Open Source: a dynamic market fueled by digital transformation and innovation

Study conducted by teknowlogy Group for the National Free Software Council (CNLL), Syntec Numérique and Systematic

Agenda

1. **Digital transformation boosts the European Open Source market**

2. **Open Source is strategic for the future of organizations in France** (117 organizations surveyed)

   - → Background and methodology
   - → How do companies use Open Source?
   - → Which partners do companies use?
   - → What is the impact of digital transformation on the use of Open Source?

3. **Europe: What are the local specificities?**

1. Digital transformation boosts the European Open Source market

Segmentation & definitions

Software & IT Services market

SOFTWARE

Infrastructure Software & Platforms
- Operating Systems
- Network, System, Storage and Security Management (N3SM)
- Middleware

Application Software Products
- Office, Content & Collaboration
- Horizontal Business Applications (incl. BI)
- Vertical Business Applications
- Technical Applications

SaaS
- N3SM & Middleware
- Applications (incl. BI)

IT SERVICES

Infrastructure-Related Services
- Infrastructure Support Services[1]
- Infrastructure-related Project Services[2]
- Infrastructure Outsourcing Services[3]

Application-Related Services
- Application-related Project Services[2]
- Application Management

Business Process Outsourcing

[1] Hardware Maintenance; Field Services and Services Desk
[2] Consulting; Systems Integration; Training
[3] End-user Devices Outsourcing; Server Outsourcing & Hosting

Open Source Software & IT Services market

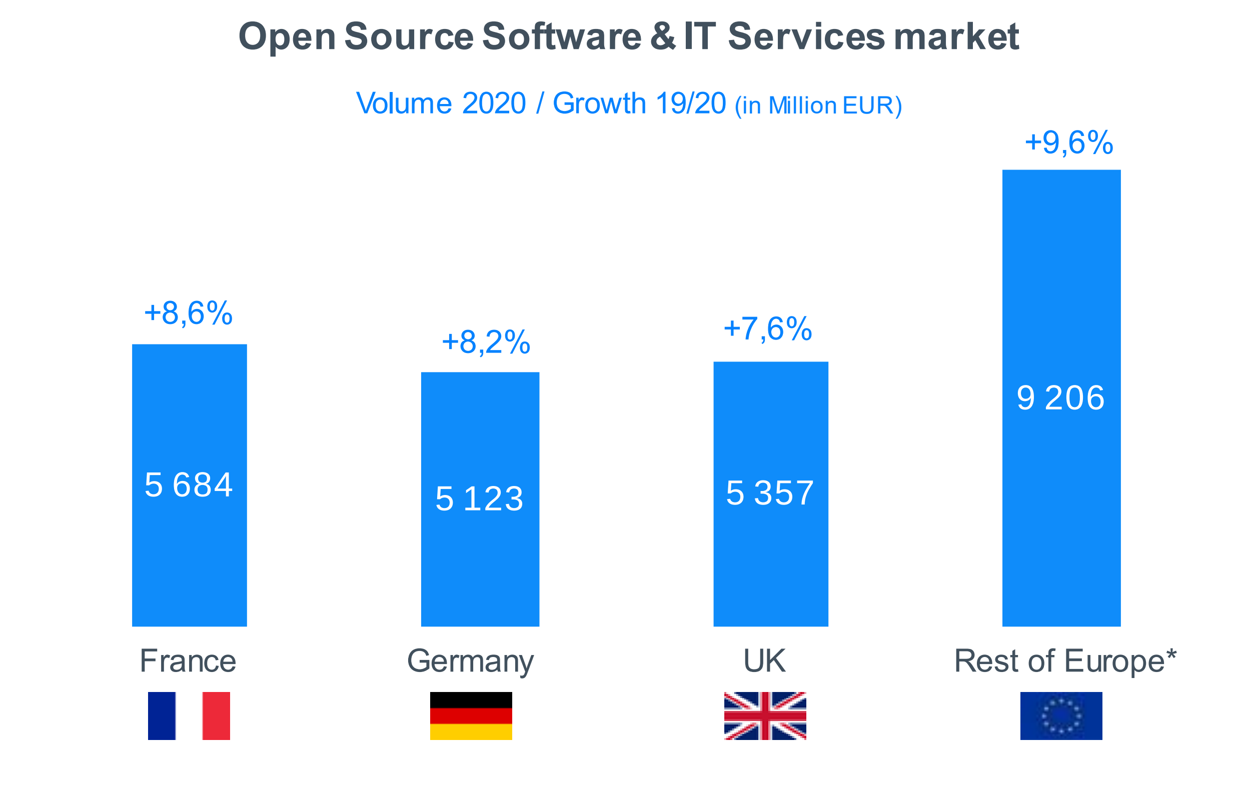
SOFTWARE

Subscriptions, support, maintenance

IT SERVICES

Consulting, system integration, outsourcing

Open Source strong growth across Europe



Source: teknowlogy Group, 2019

* *Rest of Europe: Austria, Belgium, Denmark, Finland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, others (Greece, Ireland, Liechtenstein, Luxembourg, Malta)*

→ The **French** Open Source market is the largest in terms of volume when compared to the other major European countries. This is due to a strong culture in specific development and integration of heterogeneous systems, as well as a historically large investment by public authorities.

→ **Germany**'s market has been limited in Open Source development due to the place that major traditional software players occupy (e.g. SAP). In terms of Open Source, the German market will become more dynamic in the coming years.

→ The **UK** Open Source market was mainly developed by the major US Open Source software vendors.

→ The **other European countries** are also increasing their use of Open Source.

teknowlogy GROUP

Open Source market by country

in million EUR	2019	2020	2021	2022	2023	19/20	20/21	21/22	22/23	CAGR 19/23
France - Open Source Software and IT Services Market	5 233	5 684	6 187	6 741	7 336	8,6%	8,8%	8,9%	8,8%	8,8%
Germany - Open Source Software and IT Services Market	4 735	5 123	5 553	5 983	6 376	8,2%	8,4%	7,7%	6,6%	7,7%
UK - Open Source Software and IT Services Market	4 979	5 357	5 799	6 280	6 783	7,6%	8,2%	8,3%	8,0%	8,0%
Rest of Europe* - Open Source Software and IT Services Market	8 398	9 206	10 048	10 890	11 705	9,6%	9,1%	8,4%	7,5%	8,7%
Worldwide - Open Source Software and IT Services Market	91 672	100 713	110 411	120 399	130 435	9,9%	9,6%	9,0%	8,3%	9,2%

Source: teknowlogy Group, 2019

** Rest of Europe: Austria, Belgium, Denmark, Finland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, others (Greece, Ireland, Liechtenstein, Luxembourg, Malta)*

Open Source related employment by country

In Full-Time Equivalents (FTE)	2019	2020	2021	2022	2023	19/20	20/21	21/22	22/23	CAGR 19/23
France - Open Source FTEs	52 400	56 700	61 500	66 800	72 400	8,2%	8,5%	8,6%	8,4%	8,4%
Germany - Open Source FTEs	47 500	51 200	55 300	59 300	63 000	7,8%	8,0%	7,2%	6,2%	7,3%
UK - Open Source FTEs	49 800	53 400	57 600	62 200	67 000	7,2%	7,9%	8,0%	7,7%	7,7%
Rest of Europe* - Open Source FTEs	84 100	91 900	100 000	108 000	115 600	9,3%	8,8%	8,0%	7,0%	8,3%
Worldwide - Open Source FTEs	1 090 000	1 190 000	1 300 000	1 420 000	1 530 000	9,2%	9,2%	9,2%	7,7%	8,8%

Source: teknowlogy Group, 2019

** Rest of Europe: Austria, Belgium, Denmark, Finland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, others (Greece, Ireland, Liechtenstein, Luxembourg, Malta)*

Europe – Share of Open Source in Total market 1/2

in million EUR	2017	2018	2019	2020	2021	2022	2023	17/18	18/19	19/20	20/21	21/22	22/23	CAGR 19/23
France – Total Software and IT Services Market	46 020	48 378	50 799	53 321	56 006	58 788	61 555	5,1%	5,0%	5,0%	5,0%	5,0%	4,7%	4,9%
France – Open Source Software and IT Services Market	4 462	4 833	5 233	5 684	6 187	6 741	7 336	8,3%	8,3%	8,6%	8,8%	8,9%	8,8%	8,8%
Share of Open Source in Total	9,7%	10,0%	10,3%	10,7%	11,0%	11,5%	11,9%							

in million EUR	2017	2018	2019	2020	2021	2022	2023	17/18	18/19	19/20	20/21	21/22	22/23	CAGR 19/23
Germany – Total Software and IT Services Market	62 511	65 541	68 055	70 638	74 096	77 901	81 694	4,8%	3,8%	3,8%	4,9%	5,1%	4,9%	4,7%
Germany – Open Source Software and IT Services Market	3 990	4 375	4 735	5 123	5 553	5 983	6 376	9,6%	8,2%	8,2%	8,4%	7,7%	6,6%	7,7%
Share of Open Source in Total	6,4%	6,7%	7,0%	7,3%	7,5%	7,7%	7,8%							

