



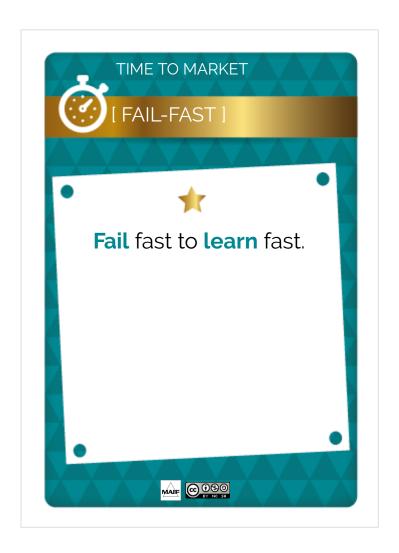
[MVP]

The **perimeter** of your MVP must be **limited** while allowing you to market your product.

Bet on **Early Adopters** and get a maximum of **feedback**.

Your MVP is deployed and usable in **production**.





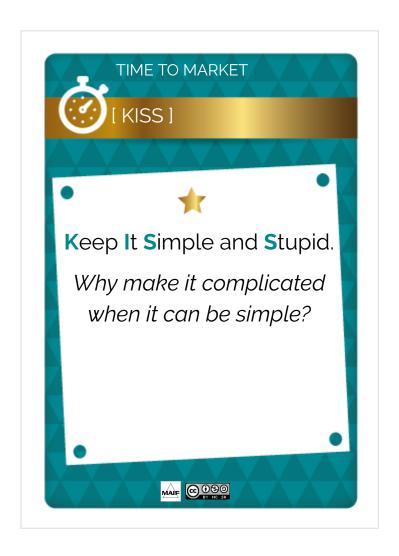


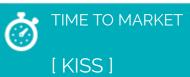
Quickly experience the solution (a few weeks), collect **feedback** from your users and learn from your mistakes.

Do not be afraid to **change** everything.

Do not forget, you will fail!







Avoid over-engineering, if a "paper" model or a Google Form is enough to test your concept, do not go further.

Keep it simple! Both technically and functionally.







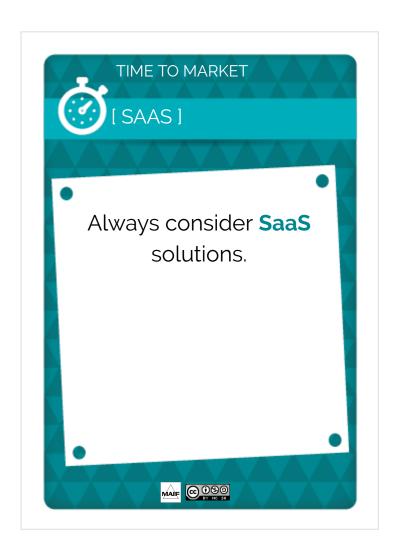
[PRODUCTIVITY]

Limit your specifications to the bare minimum, focus on the "what" rather than the "how".

The product must be **self-documented** as much as possible.

Documentation must be versioned in the same way the code is.





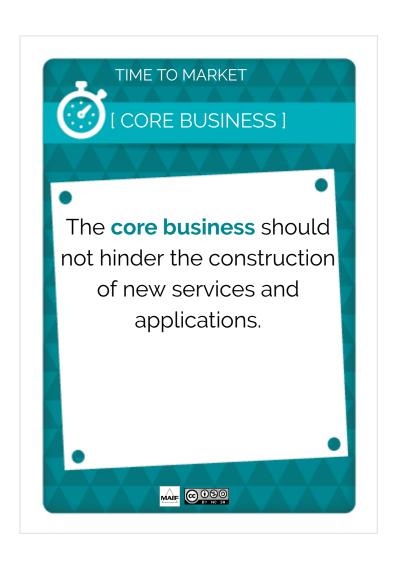


SaaS solutions are sustainable and cost-effective.

In some cases **SaaS** can **speed up** the **MVP** implementation.

Think of the **target economic vision** regarding alternatives in
terms of **total cost** (**TCO**: **T**otal **C**ost of **O**wnership) and not only in
terms of license cost.







[CORE BUSINESS]

The pace of evolution and delivery of the core business must be **compatible with the agility** of its consumer services.

The core business must **expose** services.

The core business must adopt an **Event-Driven** principle, it reports management actions in the form of events.







[CONTINUOUS DEPLOYMENT]

Take advantage of **continuous deployment** to **adapt deployment**in **production** to business
constraints and requirements, and
not the other way around.

Deployments across all environments, up to **production**, must be **automated** and **frequent**.





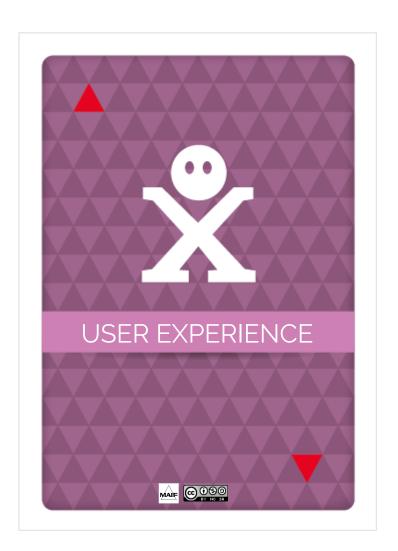


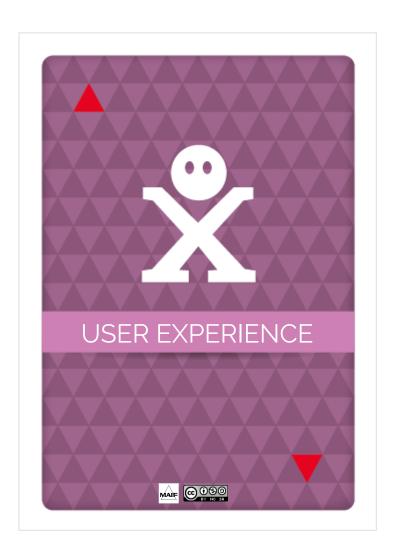
[PERPETUAL BETA]

Feel free to use the perpetual beta principle in which **users participate in development**.

