

Whitepaper

06/2020

Improving sourcing decisions

**– not only in
turbulent times**

Part I

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Improving sourcing decisions – not only in turbulent times

The Corona crisis poses critical threats to many Supply Chains. As we have to do our best to get things running again, we should also start thinking about how we make decisions about our sourcing strategies and how to pick new suppliers. Be aware, that the Corona pandemic might last for a while and that this will be not the last critical disruption of our supply chains. Here are recommendations on how to improve things in Purchasing & SCM on its way to a world-class business function. There is a wide range of aspects to be considered when transforming a conventional Purchasing & SCM department into a value-adding function that can be considered as being really strategic for the company. As we know from resource-based theory (see Prahalad and Hamel, 1990) a resource (e.g. the Purchasing function) can be seen as strategic when it generates customer value, when the way it performs its activities and processes is hard to imitate by others, when there is no substitute for it (e.g. a software or platform), when the applied resources to do the job are scarce (hard to get or create) and when the way they fulfill their tasks is company-specific. It is very clear that most operational processes that can be standardized and automatically performed by applying software, are not what makes Purchasing & SCM a strategic function.

We will therefore not address operational issues here, such as the undisputed necessity to implement highly efficient, standardized, transparent processes for ordering and payment or for tendering. There is abundant availability of good e-tools for these purposes and anybody should know by now that without highly automated processes in these areas, Purchasing & SCM will not be able to focus on strategic and value-adding tasks (see www.c fsm.de for reports on the status of e-procurement tools and their application in practice).

Instead we will focus on some of the highly value-adding, strategic tasks that are critical to prove that Purchasing & SCM can be a core competence of the company. We will therefore discuss tasks and activities that are critical to gain competitive advantage when they are carried out properly, meaning in a highly professional way. Today this always includes the application of leading software solutions that are already available.

In this first part of a series of whitepapers about the abovementioned issues we will concentrate on the necessity for and the availability of smart software solutions for supplier scouting, for cost analysis, for sustainability and compliance management and for smart negotiation processes.

1. Smart Supplier Scouting

Finding and contracting the best suppliers on the globe is a strategic necessity for all companies, not only for those that are under severe economic pressure. This is definitely true when looking at global competition and (more or less) free markets. Besides the well-known price issue, companies are more and more focusing on getting access to innovations. As most value chains are globalized by now and product and process innovations can be found on the supplier's side as often as in the buyer's company, it becomes a strategic core competency to be able to get hold of these innovations before or at least no later than competitors do. Many companies already rate Innovation Scouting as one of their core activities in procurement. Other reasons to know about the best suppliers around the globe are the potential flexibility to access new sources, to implement risk mitigating second sources, to restructure global supply chains or simply to challenge the existing supplier base. Supplier Scouting can be seen as an integral part of supply market analysis which also covers the more general evaluation of the business-related attractiveness of different geographical regions in the world.

It is no secret that most companies do not enjoy high levels of transparency when it comes to supplier scouting and supply market analysis. The reason for this is rather simple: It is due to a lack of resources in purchasing departments, both regarding time and personnel. Usually companies do desk research and browse the Internet for potential suppliers. Applying a search engine such as Google may result in thousands or even millions of hits in case one searches for rather general terms or common products. Opposite to this, detailed or complex descriptions of products are either not allowed as a search string or will lead to zero results. Furthermore, search engine results are biased due to adwords and the like. Available supplier data bases are often not up-to-date or filtered by the publisher, e.g. in a way that only vendors that pay for the data base entry are included. Web-based market places and similar platforms usually only cover a rather small percentage of the potentially relevant producers. Furthermore, many sources and definitely search engines do not check, if the companies that claim to offer certain products really exist. One way or the other, you have to find out the largest part of information regarding a certain vendor by yourself. This means visiting all the websites, contacting each interesting source on a 1:1 basis, managing the entire communication process and so on. It should also be noted, that when using a search engine, you are typically bound to your specific geographically defined version and to the language you are using. People are surprised when they learn that globally acting suppliers sometimes only use their native language, e.g. Vietnamese, for their website. And by the way, this is unfortunately still true for many German companies as well.

