

Hundred measures of liquidity – slaying the multi-headed dragon of St George

Building a one intelligence solution in a multi-country Big Data environment of OLX Group.



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Becoming a world-wide leader in a fast growing business often relies on the acquisition of local champions. In addition, building a sustainable growth path requires careful balancing of fostering local entrepreneurship with central optimization. One of the key challenges that we encounter in the field of Big Data is how to build a global Business Intelligence (BI) and Data infrastructure. This also applied to Naspers' OLX Group: how could a central 'one source of the truth' be established that is understood and adopted across all regions and countries? In a period of 6 months, the OLX Group – together with Micompany - successfully developed a steering framework and a robust and scalable central BI infrastructure that was adopted across regions. This article describes the approach taken and shares our reflections on lessons learnt.

OLX Group's classified growth through local entrepreneurship came at a cost.

The classifieds business connects over 30 million of new listings with over 200 million visitors per month, aiming to produce liquidity in markets in which sellers and potential buyers succeed in selling and buying their stuff. As a result, OLX Group manages a vast amount of (petabytes of) data in its different market platforms.

OLX Group has historically adopted a culture of fostering local entrepreneurship, whilst aiming to become one of the predominant data technology companies in the world. Therefore, local and regional teams have many degrees of freedom to become the leading player in their respective markets. Most regions have built

up extensive and high quality BI and analyst teams to support their business. Recognizing the opportunity to leverage scale, and learning from each other, the OLX BI community had developed a common BI infrastructure in a global collaborative project over the last 4 years. The project ramped up regional and local knowledge of data technology. This joint cloud-based infrastructure received strong adoption by those regions that were heavily involved in the development of the platform, but less strong by those that had a lighter role.

As a result, the regional businesses mostly use their own local data infrastructure, business definitions and BI tooling. Moreover, the central platform that was developed did not align with local business metrics, and did not bring suffi-

OLX Group is a rapidly growing business with solid presence in the classifieds markets of 40 countries, operating under the OLX, Avito and (app-only) Letgo brand. OLX Group is part of the South-African conglomerate Naspers, that is a global internet and entertainment group and one of the largest technology investors in the world. Naspers' sheer size is best represented by its market cap, that would rival with Unilever to rank second only to Shell at the AEX exchange. OLX Group headquarters are situated in Hoofddorp and the company employs over 1,200 people in offices including Berlin, Buenos Aires, Cape Town, Delhi, Dubai, Jakarta, and Kiev. As no market activities take place in the Netherlands, Naspers and OLX Group are relatively unknown in our country, possibly making Naspers our countries' largest 'unknown company'. The OLX Group countries of presence are depicted in figure 1.



Figure 1. Overview of world-wide presence of the OLX Group.

cient enough added value to the business users. Most regional and local BI teams had therefore further developed their local solutions to fulfil their own needs. As a result, many differences exist between the OLX markets in data extraction, data treatment and in the numerous analytics and visualization tools used.

This fragmented data environment with local freedom to define country specific metrics of course hindered the governance. As one could envision, numerous local differences in interpretation, tracking methodology and business rulings exist on metrics. Even on the key performance indicators, like the number of replies on a classified ad.

With the fast growth of the OLX business and the growing need for sophistication and scalability, this fragmentation became a growing concern. In 2015 an extensive attempt was made to set up a minimal form of central reporting based on a new set of centrally defined and standardized global KPI's. Unfortunately, after 7 months of concerted effort, a central global scorecard was not delivered with satisfactory results. It appeared that still many inconsistencies and sometimes incorrectness of data and reports existed.

Early thoughts on approach

How would OLX Group overcome the challenge of aligning petabytes of data into few metrics that are centrally guided and also accepted by the local businesses? In conversations with MIcompany, it was agreed that OLX Group would need an approach that would deliver short-term with tangible results, through a

targeted pilot for a number of critical operating units. Through building excitement with a fully harmonized prototype, and through a clear vision on performance management, OLX Group countries would then understand the need to all move to one harmonized solution that would define one way of performance management.

More specifically the approach was built on four premises:

1. **Set direction:** Develop and communicate a compelling and independent vision on where to go. Not only on how the desired solution would look like, but more important how the KPI structure would logically contain value creation and become the basis for performance management.
2. **Build momentum:** Spend time to build an exciting prototype, and then adapt course based on feedback. In building acceptance and overcoming resistance for a new course, OLX Group realized that they need some concrete change and momentum.
3. **Limit scope:** Start with a well-defined, small scope that already really helps the business (Minimal Viable Product).
4. **Be pragmatic:** Avoid endless discussions on alignment and take short cuts. Group management should take the lead with setting a tight framework where numbers are clearly defined and aligned. In taking the lead with the design, OLX Group would avoid unnecessary discussions. Instead of

polarization of very different directions, the discussion would center around one well-designed framework.

