

Term2_20172378_썼썼由

201721378 썼썼由

2018년 12월 3주

미국 크라우드 펀딩 사이트 'Kickstarter' 분석

선정 계기

- '아메리카 드림'이라는 말처럼 우리는 한번쯤 미국에서의 성공을 꿈꾸고는 한다. 미국에서 창업을 시작할 수 있는 다양한 방법 중에 하나로 자본금이 별로 없어도 실행할 수 있는 '크라우드 펀딩'이 있다. 하지만 우리는 미국에서 어떤 제품이 인기가 있고, 성공률이 높은지 컨텐츠를 결정하는 데에 있어 어려움을 느낄 수 있다. 따라서, 미국의 크라우드 펀딩 대표 사이트인 'kickstarter'의 다양한 제품군들을 비교, 분석하여 미국에서 창업을 시도하려는 이들에게 제언하려고 한다.

패키지 및 실행

```
library(tidyverse)
```

```
## -- Attaching packages ----- tidyverse 1.2.1 --
```

```
## ✓ ggplot2 3.1.0      ✓ purrr   0.2.5
## ✓ tibble  1.4.2      ✓ dplyr   0.7.6
## ✓ tidyr   0.8.2      ✓ stringr 1.3.1
## ✓ readr   1.2.1      ✓ forcats 0.3.0
```

```
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()   masks stats::lag()
```

```
library(devtools)
library(dplyr)
library(tidyr)
library(knitr)
library(magrittr)
```

```
##
## Attaching package: 'magrittr'
```

```
## The following object is masked from 'package:purrr':
## 
##     set_names
```

```
## The following object is masked from 'package:tidyঁ':
##
##     extract
```

```
#시각화, 크롤링 패키지.
library(lubridate)
```

```
##
## Attaching package: 'lubridate'
```

```
## The following object is masked from 'package:base':
##
##     date
```

```
library(ggplot2)
library(gplots)
```

```
##
## Attaching package: 'gplots'
```

```
## The following object is masked from 'package:stats':
##
##     lowess
```

```
library(plotly)
```

```
##
## Attaching package: 'plotly'
```

```
## The following object is masked from 'package:ggplot2':
##
##     last_plot
```

```
## The following object is masked from 'package:stats':
##
##     filter
```

```
## The following object is masked from 'package:graphics':
##
##     layout
```

```
library(tm)
```

```
## Loading required package: NLP
```

```
##  
## Attaching package: 'NLP'
```

```
## The following object is masked from 'package:ggplot2':  
##  
##     annotate
```

```
library(wordcloud)
```

```
## Loading required package: RColorBrewer
```

```
##  
## Attaching package: 'wordcloud'
```

```
## The following object is masked from 'package:gplots':  
##  
##     textplot
```

```
library(gplots)  
library(Amelia)
```

```
## Loading required package: Rcpp
```

```
## ##  
## ## Amelia II: Multiple Imputation  
## ## (Version 1.7.5, built: 2018-05-07)  
## ## Copyright (C) 2005-2018 James Honaker, Gary King and Matthew Blackwell  
## ## Refer to http://gking.harvard.edu/amelia/ for more information  
## ##
```

```
library(NLP)  
library(SnowballC)  
library(ggthemes)
```

- 데이터 불러오기.

```
kstart<-read.csv("kick_fix.csv",stringsAsFactors = F)  
sapply(kstart, function(x) sum(is.na(x)))
```

```

##           ID      name   category main_category    currency
##           0       1        0          0            0
## deadline deadline_time     goal      launched launched_time
##           0       0        0          0            0
##      pledged      state   backers   country   usd.pledged
##           0       0        0          0            3788

```

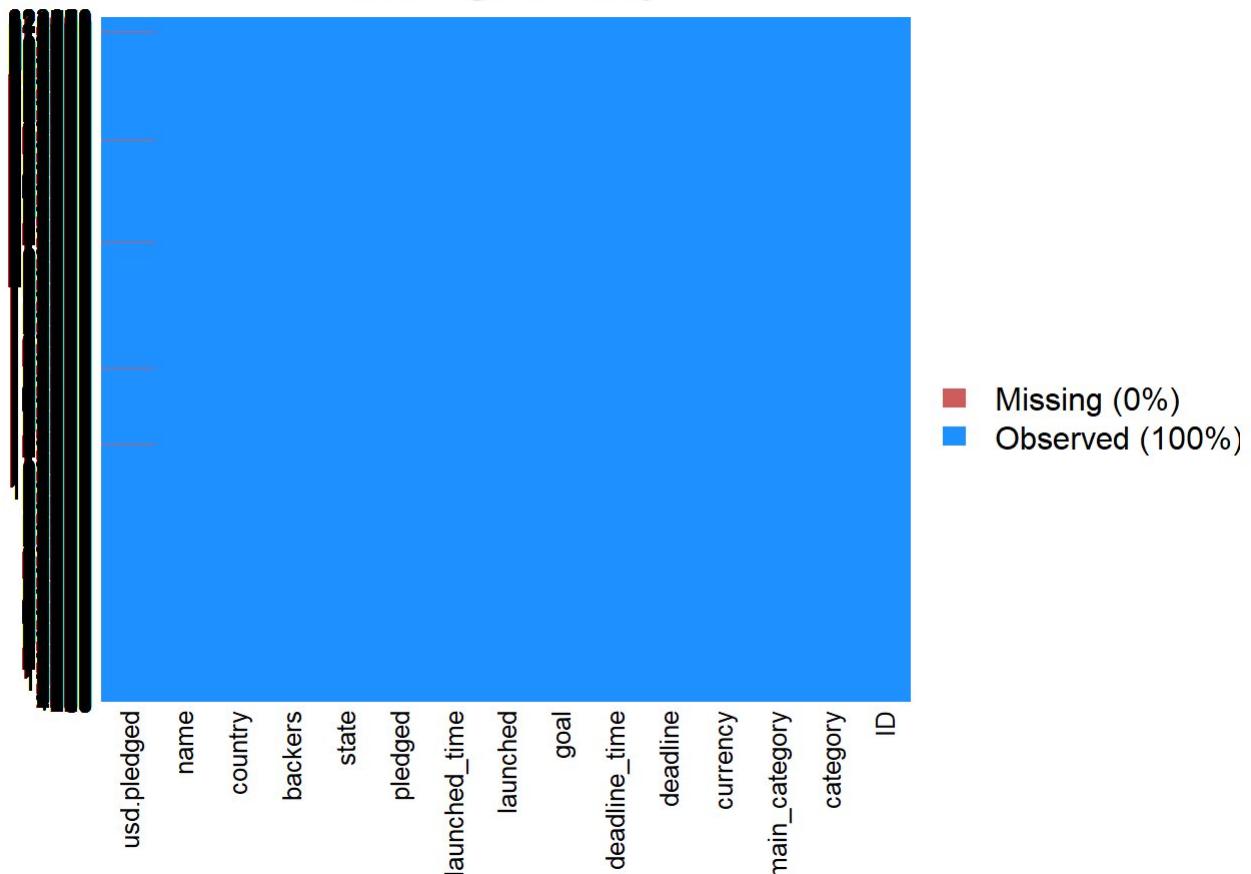
#NA값 확인

#usd.pledged가 많은 NA행을 가지고 있지만 데이터의 크기가 충분하기 때문에 NA를 가진 행 자체를 삭제하기로 한다.

- NA값 시각적으로 확인.

```
missmap(kstart)
```

Missingness Map



전처리

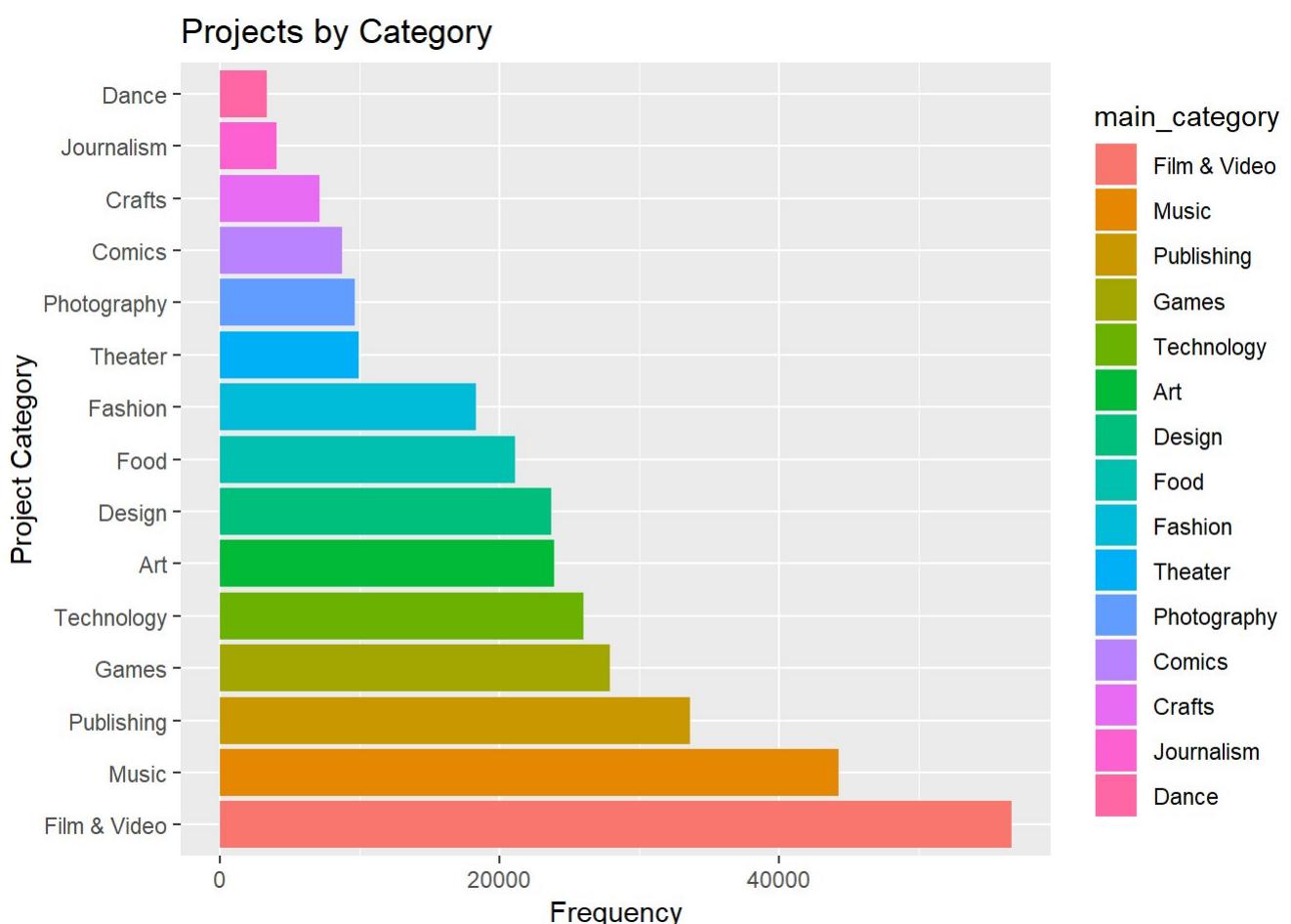
```
kstart=na.omit(kstart)
#NA값 삭제
kstart$goal<-as.numeric(kstart$goal)
kstart$pledged<-as.numeric(kstart$pledged)
kstart$deadline<-as.Date(kstart$deadline)
kstart$launched<-as.Date(kstart$launched)
```

카테고리 빈도수

```
cat.freq <- kstart %>%
  group_by(main_category) %>%
  summarize(count=n()) %>%
  arrange(desc(count))

cat.freq$main_category <- factor(cat.freq$main_category, levels=cat.freq$main_category)

ggplot(cat.freq, aes(main_category, count, fill=main_category)) + geom_bar(stat="identity") +
  ggtitle("Projects by Category") + xlab("Project Category") + ylab("Frequency") + coord_flip()
```



#카테고리 빈도수로 그래프를 그려보았을 때 *Film*이 가장 높은 빈도수를 나타내고 있음을 알 수 있다.

