

# Beirut explosion impact assessment

September 8<sup>th</sup>, 2020





# Introductory note

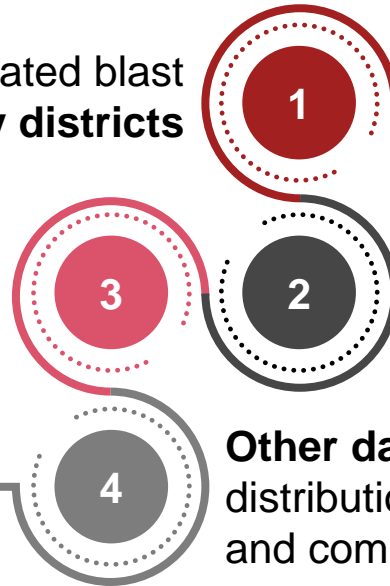


Strategy&'s impact assessment **status update #1** published on August 19th, 2020 **used publicly available information from international and national organizations and interviews with sector experts.**

Since then, the Strategy& team **has developed a detailed impact assessment tool based on:**

**Geo-spatial data analysis** that incorporated blast radius and damage data from around **60 city districts**

**Google maps data**



**Expert interviews from the various sectors** to validate the assumptions and the cost estimates

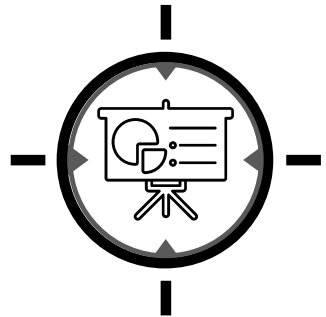
**Other data sources and analysis**, such as income level distribution by district, level of damage, revenues per sector and company size

**The final report includes the methodology for deriving the assessment for each sector, and the accordingly updated results. The assessment excludes the cost of indirect impacts** (e.g., multiplier effect, supply chain disruptions, exports) **and public infrastructure damage** (e.g., port infrastructure, electrical grid, and water supply)

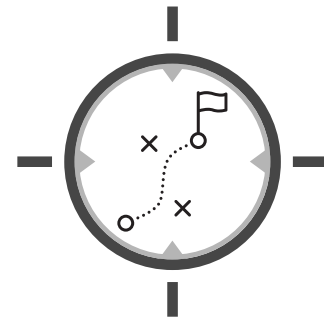
# Strategy&'s impact assessment – objectives



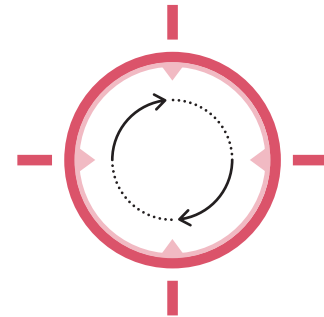
**Quantify the infrastructure, social and economic effects of the Beirut explosion by district<sup>1</sup> within a 4.1km radius of the explosion**



**Provide a consolidated view of the impact of the explosion on **housing, food, healthcare, education, businesses and culture** by district<sup>1</sup>**



**Identify the funding requirements versus the pledges made by sector (housing, food, healthcare, education, businesses and culture) **highlighting funding gaps****



**Raise awareness on the sources of donations pledged per sector to **reduce duplication** in the mobilization of resources**

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## Key findings



# Summary of the infrastructure impact

*(excludes public infrastructure damages)*

Total



US\$ ~3.115 Billion

## HOUSING

**10,610** buildings with minimal damage  
(**122,890** households)

**2,570** buildings with moderate damage  
(**28,980** households)

**240** buildings with severe damage  
(**2,310** households)

**US\$ ~1,830<sup>1</sup> Million**  
financial requirements



## HEALTHCARE

**17** damaged hospitals  
of which 4 severely damaged

**16** damaged primary  
healthcare centers

**US\$ ~75<sup>2</sup> Million**  
financial requirements



## EDUCATION

**120** damaged schools

**20** damaged TVETs<sup>3</sup>

**8** damaged universities

**US\$ ~60 Million**  
financial requirements



## BUSINESSES

**26,560** businesses with low level of damage

**3,870** businesses with medium level of damage

**505** businesses with high level of damage

**US\$ ~865 Million**  
financial requirements



## CULTURE

**8** historical areas

**480** heritage buildings

**160** additional buildings with special features

**US\$ ~285 Million**  
financial requirements



1) Funding required could be less as some affected households can potentially afford to pay for the reconstruction damage independently

2) Upper end of funding; funding has been estimated for the 7 most affected hospitals and 16 primary healthcare centers (PHCs)

3) Technical and Vocational Education and Training

Note: Public infrastructure (e.g., port, grain silos, electricity grids, roads, telecom towers) damages were not covered in the analysis



# Summary of the social impact

*(within a 4.1 Km radius of the explosion)*

Total



US\$ ~555 Million



## TEMPORARY HOUSING

~31,000 uninhabitable houses and ~13,000 households in need of shelter

Funding requirement of  
US\$ ~30 Million for up to 18 months



## FOOD ASSISTANCE

~172,000 individuals in urgent need and  
~135,000 in moderate need of food assistance

Funding requirement of  
US\$ ~215 Million for 12 months



## TREATMENT OF PATIENTS

~6,500 patients treated for physical injuries  
~145,000 patients need mental health support

Funding requirement of  
US ~80 Million



## SCHOOLING

~67,000 students impacted due to schools and TVETs damages



## JOB AND LIVELIHOOD<sup>1</sup>

~130,000<sup>2</sup> jobs directly affected

US\$ ~230 Million  
of estimated loss of salaries

1) Excludes jobs in the education (nurseries, schools, TVETs and universities) and health (hospitals and medical centers) sectors

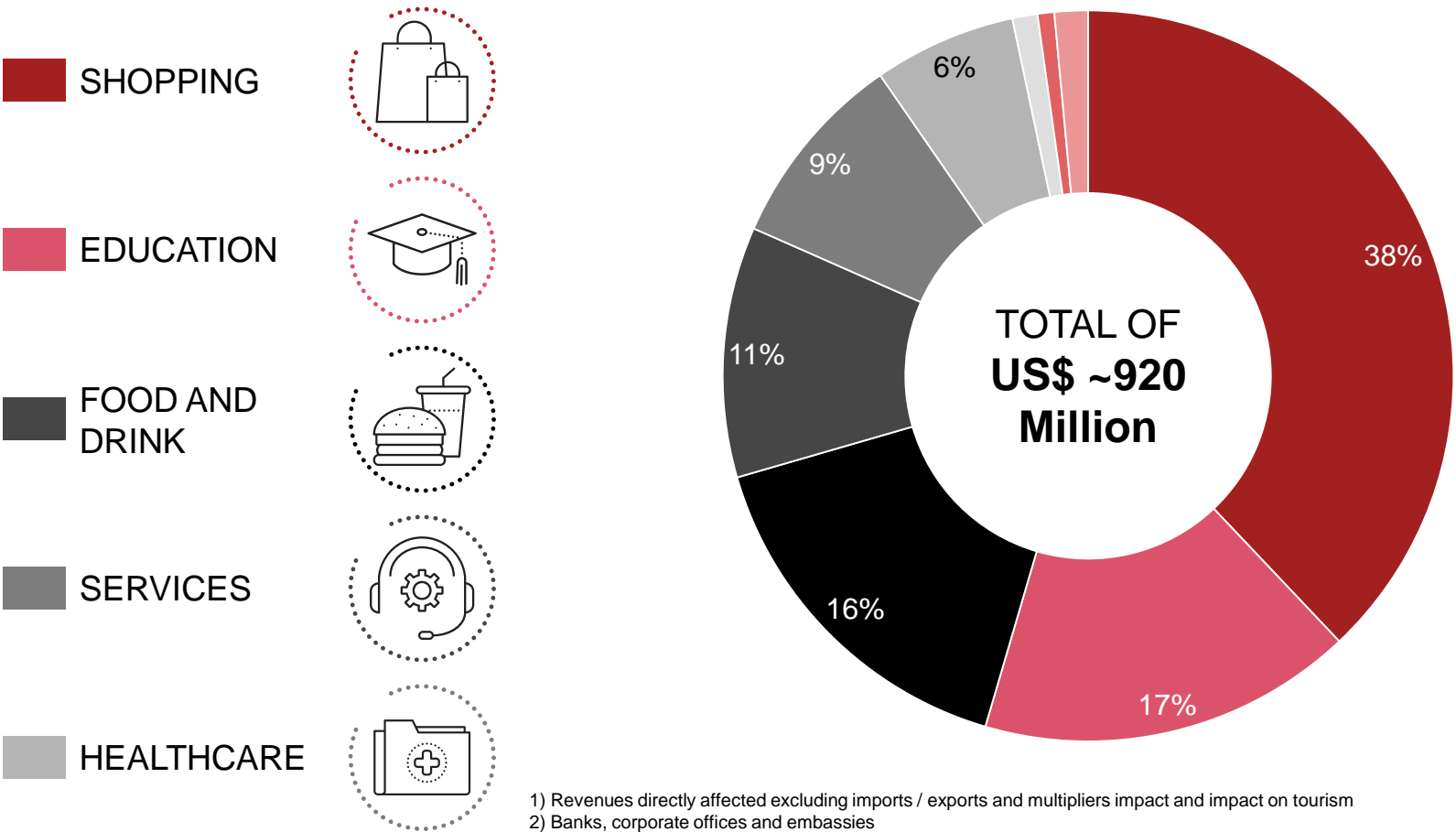
2) Jobs affected include temporary and permanent loss. The analysis excludes supply chain and multiplier impact