Source: teknowlogy Group, 2019

Europe – Share of Open Source in Total market 2/2

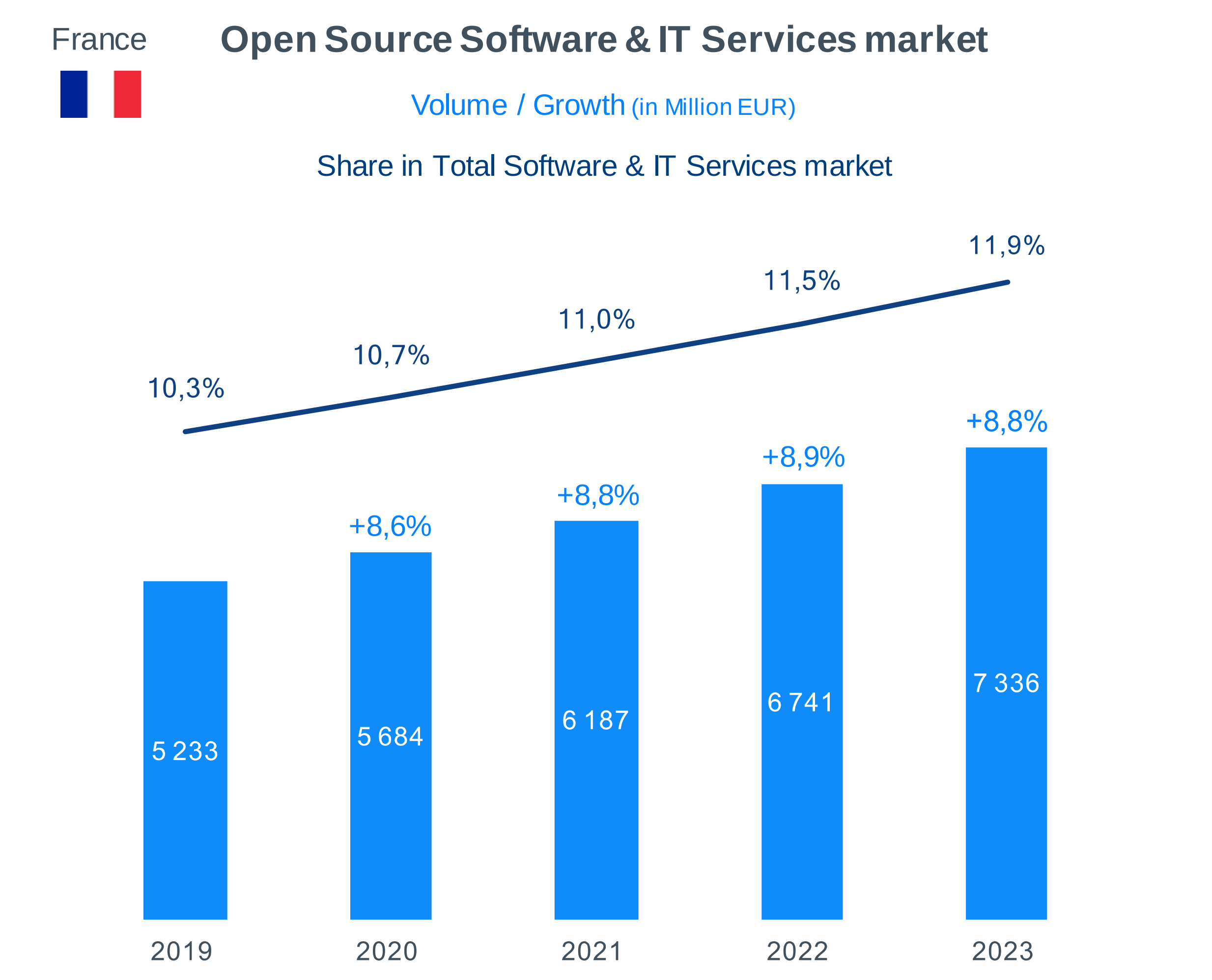
in million EUR	2017	2018	2019	2020	2021	2022	2023	17/18	18/19	19/20	20/21	21/22	22/23	CAGR 19/23
UK – Total Software and IT Services Market	62 554	65 149	67 668	70 512	73 858	77 322	80 661	4,1%	3,9%	4,2%	4,7%	4,7%	4,3%	4,5%
UK – Open Source Software and IT Services Market	4 190	4 598	4 979	5 357	5 799	6 280	6 783	9,7%	8,3%	7,6%	8,2%	8,3%	8,0%	8,0%
Share of Open Source in Total	6,7%	7,1%	7,4%	7,6%	7,9%	8,1%	8,4%							

in million EUR	2017	2018	2019	2020	2021	2022	2023	17/18	18/19	19/20	20/21	21/22	22/23	CAGR 19/23
Rest of Europe – Total Software and IT Services Market	116 151	122 451	128 353	134 808	141 736	148 799	155 770	5,4%	4,8%	5,0%	5,1%	5,0%	4,7%	5,0%
Rest of Europe – Open Source Software and IT Services Market	6 900	7 661	8 398	9 206	10 048	10 890	11 705	11,0%	9,6%	9,6%	9,1%	8,4%	7,5%	8,7%
Share of Open Source in Total	5,9%	6,3%	6,5%	6,8%	7,1%	7,3%	7,5%							

** Rest of Europe: Austria, Belgium, Denmark, Finland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, others (Greece, Ireland, Liechtenstein, Luxembourg, Malta)*

Source: teknowlogy Group, 2019

In France Open Source is growing faster than the market



Source: teknowlogy Group, 2019

→ By its nature, the Open Source market includes a high level of IT services. This is because Open Source solutions are often considered more tailorable than traditional software and therefore require more IT services.

→ Open Source is a frequent choice for **specific developments**, which require extra services for development and integration as opposed to the installation of packaged software.

→ Open Source is notably present in **innovative technology** (Cloud, AI, etc.), which requires more integration than more mature technology.

France – Open Source market

in million EUR	2019	2020	2021	2022	2023	19/20	20/21	21/22	22/23	CAGR 19/23
Total Software and IT Services Market France	50,799	53,321	56,006	58,788	61,555	5.0%	5.0%	5.0%	4.7%	4.9%
Open Source Software and IT Services Market France	**5,233**	**5,684**	**6,187**	**6,741**	**7,336**	**8.6%**	**8.8%**	**8.9%**	**8.8%**	**8.8%**
Open Source Software	355	403	456	513	573	13.5%	13.1%	12.5%	11.8%	12.7%
Open Source related IT Services	4,878	5,281	5,731	6,228	6,762	8.3%	8.5%	8.7%	8.6%	8.5%

Source: teknowlogy Group, 2019

→ In terms of volumes, the market is mainly generated by the Open Source offerings of IT service providers, and in particular the offerings for Open Source integration services.

→ In 2023, IT services will represent the largest share of the market in terms of revenue.

→ The market growth is driven by software over the 2019/2023 period, notably by SaaS revenues with an average annual growth rate (CAGR19/23) of more than 25%.

France – Open Source Software market by segment

in million EUR	2019	2020	2021	2022	2023	19/20	20/21	21/22	22/23	CAGR 19/23
Open Source Software	**355**	**403**	**456**	**513**	**573**	**13.5%**	**13.1%**	**12.5%**	**11.8%**	**12.7%**
Infrastructure Software & Platforms	199	229	262	299	341	14,8%	14,6%	14,3%	14,0%	14,4%
Application Software Products	129	138	147	156	166	7,0%	6,6%	6,3%	5,9%	6,5%
SaaS	27	36	47	57	67	34,7%	28,9%	22,3%	16,1%	25,3%

Source: teknowlogy Group, 2019

- The Open Source software market is more oriented towards infrastructure software than applications.
- As Open Source matures, more legacy Open Source solutions will need to be maintained, improved and, in some cases, even abandoned while new, more advanced solutions can be implemented.
- Regarding licenses, the market is increasingly oriented towards permissive licenses.

France – Open Source related IT Services market by segment

in million EUR	2019	2020	2021	2022	2023	19/20	20/21	21/22	22/23	CAGR 19/23
Open Source related IT Services	**4,878**	**5,281**	**5,731**	**6,228**	**6,762**	**8.3%**	**8.5%**	**8.7%**	**8.6%**	**8.5%**
IT Consulting	660	701	745	794	847	6,2%	6,4%	6,5%	6,7%	6,4%
Infrastructure-related	*280*	298	318	340	363	6,4%	6,7%	6,8%	7,0%	6,7%
Application-related	*380*	403	428	455	484	6,0%	6,2%	6,3%	6,4%	6,2%
System Integration	3 156	3 355	3 573	3 814	4 077	6,3%	6,5%	6,7%	6,9%	6,6%
Infrastructure-related	*1 668*	1 784	1 913	2 054	2 212	7,0%	7,2%	7,3%	7,7%	7,3%
Application-related	*1 489*	1 570	1 659	1 760	1 866	5,5%	5,7%	6,0%	6,0%	5,8%
Outsourcing	1 062	1 226	1 413	1 620	1 838	15,4%	15,3%	14,6%	13,5%	14,7%
Infrastructure-related	*845*	992	1 161	1 347	1 541	17,4%	17,0%	16,0%	14,4%	16,2%
Application-related	*217*	234	252	273	296	7,7%	7,8%	8,3%	8,6%	8,1%

Source: teknowlogy Group, 2019

→ Due to the nature of Open Source, the share of IT services in the Open Source market remains high. In particular, because many Open Source solutions are considered "less finished" than traditional software, and therefore require services around them.

