



Digital Finance

Natural Language Generation

# Natural Language Generation

Natural Language Generation automates report generation, augmenting humans by shifting their role from data crunching to decision-making

Ever wondered how your team could more easily keep up with increasing amounts of data and stringent reporting cycles?

If that is the case, Natural Language Generation (NLG), a subfield of Artificial Intelligence, is probably of interest for you. NLG automates report creation, allowing you to refocus from data extraction and report building to what matters most: analysis and decision support.

This Point Of View outlines a short introduction to NLG and discusses the immediate benefits Finance will reap from incorporating Artificial Intelligence into its daily life.



# NLG in a nutshell

Similar to the tasks a financial analyst undertakes, NLG analyzes data, interprets the most interesting and important facts and writes an audience-specific report. NLG is used across Finance to automate executive summaries, P&L statements, and variance analyses and can be integrated into current dashboards to explain insights in a natural, easy-to-consume language.



## Advanced Capabilities

### Instant Insights

Automate analysis, interpretation and reporting at tremendous scale

### Intelligent Automation

Generate data-driven narratives in nearly real-time using advanced computational linguistics and analytics

### Personalized Data Storytelling

Provide narratives tailored to different departments and/or stakeholders' groups



## Benefits of use

### Data-Driven Decision-Making

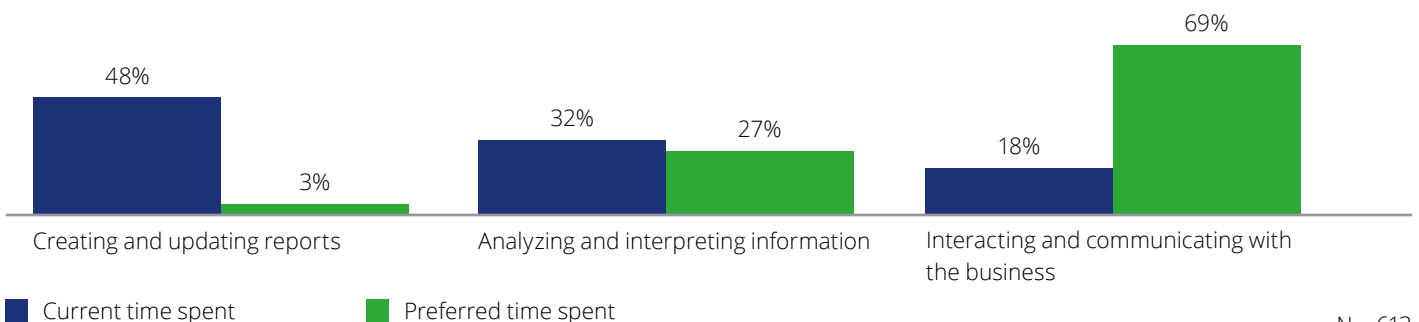
Give employees the full context and knowledge they need to make better and faster data-driven decisions

### People Empowerment

Free-up time to empower people to make more actionable recommendations and investigate the 'why' behind the numbers

### Impactful Experiences

Enable improved customer communication and experience through crafted content as if human experts wrote it



Source: Deloitte analysis

N = 613

Despite being a numbers-driven group, effective Finance organizations understand they can deliver additional value when communicating the story behind the numbers to their business counterparts. Yet, according to Deloitte's in-depth global survey of over 600 senior finance professionals, most organizations aren't there quite yet. In almost half of the businesses surveyed, Finance spends a majority of its time creating and updating reports, despite wanting to spend more time on strategic business facing activities as illustrated in the figure above.

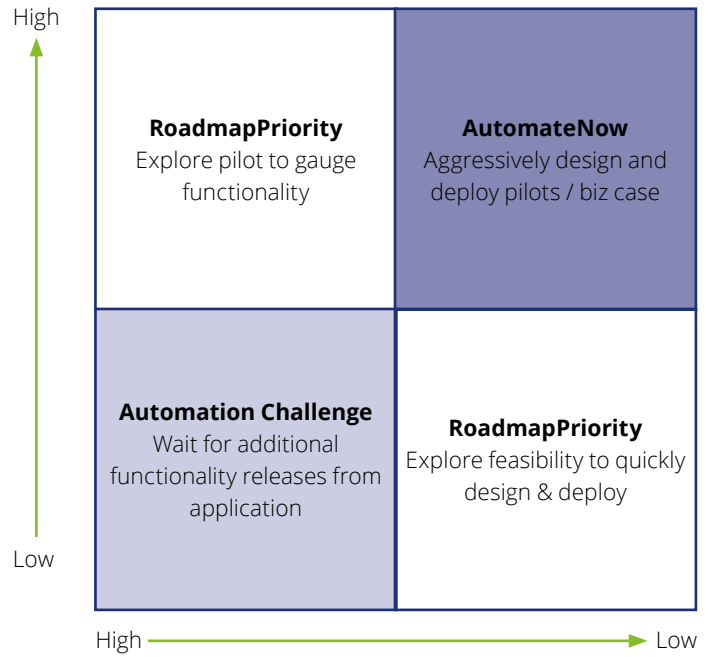
Finance is burdened with ever-increasing amounts of data which needs to be analyzed and reported on during regular cadences to various audiences, each requiring different levels of interpretation.

