# Source & Document Download Checklist for 15 000‑word Thesis

**Project:** “Impact of Industry 4.0 on Supply Chain, Value Chain, and Sustainability — A Three‑Company Comparative Case Study”

**Purpose of this sheet:** Help you track every *free* dataset, report, paper, or standard you need to download (or web‑scrape) for each chapter and sub‑chapter.

**Legend**  
**☐** = to‑do   **✓** = downloaded   **↺** = needs update (e.g., 2025 edition)  
**Type** = Dataset | Academic Paper | Industry Report | Company Report | Regulatory/Standard | Webpage/API  
**Folder** = Suggested local storage path (edit as needed)

## Chapter 1 — Introduction

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 1.1 Background | World Economic Forum **Global Supply‑Chain Barometer 2024** | Industry Report | /docs/industry/ | ☐ |
|  | DHL **Logistics Trend Radar 2024** | Industry Report | /docs/industry/ | ☐ |
|  | UNCTAD **Global Trade Outlook 2025** (selected chapters) | Industry Report | /docs/industry/ | ☐ |
| 1.2 Problem Statement | *McKinsey Quarterly* article on ROI of I4.0 (2023) | Industry Article | /docs/industry/ | ☐ |
| 1.3 Research gap | Schrage & Ross (2024) “Digital Hype vs Value Realisation” | Academic Paper | /docs/literature/ | ☐ |
| 1.4 Scope & delimit. | Yin (2023) “Case Study Research” Chap 1 | Academic Book | /docs/method/ | ☐ |

## Chapter 2 — Literature Review

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 2.1 Defining I4.0 | Kagermann et al. (2022) Industry 4.0 white‑paper (updated) | Academic/Std | /docs/literature/ | ☐ |
|  | ISO/TR 63306‑1 (Basics of digital twin) | Standard | /docs/standards/ | ☐ |
| 2.2 I4.0 & SC performance | Tortorella & Cauchick (2023) meta‑analysis | Academic Paper | /docs/literature/ | ☐ |
|  | World Bank **Digital Adoption Index** methodology PDF | Dataset Doc | /data/docs/ | ☐ |
| 2.3 Value‑chain reconfiguration | Porter & Heppelmann (2015) + update papers (2019–24) | Academic Paper | /docs/literature/ | ☐ |
| 2.4 Sustainability impact | Our World in Data **CO₂ & Tech** dataset README | Dataset Doc | /data/docs/ | ☐ |
| 2.5 Adoption challenges | TOE framework seminal paper (Tornatzky & Fleischer 1990) | Academic Book | /docs/literature/ | ☐ |
|  | Dynamic‑Capability review (Teece 2024) | Academic Paper | /docs/literature/ | ☐ |

## Chapter 3 — Methodology

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 3.1 Research design | Yin (2023) “Case Study Research” Chap 2‑4 | Academic Book | /docs/method/ | ☐ |
| 3.2 Case selection | DHL, Unilever, BMW — company profiles (Wikipedia offline copy) | Webpage | /docs/company/ | ☐ |
| 3.3 Data sources | IFR **World Robotics 2024 Highlights (XLS)** | Dataset | /data/ifr/ | ☐ |
|  | Google Patents Public Dataset schema v2025 | Dataset Doc | /data/docs/ | ☐ |
|  | CDP **Open Data Portal user guide** | Dataset Doc | /data/docs/ | ☐ |
| 3.4 Variable ops. | Camelot‑py & Tabula user manuals (PDF) | Tool Doc | /docs/tools/ | ☐ |
| 3.5 Analysis procs. | Statsmodels (0.15) docs PDF | Tool Doc | /docs/tools/ | ☐ |
| 3.6 Ethics & GDPR | EU GDPR full text (EUR‑Lex) | Regulatory | /docs/standards/ | ☐ |

## Chapter 4 — Industry 4.0 Technology Primer

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 4.1 Tech clusters | Acatech **RAMI 4.0 Reference Model** | Standard | /docs/standards/ | ☐ |
|  | OPC UA Foundation “Intro Guide v2024” | Standard | /docs/standards/ | ☐ |
| 4.2 Maturity models | Acatech Industrie 4.0 Maturity Index (2nd ed.) | Industry Report | /docs/industry/ | ☐ |
| 4.3 Reg/standards | IEC‑ISO 30141 (IoT Reference Architecture) | Standard | /docs/standards/ | ☐ |
|  | EU **Industry 5.0** communication (2021) | Policy Doc | /docs/policy/ | ☐ |

