Digital Capabilities Report

Biagio

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General Observations

This report provides a bunch of information about the dataset of 1101 articles for our review of the digital capabilities literature. We are focusing in the following disciplines: c("Accounting", "Information Systems", "Management", "Operations", "Strategy and Innovation", "Marketing", "Finance", "Entrepreneurship and IB").

Table 1: Articles Inspected by Discipline

Discipline	No	Yes	Percentage
Accounting	9	6	40.0%
Entrepreneurship and IB	25	7	21.9%
Finance	1	1	50.0%
Information Systems	407	305	42.8%
Management	50	16	24.2%
Marketing	11	17	60.7%
Operations	145	57	28.2%
Strategy and Innovation	28	16	36.4%

Table 2: Mapping of Scopus Fields to Disciplines

Field	Discipline
ACCOUNTING	Accounting
ENTREPRENEURSHIP	Entrepreneurship and IB
IB	Entrepreneurship and IB
FINANCE	Finance
INFO MAN	Information Systems
HR	Management
ORGANISATION STUDIES	Management
MANAGEMENT	Management
MARKETING	Marketing
OPERATIONS RESEARCH AND MANAGEMENT SCIENCE	Operations
OPERATION AND TECH. MANAGEMENT	Operations
INNOVATION	Strategy and Innovation
STRATEGY	Strategy and Innovation

For each discipline we examined the following number of journals in the 4 and 4* range:

Table 3: Articles Inspected by Discipline

Discipline	4	4*
Accounting	1	4
Entrepreneurship and IB	4	1
Finance	1	1
Information Systems	5	3
Management	10	6
Marketing	2	2
Operations	4	2
Strategy and Innovation	2	2

Predictably the number of articles related to IT capabilities, IT-enabled capabilities and digital capabilities has grown over time in every discipline.