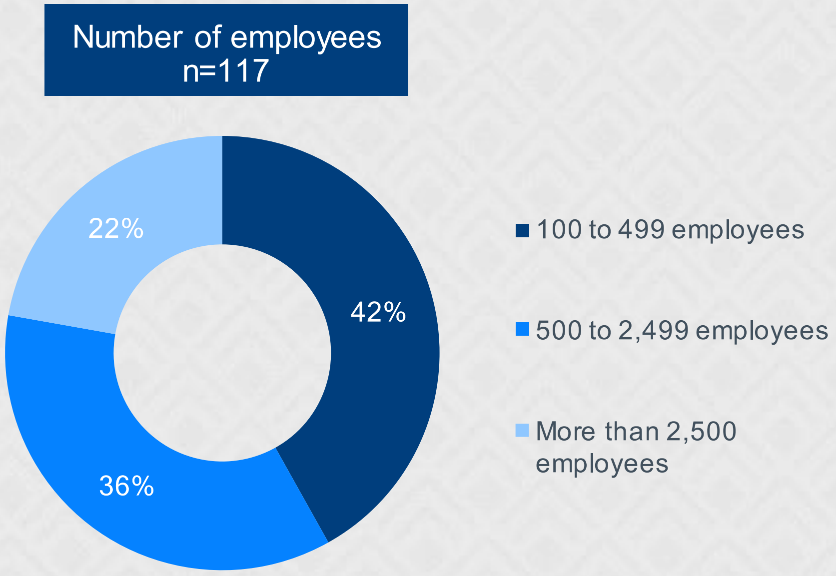
→ Open Source is a smart choice for specific developments, which mechanically requires more development services and more integration services than when implementing packaged software.

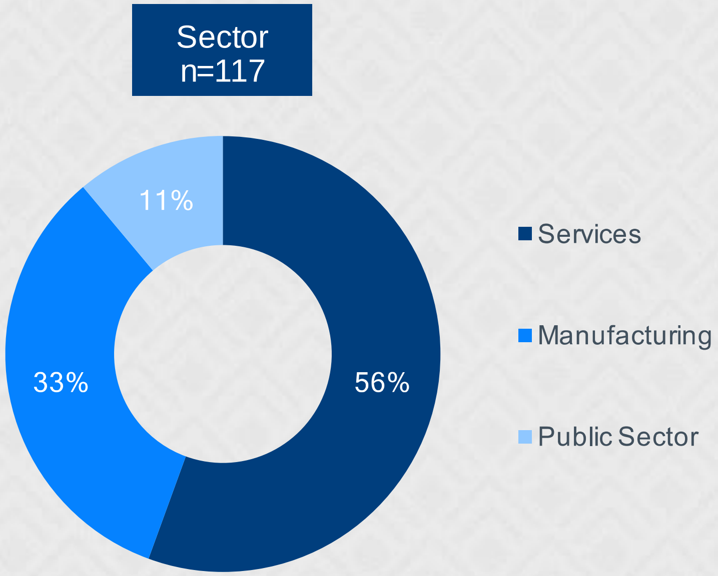
→ Open Source is particularly present in innovative technologies, which also requires more integration than mature technologies.

2. Open Source is strategic for the future of organizations in France (117 organizations surveyed)

Background and methodology

Companies surveyed

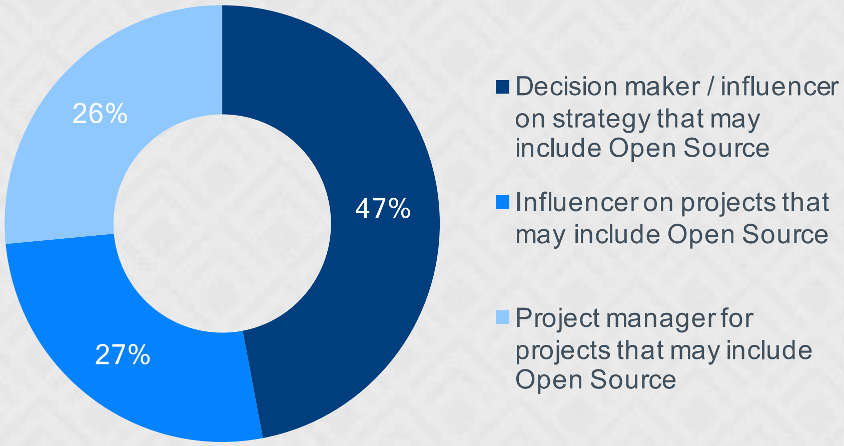




→ **117** French **companies** and public organisations with more than 100 employees surveyed in November 2019.

Respondents interviewed

Role in the use of Open Source / Free Software in the company n=117



Function n=117

→ **1 in 2 respondents** is a decision-maker or prescriber on strategy that may include Open Source. Open Source drives transformation strategies.

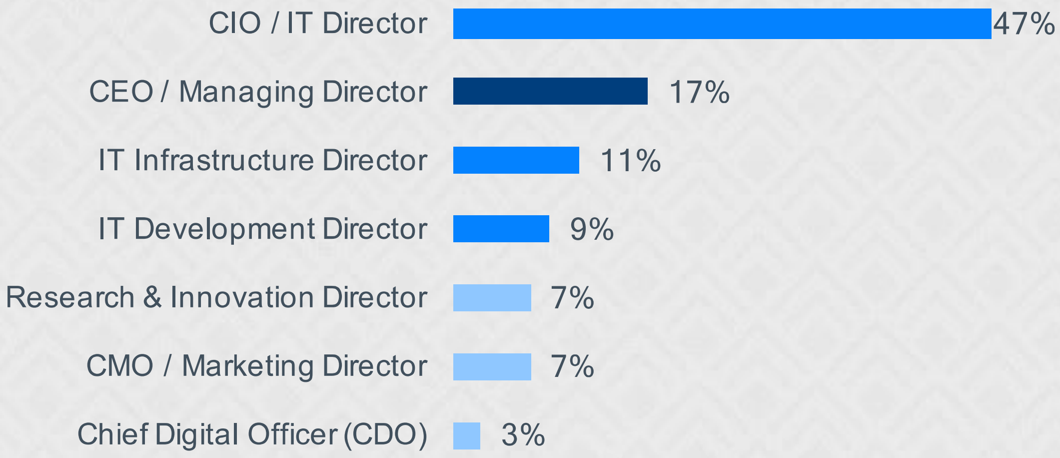
→ **1 out of 3 respondents** does not belong to the IT department (CEO, marketing, digital, etc.).

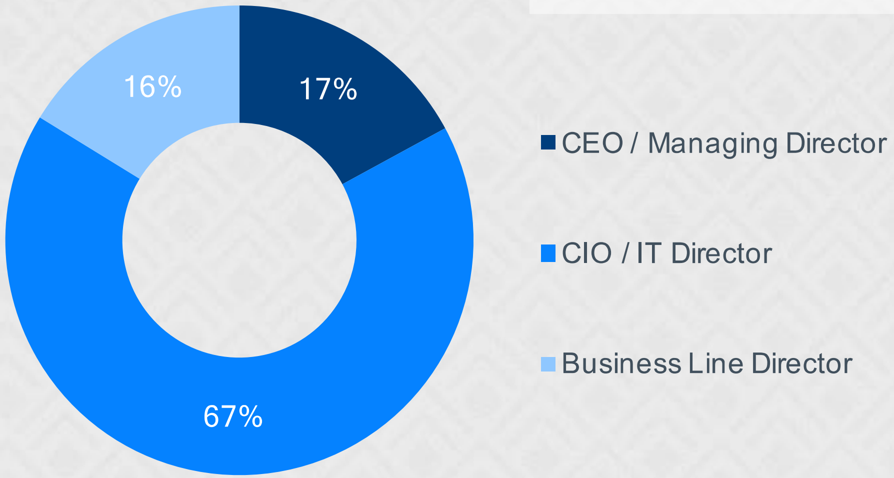
How do companies use Open Source?

teknowlogy GROUP

Business management is more and more committed to Open Source

Who is the main internal sponsor of the use of Open Source in your company? (n=117)