## Chapter 5 — Case Study: DHL Group

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 5.1 Company overview | DHL Group **Annual Reports 2015‑2024** (PDF/ZIP) | Company Report | /data/dhl/reports/ | ☐ |
|  | DHL **ESG Statbook 2024** (XLS) | Dataset | /data/dhl/esg/ | ☐ |
| 5.2 Adoption chronology | DHL press releases (Warehouse Robotics 2018‑24) | Webpage Archive | /data/dhl/press/ | ☐ |
| 5.3 Quant metrics | CDP Climate 2024 public response (CSV) | Dataset | /data/dhl/cdp/ | ☐ |
| 5.4 Challenges | Analyst call transcripts 2019‑24 (SeekingAlpha free tier) | Webpage/Text | /data/dhl/transcripts/ | ☐ |

## Chapter 6 — Case Study: Unilever

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 6.1 Overview | Unilever **Annual & Strategic Reports 2015‑2024** | Company Report | /data/unilever/reports/ | ☐ |
| 6.2 Adoption chronology | Unilever press kit “Digital Factory” (2020) | Webpage PDF | /data/unilever/press/ | ☐ |
| 6.3 Quant metrics | Unilever **Eco‑Efficiency data 2024** (CSV) | Dataset | /data/unilever/esg/ | ☐ |
| 6.4 Challenges | Supplier digital‑divide report (Unilever 2023) | Company Report | /docs/company/ | ☐ |

## Chapter 7 — Case Study: BMW Group

| § | Item | Type | Folder | Status |
| --- | --- | --- | --- | --- |
| 7.1 Overview | BMW **Group Reports 2015‑2024** | Company Report | /data/bmw/reports/ | ☐ |
| 7.2 Adoption chronology | BMW Plant Regensburg digital‑twin press kit (2021) | Webpage PDF | /data/bmw/press/ | ☐ |
| 7.3 Quant metrics | BMW CDP Climate 2024 PDF/CSV | Dataset | /data/bmw/cdp/ | ☐ |
|  | IFR *robot‑density Germany‑Auto* table (free) | Dataset | /data/ifr/ | ☐ |
| 7.4 Challenges | Chip shortage impact note (2022 Q2 Presentation) | Company slide | /data/bmw/presentations/ | ☐ |

## Chapter 8 — Cross‑Case Analysis & Discussion

| Item | Type | Folder | Status |
| --- | --- | --- | --- |
| Merged master panel panel\_master.csv (generated) | Derived Dataset | /data/clean/ | ☐ |
| World Bank **WDI** macro controls (API pull JSON) | Dataset | /data/macro/ | ☐ |
| Eurostat **DESI** indicators CSV | Dataset | /data/macro/ | ☐ |

## Chapter 9 — Recommendations

| Item | Type | Folder | Status |
| --- | --- | --- | --- |
| Industry 4.0 ROI benchmarks (PwC 2024) | Industry Report | /docs/industry/ | ☐ |
| Catena‑X adoption guidelines (2025 draft) | Industry Report | /docs/industry/ | ☐ |

## Chapter 10 — Conclusion & Future Work

*No new downloads — synthesise prior chapters.*

## Appendices

| Item | Type | Folder | Status |
| --- | --- | --- | --- |
| Python/R scripts (/code/) | Code | /code/ | ↺ (ongoing) |
| Raw data snapshots (zip each data folder) | Derived | /archive/ | ☐ |
| Ethics approval letter template | Doc | /docs/admin/ | ☐ |

### Suggested Folder Structure

project\_root/  
│ README.md  
├── docs/  
│ ├── literature/  
│ ├── industry/  
│ ├── standards/  
│ ├── policy/  
│ ├── method/  
│ └── tools/  
├── data/  
│ ├── dhl/  
│ ├── unilever/  
│ ├── bmw/  
│ ├── ifr/  
│ ├── macro/  
│ ├── raw/  
│ └── clean/  
├── code/  
└── archive/

**Tip:** Review and tick off this checklist at the start of each writing week. When a new edition of a dataset drops (e.g., World Robotics 2025), mark the previous item ↺ and add the new year beneath it.