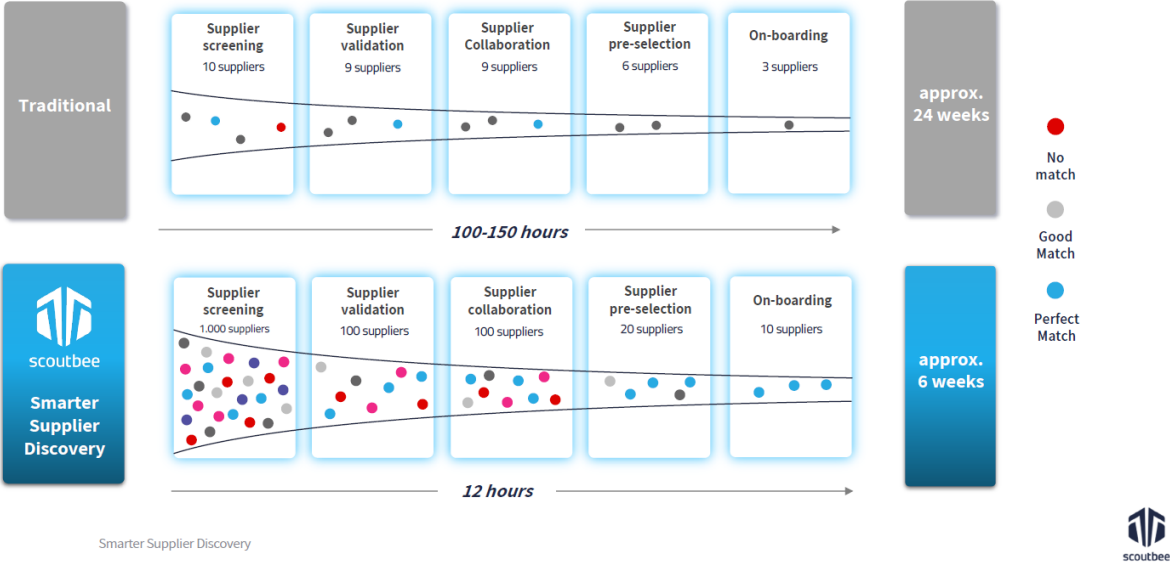
Given this situation, traditional internet solutions obviously do not provide the service procurement professionals need when searching for new suppliers. Critical requirements for a smart supplier scouting software solution would be:

- essentially discover each and every supplier of relevance around the globe regardless of language and/or structure of their website / online presence,
- automatically extract and structure all relevant information from his website for a first evaluation,
- provide as much trustworthy information as possible regarding the supplier's historical and current business relationships and his economic situation by analyzing all accessible data sources,
- provide a highly efficient process for initial outreach to potential new suppliers, so that the sheer number of new contacts is no restriction for the further procurement process,
- provide a structured and highly automated process including supplier pre-selection until the tendering process or the onboarding process is started.

Considering this, only a highly professional Scout-to-Source process would facilitate inclusion of the maximum amount of vendors considered reasonable to be included into the scouting process to guarantee that the best/most suitable suppliers worldwide can be contracted.

Fortunately, nowadays smart software solutions are available that help to find matching suppliers on a global scale in a short period of time and without big efforts. The secret behind the solution provided by scoutbee, a start-up company based in Germany, is Web-based Big Data Analytics and Artificial Intelligence (see: <https://scoutbee.com>). Time-consuming and expensive desk research by humans is replaced by software – something we will see more and more when looking at the digitalization path Purchasing & SCM is following these days. By applying a streamlined, software-supported process, both total process time and „hands-on“ time can be significantly reduced. Since scoutbee’s Streamline tool allows for a digital real-time exchange of information with potential new suppliers and saves all communication data in one place, no e-mailing is necessary and nobody gets spammed with late responses from vendors any more.

AI-based Supplier Scouting and streamlined Pre-Selection Process



Source: Scoutbee

A fast and easy way to find new potential suppliers, while covering nearly the entire supply market, is a great thing to have. Combining this with an efficient process to communicate with the vendors and evaluate them is even better. However, many people feel insecure when it comes to evaluating the risks that might be connected with working together with a new vendor that is yet unknown to the company. A smart thing to know here is to which companies the new vendor already delivers his products. This data is generated by the scoutbee platform, so that in many cases one could rely on the business the vendor has been involved in in the past. On top of that, scoutbee gathers data regarding quality performance, certificates, gained awards, supply chain connections, revenue, etc. to provide procurement teams with highly valuable information in order to make strategic decisions.

How can it be that such sensitive information is available to literally everybody? Can this be even legal? It might be surprising, but yes it is - and it always was. For already some decades everybody has been able to access the import/export data recorded at United States international ports. The same has been and is still true for many other official logistic hubs around the world. While it was an extremely tedious task to log into these data sources and search for certain transports manually, it is now possible to access these data sources via software routines, download the complete set of data and store it on your own servers. The smart part is to structure these huge sets of data in a way that the outcome

provides valuable information for somebody who wants to detect vendors for certain products, for new technologies or innovations, or who wants to analyze the competitive environment of his company.

Besides logistical information, quite often additional data from other sources regarding natural disasters, political turmoils, warfare, economic key figures, import-export restrictions, etc. are needed to enrich the data base. At the end, the data analysis should be able to provide a holistic or 360 degree view of a vendor, including its major business partners and other information that is relevant for evaluation.

For ensuring a comprehensive and holistic view of vendors on a global scale, one has to access millions of web sites and billions of data points. Storing and analyzing this huge data pool requires thousands of servers and, of course, smart Artificial Intelligence that makes sense out of this extremely complex data entanglement. No question, this requires lots of resources regarding time, money, and smart IT & AI experts. Accordingly, only for a few and typically very large companies such an undertaking will be possible to accomplish. Be aware, that the immense effort to build such a software solution represents only a rather small fraction of the overall effort, while maintaining and growing such a platform is far more time-consuming. Software-as-a-Service (SaaS) platforms such as scoutbee.com therefore seem to be the right way to make this extremely valuable information accessible to nearly all companies and organizations. It should also be noted, that in most cases SaaS platforms are able to guarantee far higher levels of cyber and data security than e.g. companies from the manufacturing sector.