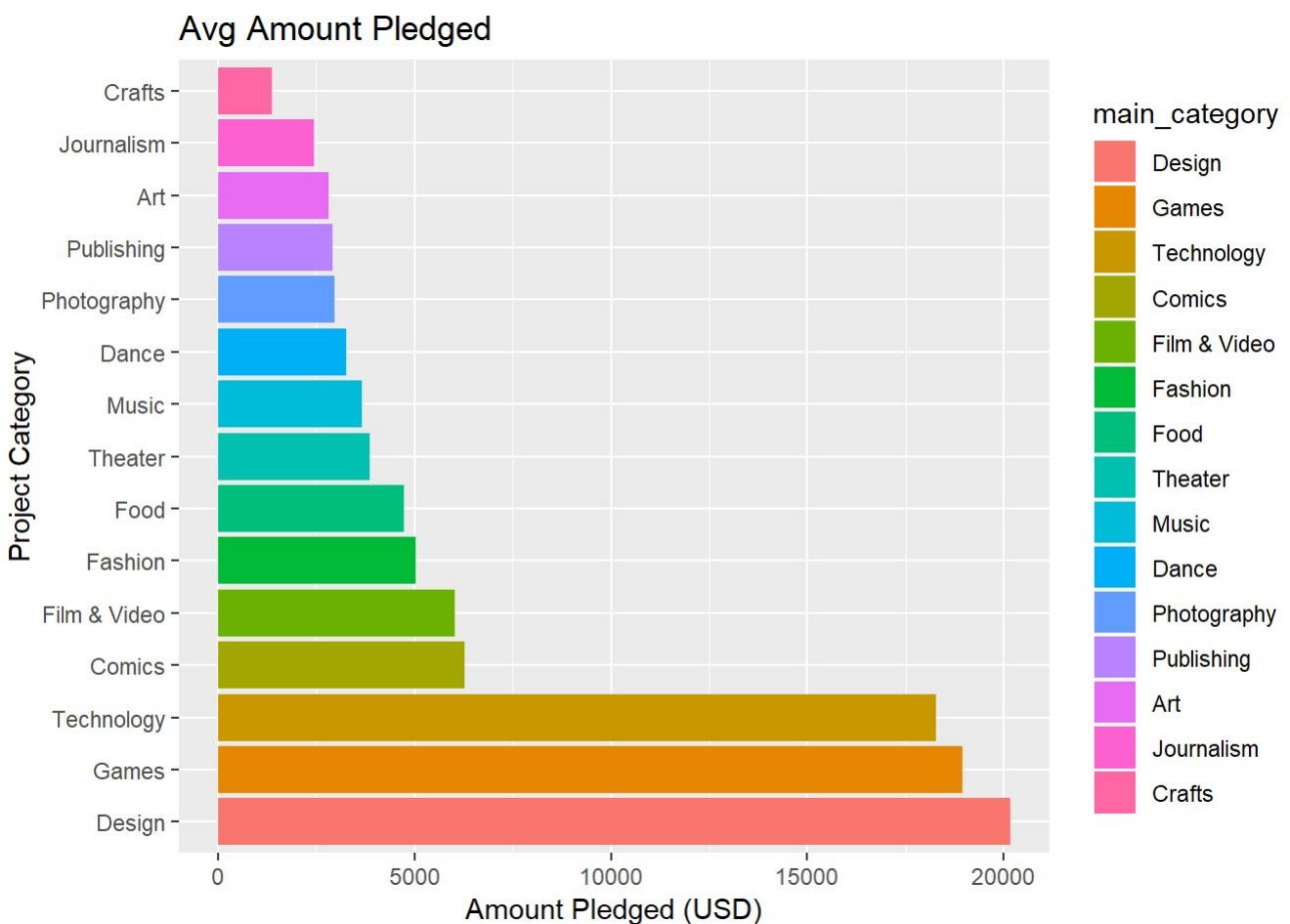
카테고리별 후원금 평균액

```
pledged.avg <- kstart %>% select(main_category, usd.pledged)%>%
  group_by(main_category) %>%
  summarise_each(funs(mean))%>%arrange(desc(usd.pledged))
```

```
## `summarise_each()` is deprecated.
## Use `summarise_all()`, `summarise_at()` or `summarise_if()` instead.
## To map `fun` over all variables, use `summarise_all()`
```

```
pledged.avg$main_category <- factor(pledged.avg$main_category, levels=pledged.avg$main_catego
ry)
```

```
ggplot(pledged.avg, aes(main_category, usd.pledged, fill=main_category)) + geom_bar(stat="ide
ntity") +
  ggtitle("Avg Amount Pledged") + xlab("Project Category") +
  ylab("Amount Pledged (USD)") +coord_flip()
```



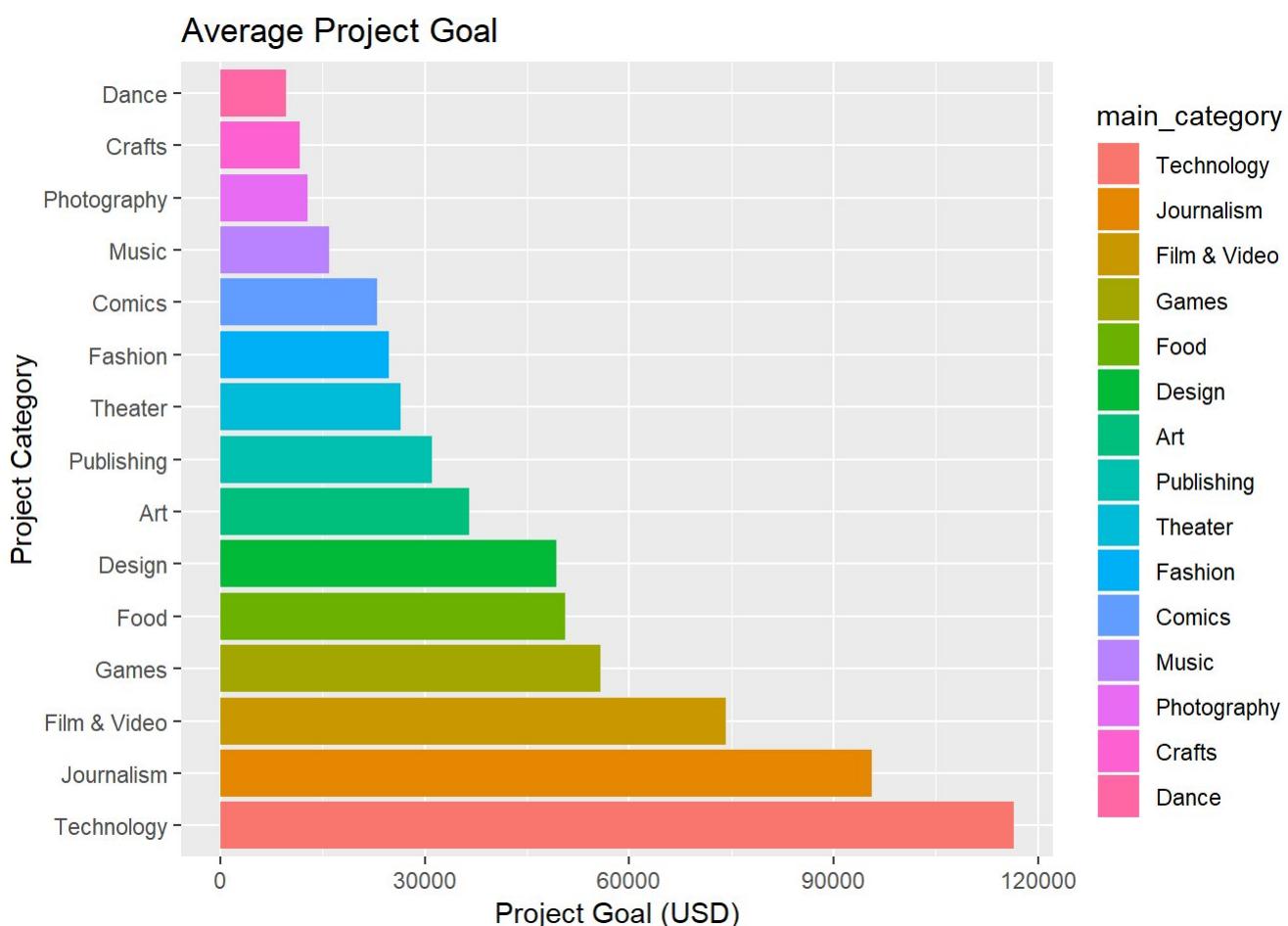
#그러나 빈도수그래프와 상반되게 카테고리별 후원금 평균액은 디자인과 게임, 기술이 순서대로 높음을 알 수 있다. 이를 통해, 창업자에게 시도하기 쉬운 카테고리와 관중들에게 관심을 받는 카테고리는 다를 수 있음을 알 수 있다.

