How Developers use API docs

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ORIGINAL CREDIT

Based on research paper

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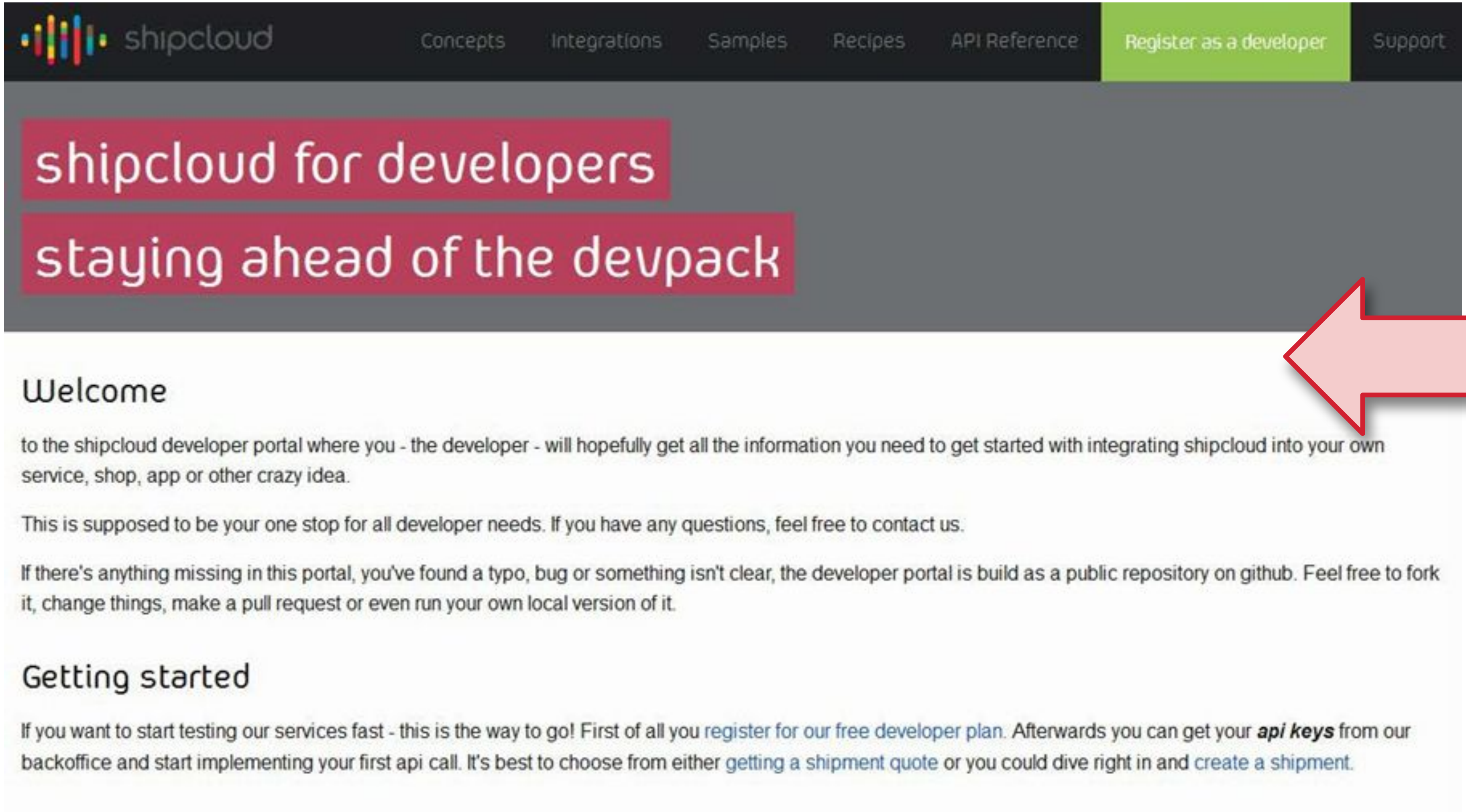
API use increases, but learning paths challenge developers

HYPOTHESIS

Issues with learning resources may be usability issues



shipcloud for developers

staying ahead of the devpack

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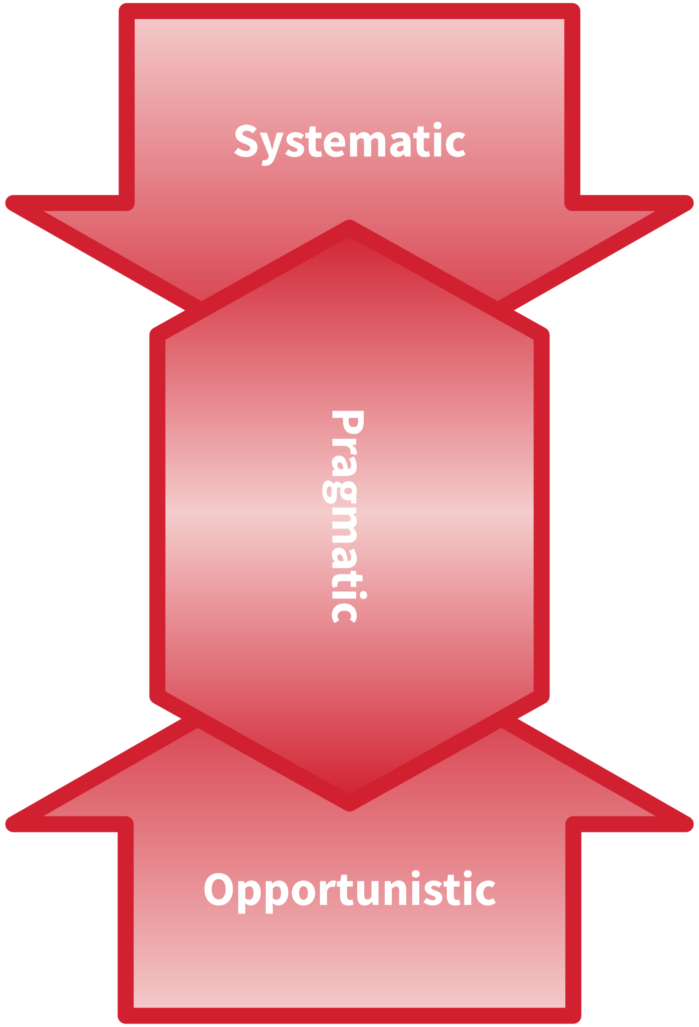
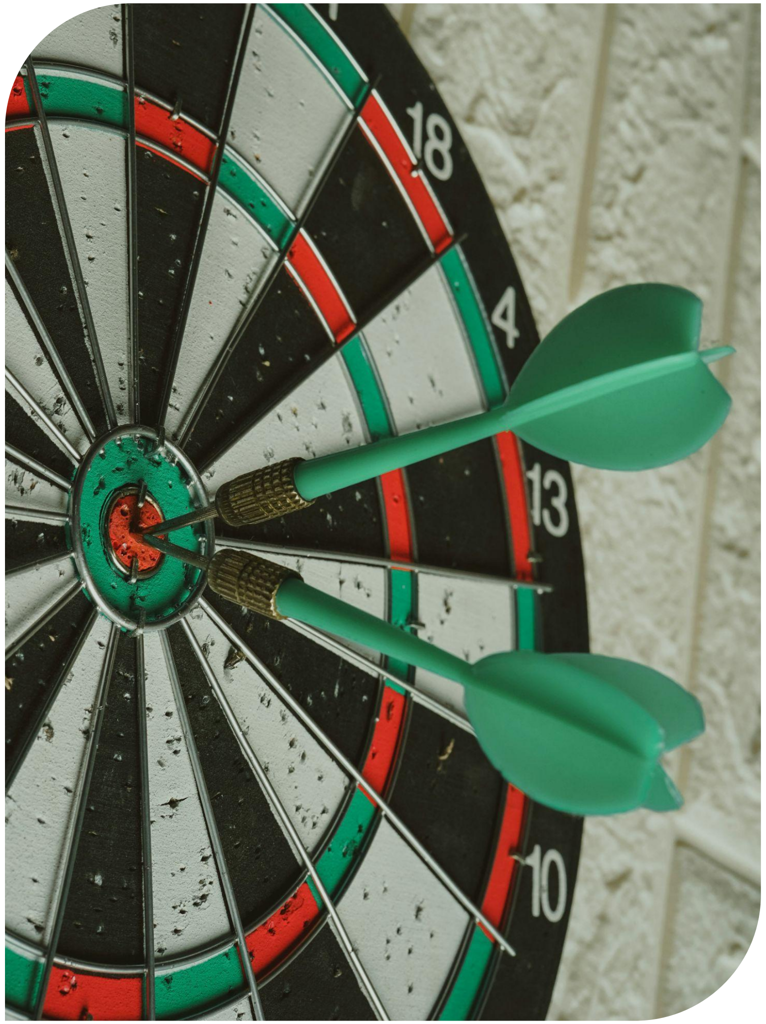
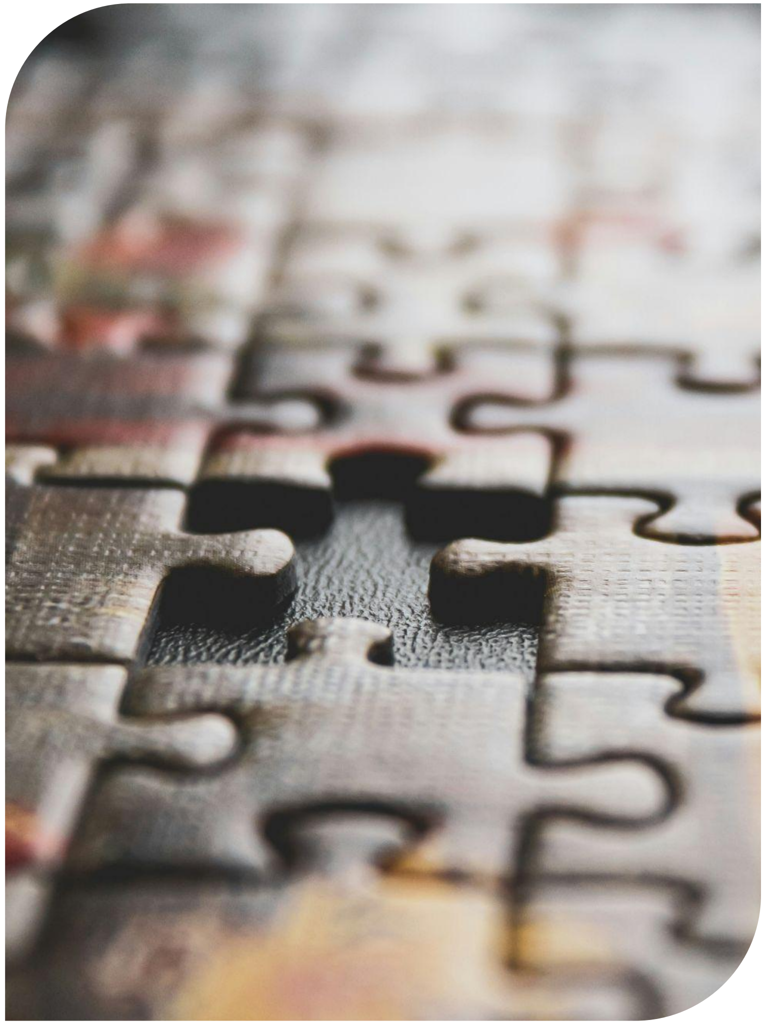
Show me the API!