It should be noted, that many companies haven't really grasped the treasure that lies in reliable, comprehensive and up-to-date data for preparing decisions. While research has provided a rich set of adequate tools for decision-making and business schools around the world have been teaching these methods for a long time, the core weakness in decision making has always been the lack of reliable and comprehensive data. No wonder, New Institutional Economics finally sacked famous Homo Oeconomicus who was supposed to know everything and has full transparency regarding his/her decisions. The new paradigm became that humans suffer from bounded rationality, especially due to a lack of transparency plus limits to process all the data they could gather in reasonable time. Since there seems to be no cure for that – the Nuremberg Funnel is still not working yet – the only way to overcome the intransparency barrier is to apply smart software. Once to gather more data a human being would be able to collect manually in a lifetime and twice to make sense out of this huge data set so that it provides valuable insights to the decision maker.

Having rich data at hand also allows for generating alternative scenarios for possible future developments, thus facilitating a process to end up with more robust decisions. In Purchasing & SCM this may include aspects regarding the price structure of a product, technological advances, general market developments, a possible entrance of new vendors, etc. A medium- to long-term oriented analysis is always recommendable when it comes to business relationships that are intended to last for a longer period of time as it is usually the case in series production.

Here, it should only briefly be mentioned, that data about business relationships is usually at least as valuable to marketing and sales as it is to Purchasing & SCM. In this sense, AI-based Big Data Analytics might prove as a game changer that reaches beyond imagination of many business leaders today.

2. Cost calculation and „hard“ risk evaluation

Many purchasing experts will agree that more or less simplified cost calculations prevail when picking the „best“ supplier. However, it seems naive to assume that e.g. new and rather inexperienced suppliers from a low (labor) cost country will perform as good as an established supplier from a highly developed country. The idea here is often, that performance criteria regarding quality and deliveries have to be ensured by adequate supplier management. No question, this usually requires different efforts for the individual suppliers. Accordingly, the costs for these measures will differ as well. The same holds true when including risks connected with the alternative sources.

One approach to handle this issue, is to apply a supply market / country analysis that evaluates the specific qualitative aspects of the vendor's environment regarding how he is able to conduct business and thrive in his country or geographical region. However, when comparing vendor A with vendor B, it is far more convincing when working with monetary figures only. This means comparing cost figure against cost figure. But then, how do we make sure that we have included all relevant costs and that we have picked the right money figures?

Every purchasing professional knows that calculating supplier managements costs as well as risk costs are not standard procedures when picking suppliers. The reasons might be manifold, but most experts may agree that the difficulties in generating good estimates for these two cost categories are typically the reason why these important cost factors are neglected when calculating Total Costs of Ownership. Furthermore, the Carbon Footprint of the company is becoming a critical issue and companies have to include sustainability criteria into their decision matrix as well.

Comparing cost estimates

Many companies employ many, sometimes even hundreds of people to exactly calculate product costs. Especially complex products are analyzed „bottom-up“ based on the Bill of Materials and by taking every single step in the manufacturing process into account. This requires a lot of time and costs a lot of money. More and more companies use software tools that assist in coordinating these complex tasks e.g. by accessing a whole range of internal data bases. While this often makes sense when a lot of money is spent on these products – either per part or because of huge volumes per part – a different approach might be smarter when it comes to more „simple“ products or materials.

In many cases, product costs are not really calculated, but only roughly estimated. These estimates often lack a sound basis regarding the value of the materials used for manufacturing the product, the implied machine costs, labor costs, overhead costs, logistics costs, etc. This is especially true, when it comes to Global Sourcing, where typically larger shares of the overall volume are sourced from a variety of countries. Therefore, quite often the negotiation process between buyers and suppliers is simply based on the current market situation, on market power relations, and on negotiation skills. Regardless of the buying company's specific situation, it is always very helpful to have a good estimate regarding the supplier's costs for a certain product he/she offers before starting a negotiation.

Since, the basic cost categories that influence the costs of manufacturing and shipping a product are pretty clear, why not doing such a calculation for every product you source? Once again, the simple answer might be: too much work – neither enough time, nor enough people to do the job.

The good news is that this task can be nearly fully automated by applying smart software solutions. A very easy to use but efficient tool for this is WhatsThePrice (see: <https://www.whatstheprice.com/>). After typing in the major characteristics of a product to be sourced, the software automatically calculates a „should cost“ estimate by using average cost figures for each category such as materials, labor, machine costs – and this for every country in question.

The secret is simply to provide up-to-date data regarding average cost figures from nearly all countries in the world and to apply this in a more or less rough cost structuring approach. In many practical applications, these estimates are getting pretty close to the exact figures for a specific vendor. One way or the other, having a good estimate, let's say in a range of plus/minus 5 % of the exact figure, already provides a good basis for negotiations, especially if the buyer otherwise would have to rely on his gut feelings only.

As „soft“ criteria have to be included when picking the most promising supply markets or countries, good cost approximations have to be generated when evaluating alternative suppliers. In this sense, aggregated data regarding a supply market or country would have to be translated into money figures wherever feasible. Furthermore, supplier-specific soft factors that result in significant cost differences between vendors have to be transformed into monetary figures as well. These can be subsumed in categories such as risk costs and (supplier) management costs.