Developing a global performance framework

Before we started analysing the data for the selected countries, we asked ourselves how OLX Group should look at value creation. What drivers are relevant to monitor, and how could we build-up a tight, well-structured performance framework for the classifieds business?

As a start, we took a look at the existing dashboards with KPIs. In the regions, over 1500 dashboards had been developed to follow and steer the business. Many of them were hardly used or not used at all. This confirmed our ambition to define one performance framework, limiting the number of steering tools and create one perspective on performance. We even limited the scope of our framework, that we named Triton, to the bare minimum required for business steering. This minimal framework would act as a prototype, in which we would leverage the existing central data stack and technology.

The resulting steering framework consisted of several layers of views that relate to the three key metrics required to measure OLX Group success:

- **Seller growth** – The number of users that actively list products to sell (unique sellers). The market is made by consumers that sell their own products to others (C2C).
- **Liquidity increase** – The success rate of sellers, measured in number of liquid sellers, that have received an x number replies with a week on at least one of their listings. The expectation

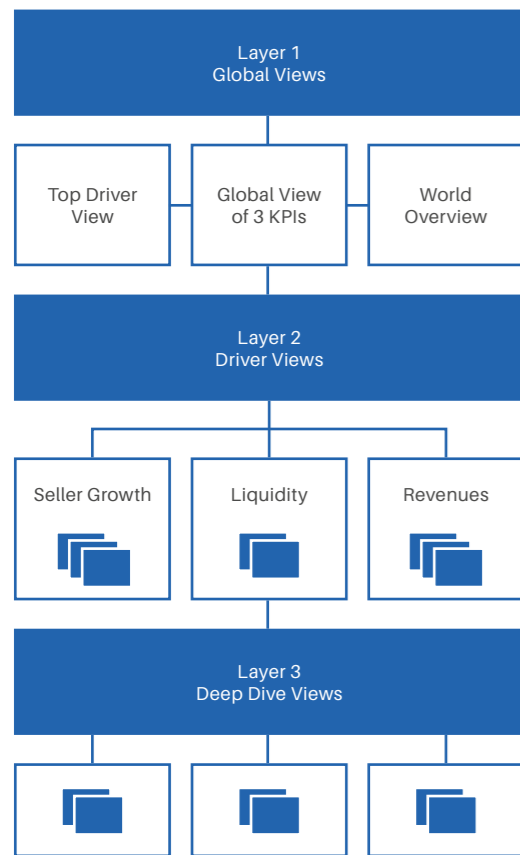


Figure 2. Schematic representation of the Triton framework for business steering

is that success drives repeat listings and eventually leads to paying. (The numbers of replies is therefore intrinsically a part of liquidity KPI).

- Revenues – The resulting revenues, based on the number of paying users that pay for one of their listings to get higher and longer attention to increase the success rate.

The triton framework contains three levels of information, that are shown in three different layers that are described below. In the first layer of global views, one can immediately get a high-over view of the performance of regions and countries and compare regions and countries on the 3 KPI's listed above. In the layer of driver views below, one can focus on a region or country for one of the three KPI's and can understand the performance of the main KPI's by its underlying drivers. In the third layer one can dive deeper into one of the KPI's (main or drivers) and compare different groups with each other and get a better understanding of the development of different segments. The resulting Triton framework for business steering is shown schematically in Figure 2.

Rolling out the Triton prototype

The prototype was built within 8 weeks, keeping in mind the premises mentioned above, and showed to be a successful proof of concept. Having developed a successful proof of concept, we needed to address the following questions for scaling up:

1. How do we ensure an agile setup that allows central change of definitions within hours?
2. In what manner can we best implement

a robust, scalable set up with consistent coding that is broadly understood and is well documented and shared in a structured process?

3. How can we assure a broad-based understanding and buy-in of one version of the truth?

To address these questions, the approach was developed in collaboration with OLX Group. The following decisions were instrumental in the successful scale-up.

1. Ensuring an agile set up – strategic decision on central infrastructure. What would be the best way to scale up the Triton prototype? In the technical due diligence we assessed alternatives to establish the desired central transparency in an agile setup that allows for rapid central changes. It turned out that building a new, central infrastructure would be the preferred route. Although this meant that the required raw data for each of the regions to calculate the global KPIs would need to be extracted and collected centrally, it would allow the central team to manage the data and outcomes of the definitions in a much better manner than in the alternative set up. In addition, setting up a new infrastructure from scratch would be more efficient and therefore faster than adopting the existing infrastructure.
2. Implementing a scalable set up with well documented and consistent coding. What would be the best manner to implement a robust, scalable new Triton infrastructure? The team developed a strict set of key design