The term perpetual beta refers to an application developed just-intime, **constantly evolving**, not to an incomplete product.











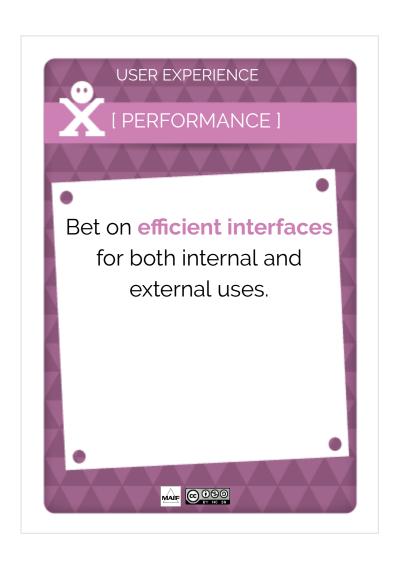
[PERCEPTION]

Do not neglect the work of **UX** designers, it is fundamental in the development of an application.

Integrate the **feedback** of your users, it is essential.









[PERFORMANCE]

The interfaces are geared towards efficiency.

The **performance** of an interface saves time, increases users' satisfaction and therefore reduce their frustration.









[MOBILE FIRST]

Mobile devices are the **most important market share**.

Thinking mobile is thinking about the **essential**.

Responsive Design is the norm, it is a source of savings (MVP).







[OMNI-CHANNEL]

The omni-channel approach provides the user with a **unified experience** (example: Netflix).

The different **channels** are synchronized and coherent (unlike batch processes).

All the actors (clients, advisers) access the same information.









[SELF-DATA]

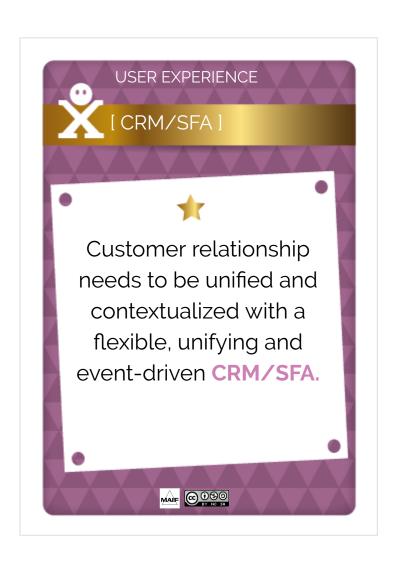
Allow **individuals**, at any time, to control their personal data.

Establish **trust** by giving users real-time traceability and control.

Subsystems must meet the same requirements.









[CRM/SFA]

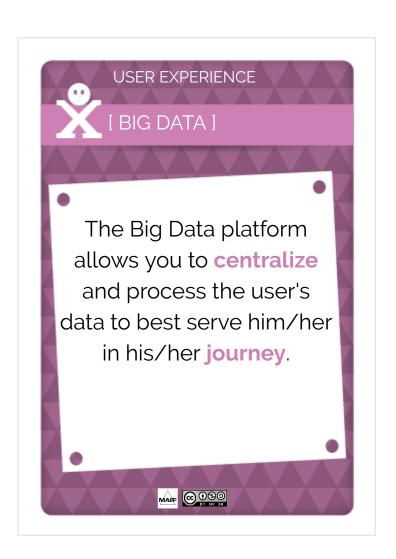
Opt for a **CRM** that manages both customer relationship and sales force automation (**SFA**: **S**ales Force Automation).

CRM must be **open** to new opportunities.

CRM produces **events** corresponding to management actions to fit into the **Event-Driven** logic of the platform.









[BIG DATA]

Centralize Maif Group, Partner and Vendor data in a journey logic.

"Data Preparation" and processing help to **consolidate** the data.

Big Data teams collaborate with Feature Teams to ensure data governance.









Adopt **identity federation** for a unified experience.

A **portal** offers an **overview**, it does not replace applications.

The workstation must be **mobile**, **multi-channel** and **standard** to allow opening within the **extended enterprise**.







USER EXPERIENCE

[COLLEAGUES]

Treat all your users as "customers": Internet users, managers, ops, developers, etc.

Do not underestimate the **UX** effort needed for internal-use management applications.









[MEASURING EVERYTHING]

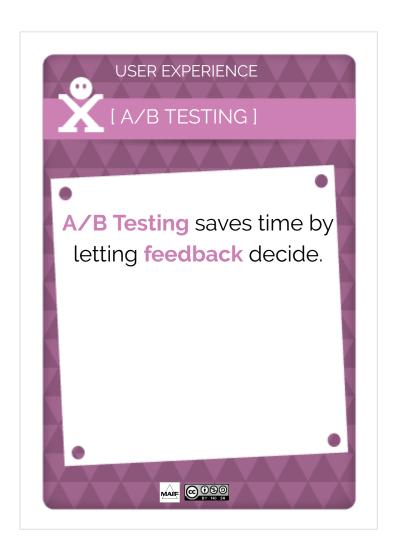
Think of the metrics during the development of the application.