Source: Strategy& analysis

# Summary of the economic impact

*(excludes indirect economic impacts)*

**REVENUES<sup>1</sup> LOST BY SECTOR** – within one from the explosion  
(in US\$ Million, data from within a 4.1 km radius of the explosion)



**Total**  
US\$ ~920 Million



**Micro-businesses with unregistered business locations were not accounted for in the assessment due to limited data**



**NON-CONSUMER<sup>2</sup>**



**LEISURE**



**LODGING**



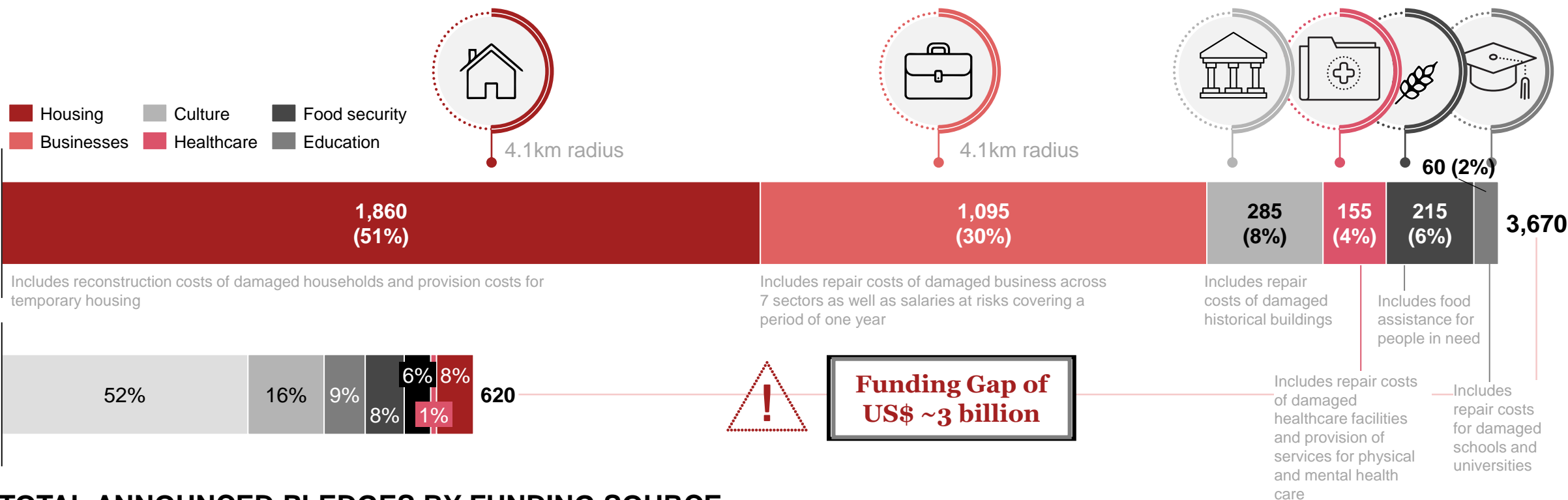
**OTHERS<sup>3</sup>**

1) Revenues directly affected excluding imports / exports and multipliers impact and impact on tourism  
2) Banks, corporate offices and embassies  
3) Uncategorized small businesses such as computer shops, beauty salons, art studios  
Source: Strategy& analysis



# Estimated financial requirements vs. announced pledges

## TOTAL FINANCIAL REQUIREMENTS (US\$ Million, Infrastructure and Social Costs)



## TOTAL ANNOUNCED PLEDGES BY FUNDING SOURCE (US\$ Million)

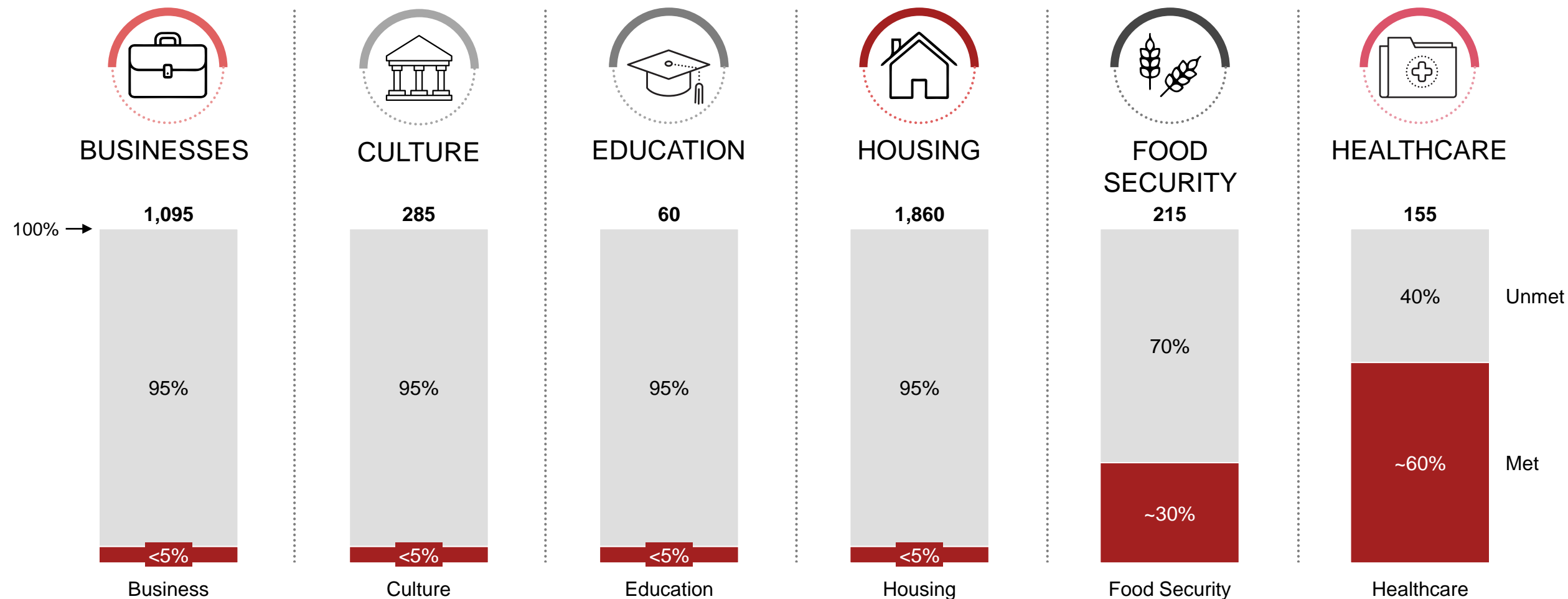


1) Includes estimations for undisclosed funding  
 Note: Micro-businesses with unregistered locations were not accounted for in the assessment due to limited availability of data  
 Source: Impact Lebanon, Strategy& analysis

# Estimated financial requirements vs. announced pledges by type of need (US\$ Million)



**Note:** Figures below exclude US\$ ~325 million in summit commitments which have not been allocated to the sectors yet



Note: A dynamic tool will be available on our website to track pledges vs. funding required. The tool will allow stakeholders to direct funding to areas that require the most funding

Micro-businesses with unregistered locations were not accounted for in the assessment due to limited data

Source: Impact Lebanon, Strategy& analysis


# What's next

- Strategy& estimates the total financial requirements at US\$ ~3.7 billion, half of it for housing, and a third for businesses
- Local and international donors have pledged US\$ 600 million so far, or only ~15% of financial requirements
- Most of the basic needs for housing, food assistance, education, culture and businesses remain unmet. Funding was received by the healthcare sector but is insufficient
- Although some non-public contributions are not captured in the analysis, unmet needs are still expected to be larger than our estimates, as some high-profile announcements of contribution might not materialize
- Pledges made shortly after a disaster generally account for the vast majority of total pledges, and as such contributions are expected to diminish rapidly



- The **funding gap** is still substantial, and is expected to **persist** for months to come
- Fundraising campaigns should launch a **second round**, with 2 priority areas:
  - **Closing unmet emergency relief** (housing, food assistance, cash assistance)
  - **Longer-term recovery and restoration of livelihoods**, with a particular focus on smaller **businesses, to protect the fabric of affected communities**
- NGOs should continue **forming coalitions**, both among themselves and with the **private sector**, to tackle the challenge of scale and avoid duplication of efforts
- Donors can play a key role in **smart-funding** initiatives that are **local, scalable, sustainable**, and **collaborative**





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## Overview of approach



# Beirut explosion impact assessment scope



HOUSING



FOOD  
SECURITY



HEALTHCARE



EDUCATION



BUSINESSES



CULTURE



INFRASTRUCTURE IMPACT



SOCIAL IMPACT



ECONOMIC IMPACT



# Key questions addressed in the final report



## HOUSING

- How many **buildings** were damaged in the Beirut explosion, **by damage level and by district?**
- What is the **total cost of rebuilding/repairing** the damaged buildings?
- As a consequence, **how many households are in need of shelter** support? How much will it cost to fund it?



## FOOD SECURITY

- How many **individuals** are in urgent or significant **need for food assistance in each district?**
- What is the **total cost to fund food assistance** for one year?