- and coding principles that have been used:
- a. Base your design on the key outputs. The infrastructure followed the OLX Group infrastructure conventions and was designed around the key KPIs required for the Triton steering framework: visitors, sellers, buyers, (market) liquidity and revenues generated. The required data cubes of the different operational and analytical layers were focused on one of the KPIs and were only connected at the aggregated reporting layer. Hence, this set up allowed for parallel development of the infrastructure by the team members in an easy manner. This set up enables scale up in a relatively simple way, e.g. by addition of new KPIs.
 - b. Limit data by detailing end product usage. Having a clear end product in mind and understanding what different data cuts would be most important for management helped the team in minimizing data usage. Aggregation on metrics at different levels was used to avoid both over dimensioning and also choice paralysis: allowing to many degrees of freedom that efficiency for management is reduced. Further disaggregation or new data cuts can be added in an agile manner when desired by management.
 - c. Manage intelligence in well-known environment. The intelligence of the Triton prototype for steering was built in the different layers. For the new Triton infrastructure, we redesigned the set up and built the steering framework intelligence in a coding and layer that is well-known for the broader OLX Group BI community. This allows it to be better sharable and maintainable and offers OLX more flexibility in reporting tooling.

- d. Apply rigorous coding and documentation discipline. How can we assure the coding is broadly understood and is sharable to the regions? The team adopted the OLX Group coding conventions and discipline that coding follows documentation – documentation was first reviewed before the actual coding took place. All dimension tables and metric definitions are set up such that they can be changed and extended centrally with limited effort. The central documentation is accessible for the BI community in all regions.

Based on these principles the team was able to build a complete new infrastructure in less than 4 months, a challenge that would have been impossible when leveraging the existing – less scalable - infrastructure.

3. Assuring a broad-based understanding and buy in one version of the truth. How can we best align the regions on one version of the truth of the globally defined KPIs, while being used to their own definitions, metrics and underlying data extraction? To achieve this, we focused on two topics:
 - a. Validation management. First, we decided to extensively validate the output on all KPIs and underlying metrics. We set up a structured validation program with all regions, in which we jointly validated all the global KPIs with their own numbers. The regions sent over key BI engineers and data specialists to validate the respective data with their own outcomes. After this process, local differences may still exist, but there will be full transparency on the underlying reason. In

Martin Kroon, CPO of OLX Group. "My key objective at the start of the project was to fix a key hygiene factor: establish robust and auditable visibility on all our markets on a set of centrally defined KPI's for senior colleagues. Data that was available centrally did not match our needs and did not help us in decision-making. So we had to slay the many-headed monster of regional definitions, before we could start thinking of new opportunities. I am extremely pleased we did and the potential it has given us."

Dobo Radichkov, Senior Director of Global BI and CLM of OLX Group: "In less than 3 months, we built a new data warehouse, analytical framework and global reporting capability. The resulting infrastructure is simple, scalable, well-documented and robust. This was a deliberate strategic choice empowering our teams with a central data platform that changes the game for OLX Group and lays the foundation for the next few years. The project was intense and extremely hard work, but I am proud of the result and the product the team has delivered."

Roland Tabor, Partner of Mlcompany: "It was great to develop and scale up the Triton steering framework and infrastructure with the OLX team. The OLX Group BI community is truly acting on a global scale and is working extremely fast and pragmatic. Again I experienced the power of a strong steering framework and prototype that catalyzes change."

fact, the process resulted in many regional improvements of in KPI definitions, applied business rulings and data extraction. Once signed off by each of the regions, the new global defined KPIs would act as the only version of the truth – the one intelligence long awaited for.

- b. Training of regional management and BI teams. After validation sign-off all regional BI teams are trained on the central Triton infrastructure and steering framework. All KPI definitions have been extensively documented and made available for all teams. Recently, all OLX Group regional management teams have been trained on the Triton steering framework. The global KPIs are used for the first regional reviews with the center, stimulating active usage and understanding of these metrics and entering into a cycle of further improvement of the definitions and reporting in a continuous manner.

Reflections on Triton.

So, having solved OLX Group' challenge in creating one central intelligence, what are our reflections?

First, building a minimal viable prototype that can act as a proof of concept was instrumental to change course and build-up energy in the organisation. When properly designed and managed in a tight, iterative set up, a successful prototype can often be developed within a very limited time frame (less than 2-3 months). It was not the technology, but the powerful framework for performance management that won over the hearts of the business.

Second, with the Triton infrastructure and steering framework, a cloud-based and saleable one intelligence environment has been developed that can foster further growth. The OLX Group Amazon-based data environment in the cloud will ease integration of new countries or acquisitions in the future. This solid infrastructure platform provides many options to leverage Triton for other central or local applications. For instance, insights can be deepened to support key functions such as media advertising, or revenue management. Adopting sophisticated predictive applications to identify fraud or improve customer experience.

And last, the Group will enjoy the fruits from speaking one 'lingua franca', and having standardized definitions of key metrics across countries. And with that experience, countries will get more comfort from the benefits of smart centralization, and – hopefully – open up to further collaboration and building unique and standardized best practice capabilities.