The software provided by WhatsThePrice allows to add any cost category that is needed to compare cost levels of a product in different countries. In our example we put in add-on costs for Supplier Management, for Extra Inventory / Stockkeeping, a Carbon Footprint Penalty as well as risk surcharges regarding Exchange Rates and for General Risks. By varying these rates, different „risk scenarios“ and their cost effects can be simulated. This way the purchasing professional gets a very good feeling for the „real“ dis-/advantage of a certain supplier from a certain country against its competitors. This would be also very helpful, in case a supplier is asking for price increases due to changes in his cost position. This way, many sourcing decisions can be substantiated in a much better way and the company would be better prepared against possible bad surprises in the future.

Below a should-cost calculation example is shown for a Growth Chair, where a vendor from PR China is compared against a supplier from Poland.

Rough Total Cost Calculation including Add-on Costs regarding Risks, Supplier Management, Extra Inventory, and Carbon Footprint

Nonupholstered Wood Household Furniture Manufacturing	% of sale	Values based on material costs	% of sale	Values based on material costs
Direct Materials	54,97%	3,491	50,68%	3,657
Direct Labour (China)	2,17%	0,138	5,93%	0,428 (Poland)
Manufacturing Overhead	14,04%	0,892	14,22%	1,026
Subtotal (Cost of Sales)	71,18%	4,521	70,83%	5,111
General Services & Administration	18,07%	1,148	18,53%	1,337
Ebit	10,76%	0,683	10,64%	0,768
Total Price (ex works)	100,00%	6,351	100,00%	7,215
Transport China - Germany	10,00%	0,635	4,00%	0,289 (Poland to Germany)
Supplier Management Cost	3,00%	0,191	0,50%	0,036
Extra Inventory / stock keeping (based on lead time & MOQ)	5,00%	0,318	1,00%	0,072
Carbon footprint penalty	5,00%	0,318	1,00%	0,072
Risk exchange rates	4,00%	0,254	0,00%	0,000
Risk Surcharge	5,00%	0,318	0,50%	0,036
Grand Total		8,384		7,720



growth chair grev



www.whatstheprice.com

In this example, the vendor from PR China would be able to offer the product for 6.351 USD, while the supplier from Poland ends up at 7.215 USD. Adding shipping costs still shows an advantage for the Chinese vendor (6.986 USD against 7.504). However, when adding costs regarding the other indirect categories, we would end up at 8.384 USD when sourcing from PR China and only at 7.720 USD when buying from the supplier in Poland. By altering the surcharges regarding the different cost categories, we can easily perform a sensitivity analysis that provides information at which cost threshold a supplier from country A becomes favorable against the vendor from country B.

Please note again, that we are not talking here about calculating the costs of a core device of a highly complex and extremely valuable product, e.g. a 5-axis CNC machine. However, in most industries there is a wide range of standard products that are bought from suppliers from around the world. The simple fact that the overall volume of each single part does not justify investing too much time into preparing negotiations with the suppliers does not mean that the company is not flushing a lot of money down the drain when looking at the overall situation. The core virtue in negotiating is to be prepared! If a sales person asks for a 5 % price increase due to higher electricity costs at his production facility, simply let him know that you know that this is worth only less than 1 % of the current price. If you are able to substantiate all your counterarguments with hard cost data, the advantage will be on your side. After all, negotiating is not a zero sum game and both sides will try to get the bigger part of the cake. Even in partnership-oriented business relationships everybody is well advised to know about the true costs of his supplier.

3. Mastering the sustainability and compliance challenge

Sustainability is both, a very old and a quite recent issue. It is very old, because of the fact that ancient cultures often depended – and indigenous people still do – on an intact natural environment in order to survive. This is certainly also true for us who live in highly industrialized countries. However, we would be able to survive and even live well without growing our own produce or raising cattle and pigs on our own. Thankfully, there is a food industry that provides anything we want from around the globe whenever we want it. If this is a really good idea or if the reckoning is still to come is another question.

Sustainability as a subject of more advanced or even scientifically based analysis is quite old. Starting from Hans Carl von Carlowitz' statement in 1713 regarding sustainable forest management and followed later by Arthur Cecil Pigou who suggested to impose a tax on harmful emissions already in 1920, the term 'sustainability' became a buzzword since the World Commission on Environment and Development (Brundtland Commission) published its report „Our Common Future“ in 1987.

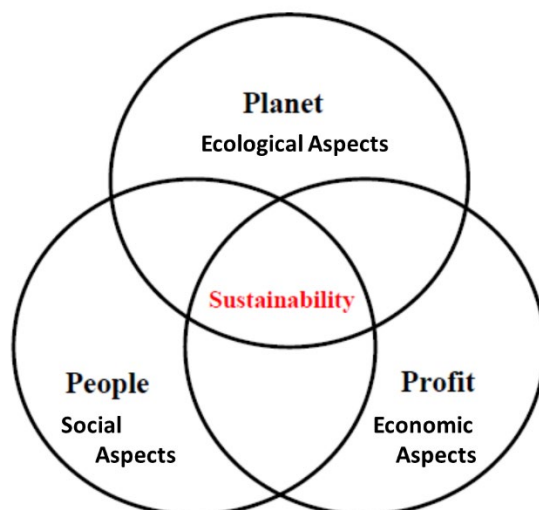
As we are in the middle of a climate crisis – it would be euphemistic to call it just a climate change – sustainability is moving from something to consider besides profitability, economic growth, income and employment to the center of our concerns in how we run our economy. Even in the current Covid-19 crisis where saving lives and getting things back to „normal“ – whatever that will mean in the future - is paramount, not only climate researchers try to make clear that the really big crisis still lays ahead of us. The effects of climate change, including severe weather conditions that cause major floodings, droughts, heavy storms and long lasting heat waves, the melting of glaciers and of large parts of the ice shelf, the degradation of agricultural areas, of forests, and of fish resources in the seas, the expansion of deserts, the pollution of the air, of freshwater and of the oceans will pose challenges to human life on this planet that have not been seen for thousands of years. Considering the loss of biodiversity – we are in the middle of the sixth mass (or Anthropocene) extinction – and the deforestation