Developers use 1 of 3 strategies to learn a new API

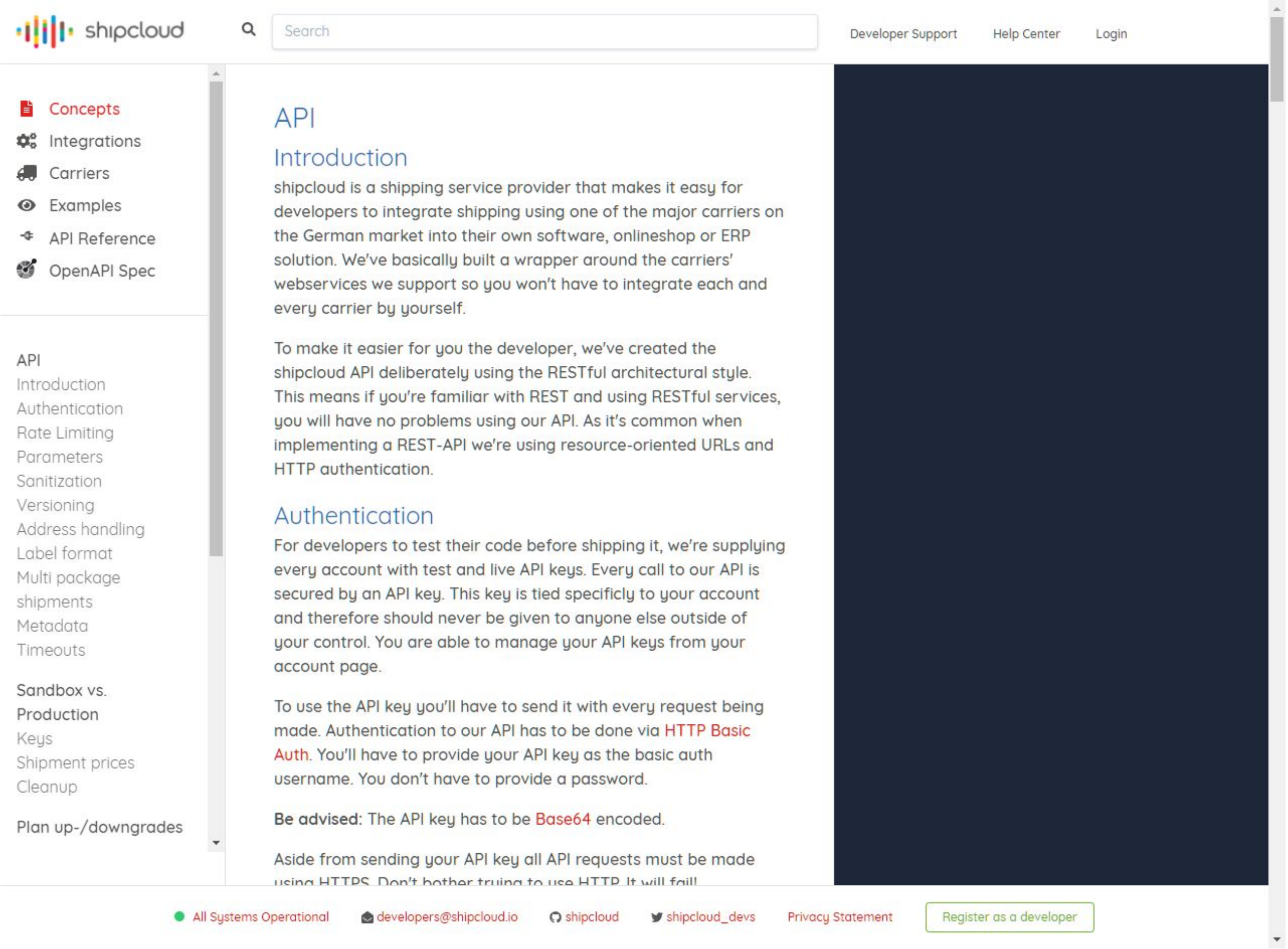


Developers expect accuracy, clarity, completeness in docs





Devs need concepts, specs, examples, purpose, use cases



API

Introduction

shipcloud is a shipping service provider that makes it easy for developers to integrate shipping using one of the major carriers on the German market into their own software, onlineshop or ERP solution. We've basically built a wrapper around the carriers' webservices we support so you won't have to integrate each and every carrier by yourself.