## HEALTHCARE

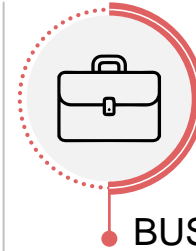
- How many **hospitals and primary care centres** were damaged in the Beirut explosion?
- What is the **total cost of repairing** the damage?
- What are the **costs related to treating physical injuries and providing mental care support?**

- What is the **economic impact of the explosion** in terms of revenue losses?



## EDUCATION

- How many **schools (including TVETs<sup>1</sup>) and universities** were damaged in the Beirut explosion?
- What is the **total cost of repairing** the damage?
- How many **students are at risk of not having access** to their schools?



## BUSINESSES

- How many **businesses** were damaged in the explosion, **by sector, level of damage, and district?**
- How many **jobs are on hold temporarily** (for a few weeks or months) in each sector?
- How many **jobs were lost?**
- What are the **forgone salaries?**



## CULTURE

- How many **historical sites, heritage buildings or others similar in nature** were damaged in the Beirut explosion?
- What is the **total cost of repairing** them, while preserving their heritage value?



# High-level overview of the methodology for infrastructure impact assessment



## HOUSING

Based on **geo-spatial data from within a 4.1 km radius of the explosion**

- For each district (around 60), estimated the **number of buildings, apartments, and households affected by level of impact**
- Estimated the **explosion impact level** for each building based on **distance from explosion using Arc GIS**
- Derived the **construction costs per apartment** based on impact level, size and building status



## FOOD SECURITY

No related infrastructure impact



## HEALTHCARE

Based on damages **assessed by hospitals and healthcare centers**

- Identified **7 affected hospitals and 16 primary healthcare centers**
- Estimated the **damage per facility** based on the cost and damage information provided by each hospital and primary health care center



## EDUCATION

Based on data **from within a 4.1 km radius of the explosion**

- Listed **all education establishments** based on **Google Maps data for a 2Km radius**
- Estimated the **explosion impact level** based on **radius from the explosion**
- Estimated **costs** based on **impact level and size of establishment**
- Extrapolated the costs within a 4.1 km radius of the explosion



## BUSINESSES

Based on data **from within a 4.1 km radius of the explosion**

- Listed all businesses **based on Google Maps data** (on a 2km radius) **and segmented businesses into sectors**
- Estimated the **explosion impact level** based on **radius from the explosion**
- Estimated **costs** based on **impact level and size of establishment by sector**
- Extrapolated costs to a 4.1 km radius of the explosion to derive total cost



## CULTURE

Based on data in the **districts affected by the explosion**

- Based on **Beirut Build Heritage Rescue, August 2020 report**:
  - Quantified the number of cultural sites and buildings
  - Estimated the reconstruction costs depending on severity of damages

Note: Public infrastructure (e.g., port, grain silos, electricity grids, roads) damage was not covered in the analysis  
Source: Strategy& analysis

# High-level overview of the methodology for social impact assessment



## HOUSING

Based on geo-spatial data within a 4.1Km radius of the explosion and MySay survey

- Estimated **uninhabitable households by district**, assuming only houses with severe/moderate damage are no longer habitable
- Estimated **need for temporary housing** (e.g., rent subsidy) by residents' proxy income level<sup>1</sup> per district
- Derived **total costs of sheltering households**, assuming specific cost per month and length of stay, based on damage level and urgency of need



## FOOD SECURITY

Based on geo-spatial data within a 4.1Km radius of the explosion and MySay survey

- Estimated the **percentage of people in urgent or significant need for food by district (~15)**, using survey results and factoring in income levels
- Estimated the **cost of providing food per individual per month** over a specified duration, depending on the need
- Derived **total cost of food assistance provision** for a period up to 12 months



## HEALTHCARE

Based on data within a 4.1Km radius of the explosion, interviews, and MySay survey

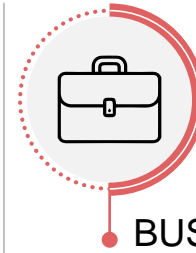
- Estimated the **costs of treating all physical injuries**
- Estimated **number of people requiring mental health support** in highly affected districts only, using survey results



## EDUCATION

Based on UNICEF's report; and public database on schools' capacity

- Estimated the average **number of students per school**
- Estimated **number of students at risk of not being able to go back to schools / TVETs**



## BUSINESSES

Based on geo-spatial data within a 4.1Km radius of the explosion and MySay survey

- Estimated the **percentage of businesses that are back to work, will be back in weeks, months or will never be back**, by damage level and company size
- Identified **average salary per sector**
- Estimated **number of jobs at risk or lost**; and related share of salaries lost within one year from the explosion



## CULTURE

Lost jobs in culture have been accounted for under businesses

# High-level overview of the methodology for economic impact assessment

## APPROACH

---

- Categorized businesses based on sector, size of employment (S, M, L)<sup>1</sup> and damage level from the explosion (none / insignificant, minimal, moderate and severe; based on location)
- Estimated total revenues lost for each sector for a period of one year from the explosion by company size, factoring in damage level and time to return to work

## KEY ASSUMPTIONS

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- Estimated number of businesses within a 4.1Km radius of the explosion
- Percent of businesses that are back to work, need weeks to return, months to return or will never return, by damage level and company size
- Average revenues per sector and company size
- Percent of revenues lost for businesses that are back to work, need weeks to return, months to return or will never return

## SOURCES

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- Google Maps data, Expert interviews, MySay survey

1) Small businesses are assumed to have an average of 5 employees, medium businesses an average of 30 employees; and large businesses an average of 100 employees  
Note: Micro-businesses with unregistered locations were not accounted for in the assessment due to limited data  
Source: Strategy& analysis



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## Impact on housing





# Methodology for housing assessment

*(within a 4.1 Km radius of the explosion)*



## METHODOLOGY FOR INFRASTRUCTURE ASSESSMENT

### APPROACH

---

- Estimated the number of buildings, apartments, and households affected by level of impact for ~60 districts on Arc GIS
- Estimated the explosion impact level for each building based on distance from explosion
- Derived the construction costs per apartment based on impact level, size and building status
- Derived the total cost of the damage

### KEY ASSUMPTIONS

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- Impact level coefficients and costs by severity of damage
- Size of property coefficients (Small, Medium, Large Size)
- Building status coefficients (Low, Mid to Low, Mid, Mid to High, High-End)

### SOURCES

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- UN-OCHA, Expert Interviews, HOTOSM Lebanon Buildings, Khatib & Alami, MySay survey



## METHODOLOGY FOR SOCIAL ASSESSMENT

### APPROACH

---

- Estimated the number of households that are severely or moderately damaged by district, and based on infrastructure assessment of residential buildings' damages
- Derived the number of people requiring urgent or minor housing support, based on residents' proxy income level<sup>1</sup> per district and MySay survey results
- Derived the total costs of providing shelter for eligible households

### KEY ASSUMPTIONS

---

- Only severely or moderately damaged houses are considered uninhabitable
- Income levels for each district (L, L+, M, M+, H)
- Percent of households requiring urgent or minor shelter support (survey)
- Average cost of shelter per month, and length of stay required

### SOURCES

---

- UN-OCHA, Expert Interviews, MySay survey



# Overall impact on housing

(within a 4.1 Km radius of the explosion)

Total



US\$ ~ 1.86 billion



## INFRASTRUCTURE IMPACT

### None / Insignificant damage

Some glass failure

~2,440  
buildings

~39,210  
households

### Minimal damage

Glass failure, limited damage to house structures (e.g., false ceiling, wood panels)

~10,610  
buildings

~122,890  
households

### Moderate damage

Space made uninhabitable/ usable, furniture, window frame, and wood panels damaged

~2,570  
buildings

~28,980  
households

### Severe damage

Partition walls shattered, steel frame buildings distorted and pulled away from foundation

~240  
buildings

~2,310  
households

### TOTAL

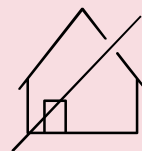
~15,860

~193,390

US\$ ~1,830 million total financial requirements



## SOCIAL IMPACT



~31,300

uninhabitable houses due to severe or moderate damage



~13,000<sup>1</sup>

households with minor to urgent need for temporary housing (e.g., rent subsidy)

US\$ ~30 million total financial requirements for rental<sup>2</sup> cost to support displaced people in need of housing

1) Assumes residents of remaining uninhabitable houses possess second homes or can afford to rehouse themselves

2) Rental cost covers a period of 18 months for houses with severe damage and 4 months for houses with moderate damage

Source: Expert Interviews, UN-OCHA, HOTSM Lebanon Buildings, Khatib & Alami, MySay survey, Strategy& analysis