☞ 2019 vs 2018*

One year ago, CIO/IT was the internal sponsor for 72%

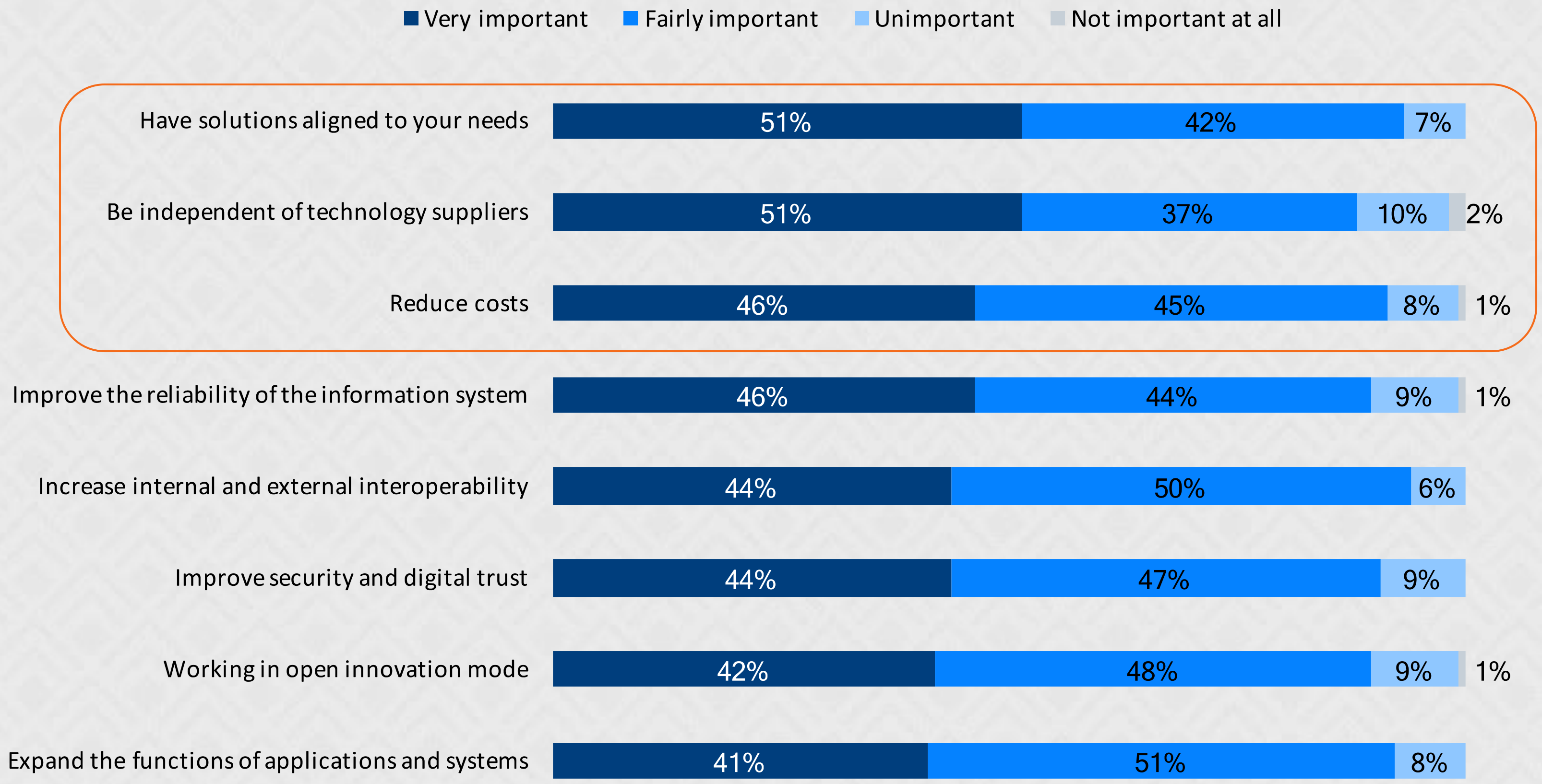
→ **For 1 in 3 companies**, the use of Open Source is sponsored by the CEO or a business department.

→ The use of Open Source is promoted by the IT department, but not only. CEOs and business lines are increasingly involved in the subject because Open Source has become strategic for transformational topics.

** Source: « Digital transformation heralds the second age of Open Source », teknowlogy & Thales 2018*

Open Source meets the need for customization and technological independence

What are your motivations for using Open Source in your company? (n=117)



☞ 2019 vs 2017*

Two years ago, cost reduction was the primary motivation

→ Open Source facilitates **customization** and **specific development** which organizations need to improve their customers' experience. **Independence** remains a key criterion.

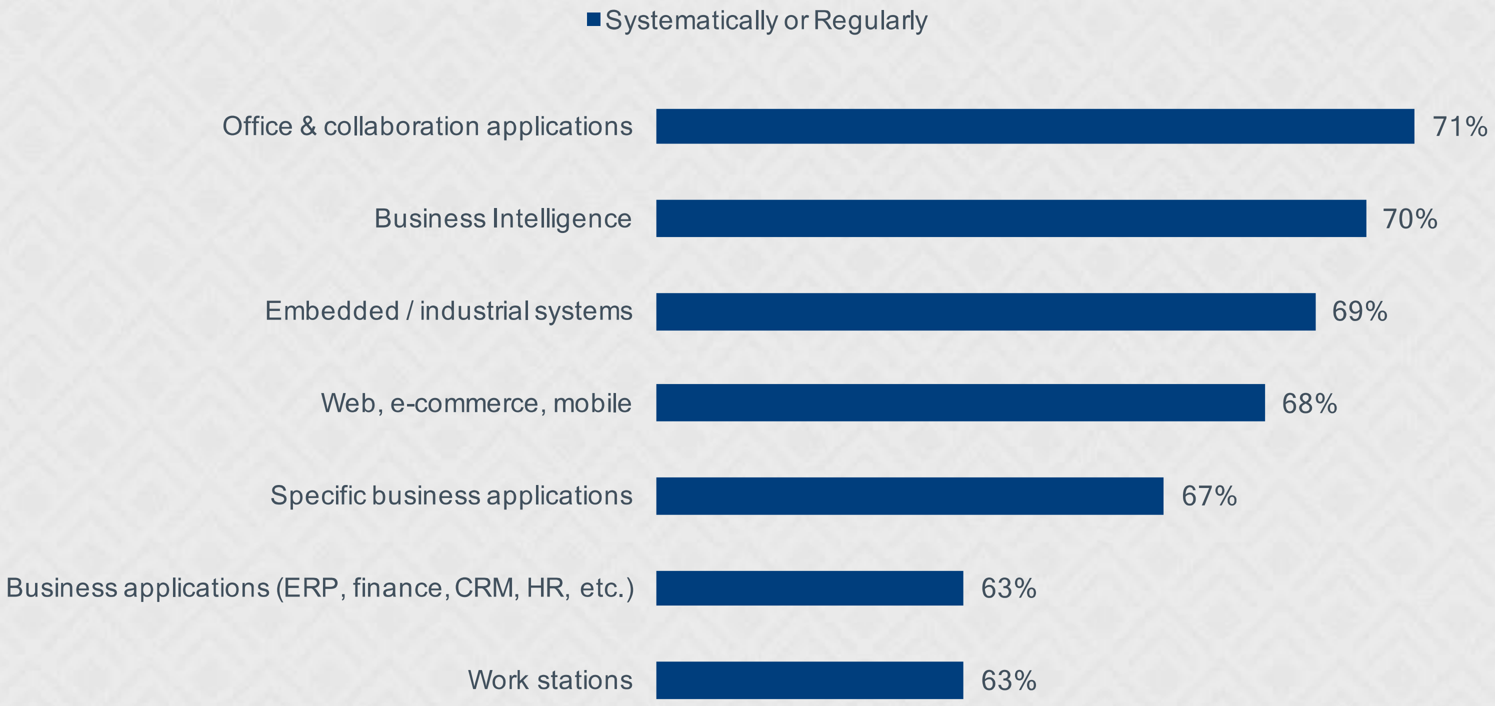
→ **In the 2017 study, cost reduction was the first driver for using Open Source**. In 2019, the main drivers are **customization** and **technological independence**.

→ We are currently seeing an increase in the **reliability** and **security** offered by Open Source.

** Source: « Impact of Open Source in France 2017-2020 », Syntec Numérique, CNLL, Systematic, teknowlogy Group, IAE Valenciennes, IAE Lyon 2017*

Open Source is now infused in all layers of information systems

Do you use Open Source for the following applications or systems? n=117

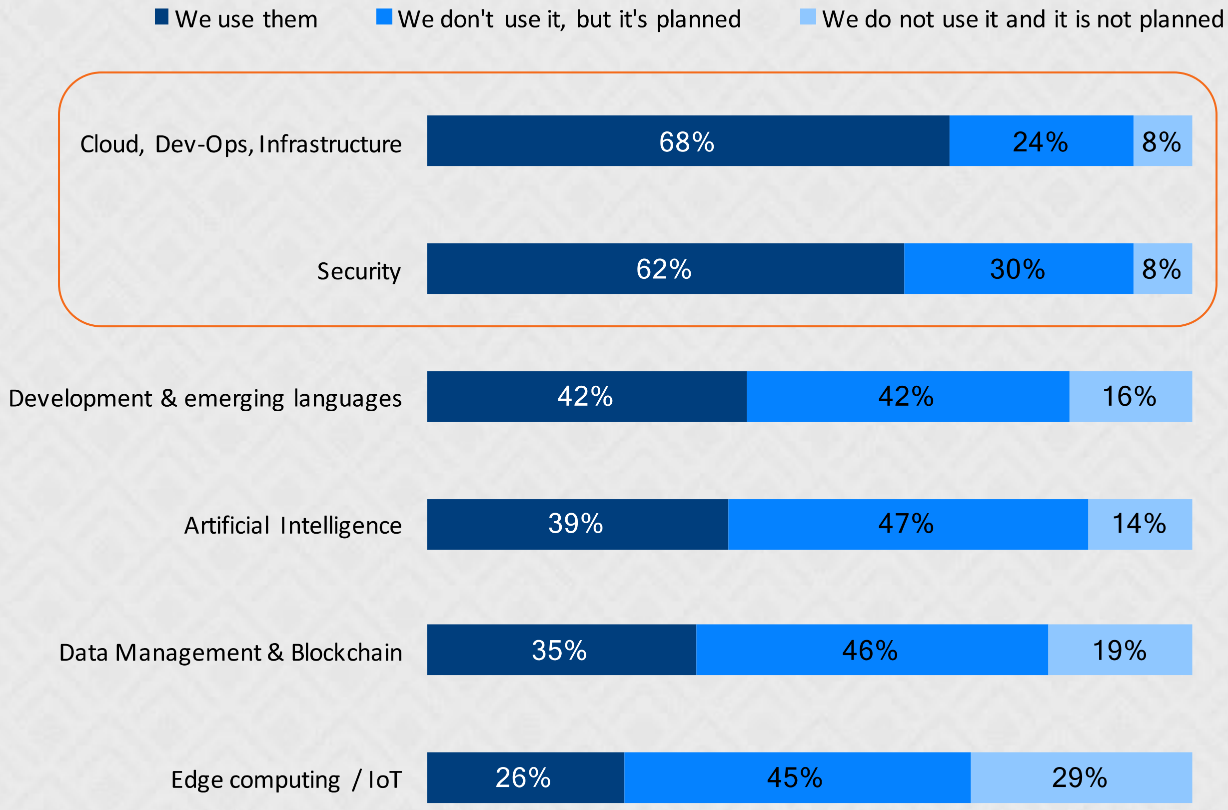


→ Companies make **regular or even systematic** use of it at many levels of the IS, including in enterprise applications.