Logs must have a business as well as technical dimension.

Do not neglect **performance metrics**, they are fundamental.

The Feature Team ensures **operation**: it is responsible for making the **application operable**.







USER EXPERIENCE

[A/B TESTING]

Rather than arbitrarily decide between two solutions, do not hesitate to set up A/B testing.

This pattern consists of presenting two different versions of the same application and choosing one of them based on **objective** measures of user activity.









USER EXPERIENCE

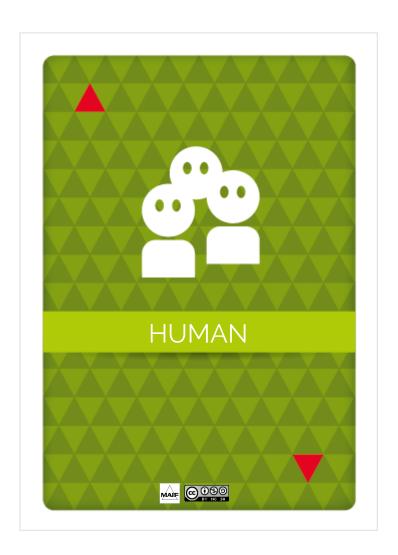
[DEGRADATION]

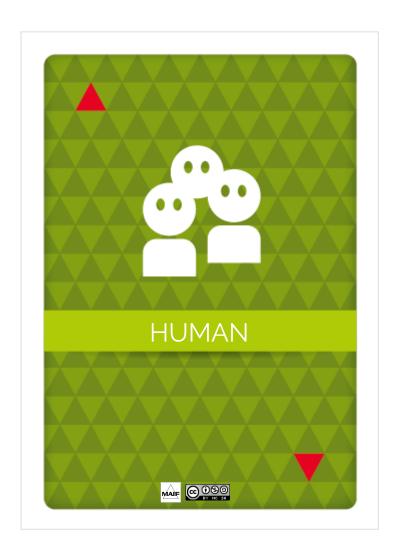
In case of **failure** of one of the subsystems, **a degraded** version of the service must **be considered** in the first place rather than an interruption.

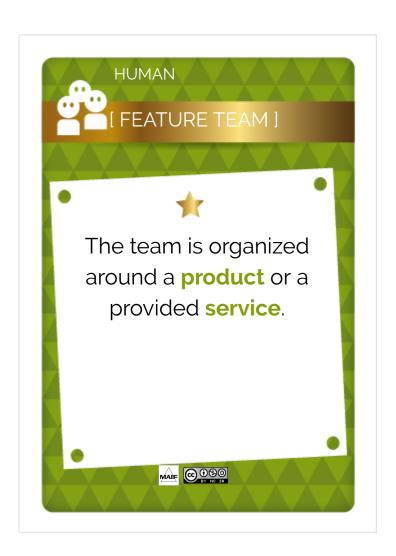
With the help of **Circuit Breakers**, isolate a breakdown to avoid its impact and propagation to the entire **system**.













[FEATURE TEAM]

Teams are **Feature Teams**, organized around a coherent functional scope, and comprise all the **skills** necessary for this scope.

For example: Business Expert + Web Developer + Java Developer + Architect + DBA + Ops.

The responsibility is collective, the Feature Team has the necessary power for this responsibility.







[2-PIZZA TEAM]

Limit the size of a Feature Team: **between 5 and 12 people**.

Below 5, the team is too sensitive to external events and lacks creativity. Above 12, it loses productivity.

The term "2-Pizza Team" indicates that the size of the Feature Team should not exceed the number of people that can be fed with two pizzas.





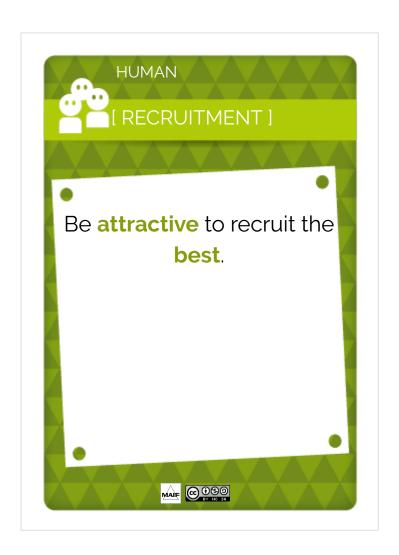


The most important are development culture, scalability and adaptability.

Recruit software craftsman and full-stack developers, they bring a real added value through their know-how and their overall vision.

Nonetheless, mobile developers for example - are usually specialized developers.







[RECRUITMENT]

Offer ways of working adapted to employees: mobility, home working, CYOD (Choose Your Own **D**evice).

Allow time for experimentation and ensure it happens during working hours.