To make it easier for you the developer, we've created the shipcloud API deliberately using the RESTful architectural style. This means if you're familiar with REST and using RESTful services, you will have no problems using our API. As it's common when implementing a REST-API we're using resource-oriented URLs and HTTP authentication.

Authentication

For developers to test their code before shipping it, we're supplying every account with test and live API keys. Every call to our API is secured by an API key. This key is tied specificly to your account and therefore should never be given to anyone else outside of your control. You are able to manage your API keys from your account page.

To use the API key you'll have to send it with every request being made. Authentication to our API has to be done via HTTP Basic Auth. You'll have to provide your API key as the basic auth username. You don't have to provide a password.

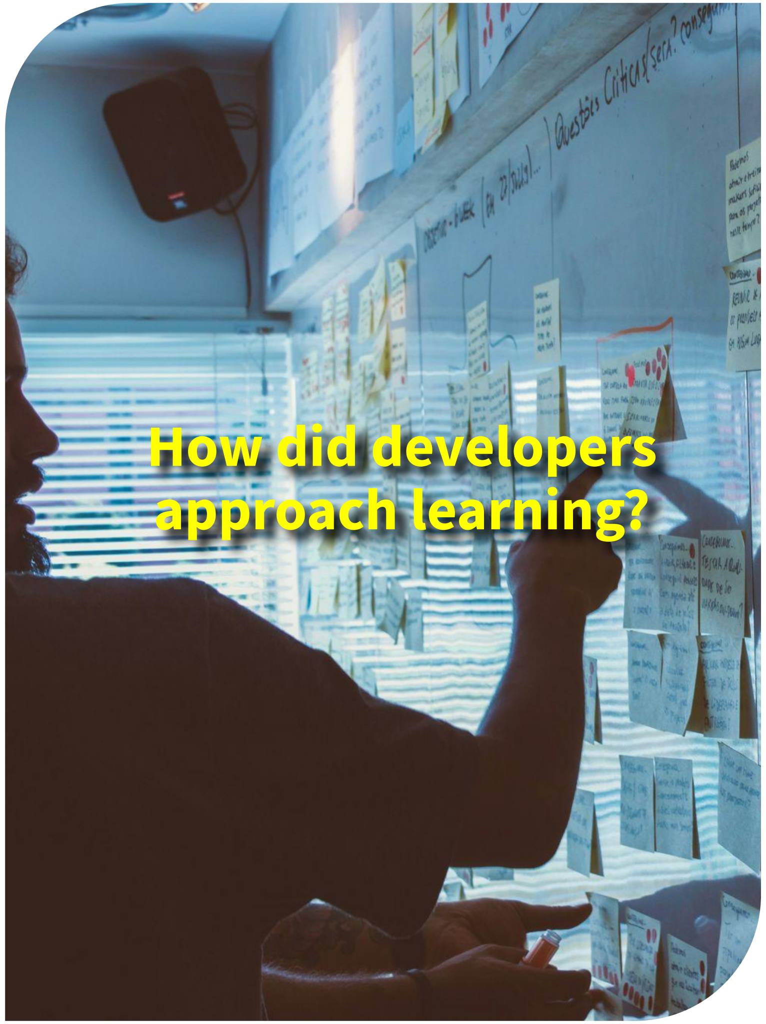
Be advised: The API key has to be Base64 encoded.

Aside from sending your API key all API requests must be made using HTTPS. Don't bother trying to use HTTP. It will fail!

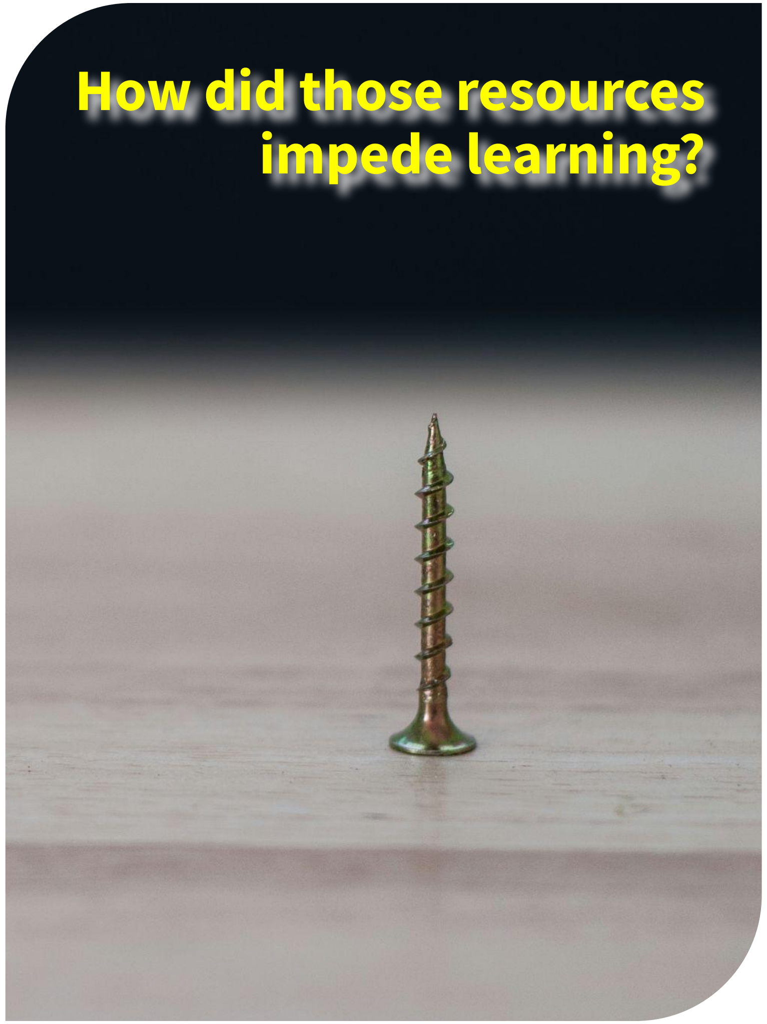
Studies relied on self reporting, not observations

Observe how devs learn a new API

What resources did developers use?



How did developers approach learning?