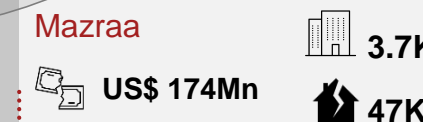
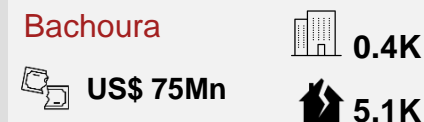
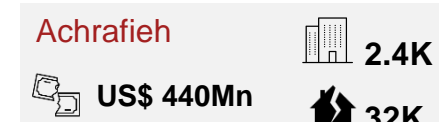
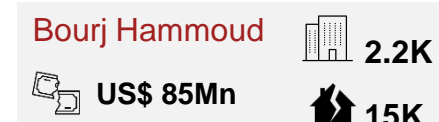
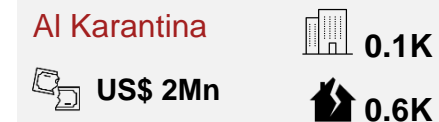
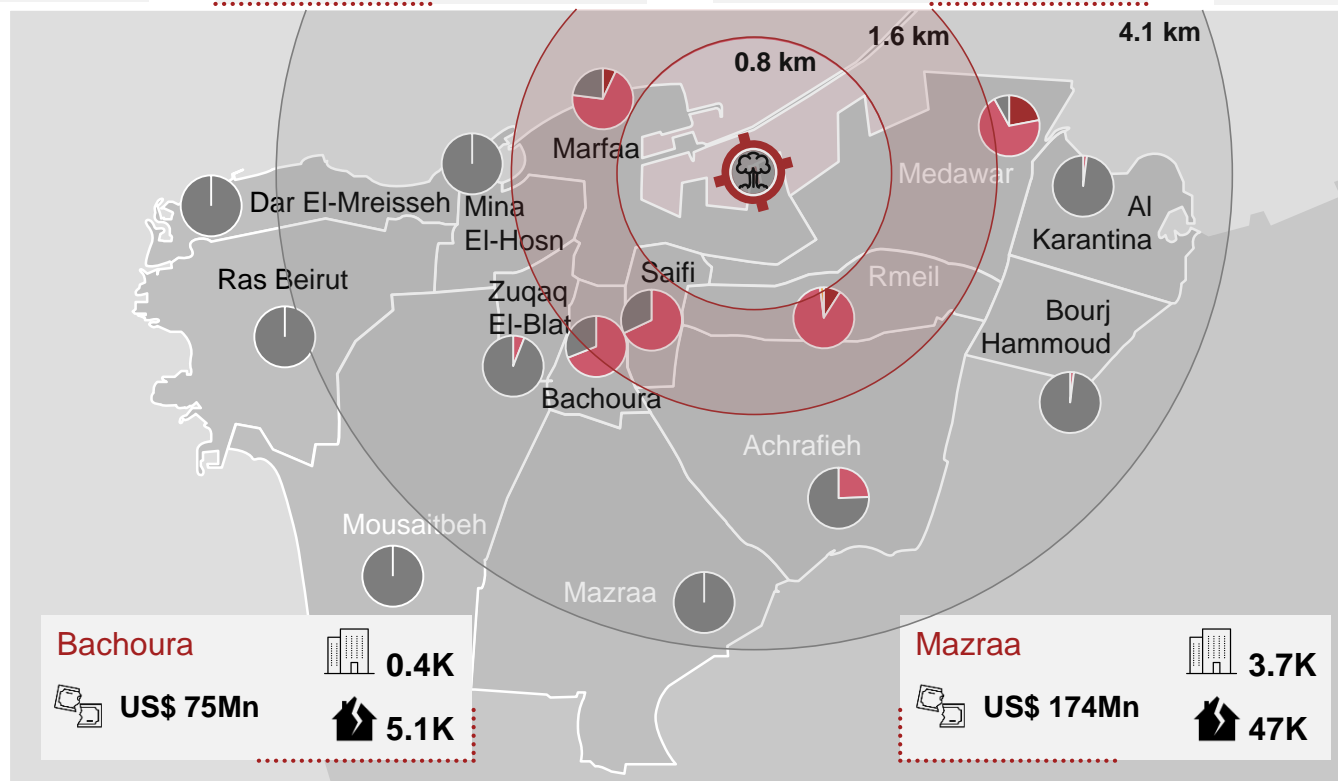
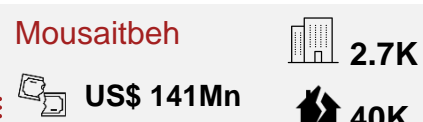
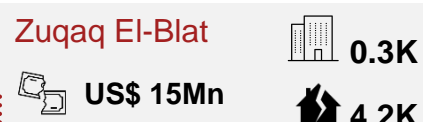
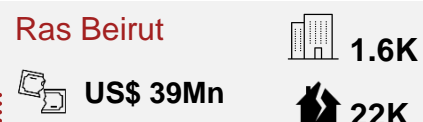
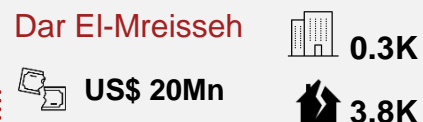
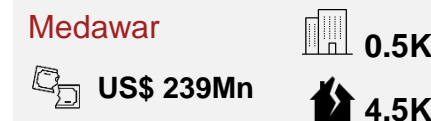
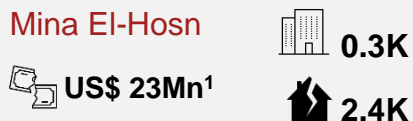
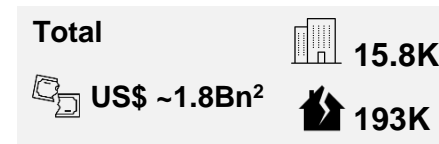




# Infrastructure impact – Housing

(within a 4.1 Km radius of the explosion)

Directional



Estimated damage cost



Number of buildings impacted



Number of households impacted

Severe damage

Moderate damage

Minimal Damage

1) Million

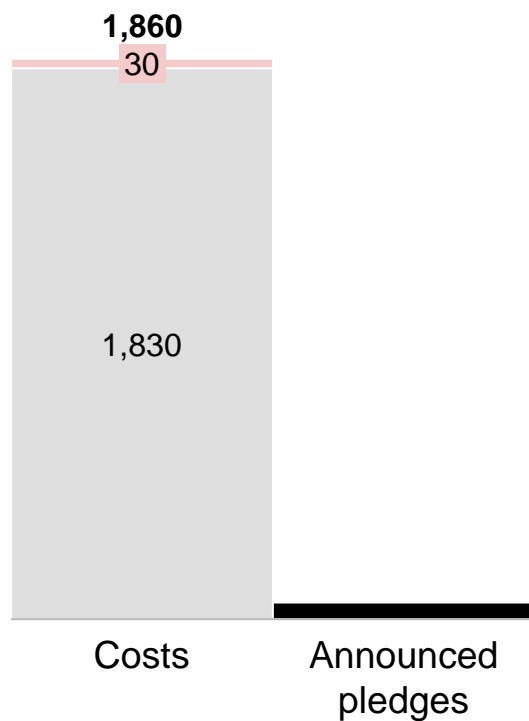
2) Billion

Source: Expert interviews, HOTOSM Lebanon Buildings, Khatib & Alami, MySay survey, Strategy& analysis



# Financial requirements vs. announced pledges – Housing

## FINANCIAL REQUIREMENTS AND ANNOUNCED PLEDGES (US\$ Million)



■ Cost for temporary housing ■ Cost of reconstruction

## SELECTED EXAMPLES OF ANNOUNCED DONATIONS

**US\$ 35 million from UNHCR** to shelter and protect the most vulnerable Lebanese, refugees and migrant households in Beirut over the coming months



**US\$ 2+ million from corporations** such as Google, Facebook, Procter & Gamble, PepsiCo and Chanel



**US\$ 2+ million** raised through **public crowdfunding campaigns**



## SELECTED EXAMPLES OF IN-KIND DONATIONS

**138 tons of glass** donated by the UAE to help repair more than 1,000 destroyed homes and small businesses by covering ~9,000 sqm



UAE

**Quantities of aluminum and glass** to be provided by private companies in Cyprus



Cyprus

**Hundreds of free shelters** offered by the Lebanese community and hotels



Lebanon

Note: Announced pledges do not include in-kind donations  
Source: Impact Lebanon for announced financial pledges, Strategy& analysis

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## Impact on food security







# Methodology for food security assessment

*(within a 4.1 Km radius of the explosion)*



## METHODOLOGY FOR SOCIAL ASSESSMENT

### APPROACH

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- Estimated the percentage of people in urgent or significant need of food by district, using MySay survey results and factoring in the average income level of the districts' residents
- Estimated cost of providing food per individual for a month and number of months required (based on urgency of need)
- Derived total cost of providing food assistance

### KEY ASSUMPTIONS

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- Percentage of people requiring moderate or urgent need of food assistance in lower income districts
- Cost of providing food assistance per individual, by need level
- Number of months of food provision needed