→ The majority of applications and systems have at least one Open Source component.

It is strongly used for Cloud/DevOps and Security, catalysts of digital transformation

Do you use or plan to use Open Source components in the following areas? n=117

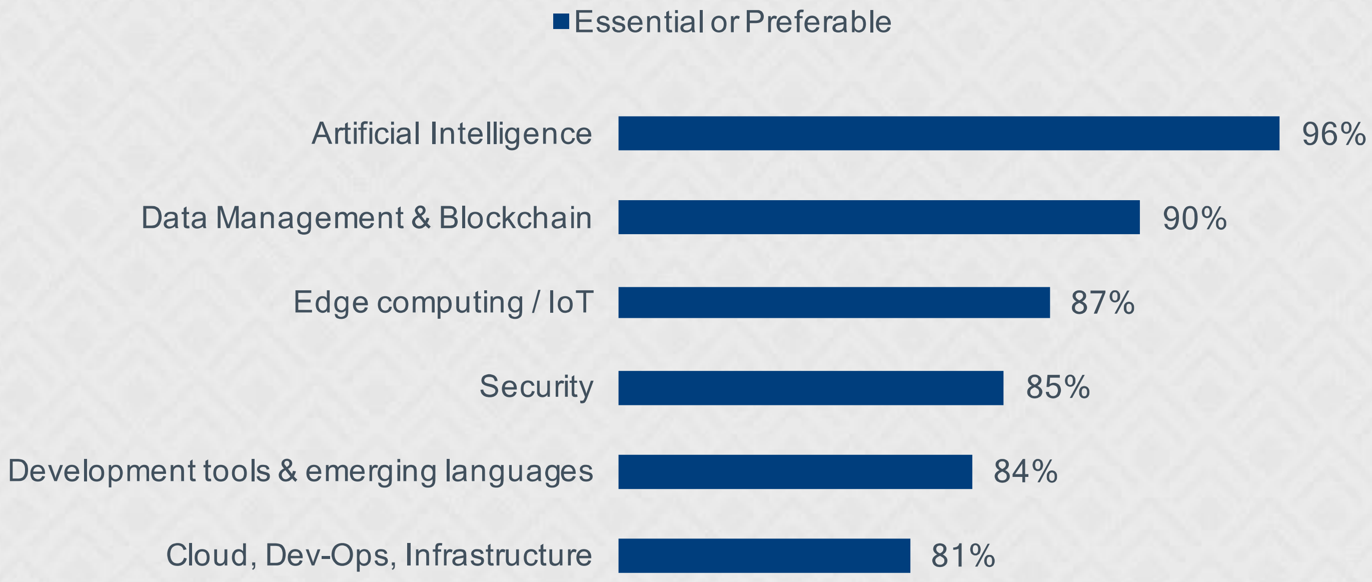


→ More than **1 in 2 companies** use Open Source components for their cloud, DevOps and infrastructure projects.

→ **Security** becomes a key to the adoption of Open Source.

The undisputed model for innovative technology such as AI

For those areas where you use Open Source, what do you think of the use of Open Source? (n=80)



→ For **9 out of 10 companies,** Open Source is essential or preferable when adopted for **AI** or **Data Management** & **Blockchain**.

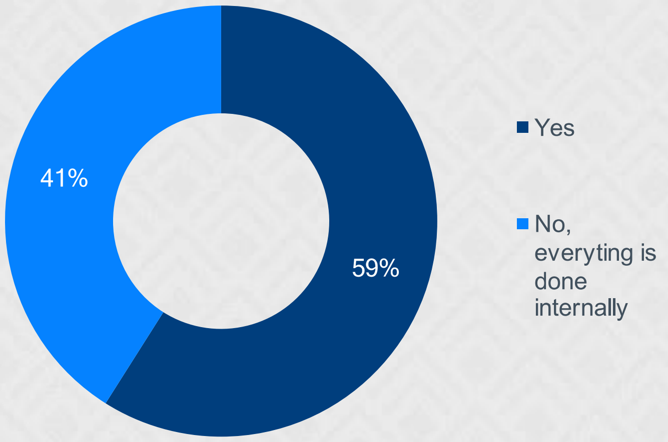
→ The Open Source model is **the new trusted norm** when thinking of innovation.

→ These innovative technologies, alongside with Edge computing/IoT, are **« *born open* »**.

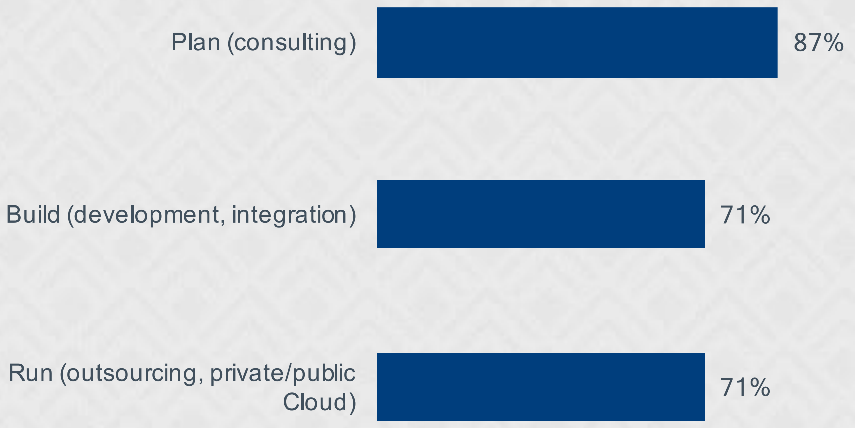
Which partners do companies use in Open Source ?

Most companies use external service providers, particularly for consulting services

For your projects using Open Source, do you use external service providers? n=117



Do you use the following types of services for your services using Open Source ? n=117



☞ 2019 vs 2018*

One year ago, 64% used external providers (larger companies)

→ **6 out of 10 companies** use external service providers for their projects using Open Source.

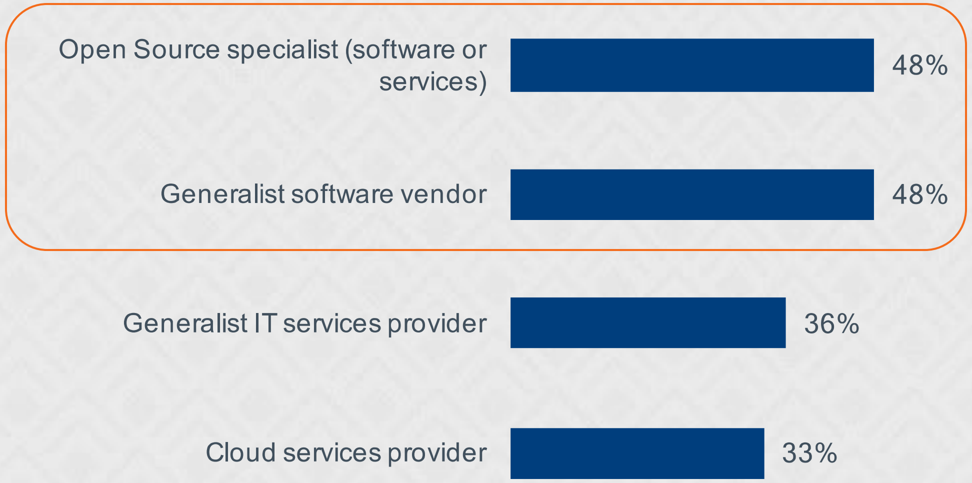
→ Companies need to be supported throughout the project cycle. The strategic aspect of Open Source in digital transformation favors the use of **consulting** by business leaders.

** Source: « Digital transformation heralds the second age of Open Source », teknowlogy & Thales 2018*

CNLL syntec numérique Systematic Paris Region Deep Tech Ecosystem

Companies strongly rely on Open Source specialists and software vendors

What type of providers/partners do you or would you use first for your needs using Open Source?
n=117