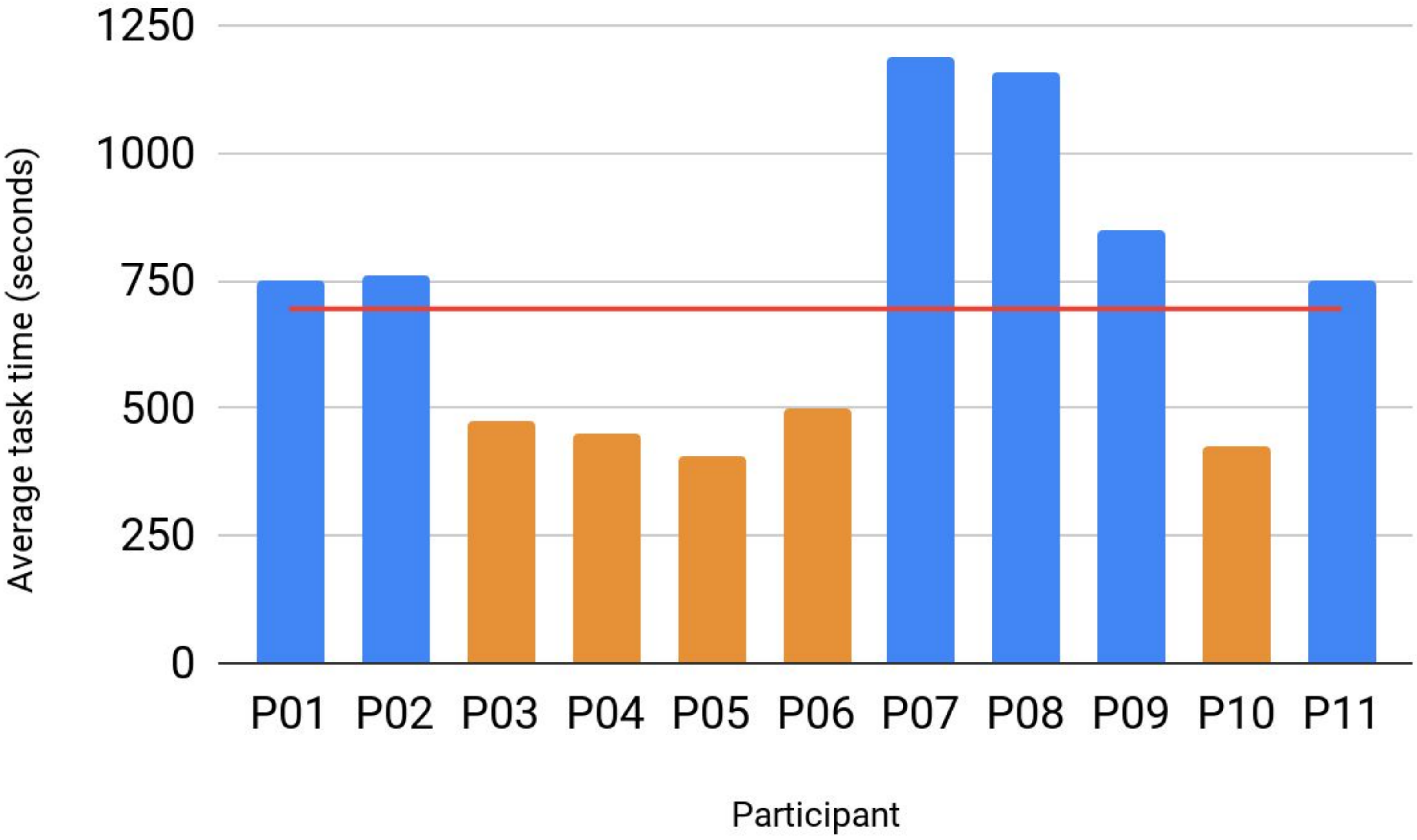


How did those resources impede learning?

Observed 11 devs complete tasks with new API

1. Created API-related tasks
2. Recruited participants and received consent
3. Gathered demographic data
4. Ran and recorded test sessions with tracked eye movement
5. Gave questionnaire for participant feedback
6. Analyzed test sessions and aggregated feedback

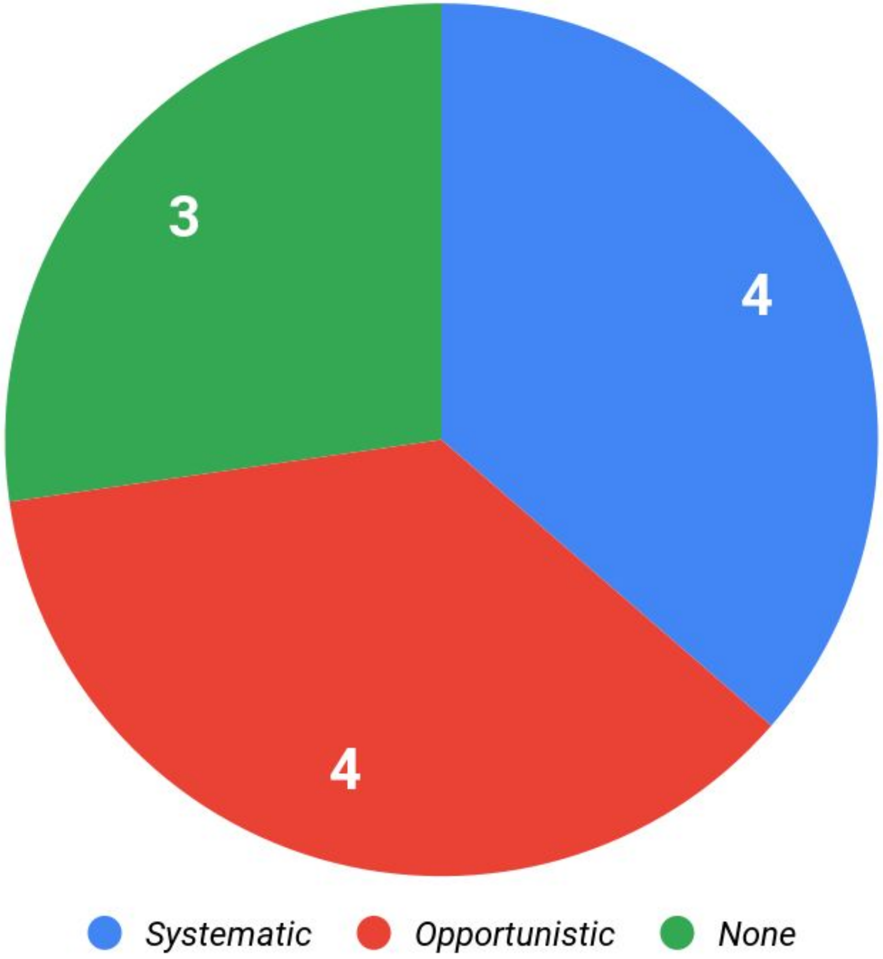
Grouped participants by average task completion time



Made 2 groups:

- **Slow:** Time > Mean
- **Fast:** Time < Mean

Grouped participants (again) by task strategy



Opportunistic developers characteristics

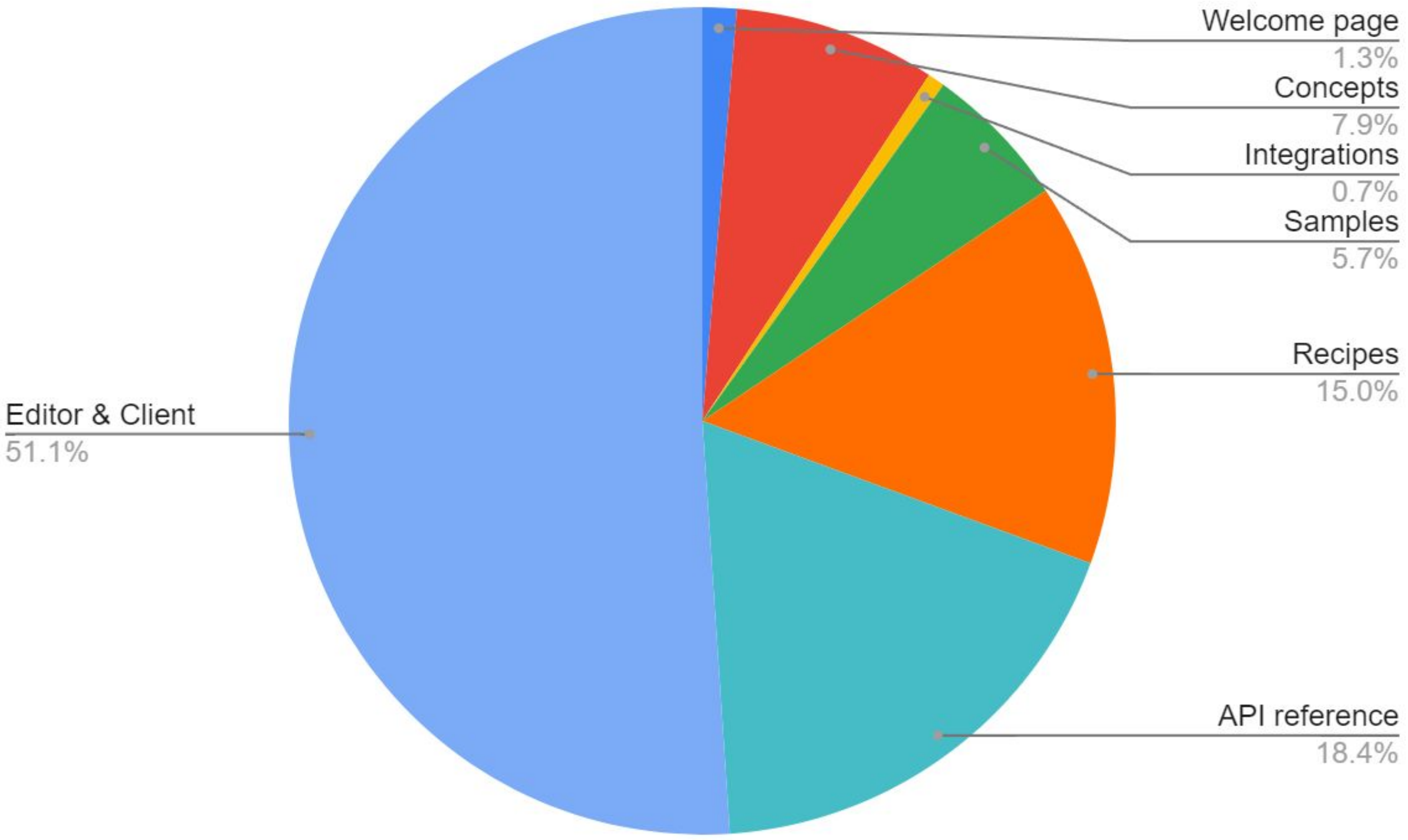
Participant	Speed	Avg Per Task Time	Tasks Completed	Dev Exp	REST Exp Rating	Field	Role
P02	Slow	760 s	5	10 yrs	5	General IT Services	Developer
P03*	Fast	475 s	3	20 yrs	4	E-Commerce	Team lead
P09	Slow	850 s	5	25 yrs	2	Publishing	DB specialist
P10	Fast	425 s	5	11 yrs	3	E-Commerce	Team lead