### SOURCES

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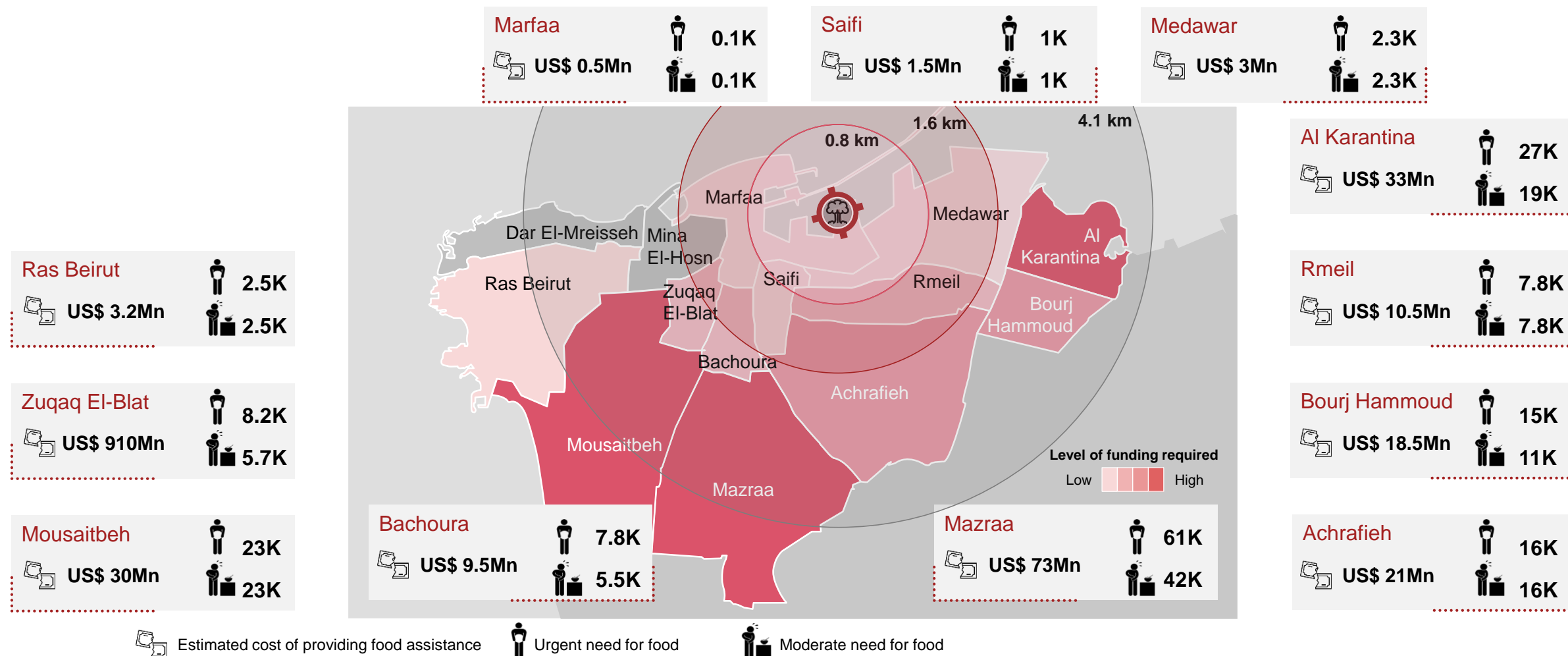
- UN-OCHA, MySay survey, Expert Interviews



# Social impact – Food security

(within a 4.1 Km radius of the explosion)

Directional

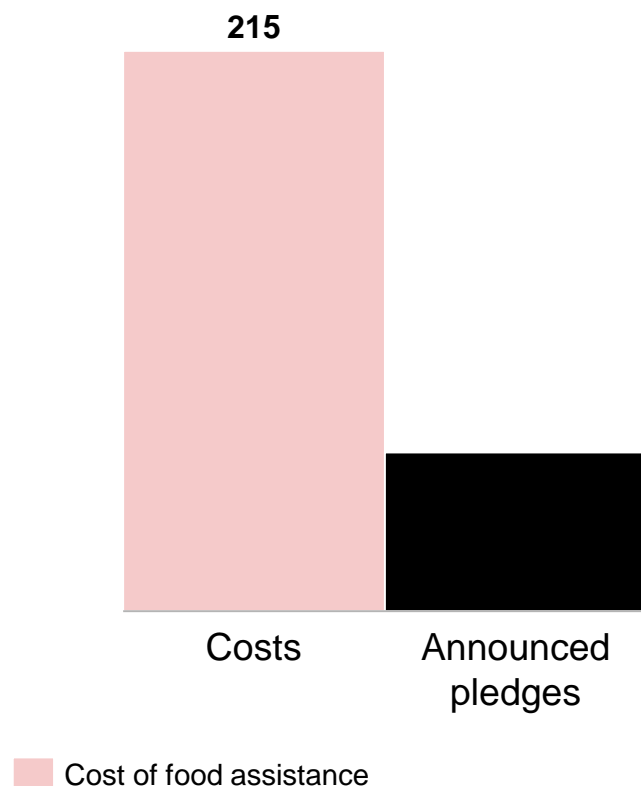


Note: Food assistance requirements were assessed based on MySay survey results; which asked about food needs as a consequence of the blast. However, these needs could be accentuated or influenced by pre-explosion conditions (COVID-19 impact and / or economic crisis)  
Source: OCHA, MySay survey, Expert Interviews, Strategy& analysis



# Financial requirements vs. announced pledges – Food security

## FINANCIAL REQUIREMENTS AND ANNOUNCED PLEDGES<sup>1</sup> (US\$ Million)



## SELECTED EXAMPLES OF ANNOUNCED DONATIONS

**US\$ ~25 million** in foreign aid from international countries



**US\$ ~7.5 million**



**US\$ ~2.5 million from corporations** such as Google, Facebook, Procter & Gamble, PepsiCo, Chanel, Citi, H&M Foundation



## SELECTED EXAMPLES OF IN-KIND DONATIONS

**~660 tons** of food



**295 tons** of food



**10 tons** of flour



**1.5 million portions** of cheese



**1 million portions** of Kiri and Picon





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## Impact on healthcare





# Methodology for healthcare assessment



## METHODOLOGY FOR INFRASTRUCTURE ASSESSMENT

Based on data shared by service providers

### APPROACH

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- Identified 17 affected hospitals and 16 primary healthcare centers
- Estimated the damage per hospital and primary healthcare center based on the cost and damage information provided by each facility

### KEY ASSUMPTIONS

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- N/A

### SOURCES

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- Service Providers, Expert Interviews, Lebanon Needs



## METHODOLOGY FOR SOCIAL ASSESSMENT

Based on data within a 4.1km radius of the explosion

### APPROACH

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- Estimated cost of treating all physical injuries
- Estimated percentage of people in highly affected areas that require limited, moderate and urgent mental health support
- Estimated number of people requiring mental health support, and the ones requiring medical support, in highly affected areas only, using survey results

### KEY ASSUMPTIONS

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- Residents of damaged houses are more prone to require mental health support
- Only people with moderate to high need of support are accounted for
- Number of sessions required for moderate or intensive treatment
- Average cost of hospitalization and average length of stay by injury severity
- Cost per psychology session and cost of medical treatment

### SOURCES

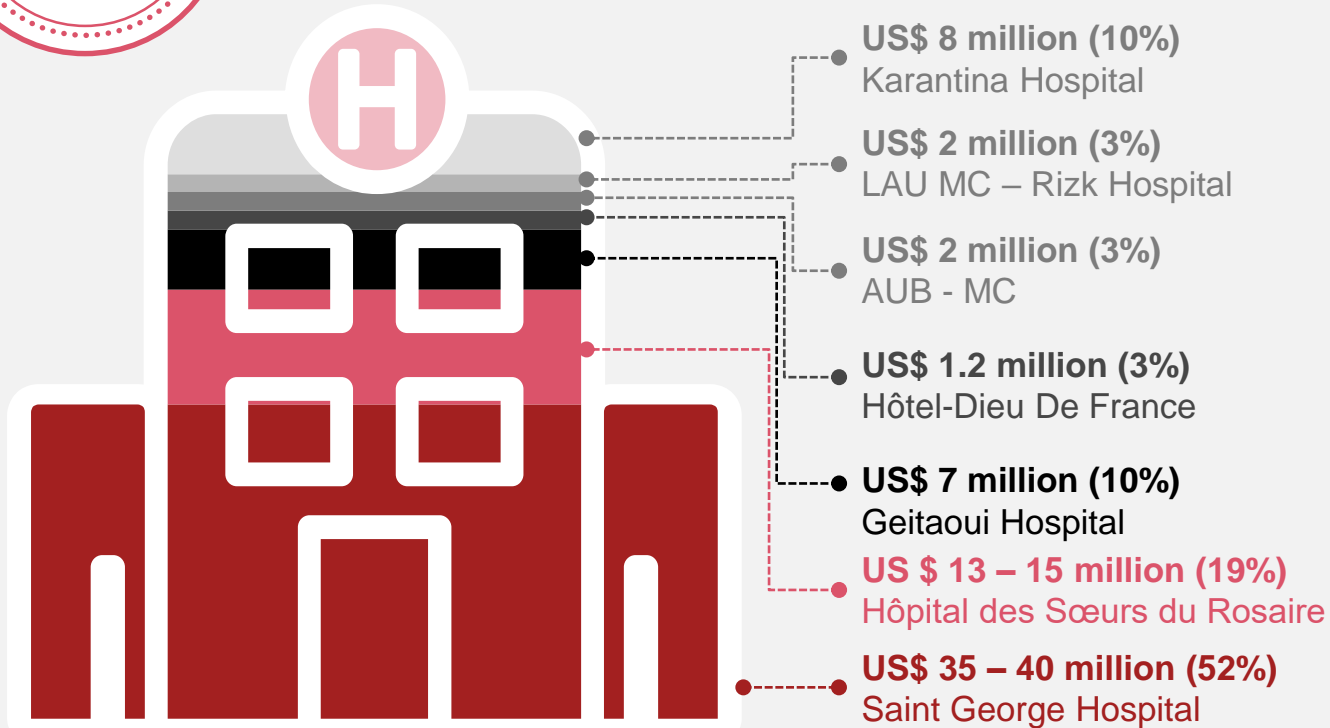
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- MySay survey, Expert Interviews