카테고리별 goal 평균 바그래프

```
goal.avg <- kstart %>%group_by(main_category) %>%summarize(goal=sum(goal), projects=n()) %>%mutate(avg=goal/projects) %>%arrange(desc(avg))

goal.avg$main_category <- factor(goal.avg$main_category, levels=goal.avg$main_category)

ggplot(goal.avg, aes(main_category, avg, fill=main_category)) + geom_bar(stat="identity") +
  ggtitle("Average Project Goal") + xlab("Project Category") + ylab("Project Goal (USD)")+coord_flip()
```



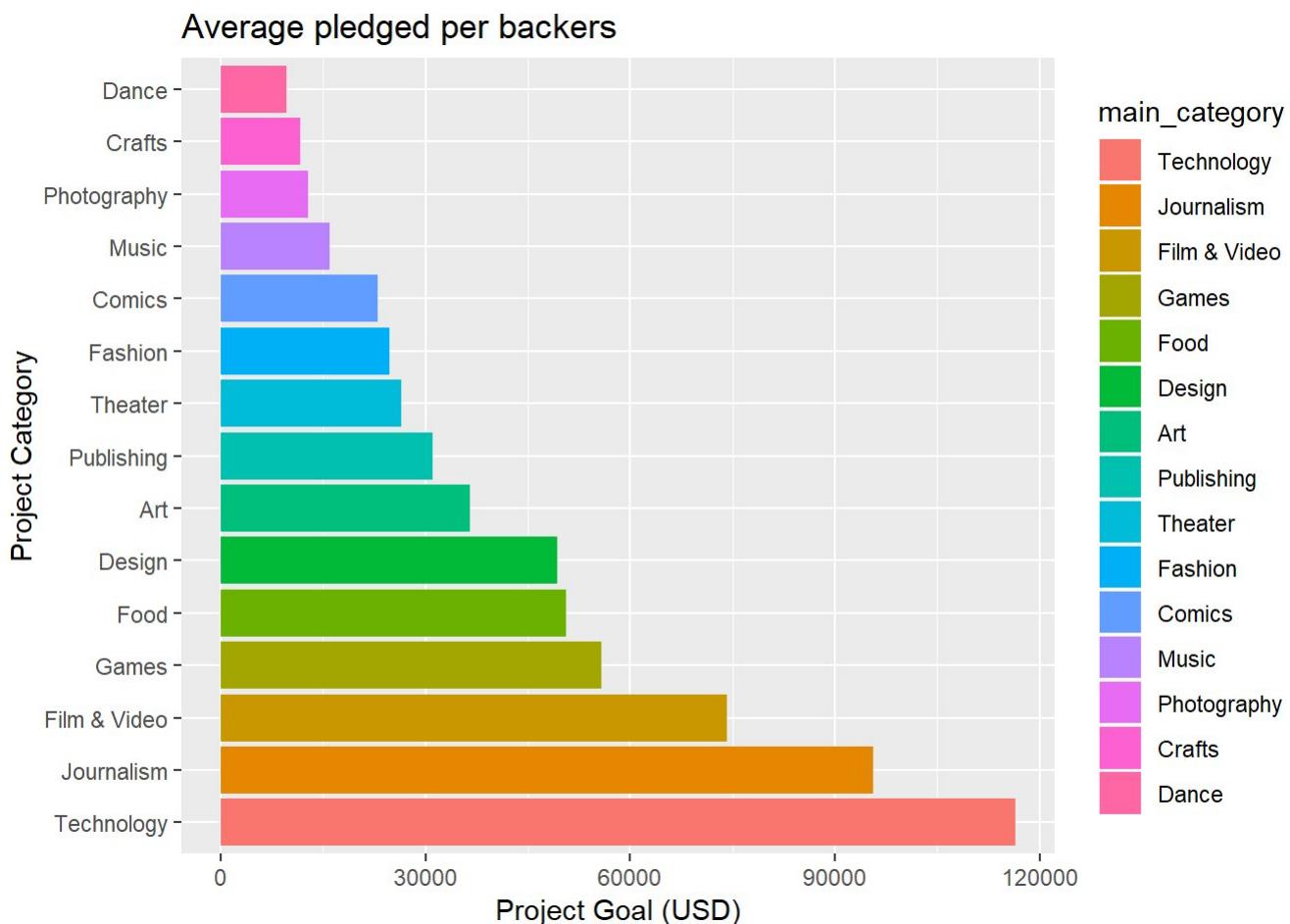
#평균적으로 기술분야와 저널리즘, 필름 카테고리가 평균적으로 목표로 하는 금액이 높다.

후원자별 후원금액

```
goal.avg <- kstart %>%group_by(main_category) %>%
  summarize(goal=sum(goal), projects=n()) %>%
  mutate(avg=goal/projects) %>%
  arrange(desc(avg))

goal.avg$main_category <- factor(goal.avg$main_category, levels=goal.avg$main_category)

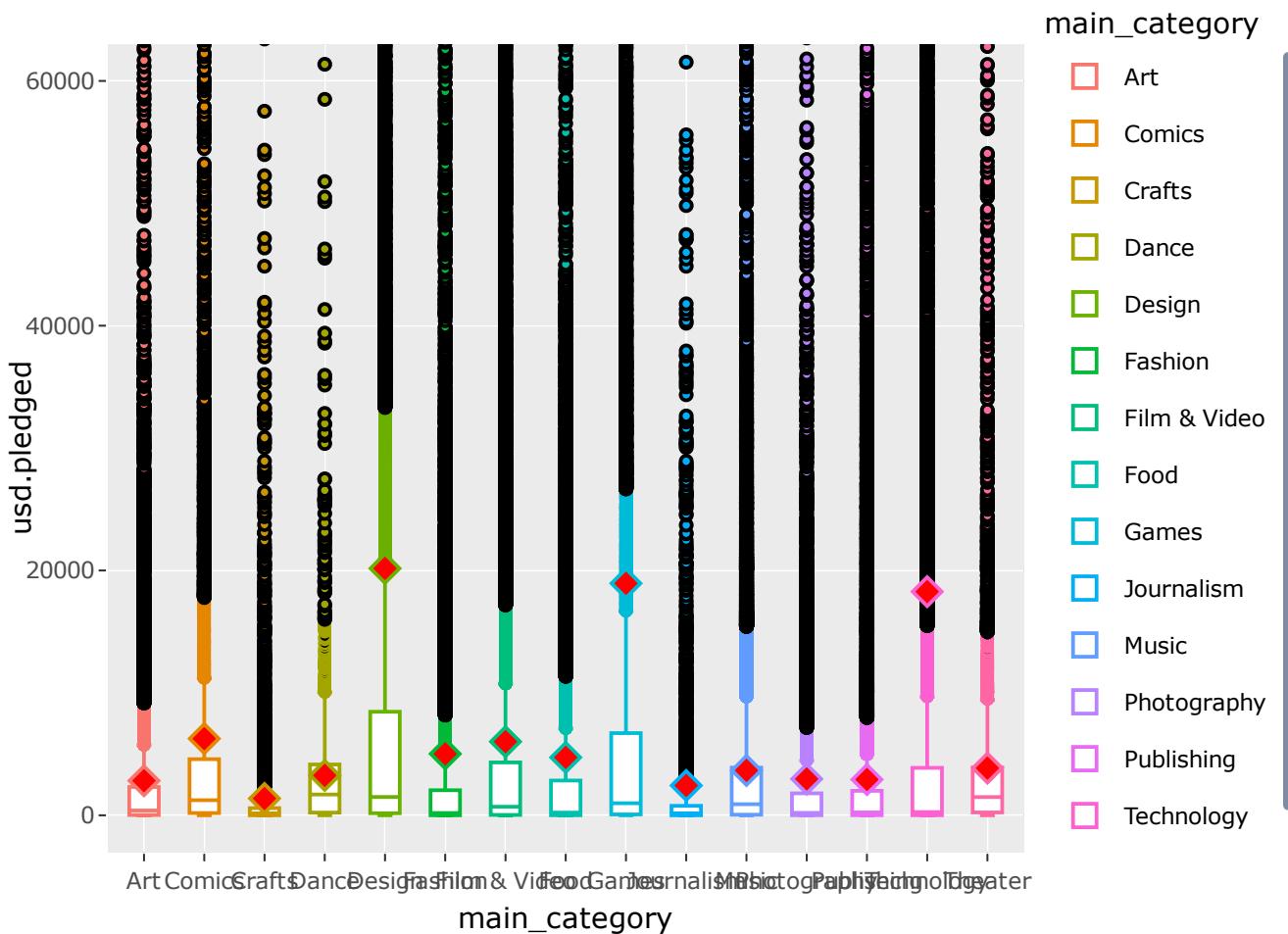
ggplot(goal.avg, aes(main_category, avg, fill=main_category)) + geom_bar(stat="identity") +
  ggtitle("Average pledged per backers") + xlab("Project Category") + ylab("Project Goal (USD)")+coord_flip()
```



#각 카테고리마다 후원자의 평균금액이 기술, 저널리즘, 필름등의 순으로 높게 나타났다. 전체 후원금의 총액은 낮지만 후원자별 후원금액은 높게 나타난 필름과 저널리즘 분야의 경우 매니아 층이 깊게 자리잡고 있음을 알 수 있다. 게임분야가 제품의 빈도수가 적어 경쟁하기 용이한 반면에 상대적으로 후원금의 평균액이 높아 다른 분야에 비해 경쟁하기 쉽다는 점을 알 수 있다.

카테고리별 후원금 박스 플롯

```
t1<-ggplot(data=kstart, aes(x=main_category, y=usd.pledged, colour=main_category))+geom_boxplot()+
  coord_cartesian(ylim = c(0,60000))+stat_summary(fun.y="mean", geom="point", shape=23, size=3, fill="red")
ggplotly(t1)
```

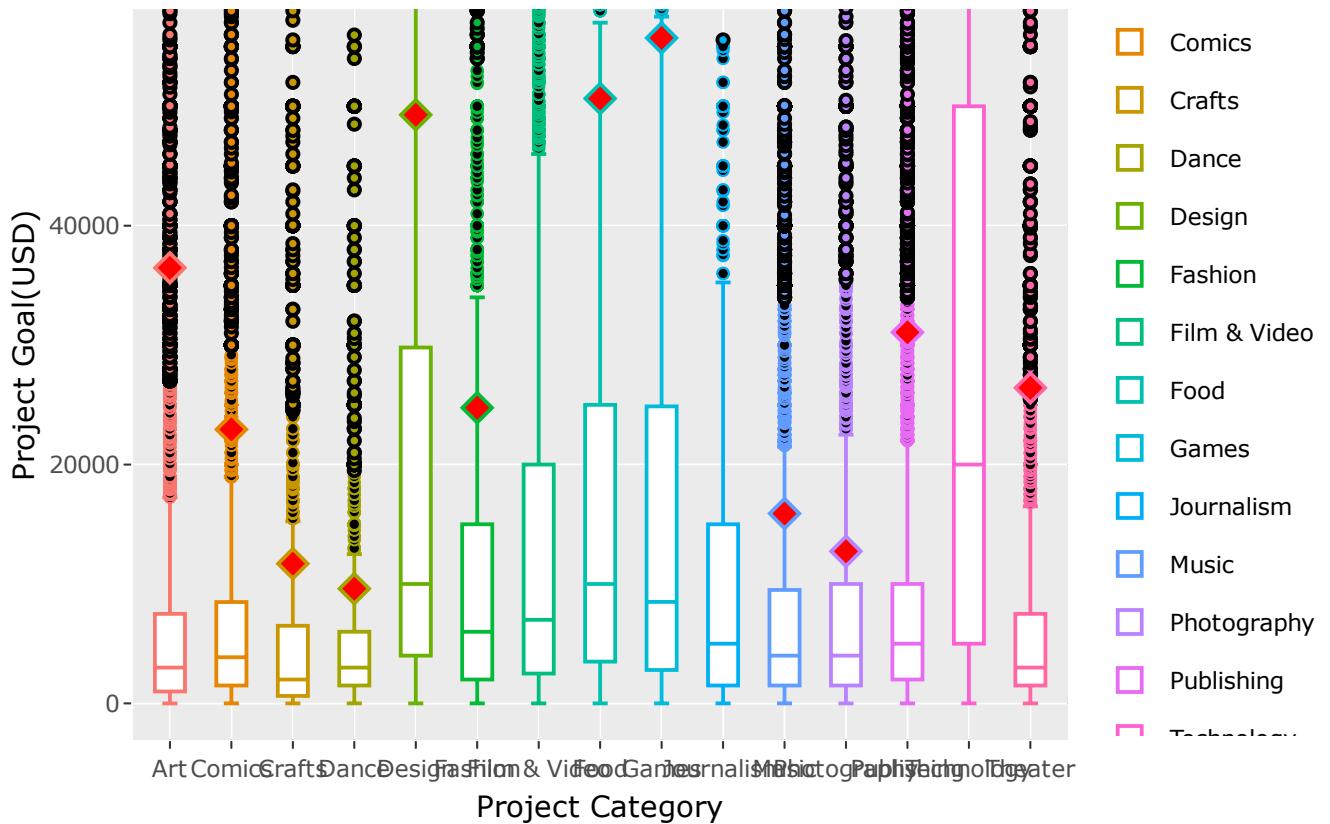


- 디자인과 게임분야가 상대적으로 높은 사분위수를 가지고 있다. 그중에서도 만화 분야는 분야별 후원금 총액이 낮음에도 불구하고 높은 사분위수와 중앙값을 가짐을 확인할 수 있다. 또한 기술분야는 많은 후원금 총액을 보유함에도 불구하고 낮은 중앙값을 보여준다. 이는 기술분야의 후원금 총액에 이상치가 많이 존재함을 의미한다. 이를 통해 기술분야가 각 제품마다 받는 후원금의 편차가 심하며, 기술 분야로 크라우드 펀딩을 진행할 경우 컨텐츠의 질이 중요함을 알 수 있다.