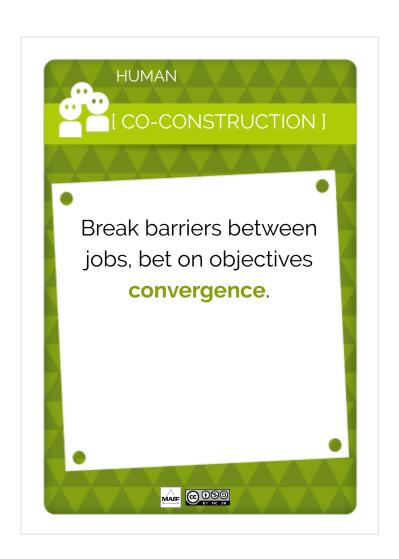




The organization must be a watch apparatus by setting up plans like continuous learning or corporate universities.

Feel free to combine them with more **informal** ways such as: **Coding Dojos**, **Brown Bag Lunches**, **External** Conferences.







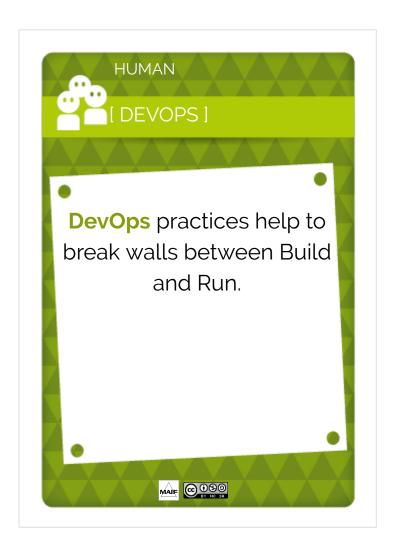
[CO-CONSTRUCTION]

To break barriers between jobs, it is not enough to group people around a common product in a common place.

The **Agile Methodologies** can help to remove these barriers and ensure **objectives convergence**.

These practices are an integral part of the keys to success, the organization is responsible for it.







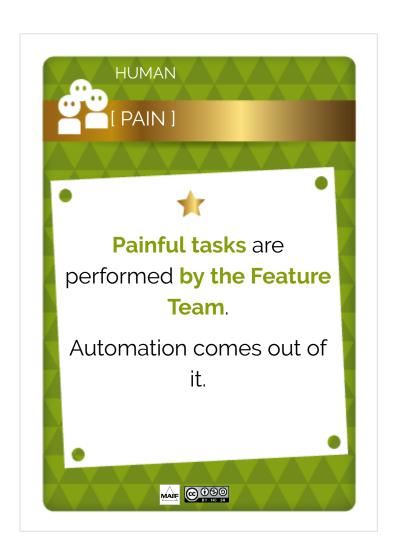
[DEVOPS]

Adopt **DevOps** to help **Dev** and **Ops** converge towards a common goal: **serve the organization**.

Both jobs remain different!

DevOps does not mean that the same person performs the tasks of Dev and Ops. Developers and Ops are required to collaborate in order to benefit from each other's skills and to improve empathy.





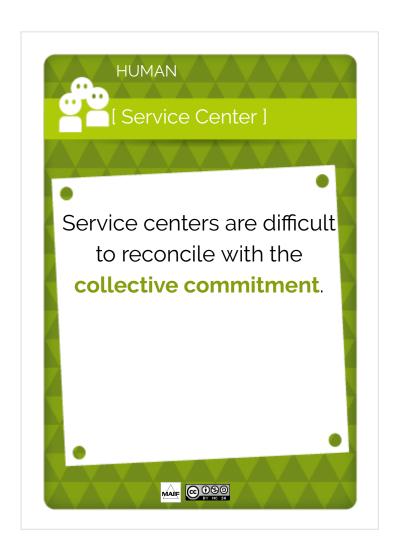


In a traditional organization, a **lack of understanding** between teams is usually related to distance and **lack of communication**.

The members of a Feature Team are co-responsible and united facing up all tasks.

Pain is a key factor in Continuous Improvement.





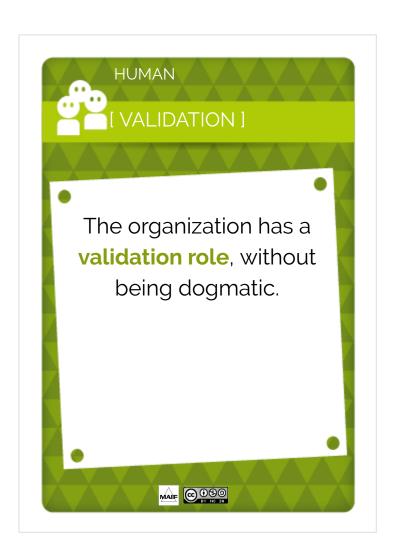


[Service Center]

Feature Teams are built around principles that rely heavily on collaboration and collective engagement.

Service centers tend towards rationalization and consolidation of IT by area of expertise, which is contrary to this notion of collective commitment.







[VALIDATION]

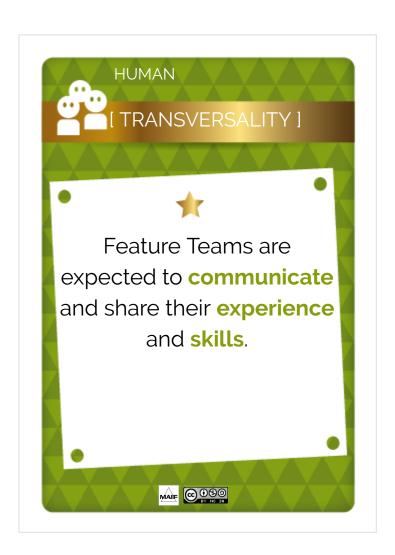
Ensure that the organization retains its **validation role** on tools and uses. In particular regarding the tools that affect assets (example: source code management).