of the rainforest, we are losing something that is crucial for this planet. These natural resources are indispensable for human life, since they provide air for breathing, they act as a source for medications that can cure serious diseases and they are part of the interconnected food and agricultural chain. Furthermore, we are „breeding“ multi-resistant germs by preventive injections of reserve antibiotics to animals that suffer their short lives in our factory farms. Viruses such as Covid-19 can be classified as a zoonosis. This means that the virus (the same can happen with bacteria, parasites or prions) was endemic to animals only, but now jumped over to humans. This typically happens only when animals and humans are very close together as we see it in industrial animal farms or on certain animal markets around the world. It seems that the future of human life on this planet is in danger.

This proposition is certainly backed by the fact that our non-renewable resources are getting more and more scarce, especially those that are crucial for innovative technologies, such as Gallium, Indium, Platinum and many Heavy Rare Earths such as Neodymium and Dysprosium. Things are not getting easier when considering the fact that free markets are not able to coordinate demand and supply anymore when resources are getting critically scarce - a fact that is well known by economists for many decades. Researchers call it the myopic behavior of markets and (partial) market failure. Already today national protectionism and geostrategic „land grabbing“ wherever scarce resources can be found prevail and this might be the „new“ normal in the future. When looking at African countries and the immense influence major political players in the world already exert there today and how they secure their access to natural resources for the next decades, everybody can easily see what we have to expect in the future.

It should be stated that the term sustainability covers three areas: economic, ecological, and social – or as often said: people, planet, profit. As it becomes clear to many analysts and also to more and more business leaders, that without such a threefold, sustainability-based goal system long-lasting profitability and survival will not be possible, many companies start their own environmental and social programs. They thrive to become „good citizens“, they focus on Corporate Social Responsibility and they often follow a Conscious Capitalism paradigm. Not surprisingly, a growing number of investment funds take the sustainability issue more and more serious and rather invest in sustainable than in „dirty“ or „exploitation“ industries and companies. In fact, this constitutes a turning point in the way we do business. When the money goes where it finds sustainability, sustainability will grow strongly – grow far more than any well-meant protest or political initiative could have managed to achieve.

The Triple-Bottom-Line Approach to Sustainability



Reflecting all this, sustainability is nothing else but our future – otherwise, there will be no future! Having this in mind, Purchasing & SCM should pick up the sustainability challenge as a guideline to add value to the company. As of now, there are still many companies where considering both, ecological and social aspects in supply management is still seen as an unwelcome, tedious, hard to accomplish, „unnecessary“ task that stretches the given resources too much. No wonder, many purchasing departments do their very best to either ignore the additional tasks and processes sustainability-based procurement would require or they try to make sure that they fulfill legal standards only. While each company has to decide itself how important environmental and social issues should be for the firm and how many resources should be invested to make sure that the requirements they defined are fulfilled by their suppliers, all companies should implement processes that are not only effective in pursuing the sustainability-related goals, but they should also be efficient. The latter means first of all, getting access to relevant supplier data and logistical data plus making sure that this data is correct and up-to-date. It is no secret that there is a flood of false certificates and statements out there, giving seemingly proof that somebody fulfills certain norms. But how can a company make sure that its supply chain is „green and clean“ without spending a fortune on monitoring and auditing suppliers along the supply chain?

Many companies developed questionnaires regarding critical aspects of doing business that they ask their suppliers to answer. A set of criteria is usually defined and it is checked if the suppliers comply with norms and rules as defined by national or international law or by the company itself. These criteria may cover issues such as environmental performance, labor and human rights, work safety, diversity, anti-corruption policies, financial and quality-related performance, data security measures, non-usage of conflict materials, Acts regarding non-usage of critical materials (e.g. REACH, RoHS), etc. Obviously, this covers a wide range of criteria that are not necessarily easy to observe, to measure and to control – especially not for somebody from outside the respective company. So, we either have to invest a lot of effort to make sure we get true and full information from the suppliers and sub-suppliers or we simply hope that nobody will cheat on us.