goal 박스플롯

```
t2<-ggplot(kstart, aes(main_category, goal, colour=main_category)) + geom_boxplot() +
  ggtitle("Project Goal vs. Project Category") + xlab("Project Category") +
  ylab("Project Goal(USD)")+coord_cartesian(ylim=c(0,60000))+stat_summary(fun.y="mean", geom =
  ="point", shape=23, size=3, fill="red")
ggplotly(t2)
```





- 기술분야가 타 분야에 비해 극단적으로 높은 사분위수와 평균값을 가지고 있다. 이는 기술분야로 제품을 출시할 경우 초기자본이 타 분야에 비해 많이 필요하다는 것을 의미한다. 또한 디자인과 음식분야 또한 높은 사분위수와 평균값을 가진다.

목표금액과 실제 성공가액 분포도 산출

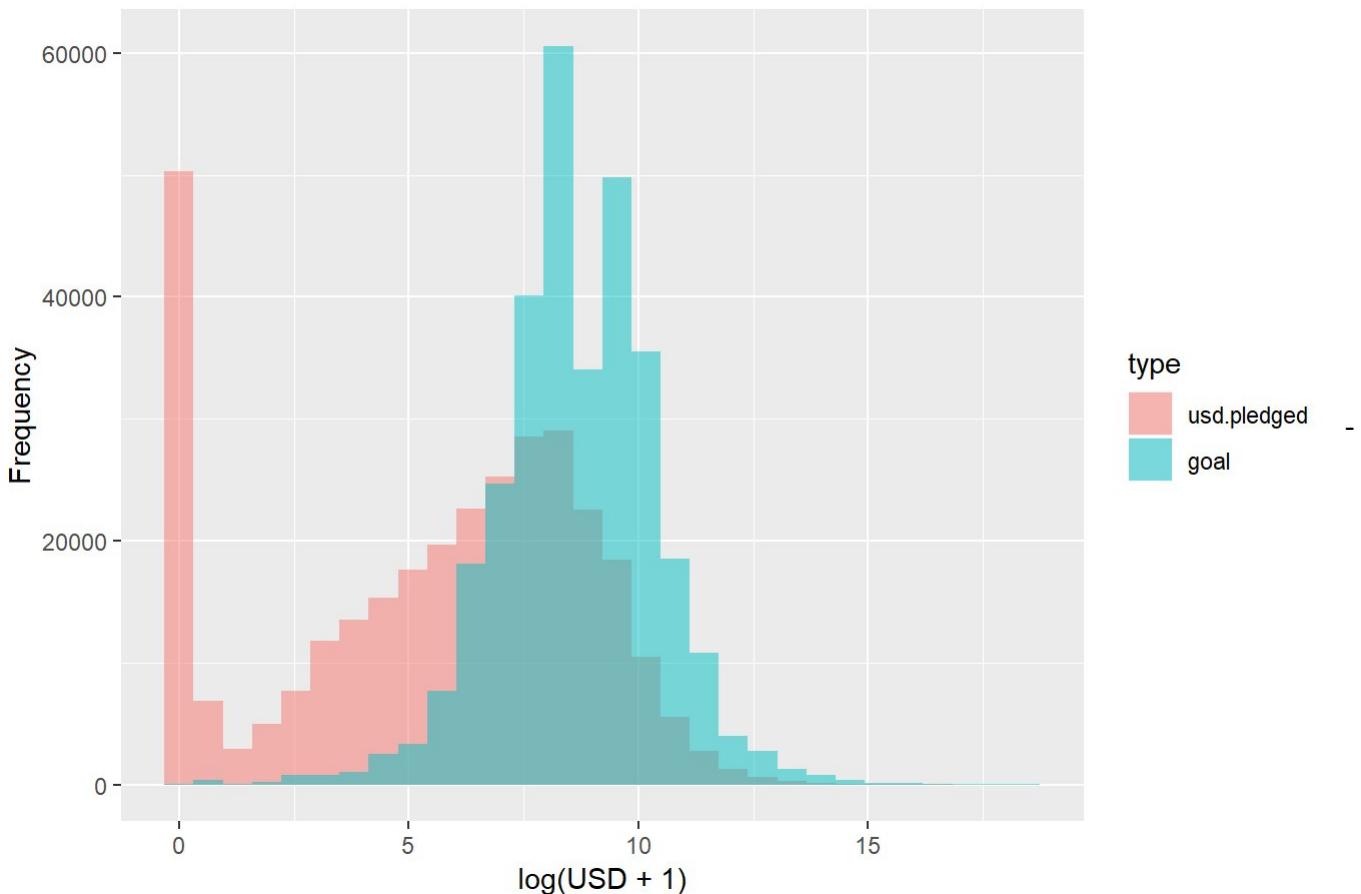
#자금 조달이 거의 이루어지 않은 프로젝트와 극단적으로 높은 특이치로 인해 두 분포가 안맞으므로 로그변환을 사용하려고 한다.

```
usd.amounts <- gather(kstart, type, amount, usd.pledged, goal, factor_key=T)
```

```
ggplot(usd.amounts, aes(log(amount+1), fill=type)) +geom_histogram(alpha=0.5, position="identity") +
  ggtitle("Distribution of log(USD Pledged) vs. log(USD Goal)") + xlab("log(USD + 1)") +
  ylab("Frequency")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

Distribution of log(USD Pledged) vs. log(USD Goal)



실제로 전체 목표금액과 실제 성공가액의 분포도를 통해 비교하면 이상과 현실의 차이를 크게 볼 있다. 목표금액의 분포도의 경우 정규 분포를 띠고 있지만, 실제 성공가액의 그래프의 경우 아예 후원을 받지 못하거나 받더라도 기존의 목표액에 미치지 못하는 경우가 많다.

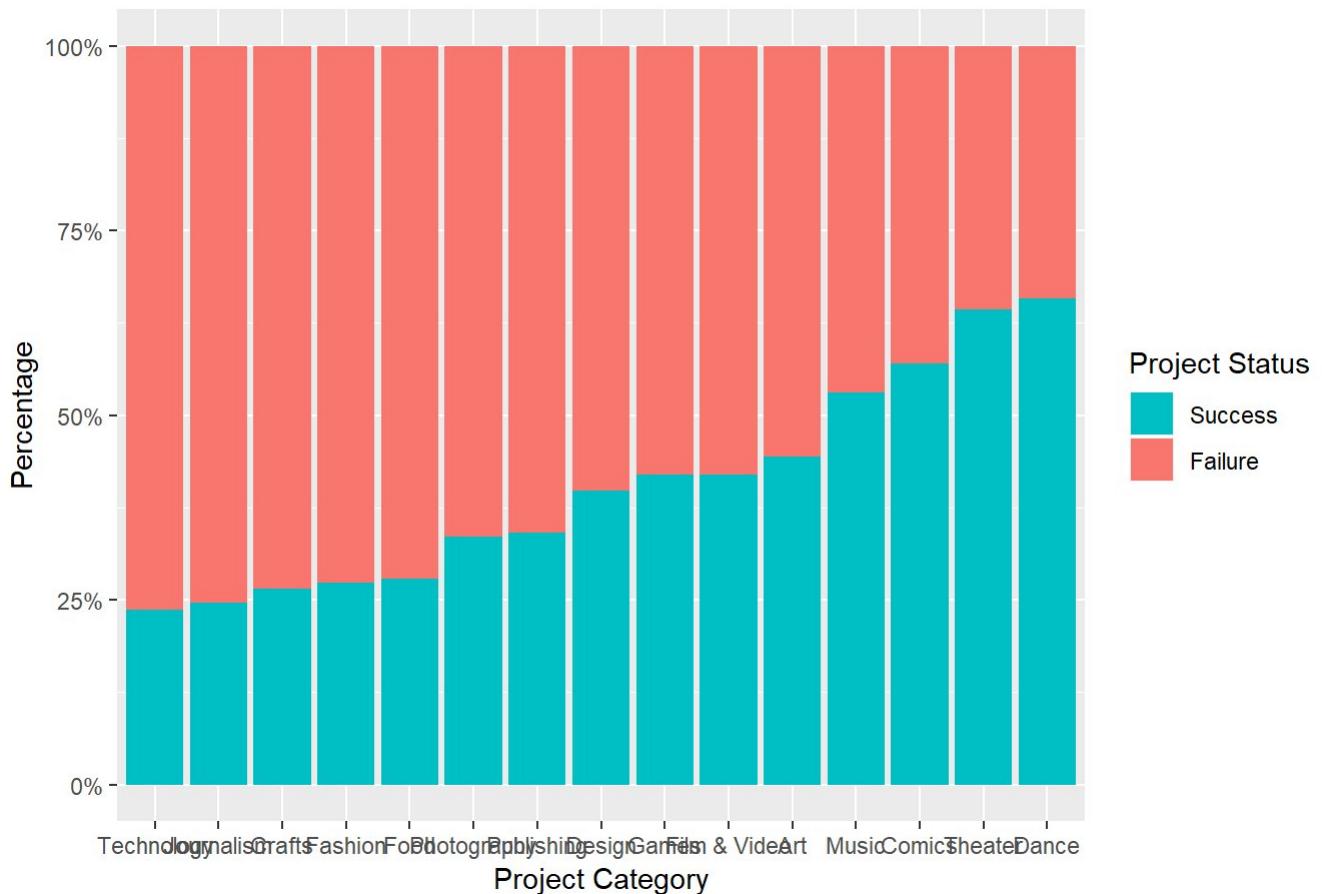
성공비율

```
state.pct <- kstart %>%
  filter(state %in% c("successful", "failed")) %>%
  group_by(main_category, state) %>%
  summarize(count=n()) %>%
  mutate(pct=count/sum(count)) %>%
  arrange(desc(state), pct)

state.pct$main_category <- factor(state.pct$main_category,
                                    levels=state.pct$main_category[1:(nrow(state.pct)/2)])
```