Provide Feature Teams with means to support their choices.

Do not be **dogmatic** and ensure to encourage experimentation.









Do not create barriers between **Feature Teams**.

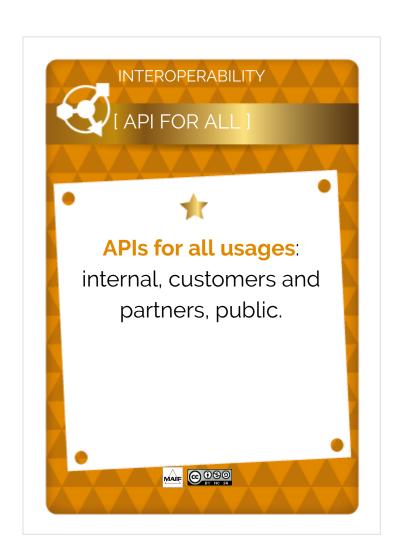
Set up an **organization** and the required **agility** for Feature Teams to communicate with each other and share their skills and experiences.

The organization of transversality at **Spotify** (Tribes, Chapters and Guilds) is an **eloquent example**.









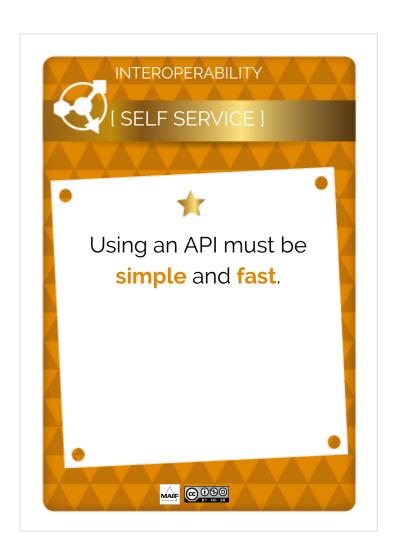


Expand your organization to new usages and new customers with **Public APIs**.

As part of **commercial** partnerships, whether with **customers** or **providers**, APIs are the standard exchange format.

APIs are also meant to be used **internally** inside the organization.





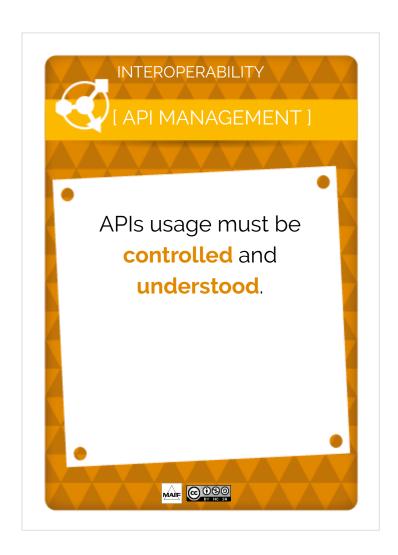


Using APIs should be as simple as possible. Think about the **developer experience**.

The best solution to validate adequacy with the need is to **test the API quickly**: a few minutes must be enough!

The platform must offer a **graphical interface** to test the API in a simple manner.



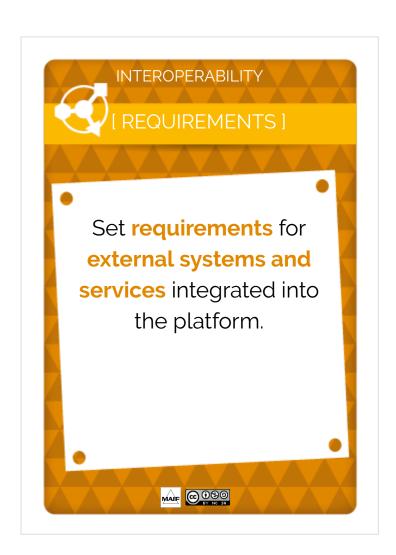




Implement an API Management solution to manage **quotas**, **throttling**, **authentication**, and **logging**.

Collect metrics to manage monitoring, filtering, and reporting.







Require **external systems** to meet the same **requirements** as **internal systems**.

External systems must publish **events** and allow **technical** monitoring.

In the case where the external systems data must be integrated, **total** synchronization have to be **possible**.







Even if white labelling is not considered at the beginning, set up a multi-tenant architecture. Your initial **application** is the first **tenant**.

Think of the **functional multi- instantiation** of the system right from the start.





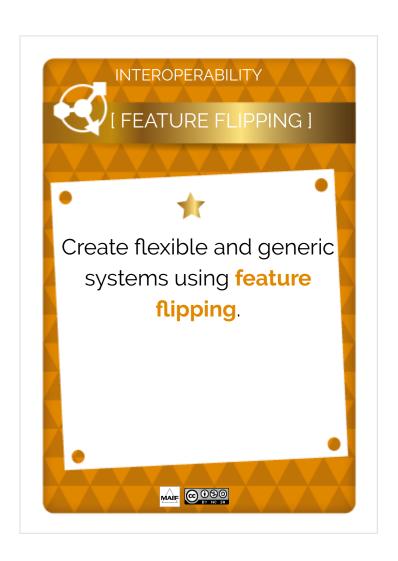


Languages, currencies, business rules, security profiles must be simple to configure.

Beware of **hyper-genericity**, it is often useless and **costly**.