Systematic developers characteristics

Participant	Speed	Avg Per Task Time	Tasks Completed	Dev Exp	REST Exp Rating	Field	Role
P4	Fast	450	5	5 yrs	2	E-Commerce	Developer
P5	Fast	405	5	6 yrs	5	E-Commerce	Developer
P7	Slow	1190	3	8 yrs	5	Publishing	Developer
P8	Slow	1160	3	10 yrs	3	Publishing	Developer

Developers used docs less than half of their time

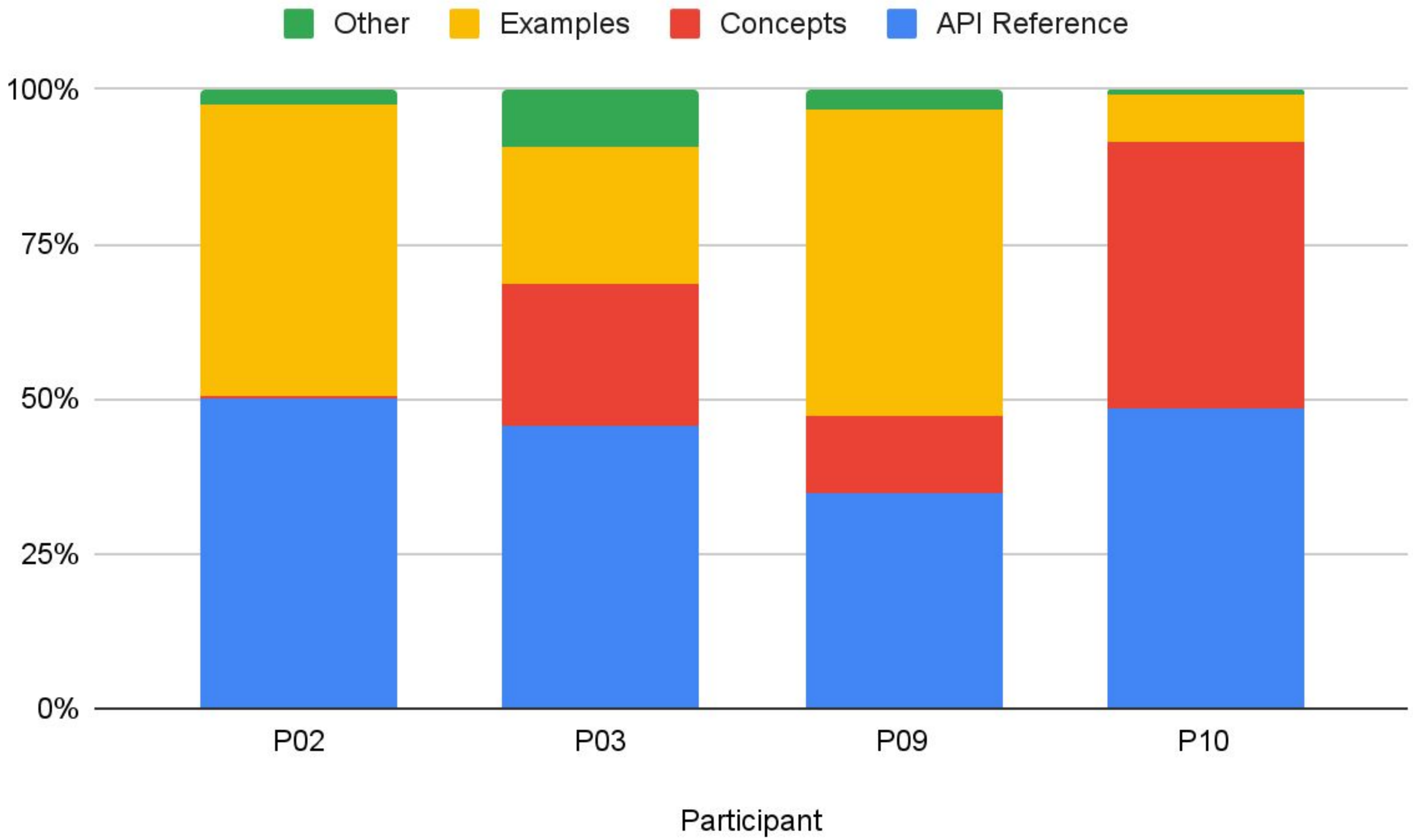
Spent most time in tools, then in reference docs, then in code samples



- Time spent outside of docs > 50%
- Time spent in docs mostly in code examples and spec