```
ggplot(state.pct, aes(main_category, pct, fill=state)) + geom_bar(stat="identity") +
  ggtitle("Success vs. Failure Rate by Project Category") +
  xlab("Project Category") + ylab("Percentage") + scale_y_continuous(labels=scales::percent) +
  scale_fill_discrete(name="Project Status", breaks=c("successful", "failed"),
                      labels=c("Success", "Failure"))
```

Success vs. Failure Rate by Project Category



#성공률과 프로젝트 기간의 연관관계

```
term<-kstart$launched--%kstart$deadline
```

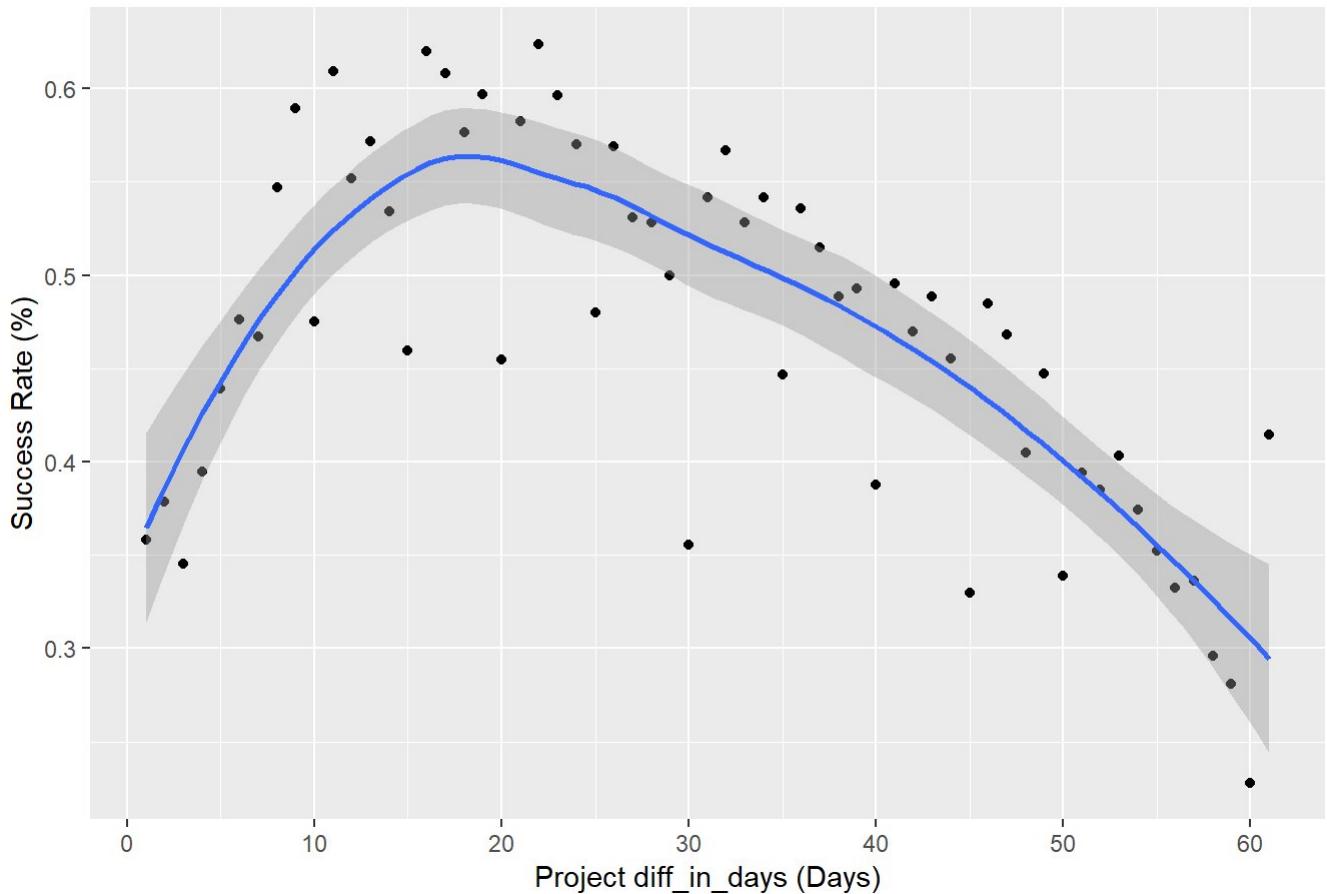
```
kstart$diff_in_days<- difftime(kstart$deadline ,kstart$launched , units = c("days"))
```

```
diff_in_days.pct <- kstart %>%filter(state %in% c("successful", "failed"), diff_in_days <= 61) %>%
  group_by(diff_in_days, state) %>%
  summarize(count=n()) %>%
  mutate(pct=count/sum(count))
```

```
ggplot(diff_in_days.pct[diff_in_days.pct$state=="successful",], aes(diff_in_days, pct)) +
  geom_point() + ggtitle("프로젝트일수가 성공률에 영향을 미치는가") +xlab("Project diff_in_days (Days)") + ylab("Success Rate (%)") +
  scale_x_continuous(breaks=c(0,10,20,30,40,50,60)) + geom_smooth()
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```

프로젝트 일수가 성공률에 영향을 미치는가



크라우드 펀딩을 시작할 경우 중요한 또 한가지 요인은 바로 기간의 선정이다. 프로젝트 일수를 x축에, 성공비율을 y축에 두어 상관관계를 분석해보았다. 실제로 20일을 기점으로 시간이 지날수록 성공할 확률이 줄어드는 것을 시각적으로 확인할 수 있다.

워드 클라우드 분석

텍스트 마이닝에 필요한 함수.

- 성공비율이 높은 분야와 낮은 분야에서 성공한 제품을 워드 클라우드를 통해 키워드를 분석

```
temp<-function(x){  
  tech_corpus<-Corpus(VectorSource(x))  
  tech_clean<-tm_map(tech_corpus, PlainTextDocument)  
  tech_clean<-tm_map(tech_corpus, tolower)  
  tech_clean<-tm_map(tech_clean, removeNumbers)  
  tech_clean<-tm_map(tech_clean, removeWords, stopwords("english"))  
  tech_clean<-tm_map(tech_clean, removePunctuation)  
  tech_clean<-tm_map(tech_clean, stripWhitespace)  
  tech_clean<-tm_map(tech_clean, stemDocument)  
}
```

```
#deadline으로 년도 추출한후 kstart에 열을 추가한다.  
kstart$year<-year(kstart$deadline)
```

기술 분야 제품 워드 클라우드

```
#기술분야에서 성공한 제품  
suc_tech_txt<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(state=="successful")%>%select(.,name)  
  
suc_tech_txt<-temp(suc_tech_txt)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops  
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
wordcloud(suc_tech_txt,max.words=200,random.color=T,random.order=F)
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): generat could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): technolog could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): compat could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): desktop could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): clock could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): motion could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): next could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): pedal could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): track could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): interact could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): reinvent could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): save could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): smallest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): smartest could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): student could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): advanc could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): energi could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): experi could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): need could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): share could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): adapt could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): custom could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): internet could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): magnet could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): monitor could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): pocket could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): display could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): never could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): virtual could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): without could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): world<a9> could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): adventur could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): circuit could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): engin could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): perfect could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): record could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): social could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): tracker could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): base could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): chang could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): filament could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): makerspac could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): programm could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): python could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): realiti could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): scienc could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): communiti could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): keyboard could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): product could not be fit on page. It will not be  
## plotted.
```

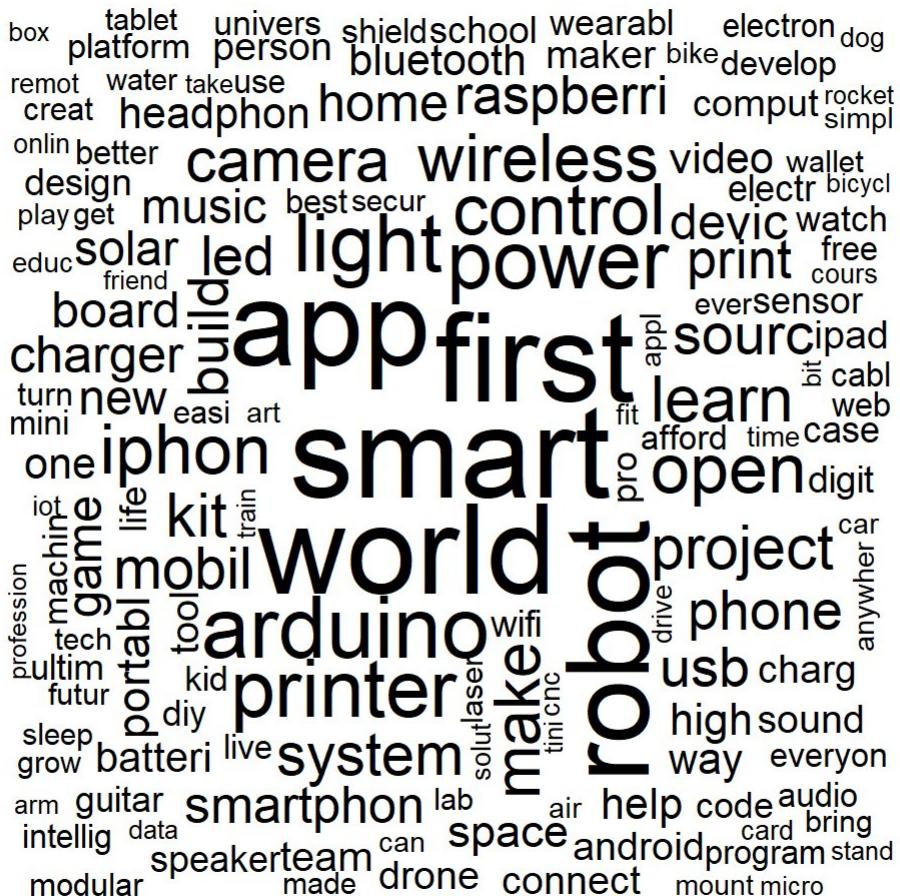
```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): screen could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): support could not be fit on page. It will not be  
## plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): thing could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): touch could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(suc_tech_txt, max.words = 200, random.color = T,  
## random.order = F): wheel could not be fit on page. It will not be plotted.
```



#기술분야에서 실패한 제품

```
bad_tech_txt<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(state=="failed")%>%select(.,name)
```

```
bad_tech_txt<-temp(bad_tech_txt)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops  
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation  
## drops documents
```