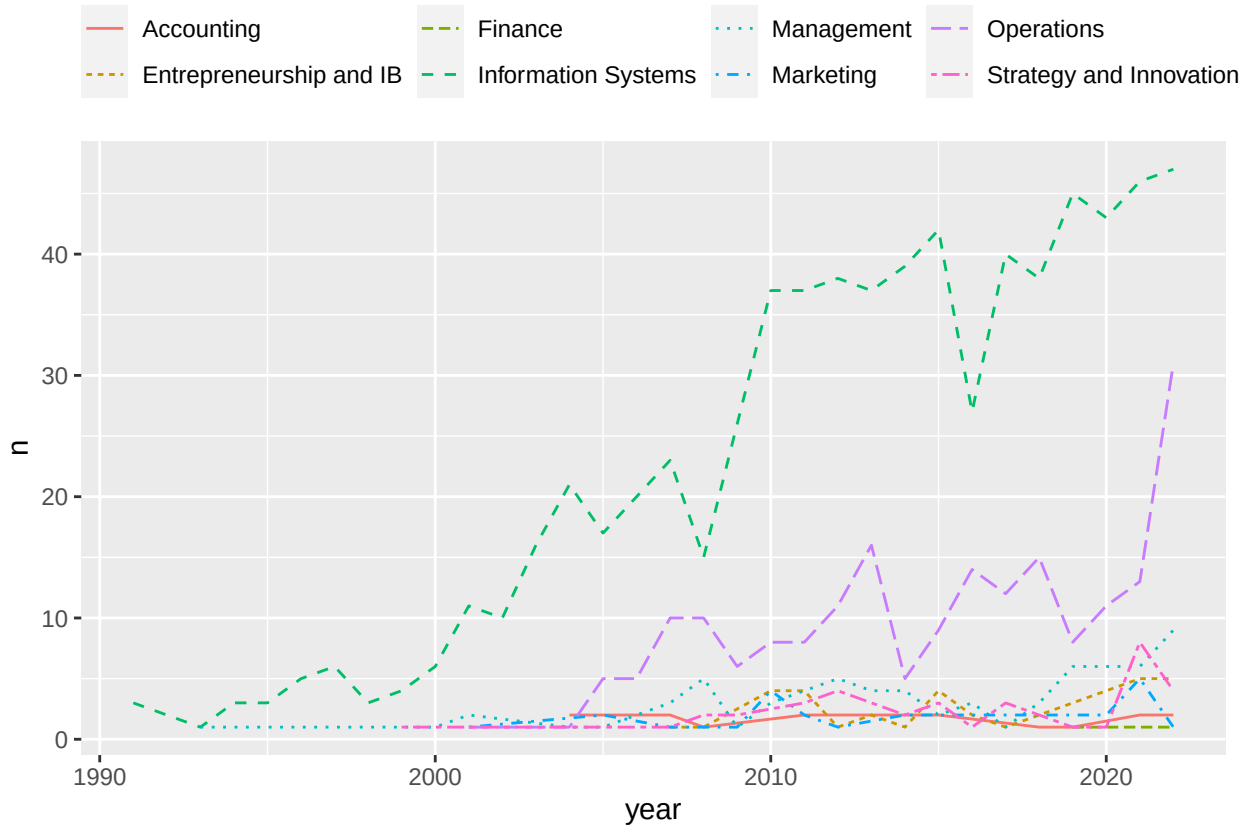

Figure 1: Growth of Articles from 1990 to 2022

Dataset creation

The original set of 1101 articles, was reduced to 426 articles that were then evaluated based on the content of their title, abstract and keywords. These remaining 426 articles were read in depth and any construct that

could be classified as Organizational Capability, IT Capability, IT-enabled Capability or Digital Capability was extracted, along with its definition. After the categorization stage, 329 articles remained with at least one construct of interest.

Table 4: Articles with Constructs of Interest by Discipline

Discipline	N
Accounting	6
Entrepreneurship and IB	7
Finance	1
Information Systems	241
Management	11
Marketing	14
Operations	40
Strategy and Innovation	9

The above article categorization resulted in a total of 707 analyzed. Of these, 500 had an explicit construct definition, while 207 did not. Moreover, upon evaluation a total of 558 constructs fit the theoretical definition of Organizational Capability, IT Capability, IT-enabled Capability or Digital Capability and were retained.

The table below lists all the constructs extracted, as well as those that were excluded because upon analysis of the definition, did not fit one of the four focal constructs.

Table 5: Frequency of Retained Constructs

Construct	Frequency
Organizational capability	65
IT capability	426
IT-enabled capability	55
Digital capability	12
Excluded	120
NA	29

The following is the prevalence of retained construct by discipline.

Table 6: Retained Constructs by Discipline

Discipline	N
Accounting	7
Entrepreneurship and IB	11
Finance	1
Information Systems	447
Management	11
Marketing	17
Operations	47
Strategy and Innovation	17

Predictably the number of articles related to IT capabilities, IT-enabled capabilities and digital capabilities has grown over time in every discipline.

