Persuasion	❖ Artificial intelligence
❖ Collaboration	❖ Analytic reasoning
❖ Adaptability	❖ People management
❖ Time management	❖ User experience design

Additionally, investing in intellectual, cultural, and age diversity will be crucial, in order to create versatile, above-average executive teams.

“Procurement Manager should have a fine balance of expertise and experience as the Procurement 4.0 world is about learning and unlearning. It is not the years of experience, but ability to think and act agile, that is going to be the need of the hour.”

8 Future of Procurement:

As digital disruption sweeps across all industries, companies face unprecedented competitive pressures. Digital is creating new channels for customer and partner interaction that are upending core business models and industry dynamics. In turn, companies see their future relevance and viability under fire.

Business leaders know their companies should become much more agile and efficient than they've ever been to survive and thrive in this new world. That's why companies are racing to embrace digital to transform key areas of the business. Customer-facing ones such as marketing, sales, and service, as well as many important supply chain functions, have been the prime targets.

To date, procurement hasn't commanded the same kind of attention or investment. True, companies have enthusiastically embraced eProcurement systems and even cloud-based procurement tools. But it's time to move beyond simply replicating the same tedious procurement processes with new software. Leading companies are taking the next step and create a true digital procurement organization. A true digital procurement organization automates repeatable tasks to boost efficiency and potentially drive down costs. It will equip stakeholders across the business with real-time access to insights and analytics through artificial intelligence (AI) and easy-to-use online tools. It will deploy new and smarter ways to infuse data models to enrich day-to-day operations and decision making.

Procurement managers and CPOs from many organisations, took part in the survey. The key findings of the trends are as follows:

- Procurement is shrinking, and operative procurement is becoming autonomous in most areas.
- The demands placed on, and expectations of, strategic procurement are growing. And the demand for a higher value contribution is therefore increasing.
- In the future, procurement will take on a completely different form, and traditional purchasers will be a thing of the past.
- Personal relationships will also continue to be extremely important in Procurement 4.0.
- Procurement is not fully responsible for the implementation of Industry 4.0, but it does play an essential role.
- The changes taking place relate to all relevant dimensions: technologies and systems; organisation and processes; management and people; and also, business models.
- Creating transparency is the most important requirement in order to be able to implement Industry 4.0.
- Big Data and data processing technologies are key technologies involved in digitalisation, and play a decisive role above all in connection with networking.

- ❑ Procurement needs to adapt its own structures and processes to suit digitalisation.
- ❑ Procurement needs to manage a procurement portfolio that has been partially modified and is becoming increasingly digitalised.
- ❑ Vertical and horizontal networking (by means of technologies) facilitates the transformation from a functional perspective to a process-based perspective. This opens up the possibility for the unrestricted digitalisation of procurement and the entire procurement portfolio.
- ❑ Procurement is a driving force behind horizontal networking.

9 Procurement Disruptions During COVID-19:

COVID-19 has caught many companies unprepared. This has severely disrupted supply chains on a global scale. Business executives, and especially procurement leaders, are having to maintain business operations, fulfil urgent demands, and mitigate supplier challenges against a backdrop of significant disruption to their teams, their people and their local communities.

To respond effectively to the post-pandemic world challenges, Procurement Leaders can take the following digitally-led steps.

- ❑ Digital Procurement Operating Model: Need to become more connected with its ecosystem of suppliers, external partners, and internal customers.
- ❑ Secure the Supply Base
- ❑ Use Funds Intelligently
- ❑ Build Resilience for the Future
- ❑ Innovate with Purpose

10 Final Thoughts:

After two decades of incremental digital transformation, Industry 4.0, and now Procurement 4.0 technologies are giving supply management a long-needed shot in the arm. And they are driving more insight, oversight, and control into the hands of CPOs, procurement teams, and line-of-business users as the speed of business continues to accelerate, the business risks expand, and the stakes increase.

“Embed risk management into procurement decisions, all the way from upfront sourcing through to payment execution.”



Knowledge Series



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