The **configuration** must be **scalable** and fast depending on needs.







Feature flipping is about designing an app as a set of features that can be enabled or disabled live, in production.

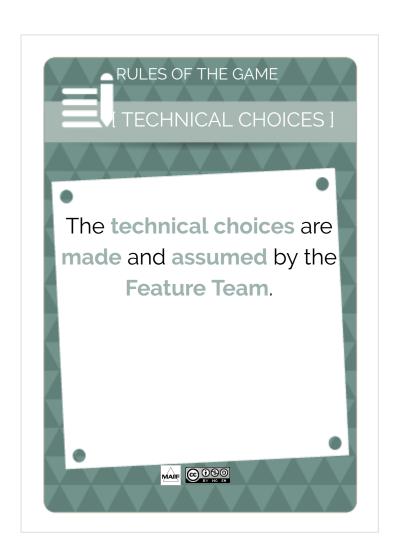
In a **multi-tenant** application, feature flipping allows you to **customize** by tenant.

Feature flipping simplifies A/B testing.







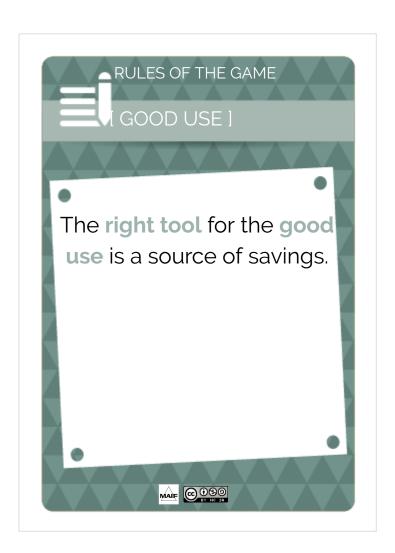




The Feature Team must act **responsibly** to identify the choices that impact itself exclusively and the choices that impact the organization.

The choices that exceed the scope of the Feature Team (eg, license, infrequent programming language) must be validated by the organization or by peer convergence process.







A bad tool imposed on everyone is a risk. The misuse of a good tool can have very damaging consequences. For example, poorly used Agile methods are dangerous.

Tools must be **questioned**.

Excel is often a **rational** choice but it is **not a tool to do everything** (CRM, ERP, Datamart, ...)







The more a tool brings a
differentiating feature for the
organization, the more it should be
built. The core business must
allow specificity and adapt
quickly and often. Some
enterprise software are
sometimes adapted to this need.

For **the rest**: SaaS, Open Source, Build or Vendor are to be studied **case by case**.





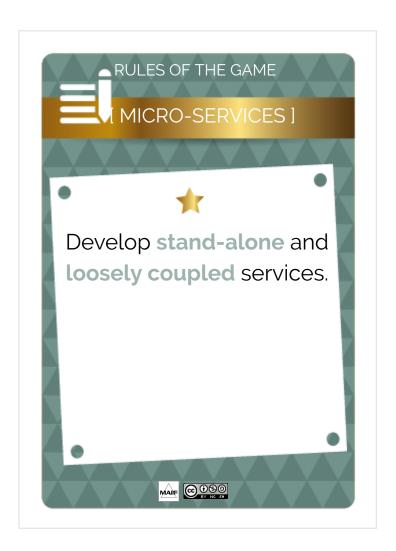


Proprietary solutions are a **risk** for the organization which must be able to take over maintenance if needed.

Few are the proprietary tools that do not have **open source** alternatives.

The organization **benefits** from the **Open Source Community** and can **pay it back with its contributions**.







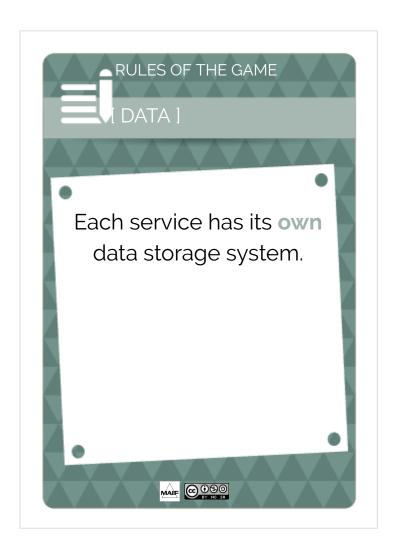
Loose coupling must be the norm.

Each micro-service has a **clearly defined interface**.

This **interface** determines the **coupling** between **micro-services**.

Domain Driven Design helps, especially through **Bounded Contexts**, to anticipate this problem.







A **Data Store** is intended to be **coupled** only with **a single microservice**.

Data access from one microservice to another is done **exclusively via its interface**.

This design implies consistency over time across the platform. It must be apprehended at all levels, including UX.







A micro-service offers a reasonable number of features.

Do not hesitate to split a microservice when it begins to grow.

A service of reasonable size makes it possible to **consider** serenely the **rewriting**, if the need arises.







Responsive programming focuses on the flow of data and the propagation of change. It is based on the "Observer" pattern, contrary to the more traditional "Iterator" approach.

The Reactive Manifesto sets some fundamental axis: **availability** and speed, **resilience** to failure, **flexibility**, **elasticity** and **message oriented**.