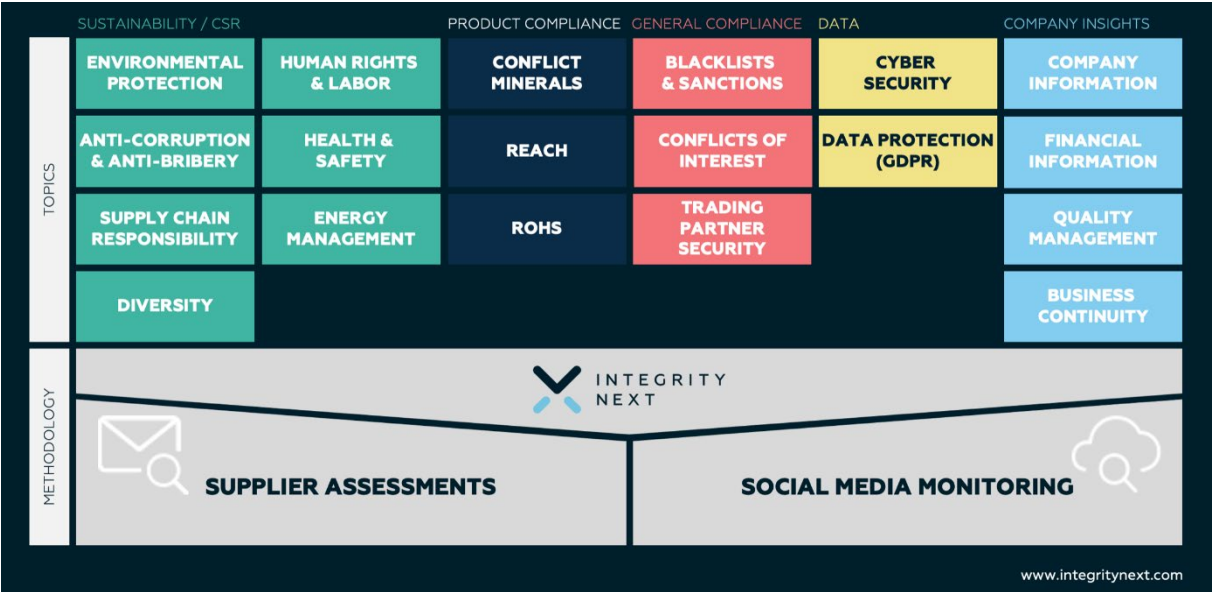
Whoever is not happy with wishful thinking or has learned about opportunistic behavior in business school would love to have a tool that helps to get to the truth as close as possible and that does not cost a fortune or that takes forever before the relevant information is available. A smart approach to achieve this is using a web-based platform that collects all data related to the company's suppliers on a permanent basis. By scanning a wide range of data sources around the clock, theoretically every bit of potentially critical information regarding a supplier in the company's supply chain can be discovered and critical incidents may be reported in real-time. Whenever this data is interpreted as being critical, immediate action can be taken to mitigate the situation and protect the company from any kind of damage.

In times where nearly everything gets reported somewhere in the Internet, the chances to detect any kind of relevant information is quite good. Including sources such as Social Media Platforms is a good strategy compared to rely on official sources only. Listen to what the people say seems to be a more contemporary approach. No question, this kind of „social talk“ can be misleading, since there will be always people that complain without reason, that try to harm others by distributing unproven (or even knowingly false) assertions and the like. Accordingly, software tools that browse such sources to collect data have to be smart in the way they generate information out of more or less reliable data. In the age of Artificial Intelligence analyzing Big Data in a way that core information with a high trust score can be separated from implausible rumors is no illusion any more.

IntegrityNext (see <https://www.integritynext.com/>) is a platform that has operated in this domain for a couple of years already. Besides monitoring the abovementioned sustainability and compliance criteria, they offer automated supplier assessments to gain first hand data from the suppliers themselves. This covers relevant sustainability and compliance aspects, including information regarding certificates the supplier is holding. The certificate documents have to be uploaded by the suppliers to the platform where their authenticity is checked. Furthermore, the suppliers have to confirm that they comply with the defined sustainability norms. Additionally, IntegrityNext uses social media monitoring to detect potential reputational and other risks in the supply chain. Over 1 billion messages from various sources such as NGOs, authorities, employees, news agencies, etc. are scanned daily and in real-time. The tool is smart enough to pick up on sentiments – meaning it can understand whether a message is perceived in a negative way. Potential threats are instantly reported to the user, so that countermeasures can be initiated immediately. Blacklists and sanction lists are also taken into account in the monitoring process.

The regulatory and sustainability-related topics covered by the IntegrityNext platform and the applied methodology is shown below.

Regulatory and Sustainability-related Topics and applied Methodology



Source: IntegrityNext

The data collected with IntegrityNext can be exported and used for the non-financial report that has become mandatory for most large companies. IntegrityNext enables companies to drive sustainability in the supply chain, meet customer demands and comply with regulatory requirements – with next to zero effort once the suppliers are uploaded to the platform. This way, a very time-consuming manual task can be outsourced to a service provider. Furthermore, a company benefits from a platform solution where information that is already available can be accessed, so that it would not have to be individually collected any more. For most companies, implementing an automated social media monitoring is beyond their possibilities. Last but not least using such a platform can dramatically enhance the company’s reach regarding how many stages of the upstream supply chain can be covered in terms of sustainability and compliance issues. Especially this must be seen as an important advantage when looking back at severe supply chain disruptions in the last years caused by critical incidents of suppliers that were flying under the radar of the downstream producer.