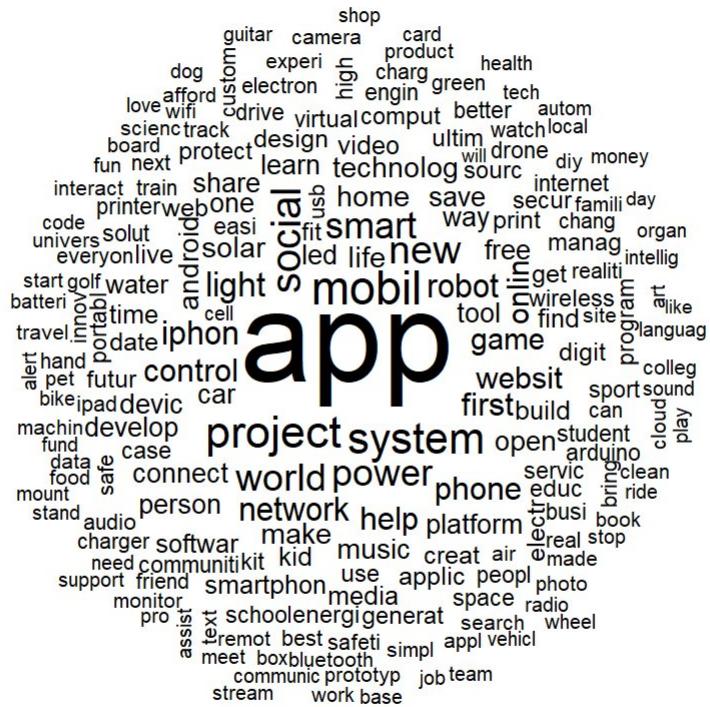
```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
wordcloud(bad_tech_txt,max.words=200,random.color=T,random.order=F)
```



기술분야에서 성공제품은 first, robot, smart, solar 등이 많이 나왔다. 이를 통해 미국에서는 태양 에너지에 대한 관심이 높고 기술분야에서 제품을 마케팅할 때 first, smart와 같은 워딩을 자주 사용함을 엿볼 수 있다. 반면 실패제품의 경우 주로 어플에 관련된 제품군이 많이 속해있었다. 또한 mobile이나 social 등 커뮤니케이션에 관련된 제품군이 많이 속해있다. 그리고 단어들의 빈도수가 도드라지게 나타나보이는 것이 없는 걸로 미루어 보아 실패 제품이 트렌드를 따라가지 못하고 있음도 유추해볼 수 있다. ## 공연 분야 제품 클라우드

```
#공연분야에서 성공한 제품  
suc_dan_txt<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(state=="successful")%>%select(.,name)  
suc_dan_txt<-temp(suc_dan_txt)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops  
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

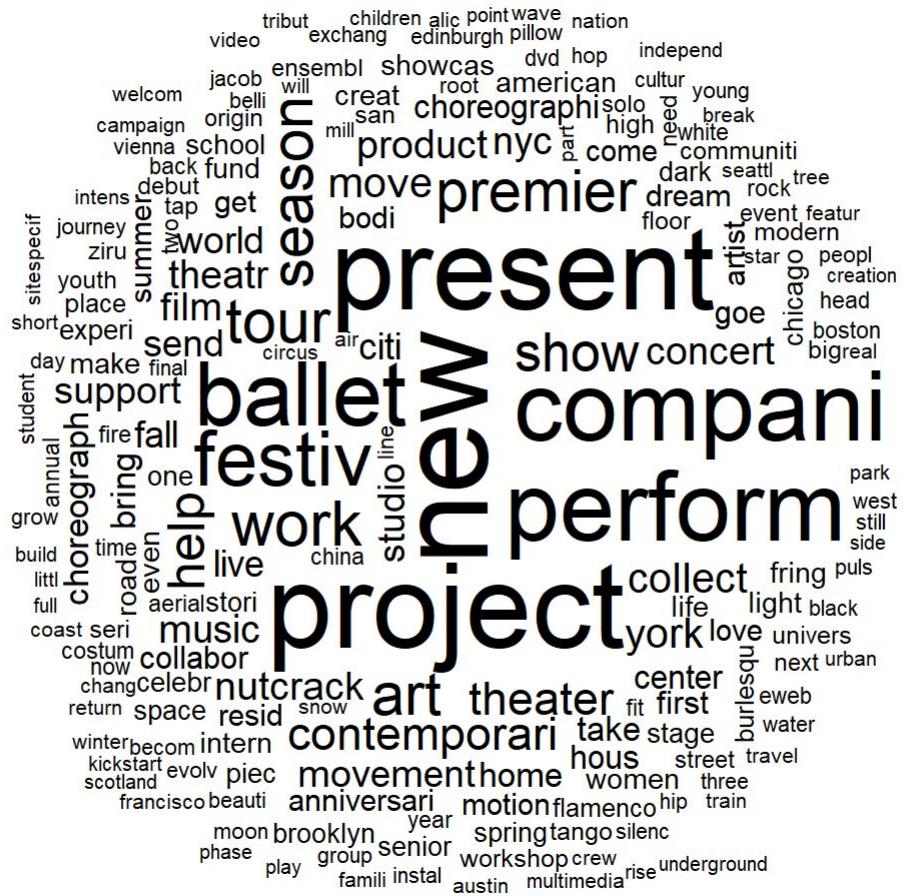
```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
suc_dan_txt<-gsub("danc","",suc_dan_txt)  
wordcloud(suc_dan_txt,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,  
## tm::stopwords())): transformation drops documents
```



#공연분야에서 실패한 제품

```
bad_dan_txt<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(status=="failed")%>%select(.,name)
bad_dan_txt<-temp(bad_dan_txt)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
bad_dan_txt<-gsub("danc","",bad_dan_txt)
wordcloud(bad_dan_txt,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,
## tm::stopwords())): transformation drops documents
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): kickstart could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): modern could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): motion could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): multimedia could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): nonprofit could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): northwest could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): origin could not be fit on page. It will not be plotted.
```

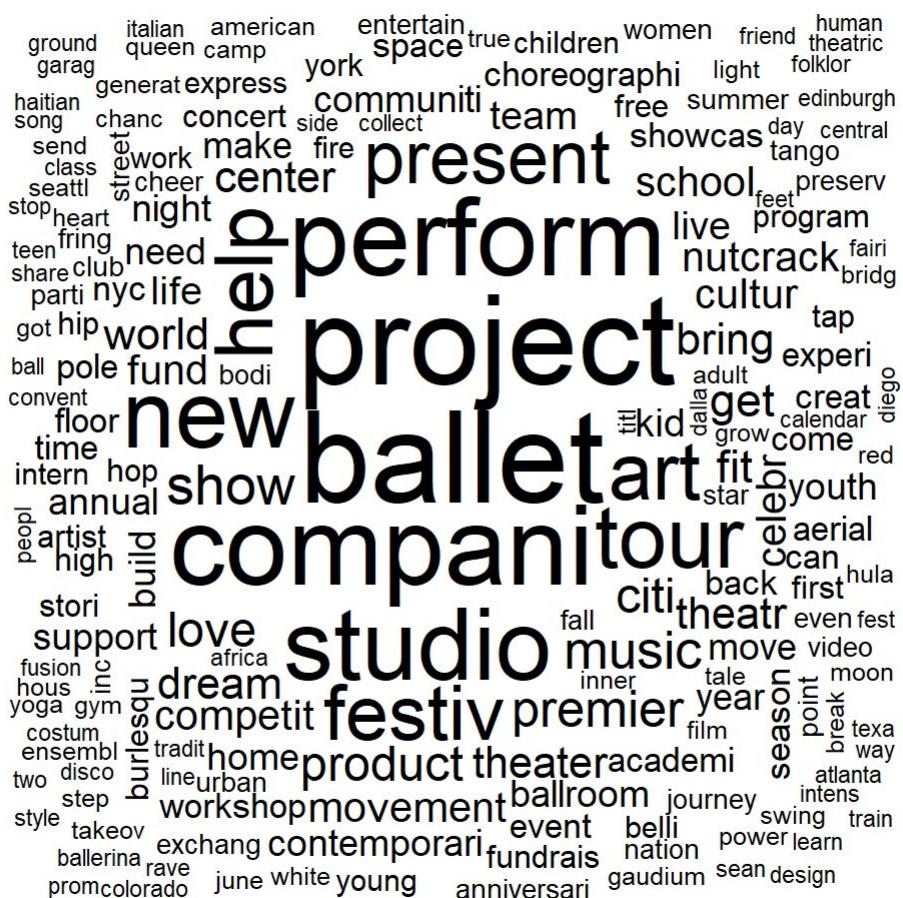
```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): partner could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): stream could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): underground could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,
## random.order = F): upon could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(bad_dan_txt, max.words = 200, random.color = T,  
## random.order = F): zombi could not be fit on page. It will not be plotted.
```



성공비율이 높았던 분야인 공연분야에서 성공했던 제품들은 주로 new, present, art, film, ballet등의 단어가 많이 추출되었다. 이를 통해 art나 film을 활용한 공연이 성공비율이 높음을 알 수 있다. 반면 실패한 공연 분야의 제품의 경우 kid, tour, ballet, compani, love, life등의 단어가 많이 추출되었다. love나 life등의 일반적인 주제로는 흥행하기 어려움을 알 수 있다. 또한 ballet이 성공과 실패 제품 모두에 공통되게 드러나 있는 것으로 보아 트랜드일 가능성이 높다.

성공비율이 낮은 기술 분야의 연도별 키워드 분석

```
#2011~2016년간 기술분야 제품 키워드 분석
```

```
tech_txt11<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(year==2011)%>%select(.,name)
```

```
tech_txt11<-temp(tech_txt11)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops  
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation  
## drops documents
```

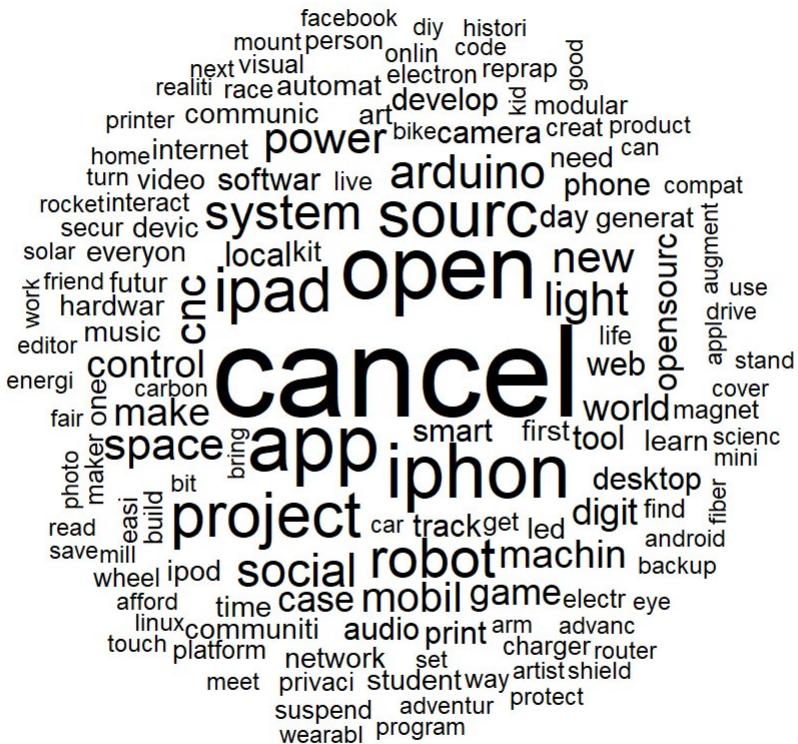
```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
wordcloud(tech_txt11,max.words=200,random.color=T,random.order=F)
```



```
tech_txt12<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(year==2012)%>%select(.,name)
tech_txt12<-temp(tech_txt12)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
wordcloud(tech_txt12,max.words=200,random.color=T,random.order=F)
```



```
tech_txt13<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(year==2013)%>%select(.,name)
tech_txt13<-temp(tech_txt13)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