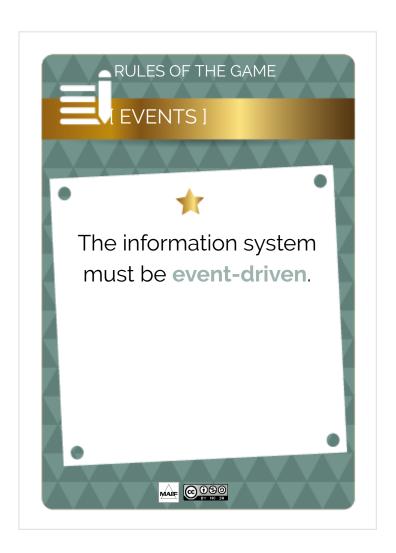


Exchanges between applications must be **asynchronous** first.

Asynchronous exchanges naturally allow loose coupling, isolation and flow control (backpressure).

Synchronous communication should only be considered when required.



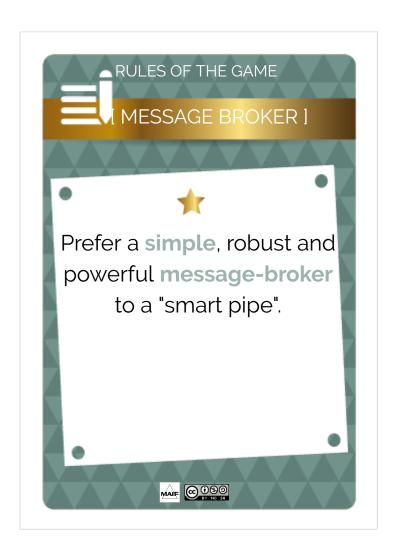




The **event-driven** functional **processes** are **naturally** implemented in an **asynchronous** manner.

Being **event-driven** allows for approaches such as **C**ommand **Q**uery **R**esponsibility **S**egregation (**CQRS**) and **Event Sourcing**.







ESB showed their **limits**: **scalable maintenance** is **critical**, both from a **technical** and **organizational** standpoint.

Message brokers like Kafka offer a simple, durable and resilient solution.

Smart endpoints and **dumb pipes** is an architecture that works at scale: it's **Internet**.



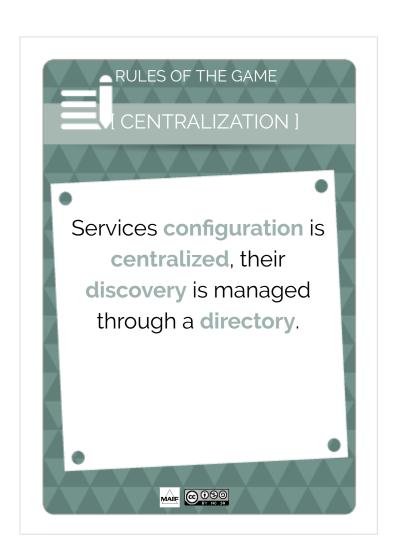




If the synchronization between two systems is ensured by an event flow, the total resynchronization of these systems must be planned at design time.

An automatic **synchronization audit** (example: by samples) allows to **measure** and **detect** any possible synchronization **errors**.





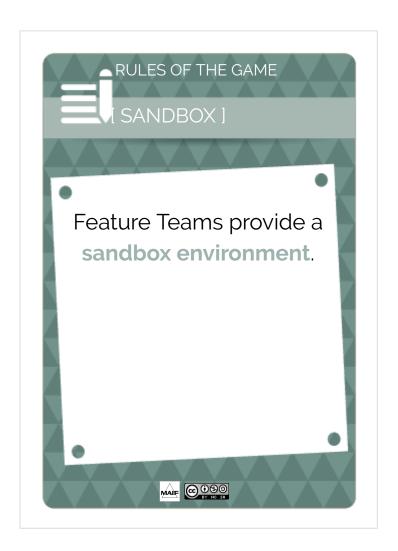


Micro-services configuration is **centralized** for all **environments**.

A central **directory** ensures **dynamic discovery** of **microservices**.

The IS' global **scalability** depends on this **directory**.



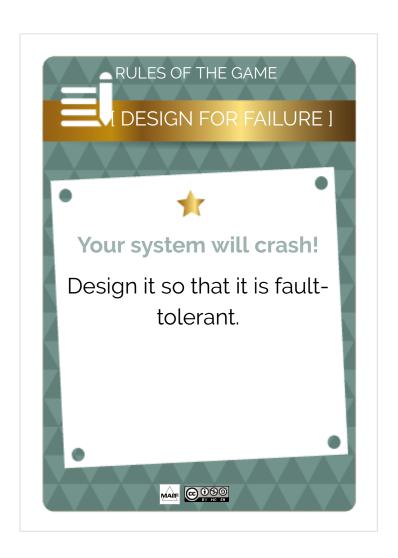




Feature Teams maintain a sandbox environment (current and upcoming versions) to allow other teams to develop at scale.

In non-nominal cases, some features may be disabled in the development environment.







Your **system will fail**, it's inevitable. It must be designed for this (**Design For Failure**).

Plan redundancy at every level: hardware (network, disk, etc.), application (multiple instances of applications), geographical zones, providers (example: AWS + OVH).







Beware of transversal in-house technical components! They are restrictive, expensive and difficult to maintain.

Accelerators, toolkits, technical stacks can be pooled, at the choice of the Feature Teams, avoiding a dogmatic approach.







PaaS services are preferred, simple, and scale quickly.

laaS services allow for greater **flexibility** but require more operational work.

A private cloud is not a traditional virtualization environment, it relies on **commodity hardware**.