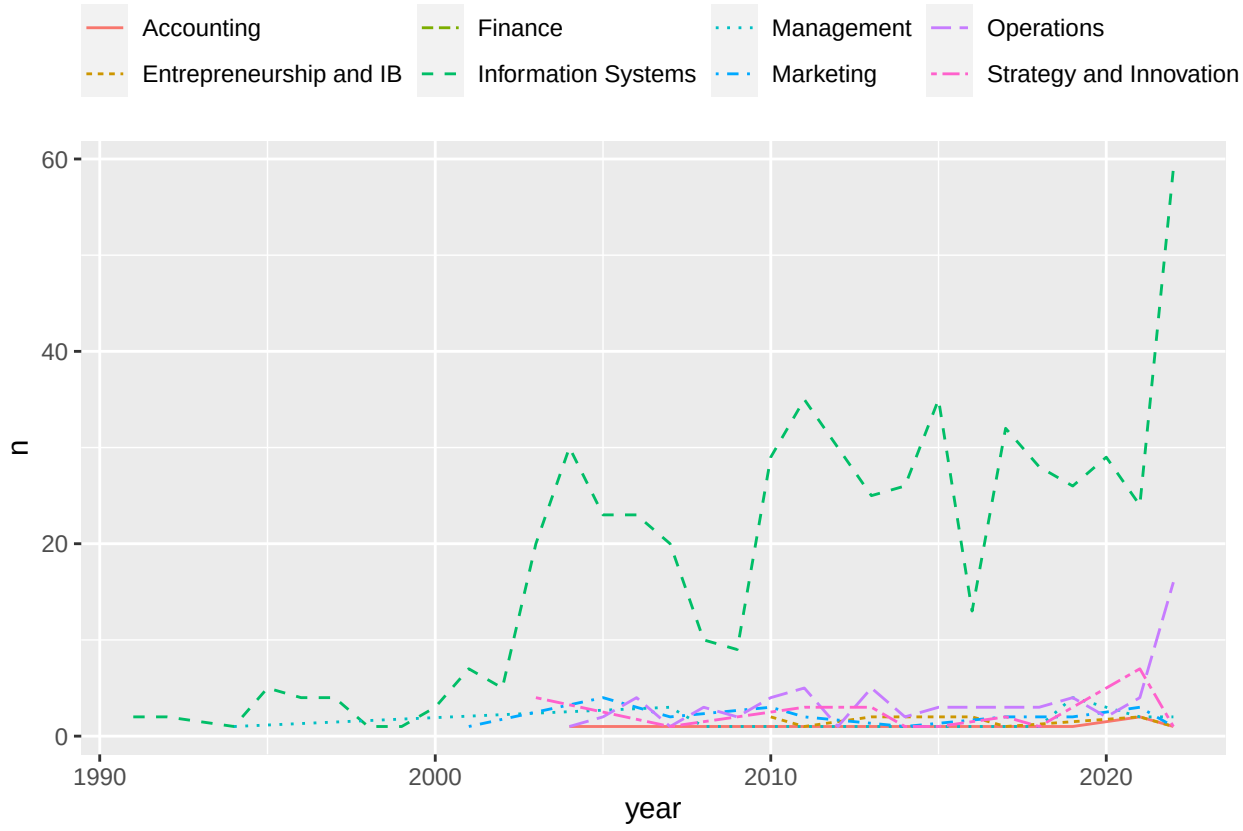

Figure 2: Growth of Constructs Use by Discipline from 1990 to 2022

Attention has been mostly focused on IT Capabilities across disciplines

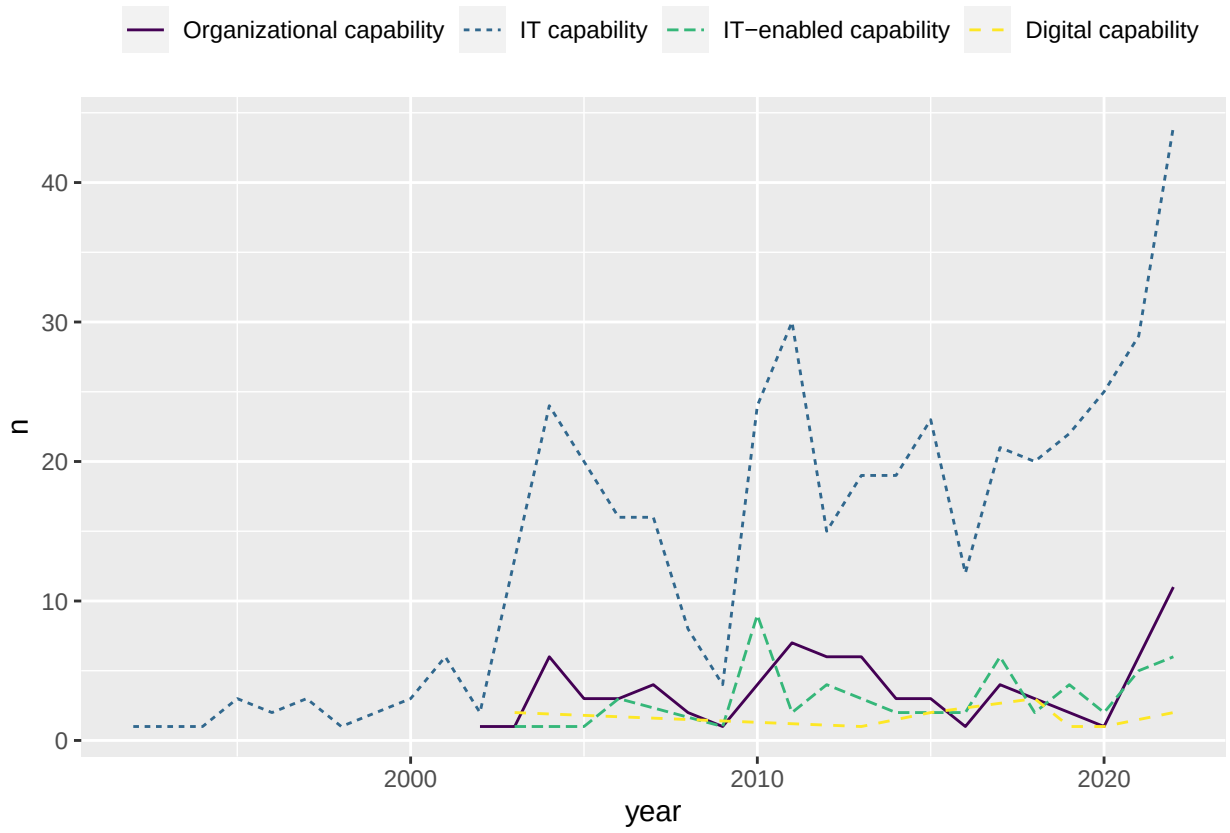

Figure 3: Constructs Use over time 1990 to 2022 trend by discipline

Analysis Biagio

Analysis non-IS journal only

Because we know that the majority of articles took in consideration are coming from the IS discipline. We perform in this section an analysis that focus only on non-IS articles.

Articles as the unit of analysis

Table 7: Constructs by Discipline non-IS

Construct	Discipline	N
IT capability	Operations	41
IT capability	Strategy and Innovation	15
IT capability	Marketing	13
IT capability	Entrepreneurship and IB	9
IT capability	Management	8
IT capability	Accounting	5
IT-enabled capability	Operations	4
Organizational capability	Marketing	3
Organizational capability	Operations	2
IT-enabled capability	Accounting	2
IT-enabled capability	Management	2
IT-enabled capability	Strategy and Innovation	2
Organizational capability	Entrepreneurship and IB	1
IT capability	Finance	1
IT-enabled capability	Entrepreneurship and IB	1
IT-enabled capability	Marketing	1
Digital capability	Management	1

There is only one journal in the management field that focus on Digital capability.

Constructs as categorized by us (IT capabilities, Digital capabilities, etc)

The following charts are use to show the use of the four constructs among the disciplines other than IS. The first chart is a violin chart that shows the distribution of the categories over time and quantity.