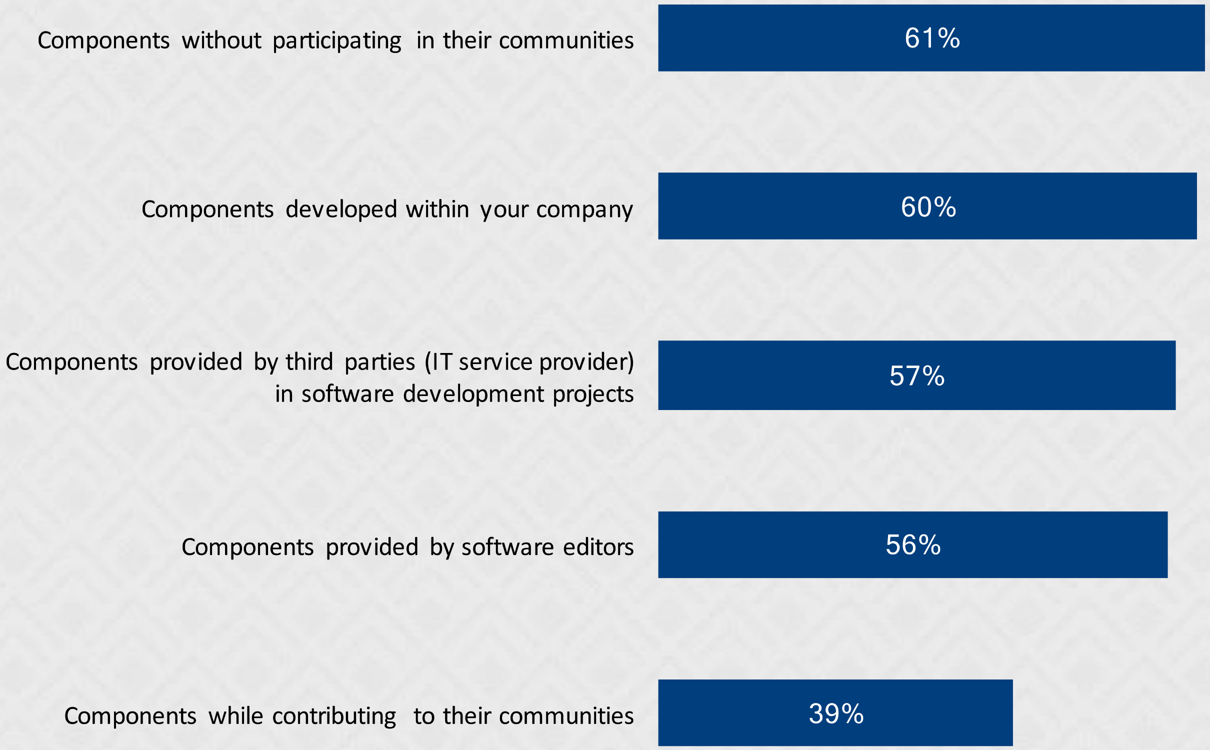
→ Open Source is always perceived as a **specialization**.

→ **Generalist software vendors** have acquired a strong footprint in Open Source through acquisitions in recent years.

→ **Cloud** providers are increasingly seen as partners for services around open source.

The principle of pooling resources has not yet been adopted

For your projects using Open Source, you use:
n=117

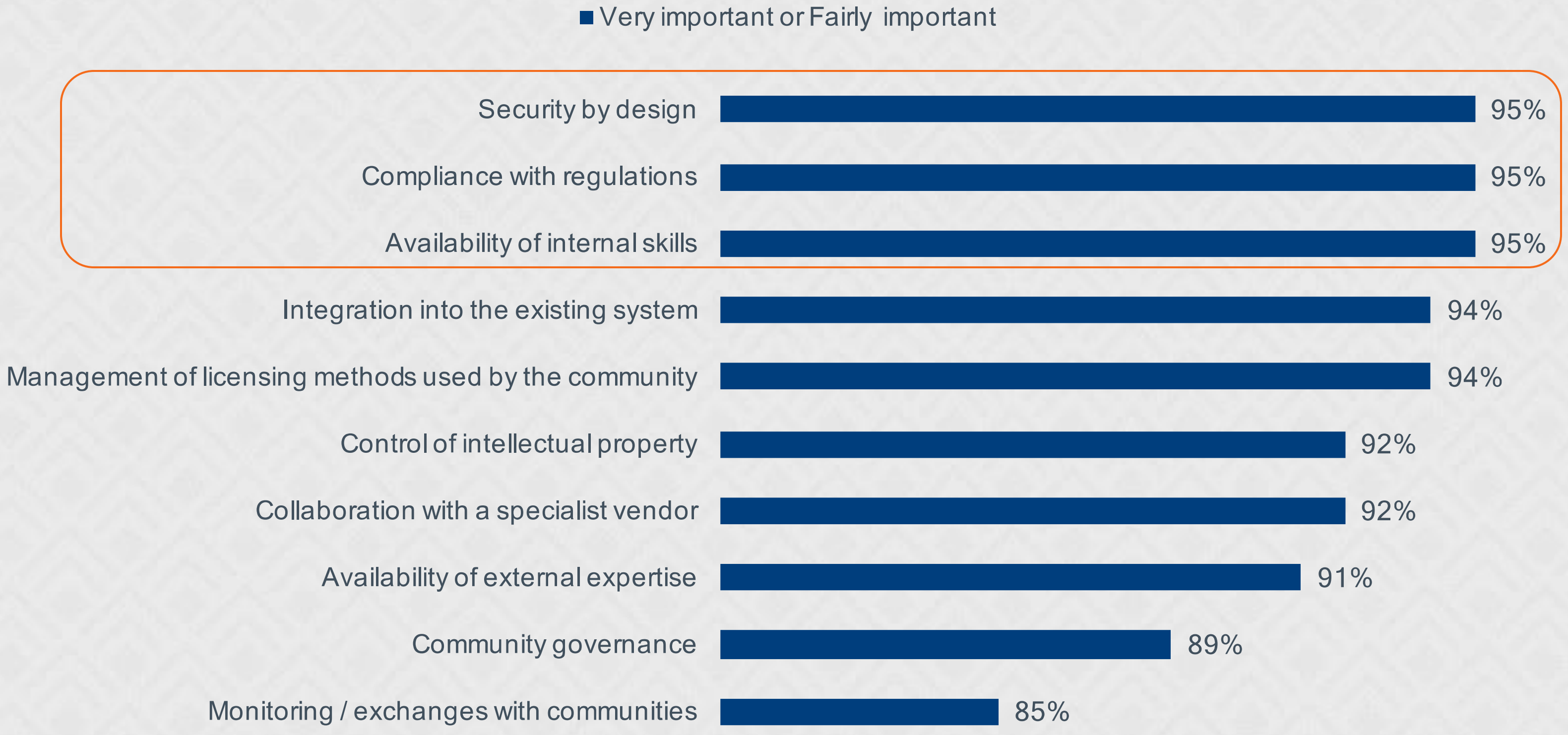


→ The contribution to communities remains low in companies despite a culture that continues to spread.

→ Open Source promotes **specific development**, which is coming back into its own with digital transformation strategies.

Security, compliance and skills, key success factors of Open Source projects

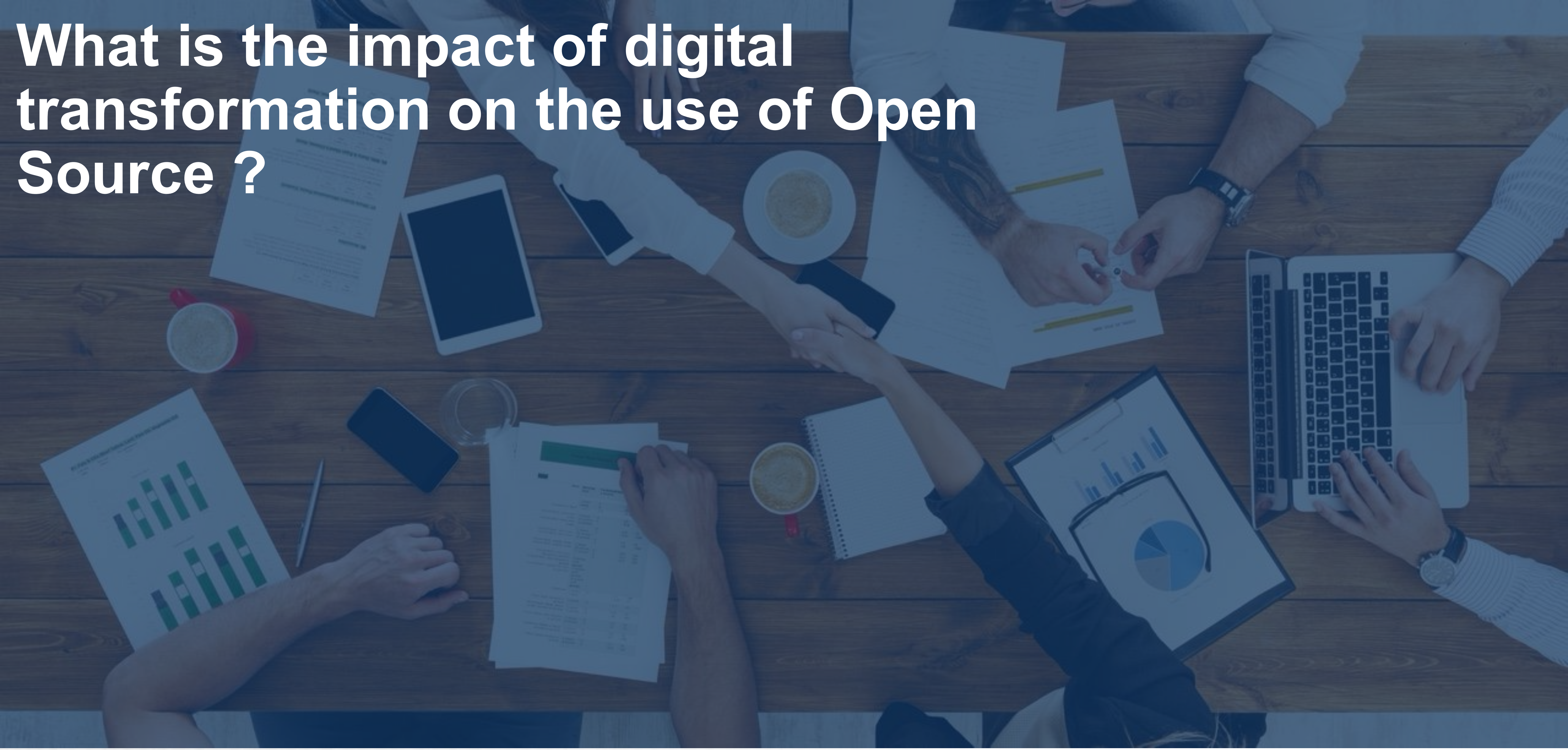
What are the important points for the management of your open source/Open Source software projects? n=117



→ **Security by design**, **compliance** and available **internal skills** are the key factors for the success of Open Source projects.