NLG is meant to disrupt and ultimately eliminate these cumbersome tasks. It helps Finance evolve into a Business Partner for the company - to reinforce its role as a partner that supports and brings added value for its business counterparts.

# Getting started with NLG

Due to increasing demands for analytics and reporting within Finance, the opportunities for NLG can seem endless. In order to identify the optimal starting point, it's helpful to equate implementing the technology with training a new analyst. Instead of throwing messy data at the new hire and instructing him to find something interesting, it's more likely that you would direct him to identify and communicate relevant findings within an accessible dataset (For example: Call out the drivers of financial performance for Q4).

The same approach should be taken with NLG. The most successful NLG use cases are driven by a clear communication goal, with readily accessible structured data, where the benefits of automation can drive value.



## When assessing Level of Complexity, ask:

- **Data Consistency** - To what extent is the underlying data already modeled around key business dimensions and hierarchies?
- **Report Consistency** - To what extent will the commentary structure remain constant from period to period?
- **Ownership / Scope** - To what extent does the production of a report involve a single person, or few groups?
- **Logic & Ruleset** - How straightforward is the logic to determine drivers of commentary?

## When assessing Level of Value, ask:

- **Commentary Richness** - To what extent are executive decisions driven from commentary
- **Frequency** - How frequently is the report created?
- **Distribution** - Who is the intended audience for the report?
- **Scalability** - To what extent can the same logic be leveraged for other reports?

Reports that are excellent candidates for automation with NLG are the ones that require significant manual effort and have a high degree of variability. This can be formalized with the 4 key characteristics of suitable reports that are listed below. Taking these 4 characteristics into account, results into an opportunity area within the feasibility grid that showcases the most suitable report candidates for NLG.

### High Frequency of the reports

The reports ought to be built often

### Large Volumes

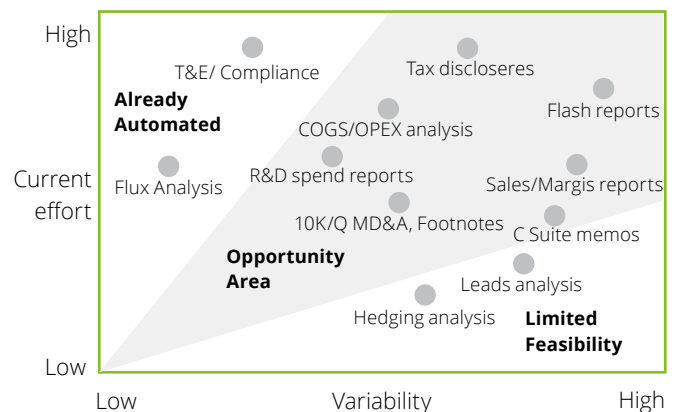
The volume of text that must be written ought to be large