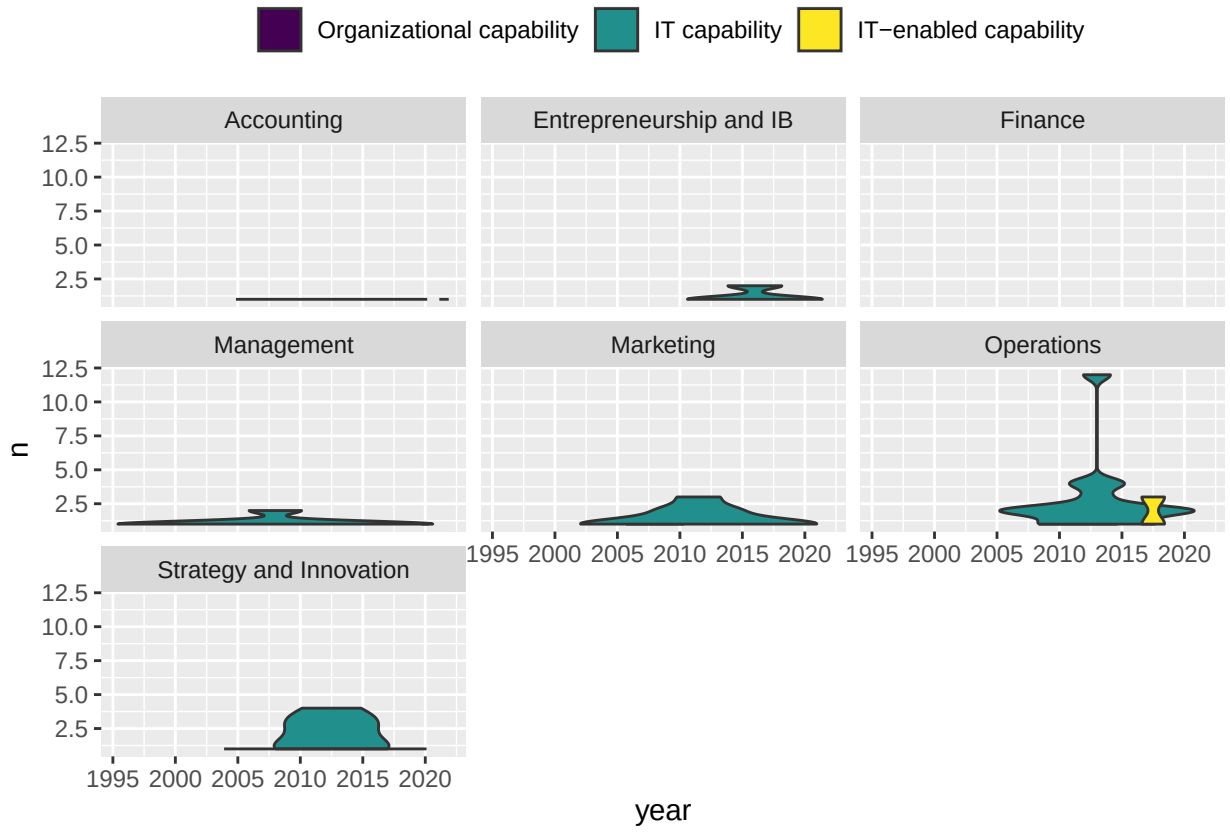

Figure 4: Distribution over time across disciplines other than IS 1990 to 2022

Digital doesn't appear in the chart as there is only 1 article with that construct in the non-IS disciplines. For these disciplines the IT capability construct is the focus of the majority of the research paper.

We now look at the trend of the constructs to identify if there are some changes in the past year on the construct focus.

```
## `geom_line()`: Each group consists of only one observation.
## i Do you need to adjust the group aesthetic?
```