4. Negotiations the easy way

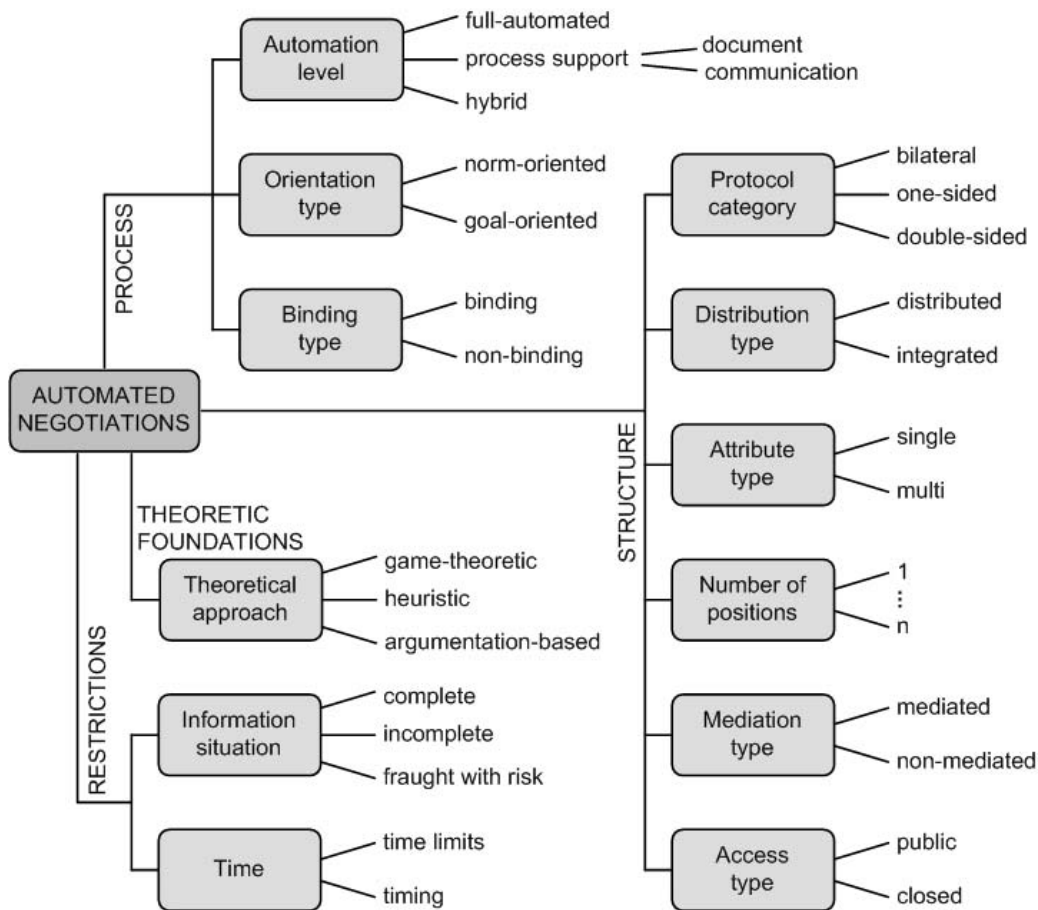
Negotiations with vendors that have qualified to become a firm's supplier are still a core task in most Purchasing & SCM departments. Electronic auctions never reached the level of importance when looking at both the overall quota and the intensity of application in the different industries, even though e-auctions have been quite successful in many cases and some companies made intensive use of them. All in all, e-auctions in procurement never met the high-flying expectations people had when they were introduced about twenty years ago. The reason is not that e-auctions are generally not a smart thing to do. More often, either the specific market situation or the relationship between the buyer and the vendors is not favorable to run an e-auction. Besides, many companies are still neither experienced with e-auctions, nor do they have deep knowledge regarding the smart design of an e-auction, where different types of auctions (Dutch, English, etc.) have to be considered and alternative options for the auctioning process have to be designed. Accordingly, these companies either have to employ specialized consultants to do the job or they refrain from running e-auctions, even if the market conditions would be promising. Finally, e-auctions seemingly take something very sacred away from the single purchaser: his/her passion to negotiate with the suppliers him-/herself. No wonder, it often takes a straight management approach to make sure that e-auctions are considered for more or less any contract negotiation.

It should be stressed here, that auctions are a specific form of negotiations. For each purchasing situation, the best way to negotiate has to be chosen. In more cases than many may think, e-auctions might really be the best bet, while in others a more traditional form may work better. Considering the fact, that people and time are scarce resources in purchasing, it gets obvious that usually not for all purchasing projects a thorough analysis of how to negotiate best with the vendors can be carried out. So, it is no wonder, that in many cases the chosen type of negotiation will prove not having been the smartest one when looking at the results afterwards. Unfortunately, in many instances the results are not controlled in a way that it becomes clear why the „performance“ regarding a certain contract is not as good as expected. Even when implementing strict controlling schemes, e.g. by using a range of adequate key performance indicators, a company will find out that not anything can be really optimized as much as wanted.

The good news here is that there is help on its way! And this already started in the 1990s, when academic discussion about automated negotiations and intelligent autonomous agents started. Quite similar to the development of Artificial Intelligence it took nearly thirty years until these very smart ideas and concepts became ready for application in daily practice. Without going into theoretical aspects and into details here, it can be said that applying these technologies in order to raise performance in Purchasing & SCM is on the rise. Before looking at a real-life software solution, let's focus on the criteria that might have to be considered when talking about automated negotiations (see figure below).