# Infrastructure impact – Healthcare

Total US\$ 68 – 75 million for 7 out of the 17 damaged hospitals;  
US\$ ~66 million are for the 4 severely damaged ones



Total US\$ ~70K for  
16 damaged Primary Health Care  
Centers







# Social impact – Health

(within a 4.1 Km radius of the explosion)



## SOCIAL IMPACT



~6,500

Individuals with moderate to critical injuries (*hospitalized*)

~1,300

of hospitalized individuals underwent surgery



~145,000

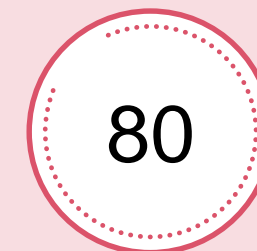
Individuals needing psychological support

Moderate need for mental care

~121,000 Individuals

Urgent need for mental care

~24,000 Individuals

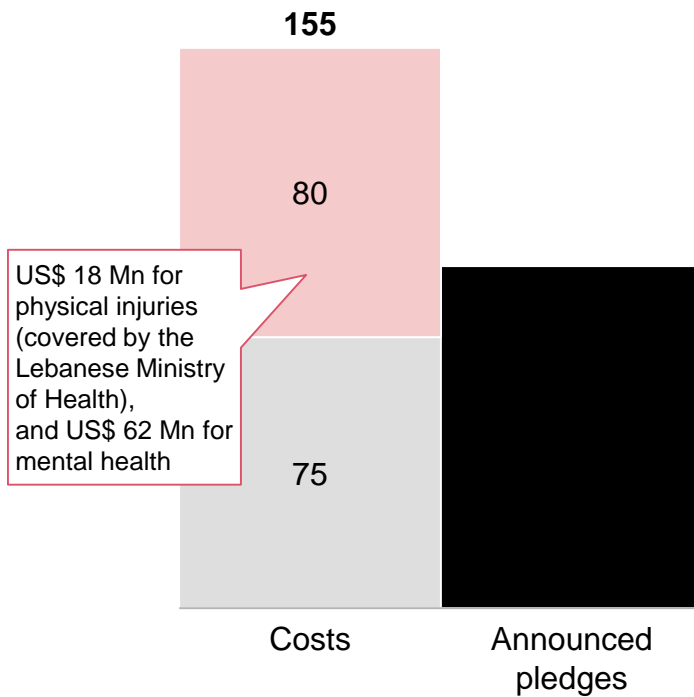


US\$ Mn<sup>1</sup>  
total financial  
requirements



# Financial requirements vs. announced pledges – Healthcare

## FINANCIAL REQUIREMENTS<sup>1</sup> AND ANNOUNCED PLEDGES<sup>2</sup> (US\$ Million)



Cost of treatment Cost of reconstruction

## SELECTED EXAMPLES OF ANNOUNCED DONATIONS

**US\$ ~30 million** in foreign aid from regional and international countries



**US\$ ~7.5 million**



**US\$ ~2.5 million** from corporations



**US\$ 2+ million** raised through public crowdfunding campaigns

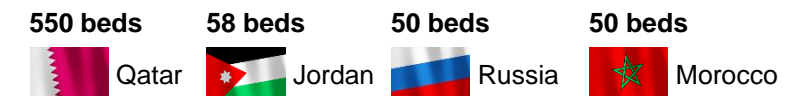


## SELECTED EXAMPLES OF IN-KIND DONATIONS

### Medical supplies



### Field hospitals



### Other

600 chemical protection suits



1) Financial requirements do not cover cost of medical supplies required

2) In-kind donations in the form of medical supplies have been excluded; however cost of treating physical injuries have been included as it is assumed to be covered by MoH

Source: Impact Lebanon, Strategy& analysis

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## Impact on education







# Methodology for education assessment

*(within a 4.1 Km radius of the explosion)*



## METHODOLOGY FOR INFRASTRUCTURE ASSESSMENT

### APPROACH

---

- Listed all education establishments (schools and universities) based on Google Maps data within 2km radius from the explosion
- Calculated impact level based on distance from explosion
- Estimated costs based on impact level and size of establishment
- Derived the final cost of damages
- Extrapolated the cost of damages to a 4.1km radius from explosion

### KEY ASSUMPTIONS

---

- Impact level coefficients and costs by severity of damage
- Size of property coefficients (Small, Medium, Large Size)
- Average Capex cost per m<sup>2</sup>

### SOURCES

---

- UNCHR Reports, Expert Interviews, Google data, MySay survey



## METHODOLOGY FOR SOCIAL ASSESSMENT

### APPROACH

---

- Listed all schools and TVETs based on Google Maps data within 2km radius from the explosion
- Identified number of students in each of these schools
- Estimated average number of students for the ones with no data
- Derived number of students at risk of not being able to go back to school or TVETs, based on total number of schools and TVET centers damaged

### KEY ASSUMPTIONS

---

- Average number of students in a school (extrapolated based on available data)

### SOURCES

---

- Google maps data, UNICEF, UN-OCHA, Ministry of Education



# Overall impact on education

*(within a 4.1 Km radius of the explosion)*



## INFRASTRUCTURE IMPACT



~8 universities damaged<sup>1</sup>



~140 schools and TVETs damaged  
within 4.1Km radius

US\$ ~60 million total financial requirements



## SOCIAL IMPACT



~67,000  
students impacted due to schools and TVETs  
damages

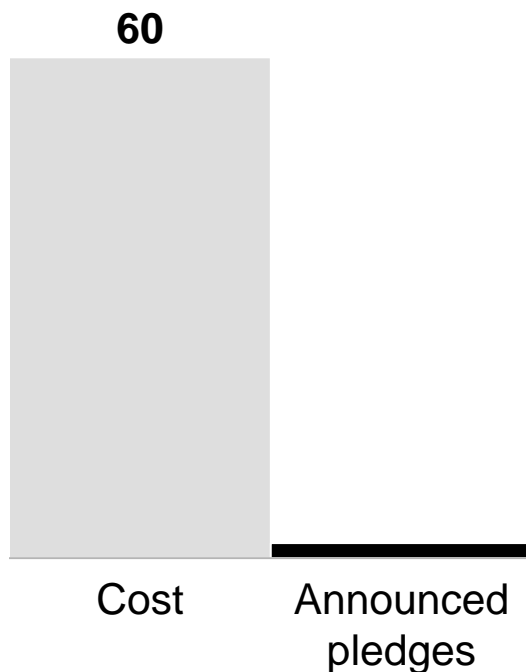
1) Larger than 4.1Km radius from the explosion  
Note: Costs to cover tuition fees were not factored for in this assessment  
Source: UNCHR Reports, Expert Interviews, Google data, Khatib & Alami, MySay survey, Strategy& analysis



# Financial requirements vs. announced pledges – Education



## FINANCIAL REQUIREMENTS<sup>1</sup> AND ANNOUNCED PLEDGES (US\$ Million)



Cost of Reconstruction

## SELECTED EXAMPLES OF ANNOUNCED DONATIONS

US\$ 1.2 million from UNESCO



US\$ 0.4 million raised through public crowdfunding  
campaigns





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## Impact on businesses





# Methodology for businesses assessment

*(within a 4.1 Km radius of the explosion)*



## METHODOLOGY FOR INFRASTRUCTURE ASSESSMENT

### APPROACH

---

- Listed all business establishments based on Google Maps data (2Km) and segmented them into 7 sectors: Food and Drink, Shopping, Leisure, Lodging, Non-Consumer, Services, Other
- Calculated impact level based on distance from explosion
- For each sector, estimated costs based on impact level and size of establishment
- Derived the final cost of damage
- Extrapolated the cost of damage within a 4.1km radius of the explosion

### KEY ASSUMPTIONS

---

- Impact level coefficients and costs by severity of damage
- Size of property coefficients (Small, Medium, Large Size)
- Average Capex cost per m<sup>2</sup>

### SOURCES

---

- Expert Interviews, Google Maps data, MySay survey



## METHODOLOGY FOR SOCIAL ASSESSMENT

### APPROACH

---

- Categorized Google Maps data on businesses based on sector, size of employment and severity of damage
- Estimated total jobs that are temporarily on hold and total jobs lost; and related share of foregone salaries, by sector, within one year from explosion
- Extrapolated the cost of damage within a 4.1km radius of the explosion

### KEY ASSUMPTIONS

---

- Percentage of businesses that are back to work, in weeks, months or not returning, by damage level and company size; and expected percent loss in salaries for each
- Businesses that are beyond 2km radius faced low or minor level of damage
- Average salary by sector

### SOURCES

---

- Expert Interviews, Google Maps data, MySay survey

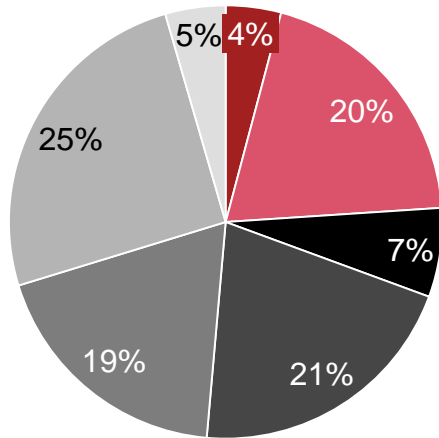
1) Small businesses are assumed to have on average 5 employees, medium businesses an average of 30 employees; and large businesses an average of 100 employees  
Note: Micro-businesses with unregistered locations were not accounted for in the assessment due to limited data  
Source: Strategy& analysis