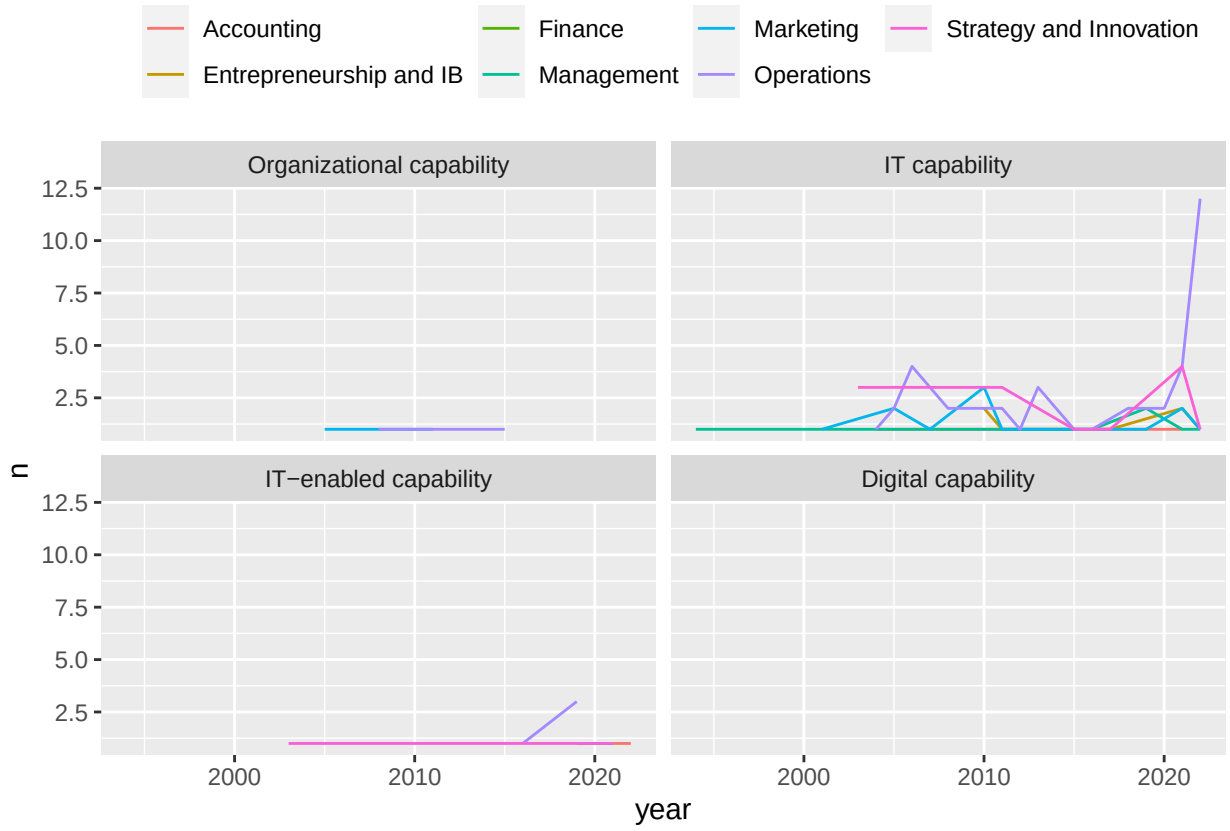

Figure 5: Non-IS disciplines use of construct over time 1990 to 2022

```
## `geom_line()`: Each group consists of only one observation.
## i Do you need to adjust the group aesthetic?
```

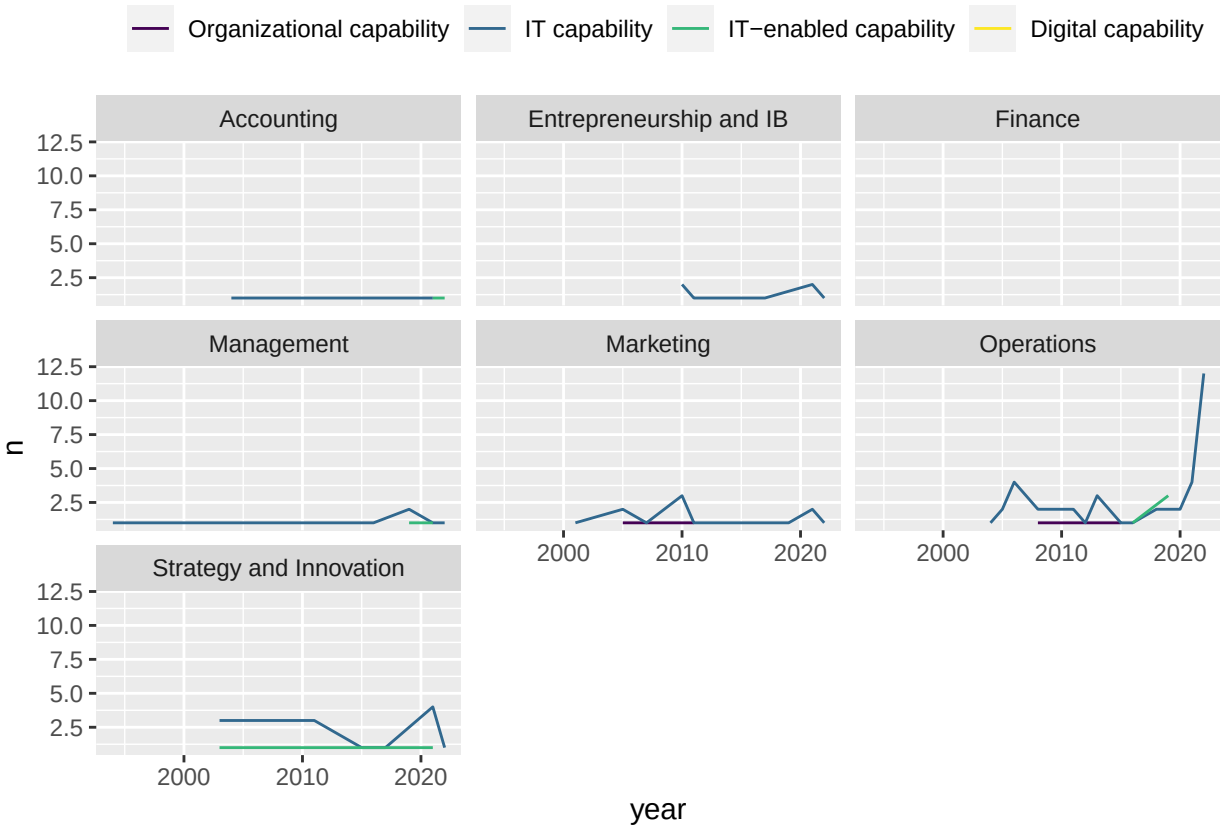

Figure 6: Constructs use over time across disciplines other than IS 1990 to 2022

Another way to look at construct use over time is to leverage scatterplots in combination of stairstep plot. In this case we look at two chart the first one in which we facet by construct and the second in which we facet by disciplines. *not completed ignore for now*

```
## `geom_path()`: Each group consists of only one observation.
## i Do you need to adjust the group aesthetic?
```