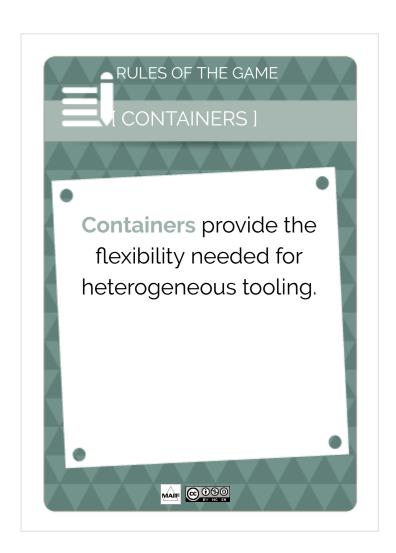






Infrastructure issues are not the responsability of the **Feature Teams**. Infrastructure must be **provided** and **maintained** by a **transversal** service.

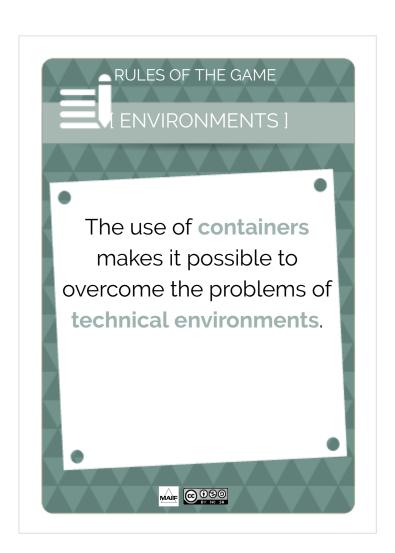






Containers provide the **flexibility** needed by Feature Teams to enable **heterogeneous tooling** in a **homogeneous context**.







The containers (example: **Docker**) make it possible **to abstract** the environments differences.

The **deployment** process must be **agnostic** to the environment.

Some components such as databases should not be deployed in containers. Their deployment is still automated.







Metrics are accessible to everyone with different levels of granularity: detailed view for the relevant Feature Team, aggregations for other members of the organization.

Access to metrics does not imply access to data, access must be controlled to maintain confidentiality.

All environments are concerned.







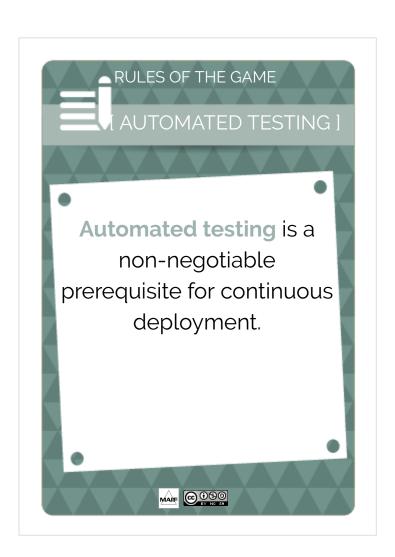
Code reviews are systematic.

They are conducted by members of the Feature Team or other members of the organization, as part of **Continuous Improvement**.

That is not you being audited but your code: "You are not your code!".

Qualimetry can be partly automated, but nothing beats the **"fresh eye"**.





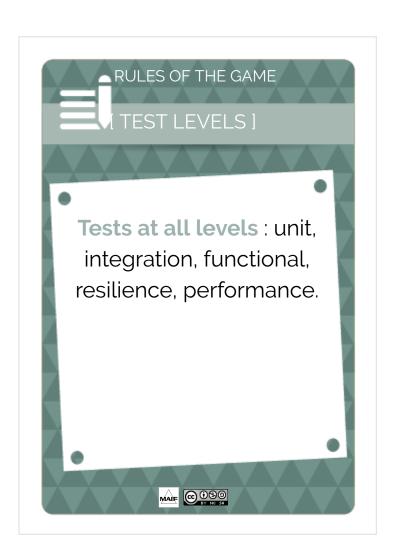


Automated **testing** ensures **quality** of the product **over time**.

It is a **prerequisite** to continuous deployment, it allows for **frequent changes and deployments**.

Production rollout becomes a non-event!







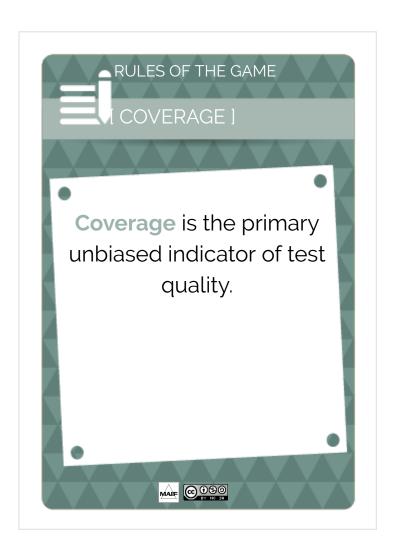
Integration and functional tests are the most important ones, they ensure the correct behavior of the product.

Unit tests are suitable for **development**.

Performance tests measure performance **over time**.

Resilience tests help to anticipate **failures**.







The tests **code coverage** is a **good** metric of code quality.

It is a necessary condition but not sufficient, the coverage of a bad test strategy can be high without guarantee that the code is of good quality.







Security experts can be **integrated** directly into Feature Teams **if needed**.

Security experts are available in the organization for **audit** purposes, **awareness** and **sharing**.