Opportunistic developers explored tasks, made errors

Seasoned developers experimented, skimmed documentation

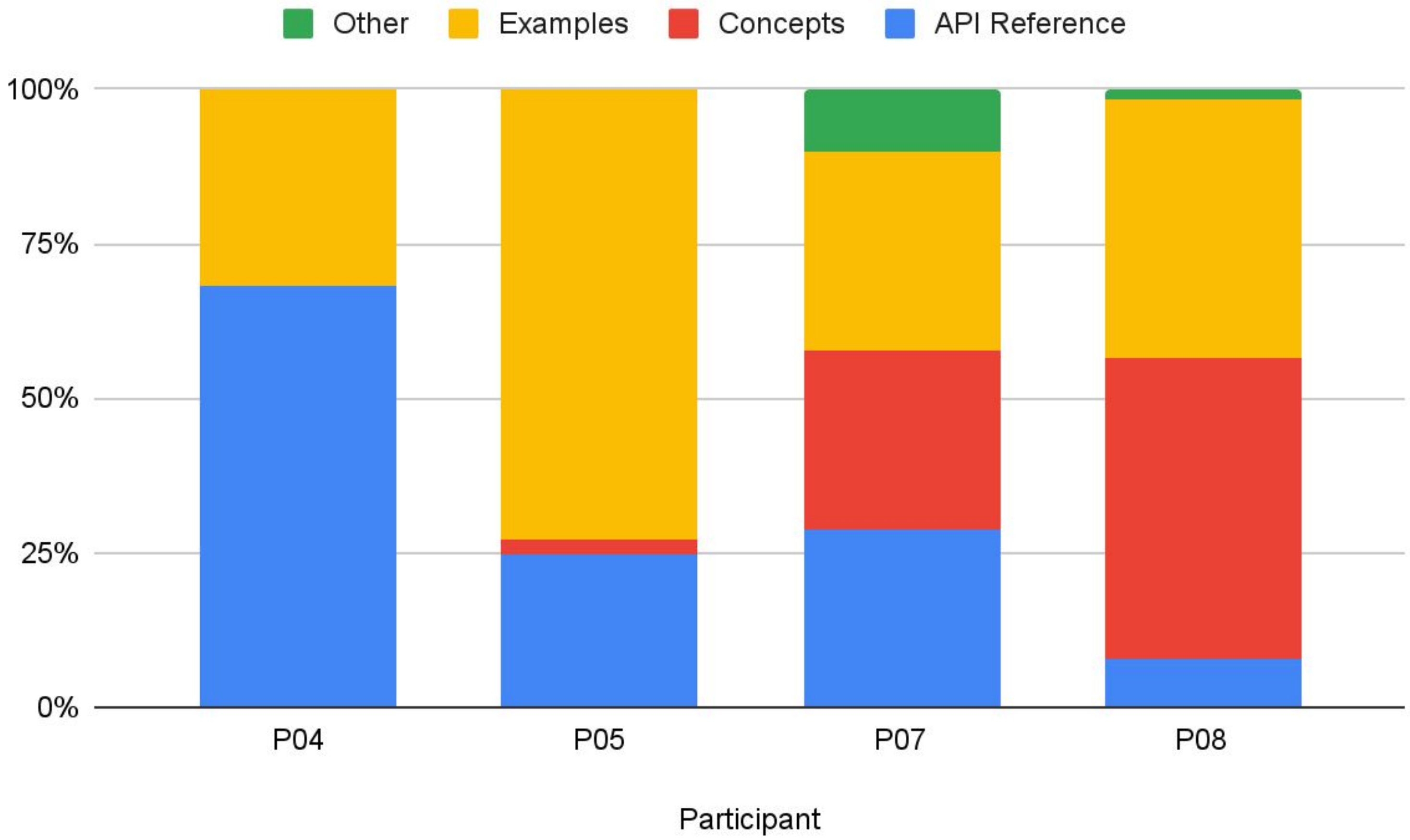


All participants used examples and reference

Some participants used concepts

Systematic developers explored API, prepared environment

Mid-level developers planned task first, read docs with care



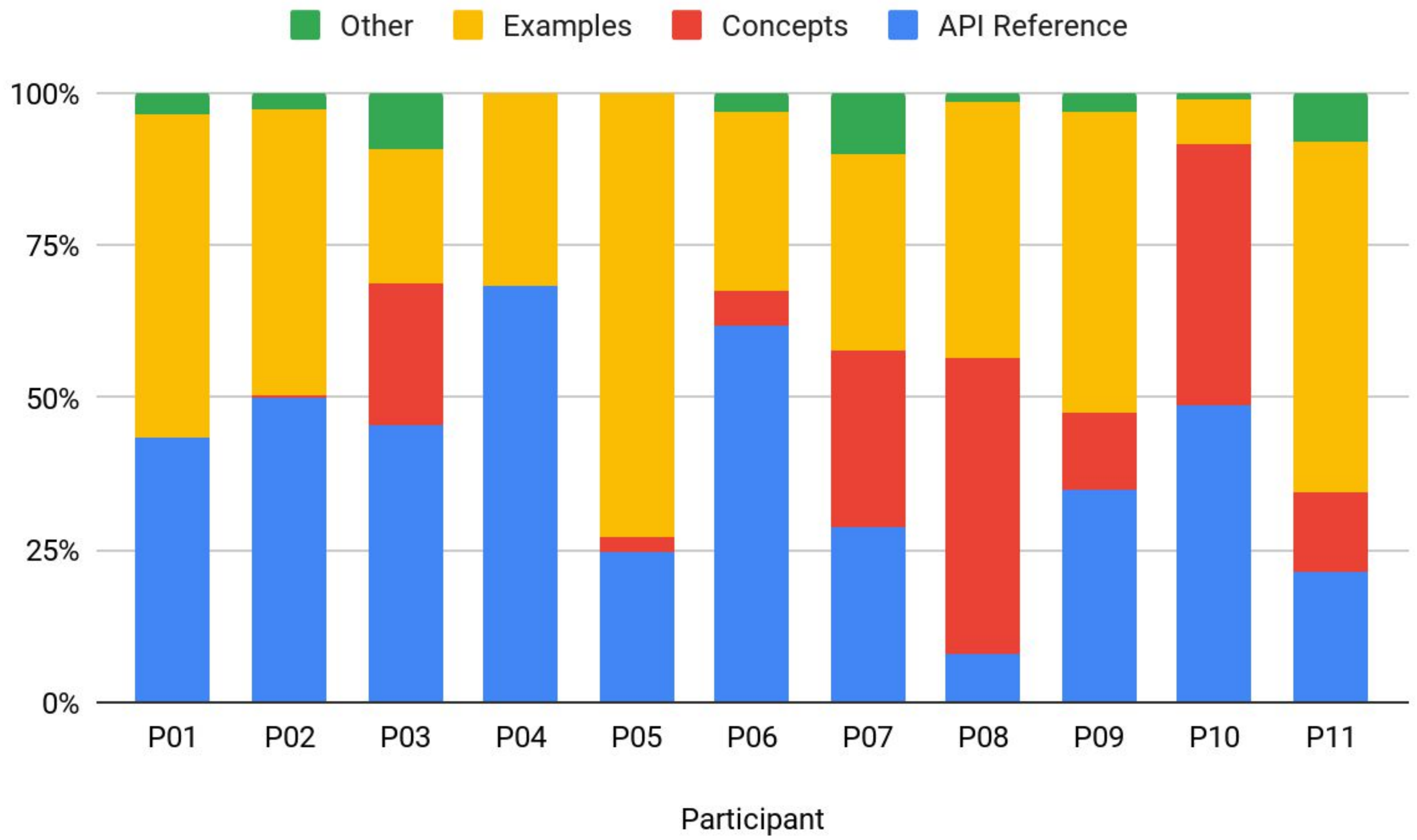
All participants used examples more than 30% of the time