Quite obviously, a purchasing manager would not always be happy to be confronted with all these issues when preparing negotiations with a supplier. However, the purchaser has – or should have – many of these criteria in mind when thinking how to run a successful negotiation. In fact, some generic questions can be answered by accessing the purchaser's experience-based knowledge. This knowledge is usually tacit, meaning: it is only in the purchaser's head and not documented somewhere. Combining this individual knowledge with smart negotiation strategies and psychological tactics should result in a successful negotiation.

Main Criteria for classifying Automated Negotiations



Source: Büttner 2006

Since experience-based knowledge of high quality is not always available when it comes to negotiations with suppliers – either because of a lack of experience or a lack of human resources – many contracts are negotiated without going through a professional negotiation process. This process starts with analyzing the purchasing situation. First of all, the characteristics of the product to be purchased have to be defined, including technical aspects as well as demand volumes, frequencies, timeline, etc. Then, the market situation regarding general and specific demand and supply has to be analyzed. Many other factors as already suggested by Kraljic (1984) that reflect on the strengths on the supplier’s side versus the buying company’s side may be considered as well. These may include factors such as market size and growth, supplier’s capacity and utilization ratio, competitive structures on the market, profitability measures, cost and price structure, potential entry barriers, logistical characteristics and situation, etc. Evaluating all these factors, weighting their relative importance and summarizing all this in order to get a clear picture of the „field for negotiation opportunities“ requires a lot of time and effort. No wonder, Kraljic (1984) recommended this only for truly strategic items, meaning goods that have both, a high profit impact and a high level of supply risk.

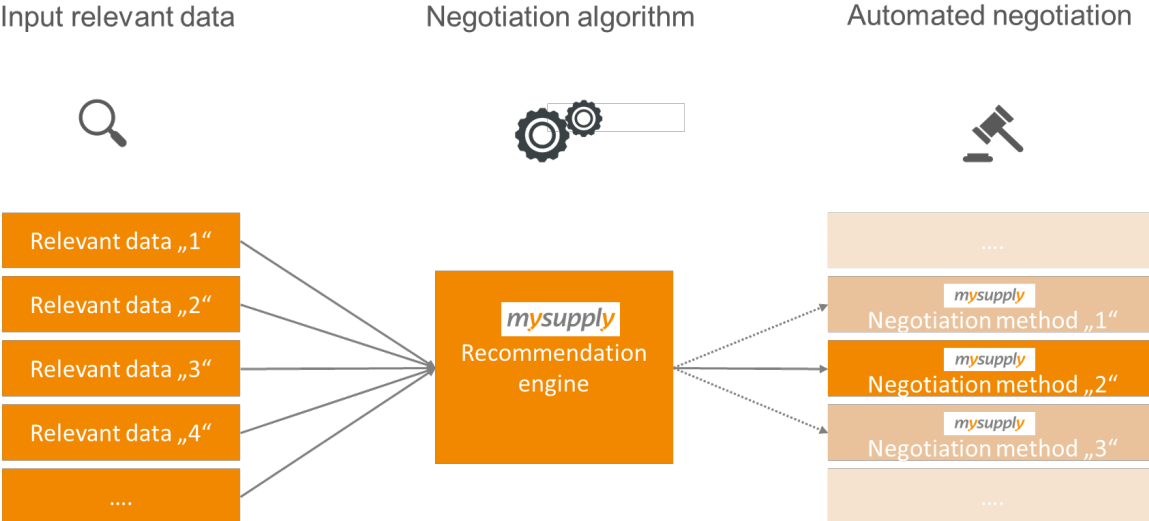
But this would mean that for about 90% of the goods no thorough analysis would be made before developing a supply strategy or when starting a negotiation process. As Bogaschewsky (2010) pointed out, this is unacceptable when thriving for a high performance Purchasing & SCM function. Covering a wide range of products and materials that have to be purchased when developing negotiation strategies is only possible when applying smart software that provides supports regarding the related tasks.

Theoretically, the entire negotiation process can be automated. In practice, it can be assumed that the responsible purchasing manager still wants to be in the driver’s seat, no matter what kind of negotiation will be executed. Accordingly, a supporting software tool should allow for letting the purchaser choose from a range of options him-/herself. However, the system should provide advice on the presumably best negotiation strategy based on a thorough pre-evaluation of the purchasing situation. The potential complexity of many negotiation situations seems to rule out any kind of standardization or even adequate software solutions for automated negotiations. However, when analyzing a typical set of commodities a company buys from the markets, one may come up with a certain degree of similarity regarding the purchasing situation, so that generic negotiation strategies can be developed.

One example for an existing software solution in the field of automated negotiations in Germany is mysupply (see <https://mysupply.de/>). As it can be taken from their website, the platform allows for running an efficient source-to-contract process while applying algorithmic game theory in order to provide recommendations for picking the best negotiation type. Furthermore, it uses Artificial Intelligence to analyze external data that is relevant for the decision process. After picking a negotiation type, the negotiation itself can be run automatically. Besides this, behavioral aspects might be integrated into the negotiation strategy. Of course, the platform allows for running the entire source-to-contract process in a seamless environment.

The generic process to facilitate automated negotiations as applied in the mysupply solution is shown below.

Facilitating Automated Negotiations applying a Recommendation Engine



Source: mysupply

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