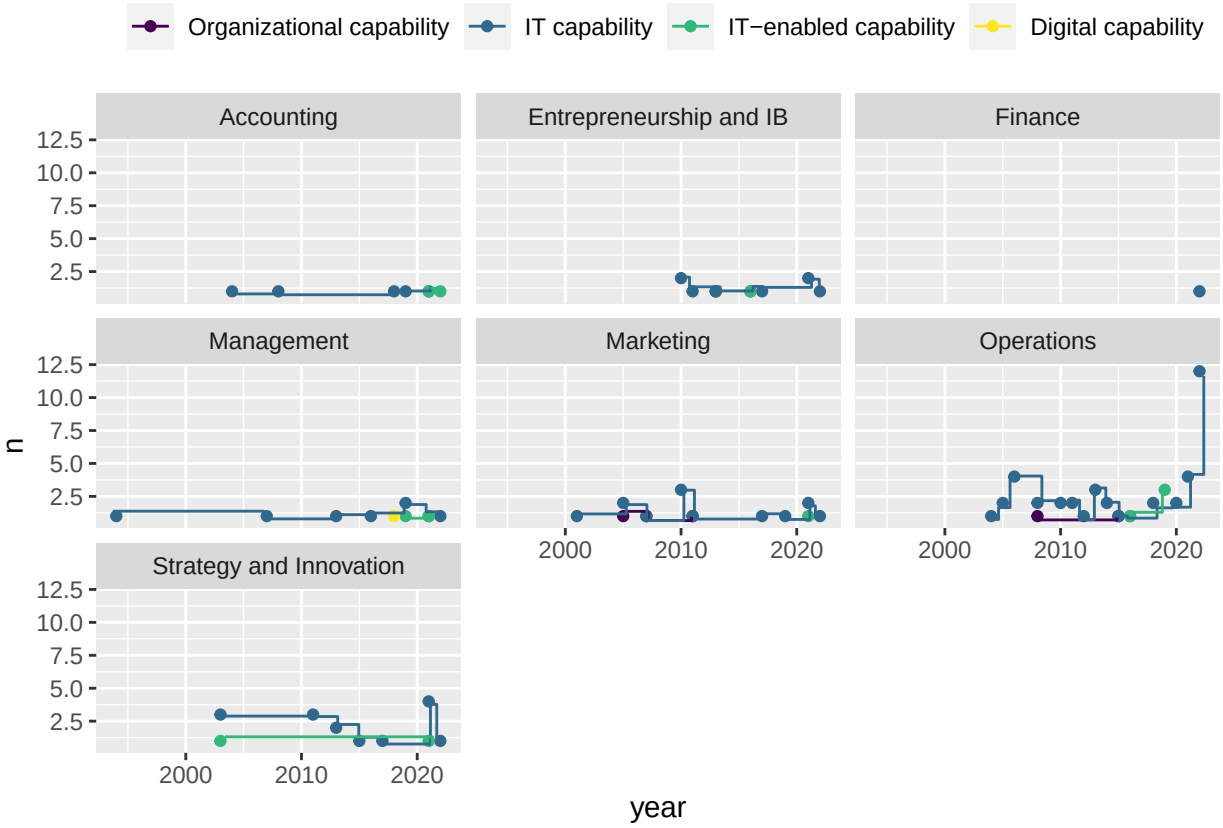

Figure 7: Stairstep plot of constructs use over time across disciplines other than IS 1990 to 2022

```
## `geom_path()`: Each group consists of only one observation.
## i Do you need to adjust the group aesthetic?
```