All participants used reference with time spent in a range of 60 pts

Most used concepts with time spent in a range of 49 pts

Developers varied widely in docs usage

No one part was used exclusively more than another across all developers



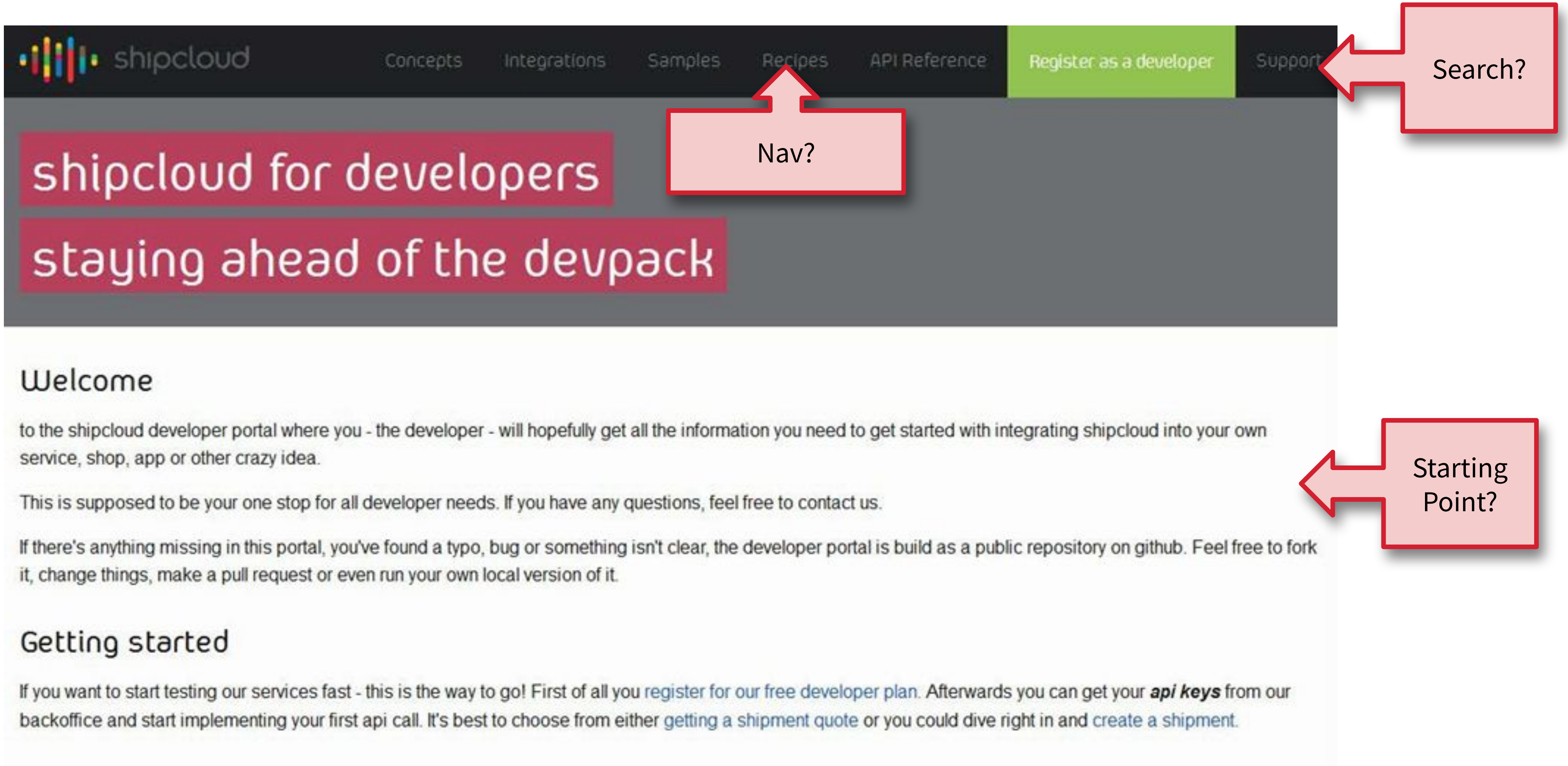
All participants used examples and reference

Most participants used concepts

Time spent in topic ranged from 8% to 73% across all participants

Developers perceived barriers to their tasks

Inconsistent nav, bad structure, no search, and code reuse impeded progress



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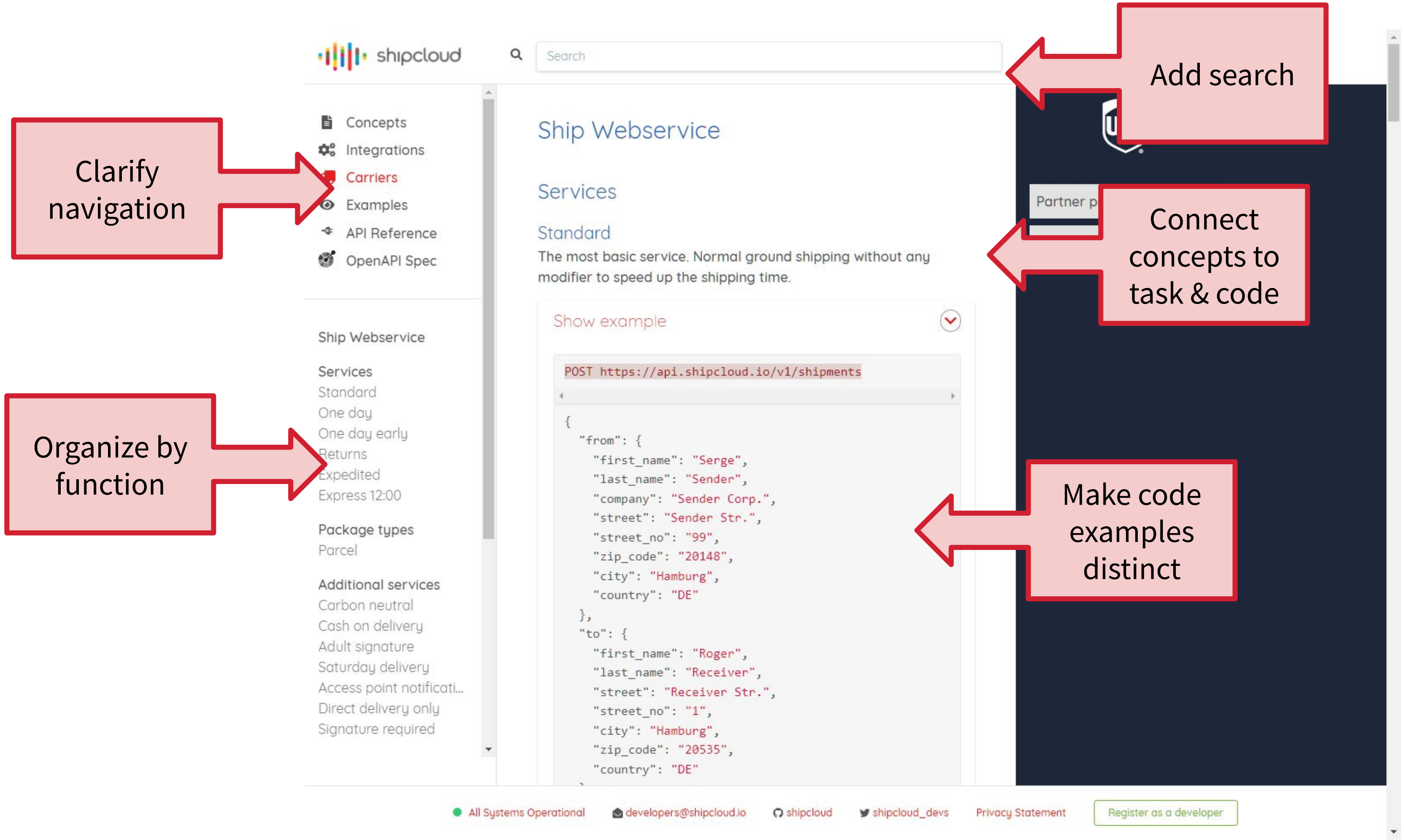
Nav?

Search?

Starting Point?

API docs need to speed access to relevant content

Need docs to make connections between text and code while making both distinct



Ship Webservice

Services

Standard

The most basic service. Normal ground shipping without any modifier to speed up the shipping time.