### Advanced Standardization

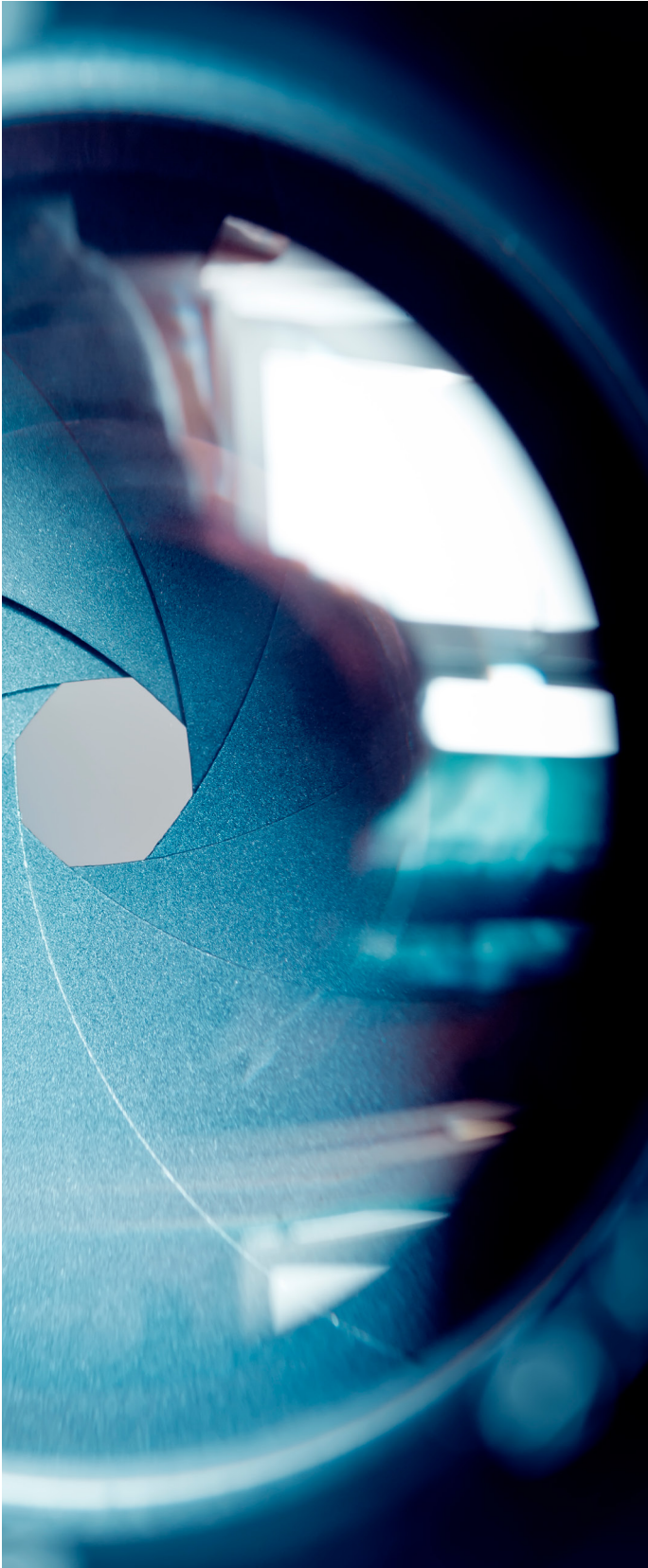
The text should be rule-based and if possible, repetitive

### Quantifiable

The underlying data ought to be quantifiable (i.e. numeric)



# Practical example



## The context

The internal controls group at a large European financial institution was tasked with writing monthly progress reports for more than 100 branch offices. That meant not only a great deal of manual labor, but also the potential for repetition and error. All the while, the underlying data was growing in size and complexity. The accustomed way of performing that work represented a comfort zone—inertia and culture stood in the way of embracing a cloud-based solution. So did security, because the data going into the cloud was sensitive.



## What did we do?

Deloitte and the institution collaborated to implement a cloud-based Natural Language Generation (NLG) system that could securely and automatically translate the high-volume branch performance data into plain-language expressions of key metrics, then deliver it in useful visual formats. Agile prototyping helped manage validation of the software and speed the growth of its learning capacity. In addition to implementing one tool in one department, the team set up an NLG Center of Excellence that is poised to extend the benefits to other parts of the institution.

Cloud architecture and NLG weren't the only tools that carried the project forward. Knowledge of people and change was a vital tool as well. The Deloitte team used guided workshops to help inform the institution's employees and built the web interfaces for demonstration sessions. Briefing the control operators was only one stage—in the next, the operators used the interfaces to brief their own colleagues, contributing to buy-in.



## Impact made

With cloud-based tools at their disposal and more free time thanks to automation, the control group members began asking for more detail and more analysis, which enriched the reports they created. Why were client visits to a given branch changing? How were workloads shifting? The reports grew to contain more “why” to go with the “what.” Overall, the 15-member team now spends 94 percent less time compiling the monthly reports, while errors have been reduced and employee experience improved.



# Conclusion

Adopting intelligent automation technologies such as NLG is key for Finance teams to improve efficiency and remain at par with benchmarks in a digital world.

NLG is used to support Finance transformation initiatives by increasing operational efficiency, achieving consistency and standardization and accelerating time to insight.

NLG can also be key to optimize closing delays and communicate relevant information within short deadlines when there is a clear communication goal, accessible structured data, and a need for scale.

Interested? Please do not hesitate to reach out to one of our Deloitte Digital Finance experts. The way we envisage NLG within the broader scope of Digital Finance, our functional & technical expertise and our independent knowledge of key NLG market leaders, make Deloitte the right partner to guide you on your journey to the future of Finance.



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