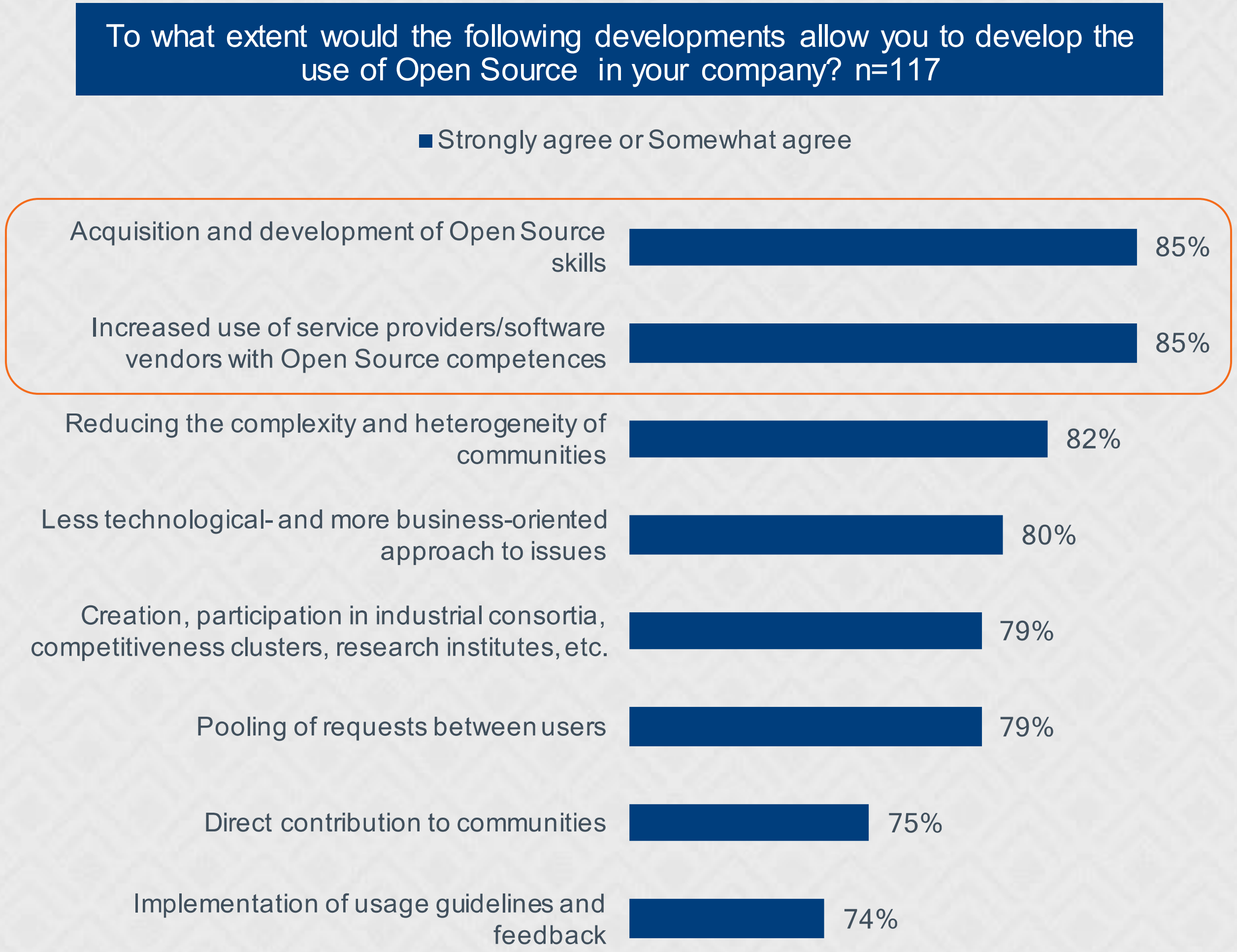
→ Collaboration with a publisher specializing in Open Source is also essential in understanding the Open Source model (licenses, communities).

What is the impact of digital transformation on the use of Open Source ?



teknowlogy GROUP

Internal and external skills remain the keys to greater use



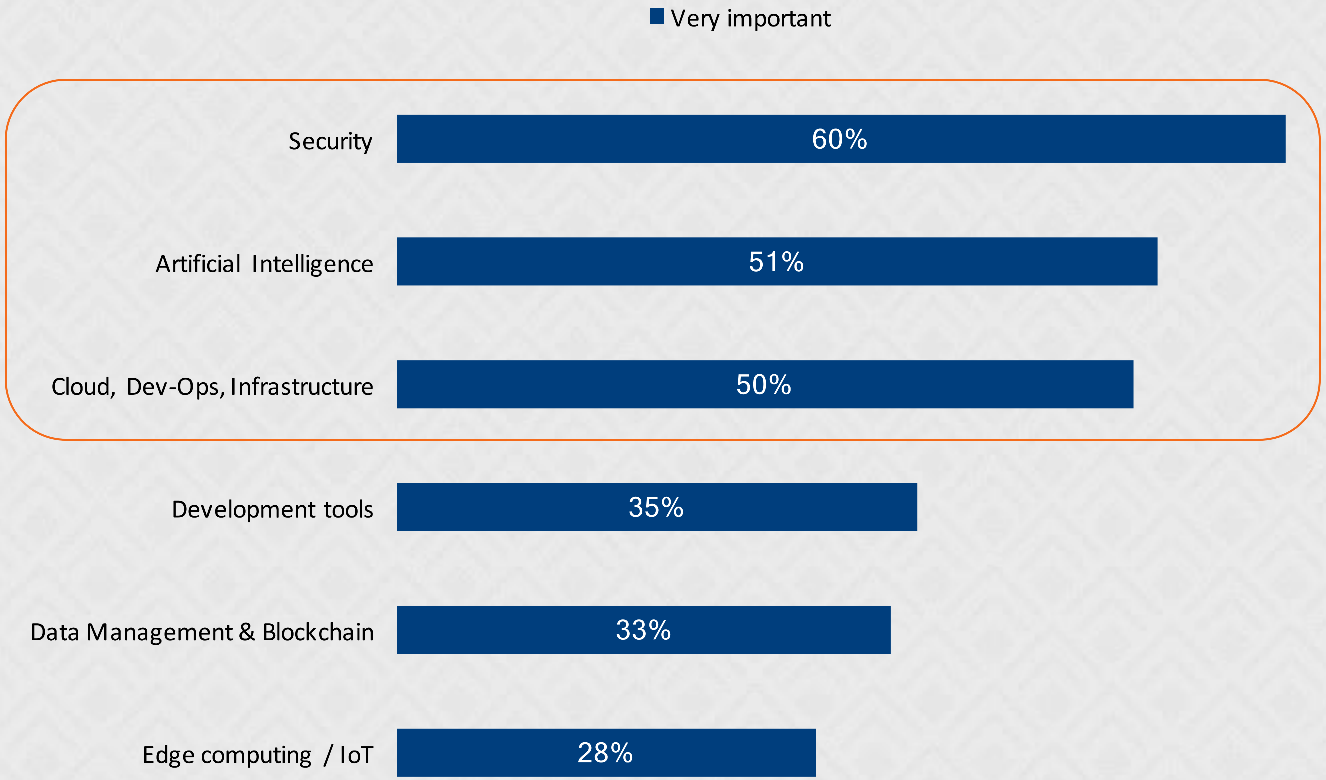
→ The **lack of** specific **skills** hinders the adoption of Open Source, whether it is internal company resources or service providers.

→ Open Source is still perceived as a **highly technological subject**.

→ **Community initiatives** (pooling requests, direct contribution to communities) make it possible to better disseminate the open source/software culture internally.

Open Source will be key for security, AI and Cloud/DevOps

For each of these key topics of digital transformation, do you think that Open Source will play an important role in your company? n=117

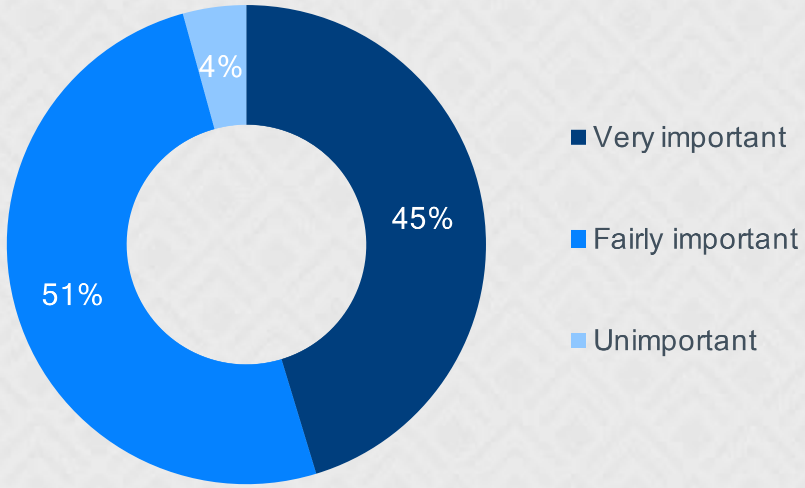


→ **Digital trust** will be the next pillar in the adoption of Open Source.