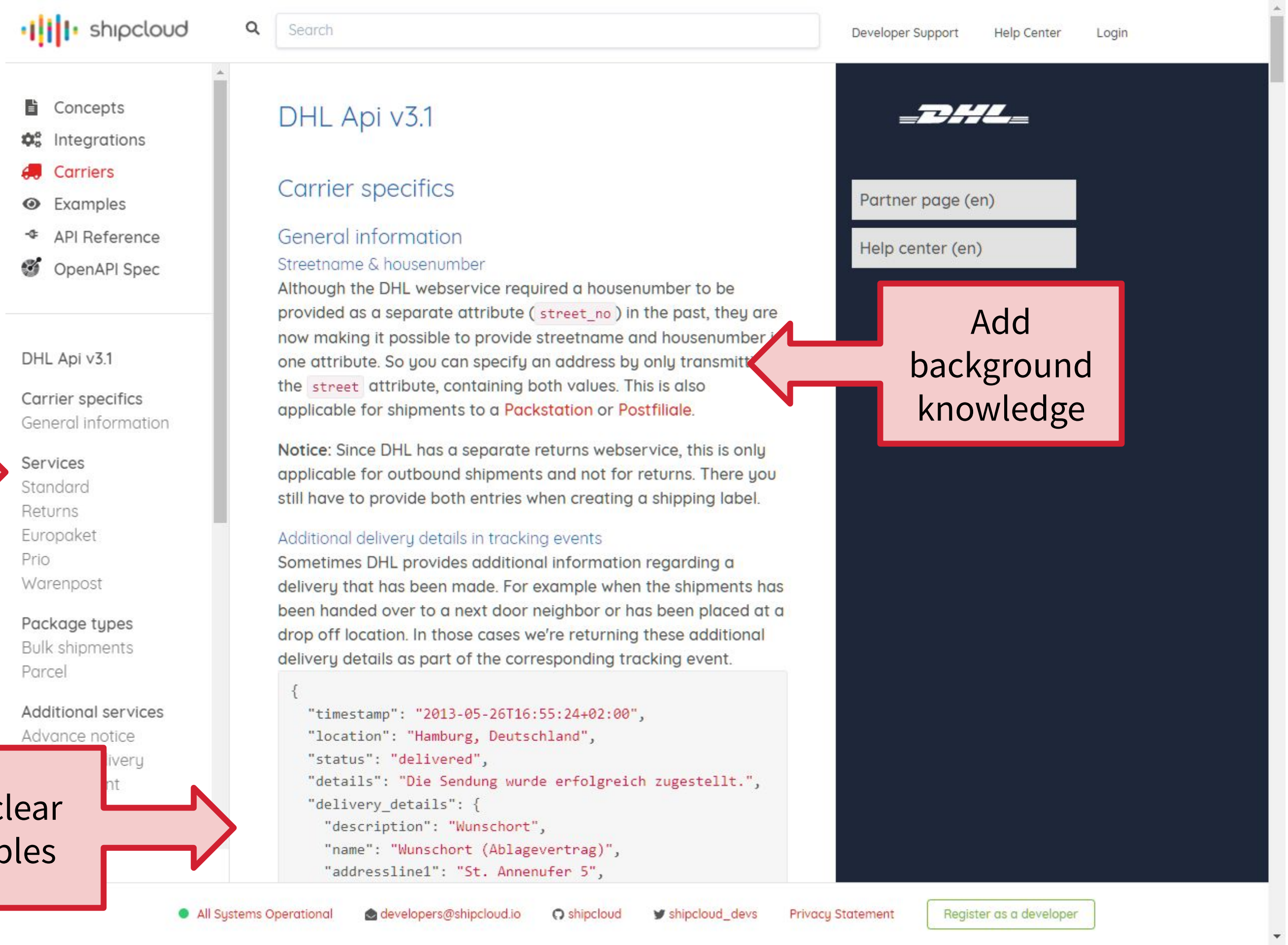
Show example

```
POST https://api.shipcloud.io/v1/shipments
```

```
{
  "from": {
    "first_name": "Serge",
    "last_name": "Sender",
    "company": "Sender Corp.",
    "street": "Sender Str.",
    "street_no": "99",
    "zip_code": "20148",
    "city": "Hamburg",
    "country": "DE"
  },
  "to": {
    "first_name": "Roger",
    "last_name": "Receiver",
    "street": "Receiver Str.",
    "street_no": "1",
    "city": "Hamburg",
    "zip_code": "20535",
    "country": "DE"
```

API docs need to relate to real-world scenarios

Need to connect API to real-world activities



DHL Api v3.1

Carrier specifics

General information

Streetname & housenumber

Although the DHL webservice required a housenumber to be provided as a separate attribute (`street_no`) in the past, they are now making it possible to provide streetname and housenumber i one attribute. So you can specify an address by only transmitt the `street` attribute, containing both values. This is also applicable for shipments to a Packstation or Postfiliale.

Notice: Since DHL has a separate returns webservice, this is only applicable for outbound shipments and not for returns. There you still have to provide both entries when creating a shipping label.

Additional delivery details in tracking events

Sometimes DHL provides additional information regarding a delivery that has been made. For example when the shipments has been handed over to a next door neighbor or has been placed at a drop off location. In those cases we're returning these additional delivery details as part of the corresponding tracking event.

```
{
  "timestamp": "2013-05-26T16:55:24+02:00",
  "location": "Hamburg, Deutschland",
  "status": "delivered",
  "details": "Die Sendung wurde erfolgreich zugestellt.",
  "delivery_details": {
    "description": "Wunschort",
    "name": "Wunschort (Ablagevertrag)",
    "addressline1": "St. Annenufer 5",
```

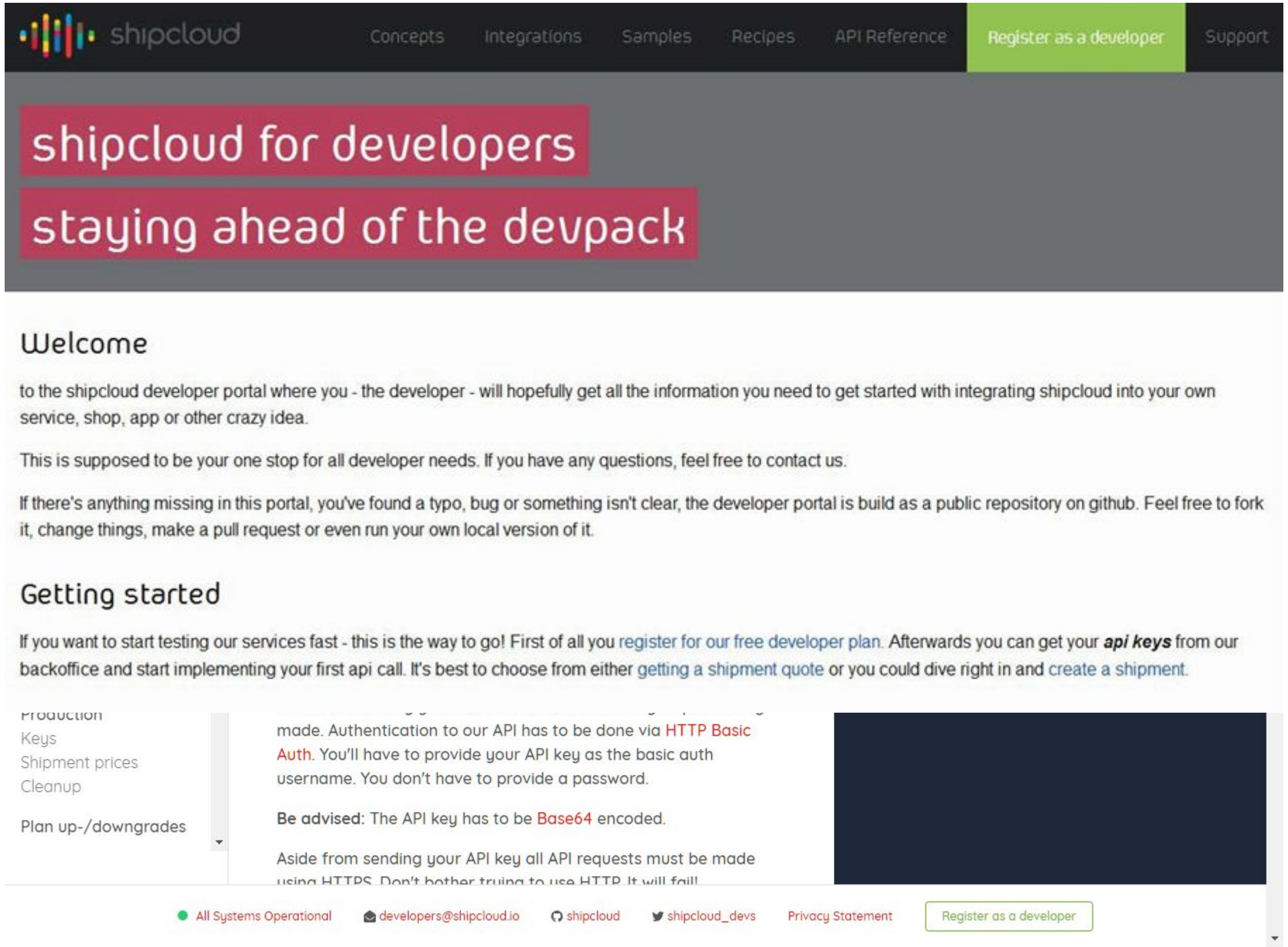
Offer quick API access

Add background knowledge

Offer clear examples

Fix usability and improve learning and adoption

Docs issues appear to be UX issues



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