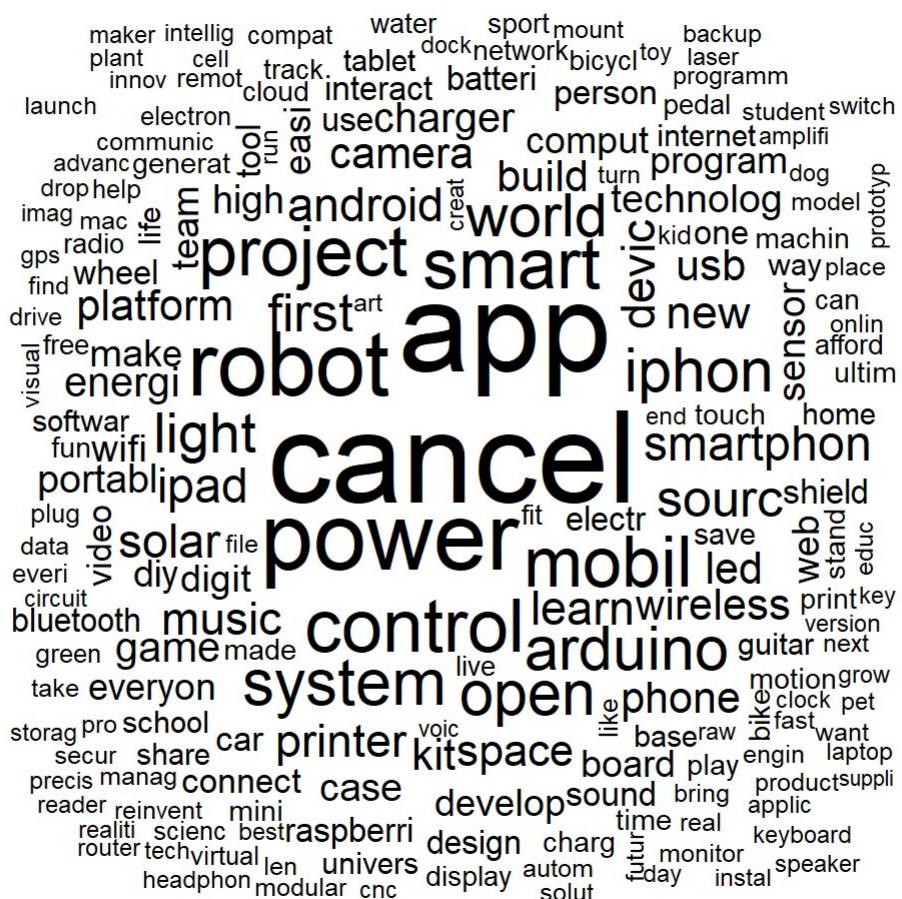
```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
wordcloud(tech_txt13,max.words=200,random.color=T,random.order=F)
```



```
tech_txt14<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filte  
r(year==2014)%>%select(.,name)  
tech_txt14<-temp(tech_txt14)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

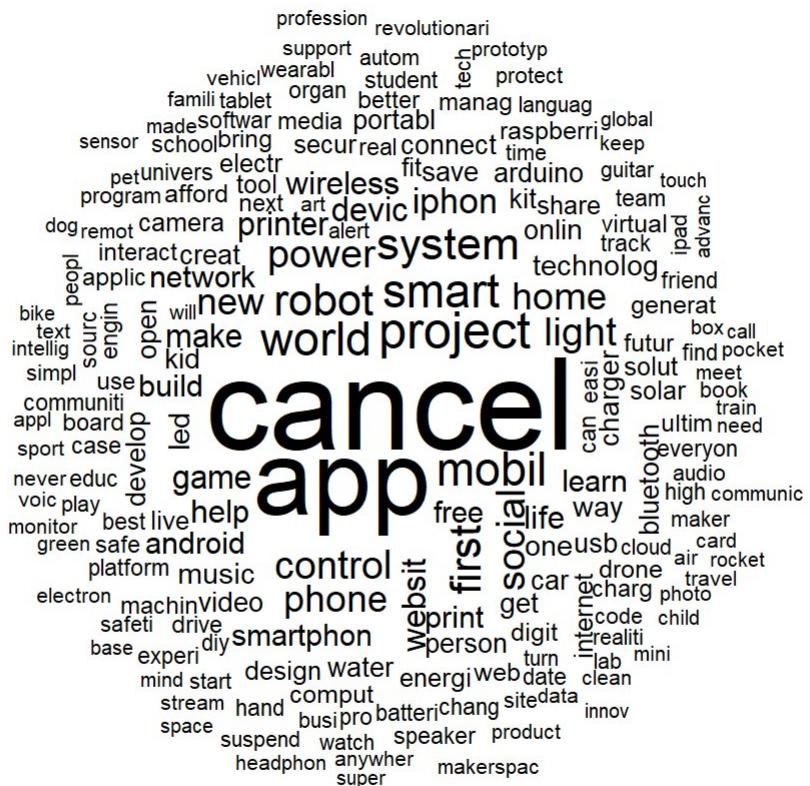
```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
wordcloud(tech_txt14,max.words=200,random.color=T,random.order=F)
```



```
tech_txt15<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(year==2015)%>%select(.,name)
tech_txt15<-temp(tech_txt15)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

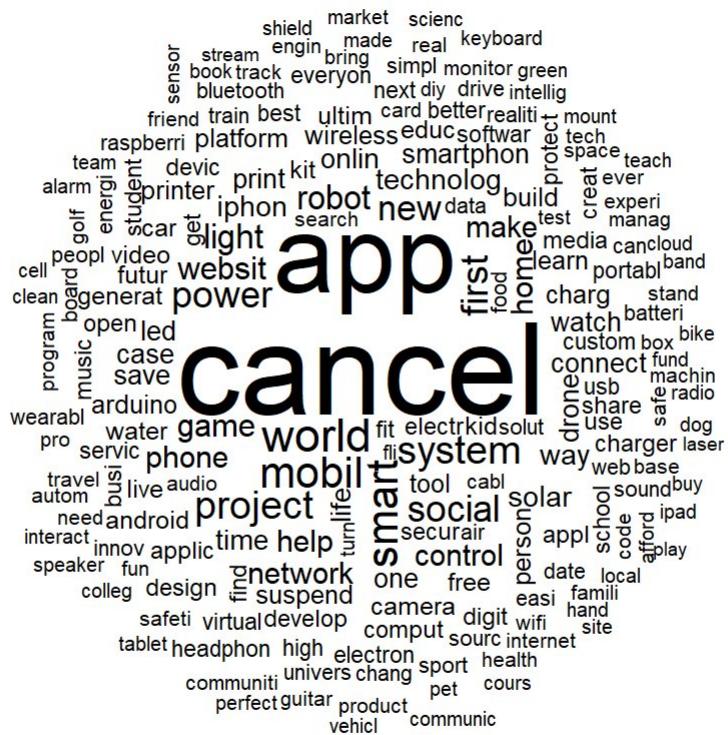
```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
wordcloud(tech_txt15,max.words=200,random.color=T,random.order=F)
```



```
tech_txt16<-kstart%>%filter(main_category%in%c("Technology"))%>%filter(country=="US")%>%filter(year==2016)%>%select(.,name)
tech_txt16<-temp(tech_txt16)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

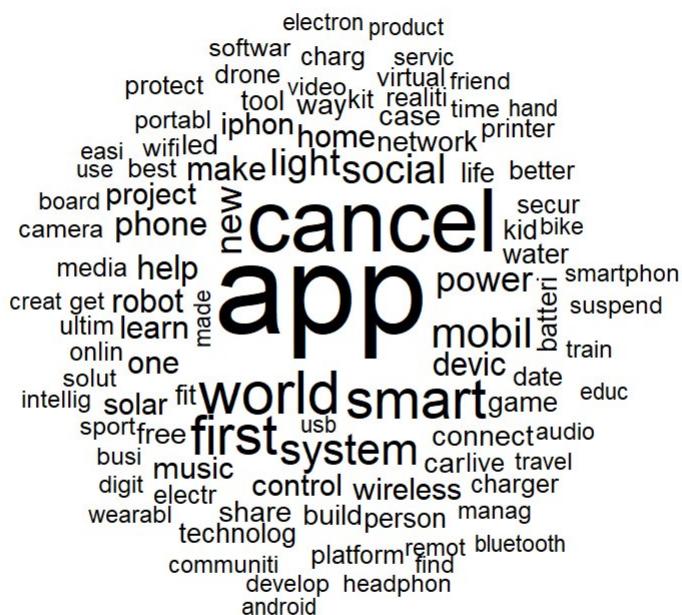
```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
wordcloud(tech_txt16,max.words=100,random.color=T,random.order=F,min.freq=5)
```



2011년부터 2016년까지 기술 분야의 제품명을 분석한 결과 **cancel**과 **app**에 대한 관심은 지난 5년간 계속되어 왔음을 알 수 있다. - 또한 2011년 arduino에 대한 관심이 잠깐 증가했으나 금새 사라졌음을 알 수 있다. - **i phone**과 **i pad**는 2011년부터 시작해 2012년까지 거론되며 이와 관련된 **mobile**이나 **camera,social**등의 키워드가 다소 추출됨을 알 수 있다. - 또한 가장 최근인 2016년에 다다라서는 **drone**에 관련된 제품들이 떠오르고 있음을 확인할 수 있다.

성공비율이 높은 공연분야 제품의 시간별 키워드 분석

```
tech_txt11<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(year==2011)%>%select(.,name)
```

```
tech_txt11<-temp(tech_txt11)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops  
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