# Infrastructure impact – Businesses by sector

(within a 4.1 Km radius of the explosion)

## NUMBER OF BUSINESSES PER SECTOR

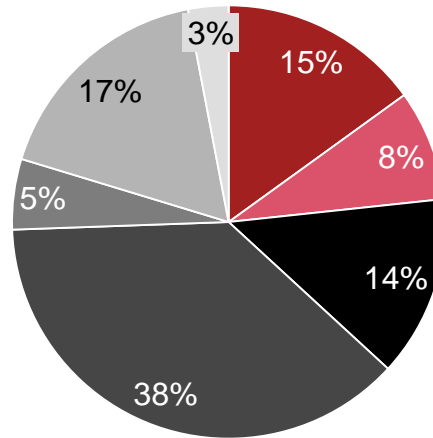
Total ~31K businesses



~45% of the businesses affected are shopping and services related

## FUNDING NEEDED PER SECTOR

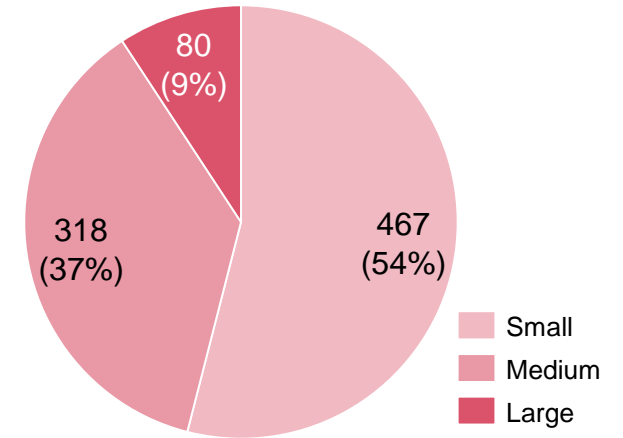
Total US\$ ~865 Million



Non-consumer, lodging and leisure businesses will need around 70% of funding, around US\$ 570 million

## FUNDING NEEDED BY SIZE<sup>1</sup> OF BUSINESS

Total US\$ ~865 Million



Most of the affected businesses are **small businesses**, requiring around US\$ 470 million

■ Lodging 
 ■ Food & drink 
 ■ Leisure 
 ■ Non-consumer<sup>2</sup>
■ Shopping 
 ■ Services 
 ■ Other<sup>3</sup>

1) Size of business in square meters

2) Banks, corporate offices and embassies

3) Uncategorized small businesses such as computer shops, beauty salons, art studios

Source: Expert Interviews, Google Maps data, MySay survey, Strategy& analysis



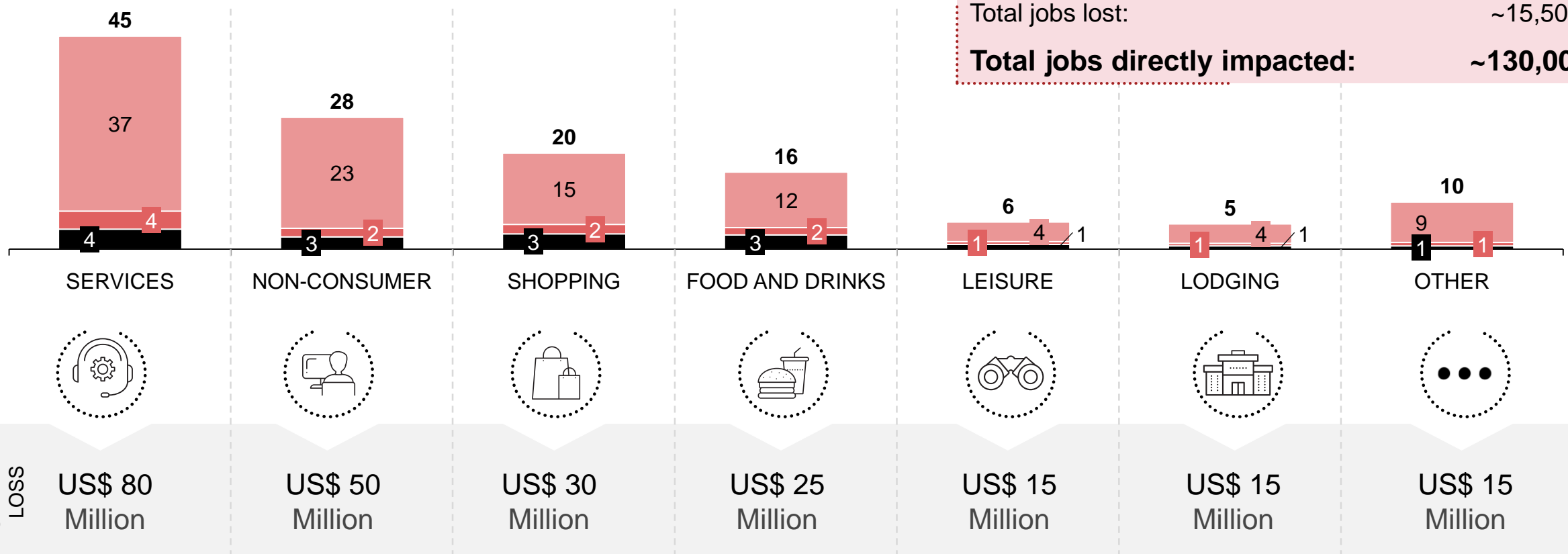


# Social impact – Businesses by sector

(within a 4.1 Km radius of the explosion)

## NUMBER OF JOBS AFFECTED (in 000s)

Jobs on hold for weeks Jobs on hold for months Jobs lost



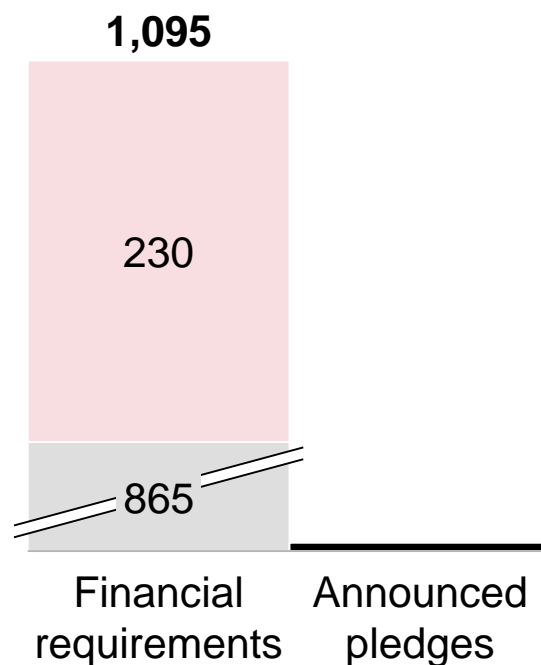
Note: Some examples of businesses under services include airlines, banks, training centers, doctors' clinics. Other section includes art studies, designers, shipping. Micro-businesses with unregistered locations have been excluded from the assessment  
 Source: Expert Interviews, Google Maps data, MySay survey, Strategy& analysis



# Financial requirements vs. announced pledges – Businesses



## FINANCIAL REQUIREMENTS AND ANNOUNCED PLEDGES (US\$ Million)



Estimated Salary Losses Cost of Reconstruction

## SELECTED EXAMPLES OF ANNOUNCED DONATIONS

**US\$ 0.75 million** raised through public crowdfunding campaigns and associations



GlobalGiving



مفردات  
Mophradat

**US\$ 0.3 million** from Facebook Journalism Project and the International Center for Journalists



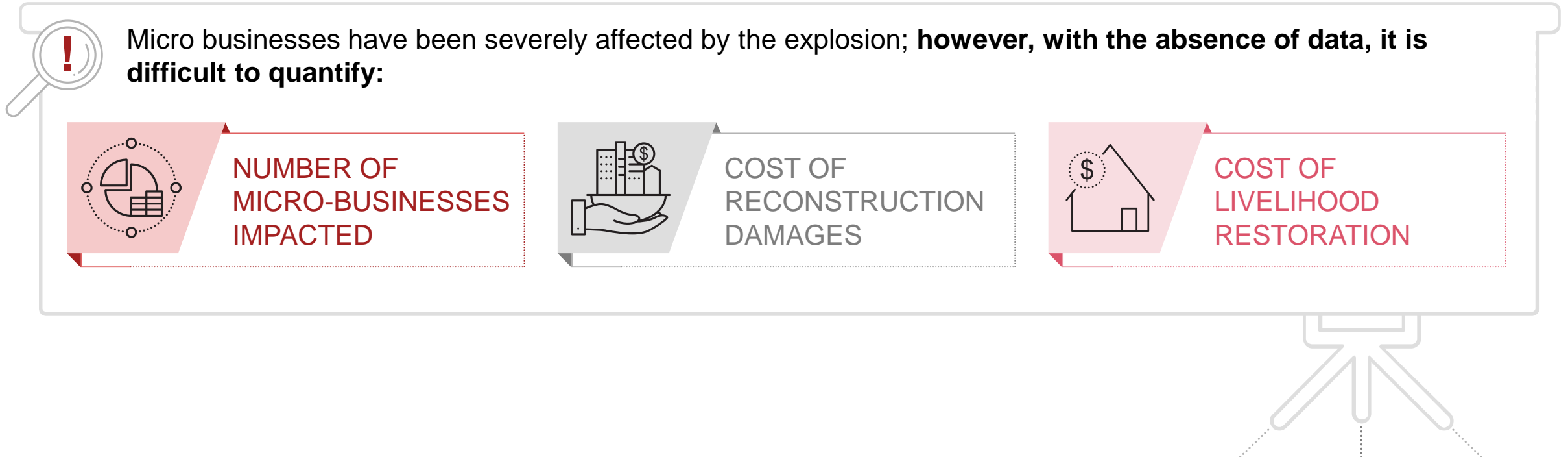
facebook  
Journalism  
Project



International Center  
for Journalists



# Infrastructure and social impact – Micro businesses



- ▶ Out of a sample size of ~1,550 micro-businesses within 5km of the explosion, nearly ~115 have been damaged (11 total destruction, 55 major damages, and 50 minor damages)
- ▶ On average, cost of reconstruction per sampled micro-business ranges between US\$ 1,000 and US\$ 3,000