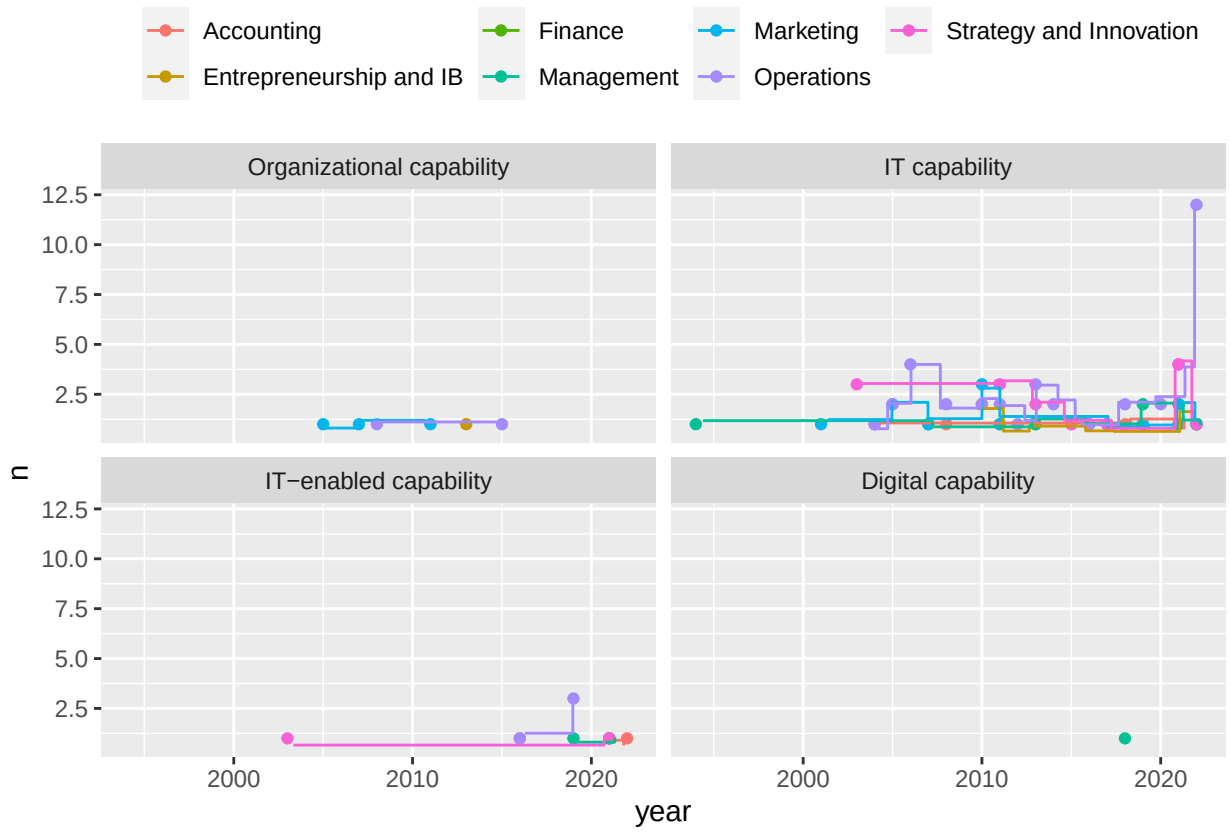

Figure 8: Stairstep plot of non-IS disciplines use of construct over time 1990 to 2022

c. Use of the constructs by research type (empirical or theoretical) This analysis is on hold as only 4 paper has been classified and all 4 are empirical studies

```
## # A tibble: 2 x 2
## # Groups:   type_of_article [2]
##   type_of_article     n
##   <chr>           <int>
## 1 Empirical           4
## 2 <NA>              703
```

TO DO

3. Topic analysis

a. Topic clustering of the definitions and our categories This should be highly congruent (this would corroborate that our manual analysis is reflected in the definitions). Since we used the definitions as the basis of the categorization, they should, but this is a very tricky type of analysis, so I will not be surprised if it does not

b. Topic clustering of the definitions to map out. This is the core of our analysis (using the seed words) and it should show that people use terminology "ad cazzum". Once the clustering is done, we have the macro categories as they emerge from the literature. We then can compare their congruence with the theory driven categorization we did.

4. Key word analysis sui nomi dei costrutti.

Per esempio word count del termine *DIGITAL* nel nome del costrutto e correlazione con la nostra classificazione (quante volte costrutti che usano DIGITAL sono classificati da noi come Digital resources)

Tabella keywords per dimostrare digital usato male

Creare framework su digital

a. Analisi simile con altre keywork di interesse (ci devo pensare a quali siano). Tu intanto imposta una sezione del report dove possiamo fare questa cosa con dynamic reporting