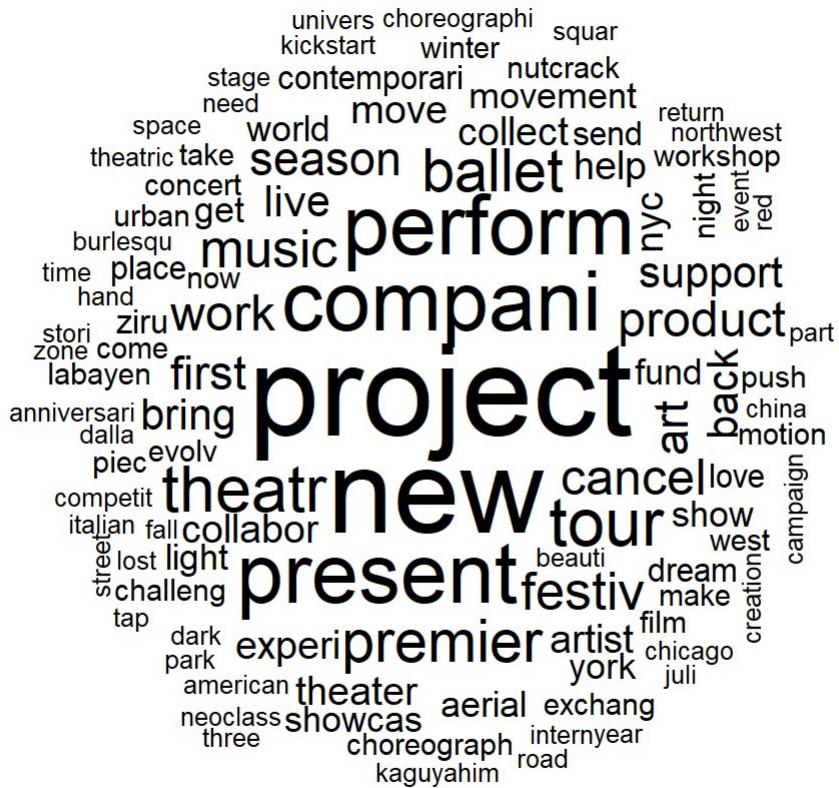
```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
tech_txt11<-gsub("danc","",tech_txt11)  
wordcloud(tech_txt11,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,  
## tm::stopwords())): transformation drops documents
```



```
tech_txt12<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(year==2012)%>%select(.,name)
```

```
tech_txt12<-temp(tech_txt12)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

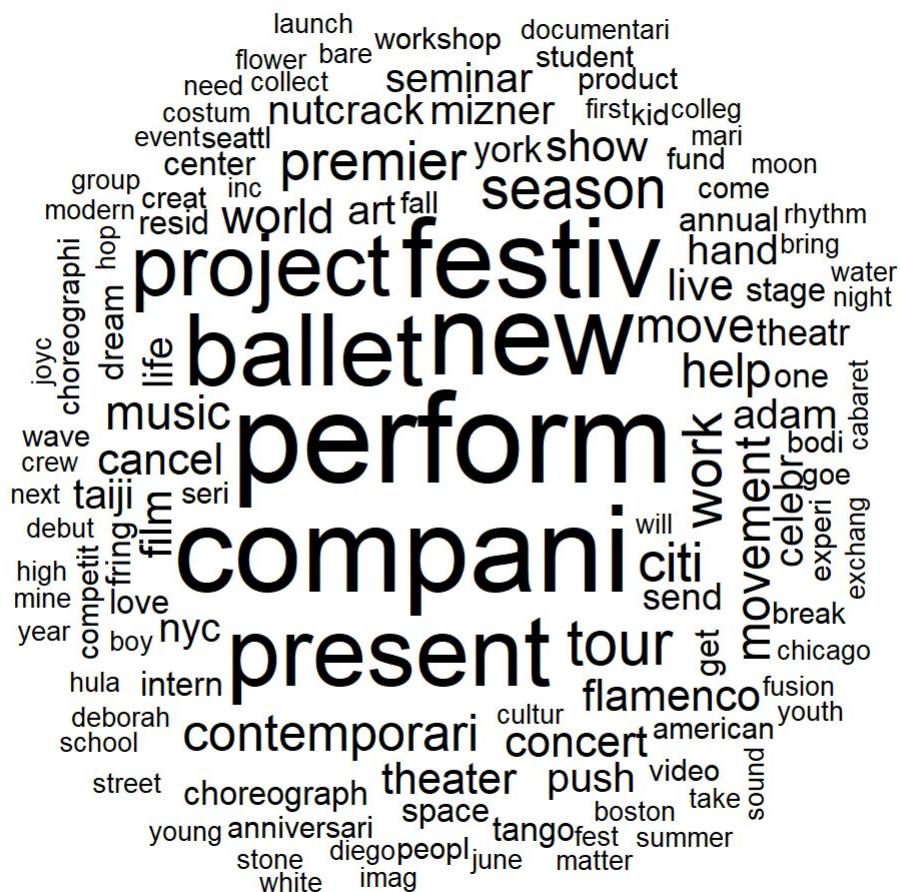
```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
tech_txt12<-gsub("danc","",tech_txt12)
wordcloud(tech_txt12,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,  
## tm::stopwords())): transformation drops documents
```



```
tech_txt13<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(year==2013)%>%select(.,name)
```

```
tech_txt13<-temp(tech_txt13)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops  
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation  
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation  
## drops documents
```

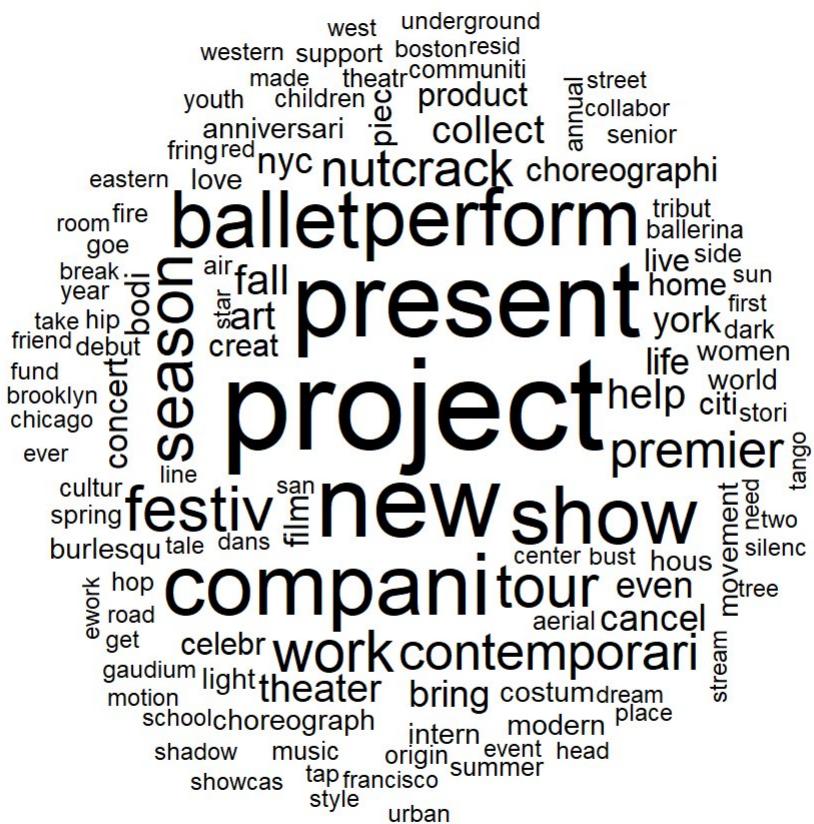
```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation  
## drops documents
```

```
tech_txt13<-gsub("danc","",tech_txt13)
```

```
wordcloud(tech_txt13,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,  
## tm::stopwords())): transformation drops documents
```



```
tech_txt14<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(year==2014)%>%select(.,name)
```

```
tech_txt14<-temp(tech_txt14)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
tech_txt14<-gsub("danc","",tech_txt14)
```

```
wordcloud(tech_txt14,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,  
## tm::stopwords())): transformation drops documents
```

```
## Warning in wordcloud(tech_txt14, max.words = 200, random.color = T,
## random.order = F): year could not be fit on page. It will not be plotted.
```



```
tech_txt15<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(yea
r==2015)%>%select(.,name)
tech_txt15<-temp(tech_txt13)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
tech_txt15<-gsub("danc","",tech_txt15)
wordcloud(tech_txt15,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,
## tm::stopwords())): transformation drops documents
```



```
tech_txt16<-kstart%>%filter(main_category%in%c("Dance"))%>%filter(country=="US")%>%filter(year==2016)%>%select(.,name)
```

```
tech_txt16<-temp(tech_txt16)
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, PlainTextDocument):  
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_corpus, tolower): transformation drops
## documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeNumbers): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removeWords,  
## stopwords("english")): transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, removePunctuation):  
## transformation drops documents
```

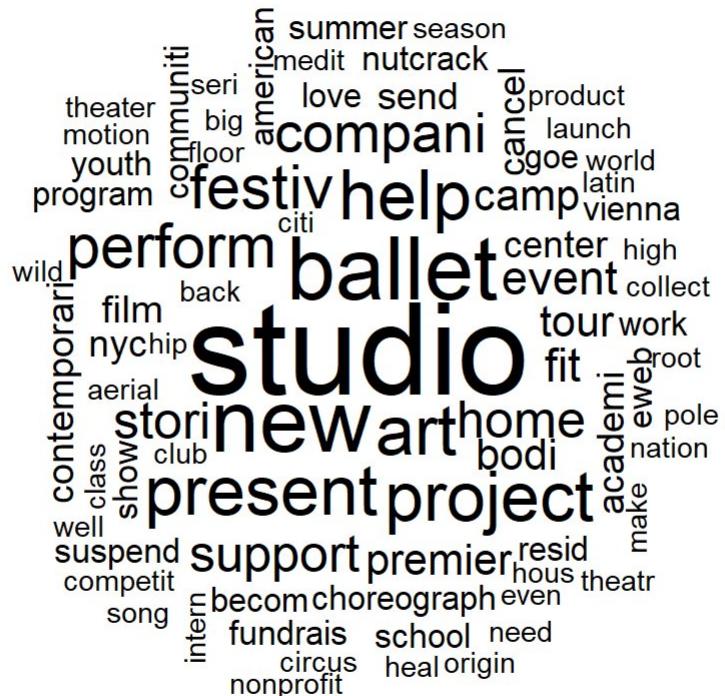
```
## Warning in tm_map.SimpleCorpus(tech_clean, stripWhitespace): transformation
## drops documents
```

```
## Warning in tm_map.SimpleCorpus(tech_clean, stemDocument): transformation
## drops documents
```

```
tech_txt16<-gsub("danc","",tech_txt16)
wordcloud(tech_txt16,max.words=200,random.color=T,random.order=F)
```

```
## Warning in tm_map.SimpleCorpus(corpus, tm::removePunctuation):
## transformation drops documents
```

```
## Warning in tm_map.SimpleCorpus(corpus, function(x) tm::removeWords(x,
## tm::stopwords())): transformation drops documents
```



공연분야의 제품명을 키워드 분석한 결과이다. 성공한 제품명에서 자주 보였던 **ballet**이 2016년에 자주 출몰한 것으로 미루어 보아 **ballet**의 성공이 최근에 이르러서 이루어졌음을 유추할 수 있다. #결론 - 카테고리 빈도수와 후원금의 그래프를 비교해보았을 때 접근하기 용이한 분야와 후원자의 후원금액이 많은 분야는 다르다는 것을 알 수 있다. - 또한 게임분야가 제품의 빈도수는 적으면서 후원자의 평균 후원금액이 타 카테고리에 비해 상대적으로 많아 게임분야의 진출이 나쁘지 않음을 유추할 수 있다. - 기술은 초기 자본이 많아야 크라우드 펀딩을 시작할 있다는 점을 유의해야 한다. 또한 펀딩금액의 박스플롯에 이상치가 많이 존재한다는 것을 미루어 보아 기술 분야로 펀딩을 진행할 경우 컨텐츠의 질이 중요하다. - 목표액과 달성금액의 차이가 크므로 현실을 생각하여 목표

액을 설정하는 것이 중요할 것이다. - 크라우드 펀딩을 시작할 경우 앤만하면 프로젝트 기간을 20일에서 30일 이내로 하여 성공비율을 높이는 것이 좋을 것이다. - 기술분야의 경우 app이 지속적으로 관심을 받고 있음을 알 수 있으며 기술분야로 진출할 경우 app관련 컨텐츠를 준비하는 것도 괜찮을 것으로 보인다. - 또한 기술 분야에서 성공한 제품들로 보았을 때 태양 에너지를 사용한 제품들도 상당한 인기를 끌고 있으므로 이런 컨텐츠를 활용해보는 것도 좋을 것이다.