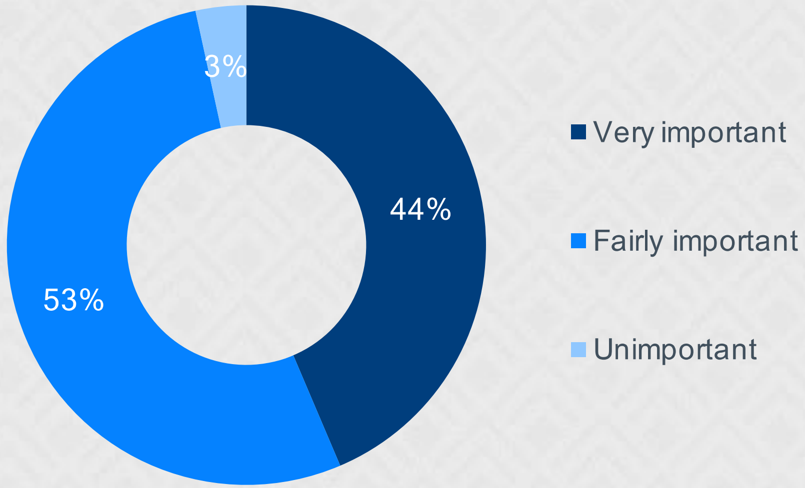
→ Open Source will play a key role for **AI** and **Cloud/DevOps** because these cutting-edge innovation topics require an **open** and **transparent** creative process (methodological framework, code).

Open Source is now a key differentiator for digital transformation and innovation

For the **digital transformation** of your company, what role will Open Source play? (n=117)



For **digital innovation** in your company, what role will Open Source play? (n=117)

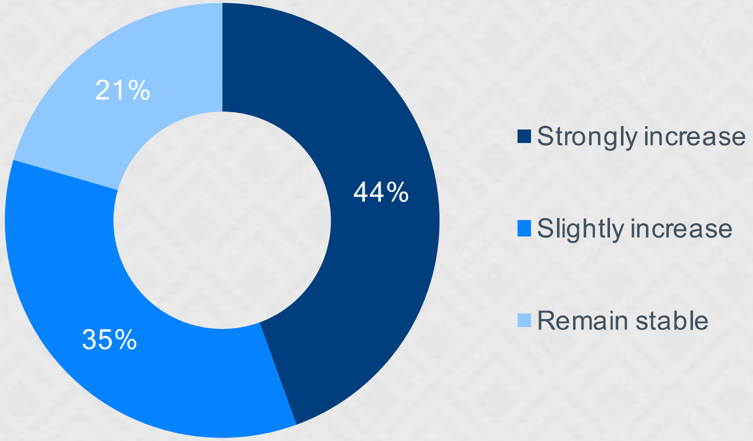


→ **More than 9 out of 10 companies** believe that Open Source will play a fairly or very important role in transformation and digital innovation.

→ Open Source is seen as a tool for the **implementation of digital transformation** and the **acceleration of digital innovation**. These are key arguments for companies in the differentiation from their competitors and improvement of the customer experience.

The use of Open Source will therefore increase in the next 2 years

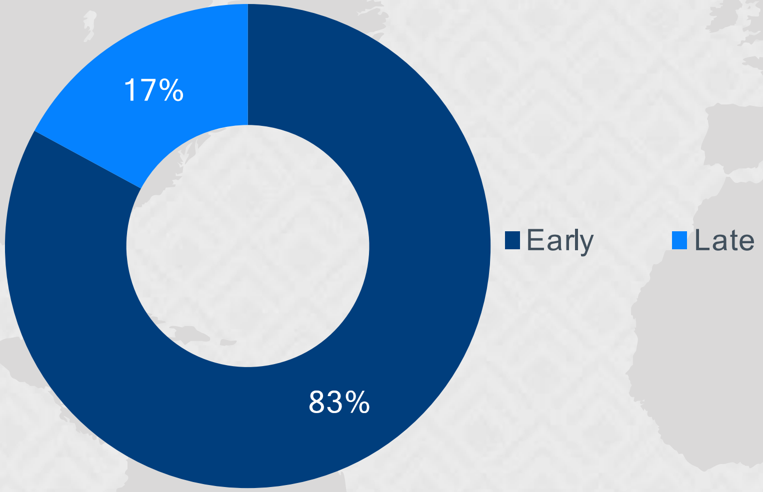
Overall, regarding the use of Open Source in your company in the next 2 years, would you say that it will... n=117



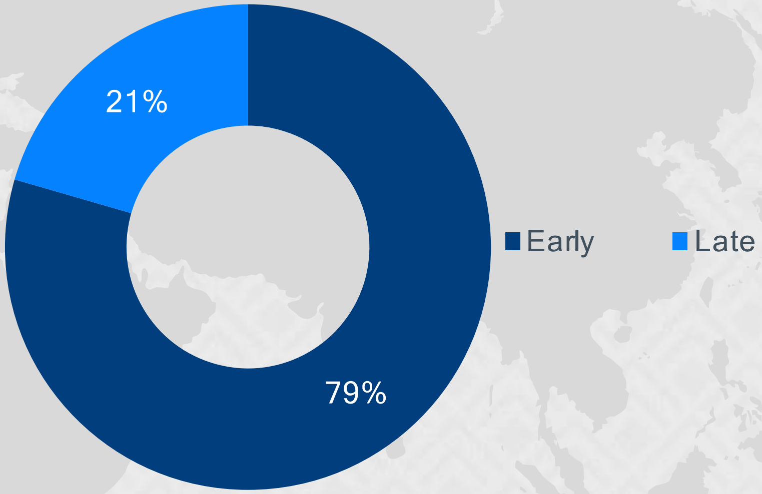
→ In nearly **80% of companies,** the use of Open Source will increase slightly or strongly in the next 2 years.

Europe has a unique opportunity to take the lead in Open Source development

For **Open Source skills**, what do you think about Europe in relation to the rest of the world? (n=117)



For the **adoption of Open Source**, what do you think about Europe in relation to the rest of the world? (n=117)



→ For approximately **80% of companies,** Europe leads the rest of the world in terms of Open Source skills available and its early adoption.

→ Europe has the opportunity to take the lead on this topic thanks to its skills and experience in adopting Open Source.

3. Europe: What are the local specificities?

A look at European specificities 1/3

Germany

- The Open Source market is **booming** with a transfer of legacy systems to open source.
- The Open Source community is dynamized by the strong commitment of Cloud providers, private and ICT companies and startups.
- A **lack of regulation** and procurement policy as well as a strong **corporate lobby act** in slowing down the development of Open Source market.

Finland

- Open Source is a very high growth market driven by a **strong public policy** which supports open source software and contributes.
- However, how to work with Open Source communities is still not understood by private companies.
- The market is **strongly fragmented**, with small vertical specialized service providers and big ICT players.

Croatia

- Open Source is on a **positive trend** among companies.
- However, the country lacks a strong public policy.
- **Web companies** are driving the Open Source market.
- **Availability** and **stability** are the key drivers for adoption.
- Only generalist IT players promote Open Source.

A look at European specificities 2/3

United Kingdom

- Structured by a **strong commercial ecosystem**, the Open Source market is growing steadily. The main driver is still **cost reduction**.
- All sectors are engaged but contributions are marginal.
- Public policies favor open source but practice does not yet. Improvements are expected in 2020.
- Lack of experts who really understand the mechanics of Open Source.

Spain

- Innovation drives a 15%+ annual growth for Open Source according to a local expert.
- Though the public sector is the main user and contributor of Open Source, there is **no policy** regulating the market. The financial sector uses actively Open Source, but does not contribute,
- With no large pure players, the Open Source market **has difficulty to address all business needs**.

Italy

- The market is rather mature, more than 70% of businesses use Open Source, boosted by innovation.
- **Open Source reaches the financial sector and telecoms.** Yet, contributions are still weak, apart from the public sector.
- All new projects in the public sector are released under an Open Source license.
- .The country lacks experts, but Open Source popularity is high in universities.

A look at European specificities 3/3

Portugal

- The Open Source dynamism is driven by all sectors. Open Source is evaluated for new projects by big or small companies.
- **Contributions start to emerge** with companies promoting best practices.
- Some public policies favor Open Source but the proprietary software industry lobby is still strong.
- Lack of human resources and Open Source experts.

Thanks to our contributors

Stéfane Fermigier – CNLL (France)

Philippe Montargès – Systematic Paris-Region (France)

Boris Mathieux – Syntec Numerique (France)

Grégory Bécue – Paris Open Source Summit (France)

Pierre Baudracco – CNLL (France)

Catherine Nuel – CNLL (France)

Jonathan Rivalan – Systematic Paris-Region (France)

Diego Calvo de Nó – OSBA (Germany)

Stuart J Mackintosh – OpenUK (UK)

Stefano Pampaloni – RIOS (Italy)

Philippe Lardy – OpenExpo Europe (Spain)

Timo Väliharju – COSS (Finland)

Svebor Prstačić – HrOpen (Croatia)

Sílvia Costa – ESOP (Portugal)

Nicolas Beyer – teknowlogy Group

Cyrille Chausson – teknowlogy Group

Mathieu Poujol – teknowlogy Group

Charlotte Roland – teknowlogy Group

teknowlogy GROUP

teknowlogy Group

1 Boulevard des Bouvets,

92 000 Nanterre, France

Phone: +33 (0)1 53 05 05 53
E-mail: contact@teknowlogy.com

www: www.teknowlogy.com