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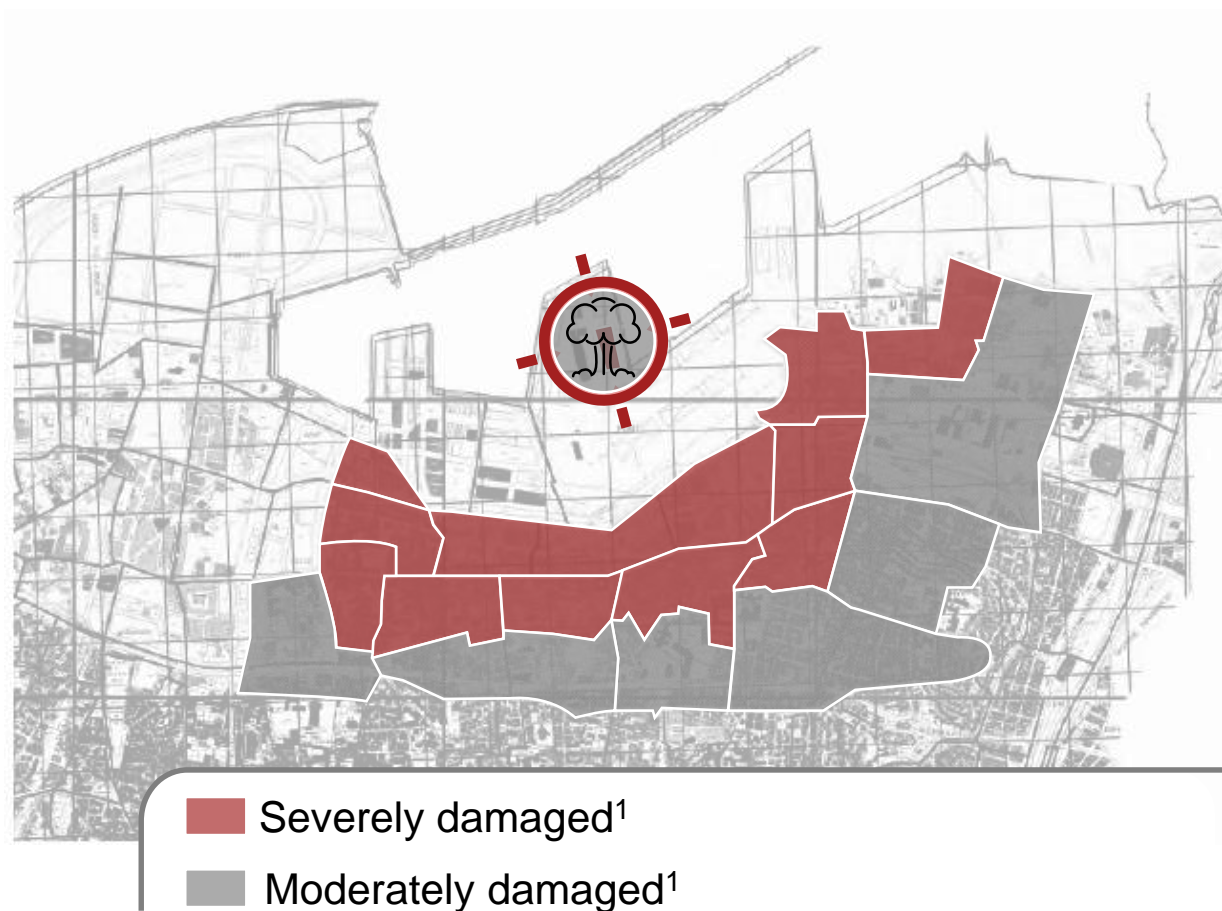
## Impact on culture







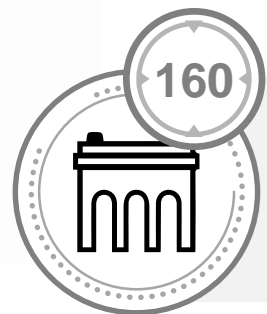
# Damage to cultural heritage



**8 historical areas and cultural fabric have been damaged in:** Mar Mkhayel, Sayfi, Gemmayze, Jeitawi, St Nicolas, Zukak blat, Minat al Hosn and Bachura



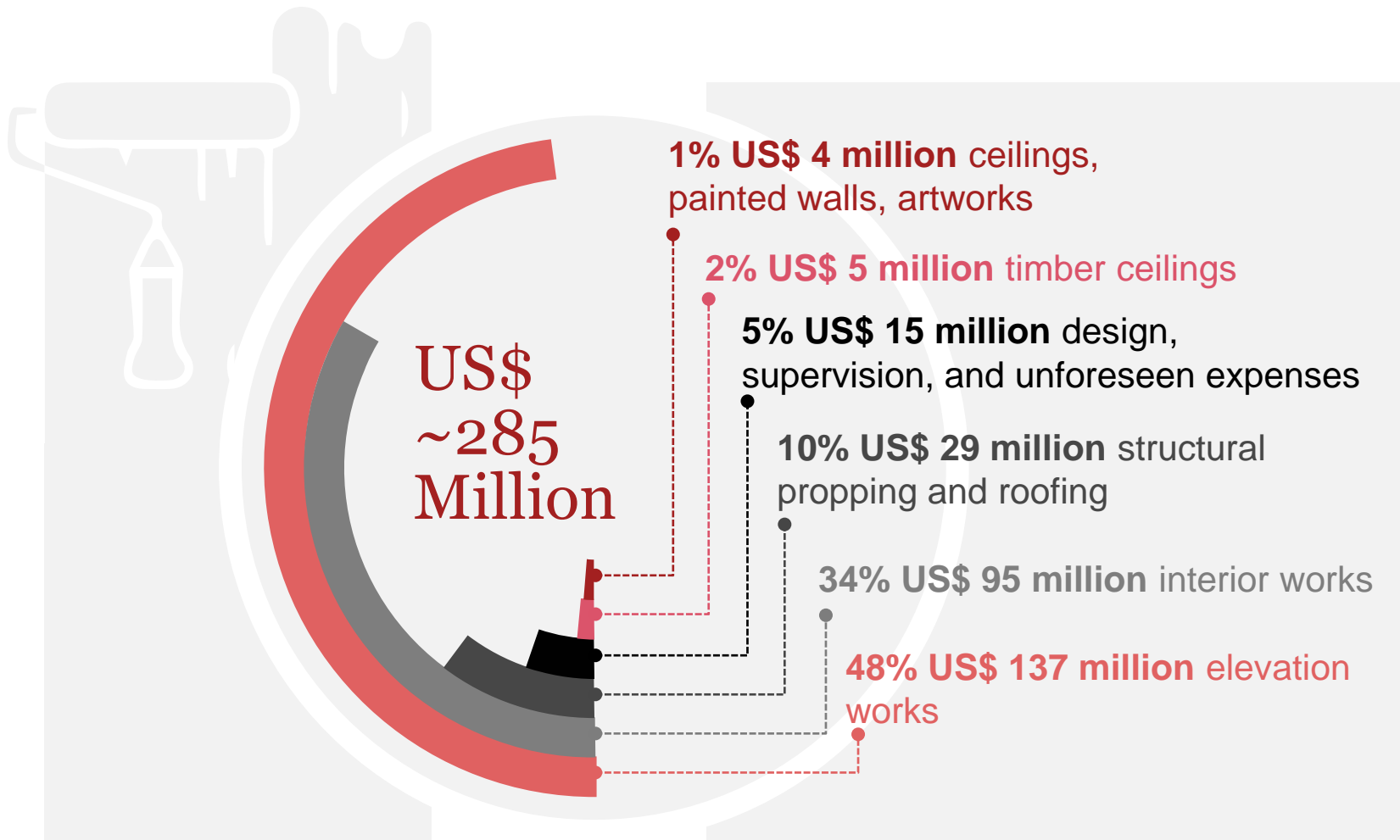
**480 heritage buildings have been damaged:** 85 severely damaged, 370 moderately damaged and 25 slightly damaged



**160 additional buildings with special features** (e.g., pitched roof from the 19th century) **in surrounding areas** (e.g., Medawar) have been also affected



# Cultural heritage funding requirements



- **Funding required covers the reconstruction of 640 affected cultural buildings** (480 heritage buildings and 160 buildings with special features)
- **UNESCO launched the “Li Beirut” initiative** to support the rehabilitation of schools, historic heritage buildings, museums, galleries and the creative economy

# Thank you

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